

CHAPTER D THE DRAFT FISHERY MANAGEMENT STRATEGY FOR THE ACTIVITY

D1 Introduction to the Lobster Fishery

The Lobster Fishery is a quota managed fishery which targets the eastern rock lobster (*Jasus verreauxi*). It is a specialised fishery which takes what is considered a premier seafood species for local consumption and export.

The Lobster Fishery is the only commercial fishery in NSW that is allowed to take rock lobster species. Small quantities of other species are also retained in the fishery. Lobsters are taken primarily by traps set in ocean waters. Lobsters may be gathered by hand, however, the use of artificial breathing apparatus is prohibited.

The level of participation of fishers in the Lobster Fishery varies. Some fishers operate on a full time basis, whereas for others, lobster fishing is one component of their fishing business and therefore participation in the Lobster Fishery may be on a part-time or seasonal basis. Table D1.1 compares the Lobster Fishery and other commercial fisheries in NSW.

Table D1.1 Overview of the major marine commercial fisheries in NSW – as of March 2003.

(Source: Tanner & Liggins, 2001; Kennelly & McVea, 2001; NSW Department of Primary Industries Fisheries Licensing database- March 2003)

	Lobster	Abalone	Estuary general	Ocean trap and line	Ocean prawn trawl	Ocean fish trawl	Ocean hauling	Estuary prawn trawl
Methods	Trap/pot	Diving (hookah)	Handline Trap Hauling net Mesh/gill net Hand collecting	Demersal trap Spanner crab net Handline Driftline Setline/trotline Dropline Poling Trolling Jigging	Otter trawl net (prawns)	Otter trawl net (fish)	General purpose haul net Garfish haul net Purse seine net	Otter trawl net (prawns)
Main species	Rock lobster (eastern)	Black lip abalone	Yellowfin bream Dusky flathead Sand whiting Longfinned eels Sea mullet Pipis	Snapper Kingfish Morwong Spanner crab Silver trevally	King prawn School prawn Royal red prawn Balmain bugs Octopus	Silver trevally Tiger flathead Redfish Calamari School whiting	Sea mullet Sea garfish Luderick Yellowtail Pilchards	School prawn King prawn
Total reported catch in 2000/01 (t)	103	305	5,103	1,763	3,411	1,171	3,501	582
Est. value in 2000/01 (A\$m)	4.5	15.2	19.6	10	32	4.0	5.9	4.2
No. of authorised fishing businesses in March 2003	166	49	703	528	312	99	323	218
Standard boat length (m)	6-8	6	5	6-8	14	14	4	9
General no. of unlicensed crew	0-1	1	0*	0-1	2	2-3	0**	1

* Unlicensed crew permitted only when undertaking boat based prawn seining

** Unlicensed crew permitted in some forms of boat based hauling

D2 Relevant Legislation and Policy

D2.1 Ecologically sustainable development

Ecologically sustainable development (ESD) was defined under the National Strategy for ESD as “development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends”. It can be achieved through the implementation of the following principles and programs¹⁴:

- precautionary principle – if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- intra-generational equity – the benefits and costs of pursuing ESD strategies should be distributed as evenly as practicable within each generation
- inter-generational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- conservation of biological diversity and ecological integrity – conservation of biological diversity and ecological integrity should be a fundamental consideration
- improved valuation, pricing and incentive mechanisms – such as user pays and the use of incentive structures to promote efficiency in achieving environmental goals.

D2.2 The Fisheries Management Act

The *Fisheries Management Act 1994* (FM Act) seeks to achieve ecologically sustainable development for the fisheries of NSW through the achievement of its stated objectives, which are:

- (1) *To conserve, develop and share the fishery resources of the State for the benefit of present and future generations.*
- (2) *In particular the objects of the Act include:*
 - (a) *to conserve fish stocks and key fish habitats, and*
 - (b) *to conserve threatened species, populations and ecological communities of fish and marine vegetation, and*
 - (c) *to promote ecologically sustainable development, including the conservation of biological diversity,*

and, consistently with those objects:

- (d) *to promote viable commercial fishing and aquaculture industries, and*
- (e) *to promote quality recreational fishing opportunities, and*
- (f) *to appropriately share fisheries resources between the users of those resources, and*

¹⁴ Adapted from section 6 (2) of the *NSW Protection of the Environment Administration Act 1991*.

- (g) *to provide social and economic benefits for the wider community of New South Wales.*

In meeting these objectives, Division 4 of Part 2 of the FM Act establishes a Total Allowable Catch Setting and Review Committee (TAC Committee), to determine a specified total allowable catch for the Lobster Fishery, as required by the lobster share management plan. In determining the Total Allowable Commercial Catch (TACC), the TAC Committee is required to have regard to all relevant scientific, industry, community, social and economic factors impacting on the resource. In addition, section 30 of the FM Act requires:

- (2) *The TAC Committee is also to have regard for:*
- a) *the need to ensure the exploitation of fisheries resources is conducted in a manner that will conserve fish stocks in the long term, and*
 - b) *the impact of fishing activities on all species of fish and aquatic environment, and*
 - c) *the precautionary principle, namely, that if there are threats of serious or irreversible damage to fish stocks, lack of scientific certainty should not be used as a reason for postponing measures to prevent that damage.*

D2.3 Arrangements with the Commonwealth and other States

The extent and scope of the NSW Lobster Fishery and any entitlements issued therein are subject to arrangements made from time to time between the State of NSW and the Commonwealth and other State governments over the management of particular fisheries. Section 135 of the FM Act enables the State of NSW to make arrangements with the Commonwealth under the powers of the Commonwealth *Fisheries Management Act 1991* and section 141A of the FM Act gives the power to enter into agreements with other States. Refer to Part 5 of the FM Act and sections 71-78 of the Commonwealth Act for further information on the power to make (and terminate) arrangements.

Arrangements made under the Act can effectively modify the waters and the fishing methods that fall under the jurisdiction and law of NSW. At the commencement of this management strategy, a series of significant arrangements known as the 'Offshore Constitutional Settlement' (initially made in 1991) are in place that cede jurisdiction of fishing for certain species (including rock lobster) in certain waters beyond 3 nm to the State of NSW.

The Fishery Management Strategy will apply to all waters under NSW jurisdiction following any changes to the arrangements made between NSW and the Commonwealth or other states.

D2.4 The share management plan

The Lobster Fishery is included in Schedule 1 of the FM Act and is a Category 1 share management fishery. The FM Act requires that a share management plan be developed and implemented for all share management fisheries. The Lobster Share Management Plan containing the *Fisheries Management (Share Management Plan) Regulation 2000* (FM (Lobster SMP) Regulation) commenced in February 2000. Following the development of the Fishery Management Strategy for the Lobster Fishery and its environmental assessment, the share management plan will be revised.

The primary role of a share management plan is to provide the legislative framework for the fishery and the rights and responsibilities of shareholders in a share management fishery. The share

management plan provides for a range of fishery specific controls to be formalised into a regulation. Examples of these include the species that may be taken, the areas for taking fish, the use of boats, fishing gear and bait in the fishery.

The management plan for the Lobster Fishery will be amended to bring into operation any modified or new controls in the fishery that are described in this management strategy.

A share management plan must include objectives and performance indicators which, for the Lobster Fishery, will be revised to be consistent with the goals and objectives of this management strategy. A share management plan must also specify at what point a review of the plan is required when a performance indicator is not being met. The review process currently in the management plan will be revised, where necessary, to ensure it complements the review process outlined in this management strategy. This will ensure that there is a robust review and reporting framework for the fishery that is underpinned by the provisions of the management plan. In addition to this capacity for 'performance-based' reviews, the share management plan must also be subject to scheduled periodic review.

D2.5 The NSW Environmental Planning and Assessment Act

Division 5 of Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) requires an environmental impact statement to be prepared for each designated fishing activity described in Schedule 1A of the FM Act, for the purposes of an environmental assessment.

Prior to the environmental impact statement being prepared, a draft fishery management strategy must be prepared under the FM Act. The environmental impact statement assesses the likely impact of implementing the draft FMS on the biophysical, economic and social environments.

Once a management strategy and environmental impact statement has been prepared and subject to a determination by the Minister for Primary Industries (under s.1150(4) of the EP&A Act), the requirement to undertake an environmental assessment for each individual fisher's licence approval or renewal does not apply.

D2.6 The Commonwealth Environment Protection and Biodiversity Conservation Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) makes it an offence for a person to undertake an action that has the potential to significantly impact on a matter of 'national environmental significance' without first obtaining a permit from the Commonwealth Minister for Environment and Heritage. Matters of national environmental significance include: declared World Heritage areas; declared Ramsar wetlands; listed threatened species and ecological communities; listed migratory species; listed marine species; nuclear actions; and the environment of Commonwealth marine areas.

