PROPOSED MARINE PROTECTED AREAS FOR NEW ZEALAND'S SOUTH ISLAND SOUTH-EAST COAST

SUPPORTING INFORMATION FOR THE PUBLIC CONSULTATION DOCUMENT 2016

VOLUME II

SOUTH-EAST MARINE PROTECTION FORUM
ROOPU MANAAKI KI TE TOKA

Cover: Tunnel Beach, Otago Peninsula.
Photo: John Barkla

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The South-East Marine Protection Forum's Consultation Document has been published in one volume with supporting background information published in a second volume.

Volume I
Volume I is the Consultation Document. It provides an overview of the process, the background to the Marine Protected Areas (MPA) Policy, and the proposed sites for your consideration.

It also provides a Submission Form located in the inside back cover pocket.

Submissions must be received by 5.00pm on Tuesday 20 December 2016.

Volume II
Volume II provides background information on the South-East Marine Protection Forum and on the Forum region's social and natural environment. It also includes all appendices, many of which are referenced in Volume I.

Both Volume I and Volume II are also available online at www.south-eastmarine.org.nz

Te Reo Māori
In the Public Consultation Document it is important to note the use of 'ng' for iwi in general and the 'k' for southern Māori in particular. In the south of the South Island the local Māori dialect use a 'k' interchangeably with 'ng'. The preference is to use a 'k', so southern Māori are known as Kāi Tahu, rather than 'Ngāi Tahu'.

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Boulder Beach, Otago Peninsula.
Photo: John Barkla

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THE SOUTH-EAST REGION

Wharauwerawera / Long Beach, Dunedin.
Photo: John Barkla

THE SOCIAL ENVIRONMENT

PEOPLE AND COMMUNITIES

1. The south-east coast is of cultural significance to Kāi Tahu, an ancestral landscape immortalised in creation traditions, rich in historical terms and a bountiful provider of sea food. The south-east region of Te Waipounamu was settled over 800 years ago, firstly by the Waitaha, who were followed by the Kāti Māmoe and finally Kāi Tahu. The three iwi merged over time and are known today as Kāi Tahu. The term 'Whānui' is often added to indicate the broad encompassing nature of the name Kāi Tahu that includes the three iwi.

2. Kāi Tahu whānui established settlements in the coastal and inland regions, and a network of mahika kai (customary food gathering sites). Fishing and gathering of shellfish such as pipi, tuatua and toheroa from the sandy shallows, mussels, pāua, limpets, kina (sea urchins) and seaweed were and remain important customary activities to this day.

3. The Ngāi Tahu Claims Settlement Act 1998 (NTCSA) settled historic treaty grievances and recognises the cultural and spiritual relationship Kāi Tahu hold with the natural environment. The NTCSA includes cultural redress mechanisms that assist in giving practical effect to the Kaitiaki functions of whānau and hapū.

4. The cultural redress includes a range of instruments that recognise Kāi Tahu mana over values that includes coastal and marine sites and resources. The Act also recognises Te Runanga o Ngāi Tahu as the iwi authority for the tribe while the constituent members of the iwi authority with takiwa in the south-east coast area are the following:
   - Te Rūnanga o Arowhenua
   - Te Rūnanga o Moeraki
   - Kāti Huirapa Rūnaka ki Puketeraki
   - Te Rūnaka o Ōtākou
   - Āwarua Rūnanga.

5. The Treaty of Waitangi (Māori Fisheries) Settlement Act 1992 transferred fishing entitlements and assets including commercial quota to all Māori, including Kāi Tahu. Protecting the ongoing integrity of this settlement asset is an everlasting treaty duty.

6. European settlers first arrived on the south-east of the South Island in the late 1700s hunting whales and seals. They were followed by more formal settlement from the 1840s when Dunedin was founded.

7. Today Dunedin has a population of about 120,000. Dunedin is also home to Port Otago a major South Island trading port. Timaru is another major port city with a population of about 43,000 and is a popular coastal resort in summer. Oamaru with a population of about 13,000 is the next sizeable township on the coast.

8. Coastal communities are dotted along the coast line from Timaru to Waipapa Point, while many have a small number of permanent local residents, their populations swell during holiday periods when crib owners and visitors come to enjoy the coastline. These include Kakanui, Moeraki, Shag Point, Waikouaiti, Karitāne, Warrington, Waitati, Purākaunui, Long Beach, Aramoana, Harington Point, Ōtākou, Portobello, Brighton, Taieri Mouth, Bull Creek, Toko Mouth, Kaitangata, Kaka Point, Surat Bay, Pounawea, Jacks Bay, Papatowai, Tautuku, Waikawa, Curio Bay, Waipohatu (Haldane), Kahukura and Waipapa Point.

