

Draft
Integrated Management Strategy
for
Fiordland's Fisheries
and
Marine Environment

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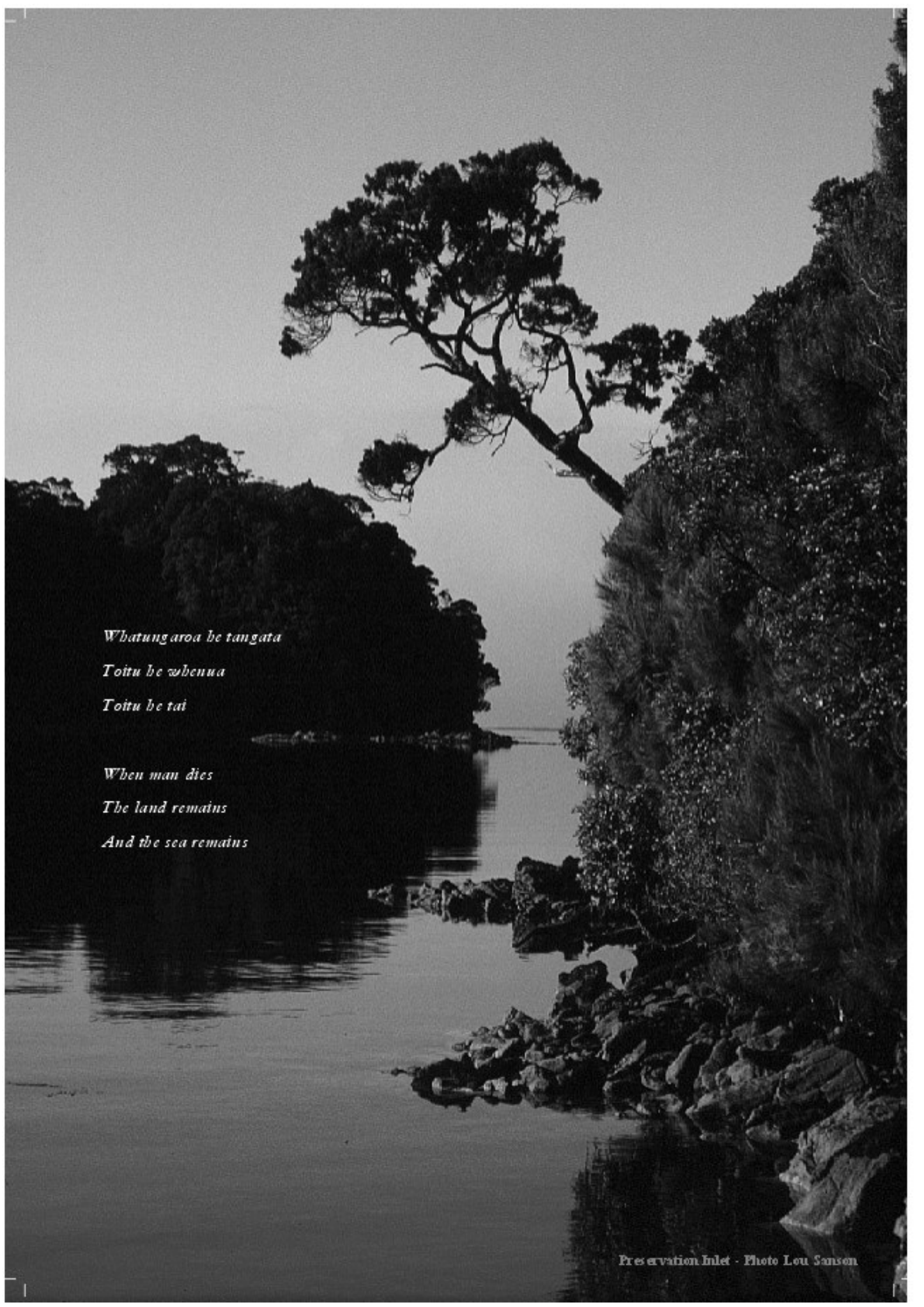
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*Whatungaroa he tangata
Toitu he whenua
Toitu he tai*

*When man dies
The land remains
And the sea remains*

FOREWORD

It gives me great deal of pleasure to have been asked to write the Foreword to the Guardians of Fiordland's Fisheries and Marine Environment Draft Strategy.

One of the first activities I took part in when elected to Environment Southland's Te Anau Constituency was to listen to submissions and make decisions on matters related to Southland's Coastal Plan.

Often during our discussions we expressed our concern about the sustainable management of the Fiordland fishery. Our concern was that we issue consents for surface water activities in Fiordland knowing this would involve consent holders having customers taking part in recreational fishing; an activity that is not part of our coastal management responsibility. The Guardians have provided a forum where those involved and the agencies can work together on issues such as this that cross agency boundaries.

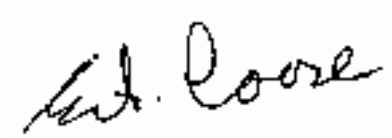
Environment Southland has enthusiastically supported the Guardians in their development of this draft strategy - both financially and with staff involvement. At times, I have sat in on meetings that have been very effectively led by John Steffens and Laurel Teirney.

The spirit of goodwill and co-operation between Iwi, commercial and recreational fishers, tourism operators, environment interests, the Ministry of Fisheries and Department of Conservation is a great example to people in other coastal regions around New Zealand who are concerned about the health of their local fisheries and marine environment.

Local interested parties making decisions that affect their own locality is probably the most effective way of implementing government policy.

I commend this Draft Strategy to everyone who has an interest in Fiordland, its fishery and unique marine environment.

Noho ora mai

A handwritten signature in black ink that reads "Ted Loose". The signature is written in a cursive, slightly slanted style.

Ted Loose
Chairman
Environment Southland

CONTENTS

FOREWORD

SUMMARY

1.	ABOUT THE GUARDIANS.....	11
1.1	The Guardians' vision.....	11
1.2	Turning the vision into reality.....	11
1.3	Who are the Guardians?	11
1.4	Why was the group formed?.....	12
1.5	Who provides support and advice?	13
	1.5.1 <i>Independent assessor</i>	13
	1.5.2 <i>Agency support and advice</i>	13
	1.5.3 <i>Support for the integrated management strategy approach</i>	14
	Figure 1: Map of Fiordland	15
2.	DEVELOPING THE DRAFT STRATEGY	16
2.1	The process	16
2.2	Defining the Fiordland marine area of interest.....	17
2.3	Gathering information.....	17
	2.3.1 <i>Fiordland's fisheries</i>	17
	2.3.2 <i>Marine habitats, species and communities</i>	18
	2.3.3 <i>Publications</i>	18
2.4	Defining "special nature"	19
2.5	Understanding fiord habitats.....	20
	2.5.1 <i>Inside fiord habitats</i>	20
	2.5.2 <i>Transition from inside fiord to entrance/outer habitats</i>	21
	2.5.3 <i>Outer coast habitats</i>	21
2.6	Identifying issues.....	21
2.7	A holistic approach.....	22
	Figure 2: Identification of issues affecting Fiordland's fisheries and marine environment.....	23
3.	THE DRAFT INTEGRATED MANAGEMENT STRATEGY: FISHERIES.....	24
3.1	Top priority - local depletion	24

3.2	Information by fiord	25
3.2.1	<i>Gathering the information</i>	25
3.2.2	<i>Interpreting the information</i>	26
3.3	Fish stocks and fisheries of the fiords.....	26
3.3.1	<i>Features at the fiord level</i>	26
3.3.2	<i>Features of the harvested species</i>	26
3.3.3	<i>Features of the harvesting groups</i>	28
3.3.4	<i>Access</i>	29
3.4	Grouping Fiordland's fisheries.....	30
3.4.1	<i>Milford and Doubtful Sounds</i>	30
3.4.2	<i>Inside the rest of the fiords</i>	30
3.4.3	<i>Fiord entrances and outer coast</i>	30
3.5	Defining habitat lines	31
	Figure 3: Location of Habitat Lines	33
3.6	A management approach for Fiordland's three fisheries groups.....	34
3.6.1	<i>Milford and Doubtful Sounds</i>	34
3.6.2	<i>Inside the rest of the fiords</i>	34
3.6.3	<i>Fiord entrances and outer coast</i>	35
3.6.4	<i>Accumulation of daily fish possession limits</i>	35
3.7	Proposed management measures.....	36
3.7.1	<i>Milford and Doubtful Sounds</i>	36
3.7.2	<i>Inside the rest of the fiords</i>	36
3.7.3	<i>Fiord entrances and outer coast</i>	36
3.7.4	<i>Measures that apply both inside the fiords and along the coast</i>	37
3.7.5	<i>Storing rock lobster and holding (coff) pots</i>	37
3.8	Package of fisheries measures – for the fish and the environment.....	38
4.	VALUES OF SPECIAL SIGNIFICANCE	39
4.1	Information gathering by fiord.....	39
4.2	Identifying values of special significance	39
4.2.1	<i>“China shops”</i>	39
4.2.2	<i>Representative areas/fiords</i>	40
4.3	Identification and description of china shops	41
	Figure 4: Location of China Shops	46
4.4	Identification and consideration of representative areas	47
	Figure 5: Location of Representative Areas	49
4.5	Management considerations	50
5.	RISKS TO THE MARINE ENVIRONMENT	51
5.1	Identification of potential risks	51

5.2	Bionvasion	52
5.2.1	<i>Where's the threat coming from?</i>	53
5.2.2	<i>What's the impact?</i>	53
5.2.3	<i>Hull fouling/cleaning</i>	53
5.2.4	<i>Ballast water</i>	54
5.2.5	<i>Minimising the risk of bioinvasion in Fiordland</i>	54
5.2.6	<i>Risk surveillance</i>	55
5.2.7	<i>Action on detection</i>	55
5.3	Pollution	56
5.3.1	<i>Oil spills</i>	56
5.3.2	<i>Sewage</i>	56
5.3.3	<i>Rubbish</i>	56
5.4	Physical damage.....	57
5.4.1	<i>Structures</i>	57
5.4.2	<i>Ships' wakes</i>	57
5.4.3	<i>Land slips (possums)</i>	58
5.5	Altered flow/sediment dynamics	58
5.5.1	<i>Power generation/sediment dynamics</i>	58
5.6	Impact of increasing access (people) on wilderness values and visitor expectations.....	59
6.	EXPRESSING KAITIAKITANGA.....	60
6.1	What is kaitiakitanga?	60
6.2	How is kaitiakitanga provided for in legislation today?	60
6.3	Ngäi Tahu's association with the Fiordland coastal marine area	61
6.4	Expressing kaitiakitanga in Fiordland's coastal marine area whose role is it?	61
6.5	How can kaitiakitanga be appropriately expressed in Fiordland?	62
6.5.1	<i>Taiāpure</i>	62
7.	IMPLEMENTING THE STRATEGY	64
7.1	The balance negotiated between groups.....	64
7.2	Over arching co-ordination of existing legislative provisions.....	64
7.2.1	<i>Taiāpure</i>	64
7.2.2	<i>Special legislation</i>	64
8.	COMPLIANCE OF THE STRATEGY	67
8.1	Compliance needs in Fiordland.....	67
8.2	The fundamentals of compliance.....	68

8.3	A support role for the Guardians	68
8.3.1	<i>Informing and educating fishers and other users about the management package</i>	68
8.3.2	<i>Being the eyes and ears on the water</i>	69
8.3.3	<i>Supporting enforcement action</i>	69
8.4	Local knowledge and compliance planning	69
9.	MONITORING THE PERFORMANCE OF THE STRATEGY	71
9.1	Indicators	71
9.1.1	<i>Fisheries indicators</i>	71
9.1.2	<i>Values of special significance indicators</i>	71
9.1.3	<i>Risks to the marine environment indicators</i>	72
9.1.4	<i>Expressing Kaitiakitanga indicators</i>	72
9.1.5	<i>Overview indicators</i>	72
9.2	Measuring indicators	72
9.2.1	<i>Baseline information</i>	73
10.	IMPLEMENTATION AND BEYOND - WHAT ROLE FOR THE GUARDIANS?....	75
10.1	Functions identified in this strategy.....	75
10.1.1	<i>Applying for package of management measures</i>	75
10.1.2	<i>Information/education</i>	76
10.1.3	<i>Compliance</i>	76
10.1.4	<i>Monitoring</i>	76
10.1.5	<i>Information needs</i>	76
10.1.6	<i>Contacts for survey and research</i>	76
10.1.7	<i>Issues of relevance</i>	76
	ACKNOWLEDGEMENTS.....	77
	APPENDIX 1 - Figures 6-18: Individual fiords showing habitat lines, proposed china shops, representative areas and associated rock lobster storage areas	
	APPENDIX 2 - Amateur fishing rules: present and proposed	
	APPENDIX 3 - Statutory Acknowledgement.....	67
	APPENDIX 4 - Compliance within Fiordland's marine environment.....	71

SUMMARY

The Guardians of Fiordland's Fisheries and Marine Environment

This draft Integrated Management Strategy for Fiordland's Fisheries and Marine Environment is a very significant step towards realising the Guardians vision:

“That the quality of Fiordland's marine environment and fisheries, including the wider fishery experience, be maintained or improved for future generations to use and enjoy”

The draft has been prepared for public consultation after being discussed with groups represented on the Guardians throughout Southland and Otago. We are keen to hear your views about the strategy and encourage you to provide us with your feedback. This can be sent to our postal address or via our website (addresses overleaf of the title page), and needs to be received by 20 December 2002.

The Guardians care deeply about what happens to Fiordland's fisheries and marine environment. Concern about a number of issues and confidence that these could best be resolved at the local level were primary motivating factors in the Guardians' formation. For instance, increasing access is a major feature for Fiordland's marine environment and this has implications for the sustainability of fish stocks, the maintenance of special values and the potential for invasion by unwanted organisms. Accordingly, this initiative was seen as both necessary and timely given the changes taking place. The group initially hoped to “place a fence at the top of the cliff” but information revealed that it might be more realistic to put a major effort into turning around undesirable changes that are already taking place.

The Guardians include representatives of commercial and recreational fishers, charter operators, Ngāi Tahu, environment and community interests. Collectively, the group has more than 250 years experience of Fiordland's fisheries and marine environment. Most have gained this by working in the area, some for many years. Members all live within the Fiordland or Southland/Otago region.

A special working relationship has evolved within the group on the basis of a strong common bond based on Fiordland's fisheries and marine environment - a relationship that has been fundamental to the group's solidarity whilst working through potentially contentious issues and formulating agreed positions and strategies. Both trust and respect have grown over the past six years through the process of gathering information, identifying issues, debating ideas, developing management proposals, holding information meetings and producing this draft.

The Guardians and the agencies

The Guardians could not have produced this draft strategy without the support and advice of the Ministry of Fisheries, Department of Conservation, Environment Southland and the Ministry for the Environment - the principal funding agency. These agencies are responsible for administering the legislation governing the management of Fiordland's fisheries and the marine environment. The combination of Ngāi Tahu, recreational and commercial fishers, charter operators and environment interests working with these agencies has proved to be particularly potent. Our experience shows that effective solutions for issues within a local

area are best developed on the basis of shared local knowledge supported by targeted research and agency advice. All involved recognise that Fiordland's fisheries and marine environment will be the winner if the results of this co-operative community/agency approach are implemented. Given the special values involved, the Guardians believe that a holistic approach is right for Fiordland's fisheries and marine environment. It is also a philosophy that is fundamental to the Government's Oceans Policy and Marine Biodiversity initiatives. From that point of view the Guardians/agency draft strategy could provide a helpful working example.

Special features of the marine environment

The first step in working to achieve the Guardians vision involved information gathering. Throughout the process a wide variety of sources have been tapped, including memories, local knowledge, observations, surveys and research.

The single most important feature underlying all aspects of the draft strategy is the nature of Fiordland's marine environment. A set of circumstances found nowhere else come together in Fiordland to create the special inside fiord habitat and communities. Briefly, torrential rainfall creates a stained freshwater surface layer that inhibits the growth of productive kelps that are characteristic of the outer coast. In the absence of a kelp band, animals that are normally found at depth have colonised the steep fiord walls from the surface to about 40 metres. In comparison to the coastal kelp based communities the inside fiord communities are not very productive. These features became a major focus for the Guardians as issues were discussed throughout the development of the draft strategy.

Identifying issues

Issues were initially identified by brainstorming and grouped into four major categories:

- Fisheries
- Values of special significance
- Risks to the marine environment
- Expressing kaitiakitanga

Key objectives were defined for each group of issues to provide guidance and ensure that a consistent approach was maintained through debate and decision-making. Subsequently, the following categories were identified that also warranted objectives.

- Implementing the strategy
- Compliance of the strategy
- Monitoring the performance of the strategy

Guardians objectives

The Guardians adopted the following key objectives:

Information

- Take a pro-active role in identifying and advocating research and information needs to obtain the necessary information for advancing the Guardian's objectives.

Fisheries

- Ensure the sustainable utilisation of the finite fisheries resources, having regard to the special nature of the fiord environment.
- Prevent uncontrolled expansion of effort/harvest by all groups.
- Ensure that the rights of Tangata Whenua, recreational, charter operators, commercial and other user groups are identified and recognised and that these groups are involved in fisheries management decisions including access to the fisheries resource.
- Support overarching fisheries management frameworks.
- Fit management of fisheries to an appropriate spatial scale.
- Encourage a shift in harvesting pressure from inside the fiords to the entrances and outer coast.
- Encourage voluntary compliance and reinforce the view that non-compliance is unacceptable behaviour.
- Adopt a cautious and responsible approach to proposals for new developments, including fisheries developments

Values of special significance

- Ensure the ongoing integrity of areas, habitats and communities of special significance within Fiordland's marine environment

Risks to the marine environment

- Avoid where possible, remedy, or mitigate the adverse impacts of human activities on fisheries and the marine environment.

Expressing kaitiakitanga

- That kaitiakitanga (stewardship) be appropriately expressed for Fiordland's fisheries and marine environment.

Implementing the strategy

- The negotiated package of measures contained in the strategy be implemented as a whole without compromising underlying principles and balances.

Compliance objective

- Encourage voluntary compliance and reinforce the view that non-compliance is unacceptable behaviour

Monitoring the performance of the strategy

- Evaluate whether the package of management measures is achieving the objects of the integrated management strategy.

THE DRAFT INTEGRATED MANAGEMENT STRATEGY

Figure 1 shows the features of Fiordland's marine environment. Other maps, diagrams and tables of detailed information that support the information in this summary are presented in the strategy and appendices.

Fisheries

Addressing local and serial depletion within the fiords was identified as the top priority fisheries issue within Fiordland.

Local depletion is defined as *“the localised decrease in abundance of a species due to over exploitation or changes to the environment”*.

Serial depletion is when *“a decrease in abundance of a species occurs in one local area and then extends sequentially to adjoining or wider areas”*.

It is generally acknowledged that certain harvested fish stocks in Milford and Doubtful Sounds, the two most accessible fiords, are subject to local depletion. The uncertainty is the extent to which serial depletion might be taking place in other fiords and along the outer coast and what measures can be taken to prevent this from happening.

Information by fiord was needed to determine the state of the fish stocks and fisheries and develop an appropriate management approach. That information was gathered from a group of knowledgeable commercial, recreational, charter operator and Ngāi Tahu fishers who collectively hold a wealth of information about Fiordland. Tapping into this substantial and diverse source of information was considered to be the best, and indeed, the only way of collecting the required information.

Interpretation of the information revealed patterns about fish stocks and fisheries for individual fiords, for harvested species (blue cod, rock lobster, groper, paua, scallops, Jock Stewart and kina), for the harvesting groups and for access.

Grouping Fiordland's fisheries

When all the available information about fisheries and the marine environment was combined, it was clear that Fiordland's fisheries could be grouped according to the following three features:

- *Habitat characteristics and productivity* - are the habitats low productivity and animal dominated¹ or productive plant based habitats?
- *State of the harvested fish stocks* - are the fish stocks depleted, vulnerable or showing no signs of change?
- *Current and future access and fishing pressure* - what is the current level of harvesting pressure and how is that likely to change?

Collating information about these features for each fiord resulted in the fiords and coast falling logically into three distinctly different types of fisheries:

Milford and Doubtful Sounds

These two fiords feature typical low productivity, animal dominated, inside fiord habitat. Certain harvested stocks are depleted. Easy access has been available to these fiords for many years and as a result they are the most fished of the fiords.

Inside the rest of the fiords

Also featuring typical low productivity fiord habitat, inside the rest of the fiords certain fish stocks are declining or vulnerable. Both access and harvesting pressure are increasing. In fiords where concern about fish stocks is consistently expressed, such as Bligh Sound, harvesting pressure is already high. On the other hand where fish stocks are considered to be healthy, as in Dagg Sound, harvesting pressure is not yet an issue.

Fiord entrances and outer coast

Productive, plant based, coastal type habitat is a feature of the entrances and outer coast where the state of fish stocks is generally better than inside the fiords. Whereas access is increasing in the fiord entrances it is likely to increase more slowly along the open coast.

The fact that there are low productivity habitats inside and productive habitats outside the fiords has profound management implications. Tailoring management decisions to such remarkably different habitat types requires boundaries or transition zones to be defined between the habitats. Accordingly habitat lines have been located at the transition between low productivity animal dominated and productive kelp based communities. Where the transition takes place over a distance, the line has been located in the middle of the transition zone. For fiords where the percentage of animal and kelp communities is known, the habitat line has been placed where each forms 50% of the community.

A tailored management approach

Given three distinctly different types of fisheries in Fiordland, a single management response is not appropriate. Accordingly, the Guardians tailored management measures to

¹ “Animal dominated” means the communities are composed primarily of animals such as black coral, sponges, anemones, sea pens, brachiopods, kina and various fish species, many of which are deep water species and only encountered in shallow water in the fiords. In contrast, the outer coast communities are dominated by kelps (plants)

accommodate the needs of the three very different groups. The management package represents an agreement between commercial and recreational fishers, Ngāi Tahu, charter operators and environmental interests on the Guardians. Each fishing group has made significant sacrifices in the interests of looking after Fiordland's fisheries and marine environment. Reaching an agreement indicates a balance between the groups.

Milford and Doubtful Sounds

Where fish stocks are depleted, harvesting pressure/harvest has to be drastically reduced to encourage a rebuild.

Excluding commercial fishing and all bulk harvesting methods inside the habitat lines together with adopting a combination of temporary closures and a "fish for a feed - no accumulation" philosophy for amateur rules is proposed to deal with the two most accessible fiords.

Inside the rest of the fiords

Where fish stocks are declining or vulnerable, harvesting pressure/harvest needs to be reduced to reverse the decline and to provide for the expected increase in harvesting pressure. Daily catches have to be set at a level where the total harvest is reduced.

Excluding commercial fishing and all bulk harvesting methods from inside the habitat lines, together with conservative amateur bag limits and no accumulation of catches is considered to be the most appropriate approach for this group of fiords.

Fiord entrances and outer coast

Where the state of fish stocks is dependent on future trends in access and fishing, it is desirable that harvesting pressure/harvest does not increase - indeed provision needs to be made for the expected increase in harvesting pressure.

In the fiord entrances and along the outer coast commercial harvests are capped by provisions of the Quota Management System (QMS) and can be reduced for sustainability reasons as has occurred in the rock lobster fishery over recent years. Amateur daily bag limits and accumulation provisions need to be realistic for the Fiordland situation and changes in future fishing pressure.

Values of special significance

To ensure the ongoing integrity of areas, habitats and communities of special significance within Fiordland's marine environment the Guardians adopted two distinctly different types of values.

China shops are small discrete sensitive areas that are outstanding for the diversity and/or abundance of the animal/plant communities. On the basis of local knowledge and the best available information, 22 areas have been identified, from Bligh Sound to Preservation Inlet. We anticipate more comprehensive information becoming available through the consultation process. Collectively these areas support a wide range of special features and values.

Proposed management measures are based on particular values and whether these are under threat from existing or future activities.

For instance, within Preservation Inlet, the Narrows features an outstanding abundance of sea pens mixed with scallops on the sand, holothurians, red coral and white brachiopods. Measures proposed to protect this china shop include; creating a no take area for scallops to remove harvesting by divers and dredges; create a no anchoring zone; ensure rock lobster pots are not stored in the area and developing a code of practice for the site.

Representative areas/fiords contain a range of habitats, communities and biodiversity that represent Fiordland's marine environment. The Guardians and their advisors identified seven areas that represent estuarine, inside fiord and fiord entrance habitats, including one entire fiord system, four entire fiord arms and three other substantial areas. Collectively, these areas support significant values from both a national and international perspective.

The primary purpose of identifying representative areas is to ensure that community structure and biodiversity is not compromised by human activity. Promoting biodiversity is proposed as one of the main purposes of the Marine Reserves legislation that is currently being revised. For this reason the Guardians have given serious consideration to the use of marine reserves. However, this must be contingent on the final form of the revised Marine Reserves Act because biodiversity and other special values that are vulnerable to non-fishing recreational activities may be adversely affected if those activities are not managed conservatively. Furthermore, the accommodation of kaitiakitanga is critical, as customary rights will be extinguished with the permanent removal of harvesting and an uncertain management role within these areas.

Risks to the marine environment

An initial analysis revealed bioinvasion, pollution, physical damage, altered flow dynamics and the impact of increasing access (people) on wilderness values and expectations of visitors as potential risks to Fiordland's fisheries and marine environment. To identify the issues that pose serious threats, the Guardians considered causal factors and the adequacy of current management practices in controlling these. Agreement that an issue required attention resulted in an assessment of what was needed and what role the Guardians could play.

Bioinvasion is considered to be one of the most serious threats to Fiordland's marine environment. Unwanted marine organisms could be introduced from vessel hulls, ballast water and equipment. The development of codes of practice for hull cleaning and the exchange of ballast by MFish, Environment Southland and the Guardians are proposed. The group also anticipates local participation in risk surveillance and a response should organisms be detected.

Pollution includes oil spills and the disposal of sewage and rubbish into the Fiordland marine environment. There are management controls/contingency plans in place for each of these potential pollutants. However the controls are not necessarily comprehensive. For instance, Environment Southland has control over sewage disposal from charter boats but not currently for private boats or yachts. Similarly, a combined approach between the agencies involved and those represented on the Guardians would be desirable to combat the rubbish issue.

Physical damage includes the impacts of both structures, such as wharves and moorings, as well as the potential for an increase in landslips caused by the growing possum population. Structures are controlled by resource consents. In contrast, landslips are a natural event, but the number and frequency of slips can be accelerated by the spread of possums and increase in deer numbers. The associated potential for destabilising the fiord slopes is a risk with serious long-term implications. Information about the distribution of possums and presence of deer is something the Guardians and local community can provide to DoC to assist with work programming and priorities.

Altered flow dynamics is solely to do with the input of freshwater from the Manapouri power scheme into Doubtful Sound. To address the issue of depleted fish stocks it is important to know whether the altered flow regime has contributed to the situation or whether fishing pressure alone is responsible. The Guardians are anticipating that current research will provide more information about this situation.

Increasing numbers of visitors are beginning to adversely affect wilderness values in the most accessible fiords. Improved access also means expanded fishing opportunities throughout Fiordland and an increase in fishing pressure. More people mean more rubbish, more sewage and more servicing facilities. Unless these issues can be effectively managed in the longer term, Fiordland's fisheries and marine environment are at risk. The Guardians support initiatives to address the issue of increasing access. Local knowledge held by members and associated groups will be vital if practical solutions are to be found.