The EPBC Act was amended in January 2002 to incorporate the provisions of the Wildlife Protection Act (which was repealed at the same time). The new Part 13A of the EPBC Act has the effect of removing the previous blanket exemption from export control for marine species. As a result, the export of all marine organisms will come under the controls of the EPBC Act and be subject to ecological sustainability assessments based on guidelines established by the Commonwealth. To give time in which those assessments may be made, the exemption will continue until 1 December 2004. Until then, current arrangements regarding the export of marine species will remain in effect, that is,

the export of most marine fish and the bulk of marine invertebrates will continue to be exempt from export controls under the Act.

If a fishery is not assessed as exempt, it will more than likely be able to continue to supply product for export through an approved wildlife trade operation (section 303FN) under the EPBC Act. These declarations will have conditions attached that will bring the management and operations of the fishery in line with the Commonwealth guidelines.

D2.7 The NSW Marine Parks Act

The NSW Government is using a systematic approach to identify sites for marine protected areas and to prioritise new areas for marine biodiversity conservation in NSW waters. There are three types of marine protected areas in NSW - large multiple-use marine parks, small aquatic reserves and the marine and estuarine components of national parks and nature reserves.

Marine Parks aim to conserve biodiversity by protecting representative samples of the habitats in defined 'bioregions'. Zoning and operational plans are used to guide the protection of conservation values and manage activities that occur within the marine park. Four zones are used in marine parks - sanctuary zones, habitat protection zones, general use zones and special purpose zones.

Consultation occurs with the community prior to the declaration of marine parks. It is also important that the Lobster Management Advisory Committee participates in the consultation over the proposed zoning arrangements in marine protected areas, as such areas can be beneficial to all sectors of the community, including the commercial fishing sector. However, zoning arrangements also have the potential to impact on the operations of lobster fishers.

The *Marine Parks Act 1997* was introduced to provide for the declaration of marine parks in NSW. The objects of the Act are as follows:

- (a) *to conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks*
- (b) *to maintain ecological processes in marine parks*
- (c) *where consistent with the preceding objects:*
 - (i) *to provide for ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks, and*
 - (ii) *to provide opportunities for public appreciation, understanding and enjoyment of marine parks.*

This fishery management strategy has been prepared taking into account, and ensuring consistency with, the objects of the *Marine Parks Act 1997*.

Up to date information on the creation and zoning of marine parks in NSW waters is available on the Marine Parks Authority website: www.mpa.nsw.gov.au

D2.8 Changes to Regulations

Most of the current regulations that apply to the Lobster Fishery appear in the FM (Lobster SMP) Regulation and the *Fisheries Management (General) Regulation 2002* (FM (General) Regulation). These regulations set out the working arrangements that underpin the provisions of the FM Act, and are made pursuant to that Act. For example, an offence appears in the FM Act for

possessing prohibited size fish (section 16), however it is the FM (General) Regulation that prescribes the fish species subject to size limits and what those size limits are (clause 9). The FM Act also prohibits a person who holds shares in a share management fishery from taking fish in the fishery unless the fisher has the minimum shareholding. However, it is the FM (Lobster SMP) Regulation that defines what the minimum shareholding is.

This management strategy includes a number of actions that will impact on the current regulations that apply to the fishery. Examples of these include limiting the species that may be taken in the Lobster Fishery as byproduct to a defined list and allowing the transmission of shares to more than one person in accordance with a will.

If the FM (Lobster SMP) Regulation is inconsistent with any other regulation or fishing closure, the FM (Lobster SMP) Regulation prevails. The only occasions where the FM (Lobster SMP) Regulation does not prevail over another regulation are where the regulation specifically expresses that it is to have effect despite the management plan or where the management plan specifies that other controls apply. An example of when this may occur is where a short-term closure may be introduced in response to an emergency. Therefore, the share management plan is the appropriate tool to be used to implement controls that are specific to the Lobster Fishery.

D2.9 Indigenous Fisheries Strategy

Fishing has been an integral part of the cultural and economic life of Aboriginal communities since they have been in this land. Fishing has been an important source of food, a basis for trade and an important part of cultural and ceremonial life. Traditionally, Aboriginal fishers had responsibility for providing not just for themselves but for family and community. These cultural expectations continue in Aboriginal communities today, particularly in regard to improved access to fisheries resources.

In December 2002, the NSW Indigenous Fisheries Strategy and Implementation Plan (IFS) was released. The IFS seeks to protect and enhance the traditional cultural fishing activities of Aboriginal communities, and ensure Aboriginal involvement in the stewardship of fisheries resources. There are some issues that will be addressed immediately by the IFS and others that will only be resolved after lengthy negotiation involving Aboriginal communities, the broader community, fishing groups and government agencies. The IFS puts in place a process which will ensure discussion and negotiation can continue with progressive resolution of problems and challenges (see NSW Indigenous Fisheries Strategy and Implementation Plan, 2002).

While the relationship between Indigenous fishing and the Lobster Fishery is probably not as direct as with the inland, estuarine or beach-based fisheries, there are linkages with lobsters taken in the Lobster Fishery which spend part of their life cycle in nearshore waters. To better understand the linkages between this and other fishing activities to Indigenous issues, a substantial research study has been proposed through the IFS which seeks, among other things, to identify the species, areas and harvesting techniques of cultural importance to Aboriginal people in NSW.

Furthermore, although Aboriginal participation in the Lobster Fishery is limited, Aboriginal people have aspirations of becoming more involved in commercial fisheries. Such aspirations were identified as recently as June 2003 during an Indigenous Fisheries Strategy workshop. The workshop identified fishing closures, licence transfer rules, market value of entitlements and the gradual decline of Aboriginal commercial fishers in the industry as constraints for Indigenous involvement in commercial fisheries.

D3 Goals, Objectives and Management Responses

This section sets out the long term vision, goals, objectives and management responses for the Lobster Fishery.

Fishery Vision

The vision for the NSW Lobster Fishery is:

A lobster fishery that is ecologically sustainable and profitable and that works to improve the understanding and management of this valuable species through a high standard of research and compliance and pro-active co-operation amongst stakeholders.

D3.1 A model framework

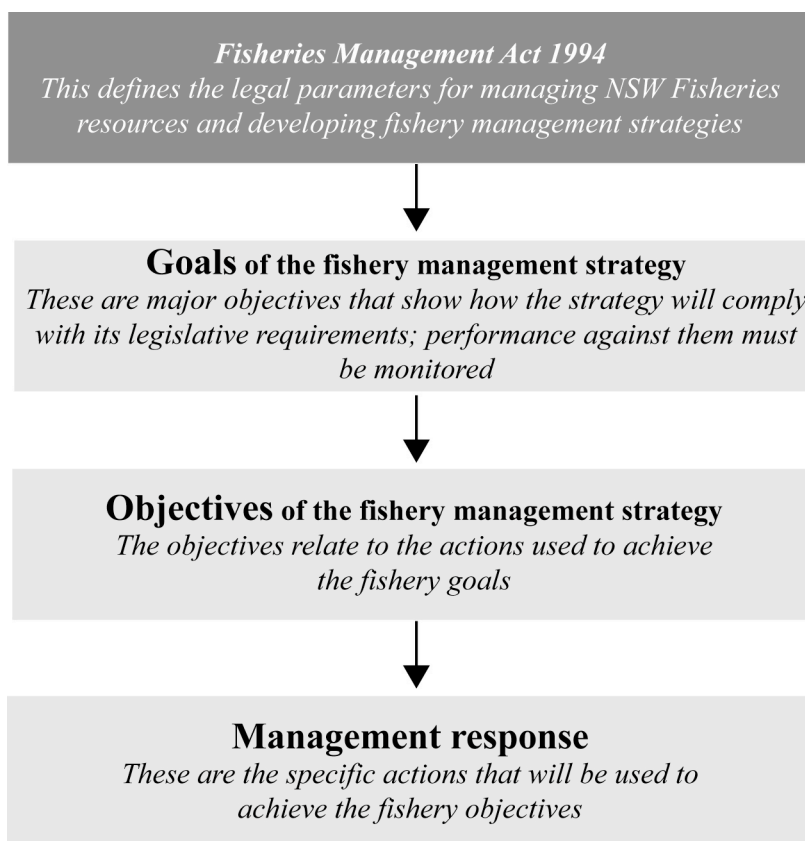


Figure D3.1 A model of the framework for a fishery management strategy.

The link between the goals, objectives and management responses is not as simple as that portrayed in Figure D3.1. The reality is that management responses may assist in achieving more than one goal.

For example, a fishing closure, implemented to reduce conflict between resource users, can also reduce the level of fishing pressure in that area and provide greater protection to habitat and biodiversity. This outcome provides a range of benefits for the fishery over and above reducing conflict (see Figure D3.2).