9. Many people in the Forum region hold strong values associated with our coastline and sea. Historically, free access to the coast has been seen as a national birth right. People expect the beach to be clean and the water uncontaminated.

USES

10. There is a diverse range of activities that people undertake and prize along our coastline and in these marine areas these include:
    - going to the beach
    - swimming and surfing
    - beach walking and fossicking including dog walking, geocaching, rock climbing
    - boating, canoeing and kayaking
    - diving / snorkeling
    - coastal wetland recreation
    - bird / wildlife watching
    - horse riding
    - driving / biking
    - community events
    - tourism
    - customary fishing
    - recreational fishing
    - commercial fishing

Community

11. The south-east coast offers its community a multitude of recreational opportunities. Most notable amongst these are those that exist because of the nature of the marine environment; its biogeography and the biodiversity that it supports. These include:

    - World-class surfing breaks with St Clair Beach the most widely known, but surfspots abound throughout the entire region including at Aramoana, Karitāne, Whareakeake and Papatowai.

    - There is good temperate diving at many locations with large stands of bladder kelp and bull kelp a prominent feature of southern diving. While diving can involve the taking of marine life such as rock lobster, pāua (free diving only) and finfish, diving also involves more aesthetic elements such as underwater photography and viewing the underwater environment for pleasure. The Aramoana Mole at the entrance to Otago Harbour has long been considered a voluntary reserve by local divers, and Huriawa (Karitāne Peninsula), another popular dive site within the East Otago Taiāpure is protected by a Rāhui (temporary closure on pāua gathering).

    - The public can view wildlife at a wide range of sites, from land and sea.

    - Estuarine recreational opportunities include gamebird shooting, bird watching, whitebaiting, flounder fishing and shellfish gathering.

Tourism

12. Tourism, particularly tourism with a wildlife component, is an important and steadily growing component of our southern economy and creates jobs and wealth throughout the region.

13. The varied landscapes of the coast are significant attractions. Viewing of marine wildlife is a popular activity at some shore locations, and includes both recreational viewing and guided tours. Wildlife viewing mostly occurs at specific localities where the animals congregate to breed, rest or feed. Local government and communities invest considerable resources in marketing and managing tourism in the region.

14. The species that are the focus of such activities (and the primary sites at which the viewing activities occur) include:
    - New Zealand sea lion / whakahoa (Otago Peninsula, The Catlins)
    - Yellow-eyed penguin / hoiho (North Otago, Otago Peninsula, The Catlins)
    - Little blue penguin / kororā (Oamaru, Otago Peninsula)
    - New Zealand fur seal / kekeno (Otago Peninsula, Nugget Point, Long Point, Taiaroa Head)
    - Northern royal albatross / toroa (Taiaroa Head)
    - Otago shag / kōau (Taiaroa Head)
    - Hector's dolphin / upokohue (Porpoise Bay, Waikawa)
    - Other seabirds; and
    - Estuarine waders and shore birds (all estuaries)

Customary Fishers

15. Kāi Tahu are manawhenua and hold mana moana (authority over the seas) for the Forum region. Fisheries are a vital resource for Kāi Tahu, both as a source of food, culturally and recreationally. Many fish, shellfish and seaweed species are tāoka (highly prized) to Kāi Tahu, and there are many places of importance to Kāi Tahu as traditional fishing grounds. Kāi Tahu also hold a significant interest in commercial fishing.

16. The use and management by Kāi Tahu of non-commercial, customary fisheries is provided for in several ways under fisheries legislation. For example:
    - Kāi Tahu propose special management areas – mātaitai reserves[1] and taiāpure.[2]
    - Tangata Tiaki (fisheries managers)[3] have a role in the management of fisheries and other cultural material. They can issue customary fishing authorisations and take part in fisheries management processes.

17. Mātaitai are gazetted reserve areas where Kāi Tahu, as manawhenua, are able to manage all non-commercial fishing[4] by making bylaws. In the Forum region, the seven existing mātaitai reserves are:
    - Tuhawaiki (south of Timaru)
    - Waihao (in South Canterbury)
    - Moeraki (in North Otago)
    - Waikouaiti (Estuary and River north of Dunedin)
    - Ōtākou (lower Otago Harbour)
    - Puna wai-Toriki (coastline north of Tokata (Nugget Point)) and
    - Waikawa Harbour / Tumu Toka (on the Catlins Coast)

18. Establishment of a taiāpure over an area is another way for Kāi Tahu to become involved in the management of both commercial and non-commercial fishing in their area.[5] There is one taiāpure within the Forum region; the East Otago Taiāpure at Karitāne.