Expressing kaitiakitanga

Ngäi Tahu has a long and significant association with Fiordland as is documented in the Statutory Acknowledgment for Te Mimi o Tu Te Rakiwhanoa (Fiordland Coastal Marine Area) in the Ngäi Tahu Claims Settlement Act 1998. Long-standing protocols exist for exercising kaitiakitanga (stewardship) over the natural resources in the area. Kaitiakitanga is both a privilege and a serious obligation for the kaitiaki rununga of the area. The Oraka/Aparima runanga is the kaitiaki runanga for Fiordland. An active involvement in managing Fiordland's fisheries and marine environment by the Oraka/Aparima runanga, the other three Murihiku runanga and the Makawhio runanga, supported by the tribe is clearly an appropriate way for kaitiakitanga to be expressed. A variety of legislative mechanisms exist within the Fisheries Act that confers fisheries management responsibilities over areas of the coastline. Taiapure (local fisheries) is one such mechanism that offers the possibility of an inclusive community management approach. Such an approach provides for the expression of kaitiakitanga and could meet the needs of all the groups involved in Fiordland's fisheries and marine environment.

Implementing the strategy

This strategy contains a package of management measures that have been negotiated by the Guardians. It represents a balance of gifts and gains reached between commercial and recreational fishers, Ngäi Tahu, charter operators and environmental interests, and is endorsed by representatives of these groups on the Guardians.

All aspects of the package can be implemented using existing legislative mechanisms. However, the need for some form of overarching co-ordination is clear, given the number of

legislative provisions and agencies that are involved in implementing the strategy. Ensuring the integrity of the package during implementation is a must for the Guardians.

However legislation that confers management status on local community groups operating in the marine environment, such as the Guardians, does not exist. That the group is carrying out an integrated management role, which crosses legislative and agency boundaries, sets this initiative apart. In the absence of appropriate legislation, two possible options have been identified. Taiapure offers the possibility of a local management committee, otherwise special legislation, such as has been used for the Hauraki Gulf Marine Park, is a possibility. Neither option is ideal which highlights the need for a legislative outcome from the Government's Oceans Policy initiative.

Compliance of the strategy

Fiordland is a very challenging environment from a compliance perspective - it is isolated, the coastline is extensive, access is limited and the weather can be unrelenting. For these reasons, high levels of voluntary compliance with the rules are critical for the success of the management regime proposed in this strategy.

Given that MFish, DoC and ES have compliance responsibilities and a compliance presence in Fiordland, developing a shared approach to information, education and surveillance makes a lot of sense. In contrast, such an approach is not appropriate for the prosecutions of offences that need to be taken by each agency according to their own legislative provisions. The Guardians and those who are frequently on the water in Fiordland can play a critical compliance support role. Educational material about voluntary aspects of the management package needs to be widely publicised. So does information about the management rules. Resources such as codes of practice, pamphlets and signs could be produced effectively by the Guardians and the agencies working together.

Surveillance, or the "eyes and ears" in the community and out on the water, is also a role that MFish, DoC and ES value highly. The agencies consider working with the community is the best way of covering the extensive Fiordland coastline. Support extends to providing information and giving evidence in the case of prosecutions - the type of commitment that can make the difference between a successful and unsuccessful outcome for Fiordland.

Monitoring the performance of the strategy

Monitoring the effectiveness of management measures is just as important as developing the management strategy itself. Selecting indicators for each component of the strategy and monitoring these will provide information on which to judge how well the strategy is performing. Ideally, baseline monitoring should take place before, or soon after the strategy is implemented. Monitoring data will provide the basis for future adjustments to the management package.

Implementation and beyond - What role for the Guardians?

The Guardians are demonstrating the value of combining local skills and knowledge with agency advice. This is proving to be a credible alternative to existing management approaches as the group provides a forum for the agencies to step outside their own boundaries and think about the issues collectively. The Guardians are facilitating a more

holistic approach that is inclusive of the stakeholders and as a consequence the group is capable of providing oversight for the management of Fiordland's fisheries and marine environment.

It is difficult to anticipate all the possible roles the Guardians might usefully perform during and beyond implementation. However, the following summary from this draft gives an indication of the need for an ongoing role:

- Applying for the package of management measures that result from the draft strategy
- Providing information and education about the strategy
- Identifying information needs and applying networks to ensure these are met in the most effective way
- Assisting with compliance and monitoring

Whilst a very significant commitment has been made by the group during the development of this draft strategy, performing a longer term co-ordinating role effectively, will require the local advisory/management group to be formally recognised and funded.

1. ABOUT THE GUARDIANS

1.1 The Guardians' Vision

“That the quality of Fiordland’s marine environment and fisheries, including the wider fishery experience, be maintained or improved for future generations to use and enjoy”

1.2 Turning the vision into reality

This draft integrated management strategy represents a very significant step towards realising the Guardians’ vision. The group has voluntarily devoted a very significant amount of time over a period of more than six years to gather information, identify issues, debate ideas, develop management suggestions and produce this draft.

A series of information meetings was held to canvas views from groups represented on the Guardians during the process of compiling the draft. However, the strategy will not be finalised until wider consultation has taken place. Accordingly, your views and input on this draft strategy are invited.

In the process of developing this draft, the Guardians have produced a number of complementary publications. At the end of the first year (1996), the group launched a code of responsible fishing practices to inform and educate fishers about taking care of Fiordland’s fisheries and the marine environment. The code has been in demand ever since and remains an important up to date resource. In 1999, the group published a characterisation report together with the Ministry of Fisheries that brought together all the available information about Fiordland’s fisheries. Then in 2001, a comprehensive annotated bibliography was produced with the Department of Conservation including relevant research and reports about Fiordland’s fisheries and marine environment. Each of these publications makes an important contribution to achieving the Guardians’ vision.

1.3 Who are the Guardians?

The Guardians formed in December 1995 when groups that are actively involved in Fiordland’s fisheries selected their representatives. Commercial fisheries organisations (rock lobster, paua, and wet fish), recreational fisheries organisations (diving and fishing), charter operators (boat and helicopter) and Kai Tahu’s Oraka-Aparima Runanga each appointed members to represent their views. John Steffens was appointed as Chairperson at the inaugural meeting and has performed that role since then.

Following the broadening of the Guardians’ mandate to include the marine environment in June 2000, environmental interests were included on the group. The Department of Conservation selected the representative on the basis of criteria submitted by the Guardians. Local community interests’ are also represented on the group by one member. In addition to this representative, a number of members have wider community interests and hold positions

on other local community organisations. The Guardians all live within the Fiordland or Southland/Otago region.

Although not members of the group, Ken Grange, NIWA, and Chris Paulin, Te Papa, have generously provided support and advice to the Guardians about Fiordland’s marine environment.

Laurel Teirney is the group’s facilitator and documents the Guardians’ outputs.

<i>Commercial Fishing</i>	<i>Kai Tahu</i>	<i>Charter/Tourist</i>
John Steffens Chairperson (Te Anau)	Stewart Bull (Riverton)	Pete Bloxham (Manapouri)
Ian Kennedy (Dunedin)	Gail Thompson (Bluff)	Gordon Johnson (Bluff)
Mark Peychers (Te Anau)	<i>Recreational Fishing</i>	Ian Buick (Te Anau)
Peter Young (Riverton)	Alan Key (Gore)	<i>Community</i>
Ian Leask (Bluff)	Wayne Neiman (Gore)	Irene Barnes (Manapouri)
	Gary Barnes (Te Anau)	<i>Environment</i>
		Steve Wing (Dunedin)

Collectively, the group holds a wealth of knowledge and experience about Fiordland’s fisheries and marine environment. Most members have gained this by working in the area, some for many years. Valuable insights have been provided by members’ with a long family history in Fiordland and these have been particularly helpful in developing the draft strategy.

Without exception, members care deeply about what happens to Fiordland’s fisheries and marine environment. A special working relationship has evolved within the group on the basis of this common bond - a relationship that has been fundamental to the group’s cohesion whilst working through potentially contentious issues and formulating agreed positions and strategies.

1.4 Why was the group formed?

Concern about a number of issues affecting Fiordland’s fisheries and marine environment and confidence that these could best be resolved at the local level were primary motivating factors

in the Guardians' formation. This initiative was seen as both necessary and timely given the changes taking place. For Fiordland, the group initially believed a fence was needed at "the top of the cliff". However, as more information became available, it was clear that action was required in the short term to turn around undesirable changes taking place.

The following shared views are central to the group's undertaking:

- Concern about rapidly improving fishing access into Fiordland and the potential impact of this on the sustainability of the fish stocks.
- Awareness that the fishing experience available in Fiordland is outstanding and needs to be properly looked after to be retained in the longer term. Where else in New Zealand can fishing be combined with spectacular scenery both above and below water, wilderness, historic sites, hunting, tramping, kayaking, photography and diving?
- Recognition that the inside fiord ecosystem is of special significance and warrants a conservative and responsible approach from commercial, recreational and customary fishing interests.
- Acceptance that certain features warrant protection from human influences.
- Confidence that both fishing and caring for the fiord ecosystem can be jointly accommodated.
- Belief that management by the local community, supported by the relevant agencies, provides the best chance of success.
- Expectation that solutions are best implemented under New Zealand legislation and by existing legislative provisions.

1.5 Who provides support and advice?

1.5.1 Independent assessor

- **Ken Grange** holds the position of independent assessor. From his ground breaking research into Fiordland's marine communities in the 1980s and '90s he brings an in depth understanding and appreciation of the marine environment. Ken has provided the group with advice, attended workshops and information meetings, and peer reviewed this draft.

1.5.2 Agency support and advice

- **The Ministry of Fisheries (MFish)** has provided support and advice about fisheries issues since the formation of the Guardians in 1995. Until recently, Tony Brett and Stephen Logie respectively from Fisheries Management (Dunedin) and Compliance (Invercargill) attended group meetings in an ex officio capacity. As the group has worked through the process of developing the draft resources have been made available to assist with this task.

- ***Ngäi Tahu Kai Arahi (Customary Fisheries Co-ordinators)*** Gail Thompson and Tamai Sinclair respectively from Murihiku and Te Tai Poutini provided advice on customary fisheries matters from 2000-2002 when the Kai Arahi programme was discontinued.
- ***Department of Conservation (DoC)*** representative Allan Munn has provided support and advice about conservation matters in an ex officio capacity since June 2000. Lou Sanson, the Southland Conservator during the development of the draft, also provided encouragement and supported the group's efforts by making resources available in a variety of ways.
- ***Environment Southland (ES)*** representative Ken Swinney has provided support and advice about resource management issues in an ex officio capacity since June 2000. Ted Loose, now Chairman of ES has attended meetings and provided encouragement. ES has played an important part in helping publish the draft strategy.

The combination of Ngäi Tahu, recreational and commercial fishers, charter operators and environmental interests working together with MfE, Mfish, DoC and ES has proved to be particularly potent.

Our experience shows that effective solutions for issues within a local area are best developed on the basis of shared local knowledge supported by targeted research and agency advice.

1.5.3 Support for the integrated management strategy approach

- ***Ministry for Environment (MfE)*** awarded the Guardians a Sustainable Management Fund grant in June 2000 to develop an integrated management strategy for Fiordland's fisheries and marine environment. In making the application, the Guardians acknowledged the need to develop a wider integrated approach to successfully look after the range of values in the Fiordland marine environment. In granting funds, MfE provided the Guardians with an opportunity to show how such an approach might work in the marine environment. The group is grateful for the MfE's generosity without which this project would not have been possible. In particular the Guardians have benefited from the support, wisdom and advice provided by Alisdair Hutchison, Manager of MfE's South Island office
- ***Politicians.*** The Ministers of Fisheries, Environment, and Conservation have been kept informed about progress and all have expressed support for this initiative. In particular, the Hon Pete Hodgson, Minister of Fisheries, has shown special interest and provided ongoing encouragement for our approach. Local and other interested MPs have kept up with progress, as have local politicians all of whom are becoming more interested as the Guardians make progress.



Produced for the Guardians
of Fiordland Fisheries and
Marine Environment by
Environment Southland

Figure 1
Fiordland Coastal Context

Date: 04/09/2002



DATA SOURCE: E.S. 04/09/02
Topographical & Coastal information sourced
from LINZ. Digital Elevation File: TD0001492
contour: 100m

DISCLAIMER
Environment Southland cannot guarantee
that the information shown is 100% accurate and
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consultation with us.

2. DEVELOPING THE DRAFT STRATEGY

2.1 The Process

Developing the draft integrated management strategy has involved the Guardians working to a defined process with the following steps:

- Defining a vision
- Defining the Fiordland marine area of interest
- Defining a set of objectives
- Gathering information
- Identifying and grouping issues

For each issue:

- Determining information needs
- Acquiring and documenting additional information
- Analysing information and identifying patterns and trends
- Deciding on management objectives
- Designing frameworks to guide best solutions
- Selecting the most appropriate management mechanisms
- Informing and inviting feedback from eight meetings/hui with groups around the region who are represented on the Guardians
- Adjusting suggested management measures

And finally:

- Documenting the draft strategy
- Releasing and distributing the draft strategy

Following the current consultation, views received will be analysed and documented and improvements will be incorporated into the strategy. Once the strategy is finalised it will be submitted for approval and implementation to MfE, the Ministers of Fisheries, Environment and Conservation, and the relevant agencies.

2.2 Defining the Fiordland marine area of interest

The marine area covered by this draft strategy extends from Cascade Point in the north to the Waiiau River in the south. The seaward boundary is flexible, depending on the distribution of species of interest and associated Quota Management Area (QMA) boundaries. In reality, the group has focused primarily on the fiords and inshore coastal area. Migratory pelagic fish species and species for which there appear to be few concerns have been discussed but not considered further.

2.3 Gathering information

Developing a comprehensive picture of Fiordland's fisheries and marine environment has been one of the Guardians' top priorities. Accordingly a strong emphasis on information has been incorporated in every aspect of the draft strategy. Whether based on memory, local knowledge, observation, survey or research, every source of information has contributed in a complementary way to a better understanding of the issues and to more robust management suggestions.

The importance of basing the draft strategy on quality information is reflected in the Guardian's key object:

Key Objective

- *Take a pro-active role in identifying and advocating research and information needs to obtain the necessary information for advancing the Guardian's objectives.*

Initially the Guardians found a considerable amount of fisheries information was available at the entire Fiordland level. Information about species and communities at specific sites within the fiords was also available. What was missing was information about habitats, communities and fisheries at the individual fiord level.

To fill this gap, members of the group have shared their knowledge, targeted groups have been interviewed, surveys have been conducted and research advocated. The information collected has provided the Guardians with a very substantial data base. Patterns and trends that have been identified form the basis on which this draft strategy has been developed.

Following is a summary of the information the Guardians have collected themselves, compiled or advocated for over the past six years:

2.3.1 Fiordland's fisheries

- Compiled Maori and early European association with Fiordland.
- Recorded recent history (1900 onwards) of commercial fishing from interviews with knowledgeable locals whose families have been associated with Fiordland for many years.
- Recorded and mapped Guardians' knowledge about the distribution of harvested species and fishing pressure. Collectively, members of the group hold more than 250 years of knowledge about Fiordland's marine environment.

- Gathered available information about the Fiordland marine habitat and biology of each fish species.
- Recorded details of the commercial fishery for each species, including management provisions. *Note:* The CRA8 Management Committee is committed to an extensive ongoing rock lobster research programme in Fiordland. The results of this, and of paua research advocated by the NZ Paua Management Company, are available to the Guardians.
- Surveyed recreational fishing patterns by questionnaire.
- Recorded details of the recreational fishery for each species, including management provisions.
- Surveyed charter boat fishing patterns by interviewing charter operators.
- Compiled customary management provisions.
- Successfully advocated research into recreational fishing patterns and harvest (methods proved inadequate).
- Successfully advocated research into recreational fishing patterns and harvest in Milford and Doubtful Sounds (current).
- Successfully advocated research into charter boat fishing patterns and harvests (current).
- Surveyed knowledgeable locals by questionnaire about commercial and recreational fishing patterns, species harvested and state of species by fiord.

2.3.2 Marine habitats, species and communities

- Successfully advocated research into methods of studying blue cod.
- Successfully advocated research into the movement and relative abundance of blue cod within and between fiords (current).
- Gathered knowledge about special values and areas by holding a workshop with experienced Fiordland researchers.
- Supported the development of a Geographic Information System (GIS) to construct a picture of the Fiordland marine environment (current).
- Compiled an annotated bibliography of references to Fiordland's fisheries and marine environment.

2.3.3 Publications

Much of the information listed above is documented in the following publications.

1. *Beneath the Reflections - A Characterisation of Fiordland's Fisheries*. Compiled by the Guardians of Fiordland's Fisheries. 1999 120p.
2. *Beneath the Reflections - Fiordland's Fisheries and the Marine Environment: A Bibliography*. Compiled by Lisa Maria, Department of Conservation for the Guardians of Fiordland's Fisheries. 2001 74p.
3. *Beneath the Reflections - Caring for Fiordland's Fisheries*. A Code of Responsible Fishing Practices produced jointly by the Guardians of Fiordland's Fisheries and the Ministry of Fisheries. 1996 (pamphlet).

2.4 Defining "special nature"

In the process of developing the Guardians' vision and key objectives it became clear that the special nature of Fiordland's marine environment was going to be an integral part of every component of the draft strategy. Accordingly, the group defined special nature in terms of the Guardians' interest in both land-based features and the marine environment.

Special nature refers to:

"That which is uniquely Fiordland, from the mountain tops to the sea bed".

The Guardians have a particular interest in two aspects of the fiord environment; the outstanding landscape features and the unique marine environment.

The special nature of *Fiordland's landscape* can be described by:

"The combination of sheer-sided snow capped mountains, hanging valleys, impressive waterfalls, uninterrupted native forest extending to the water's edge and extensive sheltered waterways. Furthermore, the very scale of the landscape enhances the sense of wilderness that is an integral part of fishing in Fiordland and one that sets Fiordland apart from the rest of the country".

These landscape features would only be associated with management action on the part of the Guardians if specific land-based issues had the potential to adversely impact the marine environment or the fishing experience.

The special nature of *Fiordland's marine environment* can be expressed by:

"At the individual fiord level - drowned u-shaped glacial valleys, sills separating the fiords from the open coast, the freshwater layer, estuarine circulation, deepwater emergence, a band of unusual wall communities and endemic species of special interest, and finally the deep floor of the glacier-carved fiord. At an ecosystem level, what sets Fiordland's marine environment apart, both within New Zealand and globally, is the diversity of communities represented over a dramatically compressed gradient. It is not unusual to find estuarine,

fiord, outer reef/kelp forest, open water pelagic and deepwater communities represented over a distance as little as 10km. The proximity of the continental shelf to the coastline defines the seaward end of the gradient”.

Not surprisingly, all aspects of Fiordland’s marine environment are of direct relevance to the Guardians of Fiordland’s Fisheries.

2.5 Understanding fiord habitats

The importance of understanding how this set of unusual features dictates the nature of plant and animal communities and fisheries was recognised. Since then, information gathering and research have shed increasing light on the subject. Two distinct habitat types can be identified - habitats inside the fiords and habitats at the fiord entrance/outer coast. Current studies are showing how the communities associated with each habitat type differ and what the implications might be for fisheries, special values and risks to the environment.

2.5.1 Inside fiord habitats

More than seven metres of rain fall in Fiordland each year. This runs off into the fiords carrying detritus and humic material from the forest. The result is a stained freshwater layer that floats on top of the saltwater. As the freshwater flows out to sea, it causes a weak counter current of saltwater from the ocean to flow over the sill at the entrance and into the fiord - a phenomenon called estuarine circulation.

The stained freshwater surface layer limits light penetration and inhibits the growth of kelps that are the energy source for productive outer coast communities. In the absence of plant-based communities, animals that normally live at depth in the ocean have come to dominate the fiord wall communities from the surface to a depth of about 40 metres. Called deepwater emergence, this phenomenon has resulted in an abundance and diversity of animals that would not normally be seen at these depths.

The stained freshwater layer not only limits kelp, it also limits the growth of phytoplankton that can be an important energy source for marine communities. The absence of substantial primary production taking place inside the fiords raises the question of the nature of the energy source. Recent studies suggest that material entering the fiords from the forested catchments is likely to play an important role. Fallen trees, detritus and plant and animal material associated with the forest floor are regularly delivered into the fiords. Terrestrial energy sources such as these are not comparable with ocean kelp based energy sources. If the main energy source for the fiords does originate from the land this would account for the lower productivity of the animal-dominated communities inside the fiords.

Recruitment of fish species inside the fiords can take place directly from spawning or indirectly from passive transport of eggs or larvae over the sill in the incoming current. Once inside, the young do not find a very hospitable environment. There is the freshwater layer and the many stinging, biting animals of the wall communities to avoid. And then there is the issue of what to eat.

There is growing evidence that certain fish and shellfish species such as blue cod and kina that live inside the lower-productivity fiords are slower growing than the same species found

at the entrances to the fiords. Furthermore, stocks of these species from the inner fiords have been shown to be genetically distinct from stocks living outside. As research on genetic structuring of populations and differentiation of the same species continues, the management implications will become apparent. In the meantime the question of whether certain species move between fiords and the outer coast is now being investigated. The issue of movement is fundamental to managing fish stocks inside the fiords. If movement does not take place and some individuals of a species live only inside the fiords, management measures must be more conservative to ensure sustainability.

2.5.2 Transition from inside fiord to entrance/outer coast habitats

In the transition zone, lower productivity, animal-dominated communities give way to productive kelp-based communities as the ocean influence penetrates into the fiord.

In some fiords such as Bligh Sound, the transition can be clearly defined between the two types of habitat/communities. In other fiords such as Dagg Sound, the transition is not so clearly defined because ocean influences penetrate well into the fiord. Whereas the transition between habitats takes place at the entrance of some fiords it occurs well inside other fiords. For instance, the topography of the southern fiords means that inner-fiord habitat is found further towards the head of these sounds than in the northern fiords.

2.5.3 Outer coast habitats

The outer Fiordland coast is dominated by productive kelp-based communities. Such communities are typical of outer coastal habitats along the southern coastline. To discern whether there are differences between Fiordland's outer coast communities and those along other parts of the southern coastline requires a detailed study of biodiversity patterns.

2.6 Identifying issues

To identify issues affecting Fiordland's fisheries and marine environment a schematic diagram was constructed where natural features were placed around the inside of the oval and the influences that could impact on each of these were aligned along the outside (Figure 2). This was a useful way for the Guardians to identify and group issues. Relevant legislation and associated agencies could also be easily identified. The diagram proved helpful in discussions with both DoC and ES, when common interests were initially defined and each agency agreed to participate.

Against this background the Guardians brainstormed a list of issues that needed to be addressed if progress was to be made towards achieving the group's vision for Fiordland's fisheries and marine environment. Issues were grouped as follows:

- Fisheries
- Values of special significance
- Risks to natural values (human generated)
- Expressing kaitiakitanga

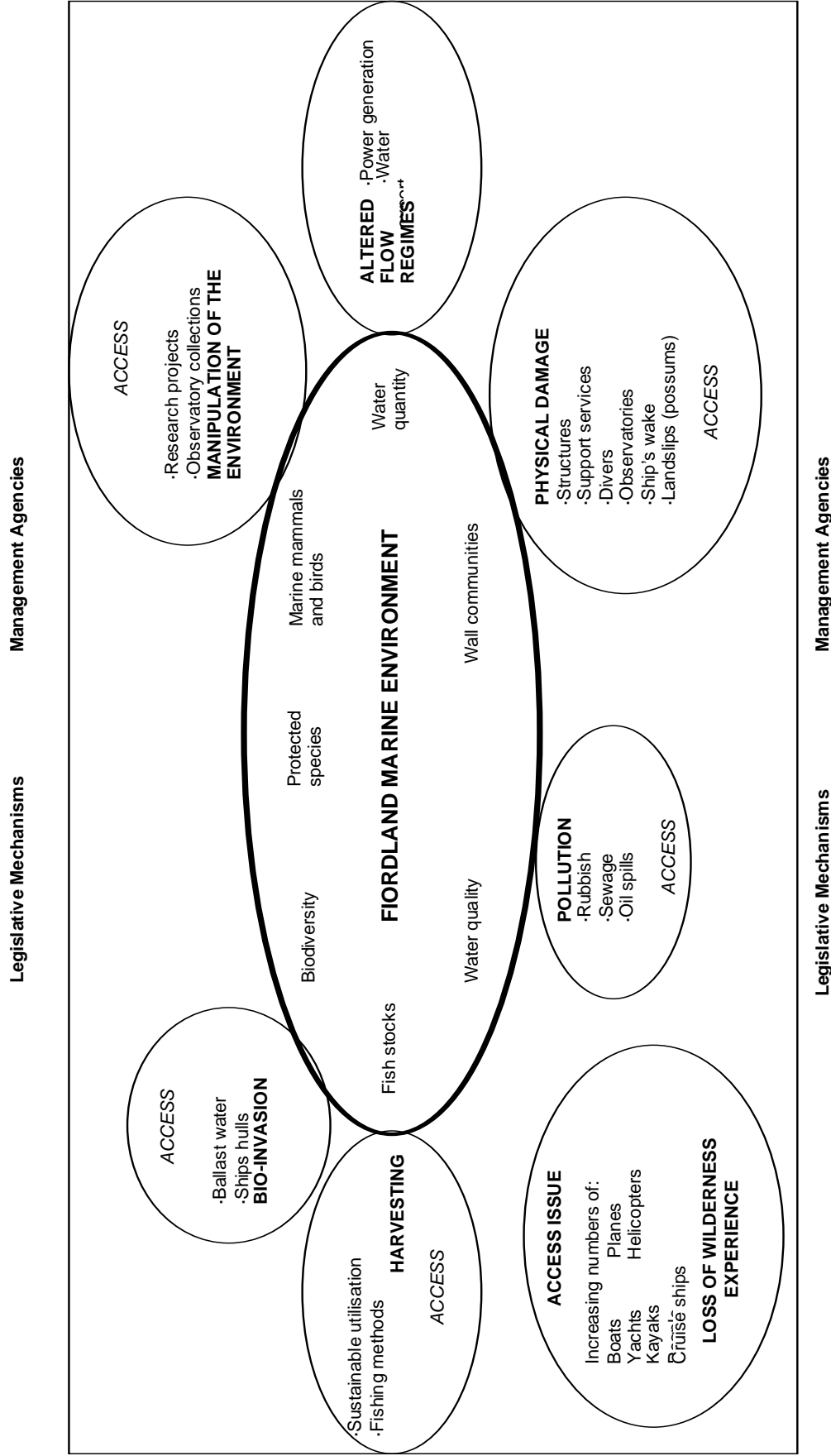
The Guardians defined key objectives for each group of issues to provide guidance and ensure a consistent approach was maintained through debate and decision-making. Subsequently, the following categories were identified that also warranted objectives.

- Implementing the strategy
- Compliance of the strategy
- Monitoring the performance of the strategy

2.7 A holistic approach

The initial priority was the fisheries component of the strategy. However, over the past two years work has proceeded concurrently on all four components. Given the interaction between components they cannot be treated in isolation. Each component is inextricably linked to the others and a change that affects one area will impact on the rest. For instance, certain risks such as the introduction of an unwanted species from the hull of a vessel could impact on the values of special significance, on fish stocks and fisheries and on kaitiakitanga. The Guardians recognised that a holistic approach was required because every aspect of the marine environment is part of an integrated whole and the variety of human influences exerted on this environment should be considered collectively rather than by individual influence.