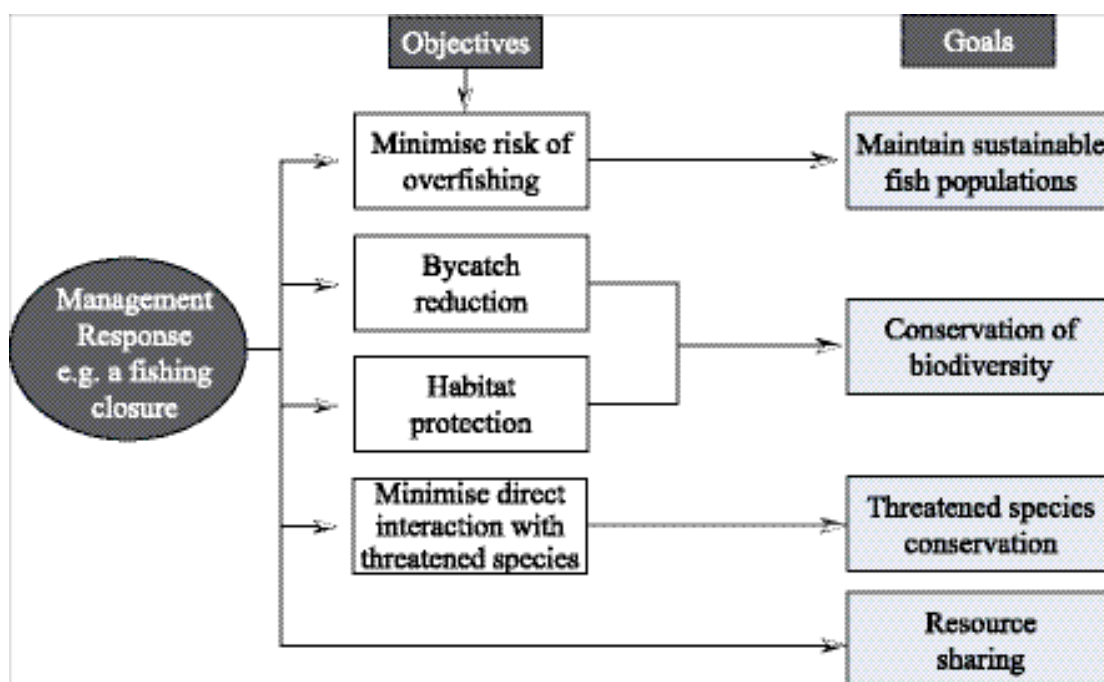


Figure D3.2 An example of how a single management response affects multiple goals and objectives.

This complex structure has been dealt with in the following section by listing each of the management responses once only, under the objective that the response contributes most towards achieving. Management responses with an asterisk (*) indicate new management actions that are to be implemented to address, *inter alia*, the outcomes of the risk assessment completed in Chapter B.

Information relating to the implementation of management responses is provided in a table located in FMS Appendix 1. The implementation table outlines the time periods within which each management response is scheduled to be implemented, as well as information relating to the head of power for implementation and the group who has the lead responsibility for carrying out the actions.

The management responses listed in the following section relate to specific actions that directly contribute to meeting the goals and associated objectives defined for the Lobster Fishery. The overall management regime for the Lobster Fishery includes the management responses (below), the principles and guidelines contained within the harvest strategy (see section D4 of this management strategy), as well as the general requirements of the FM Act and associated regulations.

D3.2 Goals, objectives and management responses

GOAL 1. Manage the Lobster Fishery in a manner that promotes the conservation of biological diversity in the marine environment

Objective 1.1 Mitigate the impact of lobster fishing on ecosystem integrity (species, populations and ecological communities)

1.1 (a) Prohibit commercial lobster fishers from taking species other than species of rock lobster in waters less than 10 m in depth

*Background: Although the initial purpose of this restriction was to reduce conflict between the Ocean Trap and Line Fishery and the Lobster Fishery, it also works to minimise the impact of this fishery on species other than rock lobster. The Lobster Fishery is a highly targeted fishery, focusing on taking eastern rock lobster, *Jasus verreauxi*. Occasionally, other rock lobster species, such as the southern rock lobster, *Jasus edwardsii*, or the tropical rock lobster, *Panulirus spp.* are taken in lobster traps and may be kept by lobster fishers. It is thought that there is minimal catch, other than rock lobster species, taken by the inshore lobster traps, with little mortality of discarded species in the shallower depths. However, there may be more species taken in offshore traps set at considerably greater depths and higher mortality of discarded species once pulled from the bottom. As such, this restriction has been more practical for inshore traps. To assist in reducing conflict, and prevent shifts in targeting in offshore waters, traps set outside 10 m depth contour have been required to discard any species of a “prohibited size class”¹⁵ but may retain other species. A byproduct species list now applies to lobster traps set outside the 10 m depth contour (see management response 2.3a). Continuing to restrict lobster trappers to only taking rock lobster species in depths less than 10m ensures the inshore component of the fishery remains highly targeted and prevents any future shifts in fishing effort away from rock lobsters.*

*1.1 (b) Collect information on the number of traps in the fishery that are lost during fishing operations, and implement appropriate management actions if necessary

Background: The quantity of traps that are lost each season due to various reasons such as, weather, ocean currents, entanglement with gear used in other fisheries, ships breaking head gear etc is unknown. In order to determine the numbers of traps lost, and ultimately whether there is any potential risk of ‘ghost fishing’ from lost lobster traps, the catch reporting system will collect data on the number of traps. This information would be recorded by fishers as losses occur and collected at the end of each trapping season. ‘Ghost fishing’ is the term given when an item of fishing gear is unable to be retrieved and continues to have the ability to capture or entangle animals. The scientific observer program could also be a reliable source of information on trap loss.

¹⁵ “Prohibited size class” of fish is any species with a minimum size limit specified in the *Fisheries Management (General) Regulation 2002*.

*1.1 (c) Develop a code of practice for the Lobster Fishery in consultation with the Lobster MAC

Background: The code of practice for the Lobster Fishery will be developed and periodically reviewed by NSW Department of Primary Industries in consultation with the Lobster MAC. It may address issues such as best practice techniques in disposal of wastes, handling and returning bycatch, use of gear, banning the use of 'callers' (rock lobsters left or placed in a trap when set to attract other rock lobsters), disposal of gear, and operating in the vicinity of other water users and known threatened species, populations and ecological communities.

As the code of practice may be developed for a multitude of purposes it may have both enforceable and voluntary components. The requirement to adhere to relevant parts of the code of practice should be added to the share management plan and compliance with the code will be reported through monitoring compliance levels. An example of conduct rules could be to minimise the growth on buoys (by cleaning) to prevent the inadvertent capture of sea turtles that may get tangled in ropes whilst trying to feed on organisms settled on buoys.

The code of practice will be developed in a way that recognises differences in operations between inshore and offshore and between the northern and southern regions of NSW waters. To ensure the guidelines contained in the code of practice are adhered to (particularly where only voluntary) and that the guidelines remain appropriate for the operation of the fishery, an ongoing review and update by the Lobster MAC will be undertaken.

1.1 (d) Use fishing closures to control fishing activities within the Lobster Fishery

Background: This is an adaptive provision of the strategy to allow the modification of fishing practices from time to time. The response itself does not require any immediate action upon implementation of the management strategy.

Fishing closures may be used to protect key fish habitat and minimise impact on sensitive ocean habitat, avoid direct interactions with marine and terrestrial threatened species, populations or ecological communities, equitably share the resource between lobster fishers and other stakeholders or minimise conflict between resource users.

Fishing closures may be gear specific, so that only the relevant gear type/s are affected by such a closure. Closures are periodically reviewed and modified to take account of changing fishing patterns and/or environmental conditions. Any new fishing closures should take account of areas closed to lobster fishing through marine protected areas.

Fishing closures prohibit fishing over an area either absolutely or conditionally. In this management strategy all uses of the term "fishing closure" has a broad meaning encompassing any legally enforceable prohibition or restriction on fishing activity. This includes: fishing closures made under Division 1, Part 2 of the FM Act; aquatic reserve notifications made under Subdivision 3, Division 2, Part 7 of the FM Act; regulations under section 20 of the FM Act (as amended by the Fisheries Management Amendment Act 2001); regulations under section 220ZE of the FM Act; and regulations under section 205B of the FM Act.

*1.1 (e) Map major lobster fishing grounds (including available information on associated geological features), assess the level of lobster fishing on each ground and define the areas in NSW waters open to lobster fishing (taking account of marine protected areas)

Background: As major lobster fishing grounds are identified, their general location will be entered on maps. The maps will include available information of any relevant geographical

features, and also provide information on the level of lobster fishing that occurs in each area (taking into account seasonal variations, where known). Trap setting details such as latitude (by grid), distance from shore and depth are already reported by fishers on a daily basis and will assist in mapping lobster fishing grounds.

The purpose of such maps is to graphically demonstrate the areas where lobster fishing currently occurs and does not occur, and therefore where ecosystem integrity is sheltered from the impacts of lobster fishing. The maps will also assist in managing cross-fishery interactions with commercial and recreational line fishing activities, ocean trawling activities and fish trapping activities as foreshadowed under Goal 4.

Objective 1.2 Mitigate the impact of lobster fishing activities on non-retained species

- *1.2 (a) Investigate the use of escape gaps in lobster traps set in waters less than 10 m depth to minimise the quantity of undersize lobsters captured, and implement the outcome of the investigation

Background: Escape gaps in lobster traps have been introduced in a number of Australian states to reduce bycatch. The current Lobster Share Management Plan provides for a moratorium on escape gaps in lobster traps used in less than 10 m depth in NSW until a research program evaluates their value and effectiveness.

