

An Opportunity to create a Fiordland Marine Park



SUBMISSIONS NEEDED

The fiords of Fiordland, renowned for their spectacular scenery and as a global hot spot for black corals, also contain unique assemblages of marine organisms found nowhere else in New Zealand or on the planet. They deserve protection, yet they remain outside Fiordland National Park and the South West New Zealand Te Wahipounamu World Heritage Area. The IUCN, which approved the World Heritage Area in 1986, recommended then that the fiords be included in the National Park.

The Guardians of Fiordland's Fisheries and Marine Environment Inc., (GOFF) have proposed a draft management strategy for Fiordland's fisheries and marine environment. GOFF comprises representatives of commercial and recreational fishers, charter operators, Ngai Tahu and local community interests, with advice from the Department of Conservation, Ministry of Fisheries, and two marine scientists.

They have invited submissions by 20th December 2002

Submissions will be analysed by Southland Regional Council.

This pamphlet is to encourage you to write a submission to help gain the protection and recognition that the Fiords deserve. We set out the GOFF proposals, describe the special values of Fiordland that warrant protection, and suggest two further options, adding to the GOFF suggestions, which in Forest and Bird's view better protect the national and internationally significant values of the Fiords.

The Guardian's Draft Integrated Management Strategy

The Guardians have produced a comprehensive booklet which is available on their website www.fiordland-guardians.org.nz or from Private bag 90116, Invercargill.

The management package they present represents an agreement between commercial and recreational fishers, Ngai Tahu and charter operators in Fiordland. This agreement was not necessarily easy and represents a historic achievement on the part of the Guardians.

Broadly, the Guardians strategy favours creating an overarching taiapure over the fiords, embracing a package of management measures including:

- bans on all commercial fishing and the use of cod pots and scallop dredges in the inner fiords
- reductions in daily bag limits, (including a two year temporary closure for blue cod in Milford and Doubtful)
- and restriction on numbers of recreational cray pots.

They have proposed seven "representative areas" and an area in Doubtful Sound for which they consider marine reserve status may be appropriate, but contingent upon the establishment of taiapure and retention of local management. They have also identified 22 small discrete areas, described as "China Shops" for which they propose various codes of practice largely to control divers and anchoring (*See insert map for details*).

Forest and Bird welcomes these proposals as they are a significant advance on current practices in Fiordland, and go some way towards providing the protection Fiordland deserves. It is especially significant that the Guardians have agreed to ban all commercial fishing from the inner fiords, and suggested much lower bag limits for crayfish, groper and blue cod, based on a philosophy of "fish for a feed – no catch accumulation."

Fishing measures need improvement

The Guardians have proposed different bag limits for the inner and outer fiords / open coast, which will make them difficult to enforce as it will be impossible to verify which side of the boundary the fish were taken.

The decision to ban commercial fishing in the inner fiords is partly based on the recognition that cray pots can significantly damage black coral and other marine organisms. It is surprising and disappointing that the Strategy proposes to allow recreational fishers and charter boats to have three cray pots per boat in both the inner and outer fiords. Cray pots should be banned within the fiords.

Protected areas not adequately representative

The Guardians, despite recognising that protected areas need to represent the range of Fiordland's marine habitats and biodiversity, have not proposed protected areas for the full range of habitats and marine biodiversity found in Fiordland. Their proposals do not include adequate representation of the productive fiord entrance habitats, or outer fiords, or the outer coast, nor do they

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adequately protect the sensitive 40-meter band habitat. Given that the fiords are widely acknowledged as a very special place for marine biodiversity both nationally and internationally, it is disappointing that the Guardians have not suggested protection for several whole fiords, nor have they recognised the need to protect dolphin habitats.

Taiapure needed but not for the whole of fiordland

Forest and Bird support the need for and establishment of taiapure areas within Fiordland. We recognise the importance of Fiordland to local runanga and support iwi management for areas within Fiordland. However, as Fiordland is of both national and international importance it is not appropriate that taiapure be used as the over-arching management mechanism for the whole of Fiordland. The object of taiapure is to enable local management of areas that have customarily been of special significance to iwi or hapu. Within taiapure there are no legislative requirements for management plans or for public input into their management, other than through submissions on any proposed regulation, and there are no specific protection requirements. Taiapure enable local iwi to control recreational and commercial fishing and can assist in the restoration of fisheries by providing for temporary closures of up to two years. It is not possible legally to create marine reserves within taiapure, and the existence of a taiapure over the whole of Fiordland would prevent the establishment of marine reserves both now and in the future. A number of Taiapure should be looked at for parts of Fiordland.