FIGURE 2 - IDENTIFICATION OF ISSUES AFFECTING FIORDLAND'S FISHERIES AND MARINE ENVIRONMENT



3. THE DRAFT INTEGRATED MANAGEMENT STRATEGY: FISHERIES

Key objectives

- *Ensure the sustainable utilisation of the finite fisheries resources, having regard to the special nature of the fiord environment.*
- *Prevent uncontrolled expansion of effort/harvest by all groups.*
- *Ensure that the rights of tangata whenua, recreational, charter operators, commercial and other user groups are identified and recognised and that these groups are involved in fisheries management decisions including access to the fisheries resource.*
- *Support overarching fisheries management frameworks.*
- *Encourage voluntary compliance and reinforce the view that non-compliance is unacceptable behaviour.*
- *Adopt a cautious and responsible approach to proposals for new developments, including fisheries developments*

3.1 Top priority - local depletion

The Guardians considered addressing local and serial depletion within the fiords was the top priority fisheries issue within Fiordland.

Local depletion is defined as:

“the localised decrease in abundance of a species due to over exploitation or changes to the environment”.

Serial depletion is when:

“a decrease in abundance of a species occurs in one local area and then extends sequentially to adjoining or wider areas”.

It was generally acknowledged that certain harvested fish stocks in Milford and Doubtful Sounds, the two most accessible fiords, were subject to local depletion. The uncertainty was the extent to which serial depletion might be taking place in other fiords and along the outer coast and what measures could be taken to prevent this from happening.

3.2 Information by fiord

Information documented in *Beneath the Reflections: A Characterisation of Fiordland's Fisheries*, includes detail about fish stocks and fisheries at the entire Fiordland level. As well as providing an important overview of Fiordland's fisheries, the report also contains a general summary of the characteristics of each fiord and what information exists about individual fiords. Despite the inside fiord habitats being recognised as distinct from other marine habitats around the rest of the coast, the fish stocks and fisheries within the fiords have rarely been studied. Therefore the detail required to evaluate the state of fish stocks and fisheries within individual fiords was not available.

Accordingly, research needs were identified and advocated by the group. Projects that are currently being conducted include:

- Abundance and movement patterns of blue cod within and between fiords.
- Fishing patterns and harvest of recreational fishers from private boats in Milford and Doubtful Sounds.
- Fishing patterns and harvest of recreational fishers from charter boats for all the fiords.
- Detailed description of fiord habitats developed by building a Geographic Information System.

At the same time the Guardians resolved to compile what was known about fisheries within the fiords on the basis of their own knowledge and experience and that of informed members from their wider groups. Tapping into this substantial and diverse source of information was considered to be the best, and indeed the only way of determining the state of fish stocks and fisheries and developing an appropriate management approach.

3.2.1 Gathering the information

Between September 2001-December 2002, the Guardians went through a process of gathering information at the individual fiord level. First, members provided information about the fisheries in Milford and Doubtful Sounds, including fishing patterns by harvesting group, for blue cod, rock lobster, groper, paua and scallops. From first hand experience within the group the state of each species was evaluated, as were trends in harvesting pressure and accessibility.

From the experience of gathering information about Milford and Doubtful Sounds a questionnaire was designed to collect the same type of information for the rest of the fiords and the open coast. Commercial, recreational, charter operator and Ngäi Tahu fishers who collectively hold extensive knowledge about all the fiords were identified by the Guardians. Group members interviewed fishers from the list and completed questionnaires were returned.

3.2.2 Interpreting the information

The resultant information was collated by fiord, by species, by harvesting group and by access. This information was complemented by relevant knowledge the Guardians had acquired since 1995. Significant features and patterns revealed in the grouping are documented as follows.

3.3 Fish stocks and fisheries of the fiords

3.3.1 Features at the fiord level

When information about the fish stocks and fisheries across all the fiords was considered, a general pattern emerged.

Stocks in both Milford and Doubtful Sounds, the two most accessible fiords, are subject to local depletion².

The steep sided narrow northern fiords fit within a group. These include from Bligh Sound in the north, where concern is being expressed about the state of all the main harvested species, to Dagg Sound, south of Doubtful Sound, where fishing pressure has only recently started to increase. Comments about increasing accessibility and harvesting pressure were recorded for all the fiords within this group.

In contrast, the southern sounds feature extensive waterways, lower terrain and wider, more open entrances. These sounds, particularly Dusky Sound and Chalky Inlet, support more plentiful fish stocks and fisheries than further north. However, comments were received about both Breaksea Sound and the headwaters of these larger sounds that suggest increases in harvesting pressure may not be sustainable in the longer term. Certainly, Vancouver and Broughton Arms, Wet Jacket Arm, Edwardson and Cunaris Sounds and Long Sound are much more like the northern fiords from a fisheries perspective and they logically belong in that group.

3.3.2 Features of the harvested species

Blue cod

Of the harvested species, blue cod is the most vulnerable to depletion. In Milford and Doubtful Sounds local depletion of blue cod has been a feature for some time. The northern fiords all received comments such as; fishing pressure escalating; numbers have declined significantly over the past 3-4 years; never were abundant stocks; blue cod sparse and fishing poor. Positive comments were made about Dusky Sound, Chalky Inlet, and the outer reaches of Breaksea Sound and Preservation Inlet. Opinions were expressed though, that the situation in Breaksea had deteriorated, particularly over the past few years. There was agreement that stocks outside the fiords were in a relatively healthy state.

² Pelagic species, such as tuna that are sought by big game fishers at the fiord entrances and along the outer coast, were not included in this evaluation.

It is clear from the views canvassed that blue cod stocks are not plentiful inside the fiords and increasing pressure, if not managed, will result in local depletion.

Rock lobster

The same general pattern was reported for rock lobster stocks and the fishery as for blue cod. Increasing harvesting pressure was noted for all of the northern fiords. Whereas rock lobster stocks in Bligh Sound were a source of concern, the same was not true for Charles or Dagg Sounds. Stocks are thought to have decreased throughout the Doubtful Sound complex during the 1990s as a result of combined commercial and recreational harvesting. Further south, stocks are harvested from the entrances of Breaksea Sound and both Chalky and Preservation Inlets. In Dusky, where harvesting takes place throughout the sound, the comment was made that the quality of the fishery seemed to be declining. Along the outer coast, research is showing that rock lobster stocks are rebuilding rapidly due to management actions the fishers have taken over the past few years. Setting the Total Allowable Commercial Catch (TACC) for CRA8 is governed by a decision rule that guarantees a rebuild of the fishery. Depending on future management decisions there is an expectation that rock lobster will disperse into the fiords with time.

Groper

The state of groper stocks and fisheries follow a similar pattern to both blue cod and rock lobster. Again, much concern was expressed for Bligh Sound where stocks appear to have declined. Increasing harvesting pressure is a feature of all the northern fiords apart from Dagg Sound that has only recently begun to attract fishing pressure. Both resident groper and the smaller school groper are harvested in small numbers from the Doubtful Sound complex. Whereas groper was thought to have declined since the 1990s in Breaksea Sound, both Dusky Sound and Chalky Inlet support good fisheries. Resident groper tend to be found in the entrance habitat whereas school groper are often associated with fresh water inflows into the Sounds.

Paua

The distribution of paua stocks is determined by the occurrence of kelp - their main food source. For this reason, patches of paua are not found a long way inside the narrow steep sided northern fiords. The main stocks are located along the outer coast and in Dusky Sound and Chalky and Preservation Inlets. The paua fishery in Fiordland is primarily a commercial fishery. Very little recreational paua harvesting takes place because fishers prefer targeting rock lobster using underwater breathing apparatus. It is illegal to be in possession of this equipment for those who harvest paua. Reports about the disappearance of paua patches at and inside the entrances to Caswell, Charles, Dagg, and Breaksea Sounds were accompanied by concern that rejuvenation of a number of these patches was not taking place. Along the coast south of Milford Sound where smaller paua harvesting boats are launched serial depletion of paua stocks was also noted.

Scallops

Scallops tend to be found in beds that may be patchy and vary from year to year because of environmental factors. However, scallops can be depleted by over harvesting. For instance in Milford Sound scallops are now only found in low numbers. Comments were made that scallops get smaller with increasing distance up Doubtful Sound. The scallops in George

Sound are said to be under high harvesting pressure. In the southern sounds, Dusky, Chalky and Preservation, scallops can be plentiful but they are very patchy in distribution and vary from one year to the next.

Jock Stewart (Sea Perch)

Jock Stewart is reported to be caught in numbers by recreational fishers from Anita Bay, Milford Sound, and Doubtful Sound. This species is also caught, though not targeted in commercial fishing operations. Although this has not been a highly regarded species, Jock Stewart is growing in popularity as people discover it is a good eating fish. It also provides important first fishing experiences, particularly for schools staying at the Deep Cove Hostel on outdoor education courses. Harvesting pressure indicates that harvest limits are now warranted.

Kina

Currently, kina is commercially harvested in Fiordland under a single special permit that operates within the Kina Development Programme (KDP) area in Dusky Sound. Although there are a number of fishing permits for kina in Fisheries Management Area 5, divers do not travel to Fiordland to harvest kina because it is not economically viable. In October 2002 kina is being introduced into the QMS. From that time permit holders who are allocated quota and others who purchase quota in SUR5 can acquire an Annual Catch Entitlement (ACE) and harvest kina throughout Fiordland. From kina research conducted in Fiordland, Steve Wing found that stocks inside the fiords are slower growing than stocks along the open coast. Furthermore there is evidence that stocks inside and outside are genetically distinct and do not mix. This has serious sustainability implications if commercial harvesting takes place inside the fiords.

3.3.3 Features of the harvesting groups

There was a remarkable degree of consistency between commercial and non-commercial harvesting groups about the state of stocks and fisheries in each fiord and the patterns across all the fiords. What differed were the harvesting patterns.

Whereas, recreational harvesting pressure for blue cod is increasing within the northern fiords, commercial fishing has not taken place from Bligh to Breaksea Sounds for many years. Stocks of blue cod are only considered to be in commercial quantities in Dusky Sound and Chalky Inlet but even in these more productive sounds commercial blue cod fishing is limited.

An increase in recreational rock lobster diving has taken place over the past few years inside all of the northern fiords, and in particular, George and Nancy Sounds. From Dagg Sound south, harvesting is focused in the outer sounds, except for Dusky Sound where diving for lobster takes place throughout the entire sound. Improvements in small craft design have extended the capability of divers who report diving in bays and along the outer coast in calm weather. In contrast, only a limited amount of commercial rock lobster harvesting takes place inside the fiords. Harvesting is being consolidated in the outer parts of the sounds and along the outer coast. Recent reductions in rock lobster quota for the CRA8 Quota Management Area (QMA) and the resultant unavailability of quota have seen a significant reduction in the

number of boats, number of fishers and the rock lobster harvest. As mentioned earlier, there are now indications that a rebuild of the stocks is under way.

Recreational groper fishing pressure was reported to be increasing throughout the northern fiords and concern for the groper stocks was noted, particularly in Bligh Sound. Both groper and school groper are harvested but not in large numbers. A limited amount of commercial fishing takes place in George, Thompson, Doubtful and Dusky Sounds and Chalky Inlet. In Thomson and Doubtful Sounds fishing is confined to near the entrances. For the rest of the fiords comments indicated that groper stocks could not support a commercial fishery.

In summary, recreational fishing takes place predominantly inside the fiords where there are sheltered fishing opportunities. Although small private boats are capable of making trips along the outer coast, these are mainly to access other fiords rather than to fish outside. There are serious safety issues along the exposed Fiordland coastline that make it an unlikely destination for most small boat recreational fishing in all but the most settled weather. In contrast charter and larger syndicated vessels are capable of fishing on the outer coast. However, fishers on board may be less likely to choose this option when sheltered water fishing opportunities are available. When conditions permit, charter operators do venture outside to take advantage of better quality fishing.

Commercial fishing is focused towards the entrances of the fiords and along the outer coast. The type of vessels and servicing facilities make it possible for commercial fishing to take place over extended distances and periods as well as in difficult weather conditions.

3.3.4 Access

There has been easy access to Milford Sound and relatively easy access to Doubtful Sound for commercial, charter and private boat fishers for many years. Commercial fishing vessels continue to ply all Fiordland waters although the number of rock lobster vessels has more than halved in recent years. The modest charter boat fleet that operates within the southern fiords seems to have only expanded slowly. However, increasing accessibility was identified as a major issue by fishers who provided information.

Improved technology, different fishing patterns and new forms of transport all contribute to the phenomenon. For instance, over the past 3-4 years small trailer boats launched at Milford are heading south to spend the day fishing Bligh Sound. Similarly, recreational boats are heading north from Thompson Sound to spend a day or longer at Nancy, Charles or Caswell Sounds. The increase in day trips to Nancy Sound over the past 4 years was described as dramatic. Further south there has been an increase in fast 4-6 m boats that are capable of travelling from Doubtful Sound to Breaksea and even Dusky Sound, taking advantage of the sheltered water through the Archeron Passage. Then there are those few hardy folk who launch at Riverton or Bluff and risk the southern coast to reach Preservation Inlet, normally a 10 hour cruise for the larger charter vessels!

Charter vessel operators have adopted different procedures in recent years. Those that fish north of Doubtful tend to visit fiords that used to be bypassed and stay overnight in more fiords. The length of operating season has also extended - for some up to six months. Further south, charter operators have adopted the practice of flying parties either in or out of the sounds. This not only avoids a long steam but also makes back-to-back trips possible.

The recent appearance of an increasing number of larger syndicate boats³, particularly in the southern sounds, enables groups to make extended trips into the more remote parts of Fiordland.

Of all the recent innovations, probably the most novel is the practice of flying small boats and their occupants into the sounds by helicopter. Although this is not yet a common occurrence it has the potential to remove obstacles that have traditionally prevented numbers of people from reaching the more remote parts of the fiords. The use of helicopters to transport fishers within Fiordland appears set to increase. Distances that normally require a steam of several hours can be covered in a fraction of the time. Given this form of transport, it is possible to visit several fiords within a day.

3.4 Grouping Fiordland's fisheries

When the Guardians' took all the available information about fisheries and the marine environment into account, it was clear that Fiordland's fisheries could be grouped according to three fundamental features:

- ***Habitat characteristics and productivity*** - are the habitats low productivity and animal dominated or productive plant based habitats?
- ***State of the harvested fish stocks*** - are the fish stocks depleted, vulnerable or is the stock being maintained?
- ***Current and future access and fishing pressure*** - what is the current level of harvesting pressure and how is that likely to change?

Collating information about these features for each fiord resulted in the fiords and coast falling logically into three distinct groups:

3.4.1 Milford and Doubtful Sounds

These two fiords feature typical low productivity, animal dominated, inside fiord habitat. Certain harvested stocks are depleted. Easy access has been available to Milford Sound for many years and for those prepared to negotiate Lake Manapouri and Wilmott Pass, Doubtful Sound is also accessible. Consequently, they are the most fished of the fiords.

3.4.2 Inside the rest of the fiords

Also featuring typical low productivity fiord habitat, inside the rest of the fiords certain fish stocks are declining or vulnerable. Both access and harvesting pressure are increasing. In fiords where concern about fish stocks is consistently expressed, such as Bligh Sound, harvesting pressure is already high. On the other hand where fish stocks are considered to be healthy, as in Dagg Sound, harvesting pressure is not yet an issue.

³ Ex commercial fishing vessels in private syndicate ownership used for recreational fishing and diving.

3.4.3 Fiord entrances and outer coast

Productive, plant based, coastal type habitat is a feature of the entrances and outer coast where the state of fish stocks is generally better than inside the fiords. Whereas access is increasing in the fiord entrances it is likely to increase more slowly along the open coast.

The difference between low productivity habitats inside and productive habitats outside the fiords has profound management implications. Tailoring management decisions to such remarkably different habitat types, requires the boundaries or transition zones between the habitats to be defined.

3.5 Defining habitat lines

As a first step, Guardians with local knowledge identified the boundaries between the inside fiord and entrance/outside habitats for each fiord. Where boundaries were not clear-cut, transition zones were defined. Feedback about the position of the lines and zones was then sought from the wider groups during a round of information meetings. Input was also sought from researchers who had experience in Fiordland. Results from the GIS study confirmed the position of the clear-cut lines and were used to provide more information about the habitat features within the transition zones.

Where the transition takes place over a considerable distance, the group adopted a two step rule on which to base the habitat line:

- The position within the transition zone where 50% of the habitat is animal-dominated and 50% plant-based is to be determined with the help of GIS data.
- The line is to be located between two easily recognisable geographic features closest to the 50% position.

There was complete agreement about the location of the habitat lines where the transition occurs abruptly, as is the case for Milford, Sutherland and Bligh Sounds. Sounds where the transition takes place over a short distance or where there was agreement about the location of the habitat line include Caswell, Charles, Nancy, Thompson, Doubtful, Breaksea, and Dusky Sounds and Chalky and Preservation Inlets. In contrast, extended transition zones are a feature of George and Dagg Sounds.

Whilst the GIS tool is providing helpful information, there has not yet been an opportunity to ground truth the model. Currently the model predicts the position of habitat lines on the basis of five physical features that are important in determining the suitability of the habitat for different types of plant and animal communities. These features include surface salinity, wave exposure, bathymetry, slope of the rock walls and aspect - north or south facing. Due to poor weather when the ground truthing trip was scheduled in May, the model could not be tested in the field to check that it accurately predicts the location of both animal dominated and kelp based communities. This trip is now scheduled for October.

In the meantime, habitat lines have been positioned at the abrupt transitions, at the agreed positions where the transition zone occurs over a short distance and in the middle of the extended transition zones (Figure 3). Habitat lines for individual fiords are shown in Figures 6 - 18. The habitat lines will be revisited when the GIS results become available later in the year.



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of Fiordland Fisheries and
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Figure 3
Location of Habitat Lines
Date: 04/09/2002


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3.6 A management approach for Fiordland's three fisheries groups

Given three distinctly different types of fisheries in Fiordland, a single management response is not appropriate. For instance, commercial fishing is managed by the Quota Management System that allows bulk harvesting methods both inside and outside the fiords. Similarly, amateur daily bag limits of 30 blue cod, 6 rock lobster and 5 groper apply across all habitats, both inside and out. One of the most serious and criticised aspects of the amateur rules is accumulation. The ability to accumulate daily catches over extended trips in the fiords is thought to be an important factor contributing to local depletion. The view that Fiordland is a place to “fish for a feed” was expressed regularly at the information meetings.

If the needs associated with each of the three different types of fishery are recognised, management mechanisms can be tailored to achieve four of the Guardians' most important objectives:

- *Ensure the sustainable utilisation of the finite fisheries resources, having regard to the special nature of the fiord environment.*
- *Prevent uncontrolled expansion of effort/harvest by all groups.*
- *Fit management of fisheries to an appropriate spatial scale.*
- *Encourage a shift in harvesting pressure from inside the fiords to the entrances and outer coast.*

3.6.1 Milford and Doubtful Sounds

Where fish stocks are depleted, harvesting pressure/harvest has to be drastically reduced to encourage a rebuild.

Excluding commercial fishing and bulk harvesting methods inside the habitat lines and adopting a combination of temporary closures and a “fish for a feed - no accumulation” philosophy for amateur rules is proposed to deal with the two most accessible fiords. Accumulation is described in 3.6.4.

3.6.2 Inside the rest of the fiords

Where fish stocks are declining or vulnerable, harvesting pressure/harvest needs to be reduced to reverse the decline and to provide for the expected increase in harvesting pressure. Daily catches have to be set at a level where the total harvest is reduced.

Excluding commercial fishing and bulk harvesting methods from inside the habitat lines, together with conservative amateur bag limits and no accumulation of catches is considered to be the most appropriate approach for this group of fiords.

3.6.3 Fiord entrances and outer coast

Where the state of fish stocks is dependent on future trends in access and fishing, it is desirable that harvesting pressure/harvest does not increase - indeed provision needs to be made for the expected increase in harvesting pressure.

In the fiord entrances and along the outer coast commercial harvests are capped by the Quota Management System (QMS) and can be reduced for sustainability reasons as has occurred in the rock lobster fishery over recent years. Amateur daily bag limits and accumulation provisions need to be realistic for the Fiordland situation and changes in future fishing pressure.

3.6.4 Accumulation of daily fish possession limits

Both the present Fisheries (Amateur Fishing) Regulations 1986 and the Fisheries (Southland and Sub Antarctic Areas Amateur Fishing) Regulations 1991 provide a defence mechanism to allow recreational fishers to possess and accumulate more fish and shellfish than the daily limit on extended fishing trips. To exercise this defence the fisher must be able to prove that the fish or shellfish was taken within the prescribed daily limit on each day fished.

Why is accumulation detrimental?

Accumulation of amateur fish possession limits most frequently occurs in Fiordland due to recreational fishers engaging in extended fishing trips of several days' duration. Due mainly to the difficulties and cost of access, recreational fishing trips normally occur for extended periods ranging from overnight trips to seven days or longer. While trailer borne vessels can operate from Milford and Doubtful Sound, the majority of recreational fishing takes place aboard charter vessels and private syndicate owned vessels, where recreational fishing and diving are two of the primary activities most often combined with deer hunting. Both the charter vessel fleet and the growing numbers of ex-commercial fishing vessels in private syndicate ownership are well equipped to accommodate fishing parties up to 12 - 14 people and providing freezer storage for accumulated catch.

The present accumulation regime encourages excessive harvesting of some target fish species contributing to localised depletion of vulnerable resident fiord fish stocks. In one of the most excessive reported cases, a 14-person charter party, plus skipper and crew brought home 672 rock lobster from a 7-day dive charter, while claiming that no rock lobster were consumed during the trip.

Accumulation encourages "aggregation" of extra catch taken for non-fishers in the party and is exacerbated by "double dipping" of additional catch consumed during the trip but not reported. Such instances give rise to strong negative reaction from fishers who adhere to a fish for a feed ethic, environmentalists and the general public concerned about excessive catches. Accumulation, combined with unrealistic fisher expectation, can contribute to a common behaviour where the success or otherwise of a trip is measured by achieving the species limit, each day - limits that many consider are set too high or are unrealistic for inside the fiords.

3.7 Proposed management measures

The following package of management measures has been devised to meet the needs of Fiordland's three different groups of fisheries. It represents an agreement between commercial and recreational fishers, Ngāi Tahu, charter operators and environmental interests on the Guardians. All the fishing groups have made significant sacrifices in the interests of looking after Fiordland's fisheries and marine environment. Reaching an agreement indicates that a balance has been struck between the groups.

Note: Current and proposed amateur fishing rules are detailed in Appendix 2.

3.7.1 Milford and Doubtful Sounds

Commercial fishing:

- No commercial fishing inside the Doubtful Sound habitat lines. (Milford Sound has been closed to commercial fishing since the 1950s.)

Non commercial fishing:

- Section 186B, temporary two-year closure (rahui) for blue cod plus two additional years if necessary.
- Groper daily bag limit of 2, no accumulation.
- Rock lobster daily bag limit of 2, no accumulation.

3.7.2 Inside the rest of the fiords

Commercial fishing:

- No commercial fishing inside the habitat lines.

Non commercial fishing:

- Blue cod daily bag limit of 3, no accumulation.
- Groper daily bag limit of 3, no accumulation.
- Rock lobster daily bag limit of 3, no accumulation.

3.7.3 Fiord entrances and outer coast

Commercial fishing:

- Harvest capped by the QMS.

Non commercial fishing:

- Blue cod daily bag limit of 20, no accumulation (this includes the 3 blue cod limit from within the fiords).
- Groper daily bag limit of 5 with no accumulation (this includes the 3 groper limit from within the fiords).
- Rock lobster daily bag limit of 6 with a three day accumulation limit of 15. This measure is associated with a bag and tag provision relating to each day's catch.

3.7.4 Measures that apply both inside the fiords and along the coast

Non commercial fishing:

Bag limits:

- Scallop daily bag limit of 10 with no accumulation.
- Paua daily bag limit of 10 with no accumulation.
- Groper included in the total finfish bag limit.
- Total finfish bag limit of 30 with no accumulation.
- Jock Stewart (Sea Perch) daily bag limit of 10 with no accumulation – outside the combined daily finfish bag limit.

Bulk harvesting methods:

Inside the habitat lines where conservative daily bag limits are proposed, bulk harvesting methods are not appropriate. There is an increased risk of exceeding daily limits if cod pots, dahn lines with 25 hooks, dredges and set nets are used. For non-divers, pots are the only method of harvesting rock lobster. Given that rock lobster can be released alive three rock lobster pots per boat are considered to be appropriate both inside and outside the habitat lines.

- No cod pots inside the habitat lines of any fiord.
- Dahn lines limited to 2/boat and 5 hooks per line.
- Rock lobster pots limited to 3/boat.
- No scallop dredges.
- No set nets.

3.7.5 Storing rock lobster and holding (coff) pots

Outside the commercial rock lobster harvesting season (generally from February to June), pots are stored in sheltered locations on flat muddy or sandy substrates. This type of habitat is relatively plentiful in the southern fiords where the practice of setting a line of pots connected by bridles with a float at either end is considered to be the most appropriate pot storage method. Further north, where suitable substrate is more restricted, pots are stored individually. Anchorages are avoided.

In Section 4 values of special significance are discussed including the definition and identification of china shops and representative areas. The Guardians agreed that rock lobster pot storage should not take place inside the areas designated as china shops (Figure 4). Within three of the proposed seven representative areas, restricted areas are being defined

where rock lobster and coff pot storage can take place without compromising biodiversity values (Figure 5).

Adopting a recommended pot storage method, excluding pot storage from china shops, and designating restricted areas where pot storage is able to take place within representative areas, are all important steps towards developing a comprehensive pot storage management approach for Fiordland. Developing this further is a priority for the CRA8 fishers who have the knowledge and practical experience to devise workable solutions for the Fiordland situation.

3.8 Package of fisheries measures - for the fish and the environment

The proposed package of fisheries measures not only benefits Fiordland's fish stocks and fisheries⁴ but also the marine environment. Certain fisheries management measures can play a role in looking after values of special significance. For instance, if commercial fishing is withdrawn from inside the habitat lines this will complement other measures proposed for the less productive inside fiord areas. Similarly, the adoption of conservative amateur harvesting limits within the fiords means the removal of methods such as scallop dredging, with positive implications for the benthic communities. Proposals contained in this component of the draft strategy represent a very positive contribution to the marine environment on the part of the harvesting groups.

⁴ Over the past 5-6 years the CRA8 Management Committee has taken a proactive approach to resolving rock lobster sustainability issues within CRA8. The TACC is decided on the basis of a decision rule that guarantees a rebuild of the fishery. This has resulted in quota holders taking large cuts to their quota and the unavailability of quota has, in turn resulted in fewer boats in the fishery. However rock lobster stocks along the outer coast are now rebuilding and the current proposal not to pot for rock lobster inside the habitat lines is a further gain for both the stocks and habitat within those areas.

4. VALUES OF SPECIAL SIGNIFICANCE

Key Objective

- *Ensure the ongoing integrity of areas, habitats and communities of special significance within Fiordland's marine environment.*⁵

4.1 Information gathering by fiord

The information presented in this section of the draft strategy is from a variety of sources. What was already available about areas and values of special significance in Fiordland's marine environment from the 1990s onwards was combined with the Guardians' knowledge and that of their wider groups. Valuable input has been made by researchers who have carried out extensive studies in Fiordland, including Ken Grange (NIWA), Chris Paulin (Te Papa), and Steve Wing (Marine Sciences, University of Otago). Where values needed to be clarified, site visits were made by group members or researchers.

It should be noted that commercial fishers advocated marine reserve status for two areas identified in the 1990s exercise. The Fiordland Commercial Fishermen's Association applied for what have since become the Piopiotahi (Milford Sound) and Te Awaatu (Doubtful Sound) marine reserves.