- 1.2 (b) Implement a periodic observer program to collect information on the quantity and composition of bycatch

Background: Bycatch monitoring has been undertaken as part of the observer survey in the Lobster Fishery since 1999. Byproduct and bycatch information has been collected in conjunction with information on size composition of eastern rock lobsters in commercial catches. The Lobster MAC has supported the addition of the information into the observer survey. Bycatch monitoring is an important requirement under Commonwealth environmental assessment guidelines. An observer program, conducted periodically, has and will assist in examining the direct impact of the Lobster Fishery on bycatch and may assist in identifying whether any new studies are needed to determine the impact of the Lobster Fishery on the general environment.

- 1.2 (c) Using best available knowledge and appropriate technology, modify fishing practices to reduce the impacts of the fishery on non-retained fish, invertebrates, reptiles, mammals and birds (including threatened species populations)

Background: The National Policy on Fisheries Bycatch provides a national framework for coordinating efforts to reduce bycatch. It provides options by which each jurisdiction can manage bycatch according to its situation in a nationally coherent and consistent manner. If the methods of trapping or hand picking rock lobsters are found to be having detrimental impacts on juvenile fish or on threatened species etc., the method's use should be modified so as to avoid or minimise those impacts (an example of this is the investigation of the use of escape panels in traps; management response 1.2a). Any changes to fishing practice that transpire under this management response could be implemented through conditions on the relevant fishing endorsement, through a code of practice or other regulatory control, depending on the nature of the change.

- *1.2 (d) Use best-practice handling techniques, including a restriction on the use of “spikes” to those times when other handling methods would present an unacceptable health and safety risk

Background: Some techniques used to return unwanted animals to the water unduly injure animals. Such techniques are used to hasten the sorting process or to avoid handling dangerous animals. Lobster fishers may occasionally use a “spike” to remove unwanted catch from the boat. A spike generally consists of a piece of timber with a nail through it and is used by piercing incidental catch and flicking it overboard. Under this management strategy the use of spikes on fish to be discarded will be restricted to only those species that can harm fishers or crew and for which no alternative handling technique is available (a list of harmful species will be developed in consultation with the Lobster MAC).

Fishers should adopt alternative techniques for returning animals to the water which avoid injuring those animals. In 1999, Oceanwatch (a non-profit company sponsored by the NSW seafood industry) produced a publication outlining bycatch solutions for non-trawl fisheries proposing better handling techniques. This management response assists in minimising the impact of the Lobster Fishery on bycatch (i.e. discarded) species, by reducing the possible mortality of discarded species arising from undue harm in handling techniques.

Objective 1.3 Mitigate the impact of activities within the fishery on marine and terrestrial habitats and their associated biota

- 1.3 (a) Modify the use of lobster fishing methods in areas where their use is identified as having a detrimental impact on marine and terrestrial habitat or associated biota

Background: While the impact of the Lobster Fishery on habitat is thought to be low, a management response is needed to reduce any unacceptable impacts should they be identified or occur in the future. Management response 1.2c is closely related to this response, focusing on minimising the impact of the fishery on bycatch species (including threatened species populations). Where the methods of hand picking or trapping rock lobsters are known to be having detrimental impacts on habitat, the method’s use should be modified so as to avoid or minimise those impacts. These impacts may be identified through research programs in this management strategy or through consultation with the Lobster MAC or ministerial advisory councils.

Objective 1.4 Prevent the introduction and translocation of marine pests and diseases by lobster fishing activities

- 1.4 (a) Implement, in consultation with the Lobster MAC, measures required in accordance with any marine pest or disease management plans

Background: The Minister for Primary Industries or other authorities may alter management arrangements from time to time to minimise or mitigate the impact of marine pests and diseases. Recent examples of outbreaks were the suspected incidence of white spot disease in NSW prawns and the mass mortality of pilchards across southern Australia, during which a system of closures and monitoring was implemented in NSW.

At times it may be a requirement for the commercial fishing industry to respond to outbreaks by modifying fishing practices. Proposed measures will be discussed with the Lobster MAC prior to implementation.

GOAL 2. Maintain the stock of eastern rock lobster at a biologically sustainable level and manage byproduct taken in the Lobster Fishery

Objective 2.1 Maintain the spawning biomass of eastern rock lobster at or above 25 percent of pre-exploitation level

2.1 (a) The TAC Committee will determine the maximum weight of eastern rock lobster to be taken by the commercial Lobster Fishery

Background: The Lobster Fishery is primarily managed by a quota management system as a means of controlling the output (catch) from the fishery. A total allowable commercial catch (TACC) of eastern rock lobster is set each year by the statutory and independent Total Allowable Catch Setting and Review Committee (TAC Committee). The TAC Committee was established under the FM Act and is to give effect to the objectives of the FM Act when determining any total allowable catches. In determining the TACC, the TAC Committee is required to have regard to all relevant scientific, industry community, social and economic factors impacting on the fishery. The TAC Committee takes into consideration stock assessment information, the recorded commercial catch of the previous season, estimates of recreational catch and estimates of illegal or black market catches. Prior to setting the TACC, the TAC Committee also considers advice provided by the relevant industry bodies, NSW Department of Primary Industries (fisheries management, research and compliance), and other stakeholders such as environmental groups and the general community. Over recent years the TACC has been set at levels believed to assist in increasing the biomass of the eastern rock lobster stock.

2.1 (b) Conduct an annual assessment of the eastern rock lobster resource including a review of the exploitation status of the stock and a risk assessment of alternative harvest strategies

Background: Quantitative models of the dynamics of the population of eastern rock lobsters and the impacts of commercial and recreational fishing provide the basis for assessing exploitation status. Based on these models, a risk assessment that forecasts the effects of alternative TACCs on the lobster population provides a basis for the selection of a TACC by the TAC Committee. The assessment of resource status (currently done annually) also provides a comprehensive review of all aspects of each of the monitoring programs currently undertaken.

2.1 (c) Develop models of the eastern rock lobster population and fishery

Background: Quantitative models of the dynamics of the population of eastern rock lobsters and the impacts of commercial and recreational fishing provide the basis for assessing exploitation status. "Biomass dynamic" and "length-structured" models have been developed and are currently used to assess exploitation status in annual resource assessments. The latter model is calibrated using data that describes catch, catch-per-unit-effort, size-structure of the catch, information about the biology of the eastern rock lobster (e.g. rates of growth, size at maturity) and information about the commercial fishery (e.g. size-selectivity of traps). The process of modifying and improving the length-structured model is ongoing.

2.1 (d) Monitor catch and effort for eastern rock lobster in the commercial Lobster Fishery

Background: Information on the landed catch is collected by both daily logs and monthly catch returns submitted by endorsed fishers in the Lobster Fishery. The daily log sheets are used to collect information on the number, estimated weights and location of eastern rock lobsters taken daily. The monthly catch returns provide a validated weight of catch taken each month. The information gained through monitoring catch and effort in the Lobster Fishery is essential for the stock assessment process and for managing the fishery on a sustainable basis. See section 4.3 of this management strategy for further information on reporting requirements in the Lobster Fishery.

2.1 (e) Monitor the length and sex composition of commercial landings of eastern rock lobsters

Background: Whilst the quantity of lobsters removed from the population each year is monitored through the logbook program (i.e. management response 2.1d), to measure the quantity harvested from each size-class in the population requires that the size-distribution of the catch is also monitored. An observer survey stratified over spatial components (based on latitude and depth) of the fishery facilitates monitoring of changes in the size-structure of the catch from these components of the fishery over time. Such information is a basic requirement for the length-structured model of the stock. Annual observer surveys provided such information for the fishery between 1999-00 and 2001-02 and will be repeated periodically in the future.

2.1 (f) Monitor recruitment to the population of eastern rock lobsters

Background: A fishery-independent survey of the settlement of pueruli along the coast of NSW has been done each year since 1995-96. This survey provides a measure of changes in recruitment to the population of eastern rock lobsters over time. Moreover, if a relationship between the abundance of pueruli and subsequent recruitment to the fishery is established, this survey provides a means of forecasting (2-3 years in advance) abundance of lobsters entering the fishery. This would reduce significantly the uncertainty associated with recruitment in the forecasting/risk assessment component of the length-structured model. The risk assessment of alternative harvest strategies (e.g. different TACCs) using the length-structured model provides the basis for the determination of the TACC for the fishery each year.

2.1 (g) Monitor abundance and size-composition of the spawning stock of eastern rock lobsters

Background: It cannot be assumed that monitoring changes in the catch and catch rates of lobsters in the spawning stock using fishery-dependent data (catch and effort information and observer survey data) provides a robust measure of changes in the abundance of spawning lobsters over time. If practices in the commercial fishery (e.g. size-selective targeting in space or time, size-selectivity of traps) change over time then indices of the abundance of mature lobsters based on such fishery-dependent data will be biased. A fishery-independent survey provides a robust means to monitor changes in the abundance of mature lobsters over time. A fishery-independent survey of the abundance of the mature stock has operated since 1998-99.