19. The Forum heard that looking after the marine environment and its resources for future generations is central to Kāi Tahu's beliefs and management of their customary fisheries, as referred to in statutory deeds. The Forum also heard that there are many other places of importance and significance to Kāi Tahu, such as traditional fishing areas, that are not yet formally recognised.

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1 *Mātaitai Reserves can only be applied for over traditional fishing grounds, and must be areas of special significance to the manawhenua.*

2 *A taiāpure is a local management tool established in an area that has customarily been of special significance to an iwi or hapū as a source of food or for spiritual or cultural reasons (s 174).*

3 *Tangata tiaki are appointed by the Minister for Primary Industries, on nomination of mana whenua Tangata tiaki have a rohe moana (area) for which they are able to issue customary authorisations.*

4 *Commercial fishing is generally prohibited within mātaitai reserves.*

5 *All fishing, including commercial fishing, can continue in a taiāpure.*

Papatowai, The Catlins.
Photo: Stephanie Blair

Recreational Fishers

20. Recreational fishers fish for sustenance, sport and / or recreation. The recreational fishing sector ranges from people who fish regularly to people who may only fish once or twice a year; from people who throw a line over the wharf or gather shellfish on the shore to people who venture further out to sea in their own boat or a charter vessel.

21. Recreational fishers may fish from boats or the shore (the beach, rocks or from wharves) and may also fish while diving. Access to their favourite spots is important to recreational fishers. So, popular areas are often close to main centres or are easily reached by road or a short boat trip. The Forum heard that many areas close to shore and some offshore areas in the Forum region are important to recreational fishers.

22. Popular species among recreational fishers in the Forum region include pāua, rock lobster, cockles, blue cod, flatfish[6], gurnard, red cod, hapūku / bass, blue moki, butterfish and trumpeter.

23. Recreational fishers mainly use methods like rod and line, kontiki, hand gathering, potting, netting and spearing. These tend not to have significant physical impacts on the environment and so could continue in some types of marine protected areas.

24. Charter vessels operate throughout the Forum region. Locations within the region where charter vessels are based include Moeraki, Port Chalmers, Karitāne and Taieri Mouth. Charter vessels may also travel into the region from places such as Bluff and Riverton.

25. In addition to social, cultural and sustenance value, recreational fishing contributes to the economy through such things as boat and equipment sales, tourism and associated activities.

26. Because there are no general reporting requirements for recreational fishing, we don't have a lot of detailed information about how much people catch, the methods they use, or where they fish. The information we have is limited to some charter vessel reporting[7] and some relative estimates from surveys of recreational fishers. Due to relatively small sample sizes in areas of low population density, there can be quite a lot of uncertainty around some estimates.

27. MPI is responsible for managing marine recreational fishing.[8] The main controls on recreational fishing are: bag and size limits; restrictions on methods and gear; and restricted and closed areas. These controls are used to help to protect fishing resources to ensure enough fish for the future and to protect the environment.

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6 *Flounder, sole, turbot and brill are referred to collectively as flatfish.*

7 *Currently, reporting is required for bass, blue cod, bluenose, rock lobster, hapūku/groper, kingfish, southern Bluefish tuna and Pacific Bluefin tuna.*

8 *Freshwater fisheries for trout and salmon are managed by Fish & Game New Zealand.*

Commercial Fishers

28. The Forum region has a diverse commercial fishing sector. The sector is made up of large national companies, smaller local companies and independent fishers. Many of the fishers are locally based and may own quota shares or lease an annual catch entitlement (ACE) from a number of quota owners to supplement their catch plan for the year. Commercial fishers may own and fish their own quota[9] (or they may lease annual entitlements) to catch a certain amount of a particular fish stock or group of stocks from quota owning individuals or companies. Most of their catch has to be landed to a licensed fish receiver who may be a small independent company or one of the larger companies with offices in a number of regions. A penalty regime is in place whereby a deemed value will be charged to fishers who are unable to cover their catch with ACE at the end of the fishing year. The deemed value is a figure that is set at a percentage of the port price and in some instances above it.