The case for greater protection

To adequately protect and sustain Fiordland's unique marine biodiversity, a management regime and a network of representative marine reserves must take account of Fiordland's special ecology and ecosystems.

Huge coastline but habitat with greatest marine diversity very small

Fiordland has a prodigious rainfall, which rushes down the steep mountains carrying large quantities of dissolved organic material. This huge freshwater input creates a layer of low salinity water (the colour of tea) which sits as a seawardly flowing blanket about 3m deep over much of the fiords. This large inflow of freshwater sets up a two-layered circulation with high salinity seawater flowing into the fiord below the out-flowing low salinity layer, making each fiord like an elongated estuary. This circulation is confined to the upper 20-40m. Below this the water may remain undisturbed for years. The freshwater layer is high in tannins and absorbs the light. This combination of low light and restricted circulation effectively confines the zone of diverse marine life to a very narrow band from 6m to around 40m deep on the almost vertical rock walls around the perimeter of the fiords. This has been described by marine scientist Ken Grange, as the 40m band. (See *Forest and Bird* Journal August 1986). Ken has calculated that the total habitat area of this special marine community is about 46km², which can be compared to the area of Wellington Harbour (87km²), Bluff Harbour (55km²), Akaroa Harbour (44km²) or the intertidal mudflat area in Manukau Harbour (145km²). So even though the fiords cover a large area and have an enormous length of coastline, the area of high marine biodiversity is comparatively very small, making it vulnerable to over exploitation. Many of the animals that live within this band are long lived and very slow growing. Black coral colonies are prolific throughout this zone and some of the larger colonies are thought to be 300- 400 years old. They only grow 1.5 to 25mm per year. The fragile red corals also grow extremely slowly, about 1 –2mm a year. One miss-placed cray pot, cod pot, anchor, or a careless diver can destroy a colony in seconds, like a "bulldozer in a China Shop", hence much of Fiordland's rock wall habitat could be described as a "china shop".

Deep water emergence – a special Fiordland phenomena

Many of the species that are common in Fiordland are generally rare elsewhere in New Zealand or usually live in much deeper water. Fiordland's dark stained freshwater layer creates conditions at 10m deep that are similar to those at 70-100m deep on the open coast. This allows species like black coral, brachiopods, and seapens, which are normally found in deep water, to grow within divable depths in Fiordland. Fiordland contains the world's most diverse and abundant population of brachiopod, known as lampshells, and is probably one of the best places on the planet to observe them within divable depths. Wavy line perch, normally resident on deep rocky reefs below 150m outside the fiords, are found in the inner and mid fiord areas of Chalky and Preservation at depths of 6 –31m.

Each Fiord is unique

Each fiord contains unique marine assemblages and sometimes genetically distinct populations. Each fiord has a particular physiography in which sill depth, bottom topography, freshwater input and fauna all interrelate to determine each fiords unique biodiversity.

Scientists believe that the estuarine circulation system described above may act as a larval retention mechanism within each fiord, restricting genetic exchange between the fiords. There are many examples; including black and red corals, kina, brachiopods and sea stars, of genetic variation in populations both between fiords and within individual fiords.

Genetic studies suggest that not only is each individual fiord acting as a separate ecosystem with very little exchange/or connectivity among the fiords, but that there is also genetic subdivision within the fiords.

There is evidence from studies on blue cod, kina and brachiopods, that the mid and inner fiord populations of these species maybe isolated in terms of larval dispersal from their outer and entrance populations. The inner fiord populations are more like animals living on islands, reliant upon producing their own recruits. It is likely that this pattern applies to many other

species. This makes them highly vulnerable to over-fishing. It is widely accepted that stocks of blue cod, groper and crayfish in particular are depleted throughout most of the inner fiords. Crayfish populations in Fiordland are about 5% of what they were in the 1950s.

Within the fiords there are also isolated patches of high species diversity surrounded by low diversity areas. Many of the organisms within these biodiversity rich areas have short-lived larvae or gregarious settlement patterns. Although not much is known about the dispersal of larvae within the fiords, scientists speculate that the larvae of many species may remain, settle and grow within their patch of origin.

These findings have important implications for designing a marine reserve system. It can not be assumed that protecting a single site or small area within a fiord will protect the full range of biodiversity found within that particular fiord, nor can it be assumed that protecting one fiord or one area within a fiord will enable that area to act as a possible source of recruits to other areas in the fiord or to other fiords.

Each fiord is a different age, reflecting the different entrance "sill" heights (old moraines) and thus the time of inundation by seawater, once the glaciers receded 8 –15,000 years ago. A recent study found marine species richness in Fiordland is correlated with the age of the fiord, with the oldest fiords having some 56 more species than the youngest. Doubtful, Thompson and Breaksea are the oldest fiords, at around 16,000 yrs and Preservation at 9,000 yrs is the youngest.