Objective 2.2 Provide protection to components of the lobster stock to enhance biological sustainability

- *2.2 (a) Provide enhanced protection to the eastern rock lobster spawning stock and in particular reduce the maximum size limit from 200 mm to 180 mm carapace length

Background: The environmental assessment assigned an intermediate risk level to the eastern rock lobster stock and highlighted a possibility of recruitment overfishing, due mainly to the current high level of pressure on the spawning stock. In setting the TAC for 2004-05, the TAC Committee noted that urgent action is required to both protect and rebuild the spawning stock. Measures to enhance the protection of the spawning stock may include changes to the maximum and/or minimum legal size limits for eastern rock lobster, changes in fishing areas or seasons and setting a lower TAC. Consultation has occurred with lobster shareholders (including a discussion paper recently circulated) and the Lobster MAC regarding measures to enhance protection of the spawning stock.

- 2.2 (b) Prohibit taking eastern rock lobster below the minimum size limit or above the maximum size limit

Background: The current minimum size limit of eastern rock lobster, set out in the FM (General) Regulation, is 104 mm carapace length. Setting the minimum length for eastern rock lobster prevents targeting of smaller juvenile stocks. The maximum legal length for a retainable eastern rock lobster will change from 200 mm to 180 mm carapace length in accordance with management response 2.2a. The maximum size limit facilitates the protection of large mature lobsters that contribute more strongly to egg production and are of lesser value (\$ per kg) in the market. Setting the right minimum and maximum size limits for eastern rock lobster will assist in preventing overfishing and providing sufficient levels of exploitable stocks in the longer term.

- 2.2 (c) Prohibit taking all female lobsters carrying ova

Background: The majority of eastern rock lobster spawning occurs in waters north of Port Stephens in September to January (spring through to summer) in depths around 50 m, during which time females carry eggs under their abdomen. The eggs are released in early to mid summer.

A prohibition on the taking of females carrying ova (externally underneath their pleopods) provides immediate protection to the fertilized eggs (of the order of 1 million per animal) being carried, thereby maximising egg production.

Objective 2.3 Effectively manage byproduct taken by the fishery

- *2.3 (a) Limit lobster fishers to a defined list of species that can be retained as byproduct in the Lobster Fishery when working in waters deeper than 10 m

Background: This response applies to all lobster trapping operations unless the endorsed lobster fisher also holds a demersal fish trap endorsement in the Ocean Trap and Line Fishery. Lobster fishers holding a demersal fish trap endorsement may also retain species permitted to be taken in the Ocean Trap and Line Fishery from waters deeper than 10 m. Although byproduct species taken in the Lobster Fishery (other than other rock lobster species) have not

been recorded on lobster catch returns in the past, it is considered that there are few species taken as byproduct in the Lobster Fishery (Liggins et al., In prep.). Restricting fishers endorsed in the fishery to a defined list of byproduct species aims to prevent any future shift in fishing effort to target species other than eastern rock lobster. The list, contained in section 4.2 of this management strategy, will be reviewed within two years to ensure the species on the list are still appropriate.

- *2.3 (b) Develop a system, in consultation with the Lobster MAC, to provide for appropriate modifications to the list of byproduct species for the Lobster Fishery

Background: With the commencement of this management strategy the Lobster Fishery will have a defined list of byproduct species that may be taken in Lobster fishers operating in waters deeper than 10 m. A system needs to be developed to provide an appropriate mechanism for species to be added to, or removed from, the byproduct list taking into account the impacts of that change on the environment and other resource users.

- 2.3 (c) Monitor, record and differentiate catches of species of rock lobster on log sheets in addition to eastern rock lobster

*Background: This information has been recorded by lobster fishers on daily log sheets since 1998/99. Records show that less than 1% of rock lobsters taken in the Lobster Fishery are species other than the target species *Jasus verreauxi*. It is important to monitor catches of other rock lobster species as they are targeted by commercial fisheries in other states and do not form part of the Total Allowable Commercial Catch (TACC) in NSW. This information can contribute to any future stock assessments and may assist in monitoring abundance of other rock lobster species in NSW waters.*

- *2.3 (d) Modify the reporting system to record and monitor landings of all other species taken in lobster traps

Background: There has been no clear procedure for lobster fishers to record species landed in the fishery other than rock lobsters. Some fishers, who are also endorsed in the Ocean Trap and Line Fishery, enter their other catch from lobster traps on their ocean trap and line catch returns. However, the catch taken out of lobster traps is not part of the Ocean Trap and Line Fishery and needs to be recorded separately. This management response will enable monitoring of catches of all species taken by lobster traps. The information can contribute to stock assessments of byproduct species and the monitoring of any shifts in fishing effort to byproduct species within the Lobster Fishery.

- *2.3 (e) Utilise onboard observers to collect additional biological information, to facilitate estimation of size at maturity and fecundity/brood size data, for the elasmobranch species (i.e. wobbegong sharks, blind sharks, cat sharks and swell sharks) taken by the fishery

A public consultation draft of an Australian National Plan of Action for the Conservation and Management of Sharks was released in July 2002. This document sets out the need for concerted national action to reduce the risks of commercial and recreational fishing to the variety of shark species found in Australian waters. Two of the primary recommendations in the plan involve improving the identification of captured sharks, thereby increasing the accuracy of reported catch data, and undertaking targeted research on shark species.

In addition to the size and sex composition data collected for elasmobranch species, it is necessary that data be obtained on the important biological characteristics governing maturation and fecundity for those elasmobranch species which are taken by lobster trapping. The generally slow growth rates and low reproductive rates of elasmobranchs make them particularly susceptible to overfishing. The paucity of relevant biological data for the main species taken in the Lobster Fishery needs to be addressed in order to determine if any of these species require more targeted management actions to prevent overfishing of the stocks. This work is best done by onboard observers as shark species are generally cleaned aboard the catching vessel prior to landing.

Objective 2.4 Promote the recovery of overfished species

*2.4 (a) Where the Lobster Fishery is a harvester of an overfished species, contribute to the development of any recovery program for the species, and adopt any measures required by a recovery program

There are two recognised types of overfishing, recruitment overfishing and growth overfishing. Recruitment overfishing occurs when insufficient spawning stock remains to ensure adequate recruitment of young fish into the fishery. Recruitment overfishing requires urgent attention, usually in the form of fishery closures to allow the mature population to rebuild. Growth overfishing occurs when fish are harvested at a size much smaller than the optimum size for maximising biological and economic yield. Addressing this problem generally requires an adjustment of the selectivity of fishing gear used to take that species, and the setting or adjustment of a minimum legal size for the species

For example, the Ocean Trawl Fishery is developing a recovery program for silver trevally, as it is the major harvester of this growth overfished species. As lobster fishers take silver trevally as a byproduct species, the Lobster Fishery will need to comply with the provisions contained within that recovery program.

GOAL 3. Promote the conservation of threatened species, populations and ecological communities and protected species likely to be impacted by the operation of the Lobster Fishery

Objective 3.1 Identify, and minimise or eliminate, any impact of lobster fishing activities on threatened species, populations and ecological communities (including mammals, birds, reptiles, fish, invertebrates and vegetation) and protected species, and where possible promote their recovery

*3.1 (a) Modify the mandatory reporting arrangements, in consultation with the Lobster MAC, to enable the collection of information on interactions with or sightings of threatened or protected marine species and interactions with other threatened or protected species

Background: The 'Guidelines for the ecologically sustainable management of fisheries' approved by the Commonwealth under the Environment Protection and Biodiversity Conservation Act 1999 include a requirement to collect information on interactions with endangered, threatened or protected species and threatened ecological communities. These species, populations and communities are listed in the FM Act, Threatened Species Conservation Act 1995 and the EPBC Act. Information on interactions with threatened and protected species in the Lobster Fishery will come from this modified reporting and the scientific observer survey and any other verifiable interactions with threatened or protected species.

It is important that fishers are able to distinguish threatened and protected species from similar species in order to correctly identify and where possible avoid interactions with them. An example of this type of information is the grey nurse shark identification material. For this purpose, information will be disseminated to endorsement holders to assist them in identifying and avoiding protected and threatened species.

3.1 (b) Implement, in consultation with the Lobster MAC, the provisions of any relevant threatened species recovery plan, threat abatement plan, or other similar management arrangements designed to protect critical habitat areas

Background: Once a species, population or ecological community has been listed as threatened, a recovery plan must be developed. These plans are designed to return the species, population or ecological community to a point where its survival in nature is assured. The recovery plans referred to in this response could include those being developed under the Fisheries Management Act 1994, the Threatened Species Conservation Act 1995 or other State or Commonwealth legislation.

Additionally, threatened species legislation requires the development of a threat abatement plan for any listed key threatening processes. A threat abatement plan outlines actions to eliminate or manage the key threatening process, and identifies the authorities responsible for carrying out those actions.