4.2 Identifying values of special significance

The Guardians adopted two distinctly different types of values to ensure the ongoing integrity of areas, habitats and communities of special significance within Fiordland's marine environment. Criteria were defined to guide the identification of the two following sets of values:

4.2.1 "China shops"

China shops are small discrete areas that are outstanding for the abundance and/or diversity of animal communities, the abundance and/or diversity of mixed animal and plant communities or the abundance of particular animal species. Such communities are often located where the current is strong, such as where fiords change direction sharply or the

⁵ **Marine mammals**

The Guardians and DoC discussed whether serious issues currently affect marine mammals in Fiordland. No outstanding issues were identified that could not be adequately addressed by existing legislative provisions contained in the Marine Mammals Act and Conservation Act. Both Acts provide safeguards for marine mammals that are subject to frequent interaction with humans. The group supports the marine mammal research effort and also the work to ensure that commercial activities such as marine mammal watching and diving with dolphins do not adversely impact the animals.

channels narrow around islands. The Guardians decided that hot spots of biodiversity should be identified.

Likely areas were initially identified on the basis of earlier work documented by Ken Grange together with the Guardians' knowledge. A workshop was held with Ken Grange and Chris Paulin to better define the values within these sensitive areas. Steve Wing identified a number of additional areas on the basis of his knowledge and this completed the current list. A summary of available information about each area is presented below. We anticipate additional information will become available through the process of consultation and when the strategy is implemented.

4.2.2 Representative areas/fiords

Initially, parts of fiords and entire fiords with special features were identified. For instance, Sutherland Sound was identified as a unique estuarine area confined by an emergent sill and Long Sound was considered to be one of the most pristine fiords in Fiordland.

However, as the exercise progressed, it became clear that a set of criteria on which to consider the values of each fiord required better definition. Rather than focusing on special values, the group decided that representative areas would provide a more useful basis for advancing the Guardians' objective. Fiordland's marine habitats and biodiversity can be encompassed by a selection of representative areas. Such an approach is advocated in the New Zealand Biodiversity Strategy released in 2000. One of the government's desired outcomes stated in the strategy is the protection of a range of marine habitats and ecosystems that are representative of New Zealand's indigenous marine biodiversity. The Guardians recognised the relevance of such an approach for Fiordland's marine environment.

The following framework and criteria for identifying representative areas were adopted:

1) *Inside Fiord (sheltered)*

- Vertical rock wall
- Broken rocky reefs
- Soft bottom

2) *Fiord Entrances*

- Semi sheltered
- Sheltered

3) *Outer Coast*

- Exposed⁶
- Semi sheltered
- Shallow sandy

⁶ The fiord entrances and outer coast are regularly exposed to extreme weather that batters the bull kelp and shifts the bouldery and rocky bottom substrates. Unstable exposed habitats are the logical consequence of such rigorous conditions.

A number of fiords and parts of fiords representing estuarine, inside fiord and fiord entrance habitats have been identified according to these criteria and the information summarised below.

4.3 Identification and description of china shops

The location of the china shops is shown in Figure 4. The position of each china shop within individual fiords is shown in Figures 6-18. Suggested management measures have been tailored to the special values of each china shop. In addition to the targeted management measures for each site, a code of practice covering all the china shops is supported.

Bligh Sound

- ***Turn Point***

Values: Spectacular black coral colonies and an abundance of sponges on the Turn Point rock wall are outstanding values. Biodiversity is high. The site has excellent underwater visibility.

Threats: Confined area with definite threat from divers.

Measures: Permit for divers, guide divers, code of practice for the site.

Clio Rock (White Rocks)

Values: Unique habitat feature. Rocks rise from 120 to 1 fathom in the middle of the sound. A diverse and abundant community of red, pink and black corals are found here. The lack of sedimentation means the water is very clear and the corals clean.

Threats: Increased visitor numbers and anchoring on the rocks.

Measures: Boats should anchor at Kelly's on the eastern side using stern lines.

George Sound

- ***South side of Cinch Cove***

Values: The site is north facing, sunny and relatively light to a depth of 45m. The cliff face descends and gives way to a sandy slope at 25-30m. Both fiord and open coast communities are represented on the cliff face where seaweeds grow adjacent to black corals and feather stars. At the base of the wall there is a spectacular field of large sea pens and tube anemones that extends beyond diving depths. This is one of the few sea pen localities in the northern fiords. There are no apparent threats to these values.

Caswell Sound

- ***Hansard Point***

Values: Ecklonia forest descending to black coral. A mix of open coast and inner fiord habitats. Sheer rock walls supporting abundant corals and starfish. There are no apparent threats to these values.

Charles Sound

- ***Gold Arm***

Values: Everything is together in one place - river mouths, estuarine areas, Fanny Islands, and rocks that emerge at low tide. There is an abundance of spectacular red and black corals, some of which grow so close to the surface they can be viewed from a boat. An abundance of fish and some rock lobster together with good light adds to an impressive range of values.

Threats: Increased visitor numbers and anchoring.

Measures: The main anchorage for the sound is just a few minutes away. Boats should anchor on the inside of the site on mud and there should be a code of practice developed for the site.

- ***Emelius Arm***

Values: Diversity and abundance of colourful sponges on a boulder substrate. There are no apparent threats to these values.

Bradshaw Sound

- ***Precipice Cove***

Values: A sill at the entrance makes Precipice Cove a fiord within a fiord. The diverse wall community associated with the sill is of special significance.

Threats: Fishing with existing methods does not represent a threat to the wall community. Anchoring on the sill is a threat. Precipice Cove is one of the better known anchorages and subject to high use.

Measures: There is sheltered anchorage behind Macdonell Island and a code of practice could be the most effective approach for looking after the wall community.

- ***Gaer Arm***

Values: Groper, tarakihi, other finfish and rock lobster are found up in the estuarine habitat at the head of the sound. Rock lobsters have been observed in coral trees.

Threats: Groper is harvested from syndicate boats in this area and an increase in fishing pressure is predicted. Commercial rock lobster potting also takes place here.

Measures: The Guardians' agreed that this area warranted a no-fishing status. There is an all weather anchorage in nearby Precipice Cove.

Doubtful Sound

- ***Common Head***

Values: Abundant coralline algae and bryozoans - high biodiversity. An area of high currents and associated growth rates. This area is more representative than outstanding. There is a navigational hazard 100m off shore but otherwise there are no apparent threats.

- ***South wall between First and Crooked Arms***

Values: Steep rock walls support high densities of brachiopods and black coral. This is the centre of the productive zone in Doubtful Sound and densities of animals in the wall community reflect this. Best suspension-feeding communities in Doubtful Sound. There are no apparent threats to these values.

- ***Tricky Cove***

Values: Tricky Cove is a tiny cove opposite Crooked Arm where all the early research on black coral and inner fiord habitat communities took place. The cove has both historic value as well as providing important baseline monitoring opportunities.

- ***Area south of Elizabeth Island (5 china shops)***

Values:

- South end of Elizabeth Island - outstanding example of red coral on black sand.
- Unique assemblage of bright yellow glass sponges at 30-35m depth opposite Hall Arm. Apparently the only other place these sponges have ever been seen is in caves in Jamaica.
- Rock wall community and red coral under a large overhang south of Lady Alice Falls.
- Red coral community inside Rolla Island, Tarawera Rock.
- White coral community in the trench off Brigg Point.

Although these features are located within close proximity, each is found in an otherwise barren environment.

Threats: Being sheltered and easily accessible from Deep Cove, visitor numbers, diver damage, anchoring and dredging represent real threats to these values.

Measures: The area bounding the five sites warrants an area of special significance designation. Visitor numbers, diving and dredging need to be managed accordingly. Olphert Cove could provide an appropriate anchorage site. The area could also provide opportunities to study marine biology for schools using the Deep Cove Hostel. Marine reserve status was thought to be most appropriate for this area.

Breaksea Sound

- ***The wall before First Cove***

Values: The best suspension feeding communities in Breaksea Sound. The only place in Fiordland where particular sea stars are found. There are no apparent threats to these values.

- ***Vancouver Arm***

Values: Brachiopods a feature of the diverse rock wall communities along the north wall. There are no apparent threats to these values.

Acheron Passage

- ***Reef off Wet Jacket Arm***

Values: Spectacular rock wall habitat occurs in a high current. The most important part of the habitat is the sill, or rock reef located just off the entrance to Wet Jacket Arm. Being remote from the land, silt does not affect the communities that feature large black corals and bryozoans.

Threats: The impact of increasing numbers of cruise trips was discussed. Environment Southland's agreement with the cruise ship industry limits the number of ships to two at any one place and time. Currently the total number of visits is 30 and this is expected to increase to 50 over the next few years. Issues of speed and noise underwater were canvassed but other than collisions and sinking, cruise ships were thought not to represent a threat to the underwater sill community. However, this site is popular with divers and both increased visitor numbers and anchoring were seen as threats.

Measures: The possibility of marking the site was discussed but damage to the marker and anchoring at the site could be resultant problems.

Dusky Sound

- ***Cook Channel, Long Island***

Values: Where the passage narrows, high currents foster dense colonies of particularly large bryozoans, black corals and red corals. There are no apparent threats to these values.

- ***Nine Fathom Passage, Cooper Island***

Values: More spectacular scenery than the Cook Channel china shop. Where the passage narrows, high currents foster dense colonies of particularly large bryozoans, black corals and red corals.

Threats: Anchoring

Measures: Anchoring can take place at the end of Cooper Island or Fanny Bay

Chalky Inlet

- ***Edwardson Sound***

Values: A forest of huge black coral trees with abundant gorgonians and other species typical of the southern sounds is located opposite Divide Head along the west wall at the entrance of Edwardson Sound. The water is very clear due to a lack of freshwater. The sloping rocky reef substrate ends in a drop off.

Threats: There is nowhere to anchor but visitor numbers are a threat.

Measures: A code of practice needs to be developed for the site.

Preservation Inlet

- ***The Narrows***

Values: An outstanding abundance of sea pens occurs on the sand with scallops located among them. Holothurians (strawberry fields), red coral and white brachiopods are also outstanding features of the Narrows.

Threats: Scallop dredging, diver damage, divers disturbing the sediment that settles on the sea pens with long term detrimental effects, increased visitor use and rock lobster pot storage are all threats.

Measures: Ban scallop dredging. Introduce a no take area for scallops to stop divers gathering amongst the sea pens. Create a no anchoring zone. Ban the storage of rock lobster pots and the use of recreational rock lobster pots from the area. Develop a code of practice for this site.



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Figure 4
Location of China Shops

Date: 04/09/2002



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consultation to its users.

4.4 Identification and consideration of representative areas

The location of representative areas is shown on Figure 5. For individual fiords, areas are shown in Figures 6-18. Primarily, representative area status is to ensure that community structure and biodiversity are not compromised by human influence.

Although there are a variety of measures in legislation that could be used to achieve the type of protection envisaged, the Guardians support the use of the new marine reserves legislation for the representative areas identified below, conditional on the final form of the legislation. These areas include inner fiord and entrance habitats that support significant values from both a national and international perspective.

The choice of marine reserve status is contingent on kaitiakitanga being appropriately expressed in Fiordland, as customary fishing rights will be extinguished with the permanent removal of harvesting from these areas.

Unlike the inner fiords, the outer Fiordland coast habitat does not support special values of an equivalent nature - indeed it has been described as having the similar characteristics as the rest of the southern coastline. Rather than marine reserve status, the Guardians identified a range of management mechanisms associated with Marine Protected Area status that provide a more appropriate management choice for these habitats.

Sutherland Sound

- *Entire Sound* (Inside fiord - soft substrate)

The sill that defines Sutherland Sound is very shallow, emerging at low tide. Behind the sill lies a unique muddy estuarine area where leaf material has accumulated due to a lack of flushing. Spiky dogfish, stargazers, flounder and red decorative crabs are all common in this pristine habitat.

Bligh Sound

- *Turn Point to Clio Rocks* (Inside fiord - vertical rock wall)

Linking Turn Point and Clio Rocks by including the rock walls between the two china shops to create an area representing inside fiord, vertical rock wall habitat.

Although divers would not be able to harvest rock lobster in the area, alternative areas are available.

Charles Sound

- *Gold Arm* (Inside fiord - vertical rock walls, broken rocky reefs, soft substrate)

In addition to the extraordinary set of values exhibited within the Gold Arm china shop, diverse rock wall communities throughout the rest of the arm provide an excellent representative area of rock wall habitat.

Depending on the management measures adopted there was a request that storage of rock lobster and coff pots be accommodated within Gold Arm. These are not associated with the rock wall habitat.

Bradshaw Sound

- *Gaer Arm* (Inside fiord - vertical rock walls, soft substrate)

The influence of freshwater from the power scheme is at a minimum in Gaer Arm. The sound still supports cockle beds as well as highly diverse rock wall communities including opal fish, seapens and soft coral. Special features of the china shop at the head of the fiord include the presence of groper, tarakihi, other finfish and rock lobsters, some of which have been observed in coral trees.

Acheron Passage

- *Wet Jacket Arm* (Inside fiord - vertical rock walls, broken rocky reefs, soft substrates)

As a representative area, Wet Jacket Arm encompasses all inside fiord habitats within a single fiord entity. Ken Grange reports the highest densities of black coral from all his Fiordland studies are in Wet Jacket Arm. Steve Wing has study sites in the Arm and reports that the best brachiopod beds and suspension feeding communities are around Oke Island.

Dusky Sound

- *Inside Five Fingers Peninsula* (Fiord entrance, Outer coast)

The area suggested inside Five Fingers Peninsula, takes in Cormorant Cove, Facile Harbour and Pigeon and Parrot Islands and includes rocky reef, sandy bottom, estuarine and kelp habitats. The type and diversity of habitats makes this area very suitable for representative status.

Preservation Inlet

- *Long Sound* (Inside Fiord - vertical rock walls, broken rocky reefs, soft substrate)

The area includes Long Sound and the Narrows to a line across the entrance from Revolver Bay. Long Sound is regarded as one of the most pristine sounds. Poor stocks of recreational fish species have meant that fishing pressure has never been high. The sound is very important for splendid perch, an emergent fish species (normally only found at depth in the ocean). Wall communities are representative. Long Sound is used to transport hunters, fishers and charter boat clients into and out of the fiords via Cascade Basin. Anchoring takes place in Cascade Basin, however this operation does not appear to adversely impact the underwater habitat of Long Sound.



Produced for the Guardians
of Fiordland Fisheries and
Marine Environment by
Environment Southland

Figure 5
Location of Representative Areas
Date: 04/09/2002



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4.5 Management considerations

The location and distribution of china shops and representative areas reflects the national and international importance of inside fiord habitat, communities and biodiversity.

Based on local knowledge and available information, 22 china shops have been identified for consideration. Collectively these areas support a wide range of special features and values. Suggested management measures are based on particular values and whether these are under threat from existing or future activities.

Seven representative areas have been identified, including one entire fiord system and four entire fiord arms. Given that promoting biodiversity is the purpose of representative areas, the Guardians decided that marine reserve status was appropriate for these and the area bounding the five china shops south of Elizabeth Island in Doubtful Sound. However this is contingent on the details of the revised Marine Reserves Act and the expression of kaitiakitanga.

Six of the china shops are located within representative areas which means management would be by way of provisions in the revised Marine Reserves Act. Identifying the threats to china shops revealed that increased visitor numbers, anchoring and diving are the most important issues facing these areas. However, the Marine Reserves Bill promotes marine reserves as places for the public to recreate and enjoy, and for business ventures to be established to foster that demand. It may be that marine reserve status is not the most appropriate for looking after biodiversity and special values that are vulnerable to non-fishing recreational activities.

5. RISKS TO THE MARINE ENVIRONMENT

Key Objective

- *Avoid where possible, remedy, or mitigate the adverse impacts of human activities on fisheries and the marine environment.*

5.1 Identification of potential risks

Potential risks were identified from Figure 2, the schematic diagram of Fiordland's marine environment values and issues that could potentially downgrade these values. The following list of issues and associated causes was compiled:

Bioinvasion

- Ballast water
- Ships' hulls
- Introduced pests

Pollution

- Oil spills
- Sewage
- Rubbish/plastics

Physical damage

- Structures
- Ship's wakes
- Land slips (possums)

Altered flow/sediment dynamics

- Power generation (Meridian)

Impact of increasing access (people) on wilderness values and expectations of visitors

- Kayaks
- Private boats
- Charter boats
- Yachts
- Cruise ships
- Helicopters
- Planes

Each potential issue was discussed to develop a better understanding of the risk it might present for Fiordland's marine environment. After considering current management, the Guardians decided whether the issue warranted further consideration. Agreement that the

issue did require attention resulted in an evaluation of what was needed and what the Guardians could contribute.

For issues involving risks to the marine environment, the Guardians approach is to evaluate these on a case by case basis and adopt an advocacy role with the relevant agency where this could be useful. For instance, we have not dealt with the export of water from Deep Cove issue in this strategy because we have responded at the resource consent stage. Furthermore, the group has not commented on aquaculture because it is listed as a prohibited activity for Fiordland in the draft Coastal Plan.

The Guardians have no intention of writing a resource management strategy or attempting to duplicate Environment Southland's role. Rather we intend to work with Environment Southland and hope to add value on the basis of the group's collective knowledge and experience. A number of the issues discussed below do not have a definitive answer. Issues such as these tend to evolve over time. The Guardians recognise the importance of playing an ongoing role in these issues.

5.2 Bioinvasion

The prospect of an unwanted marine organism being introduced to the fiords, settling on the fiord walls for instance, and then aggressively preying on the wall communities is almost unthinkable. Such a scenario in Fiordland would be of major significance both nationally and internationally. The unusual nature of the fiord communities is no protection and the fiords remain just as vulnerable to bioinvasion as any other part of the coast. Of all likely threats to Fiordland's fisheries and marine environment, bioinvasion is possibly the most serious.

In fact three species of algae have already been introduced to and become established in Fiordland, probably through early whaling and sealing operations in the late 18th and early 19th centuries.⁷ *Champia affinis*, a native of Tasmania and South Australia, was first recorded from Stewart Island in 1855 and lives in the sheltered waters of Preservation Inlet. *Polysiphonia brodiaei*, a native of Ireland and Northern Europe, is found in Dusky Sound. In contrast, *Sargassum verruculosum*, also from Tasmania and southern Australia, has a wider distribution, being found in relatively small quantities in Bligh, Thompson, Doubtful, Breaksea and Dusky Sounds as well as Chalky and Preservation Inlets.

Fortunately none of them qualifies as a serious threat to native biodiversity - unlike *Undaria pinnatifida* that could have a devastating impact on the composition of Fiordland's kelp and animal communities.

5.2.1 Where's the threat coming from?

As the number of people interacting with Fiordland increases so does the number and variety of potential pathways by which exotic species could be introduced. New Zealand has already received at least 150 accidentally introduced exotic marine species. These represent a wide range of organisms including algae (kelps included), sponges, jellyfish, corals, worms, molluscs, crabs and other crustaceans.

⁷ W. A. Nelson., et al. Marine Macroalgae of Fiordland, New Zealand (2002) Tuhiinga 13:117-152

Organisms could arrive in Fiordland either directly or indirectly in a variety of ways:

- Organisms could arrive *naturally* on flotsam and jetsam, on migrating animals or as planktonic forms in the currents. This is less likely than the following means.
- *Fouling* (or encrusting) organisms growing on the bottoms of boats. If a boat arrives in New Zealand with fouling organisms on it, it is possible that those organisms will be knocked off, or breed in New Zealand waters, resulting in an introduction. Devastating exotic species such as the Northern Pacific sea star are fouling organisms.
- Other organisms are moved around in water associated with the boat such as *ballast water*. Ballast that is pumped into a ship in one port will invariably contain organisms from that port. These can include planktonic organisms, larval stages of organisms and even whole fish. When the ballast water is discharged, those organisms are discharged and may establish in the host environment.
- Transfer of organisms in equipment such as ropes, buoys and dive equipment is another known pathway.

5.2.2 What's the impact?

The full cost either to the New Zealand environment or to the New Zealand economy of exotic species is not known. However, overseas examples confirm that the impacts can be substantial. In New Zealand, algal blooms have caused the closure of some shellfish beds and been blamed for health problems in some New Zealanders. These algal blooms may have resulted from organisms brought to New Zealand in ballast water. Any aggressive exotic species that invaded Fiordland could have major repercussions for the fishing and tourism economy as well as natural biodiversity.

5.2.3 Hull fouling/cleaning

Exotic marine organisms may be introduced to, or spread around, New Zealand on fouled vessels and associated structures. These organisms may be transferred from the vessel hull to the marine environment by falling off or being scraped off when, for instance the vessel bumps against wharves. Domestic vessels that have become fouled in one area of New Zealand and spend some time in another part of the coast may further spread exotic marine organisms. This could possibly be exacerbated if the vessels are cleaned in the other area. Hull cleaning management control options to minimise the risk of fouling material cleaned from hulls, being returned to coastal waters are currently being developed by MFish and MfE

The most commonly known exotic marine species in New Zealand is *Undaria* (*Undaria pinnatifida*) or Japanese kelp. This seaweed is already in Bluff and Stewart Island - Fiordland's backdoor. *Undaria* is a difficult organism to manage. MFish and DoC have initiated a programme aimed at slowing the spread of *Undaria* around the mainland through awareness and education. Codes of practice are being developed to minimise the possibility of *Undaria* being introduced to remote locations.

There are two potential risks for Fiordland associated with the proposed hull cleaning controls. First, national hull cleaning controls that are appropriate for the majority of New Zealand may not be stringent enough to protect Fiordland from fouling organisms. Second, individuals may not comply with the hull cleaning guidelines being developed and the isolation of Fiordland potentially increases this risk.

The Guardians have been concerned about *Undaria* and other unwanted introductions from hull fouling for some time. The group supports the adoption of the following code of practice to minimise the risk of introducing unwanted organisms from hulls into Fiordland.

- *No cleaning hulls below water line and running gear within the fiords.*
Whilst this is already part of the agreement with cruise ships, the policy needs to be adopted for all vessels. The practice of cleaning the superstructure and hulls above water line with biodegradable cleaners currently used for tourist vessels is not part of this code.
- *Cleaning on shore must occur above the high tide mark and ensure that no fouling material or contaminated water could re-enter the sea.*
Being above the high tide mark makes this a policy for DoC's National Park Management Plan or the district plan.
- *All vessels/structures intending to temporarily reside in the fiords for more than 24 hours to have their hulls inspected for *Undaria* and other unwanted organisms. And any detected unwanted organisms to be remove from the vessel/structure and disposed of on land.*
This approach is in line with the voluntary code of practice being developed between MFish and vessels operating for the sub-Antarctic and Chatham Islands. However, the situation in Fiordland is more complex, given the variety of different types of vessels visiting and no way of identifying or tracking these.
- *All vessels/structures intending to permanently moor in the fiords to be cleaned and anti fouled before being transported to the fiords.*

5.2.4 Ballast water

Foreign vessels

Under the Biosecurity Act, the discharge of ballast water originating in any other country is controlled by the Import Heath Standard that only permits vessels that have either exchanged ballast water on the high sea or are carrying freshwater ballast to discharge ballast water into New Zealand's territorial sea. This poses two potential problems for Fiordland;

- Freshwater ballast could harbour species that may survive in the waters of Fiordland.
- Mid-ocean exchange, the only widely available quarantine procedure for reducing the risk of spreading invasive species in ballast water, is not 100% effective.

As a result, the current mandatory requirements would not completely eliminate the risk of introducing foreign ballast water, and therefore foreign organisms, into Fiordland. The

majority of cruise ships do not carry ballast water and therefore are not a risk from that point of view.

Domestic vessels

Currently, there are no mandatory controls on the movement of domestic ballast water around New Zealand. As well as toxic algal blooms, ballast water can potentially spread a number of existing exotic species around New Zealand (eg, *Undaria pinnatifida* was thought to have arrived in ballast water). The discharge of domestic ballast water into the fiords could pose a significant threat of spreading existing undesirable species.

The Guardians recognise how serious a major invasion of an unwanted exotic organism would be in Fiordland and support the following actions in relation to ballast water.

- The development of a voluntary practice that no foreign ballast water - regardless of whether it has been exchanged on route to New Zealand - is to be discharged into the fiords. This practice will need to include the caveat that compliance with this practice must be consistent with the safety of the crew and the vessel.
- The development of a voluntary practice that no domestic ballast water is to be discharged into the fiords. This practice will need to include the caveat that compliance with this practice must be consistent with the safety of the crew and the vessel.

5.2.5 Minimising the risk of bioinvasion in Fiordland

Like many of the issues in this draft strategy, there is no definitive answer to preventing bioinvasion in Fiordland but there is a positive way forward. To build on the suggestions made above, a special task force could be formed to develop a targeted plan specifically for the Fiordland situation. Such a group would need to involve the MFish Biosecurity Group, Environment Southland and the Guardians.

5.2.6 Risk surveillance

Irrespective of what a taskforce might develop, surveillance to detect unwanted visitors should not be delayed. The importance of detecting and responding to unwanted organisms has resulted in MFish establishing a surveillance programme that relies heavily on people who are informed about the issue and work or recreate in the marine area. Isolated areas such as Fiordland are difficult for management agencies to access on a regular basis. Therefore the Guardians and their associated groups have a vital role to play in detecting new exotic marine organisms in Fiordland.

The Guardians are keen to participate in the public surveillance network for exotic marine pests. To carry out this role effectively, educational and identification material will be needed from MFish's Biosecurity Group and this can be distributed to members.

5.2.7 Action on detection

Responding to the presence of an exotic marine pest is difficult for the responsible agencies in an isolated location such as Fiordland. The expertise and advice of those with local knowledge will prove invaluable for devising the most effective approach.

In the event of an exotic marine organism being located in Fiordland, the Guardians recognise that they have a responsibility to work cooperatively with the Ministry of Fisheries and Environment Southland to ensure the best possible outcome for the Fiordland's fisheries and marine environment.

5.3 Pollution

5.3.1 Oil spills

Devastating spills of heavy oil that cause damage to wildlife and the marine environment are unlikely to be a threat in Fiordland at this time. Large vessels, such as cruise ships use medium rather than heavy fuels. Under the Transport Act, the Maritime Safety Authority is responsible for managing oil spills over 50,000 litres (3 tier spills). Environment Southland has a comprehensive Oil Spills Response Management Plan for dealing with 2 tier spills - less than 50,000 litres.

The Guardians raised concerns about the possible impact of using particular oil dispersants around the china shops. Because of the freshwater layer there is apparently only one dispersant that could be used. Depending on the circumstances, the group could provide logistical support and advice to either the Regional or National On Scene Commander depending on whether the spill is a tier 2 or 3 oil spill.

5.3.2 Sewage

Given the exposed nature of the environment along the outer coast, sewage will be broken down in a relatively short period. However, the same will not be true for the inside fiord environment. If wall communities do depend on filtering out material from the forest, exposure to enriched material such as sewage may cause changes to both the habitat and those communities.

More than 12 nautical miles from the coast, sewage treatment and disposal systems of large ocean going vessels and cruise ships must meet international MARPOL standards. Inside 12 nautical miles cruise ships have agreed not to dispose of sewage. Otherwise sewage disposal is managed according to the RMA (Marine Pollution Regulations). Although a national set of rules governing the discharge of raw or treated sewage are contained in these regulations, the special nature of Fiordland is acknowledged and Environment Southland has been able to adopt more stringent controls for sewage disposal in its Coastal Plan. For instance, the discharge of sewage (black water) from large ocean going vessels cannot take place inside 12 nautical miles. However the proposal to restrict the disposal of black water from tanks on smaller boats to a distance of more than one km offshore is being appealed.

Through resource consent requirements Environment Southland has input about the sewage disposal methods used by charter vessels. However no such controls exist for private boats or yachts. On land adjoining the fiords, sewage treatment ranges from sophisticated systems to a shovel at kayakers' camps.