Entrance, middle and inner fiords

There are significant habitat gradients within the fiords that need to be adequately represented in a network of marine reserves. The exposed entrances dominated by kelp forests, are the most productive habitats, especially for crayfish, paua, fish and kina, and appear to drive the productivity for some species also living in the inner fiords. Inner fiord populations of some species, particularly blue cod and kina may depend upon larvae produced

from populations at the fiord entrance. There is evidence that entrance populations of blue cod and kina grow faster and bigger than those in the less productive inner fiord habitats. This has serious implications for fisheries management and reserve design. If, as is likely, the inner fiord populations of some if not many species, rely upon larvae largely produced by populations at the entrance, and the entrance populations become depleted, it is unlikely that the inner populations can be restored, even if protected as marine reserves. It makes biological sense to ensure that at least some entrance habitat is protected for each fiord, which has an inner marine reserve.

Further inside a fiord the habitat changes from being kelp dominated to being dominated by animals, and the percentage of bare rock with coralline pavement algae habitat increases. Ascidians (invertebrates that look like sponges) occur in great profusion at the entrances but they decline dramatically towards the head of a fiord. Fish diversity and abundance within the fiords are generally lowest near the heads of the fiord and increase seawards. The inner fiords are dominated by spotty's, scarlet wrass and banded wrass. Butterfly perch become common in the mid fiords while the outer fiords contain populations of blue cod, groper, tarakihi, blue moki and butterfish. These species are uncommon in the mid to inner fiords.

There are strong biodiversity and ecological reasons for protecting whole fiords and extensive areas within each fiord.

Regional features

There are some strong north-south habitat differences along the outer coast, at fiord entrances and within the fiords themselves that need to be reflected in a representative marine reserve network. The fiords can be divided into northern and southern groups based on water temperatures and salinity values and land topography. The split occurs round about Dagg Sound. The northern fiords are generally steep sided with relatively narrow entrances facing northwest and have little sheltered shallow rocky reef habitat. The southern fiords all have broad entrances with many islands and are exposed to the southwest. These

are the most productive fisheries of Fiordland.

Seaweeds display a marked north-south trend with the southern flora being similar to that of Stewart Island and the northern flora more similar to the West Coast. The massive bull kelp are restricted to the outer coast and fiord entrances, and their distribution wanes towards the north with only a few patches at Milford. There are also some north-south species differences particularly among sea pens and brachiopods.

Open ended passages

Only two fiords have open-ended connecting passages, Thompson Sound in Doubtful and the Acheron Passage between Dusky and Breaksea. These have particularly strong currents and are almost oceanic. They have very rich biodiversity especially amongst the filter feeders. These habitats are significantly different from the other fiords and deserve to be represented in a marine reserve. As Thompson Sound is a shipping way, it would be prudent to seek a protected area in Acheron Passage. Bottle nosed dolphins frequent this passage and have been seen here with young calves.

Special features

There are two well-known resident populations of bottle nosed dolphins in Fiordland, one in Doubtful and the second in Dusky Sound. Crooked Arm in Doubtful is an important nursery area. Another population roams between Charles, George, Bligh and Milford Sounds. Protecting areas within these locations will be important to ensure the quality of their habitat is maintained and restored.

Whales including orca, humpback, minke, southern right, sperm and long-finned pilot whales are most commonly seen offshore between Breaksea and Dagg Sounds, as are seabirds. Sharks, dolphins and seabirds seem to congregate around the mouth of Breaksea.

There are fur seal breeding rookeries on offshore islands near the entrances to Doubtful, Breaksea, Dusky, Chalky and Preservation. These islands are also important breeding areas for Fiordland crested penguin, the world's rarest penguin. The largest

numbers are found at Yates Point north of Milford. Petrels breed on Chalky and Breaksea Islands. The Breaksea Island group is now managed as a predator free, Specially Protected Area under the Fiordland National Park Management Plan. Anchor Island at the mouth of Dusky Sound has been cleared of stoats, and robins, mohua and saddlebacks have recently been released there.

Sutherland Sound has a very shallow entrance sill and is the most estuarine of all the fiords. Little commercial fishing has occurred here as the shallow sill makes access difficult. It is probably one of the more pristine sounds and justifies marine reserve status. Dagg Sound is the most oceanic of the fiords and has only recently begun to attract fishing pressure. It has a unique reef-building bryozoan not known elsewhere in Fiordland. Dusky dolphins are most commonly seen here.