This response recognises that the statutory provisions of a threatened species recovery plan or threat abatement plan, or an arrangement necessary to protect a critical habitat area, must be implemented and given precedence over the provisions of this management strategy.

- *3.1 (c) Using the code of practice, promote the use of fishing techniques that avoid the capture of, or interaction with, threatened species, protected species and fish protected from commercial fishing

Background: There are a range of measures that could be included in the code of practice that may minimise the interactions or impacts on threatened species, protected species and fish protected from commercial fishing such as using different bait to avoid capture of certain species, and promoting best practice handling techniques. It is already unlawful for any person to retain a threatened or protected species and as such, the focus of this response is to encourage fishers to avoid interactions with these species.

GOAL 4. Appropriately share the resource and carry out fishing in a manner that minimises negative social impacts

Objective 4.1 Provide an appropriate allocation of the rock lobster resource between harvesting sectors, acknowledging the need of seafood consumers to access fresh quality product

- *4.1 (a) Refine estimates of total catches of eastern rock lobster, taking into account commercial catch and estimates of recreational, Indigenous and illegal catches, for use in stock assessment models and reports to the TAC Committee

Background: When setting the TACC for the commercial Lobster Fishery, the TAC Committee currently takes into account estimates of total catches including illegal and recreational (including indigenous) catches. The accuracy of estimates of non-commercial catch will impact directly on the robustness of stock assessment information. Illegal catch includes any unreported commercial catch, lobsters taken in excess of the bag limit or sold by unlicensed fishers and catches of prohibited size or berried lobsters. Information on illegal catches will come from surveys of commercial fishers and fish receivers, and from the results of compliance actions. Information on the recreational and Indigenous catch will be drawn from the results of the National Recreational and Indigenous Fishing Survey, related studies to be undertaken in NSW and information obtained from other sources such as charter boat logbooks. The TAC Committee and the environmental impact assessment for this fishery have highlighted the importance of obtaining accurate estimates of recreational rock lobster catch. This issue will be assessed in the preparation of the Fishery Management Strategy and associated environmental assessment for the NSW Recreational Fishery.

Further work would be needed to define specific targets for appropriate sharing of the resource and what might be considered negative social impacts. A performance indicator has been developed (see section D5) which will trigger a review if the relative catch (or estimated catch) between the commercial and non-commercial sectors shifts by 25% or more over a five year period. It should also be noted that the range of restrictions on the Lobster Fishery, in particular the TACC setting process, limits the commercial catch and makes eastern rock lobsters available to other sectors.

Objective 4.2 Provide for fair and equitable sharing of the eastern rock lobster resource within the Lobster Fishery

- 4.2 (a) Limit the maximum shareholding in the fishery to 350 shares

Background: The implementation of share trading schemes can lead to reducing the control of access rights to a small number of businesses, if not limited. Following concern expressed by industry over the issue, a maximum shareholding limit was set and implemented through the FM (Lobster SMP) Regulation.

*4.2 (b) Provide for the transmission of a shareholding to more than one person

Background: Share transmission occurs when a shareholding is passed on in accordance with a will. The FM (Lobster SMP) Regulation only allows such transactions if all shares in a shareholding are transmitted to one person. This amendment to the legislation will enhance social equity by allowing a shareholding to be allocated to more than one beneficiary.

Objective 4.3 Provide for fair and equitable management of the interactions between the Lobster Fishery and other commercial fisheries (NSW, interstate and Commonwealth)

4.3 (a) Use cross-fishery consultation to discuss and manage issues relating to, but not limited to, the multiple use of specific fishing grounds, collaborative research, fair and equitable access to stocks, complementary management arrangements and other interactions between fishing sectors

Background: Although rock lobsters cannot legally be taken by other commercial fisheries in NSW, cross fishery consultation allows issues relating to commonly shared fish stocks to be addressed (e.g. some finfish species may be taken in both the Lobster Fishery as byproduct and the Ocean Trap and Line Fishery as target species). Cross fishery consultation also assists in the resolution of issues that arise from the physical interaction of operations between multiple NSW commercial fisheries. For example, the interaction of NSW ocean trawling operations and the Commonwealth East Coast Tuna and Billfish Fishery with lobster trapping operations and potential damage or loss of gear that may result from these fisheries working in the same fishing grounds.

*4.3 (b) Require the use of fish escape panels in lobster traps if it becomes evident that lobster traps are being used to target finfish

Background: The fishery management strategy for the Ocean Trap and Line Fishery requires the use of escape panels in fish traps. Given the similarities in dimensions between lobster traps and fish traps, there is potential for dual endorsed fishers to circumvent the requirement to use escape panels in fish traps, by using lobster traps to target finfish. Observer surveys indicate that the normal use of lobster traps results in a relatively low amount of byproduct and bycatch, due to the area of their operation. Accordingly, fish escape panels will not be mandatory in lobster traps used by dual licensed operators unless it becomes apparent, through the performance indicator monitoring finfish landings in the Lobster Fishery (see section D5 of this management strategy) or otherwise, that the ocean trap and line management arrangements are being circumvented. If required, the escape panels introduced into lobster traps will have the specifications of those required in the Ocean Trap and Line Fishery. The requirement may be applied on a fishery-wide, regional or individual fisher level.

4.3 (c) NSW Department of Primary Industries will work cooperatively with staff from other jurisdictions (e.g. Commonwealth, Victoria, Tasmania, Queensland) regarding management, research and compliance arrangements for rock lobster species

Background: Eastern rock lobster and southern rock lobster are found in Victorian and Tasmanian waters as well as NSW waters. Painted rock lobster is found in NSW waters and across northern Australia, including Queensland waters. Where possible, it is important to have consistent or complementary management arrangements for shared stocks between jurisdictions. For example initiatives such as stock assessment, complementary size limits, and

monitoring programs for shared species. Monitoring the commercial catch of eastern rock lobster, southern rock lobster and painted rock lobster as well as the management arrangements relating to these species in other states will assist in consistent management of the stock.

Objective 4.4 Identify and mitigate negative impacts of the Lobster Fishery on Aboriginal or other cultural heritage

4.4 (a) Manage the Lobster Fishery in a manner consistent with the Indigenous Fisheries Strategy and Implementation Plan

Background: The Indigenous Fisheries Strategy (IFS) was released during December 2002. The IFS puts in place a process that will ensure discussion and negotiation to resolve problems and challenges in relation to indigenous involvement in the fisheries of NSW including the issues raised in the Indigenous heritage assessment component of this EIS. A funding application is being developed to conduct a significant research program that would determine the fish species, areas and/or harvest techniques of cultural importance to Aboriginal people so that any interactions with the Lobster Fishery may be identified. Such a program may identify species that are taken in ocean based commercial fisheries but spend part of their life cycle within estuaries or near-shore waters where cultural fishing practices are more common.

4.4 (b) Modify the activity, where relevant, in response to new information about areas or objects of cultural significance in order to minimise the risk from lobster fishing activities

Background: Fishers in the Lobster Fishery must respond appropriately to new information about items or locations of Aboriginal and other cultural significance (e.g. a recently uncovered shipwreck) and this management response seeks to reinforce that intention.

Objective 4.5 Promote harmony between the commercial fishery and other resource users, including recreational fishers, Indigenous fishers and local communities, through fair and equitable sharing of the resource

4.5 (a) In consultation with the Lobster MAC, identify areas of high interaction between the Lobster Fishery and other resource users and respond appropriately to resolve any conflicts

Background: It is important, when promoting harmony amongst all resource users, to negotiate with industry and the community to determine the most appropriate use of commercial fishing gear in areas where more than one resource user group is apparent. Issues over access to fishery resources or locations typically arise in areas where there is high interaction between multiple user groups. Commercial fishing operations may interact with other water-based activities such as recreational boating, diving, fishing, surfing or even swimming. For example the FM (Lobster SMP) Regulation was recently amended, following negotiation between recreational users and the commercial industry, to allow the use of alternative trap marking methods in coastal waters with high recreational use. Public safety is paramount and the share management plan allows for the registration of waters within which there is a requirement to mark lobster traps with either a plastic tag or concrete block (at the base of the trap) to avoid potential for other water users to become entangled in the head gear. The maps developed under management response 1.1e will be important for the effective implementation of this management response.

GOAL 5. Promote a viable commercial fishery, consistent with ecological sustainability

Objective 5.1 Promote the long term economic viability of lobster fishing and assess the economic benefits of the fishery to the community

- *5.1 (a) Investigate the application of minimum shareholding requirements for all shareholders to be eligible for an endorsement, in order to promote positive returns at the fishery level, and implement the outcome of the investigation

Background: New entrants to the Lobster Fishery (i.e. those who have entered the fishery since the commencement of the share management plan in 2000) must hold a minimum of 55 shares before an endorsement will be issued with respect to that shareholding. When the Lobster Fishery became a share management fishery, it was anticipated that small shareholders may take the opportunity to retire from the Lobster Fishery and allow those fishers who rely more heavily on lobster fishing to expand their businesses. However, share trading has not encouraged sufficient restructuring in the fishery, with a considerable number of smaller shareholders holding on to, and fishing, their shares.