5.3.3 Rubbish

Rubbish is just about the last thing that comes to mind when imagining Fiordland's marine environment. The "take it in - bring it out" philosophy for rubbish disposal is widely promoted and appreciated. However, accounts of rubbish left around huts, the Blanket Bay incinerator full of non-flammable rubbish and rubbish thrown overboard indicate that rubbish disposal is an issue.

Commercial fishers who are now very conscious of bringing out their rubbish, regularly report transporting rubbish (half a tonne at a time) discarded by others, to facilities on shore. The group discussed the infrastructure and facilities for rubbish disposal at access points. Waste disposal containers at the wharves in Milford are managed by the Milford Sound Development Authority and disposed of to the Southland District Council transfer station at Milford. In contrast, Deep Cove has no such facilities and the closest rubbish containers are at Manapouri. Onshore facilities for rubbish disposal in the national park require DoC approval.

Accounts of cans, bottles and plastics being found in quantities on the seabed is indeed disappointing. One charter operator is proposing a novel way of cleaning up such rubbish by offering cost-only recreational diving trips where two of the three dives are to clear rubbish from the bottom.

Raising the awareness of those who are responsible for the problem, the provision of adequate rubbish disposal facilities at access points and clean up operations are all part of the approach favoured by the Guardians, DoC and Environment Southland to address the rubbish issue.

5.4 Physical damage

5.4.1 Structures

Establishing structures within the Fiordland marine environment such as wharves, moorings, anchorages and a range of servicing facilities require resource consents from Environment Southland. Consent applications may be approved, approved with conditions or declined. When notified resource consent applications are processed there is an opportunity for interested parties to make submissions/objections and be heard. Appeals against decisions can be taken to the Environment Court.

The Guardians have made submissions on, and objected to, various consent applications considered to be against the interests of Fiordland's fisheries and marine environment. On the basis of experience to date the group feels that provisions in the resource consent process can safeguard environmental values from physical damage. Furthermore, the Guardians recognise the value of working with Environment Southland over these issues.

5.4.2 Ships' wakes

Cruise ships entering Fiordland are large vessels and there is a trend towards increasing size. The possibility of damage to rock wall communities caused by the ship's wake as the vessel passes through confined passages was considered. Environment Southland's agreement with

the cruise ship companies and the number of available pilots currently limits the number of vessels entering Fiordland and the number that can be inside particular fiords at any one time. Vessel speed and the associated wake are controlled inside the fiords by Maritime Safety Authority speed restrictions. A navigational bylaw is replacing the water recreational regulations contained in the draft Coastal Plan that serve the same function for all vessels.

The Guardians concluded that damage from vessel wakes was not an issue at this time.

5.4.3 Land slips (possums)

Land slips have been a feature of Fiordland for a very long time. From observation, colonisation of underwater landslide debris by marine communities can take place within a few years. Despite this, an increase in land slips is not desirable for marine habitats and communities. Concern about the rate at which possums are spreading in parts of Fiordland is expressed frequently. An increase in the density of possum damaged and dead trees is likely to be associated with an increased risk of land slips.

Responsibility for possum and deer control in the national park rests with the Department of Conservation. Whilst recognising that resources for possum control are limited, the Guardians consider the potential impact of possums on the marine habitat is an issue. Local knowledge about the spread of possums is provided to DoC so that decisions about priority areas for control are better informed. The impact of deer in certain areas was also noted.

5.5 Altered flow/sediment dynamics

5.5.1 Power generation (Meridian)

The flow regime in Doubtful Sound has been modified since the Manapouri power scheme became operational and freshwater was diverted from Lake Manapouri into Deep Cove. During construction of the scheme, some workers were reputedly attracted to Deep Cove because of the quality fishery in Doubtful Sound. Accounts of plentiful catches were documented at that time and again in the 1980s but since then the state of the fish stocks has been a cause of increasing concern.

The fisheries measures proposed in this strategy assume that over harvesting is the reason for the state of the fish stocks in Doubtful Sound. Road access into Doubtful Sound and increasing numbers of fishers lend weight to that view. However, to be confident that the management measures are the most appropriate it is important to know what, if any influence the changed flow regime is having on the habitat and stocks of harvested species. Current research has revealed something of the impacts on sedentary species and it is likely that more information will become available.

The altered flow regime issue is solely to do with identifying factors that are contributing to the depleted state of harvested fish stocks in Doubtful Sound. The Guardians are anticipating that current research will provide more information about this situation.

5.5 Impact of increasing access (people) on wilderness values and visitor expectations

The most visible increase in numbers visiting the Fiordland marine environment is taking place in Milford and Doubtful Sounds. Road access, together with a fleet of tourist vessels, encourages thousands of day visitors into both Sounds, though Milford is certainly more crowded than Doubtful Sound. Crowding on the water and in the airspace over Milford Sound has reached the point where concern is being openly expressed that the values visitors' come to experience are at risk of being compromised. In response to the Milford Sound situation a Mayoral task force has been set up to identify and analyse the issues involved with the support of Environment Southland.

The increase in numbers of people visiting Fiordland is not limited to Milford and Doubtful Sounds. Increasingly innovative ways are being used to access every part of Fiordland, even the most remote fiords. Charter boats, private boats, yachts, kayaks, helicopters and planes are now common throughout the whole of Fiordland. Although Environment Southland has certain controls over commercial surface water activities by way of resource consents, there are no controls on private boats, yachts or kayaks. Similarly, commercial operators require concessions from DoC to land in the national park, but no such requirement exists for private operators. Environment Southland recognises a number of different categories of visitor: the day visitor - largely restricted to Milford and Doubtful Sounds, the backcountry, comfort seeker who requires quality facilities generally provided by commercial operators and the backcountry adventurer who hunts, fishes, kayaks and tramps with the minimum of support facilities. Identifying the patterns and needs of different visitor groups is an important prerequisite to developing sensible strategies for managing the visitor issue.

From a fisheries perspective, the logical consequence of improved access is expanded fishing opportunities and an increase in fishing pressure. A number of the proposed measures in Section 3 (Fisheries) are designed to manage fishing pressure associated with improving access.

Apart from the impacts of increased numbers of people on wilderness values and the potential for an increase in fishing pressure, more people mean more rubbish, more sewage and more servicing facilities. Unless these issues are effectively managed, Fiordland's fisheries and marine environment are at risk. The Guardians support initiatives to address the issue of increasing access. Local knowledge held by members and associated groups will be vital if practical solutions are to be found.

6. EXPRESSING KAITIAKITANGA

Key Objective

- *That kaitiakitanga (stewardship) be appropriately expressed for Fiordland's fisheries and marine environment.*

6.1 What is kaitiakitanga?

Ngäi Tahu were principally a hunter-gatherer people dependent on seasonal harvesting. As a consequence a sophisticated system of management skills was developed based on the continuing sustainability of resources. Kaitiakitanga derives from tiaki. In a natural resources context tiaki incorporates notions of guarding, keeping, conserving, fostering, sheltering, and watching over resources. The kaitiaki - keepers or caretakers of knowledge relating to those natural resources - are appointed by the Tängata Whenua. Kaitiakitanga is the process whereby kaitiaki carry out responsibilities such as managing resources, protecting taonga and taking care of Tängata Whenua interests. In relation to natural resources, exercising guardianship in accordance with tikanga Ngäi Tahu (customary values and practices) is both a privilege and an obligation. Indeed it is an inherited obligation that cannot be alienated.

Safeguarding sustainability, protecting spawning grounds and maintaining juvenile habitats were just a few of the reasons for managing mahinga kai (customary food gathering). Such practices as controlling the amount harvested were the responsibility of kaitiaki, as were setting in place rähui, or temporary closures, to rest areas or species from harvesting.

The ability to provide hospitality to visitors is a fundamental principle of Maori society that reflects the status, economic power, reputation and social standing of the host people. Being able to offer an abundance of food to visitors is a sign of the wealth and mana of the Tängata Whenua and their success as rangatira and kaitiaki in preserving their local resources and cultural traditions. An inability to provide kai from your rohe is regarded as a failure to do your duty.

6.2 How is kaitiakitanga provided for in legislation today?

Through the process of settling Treaty of Waitangi claims, a number of legislative provisions that recognise and provide for customary fishing rights are now available.

In 1989, the concept of taiäpure - local fisheries, was introduced with the Maori Fisheries Act. Taiäpure are coastal waters of special significance to iwi or hapu as a source of food or for spiritual/cultural reasons. A management committee nominated by the local Maori authority has the role of recommending fishing controls for the area. In other words, taiäpure is an area management tool.

In 1992, customary fishing rights were further clarified in the Treaty of Waitangi (Fisheries Claims) Settlement Act. This took the form of an obligation to develop policies to help

recognise customary use and management practices for non-commercial fishing. The Act deals with the requirement for regulations to be made to define how customary fishing could take place and defines Tāngata Whenua rights and responsibilities to manage their own customary fisheries.

In 1998, the Fisheries (South Island Customary Fisheries) Regulations were introduced. The appointment of tangata tiaki/kaitiaki to manage customary fishing and the creation of Mātaitai, a second type of area management tool, were among the tools that recognised the traditional fisheries management role of Tāngata Whenua.

Another relevant provision under the Fisheries Act is s186B, temporary closures. This tool allows temporary closures of areas and restrictions of fishing methods much the same as traditional rāhui. The difference is that rāhui remain in place for the length of time required to achieve the result whereas s186B closure is limited to a two year period with a possible two year extension.

6.3 Ngāi Tahu's association with the Fiordland coastal marine area

Ngāi Tahu's association with Fiordland is long and significant, as is evidenced by numerous Maori place names that describe landscape features, routes both inland and along the shore, landing places and important events. This association was formally recognised in the Statutory Acknowledgment for Te Mimi o Tu Te Rakiwhanoa (Fiordland Coastal Marine Area) in the Ngāi Tahu Claims Settlement Act 1998.

Popular routes (now classed as Great Walks), sheltered canoe landing places, nohoanga sites where people stayed and harvested mahika kai - indeed all aspects of living in Te Mimi o Tu Te Rakiwhanoa - are recounted and explained in the statutory acknowledgment, documented in full in Appendix 3.

6.4 Expressing kaitiakitanga in Fiordland's coastal marine area: whose role is it?

Responsibility for kaitiakitanga within Fiordland's marine coastal area lies with the Tāngata Whenua represented by Oraka/Aparima, the kaitiaki runanga with authority over all but a small area at the northern boundary. Support for the Oraka/Aparima role comes from three other runanga that belong to Murihiku (Southland). Te Runanga o Ngāi Tahu, the tribal authority representing all 18 papatipu runanga, provides an oversight/support role.

After the South Island customary fishing regulations came into law, the four Murihiku runanga appointed tangata tiaki/kaitiaki. Altogether 32 tangata tiaki/kaitiaki were appointed and each has the right and responsibility to manage customary fishing across Murihiku. Of the 32 tangata tiaki/kaitiaki, 10 are from the Oraka/Aparima runanga.

6.5 How can kaitiakitanga be appropriately expressed in Fiordland?

An active involvement in managing Fiordland's fisheries and marine environment by Oraka/Aparima, the kaitiaki runanga and others they may select from Murihiku is clearly an appropriate way for kaitiakitanga to be expressed. However, the kaitiakitanga responsibility does not necessarily have to be carried out by the runanga or tangata tiaki/kaitiaki, as long as the desired outcomes are achieved.

Managing customary fishing by way of authorisations is already the responsibility of the tangata tiaki/kaitiaki in Fiordland. However, managing fisheries within an area by way of customary fisheries provisions such as s186B (temporary closures), mātaimai or taiāpure have all been considered as ways of implementing aspects of the Guardians' integrated strategy.

6.5.1 Taiāpure

Of the possibilities, taiāpure is the preferred customary fisheries management mechanism for expressing kaitiakitanga in Fiordland.

The main advantages are:

- Taiāpure is the only available mechanism whereby local management of the entire Fiordland fisheries area can be implemented under a single tool.
- The taiāpure (local management) committee has statutory status.
- The committee is nominated by local iwi (who are already members of the Guardians), and can include non-Maori members.
- Depending on the definition of relationships between the tangata tiaki/kaitiaki and the Guardians there are likely to be opportunities for joint action.
- The committee can accommodate a wide range of interests - in this respect, the Guardians are already operating along the lines of a taiāpure committee.
- Other management mechanisms may be able to be accommodated within a taiāpure.
- Taiāpure allows flexibility that will be an advantage in managing discrete areas that require fine scale management.

Drawbacks include:

- The timeframe for processing taiāpure applications can be in the order of 2-8 years, with the longer processing times negating the purpose of the mechanism.
- There are no resources for taiāpure committees.
- The large and complex nature of Fiordland.

Co-ordinating role for taiāpure

The possibility of using taiāpure to co-ordinate the management of Fiordland's fisheries and marine environment has been considered by the group. It was agreed that overarching mechanisms have to be able to accommodate all interests and need be able to be implemented within a reasonable timeframe.

7. IMPLEMENTING THE STRATEGY

Key Objective

- *The negotiated package of measures contained in the strategy be implemented as a whole without compromising underlying principles and balances.*

7.1 The balance negotiated between groups

This strategy contains a package of management measures negotiated by the Guardians. First the extent of the gifts required by those who currently fish in Fiordland was based on the need for sustainable fish stocks and the maintenance of values of special significance. Then, considerable debate took place over the contribution each group would make to ensure the outcome. The resultant package represents a balance of gifts and gains negotiated between commercial and recreational fishers, Ngāi Tahu, charter operators and environmental interests, and is considered to be fair by the Guardians.

Gifts and gains: A variety of rights apply to groups involved in Fiordland's fisheries and marine environment. From the clearly defined 'property' rights of commercial fishers and area based customary management rights, to those that have not yet been clearly defined, such as the rights of recreational fishers and environmental interests, there is considerable diversity. If these rights were equivalent, trading as envisaged in a property rights scenario, might be possible. However, the rights are not equivalent and informal discussions involving all the groups proved to be the most pragmatic way of arriving at agreements about what each group was prepared to offer in the interests of Fiordland's marine environment. Gifts and gains seemed the most appropriate terms to convey the generosity and goodwill of those negotiations.

Offering to withdraw fishing operations and bulk harvesting methods from inside the habitat lines represents a very generous gift on the part of the commercial fishers. Similarly, significant reductions in daily bag limits and strict controls on accumulation clearly demonstrate the commitment of recreational fishers and charter operators to the Fiordland fishery and marine environment. Ngāi Tahu has indicated a willingness to manage customary fishing accordingly and take a pro-active role in the interests of the representative areas. All groups support restrictions to look after the china shops and marine reserve status for the representative areas. Ensuring this balance is preserved when the strategy is implemented is critical. Should it be compromised the integrity of the strategy will be compromised.

7.2 Over arching co-ordination of existing legislative provisions

Central to the draft strategy is one of the Guardians' premises - that existing legislative mechanisms should be used to implement the package. Indeed, existing legislative provisions are sufficient to implement all components of the draft strategy.

Provisions within the fisheries legislation, including customary regulations, cover the proposals contained in the fisheries and kaitiakitanga components. For example, method restrictions, daily bag limit changes, accumulation provisions and temporary closures are all provided for within the fisheries legislation. Management of customary take and taiapure - local fisheries are provided for in the customary regulations and fisheries legislation respectively.

Conservation and resource management legislation contain provisions that are relevant for implementing the values of special significance and risks to the marine environment components of the draft strategy. For instance, the revised marine reserves' legislation is likely to be appropriate for the representative areas and the protected species provisions would be ideal to protect black and red coral from activities such as souvenir hunting.

The need for some form of overarching co-ordination is clear, given the number of legislative provisions and agencies that might be involved in implementing the strategy. Ensuring the integrity of the package during implementation is an absolute must for the Guardians. Issues such as significantly different timeframes associated with implementing different management measures within the strategy will involve the Guardians in an important ongoing role.

During discussions about overarching legislative provisions the fisheries plan provision contained in the 1996 Fisheries Act was raised. Although the fisheries component of the strategy might qualify as a fisheries plan this provision is not suitable as an overarching mechanism. Fisheries plans are restricted to fisheries matters and there is no formal link to conservation or resource management provisions. Furthermore, there is no provision for a group that develops a fisheries plan to be recognised as a management committee. Given the expertise involved in developing this draft strategy, the Guardians anticipate an ongoing role through implementation and into the longer term. Certainly, this continuity is required for the strategy to be successfully put in place.

Although there are currently no overarching legislative provisions, there are two options for conferring advisory/management status over an area of the coast on a local group: customary fisheries legislation - taiapure and special legislation. The Guardians have considered both options in detail.

7.2.1 Taiäpure

The taiäpure mechanism is described in the kaitiakitanga component. It is favoured by the Guardians' because it keeps the decision making local, secures customary values and enables flexibility in advocating fisheries management changes whilst accommodating measures to protect values of special significance.

The time taken to establish a taiäpure is a limitation. However, in the interim the fisheries component could be implemented under the fisheries legislation and a single marine reserve application made for the seven representative areas and one composite of five china shops. Once the taiäpure is established, the fisheries provisions that would already be in place could be incorporated into the taiäpure management plan. Similarly, the marine reserves could be

accommodated within the taiāpure.⁸ To ensure the purpose of the taiāpure was not compromised during processing, the marine reserve application would need to be made contingent on the taiāpure.

7.2.2 Special legislation

Depending on the form of the special legislation there could be considerable benefits in operating under one statute, particularly as a single management committee would perform the co-ordinating role for all responsibilities defined by the Act. However, it is not clear who would be responsible for the legislation, given that three to four Ministers could be involved. Whether the membership of the management committee would remain local and how kaitiakitanga would be provided for are uncertain. Similarly, the relationships between the legislation and many other aspects such as the Quota Management System would need to be resolved.

Apart from these types of issues there are two practical limitations. Apparently, drafting special legislation where all the required provisions must be linked back to existing legislation is particularly complex for an integrated management strategy such as this. As well as the complexity, there is a long waiting list of special legislation to be dealt with in Parliament and this could mean a very significant delay.

⁸ According to the Marine Reserves Bill, marine reserves will not be able to be established within a taiāpure. Furthermore, funding of marine reserve management will be restricted to DoC - community marine reserve committees will receive no funding for the role.

8. COMPLIANCE OF THE STRATEGY

Key Object

- *Encourage voluntary compliance and reinforce the view that non-compliance is unacceptable behaviour⁹*

8.1 Compliance needs in Fiordland

The Guardians recognise that high levels of voluntary compliance of existing law and new legislative provisions are critical to the success of the management regime proposed for Fiordland's fisheries and marine environment in this strategy.

From a compliance perspective Fiordland is a very challenging environment - it is isolated, the coastline is extensive, access is limited, even with a vessel, and the weather can be unrelenting. However, feedback from the wider groups represented on the Guardians makes it clear that effective compliance and enforcement in Fiordland are fundamental if rules are to be seen to be fair to everyone. Laws will not be observed unless the users accept the law is both necessary and adequately enforced.

The package of voluntary and statutory management mechanisms proposed is diverse, reflecting the very different needs of an extraordinary combination of low productivity animal dominated communities inside the fiords and productive kelp based communities at the entrances and along the outer coast. The diversity in management measures is also a consequence of integrating very different components of the Fiordland marine environment together into the strategy. Implementing such a range of measures will involve a number of different statutes. The more important of these are administered by three agencies: the Ministry of Fisheries, Department of Conservation and Environment Southland. When the management package is implemented, compliance of the new rules will be the responsibility of the agency that administers the relevant statute. Therefore an innovative and co-operative approach to compliance is needed on the part of the agencies involved, the Guardians and those who are regularly in Fiordland. Such an approach is necessary if the integrity of the management package is to be ensured.

⁹ **Compliance - a comprehensive account.**

*Because the issue of effective compliance in Fiordland is one of the Guardian's highest priorities, a comprehensive account of every aspect has been compiled and is included as **Appendix 4**. The legislative mandate, objectives, approaches and resources of each key agency with responsibilities in Fiordland are documented. So too is the role that fishers and marine environment users can play. To become better informed about compliance, Appendix 4 is required reading.*

8.2 The fundamentals of compliance

Irrespective of whether compliance is carried out by MFish, DoC or Environment Southland, the following two basic principles underlie the approach of these agencies.

- The preferred outcome is voluntary compliance with the rules, encouraged by information and education.
- Voluntary compliance must be backed up by an effective deterrent against illegal activities, such as the fear of prosecution.

This carrot and stick approach generates a number of compliance activities, including:

- Informing and educating fishers and other users about the rules in the management package.
- Being the eyes and ears on the water (surveillance).
- Supporting enforcement action (prosecution).

8.3 A support role for the Guardians

From the Guardians' perspective there is a crucial support role to play in these compliance activities:

8.3.1 Informing and educating fishers and other users about the management package

Those who either work in, or visit Fiordland regularly can play a major role in encouraging voluntary compliance with fishing and other rules. Key groups include charter boat and helicopter operators, commercial fishers, private vessel syndicates and sport fishing and diving clubs. The majority of first time fishing in Fiordland takes place from a charter vessel, private syndicate vessel or during an organised fishing or dive club visit. For this reason it is important that the operators or trip organisers take ownership and responsibility for informing those on board about the rules and ensuring that activities take place within the rules.

Explanations can be positively reinforced by information contained in attractive pamphlets and posters. The Guardians 1996 code of practice entitled 'Beneath the Reflections: Caring for Fiordland's Fisheries' includes a guide to taking care of the fish and the marine environment. This has been widely distributed to recreational charter vessels fishing clubs, businesses associated with Fiordland, access and transport points into Fiordland and a range of agencies. The agencies also hold a variety of helpful educational pamphlets and codes of practice covering such topics as "*Handling and measuring rock lobster*" and "*a care code for divers*", part of the Fiordland Marine Reserves pamphlet.

An important component of implementing this strategy will be the production of material describing and explaining the package of management measures. Given that some fisheries provisions will relate to fine scale management of Fiordland fish stocks while others, such as area closures, will apply to particular fiords, informing fishers and other users of the local rules will be of critical importance.

It is clear that a booklet or pamphlet will be needed - and this would best be a combined effort on the part of the Guardians, MFish, DoC and ES. In addition to a single document containing all the information, there is the potential to produce codes of practice for particular parts of the strategy, such as the china shops, or for particular fiords that are subject to a variety of provisions. A co-ordinated approach to informing and educating Fiordland visitors about the management package is a task the Guardians and the agencies intend to focus on once the draft strategy is finalised.

8.3.2 *Being the eyes and ears on the water*

In remote areas like Fiordland, where agency resources are limited, the importance of networks with key users and commercial operators is critical. For those visiting the fiords, engaging the eyes and ears is a worthy way of caring for Fiordland's fisheries and marine environment. Observing what's happening and passing relevant information on to the agencies as soon as possible provides a very valuable service. The agencies rely on such information. Building successful information networks and collecting accurate and timely information about possible illegal activity enables effective follow up and results.

MFish, DoC and ES all recognise the value of "eyes and ears" in the community and out on the water. Establishing effective networks, liaison, protocols, and strategic alliances with the other agencies for the purpose of information sharing is also seen to be vital. Working together and with the community is regarded as the best way of covering the extensive Fiordland coastline.

8.3.3 *Supporting enforcement action*

Providing relevant information to compliance may result in the detection of an offence. However, being prepared to go the next step and give evidence at a prosecution could make the difference between a successful and unsuccessful outcome for Fiordland. The agencies need both types of support if prosecutions are to be successful and the necessary deterrent to illegal activities maintained.

8.4 Local knowledge and compliance planning

The remoteness and isolation of Fiordland imposes considerable logistical difficulties and high costs on enforcement agencies in carrying out both proactive and reactive enforcement. Enforcement in all reality remains a necessary back up to an effective education and awareness programme, with enforcement resources targeting, where possible, repeat and aberrant offenders.

These types of limitations make a co-operative compliance effort the only sensible approach for Fiordland. Support from the wider groups represented on the Guardians must play a major part if effective compliance is to be achieved along this part of the coast. The group considers that a joint effort should be fostered between the agencies and the Guardians over aspects such as developing and distributing information, surveillance, reporting and providing evidence at prosecutions.

Just as the Guardians and agencies have worked together to develop this integrated management strategy, the detailed local knowledge held within the group should prove very helpful to the agencies in designing an integrated compliance strategy for Fiordland. Inter-agency co-operation and improved co-ordination of enforcement resources is essential to ensure limited agency resources and funds are utilised in the most efficient manner. The Guardians support an integrated enforcement approach by the various agencies to ensure that the best results and compliance outcomes are achieved for Fiordland.

9. MONITORING THE PERFORMANCE OF THE STRATEGY

Key Objective

- *Evaluate whether the package of management measures is achieving the objects of the integrated management strategy.*

As with many strategies, evaluating success can be difficult and expensive. However, it is a task that is fundamental to understanding how well the strategy is performing. Without this information, there is nothing on which to base future management decisions. There is also a responsibility to monitor the strategy when significant resources have gone into developing it and livelihoods are being affected.

9.1 Indicators

To monitor the effectiveness of the Guardians' integrated management strategy, potential indicators of success or otherwise were identified for each component of the strategy. These indicators are only initial suggestions and considerable work will be required to develop and implement appropriate indicators should the strategy be approved.

9.1.1 Fisheries indicators

- The state of the blue cod, rock lobster and groper stocks and fisheries in Milford and Doubtful Sounds are improving.
- The state of the blue cod, rock lobster and groper fisheries inside the habitat lines in selected northern and southern fiords are improving.
- Recreational and charter boat fishers are familiar and complying with the rules.
- Fishers understand and appreciate why the rules have changed.

9.1.2 Values of special significance indicators

- Special values in a selection of china shops are maintained or enhanced.
- Damage is not evident to special values in a selection of china shops.
- Educational material about how to look after the china shops is widely available.
- People using china shops are familiar with codes of practice and adhere to them.
- There is no evidence (direct/indirect) of activities such as fishing or recreational diving that were excluded from representative areas taking place.
- Special values within representative areas are maintained/enhanced.

- Representative areas are properly marked and information freely available.
- Visitors understand and appreciate the role of the representative areas and why restrictions are in place.

9.1.3 Risks to the marine environment indicators

- Guardians are involved in decisions about issues that impact on Fiordland’s fisheries and marine environment.
- Guardians’ principles about risks to the marine environment are apparent in documentation and practice.
- Impacts of damaging practices are being controlled and not increasing.

9.1.4 Expressing kaitiakitanga indicators

- Oraka/Aparima Runanga, tangata tiaki/kaitiaki and Te Rūnanga o Ngāi Tahu are comfortable with the way kaitiakitanga is being expressed in Fiordland.
- Representatives of Oraka/Aparima Runanga take part in implementing management mechanisms associated with the strategy.
- Kaitiakitanga is understood and appreciated by locals and visitors to Fiordland.

9.1.5 Overview indicators

- The whole package of management measures has been implemented.
- The stakeholders feel positive about the success of the plan 3-5 years on.
- The strategy has met the expectations of the Guardians.

9.2 Measuring indicators

Once indicators have been identified, methods that best measure each indicator can be explored and evaluated. For some indicators, such as ‘damage not evident to values in china shops’, direct observations/measurements are possible. For others, such as “the state of the rock lobster stocks and fisheries in Doubtful Sound are improving”, indirect methods must be used. Measurements that evaluate such things as “whether people know and understand the rules”, are based on the assumption that well informed fishers are more likely to observe the rules than those who are poorly informed. This type of measurement will only be meaningful if the assumption on which it is based is correct.