Preservation Inlet is a distinctive fiord not representative of the more typical fiord habitats. It is regarded as an ecological outlier in terms of its invertebrate communities and the genetic distinctiveness of its populations of kina, sea star and brachiopods. It is the youngest fiord and has less species diversity but many of the species found there are unique to Preservation Inlet. Wavy line perch, which normally live in deep waters, are found living in comparatively shallow waters in Preservation Inlet. The entrance to Preservation Inlet has the most extensive and best representation of shallow sheltered, semi exposed and exposed rocky reefs in Fiordland.

Ewardson Sound in Chalky Inlet is also distinctive as it is the only inner fiord area that is exposed to ocean swells. This enables seaweed communities that normally only grow in outer fiords and their entrances to grow much further towards the head of the fiord.

Tricky Cove in Doubtful Sound is a long-term research site where much of the early work on black corals was conducted. Scientists continue to use this site. We recommend that it be incorporated into a marine scientific reserve, to protect it from damage by recreational divers.

Designing a Marine Park

Forest and Bird believes that Fiordland justifies its own special legislation which would create a Fiordland Marine Park, encompassing a network of marine reserves, taiapure, scientific reserves and national park extensions. Creation of a national park will require minor changes to the National Parks Act to enable parks to cover marine areas.

An ideal marine park should contain adequate representation and replication of the full range of marine communities found in Fiordland, as described above. Marine scientists recommend that these should be replicated as an insurance against disaster, whether it be human induced e.g. pollution, or the result of nature. There are also many special features in Fiordland that deserve protection.

We present two options, which are illustrated on the maps. Both these options embrace the Guardians of Fiordland's Fisheries and Marine Environment Inc., (GOFF) recommended representative areas and their fisheries management measures (amended as we suggest above to exclude cray pots and apply the same bag limits to inner and outer fiords).

Option 1: GOFF plus Greater Representation and Replication

This option aims to protect the special features of Fiordland; including significant areas of the 40m band habitat and to ensure the full range of inner, mid, outer and productive entrance fiord habitats, plus exposed coast habitats that represent the north/south environments are protected and replicated. It embraces; national park status for Milford, extending north along the coast to Yates Point and Preservation Inlet, a series of marine reserves for three whole representative small fiords in the north, plus the unique Sutherland Sound and Dagg Sounds, one whole fiord in the south, as well as a reserve on the southern outer coast, and a number of smaller reserves in Doubtful. We envisage a number of taiapure also being established, either adjacent to or beyond the suggested marine reserve and national park areas, however the location of these should be determined by local iwi. We have selected Breaksea Sound as the second southern whole fiord. It is one of the oldest fiords with the greatest marine biodiversity, and the highest density of black corals. It also has its own resident population of bottlenose dolphins. Breaksea Island is a Specially Protected Area in Fiordland National Park. However Dusky and Chalky also have their own special values and could equally well be chosen to represent the southern fiord habitats. Acheron Passage has been selected to represent the oceanic fiord environment.