In addition, as the Lobster Fishery is managed through a system of individual transferable quotas, it is expected that quota would move to those fishers who can harvest the resource at the lowest cost, and for the greatest return, resulting in a positive net return for the fishery as a whole. Current data suggest that average net returns across the Lobster Fishery are negative.

As fishing businesses holding a small number of lobster shares may be less economically viable in the long term, setting an appropriate minimum shareholding applicable to all shareholders may provide a means of improving average net returns at the fishery level.

- 5.1 (b) Limit the quantity of quota that shareholders can acquire through quota transfer during each fishing period

Background: The existing Lobster Share Management Plan limits the amount of quota able to be acquired through quota transfer to twice (200%) the amount of the his or her initial quota for each fishing period. The intention is to encourage smaller shareholders to purchase shares rather than buying large quantities of quota without the longer term commitment to the fishery, thereby promoting restructure of the fishery. During recent consultations, the Lobster MAC has supported a reduction in this limit from 200% to 100% of the amount of initial quota held by a shareholder for the fishing period.

- 5.1 (c) Allow for the storage of live eastern rock lobsters

Background: Clause 42 of the Lobster SMP Regulation provides for the storage of live rock lobsters in holding pens, provided the conditions outlined in the regulation are adhered to. The use of storage facilities allows for lobster fishers to regulate the distribution of their rock lobsters to markets and maximise their economic return. See section 4.1 of this management strategy for further information on storage of live lobsters.

- 5.1 (d) Identify and promote harvest and post-harvest practices that ensure the best return in dollars per kilogram for product taken in the fishery, within the context of the fishing regulatory controls that apply to harvesting

Background: The economic viability of the fishery is in part dependent on obtaining the best return possible for the product landed. Opportunities are likely to arise where the economic return to the fishery could be increased by improving handling practices or value adding (e.g. allowing for the storage of live eastern rock lobsters), and it is in the interests of the fishery to widely promote such practices. Good post-harvest practices can be promoted through the Code of Practice that is prepared for the fishery.

- *5.1 (e) Refine the performance indicator for monitoring trends in the commercial viability of typical fishing businesses within each designated commercial fishing activity, so as to be based on net returns

Background: This management strategy includes a performance indicator for monitoring economic viability of fishing businesses holding lobster shares, using gross returns. However, net return rather than gross return is a better indicator of economic performance as it accounts for changes in fishers' costs over time. An understanding of the average net return across fishing businesses requires data on seafood prices, as well as the cost of inputs such as fishing gear, fuel and bait.

Information on the average annual price per kilogram of eastern rock lobster is obtained through Sydney Fish Market records. Prices have been monitored since the 1948-49 fishing period and are indexed to the Consumer Price Index (CPI) using the CPI value for the September quarter each year.

Data on the costs of going fishing are not routinely collected. A process will be developed in consultation with the MAC to determine how best to collect these data, taking into account confidentiality/privacy concerns and the cost-effectiveness of the data collection methods. Once this process is developed, the performance indicator can be modified accordingly.

Data on net returns are also useful for setting the TACC. A TACC that maximises net returns to lobster fishers ensures that the lobster resource is being harvested at the point where the greatest net return to society is achieved.

- *5.1 (f) Investigate the data available to assess the economic multiplier (flow-on) effects of commercial fishing, including the Lobster Fishery, to the broader community, and develop strategies to improve the quality/usefulness of such data

Background: There have been few detailed assessments of the economic benefits of commercial fishing, in terms of flow-on effects for local and regional economies. Fishing activities (and in this case expenditure and income associated with the activity of commercial lobster fishing) are believed to be important to many local economies. There is little doubt that some coastal communities derive substantial economic benefits from lobster fishing, not only from direct employment but also from the provision of ancillary services. There may be some areas where the economic impacts of management changes need to be directly assessed, taking account of the actions in this strategy. Advice will be sought from the Lobster MAC and experts in economic analysis on the best data to use to describe the multiplier effects of the commercial fisheries, and to assess any significant impacts.

- 5.1 (g) Collect information to detect patterns in the quantity and price of share transfers and the quantity of quota traded, and investigate the feasibility of collecting data on the price of quota traded

Background: Monitoring the quantity and price of share transfers has been undertaken since lobster shares were first traded and enables analyses of temporal and regional fluctuations. However, while information on the quantity of quota traded is collected, the price at which quota is traded is not routinely reported. A means by which this data could be collected, taking into account privacy and confidentiality issues, will be investigated. Quota transfer prices, which incorporate short term fluctuations in the fishery, provide a short term measure of economic viability, while share transfer prices, which incorporate future expectations, provide a longer term measure of economic health in the fishery.

The information collected through this management response assists in measuring the economic viability of the fishery and is taken into account by the TAC Committee in setting the annual TACC for eastern rock lobster.

Objective 5.2 Maximise the efficiency of trading quota

- *5.2 (a) Investigate the feasibility of implementing an exchange accessible by all lobster shareholders transferring quota and implement the outcomes of the investigation

Background: Since the introduction of the quota management system, some lobster fishers have had difficulty in locating and contacting other fishers wanting to either sell or buy lobster quota. This is likely to have increased the transactions costs of trading quota. An exchange allowing lobster fishers access to the details of fishers willing to sell quota such as name, contact details and size of quota to be transferred, would greatly assist in maximising the efficiency of the quota transfer system and increase the ability of fishers to harvest the TACC.

Objective 5.3 Appropriately manage food safety risks in the harvesting of fish in the fishery

- 5.3 (a) Co-operate with the NSW Food Authority in the development and implementation of food safety programs relevant to the fishery

Background: The NSW Food Authority is currently in the process of developing food safety plans for the harvest and post-harvest seafood industry, and the plans may impose statutory requirements on fishers to comply with the approved standards. Supporting food safety programs is a responsible way of promoting consumer confidence in fish product harvested by the fishery and protecting viability of the industry.

GOAL 6. Facilitate effective and efficient compliance, research and management of the Lobster Fishery

Objective 6.1 Ensure a transparent and focused approach to compliance, research and management of the Lobster Fishery

6.1 (a) Utilise and review, in consultation with the Lobster MAC and key stakeholders, the compliance strategic plan and update where appropriate

Background: The compliance strategic plan for the Lobster Fishery is included in the Lobster Share Management Plan and includes the broad, long term priorities and strategies for compliance in the fishery. NSW Department of Primary Industries (previously NSW Fisheries) first developed and implemented a Statewide Operational Plan for the Lobster Fishery in 1999 to guide the compliance programs of the fisheries investigation unit. This plan is updated annually by the Fisheries Investigations Unit, monitoring trends and compliance issues as they arise. Fisheries officers in each office operate under a district compliance plan to ensure appropriate compliance coverage across all programs.

The Statewide Operational Plan for the Lobster Fishery and each District compliance plan are developed to be consistent with the Statewide Compliance Plan for NSW. The Statewide Compliance Plan is an overarching framework for all fisheries that identifies priorities and objectives for compliance throughout the State.

6.1 (b) Utilise and review, in consultation with the Lobster MAC and key stakeholders, the research strategic plan and update where appropriate

Background: The strategic plan for research for the Lobster Fishery specifies research and monitoring projects that are currently being done, planned for the future or proposed as possible future initiatives. The relative priority of the different projects, sources of funding and a brief description of objectives are also described. Revisions to the strategic plan occur annually as a result of changing priorities and budgets. Reviews of the plan are undertaken with full consultation of the Lobster MAC.

Objective 6.2 Maximise compliance in the Lobster Fishery

*6.2 (a) Utilise, review and amend (where appropriate) the share forfeiture scheme based on demerit points, following the implementation of an endorsement suspension/share forfeiture scheme in other NSW share management fisheries

Background: The share forfeiture offences and the share forfeiture scheme for the Lobster Fishery are defined in the FM (Lobster SMP) Regulation. Section 75 of the FM Act provides for shares to be forfeited if a shareholder is convicted of an offence against this Act.

A penalty points scheme linked to endorsement suspension and share forfeiture provisions will be introduced in all other NSW share management fisheries. The current share forfeiture scheme in the Lobster Fishery will be reviewed, in consultation with the Lobster MAC, to ensure a consistent and/or complementary approach across all schemes. The introduction of

share forfeiture/endorsement suspension scheme across all share management fisheries would create an effective deterrent for serious or habitual offenders.

6.2 (b) Require all eastern rock lobsters taken in the Lobster Fishery to have an approved tag attached

Background: Tags are required to be fitted to commercially caught lobsters to distinguish between those lobsters taken legitimately by licensed commercial lobster fishers and those taken for non-commercial purposes or taken illegally. The requirement of tags in order to sell eastern rock lobsters provides a deterrent to black marketing. Under clause 116A of the FM (General) Regulation, eastern rock lobsters taken in NSW waters must not be sold unless a tag is attached to it in such a manner that the tag cannot be removed without being broken. Part 6 of the FM (Lobster SMP) Regulation further defines the requirements associated with the use of tags in the Lobster Fishery.