9.2.1 Baseline information

To gauge whether Fiordland's fisheries and marine environment are undergoing beneficial changes, information about the current situation is needed. Without this baseline data there will be very little to compare future monitoring data with. Accordingly, the potential of current research to provide baseline data about the indicators listed above needs to be assessed

Current research

Fisheries indicators

1. *The state of the blue cod, rock lobster and groper stocks and fisheries in Milford and Doubtful Sounds will be improving.*

- A recreational fisheries research project, “to determine the feasibility of estimating areas fishes, species targeted and caught, methods used and to estimate the total recreational harvest from Milford Sound and the Doubtful Sound complex from private boats” is being funded by MFish and conducted by Rick Boyd, Kingett Mitchell.

This project will provide an indirect measure of the current state of the blue cod, rock lobster and groper stocks and a direct measure of the fisheries within Milford and Doubtful Sounds. Baseline information on other fish stocks and fisheries will also be gathered.

- A second recreational fisheries research project, “to determine areas fished, species targeted and caught, methods used and to estimate the total recreational harvest from charter boats for the whole of Fiordland” is also being conducted by Rick Boyd, Kingett Mitchell. This will provide the charter boat fishing component of recreational harvests for both Milford and Doubtful Sounds.

2. *The state of the blue cod, rock lobster and groper fisheries inside the habitat lines of selected northern fiord and southern fiords will be improving.*

- The charter boat research project will provide information about the current state of blue cod, rock lobster and groper stocks and fisheries inside a number of fiords, both inside and outside the habitat lines.
- A project studying “the relative abundance and movement of blue cod in Fiordland” is being funded by MFish and conducted by Glen Carbines, NIWA. Blue cod have been tagged from the head to the mouth of Dusky Sound. Returns from recreational fishers and follow up cod potting will provide information about the state and behaviour of blue cod stocks both inside and outside the habitat lines in what is regarded as the best sound for blue cod in Fiordland.
- The development of spatial population models for blue cod (*Parapercis colias*) and sea urchin (*Evechinus chloroticus*) two indicator organisms is also the subject of a research study by Steve Wing, University of Otago.

Environmental indicators

1. *A Geographical Information System (GIS) to support management of marine resources and biodiversity in Fiordland.*

Stephen Wing, University of Otago and Franz Smith, Department of Conservation Science and Research are developing a Geographical Information System (GIS) to support the management of marine resources and biodiversity in Fiordland. To date, funding for this programme has come from the Department of Conservation and now it is being sought from the Ministry for the Environment.

Incorporating layers of data about a variety of habitat features into the GIS will allow the identification of spatial patterns of Fiordland's marine resources and biodiversity. Layers include: bathymetry, hydrography (encompassing climatological temperature, salinity, and wave exposure), type of substrate, shallow water habitat types as well as distribution of habitat forming organisms (macro algae, suspension feeding communities), distribution and abundance of "critical" species, indicator species and species of special concern.

The GIS is already providing important baseline data for habitat and community definitions and evaluations. It should prove very useful for assessing and monitoring changes to key indicator species and communities, particularly changes that result from implementing management actions proposed in this strategy. The tool is also expected to generate ecological information to support the development of future proposals about biodiversity and other habitat and fisheries issues.

10. IMPLEMENTATION AND BEYOND - WHAT ROLE FOR THE GUARDIANS?

The Guardians are demonstrating the value of combining local skills and knowledge with agency advice. This is proving to be a credible alternative to existing management approaches as the group provides a forum for the agencies to step outside their own boundaries and think about the issues collectively. That the Guardians are facilitating a more holistic approach that is inclusive of the stakeholders enables the group to provide oversight for the management of Fiordland's fisheries and marine environment.

The group has a vision, is demonstrating leadership and has processes in place. Furthermore, an enormous commitment has been required to develop the draft strategy. For instance, over the past year members have taken time off work to attend 12 all day meetings and eight information/feedback meetings with stakeholders throughout Southland and Otago. Whilst this level of commitment may be sustained in the short term, performing an over arching co-ordinating role effectively, will require the local advisory/management group to be formally recognised and funded.

10.1 Necessary functions identified from the strategy

It is difficult to anticipate all the possible roles the Guardians might usefully perform during and beyond implementation. However, the following list of functions has been extracted from this draft and provides an indication of the need for an ongoing role:

10.1.1 A major involvement applying for the package of management measures proposed in the draft strategy:

- *Fisheries measures* - a whole range including area, bag and accumulation limits and method restrictions
- *China shops* - RMA provisions to do with anchoring and diving, MFish for no fishing areas and method restrictions. Codes of practice tailored to each china shop.
- *Representative areas* - marine reserves and the appropriate provisions within each reserve.
- *Taiapure/s186B* - work with the Oraka Aparima rununga and the Murihiku tangata tiaki/kaitiaki to progress a taiapure application and s186B, temporary closures for blue cod in Milford and Doubtful Sounds.

10.1.2 Approaches and information/education associated with the strategy proposals.

- *Risks to the marine environment:*
 - a) *Bioinvasion* - work with ES and MFish's, Biosecurity Group to develop an appropriate approach to hull cleaning and ballast for Fiordland.
 - b) *Risk surveillance* - carry out surveillance to detect new organisms.
 - c) *Emergencies such as oil spills*. - Provide logistical support and advice.
 - d) *Rubbish* - advocate for facilities and education.
 - e) *Possums* - provide information about possum distribution to DoC.
 - f) *Access* - contribute ideas on the issue and take part in initiatives if invited.
- *Compliance* - information and education about the new rules
- *Information and education* about the strategy and new provisions - a very significant task.

10.1.3 Compliance

- The eyes and ears in Fiordland, providing information to the agency, integrated agency/Guardians approach to compliance.

10.1.4 Monitoring

- Identifying the most effective monitoring tools and approaches and providing input.

10.1.5 Identify information gaps and needs - advocate for projects to fill the gaps.

10.1.6 Provide contacts for surveys and research - ensure that the methods and approach are realistic for Fiordland.

10.1.7 Work with member's wider groups to address issues of relevance - eg rock lobster pot storage.

This list of possible roles will undoubtedly change and evolve with time and is very much dependant on whether the Government decides to approve and implement the strategy.

ACKNOWLEDGMENTS

The Guardians wish to thank all those who so generously shared their knowledge with the group in the interests of Fiordland's fisheries and marine environment. Many of the proposals in the draft strategy have benefited from this information. Chris Paulin and Paddy Ryan addressed the Guardians when producing "Fiordland Underwater" and Chris deserves a special mention for his part in shaping the Guardians views. Thanks also go to both Trevor Willets and the owners of Kisby Lodge for their presentations to the group.

Similarly, we are very grateful for the feedback received about the suggestions the Guardians presented during the information meetings held in Southland and Otago. This provided valuable input to the proposals contained in this draft strategy.

To our three peer reviewers: Ken Grange (NIWA), Nici Gibb (SeaFIC) and Nigel Scott (Ngāi Tahu), your thoughtful, constructive input to the draft has added real value and we thank you most sincerely.

Invaluable support and advice has been a consistent feature of the agencies involved in this initiative over the past two years. Environment Southland, DoC, MFish and more recently MfE have all contributed very significantly - it's been a real pleasure working with this group of agency people and it's also been fun.

Vital administrative support has been provided by Sharon Woodford in particular and Angela Donaldson, without whom the Guardians operations would have been rather more challenging and this draft document may not have seen the light of day.

Our "Beneath the Reflections" image is the product of Mike Hodges' artistic talent - and is something we are delighted to incorporate into every aspect of the Guardians' communications.

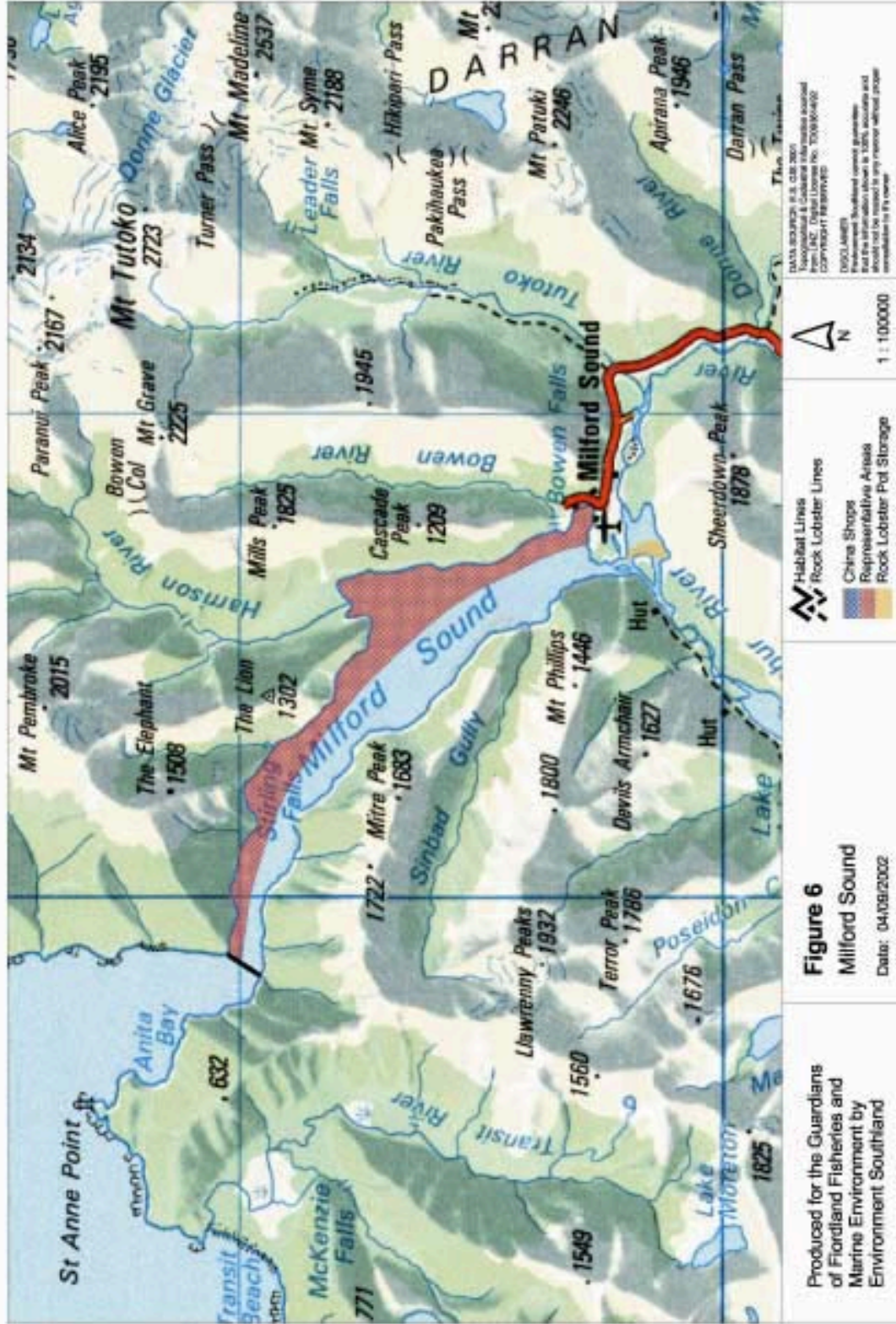
And for the occasional special gestures that keep voluntary groups together and smiling, such as celebrating important achievements and that end of the year BBQ, we thank the Fiordland Lobster Company.

To those who have helped fund the development of our draft strategy we are greatly indebted. The generous MfE Sustainable Management Fund grant, the Pacific Development and Conservation Trust grant and the contributions from MFish, DoC, and Environment Southland have all bought the reality of an integrated management strategy for Fiordland's fisheries and marine environment that much closer.

And finally, to the contributions of groups represented on the Guardians - the CRA8 Management Committee, NZ Paua Management Company, Fiordland Travel, the Waverly, Southern Sports Fishing Club, South Coast Underwater Divers Club, Gore Boating Club, and Matura Licensing Trust. We are confident that your investment in the group will benefit Fiordland's fisheries and marine environment in a major way.

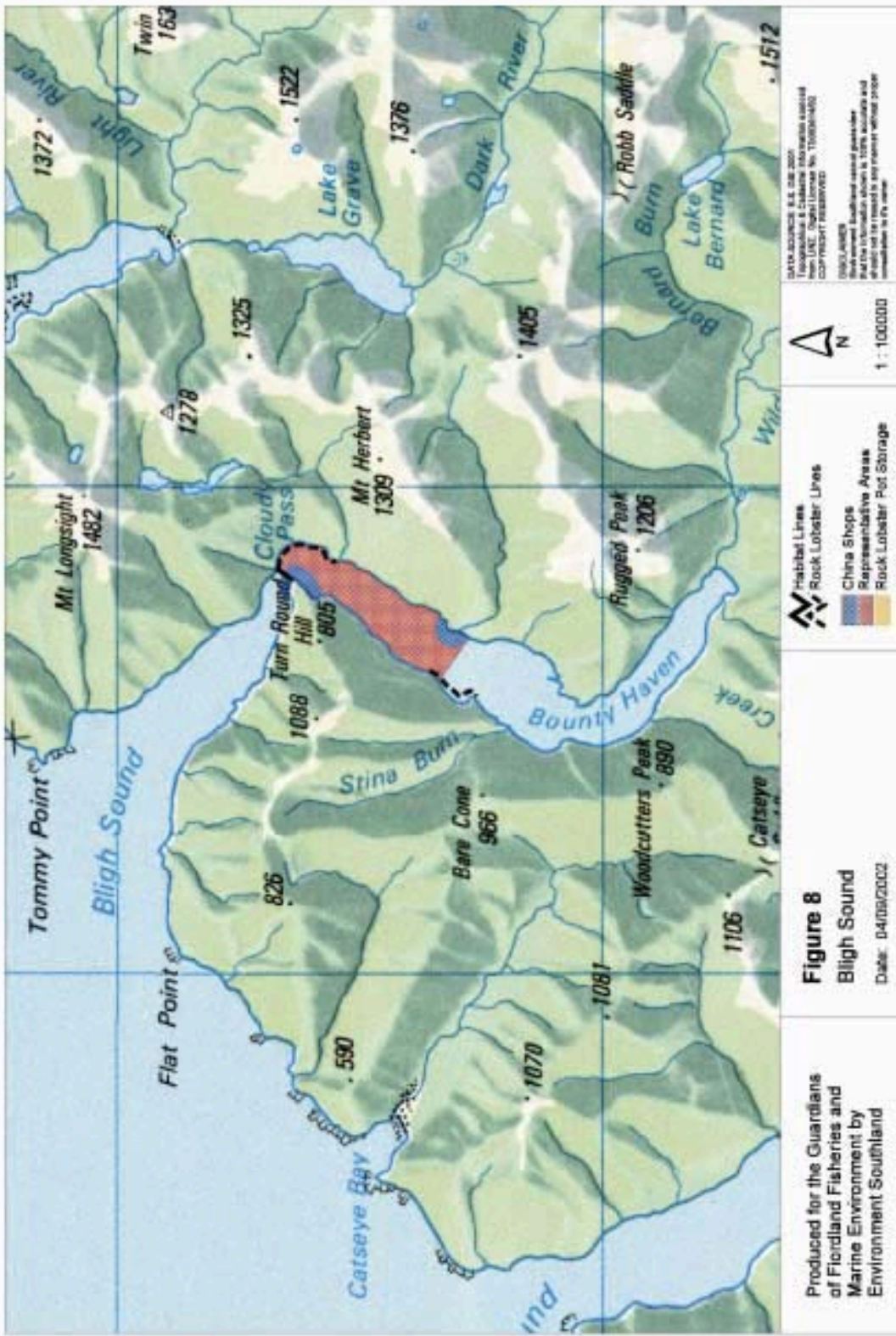
APPENDIX 1

Figures 6 - 18: Individual fiords showing habitat lines, china shops, representative areas and associated rock lobster pot storage areas



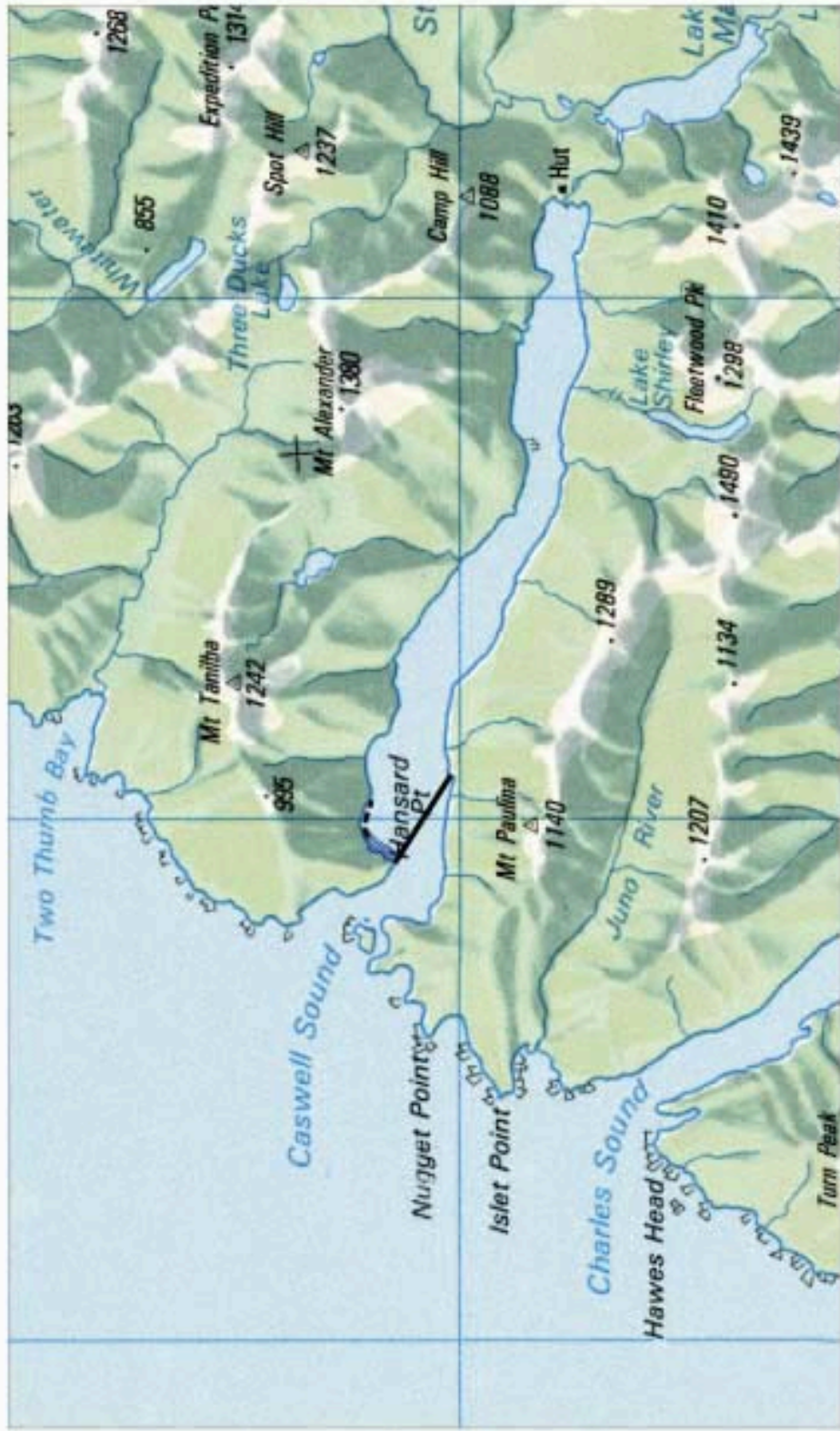


<p>Produced for the Guardians of Fiordland Fisheries and Marine Environment by Environment Southland</p>	<p>Figure 7 Sutherland Sound Date: 04/09/2002</p>	<p>Habitat Lines Rock Lobster Lines</p> <p>China Shrimp Representative Areas Rock Lobster Pot Storage</p>	<p>DATA SOURCES: S.E. COE 2001 Topographic & Cultural Information sourced from LINZ. Digital Licence No. 1000014400 COPYRIGHT RESERVED DISCLAIMER Environment Southland cannot guarantee that the information shown in this document and any associated maps is correct or up-to-date.</p>
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<p>Produced for the Guardians of Fiordland Fisheries and Marine Environment by Environment Southland</p>	<p>Figure 9 George Sound Date: 04/09/2002</p>	<p>Habitat Lines Rock Lobster Lines</p> <p>China Shops Representative Areas Rock Lobster Pot Storage</p>	<p>1 : 100000</p> <p>© 2002 SOUTH ISLAND TOPOGRAFICAL & CARTOGRAPHIC INFORMATION SOURCE FROM LINZ. Digital Licence No. 700604902 COPYRIGHT RESERVED DISCLAIMER Environment Southland cannot guarantee that the information shown is 100% accurate and that the information shown is only for general reference purposes and is not intended for any other purpose.</p>
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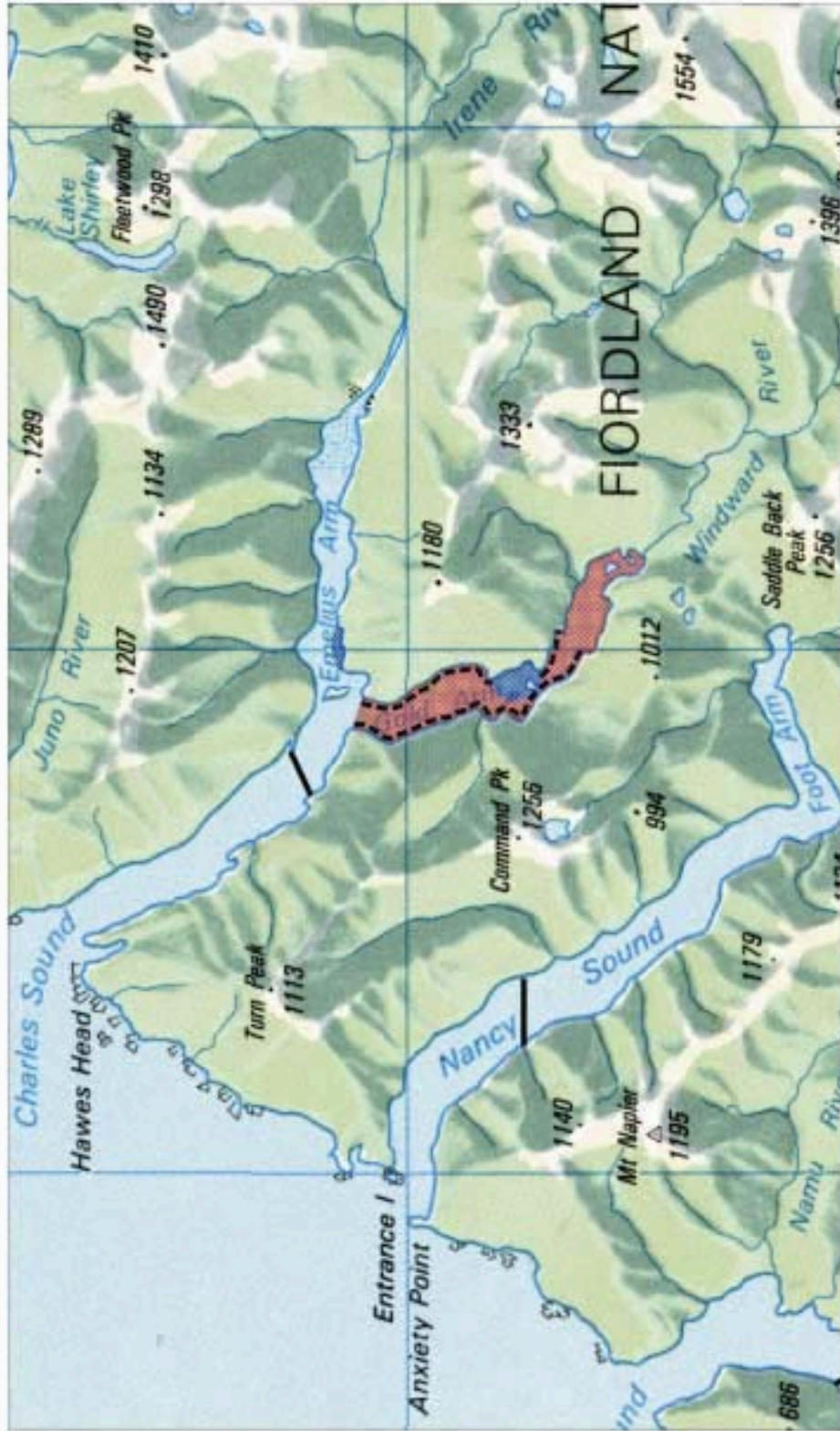
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Figure 10
Caswell Sound
 Date: 04/09/2002

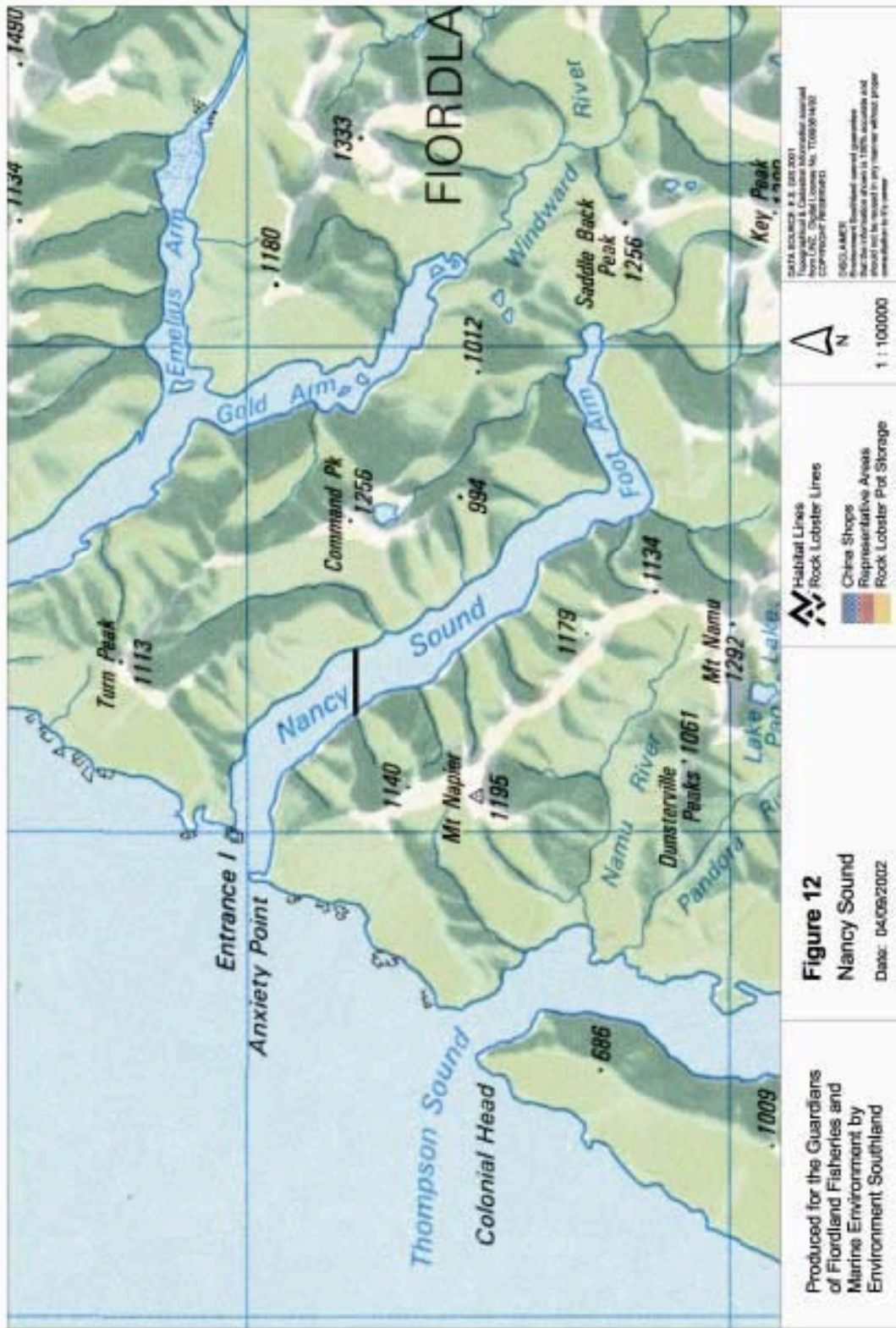
Legend:
 Habitat Lines
 Rock Lobster Lines
 China Shops
 Representative Areas
 Rock Lobster Pod Storage