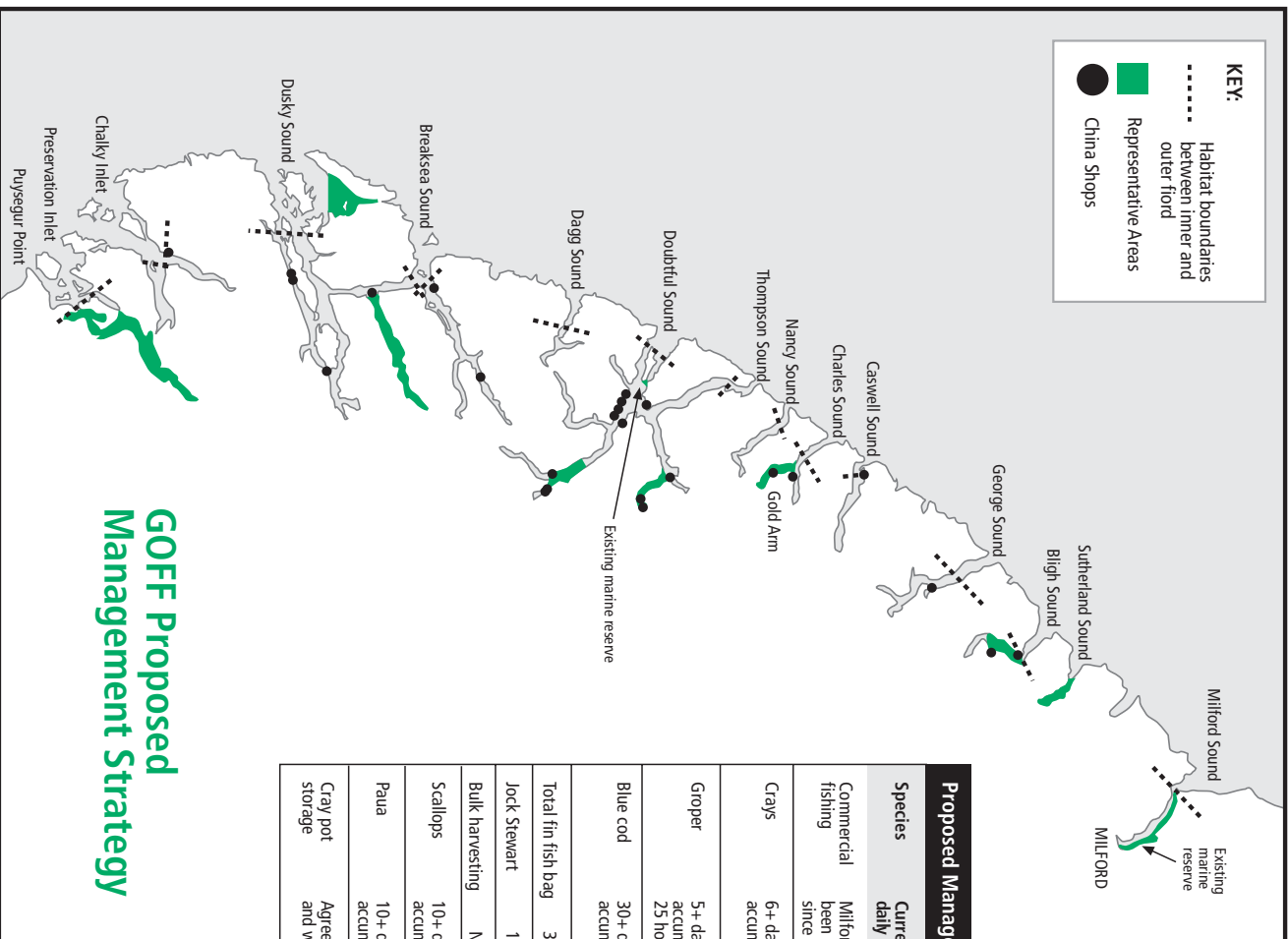
This option provides for less fragmentation of management areas with extensive and connected areas proposed as marine reserves.

Option 2: GOFF plus Minimal Representation and Replication

This option is designed to minimise impacts on existing user groups but to ensure minimal representation of the full range of habitats, and protection of significant sites and dolphin habitat. Less provision is made for replication except that in the south we strongly believe that at least two entrances should be protected in full. These are the most productive habitats, providing source populations for many of the inner fiord species, and contain a diversity of exposed and sheltered habitats. This option also embraces taiapure and two fiords are recommended for national park status, as with option one.

Writing a submission

We recommend that you comment on the GOFF proposal, noting its good and not so good features, and choose either of the above options, outlining your reasons for selecting it. Send your submission to Environment Southland, Private Bag 90116, Invercargill or email: janelle.mcdonald@envirosouth.govt.nz. Please also send a copy to Sue Maturin at Forest and Bird, Box 6230, Dunedin or email: suem@earthlight.co.nz. For more information please visit our web site or contact Sue - 03 477-9677, or email as above.



GOFF Proposed Management Strategy

Proposed Management Measures				
Species	Current daily bag	Millford and Doubtful	Inner fiords	Outer fiords and entrances
Commercial fishing	Millford has been closed since the 50's	Closed	Closed inside habitat lines	Harvest capped by QMS
Crays	6+ daily accumulation	2 no accumulation	3 no accumulation 3 pots per vessel	6 (3 day accumulation limit of 15 and 3 pots per vessel)
Groper	5+ daily accumulation 25 hooks	2 no accumulation 5 hooks	3 no accumulation 5 hooks	5 (includes 3 from inside) no accumulation 5 hooks
Blue cod	30+ daily accumulation	temporary closure (rahui) for 2 years of inner fiords	3 no accumulation no cod pots	20 (includes 3 from inner fiords) no accumulation
Total fin fish bag	30	NO ACCUMULATION	NO ACCUMULATION	
Lock Stewart	10	NO ACCUMULATION (outside total fish bag)		
Bulk harvesting	NO SET NETS			
Scallops	10+ daily accumulation	10+ no accumulation for all Fiordland waters no scallop dredging		
Paua	10+ daily accumulation	10+ no accumulation for all Fiordland waters		
Cray pot storage	Agreement that cray pots should not be stored in the 23 proposed "China Shops" and within 3 of the proposed 7 representative areas.			