*6.2 (c) Investigate the feasibility, and implement the outcome, of introducing a requirement that lobster fishers include tag numbers of marketed lobsters on prescribed records to enable effective auditing

Background: NSW Department of Primary Industries conducts audits of lobster fishers by comparing catch return information with prescribed records. The inclusion of tag numbers on prescribed records would increase the ability of these audits to detect illegal activities. Consideration will be given to systems such as bar coding and scanning to enable large quantities of lobster tags to be recorded. Consideration will also be given to the economic implications on individual fishing businesses when implementing such systems.

*6.2 (d) Introduce a requirement that the marking required on each lobster trap to indicate the position of the trap must include (in clearly legible figures which are no less than 50 mm in height):

- (i) the fishing business (FB) number of the fishing business with which the traps are associated, and
- (ii) the letter "L" (for lobster trap)

Background: It is important for compliance purposes that gear set by lobster fishers can be easily identified by Fisheries Officers as lobster traps and that the gear can be traced back to the relevant fishing business. The clear marking of fishing gear can assist in reducing conflict between fishers that may arise over the ownership of set gear and/or the fish caught by that gear.

Most traps used in the Lobster Fishery are marked using a buoy and figures of a colour that contrasts to that of the buoy. In some waters (associated with high recreational use), included on a register maintained by NSW Department of Primary Industries, a plastic tag or concrete block must be used to mark a trap instead of a buoy. This response will apply to the marking of all traps used in the fishery. A phase in period, determined in consultation with the Lobster MAC, will be necessary to allow for a gradual transition to the new trap marking requirements.

*6.2 (e) Develop strategies to support appropriate practices and behaviour in commercial fisheries, including development of training and accreditation courses in core competencies and the introduction of fit and proper person requirements

Background: The minimum qualifications will aim to ensure that fishers have a sound understanding of the fishery and the rules that apply, including the need for provision of accurate data. Increasing the professionalism of operators can provide long term benefits to the industry.

The Lobster Fishery already applies some fit and proper person requirements to endorsement holders and crew members, though they are limited because they apply only to new entrants to the fishery. This response will allow an examination of the appropriateness of the existing fit and proper person provisions and ensure that the provisions within the Lobster Fishery are complementary to those to be developed for other NSW commercial fisheries.

Objective 6.3 Provide effective and efficient communication and consultation mechanisms for the Lobster Fishery

- 6.3 (a) Utilise key consultative bodies, such as the Lobster Management Advisory Committee (MAC) when undertaking industry consultation on all aspects of the Lobster Fishery

Background: The Lobster MAC provides advice to the Minister for Primary Industries on a broad range of issues relating to the management of the Lobster Fishery. The MAC includes endorsed commercial fishers elected to represent the interests of those in the Lobster Fishery and non-industry members, appointed by the Minister for Primary Industries, to represent other interest groups such as indigenous, recreational and conservation groups. The MAC provides a forum for discussion on issues relating to the fishery. See section 4.6 of this management strategy for further information. Other consultative bodies such as the Advisory Council on Commercial Fishing may also be utilised.

Objective 6.4 Implement this Strategy in a manner consistent with related Commonwealth and State endorsed programs aimed at protecting aquatic environments, and achieving the objectives of ecologically sustainable development

- 6.4 (a) Manage the Lobster Fishery consistently with other jurisdictional or natural resource management requirements, such as the marine parks program, aquatic biodiversity strategy, threatened species program, Indigenous Fisheries Strategy and other relevant strategies

Background: The management strategy will be operating alongside other programs relating to the management of marine resources, and must be consistent with those programs. The management strategy must be adaptive if inconsistencies between the programs become apparent. This response enables a whole-of-government approach to management of the marine ecosystem.

- 6.4 (b) Provide for the issue of permits under section 37 of the *Fisheries Management Act 1994* authorising modified fishing practices to assist research programs or for purposes consistent with the vision and goals of this management strategy

Background: Permits are required to use gear in a manner that varies to that specified in the FM Act and its regulations. Approval to trial new approaches to fishing gear design is commonly given to industry members participating in research.

GOAL 7. Improve knowledge of the Lobster Fishery and the resources upon which the fishery relies

Objective 7.1 Improve the community's understanding of commercial lobster fishing

7.1 (a) Contribute to the ongoing education of shareholders through advisory programs and port meetings

Background: NSW Department of Primary Industries conducts regional (i.e. port) meetings annually to update fishers on developments within different areas of the fishery and general management, research and compliance issues. The forums provide an opportunity for fishers to ask questions, make suggestions and clarify current regulations and policies. These forums have proved to be popular and an effective mechanism for reaching fishers with information on aspects of their fishery.

7.1 (b) Promote awareness of the Lobster Fishery as part of the overall communication strategy across all commercial designated fishing activities by implementing issue-focussed education programs

Background: The Lobster MAC and NSW Department of Primary Industries will develop and monitor programs to ensure they are cost-effective. As an initial step, the Lobster FMS and EIS and any resulting reports will be made available to the public by placing them on the NSW Department of Primary Industries website and providing copies at NSW Department of Primary Industries Fisheries Offices.

Objective 7.2 Promote scientific research and monitoring to gain knowledge of eastern rock lobster, byproduct and bycatch species and the impacts of fishing on other species and the environment, and the status of the fishery as a whole, including economic and social factors

7.2 (a) Undertake research programs in accordance with the research strategic plan for the Lobster Fishery

Background: The strategic plan for research in the Lobster Fishery identifies the research and monitoring projects that are currently being undertaken, are planned for the future or are proposed as possible future initiatives. The core project described in the strategy concerns the annual assessment of the status of the rock lobster resource. Crucial to this project, are the other current research projects: (i) the development of models of the stock and fishery; (ii) the logbook program and analysis of catch and effort data from the commercial fishery; (iii) an observer-based survey of the size-structure of commercial catches; (iv) an observer survey of the byproduct and bycatch taken in lobster traps; (v) investigation of the relationship between puerulus abundance and subsequent recruitment to the fishery; (vi) a fishery-independent survey of the abundance of mature lobsters; (vii) investigations of the growth and movement of lobsters. The strategic plan for research will be updated to reflect the priorities set by the Lobster MAC and to take into account the environmental risks identified in the EIS for the fishery.

- *7.2 (b) Develop a strategy, in consultation with the Lobster MAC, for improving the understanding of economic and social information relating to the Lobster Fishery, taking into account the information gaps outlined in the economic and social assessment in the Environmental Impact Statement for the fishery

Background: The gathering of social and economic information will aid in understanding the implications of changes to fishing rules over time. An economic and social survey conducted as part of the environmental assessment process has provided some information on economic and social issues in the Lobster Fishery. Some information gathering methods may be relatively simple and inexpensive to implement whilst others, like targeted surveys, are likely to be more resource intensive. Consideration will need to be given to the quality of information likely to be received through different information gathering techniques.

Objective 7.3 Maintain and improve the quality of the catch and effort information collected from endorsement holders

- 7.3 (a) Require every commercial fisher endorsed in the Lobster Fishery to make a record of all rock lobsters taken each day (i.e. daily log books) and each month (i.e. monthly reconciliation forms) and send a copy to NSW Department of Primary Industries within seven days following the end of the day fished and within seven days after the end of the month (respectively).

Background: The FM (Lobster SMP) Regulation requires daily recording of catch (and other fishing related details) by lobster fishers in order to administer the quota system and maintain quality catch and effort information. The catch and effort information contributes to monitoring temporal and spatial trends in effort within the fishery and ultimately the stock assessment of eastern rock lobster. Upon amendment of the monthly reporting forms, information will be collected on trap loss, interactions with threatened species and the composition and quantity of byproduct taken in the fishery; essential information for managing the Lobster Fishery on a sustainable basis.

- 7.3 (b) Periodically review, in consultation with the Lobster MAC, the mandatory catch and effort return forms submitted by lobster fishers and implement changes if the data collected is perceived to be insufficient for monitoring and assessment purposes

Background: The information collected on lobster daily log sheets is comprehensive, particularly for the target species. NSW Department of Primary Industries staff periodically review catch and effort returns in consultation with the Lobster MAC to improve the quality of data collected. The risk assessment has identified further information which needs to be gathered by routine reporting such as recording all byproduct taken, interactions with threatened and protected species and trap loss. These reporting changes will be discussed with the Lobster MAC.

- *7.3 (c) Assess the accuracy of species identification recorded in catch records and provide advice to industry to make needed changes

Background: Management response 2.3d requires fishers to report all species taken (in addition to rock lobster species). Correct species identification is critical to monitoring the performance of the fishery. Whilst many species are clearly and easily identified, there are some species for which correct identification or reporting can be difficult (e.g. the different species of leatherjackets). The onboard observer program may provide first hand information

on local names for fish. This information will be used to ensure that industry advice and education is appropriately targeted.