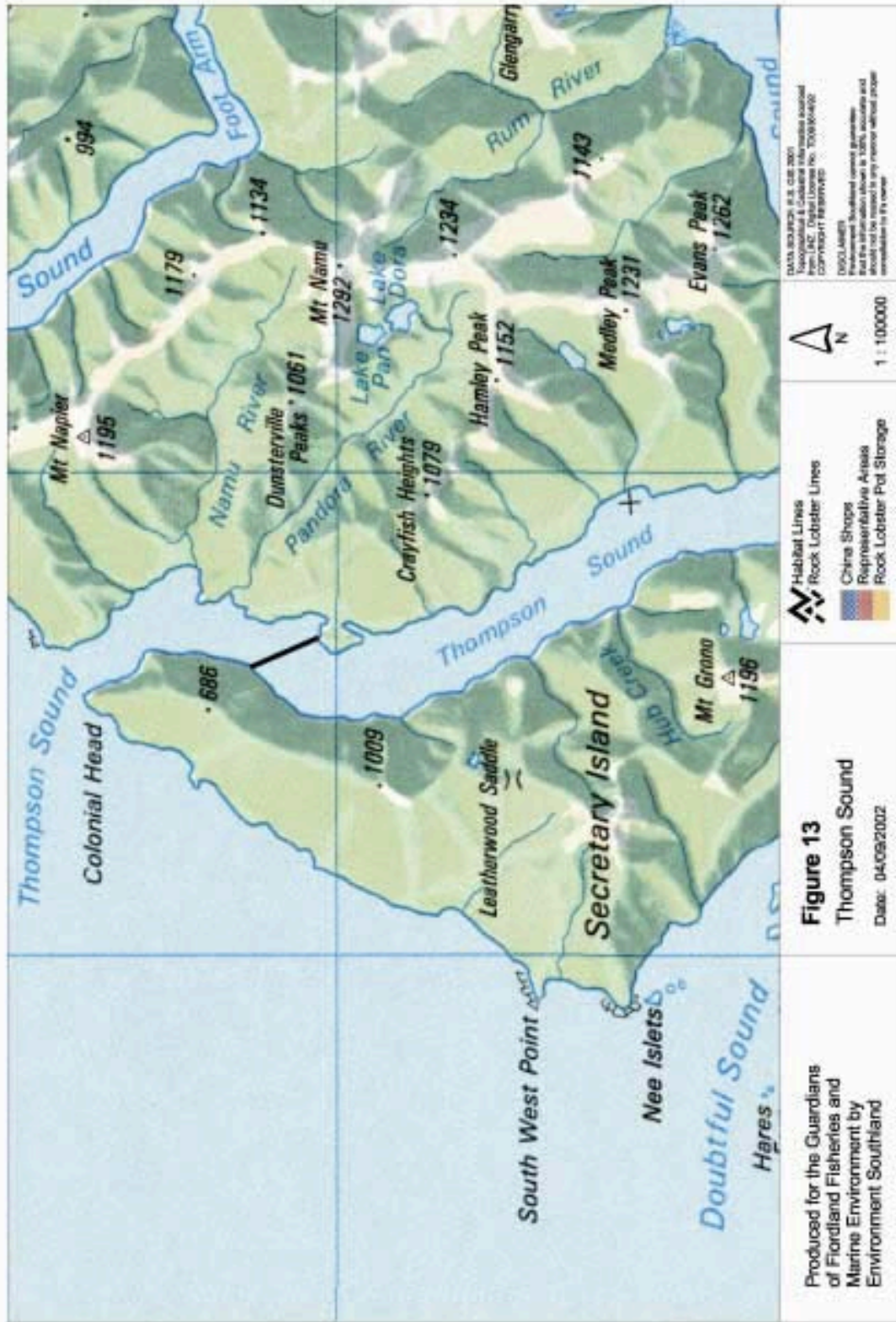
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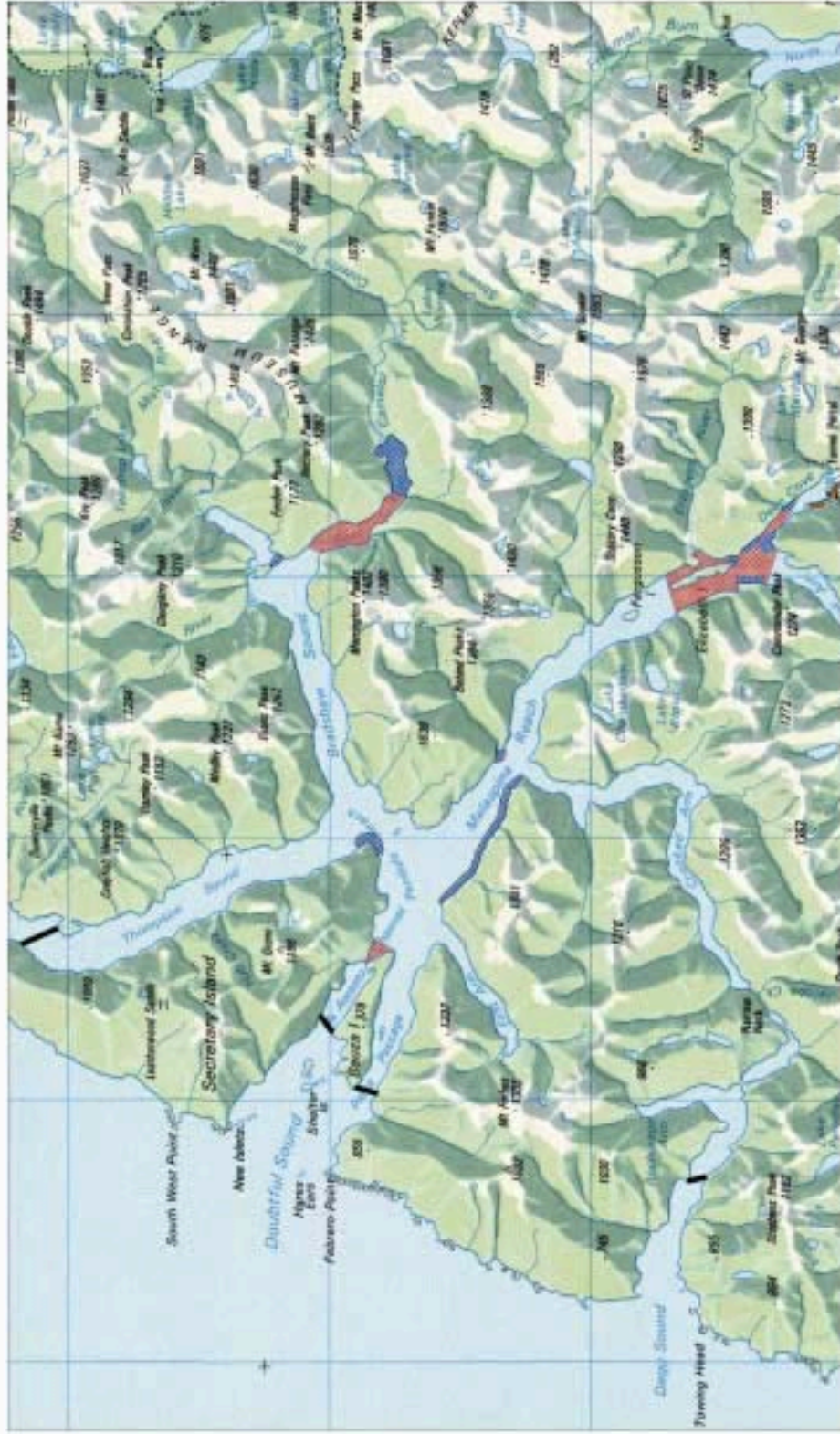
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<p>Produced for the Guardians of Fiordland Fisheries and Marine Environment by Environment Southland</p>	<p>Figure 11 Charles Sound Date: 04/09/2002</p>	<p>Habitat Lines Rock Lobster Lines</p> <p>China Shops Representative Areas Rock Lobster Pot Storage</p>	<p>Scale: 1 : 100000</p> <p>North Arrow</p> <p>DATA SOURCE: B.G. CSB 2002 Topographic & Cultural information sourced from LIDAR, Digital Elevation Model, COPYRIGHT RESERVES DISCLAIMER Environment Southland cannot guarantee that the information shown is 100% accurate and we accept no liability for any errors which appear in this report.</p>
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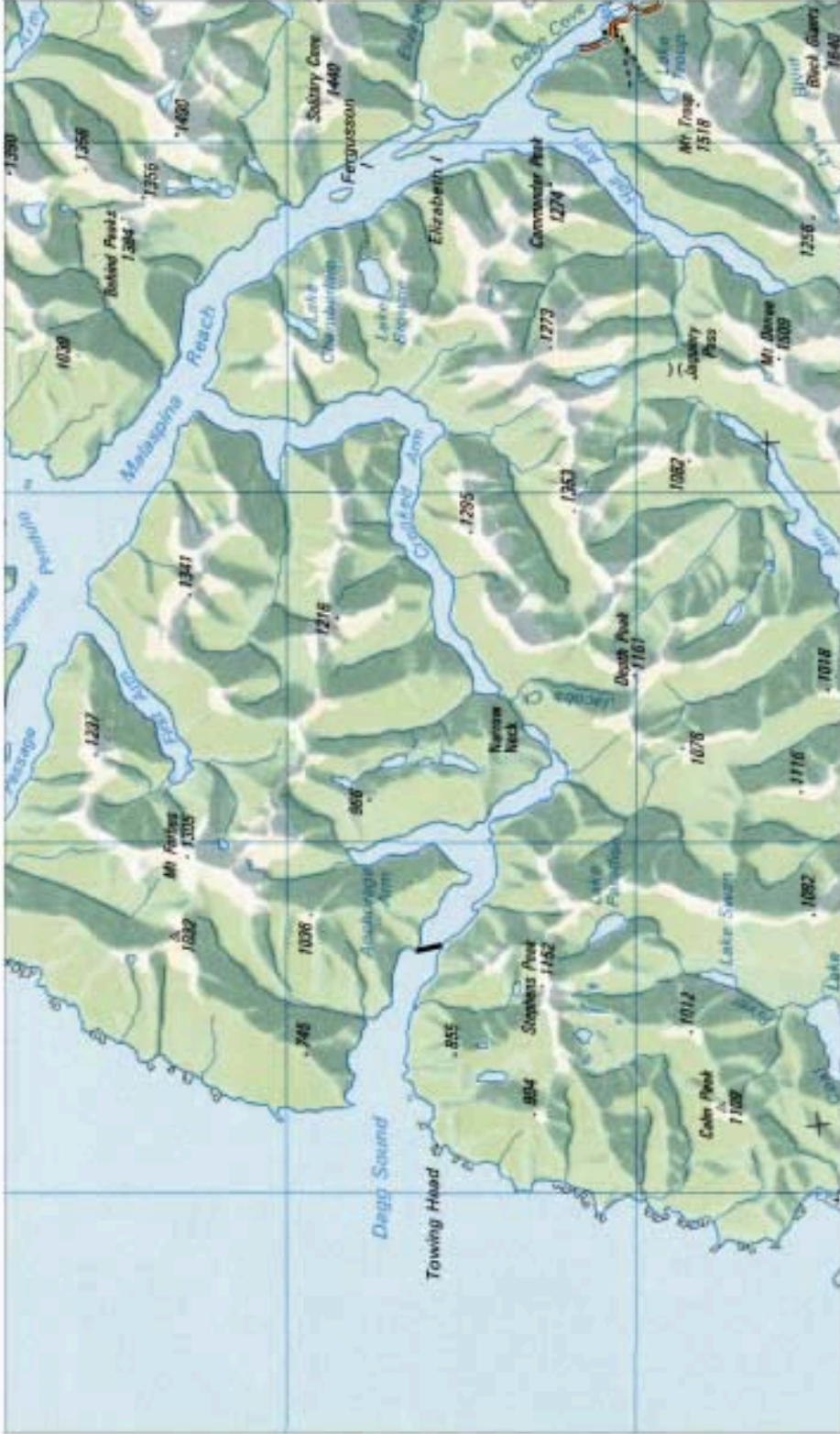
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Habitat Lines
Rock Lobster Lines
 China Shops
 Representative Areas
 Rock Lobster Pot Storage

Figure 14
Doubtful Sound
 Date: 04/09/2002

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 Marine Environment by
 Environment Southland



<p>Produced for the Guardians of Fiordland Fisheries and Marine Environment by Environment Southland</p>	<p>Figure 15 Dagg Sound Date: 04/09/2002</p>	<p> Habitat Lines Rock Lobster Lines</p> <p> China Shops Representative Areas Rock Lobster Pot Storage</p>	<p> N</p> <p>1 : 150000</p>	<p>DATA SOURCE: S. S. CBE 2001 Topographic & Cultural information sourced from LINZ. Digital Licence No. 700604492 COPYRIGHT RESERVE</p> <p>DESIGN: AMET Environment Southland cannot guarantee that the information shown is 100% accurate and accepts no liability for any errors which appear herein or in its use.</p>
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Figure 17
 Dusky Sound
 Date: 04/09/2002

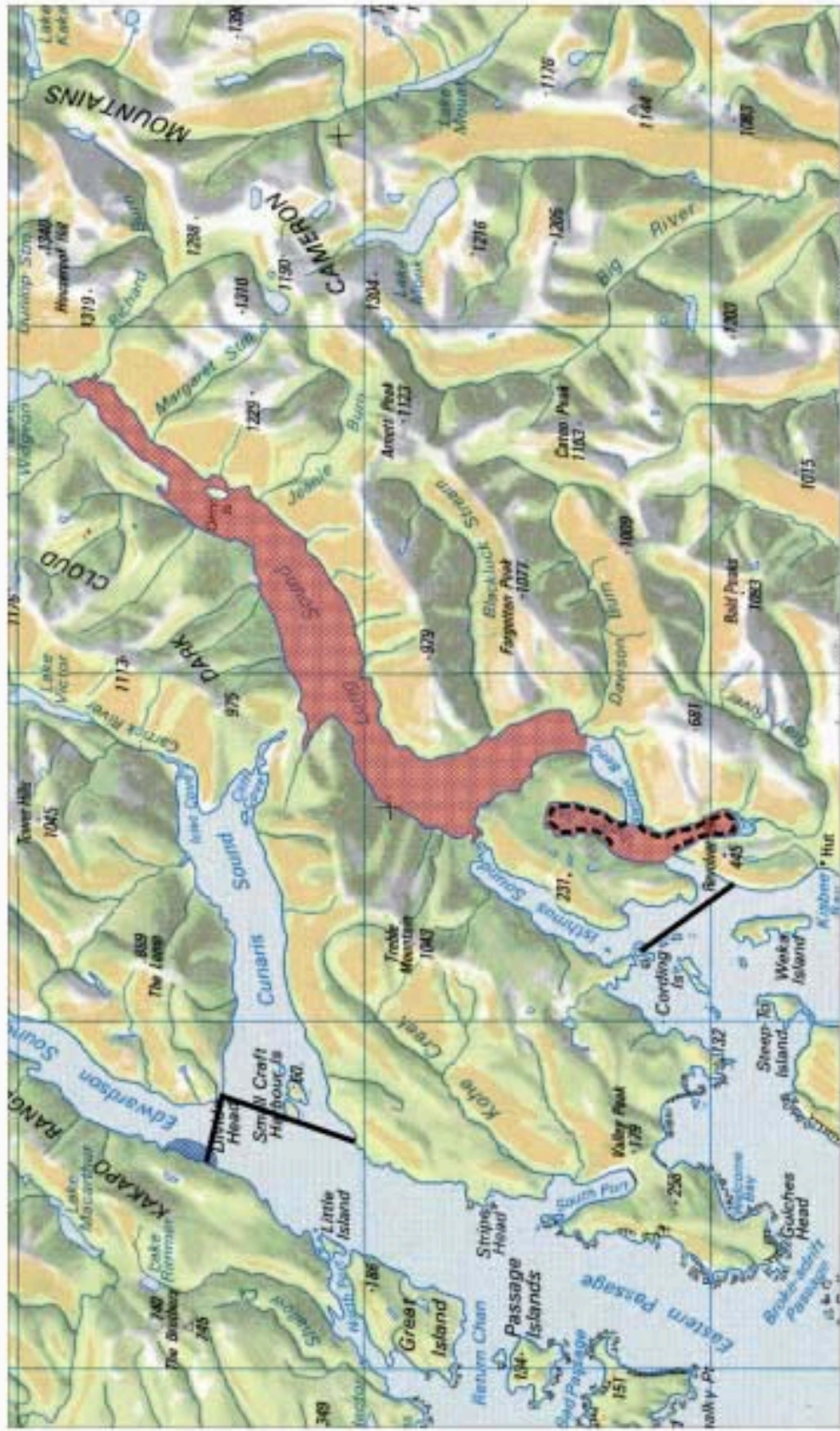
Habitat Lines
 Rock Lobster Lines

China Shops
 Representative Areas
 Rock Lobster Pot Storage

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1000 METERS
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<p>Produced for the Guardians of Fjordland Fisheries and Marine Environment by Environment Southland</p>	<p>Figure 18 Chalky Inlet Date: 04/09/2002</p>	<p>Habitat Lines Rock Lobster Lines</p> <p>China Shops Representative Areas Rock Lobster Pot Storage</p>	<p>1 : 150000</p>
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1:50000
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APPENDIX 2

Amateur fishing rules: present and proposed

Table1: Present daily fish species limits (for main species) and bag limits applying within Fiordland and the Southland Fisheries Management Area (FMA5).

Finfish Species	Daily species limit per person	3 days Accumulation per person	7 days Accumulation per person
Blue cod	30	90	210
Trumpeter	15	45	105
Seven gilled shark	1	3	7
Combined bag limit	30	90	210
Jock Stewarts	No Limit	-	-
Groper*	5	15	35

* NB: The daily bag limit for groper is over and above the combined finfish bag limit of 30.

Table2: Present daily shellfish species limits (for main species) and bag limits applying within Fiordland and the Southland Fisheries Management Area (FMA5).

Shellfish Species	Daily species limit per person	3 days Accumulation per person	7 days Accumulation per person
Rock lobster	6	18	42
Paua	10	30	70
Scallops	10	30	70

Table3: Proposed daily fish species limits and bag limits applying within Fiordland area.

Finfish Species	Daily species limit per person inside fiord habitat lines	Daily species limit per person outside fiord habitat lines	Accumulation provision
Blue cod	3	20	No accumulation
Groper*	3	5	No Accumulation
Combined bag limit	-	30	No Accumulation
Jock Stewarts**	-	10	No Accumulation

* Groper species daily limit included in combined finfish bag limit of 30

** New daily limit for Jock Stewart (Sea Perch) outside the combined finfish bag limit.

Table 4: Proposed daily shellfish species limits and bag limits applying within Fiordland area.

Shellfish Species	Daily species limit per person inside fiord habitat lines	Daily species limit per person outside fiord habitat lines	Maximum 3 days Accumulation per person
Rock lobster	3	6	15
Paua	-	30	No Accumulation
Scallops	-	30	No Accumulation

Note: Capping accumulation of rock lobster to a three day maximum and removing accumulation for finfish and the two main shellfish species can be implemented by a regulation change to the current amateur fishing defence provisions.

APPENDIX 3

SCHEDULE 102

Sections 205, 312 and 313

STATUTORY ACKNOWLEDGEMENT FOR TE MIMI O TU TE RAKIWHANOA (FIORDLAND COASTAL MARINE AREA)

Statutory Area

The statutory area to which this statutory acknowledgement applies is Te Mimi o Tu Te Rakiwhanoa (Fiordland Coastal Marine Area), the Coastal Marine Area of the Te Anau constituency of the Southland region, as shown on SO Plan 11503, Southland Land District, as shown on Allocation Plan NT 505 (SO 19901).

Preamble

Under section 313, the Crown acknowledges Te Runanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Te Mimi o Tu Te Rakiwhanoa as set out below.

Ngāi Tahu Association with Te Mimi o Tu Te Rakiwhanoa

The fiords of this region represent, in tradition, the raised up sides of Te Waka o Aoraki. The waka (canoe) foundered on a submerged reef and its occupants, Aoraki and his brothers, Raraki, Rakiroa and others, were turned to stone. They stand now as the highest peaks of Ka Tiritiri o te Moana (the Southern Alps). The fiords at the southern end of the Alps were hacked out of the raised side of the wrecked waka by Tu Te Rakiwhanoa, in a effort to make it habitable by humans. The deep gouges and long waterways that make up the fiords were intended to provide safe havens on the rugged coastline, and stocked with fish, forest and birds to sustain travellers.

For Ngāi Tahu, traditions such as these represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events that shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Particular stretches of the coastline also have their own traditions. The visit of Tamaahua to Piopiotahi (Milford Sound) in search of Poutini, who had absconded with his wife Waitaiki, is linked to the creation of Pounamu further north on Te Tai Poutini (the West Coast). The koko-takiwai which is found in Piopiotahi has its basis in a visit to Piopiotahi by the waka Tairea. A woman, Koko-takiwai, and her children, known as Matakirikiri, were left behind by the Tairea and were turned into varieties of pounamu.

Place names along the coast record Ngäi Tahu history and point to the landscape features that were significant to people for a range of reasons. For example, in his voyage around the Sounds in the waka Takitimu Tamatea gave the chiselled terrain the name “Te Rua-o-te-moko”, likening the deep gouges adorning the impressive cliff faces of the fiords to the tattoos on a chief's face. Martins Bay (Whakatipu-waitai or Kotuku) to the north of the fiords was the site of an old settlement, located to control the pounamu resources to be found here. An area of Doubtful Sound is known as Kahui-te-kakapo, while Dagg Sound had a canoe harbour known as Te Ra. Breaksea Island (within Breaksea Sound - Te Puaitaha) is known as Te Au Moana, referring to the ocean current that sweeps around the inlet. Cape Providence is known as Orariki, a cliff near here is called Taka-o-te-karehu-Tamatea, referring to an episode when some tattooing ink belonging to Tamatea washed over board. Chalky Sound is known as Taiari and a rock in the Sound is known as Te Kakahu-o-Tamatea, a place where Tamatea had his clothes spread out to dry after being drenched by the salt spray. Preservation Inlet has the name Rakituma.

The area was visited mainly by Ngati Mamoe and Ngäi Tahu, who had various routes and nohoanga for the purpose of gathering koko-takiwai and manu (birds), particularly the kakapo. The area played a significant role in the history of conflict between Ngäi Tahu and Ngati Mamoe, with a number of Ngati Mamoe taking refuge in the isolation of the fiords in order to escape the unforgiving attitudes of some sections of Ngäi Tahu. The noted rangatira Tarewai from Otago Heads met his end here at the hands of Ngati Mamoe, having pursued them from the Otago Peninsula to Rakituma. Tarewai and his warriors were successfully ambushed by those they were pursuing, with the result that no-one ever returned to Otago from this battle. Te Whare Pa in Rakitimu was the scene of one of the last major battles between Ngati Mamoe and Ngäi Tahu.

Another dark piece of history occurred at Te Tauraka o te Hupokeka (Anita Bay). Hupokeka and his whanau (family) regularly visited Piopiotahi, travelling from Murihiku to gather koko-takiwai, and staying at a nohoanga in Anita Bay. It was here, in the 1820s, that he and his whanau were slaughtered by sealers in retribution for an incident of which they were quite innocent.

Because of its attractiveness as a place to establish permanent settlements, including pa (fortified settlements), the coastal area was visited and occupied first by Ngati Mamoe and later by Ngäi Tahu. Through conflict and alliance these two iwi have merged in the whakapapa (genealogy) of Ngäi Tahu. Battles sites, urupa and landscape features bearing the names of tupuna (ancestors) record this history. Prominent headlands, in particular, were favoured for their defensive qualities and became the headquarters for a succession of rangatira and their followers. Notable pa and nohoanga occurred in many areas on the Fiordland coast including: Milford (Lake Marchant) and Caswell Sounds; Kahui-te-kakapo (Doubtful Sound), known as the gathering place of the kakapo, in reference to the gathering of kakapo meat and feathers which was one of the key reasons that Ngäi Tahu Whanui regularly travelled to the fiords; Dagg Sound gets the sun all day, and consequently is well known as a nohoanga site, it also has a good canoe harbour known as Te Ra; Rakituma is the site of several pa or nohoanga including one at Matauiria and another at Te Whare Pa.

It was the koko-takiwai and kakapo that primarily attracted Ngäi Tahu to Fiordland. The koko-takiwai is favoured as a softer type of pounamu, more easily shaped into a finer quality of end product. It was therefore particularly sought-after for the making of ornaments, such as hei-tiki. The area also offered many other mahinga kai to sustain parties on their arduous expeditions, including a range of manu (birds), fish and kaimoana resources.

The tupuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of the area, the relationship of people with the coastline and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngäi Tahu today.

There are two principal trails linking the Fiordland coast with the rest of Te Wai Pounamu (the South Island). A sea route around the fiords links Piopiotahi to Murihiku, and was the main route by which the koko-takiwai gathered from that end of the fiords was transported. The inland route for transporting koko-takiwai by back pack lay over what is now known as the Milford track, over Omanui (McKinnon Pass), down the Waitawai (Clinton River) to the head of Te Ana-au (Lake Te Anau). From there, the pounamu would be transported by mokihi to the head of the Waiau River, and from there down the Waiau to Te Ara a Kiwa (Foveaux Strait). In addition, a trail from Martins Bay, up the Hollyford Valley and over into the Routeburn Valley to the pounamu source at the head of Lake Whakatipu-wai-Maori, was commonly used by Tai Poutini iwi, who regularly travelled south via this route to obtain koko-takiwai.

Hence tauranga waka (landing places) occur up and down the coast and wherever a tauranga waka is located there is also likely to have been a nohoanga, fishing ground, kaimoana resource, with the sea trail linked to a land trail or mahinga kai resource. The tupuna had a huge knowledge of the coastal environment and weather patterns, passed from generation to generation. This knowledge continues to be held by whanau and hapu and is regarded as taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the coast.

The fiords are the repository of many koiwi tangata, secreted away in keeping places throughout the region. There are also many other wahi tapu in the area, including examples of rock art in Chalky Sound. Urupa are the resting places of Ngäi Tahu tupuna and, as such, are the focus for whanau traditions. Urupa and wahi tapu are places holding the memories, traditions, victories and defeats of Ngäi Tahu tupuna, and are frequently protected in secret locations.

The mauri of Te Mimi o Tu Te Rakiwhanoa represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngäi Tahu Whanui with the area.

Purposes of Statutory Acknowledgement

Pursuant to section 215 and without limiting the rest of this schedule, the only purposes of this statutory acknowledgement are—

- (a) To require that consent authorities forward summaries of resource consent applications to Te Runanga o Ngäi Tahu as required by regulations made pursuant to section 207 (clause 12.2.3 of the deed of settlement); and
- (b) To require that consent authorities, the Historic Places Trust, or the Environment Court, as the case may be, have regard to this statutory acknowledgement in relation to Te Mimi o Tu Te Rakiwhanoa, as provided in sections 208 to 210 (clause 12.2.4 of the deed of settlement); and
- (c) To enable Te Runanga o Ngäi Tahu and any member of Ngäi Tahu Whanui to cite this statutory acknowledgement as evidence of the association of Ngäi Tahu to Te Mimi o Tu Te Rakiwhanoa as provided in section 208 (clause 12.2.5 of the deed of settlement).

Editorial Note

It appears that the above reference to "section 208" should be read as a reference to "section 211" because cl 208 of the Ngäi Tahu Claims Settlement Bill, relating to the use of statutory acknowledgement with submissions, became s 211 of this Act.

Limitations on effect of Statutory Acknowledgement

Except as expressly provided in sections 208 to 211, 213, and 215,—

- (a) This statutory acknowledgement does not affect, and is not to be taken into account in, the exercise of any power, duty, or function by any person or entity under any statute, regulation, or bylaws; and
- (b) Without limiting paragraph (a), no person or entity, in considering any matter or making any decision or recommendation under statute, regulation, or bylaw, may give any greater or lesser weight to Ngäi Tahu's association to Te Mimi o Tu Te Rakiwhanoa (as described in this statutory acknowledgement) than that person or entity would give under the relevant statute, regulation, or bylaw, if this statutory acknowledgement did not exist in respect of Te Mimi o Tu Te Rakiwhanoa.

Except as expressly provided in this Act, this statutory acknowledgement does not affect the lawful rights or interests of any person who is not a party to the deed of settlement.

Except as expressly provided in this Act, this statutory acknowledgement does not, of itself, have the effect of granting, creating or providing evidence of any estate or interest in, or any rights of any kind whatsoever relating to, Te Mimi o Tu Te Rakiwhanoa.

APPENDIX 4

COMPLIANCE WITHIN FIORDLAND'S MARINE ENVIRONMENT

Compiled by Stephen Logie, MFish Invercargill

About this Appendix

This all encompassing account of compliance within Fiordland's marine environment was compiled for the Guardians by Stephen Logie. A wealth of information has been gathered about compliance generally, and the role of the various agencies and stakeholders in particular. It was essential that such a comprehensive account of this issue was available to the readers of the draft strategy. Accordingly, the account has been included in full in this appendix.

Aspects that specifically reflect the Guardians views about compliance, including ways the group can assist the relevant agencies appear in Section 8. Views have been taken from this account and from other sources.

Introduction

In developing an integrated management strategy, the Guardians recognise high levels of voluntary compliance of existing law and new regulations are critical to the success of the management regime. Since the Guardians inception compliance advice has been sought and received from key Government agencies. Stakeholder feedback received thus far confirms compliance and enforcement as being extremely important to ensure that rules are fairly administered. No law is effective unless the users accept the law is necessary and that the law is adequately enforced. Therefore adequate provision must be made for education and enforcement services to encourage voluntary compliance by fisheries and marine environment users in Fiordland.

Enforcement and compliance in Fiordland's marine environment is the chief domain of three principal agencies responsible for the administration of several important public statutes. The principal Government agencies are the Ministry of Fisheries, Department of Conservation and the regional government authority Environment Southland. In developing an effective compliance strategy it is important to recognise the various legislative roles, specialist responsibilities and agency capacity to deliver enforcement in Fiordland.

MFish Compliance Role

Legislation Mandate

The Ministry of Fisheries is responsible for the sustainable utilisation and management of New Zealand's marine fisheries resources. The MFish vision is sustainable fisheries in a healthy aquatic ecosystem, which recognises New Zealand's fisheries resources are not unlimited and that they are part of a wider aquatic eco-system.

These important principles are recognised in the Fisheries Act 1996, which provides for the utilisation of fisheries resources while ensuring sustainability. This entails maintaining the potential of fisheries resources to meet the reasonable foreseeable needs of future generations and the need to avoid, remedy or mitigate any adverse effects of fishing on the aquatic environment.

Another important statute administered by the Ministry of Fisheries is the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, which recognises the partnership between the Ministry and Maori and obligations to give effect to Treaty principles. The Ministry of Fisheries seeks to work cooperatively with Tangata Whenua, fisheries stakeholders and interested parties including:

- Commercial fishers and fishing industry
- Recreational fishers
- Customary Maori (non commercial)
- Environmental Groups
- Local government and other Government agencies with an interest in coastal and fisheries matters.

The Ministry of Fisheries (MFish) advises the Minister of Fisheries and Government on fisheries policy and develops laws to manage New Zealand's marine fisheries. MFish administers the Quota Management System that regulates New Zealand's commercial fishing industry. Introduced in 1986 the Quota Management System (QMS) controls how much fish can be harvested based on the annual assessment of individual fish stock size, species recruitment and abundance. The success of the QMS regime relies upon sound fisheries management decisions, effective administrative systems, information monitoring and effective enforcement to ensure compliance.

MFish is charged with delivering criminal enforcement services that:

- Inform fisheries stakeholders of their legal obligations and the consequences of not meeting those obligations; and
- Detect and where appropriate prosecute those persons who are operating outside the law.

MFish Compliance Objectives

A high level of voluntary compliance with fisheries laws is critical to the success of any fisheries management regime. MFish aims to achieve optimal levels of compliance with fisheries laws by:

- ❖ Maximising voluntary compliance by encouraging fishers to comply voluntarily with fisheries laws; and
- ❖ Creating an effective deterrent against illegal activity.

The strategies for maximising voluntary compliance require fisheries stakeholders to:

- Be involved in developing the rules
- Understand and accept the rules as fair and necessary
- Accept the duties and responsibilities of being fisheries rights holders
- Be involved in developing compliance strategies; and
- Believe the rules are being administered fairly and equitably.

To achieve the second compliance goal, fisheries stakeholders and users need to believe:

- There is a reasonable chance of any cheating being detected
- There is a high probability of being successfully prosecuted or penalised
- The cost of being caught cheating outweighs the benefits.

MFish Compliance Services

In terms of MFish enforcement capability a team of seven Fishery Officers based in Invercargill services the Southland and Fiordland area. The Invercargill MFish District Compliance team is primarily responsible for policing inshore fisheries between Awarua Point, South Westland and Long Point on the South-East Otago coast and includes all of Fiordland, Foveaux Strait and Stewart Island.

Principle enforcement responsibilities include:

- Detecting commercial and non-commercial offences against fisheries regulations through monitoring and surveillance of fishing activity and fish product flow:
- Inspection of fishing vessels, vehicles, Licensed Fish Receivers and Dealers in Fish premises:
- Audit and investigative examination of commercial fishing business records:
- Investigation of illegal fishing activities including poaching and black-market:
- Answering queries and providing compliance advice to fisheries stakeholders and the general public:
- Delivery of educational material, including signage and information brochures to promote voluntary compliance by non-commercial fishers:
- Managing a small Honorary Fishery Officer volunteer network to assist enforcement by delivering education information to non-commercial fishers.

In relation to fish stock management, Fiordland lies within the Southland fisheries management area (FMA) 5 bounded between Awarua Point in the north and Slope Point in the South. Fiordland is also a significant area within the commercial rock lobster CRA 8 fisheries management area bounded between Abut Head, South Westland and Long Point on the South-East Otago coast.

Enforcement activities within Fiordland are severely constrained by isolation and the wide geographic spread of the Fiordland coastline. Normal Fishery Officer access is by routine road patrols to main access points at Manapouri, Te Anau and Milford Sound, mainly checking commercial fisher landings and Licensed Fish Receivers. Dedicated patrols are carried out to inspect recreational fisher landings during peak holiday periods. Access to the Fiordland coast is limited to expensive aerial patrols by floatplane and helicopter. While the local MFish office, now possess a trailer borne 5.9-metre Stabi-Craft patrol vessel, ready deployment is limited to Milford Sound and Doubtful Sound, the latter being logistically difficult for deployment at short notice. Annual sea patrols coinciding with peak season commercial activity, normally necessitates the hire of the Department of Conservation (16.5 metre length) vessel 'Renown' and less frequently the use of inshore naval patrol craft, with the alternative of private charter vessel hire. As with fishing, all sea patrols on the outer Fiordland coast are weather and sea conditions dependant, which can severely limit operations.

Customary Fisheries Compliance

The Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 requires the Minister of Fisheries to act in accordance with the principles of the Treaty, by consulting with Tāngata Whenua and developing policies to help recognise the use and management practices of Māori in the exercise of non-commercial fishing rights.

Under the terms of the 1992 Settlement Act, the Fisheries (South Island Customary Fishing) Regulations 1999 (replacing the original 1998 regulations) were introduced to recognise customary food gathering by Māori and the special relationship between Tāngata Whenua and those places, which are of customary food gathering importance (including tauranga ika and mahinga mātaimai), to the extent that such food gathering is neither commercial nor for pecuniary gain or trade.

Customary Regulations enable Tāngata Whenua to apply for the establishment of mātaimai reserves, within any part of their rohe (area). Tangata tiaki/kaitiaki (Guardians) are appointed by Tāngata Whenua to manage the reserve through the making of bylaws approved by the Minister of Fisheries. Bylaws can be made specifying the species, quantity, size limit, method, and area where the species may be taken. Generally commercial fishing is prohibited within mātaimai unless specifically exempted by regulation. The establishment of any mātaimai requires MFish to provide adequate signage and pamphlet information material to educate and inform fishers of the mātaimai reserve bylaws. Tangata tiaki/kaitiaki work closely with MFish to promote voluntary compliance of the bylaws, with enforcement carried out by MFish Fishery Officers and Honorary Fishery Officers through proactive patrols and reactive investigation to reports of illegal fishing. In dealing with remote areas such as Fiordland, it is important to build an effective information network to provide accurate and timely information to enable effective follow up and results. The Customary regulations provide for offences and court imposed penalties including maximum fines of \$10,000 for a first offence and \$20,000 for any subsequent offences.

Similarly taiāpure provisions in Part IX of the Fisheries Act 1996 provide for the establishment of taiāpure – local fishery areas that are customarily of special significance to an iwi or hapu as a source of food or for spiritual or cultural reasons. A taiāpure management committee recommends the making of fisheries regulations applying within the taiāpure, with offence and penalty provisions similar to amateur and commercial fishing regulations. The Fisheries Act 1996 also provides for section 186B rāhui/temporary closure of fisheries or restrictions of fishing method in an area to improve the size and availability of fish stocks and/or to recognise and provide for the use and management practices of the Tāngata Whenua. Offence and penalty provisions relating to fishing in breach of rāhui provide for a maximum fine of \$100,000 on the conviction of commercial offenders and \$5,000 for non-commercial offenders.

Compliance Education and Awareness

Fisheries compliance relies upon influencing people's behaviour through effective communication and use of information tools to promote local fishing rules and to encourage responsible fishing practices. Therefore an important component to any compliance regime is the provision of targeted educational material to inform fisheries users of the local fishing rules and their obligations. This will be especially important for any fisheries regulations that are specifically enacted for fine scale management of Fiordland fish stocks and for any particular Fiord restrictions and area closures.

With the commercial industry electing to fund their own industry compliance education, MFish has concentrated on producing education material for recreational fishers and more recently customary fishers. Traditionally this has relied upon the use of recreational fishing information signage erected at limited strategic locations, such as launching ramps, wharfs and Department of Conservation huts in coastal locations within the Fiordland National Park.

MFish signage information is supported by the wide spread distribution of recreational fishing brochures, namely the 'Guide to Marine Recreational Fishing Rules', containing relevant fishing rules applying to the Southern Region Fishery Management Area (FMA), which includes the Southland FMA, Sub-Antarctic FMA and the South-East FMA. More recently MFish has produced several species and method specific brochures including the 'Guidelines for gathering paua', 'Handling and measuring rock lobster', 'Guidelines for releasing undersize fish' and a 'Set net code of practice'. A local MFish initiative was the production of a fish ruler sticker to encourage fishers to measure their finfish and shellfish catch.

To further encourage responsible fishing practices in Fiordland, the Guardians of Fiordland Fisheries have produced a code of practice entitled 'Beneath the Reflections: Caring for Fiordland's Fisheries', which is also distributed for recreational fishers and recreational charter vessel use. Information material is usually disseminated by Fisheries Officers and local Honorary Fishery Officers in the field and relies upon the joint co-operation of fishing clubs, local businesses and charter vessel operators to assist distribution and to reinforce voluntary compliance of the rules.

Enforcement and Compliance

It is important to recognise that “enforcement is an activity and compliance is a desired outcome”. The Fisheries Act 1996 and associated Commercial, Customary and Amateur Fisheries Regulations place legislative restrictions and requirements on all fisheries users. The Quota Management System relies upon output controls, to govern and constrain commercial catch, as well as a number of necessary input controls relating to minimum fish size lengths, gear restrictions, closed season and closed areas.

Recreational and customary fisheries are not directly controlled by the QMS and instead rely on input controls that regulate non commercial harvesting of fish and shellfish species by imposing daily species and bag limits, minimum size lengths, method restrictions, closed seasons and closed area controls.

The introduction of any new fisheries regulation’s that are specific to the Fiordland area will require changes in behaviour. Improving compliance education and raising levels of awareness is an important tool in promoting a high level of acceptance of fishing rules. However a strong enforcement deterrent regime is required to deter those people, who carelessly or deliberately breach fisheries regulations.

Whilst the Fisheries Act 1996 contains tough financial penalties for serious commercial fishing non-compliance there is often a high burden of proof where the prosecution is required to satisfy the Court that an offence was “knowingly” committed, with extreme environmental limitations posing a challenge to gathering of best evidence.

Compliance levels can be seriously undermined if regular infringements are not penalised by any meaningful sanction. The recent introduction of Fisheries infringement notices, as an alternative to court proceedings for less serious amateur offences, has increased the likelihood of amateur offenders receiving a financial sanction. The Fisheries Act 1996 and amendments to the Amateur Fishing Regulations now provide for new categories of offending and differing tiers of infringement fees (\$250 and \$500), along with increased maximum court fines (\$10,000 and \$20,000) and provision for custodial sentencing for serious amateur offences.

For example the following penalties apply for exceeding amateur bag limit offences:

- Taking and possession of fish up to and including 2 x daily limit = \$250 infringement
- Taking and possession of fish up to and including 3 x daily limit = \$500 infringement
- Taking and possession of fish in excess of 3 x daily limit = \$20,000 maximum fine.

While there is provision for less serious commercial offences to be dealt with by infringement notices, most commercial offences including serious poaching and black-market offences will be referred to the courts, with increased maximum fines up to \$250,000 and up to 5 years imprisonment.

Department of Conservation Compliance Role

Legislation Mandate

The Department of Conservation (DoC) is the central government organisation charged with conserving the natural and historic heritage of New Zealand on behalf of all New Zealanders. The Department has primary responsibility for the conservation of New Zealand's unique indigenous biodiversity, through protection and management of natural areas such as national parks, forest parks, reserves, off shore islands, marine protected areas and marine reserves. The Department encourages recreation and permits tourist activities on the conservation estate by providing facilities, management and granting of concessions in relation to access and commercial use.

The Conservation Act 1987 is the principal Act of 25 Acts administered by the Department of Conservation. In terms of Fiordland and the marine coastal environment these include the National Parks Act 1980, Reserves Act 1977, Wildlife Act 1953, Trade in Endangered Species Act 1989, Marine Reserves Act 1971 and Marine Mammals Protection Act 1978.

Marine and coastal conservation is an important responsibility of the department. It is responsible for Marine Reserves and for protecting marine mammal such as dolphins, whales, sea lions and fur seals and administers the regulations governing the whale and dolphin watching industry. The department is also responsible for the New Zealand Coastal Policy Statement, which promotes the sustainable management of the natural and physical resources of the foreshore, seabed, coastal water and airspace from the high tide mark out to the 12-nautical mile limit of the Territorial Sea. Restricted coastal activities identified in the New Zealand Coastal Policy Statement must be included in Regional coastal plans required under the Resource Management Act 1991, which are administered and enforced by local Regional Councils, who manage and approve coastal consents for restricted coastal activities.

Fiordland National Park

The Southland Conservancy includes the Fiordland National Park (New Zealand's largest at 1,257,000 ha), which forms part of the Te Waipounamu – Southwest New Zealand World Heritage Area, and includes the Waitutu forest and the off shore Solander Island group, with its sea borne boundary extending to the mean high water mark. The Southland Conservancy Office is situated in Invercargill with the day-to-day operational management in Fiordland undertaken by the Te Anau DoC Area Office. The Te Anau Area Office/ Fiordland National Park Visitor Centre receives 150,000 visitors annually. The Southland Conservancy issues and administers approximately 140 concessions for commercial activity within the DoC estate including tourist landing and access and marine mammal watching. The Southland Conservancy operates an annual budget of approximately \$8.7 million, which is partly funded from revenue generation of \$2.9 million derived from concession licences, rentals and hut fees. The Conservancy employs about 90 permanent staff and up to 50 temporary and seasonal staff.

Marine Reserves

There are currently two Marine Reserves in Fiordland. Te Awaatu Channel (The Gut) Marine Reserve covers 93ha near the eastern end of Bauza Island in Doubtful Sound and Piopiotahi Marine Reserve covers 690ha along the northern shore of Milford Sound. Section 3 (1) of the Marine Reserves Act 1971 states that marine reserves are established: “*for the purposes of preserving, as marine reserves for the scientific study of marine life, areas that contain underwater scenery, natural features or marine life, of such distinctive quality, or so typical or beautiful or unique that their continued preservation is in the national interest.*”

In administering marine reserves the Department places considerable effort on advocacy and education by providing opportunities for the public to learn about the marine life and habitats of the marine reserve. This is primarily achieved through the production of a *Fiordland Marine Reserves* pamphlet incorporating a *care code for divers*, boat ramp signage and interpretation panels erected at the Milford tourism booking office and West Arm information centre.

DoC Compliance

Present DoC policy is to provide effective compliance and law enforcement for each gazetted marine reserve. A *Compliance and Law Enforcement Action Plan* has been developed for both Fiordland marine reserves setting out the standard operating procedure for investigating complaints of illegal fishing inside the marine reserve.

Under the Marine Reserves Act 1971 it is an offence to:

- Take any plant or animal:
- Wilfully damage or injure marine life:
- Erect any structure in, or over a marine reserve:
- Wilfully interfere with or disturb marine life, foreshore or seabed, or natural features:
- Discharge any substance or article injurious to marine life in, or into the reserve:
- Introduce any living organism that does not naturally occur in the reserve.

While all fishing or taking of fish is prohibited inside marine reserves, all relevant fisheries regulations still apply in regards to possession of fish relating to minimum size and amateur daily bag limits.

Marine Reserves legislation provides for court penalty on conviction of up to 3 months imprisonment and/or maximum fines of \$250,000, \$50,000, \$10,000, \$5,000 and \$2,500 for differing categories of offending. For example the taking and removal of marine life for commercial purposes has a maximum fine of \$250,000, while wilful damage or injury of marine life attracts a maximum fine of \$10,000. Obstruction of an enforcement officer has a maximum fine of \$2,500 or up to 3 months imprisonment.

Warranted Officers/Rangers

Conservation enforcement is undertaken by warranted officers appointed pursuant to Section 59(9) of the Conservation Act 1987. In the Murihiku Region nominated conservancy staff are trained and warranted to carry out part time Compliance and Law Enforcement (CLE) duties. Provision exists for the appointment of Honorary Rangers under Section 17(1) of the Marine Reserves Act 1971, while subsection (7) provides that every member of the New Zealand Police and every Fishery Officer (appointed pursuant to the Fisheries Act) is deemed to be a Ranger appointed by the Director-General to exercise the duties of a Ranger in marine reserves throughout New Zealand. General enforcement powers relating to stop, search, questioning and seizure are exercisable within a marine reserve, but can only be used outside a marine reserve if the ranger is in fresh pursuit of an offender. This severely limits enforcement responses such as random vessel stopping, search and conducting enquiries outside the reserve.

Both Fiordland marine reserves are relatively isolated with accessibility limited primarily to boats, necessitating the use of sea-borne patrols for any proactive enforcement monitoring. Identified threats are illegal fishing and diving for rock lobster by recreational fishers and potential damage of marine life from inexperienced scuba divers.

The Department operates the 16.5 metres length GV *Renown* to perform programmed research and conservation project servicing around the Fiordland National Park. When the occasion arises the present skipper of the *Renown* is warranted to check boats that he observes inside the marine reserve and is also warranted as an HFO to exercise Fishery Officer powers both inside and outside the reserve. However ready deployment of the *Renown* to investigate illegal activity within the two present reserves is often impractical depending on where the vessel is operating and the steaming time to reach the reserve. In the absence of any dedicated enforcement patrols and the lack of warranted DoC staff to regularly monitor each reserve, the Department recognises the importance of tourist operators and commercial fishers who regularly pass through or near marine reserves to be their eyes and ears to report offences. Reports of illegal activity and offences are passed onto a designated CLE co-ordinator for appropriate response action including follow up investigation, the issuing of warning letters for first offences and prosecution action.

Similarly the Marine Mammals Protection Act 1978, Section 11(1), provides for every warranted officer appointed pursuant to the Conservation Act 1987 and every Fishery Officer appointed under the Fisheries Act and every Police Constable to be Marine Mammal Officers for the purposes of enforcing the Act. Subsection (9) states the Director-General shall issue to every Marine Mammal Officer (except a constable) a warrant showing the officers authority to exercise the enforcement powers conferred by the Act.

Environment Southland Compliance Role

Legislation Mandates

Local government responsibility for administering and enforcing coastal use activities in the Fiordland and Southland coastal area is the responsibility of Environment Southland which administers several important Acts requiring enforcement and compliance actions:

- Local Government Act 1971 (currently being reviewed):
- Resource Management Act 1991:
- Maritime Transport Act 1994:
- Bio-security Act 1993:

In Resource Management Act terms, the Coastal Marine Area (CMA) for which the Council has responsibility with the Department of Conservation is from the mean high water spring (MHWS) mark out to the 12-nautical mile limit of the territorial sea.

Delivery of Enforcement and Compliance Services

In the coastal context, the majority of Environment Southland enforcement and compliance work is activated through the Resource Management Act and the regional Coastal Plan. The Act sets up the management framework and the Plan sets out the rules that have to be complied with.

Compliance is dealt with in a number of ways from activities, which are permitted without any further intervention from the Council, through to those that are prohibited. The consents process is one of the compliance mechanisms that sanction activities where the Plan or the Act determines that consent is required before they commence.

Failure to comply with the conditions of consent; failure to comply with the provisions of the Plan; or failure to comply with the provisions of the Act can all initiate a compliance response. In some cases a compliance response is initiated by way of a complaint from the public about a certain activity or effect that is being caused in the environment.

The regional Navigation Safety Bylaws also provide a compliance tool relating to a range of activities around the operation of vessels within the coastal marine area.

The components of the compliance task can include some or any of the following compliance tools being used (in priority order):

- Education/advocacy
- Warnings
- Instant fines
- Abatement Notices
- Enforcement Orders
- Prosecution under the regional Coastal Plan and/or the regional Navigation Safety Bylaws (resulting in a criminal conviction and fine. Imprisonment is an option for the Court if needed)
- Review of Consent conditions
- Cancellation of Consent (through the Environment Court)

Environment Southland Capacity/Resourcing

The compliance and enforcement function is undertaken primarily through the Council's Compliance Division but also to some extent through the Consents Division. The Maritime Manager/Harbourmaster also has a compliance role under the RMA and bylaws relating to maritime navigation and safety.

The present Environment Southland compliance resource capability is as follows:

- Compliance Division – 6 personnel
- Consents Division – 4 personnel
- Maritime Manager – 1 personnel

Other Environment Southland staff, when carrying out their normal duties, can also provide the first contact with an issue that requires compliance or enforcement action. In those cases, the Compliance Division is notified. Environment Southland recognises additional “eyes and ears” out in the community can be a valuable asset. Establishing effective networks, liaison, protocols, and strategic alliances with other agencies for the purpose of information sharing is important. Working more closely together helps in covering such a vast area such as the Southland and Fiordland coastline.

Guardians Approach to Compliance

Compliance Networks

The remoteness and isolation of Fiordland imposes considerable logistical difficulties and high costs on enforcement agencies in carrying out both proactive and reactive enforcement. Enforcement in all reality remains a necessary back up to an effective education and awareness programme, with enforcement resources targeting where possible repeat and aberrant offenders.

Meaningful responses to reports of illegal activity, requires timely and accurate reporting of offences to the appropriate enforcement authority. Directed policing and ready accessibility is hampered by the isolated geographic spread of Fiordland, combined with the dispersed and sometimes irregular human occupation allowing some opportunist offending to go undetected. However past experience has shown any sustained illegal activity is eventually reported by law-abiding operators.

Therefore it is important for enforcement agencies to cultivate effective information networks with key users and commercial operators encouraged to immediately pass on intelligence and any reports of illegal activity.

Guardian's Advocacy and Stakeholder Ownership

The Guardian's of Fiordland's Fisheries Inc being representative of key stakeholder groups in Fiordland are well placed to fulfil a strong advocacy role to negotiate the adequate provision and delivery of enforcement services by the appropriate enforcement agencies and by providing valuable feedback and advice on compliance effectiveness.

Key stakeholders and regular fisheries users within Fiordland can play a major role in encouraging voluntary compliance of fishing rules. Key user groups include sport fishing and diving clubs, charter boat operators, private vessel syndicates and commercial fishers. As the majority of first time fishing interaction for many fishers visiting Fiordland takes place from either a charter vessel, private syndicate vessel or during an organised fishing or dive club visit, it is important that each user group accepts responsibility to ensure all fishers are made aware of the fishing rules and that all fishing is conducted within the rules.

This requires all regular fisheries users and charter vessel operators to take ownership and responsibility to promote the fishing rules by distributing brochures, displaying information posters and most importantly briefing and supervising fishers on board their vessels. Where possible any observed breaches of illegal activity should be promptly reported to MFish or the appropriate enforcement agency. In addition to supporting fishing regulations the potential use of voluntary codes of practice for charter boats and syndicate vessels, require all participants to play the game responsibly, with peer sector pressure a strong and positive motivator to conform.

Enforcement Agency Co-operation

With the introduction of any new rules, voluntary compliance requires the production and distribution of concise and informative pamphlet and signage material to clearly detail the appropriate rules applying both generally and to specific areas within the fiords. Interagency co-operation in co-production and shared funding of education material will be of major benefit to ensure visitors and users receive targeted information.

The primary agencies for delivering enforcement services relating to fisheries and the marine environment are the Ministry of Fisheries, Department of Conservation, Maritime Safety Authority and Environment Southland, along with co-operation with the New Zealand Police, New Zealand Customs Service and the New Zealand Defence Force. While each government agency is responsible for carrying out enforcement activities in support of administering specific departmental legislation, where possible, inter agency co-operation should be encouraged in relation to the sharing of intelligence relating to offenders and illegal activity.

Interagency co-operation could extend to planning of joint agency responses in carrying out proactive maritime and aerial surveillance patrols and to investigate reported offences. Presently the facility exists for appropriate Department of Conservation Officers to be warranted as Honorary Fishery Officers with limited training provided to assist in the delivery of non-commercial fisheries enforcement and education. Reciprocal facility exists under the Marine Reserves Act for Fishery Officers to carry out enforcement powers of Marine Reserves rangers within marine reserves in support of Department of Conservation rangers.

Interagency co-operation and improved coordination of enforcement resources is deemed necessary and essential to ensure limited agency resources and funds are cost effectively utilised. The Guardians support an integrated enforcement approach should be taken by the various agencies to ensure the best results and compliance outcomes are achieved for Fiordland.