29. The Forum region is part of a larger fisheries management area (FMA3) and fish caught within this area may be landed for processing locally or in some instances outside the region. There is an important export market for fresh and frozen fish with much of it marketed in Australia and internationally. The domestic market for fish include restaurants, supermarkets and specialty fish mongers and takeaway shops. Most inshore commercial fishers target a number of fish species. Important fish species in the Forum region include pāua, cockles, rock lobster, flatfish, blue cod, red cod, tarakihi, school shark, rig, elephant fish and red gurnard. Methods used include potting, hand gathering, trawling, dredging, set netting and Danish seining. Inshore commercial fishing vessels accordingly range from small inflatable boats to medium sized (trawlers). All vessels over six metres overall length are required by regulation to report their catch and landings to the Ministry for Primary Industries and maintain logbooks onboard. The majority of the assessment for abundance levels for fish stocks is as a consequence of the commercial fisheries reporting and from surveys paid for by the commercial sector under cost recovery.[10]

30. Restricting access to fisheries will have impacts on commercial fishing. If access were to be restricted to a major portion, the impact would be significant. Spatial closures will push fishing effort into other areas and impact on other fishers, and add additional cost to fisheries operations which includes fuel, steaming time and the potential need for accessing a different fish stock mix and therefore quota lease costs.

31. The other consideration that is also relevant is the continued cumulative effect of spatial closures. There are cumulative effects associated with the existing closures in the bioregion and the wider East Coast and Southland areas.

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9 *Not all species are managed within the Quota Management System (QMS). Catches of species managed outside the QMS are monitored, but are not subject to total allowable catch limits. If catch levels or other information suggests it is necessary, new species of stocks can be added to the QMS for closer management.*

10 *For more information on commercial fishers, the Quota Management System (QMS) and regulations, please refer to* www.seafood.org.nz

32. For commercial fish stocks such as rock lobster and pāua the impacts on existing users will be significant. As with commercial finfish fishing, there are already a number of restricted closures either voluntary or regulatory, such as Hector's dolphin set net closures and trawl headline restriction areas.

33. The type of fishing method is adopted to suit the behavioural characteristics of the fish stock being taken and to minimise operational costs. Keeping the cost of operations down is advantageous for those that buy their fish. There are a number of people that do not go recreational fishing and rely on their retail fish shop.

34. Commercial fishing continues to be an important part of many south-east coast communities and families. The Forum heard that maintaining that way of life is important to people for employment, the regional economy and simply to maintain fish in the diet. Not everyone is able to go recreational fishing and therefore rely on the commercial sector for their fish.

35. Commercial fishing is an important employer and contributor to the economy, both directly and indirectly. For example, annually, the Dunedin Seaport ranks as New Zealand's third or fourth largest exporter of fish based on dollar value.

Taieri Mouth, Dunedin.
Photo: Fergus Sutherland

Fisheries Management

36. A range of measures and controls are used to sustainably manage fish stocks:[11]

- Catch limits (the volume of fish that may be caught set at levels that will ensure the long-term sustainability of the fish stock);
- Size limits – these ensure species reach sexual maturity before they are harvested, or ensure that the most fertile, breeding-aged fish are not removed from the population;
- Restrictions on harvest based on sex (e.g. egg bearing females) or certain biological states;
- Area restrictions (for example, to protect important nursery or juvenile areas);
- Controls on the use of different fishing methods in specific areas
- Regulated trawl mesh size and the voluntary adoption of larger mesh codends and escape panels in trawl gear designed to reduce capture of unwanted and small fish species, as well as selectivity measures in other fishing methods;
- Regulated escape gaps for rock lobster pots;
- The ability to return live fish to the sea as per Schedule 6 of the Fisheries Act 1996 (there is a restricted list of fish stocks which include rock lobster, school shark, rig and many others);
- Regulations and industry agreements are also in place to reduce the impact of fishing on protected species such as fur seals and seabirds, although protected species captures do still occur;
- Regular fisheries assessments and analyses for stock status.

37. Restrictions that apply within the Forum region include:

- Restrictions and prohibitions aimed at helping protect Hector's dolphins from incidental capture. Trawling with a headline height in excess of 1 metre is banned out to 2 nm (3.7 km) and set netting is banned out to 4 nm (7.4 km);
- A voluntary trawl ban in place to protect the bryozoans beds off the coast near Otago Harbour;
- Danish seining is banned within 3 nm (5.6 km) of the South Island coast under a long standing regulation;
- All area based restrictions can be viewed in Appendix 6: *Existing Fisheries Restrictions*, or through SeaSketch by following the link http://bit.ly/SeaSketchRestrictions

11 *A fish stock is any fish, shellfish or seaweed that is treated as a unit for the purpose of fisheries management.*

38. Reporting regulations require commercial fishers to record their catch in logbooks and to send the information to a central secure database held by FishServe. The information includes the date and time, catch and positional data, as well as fishing gear information. The reporting of fine-scale longitude and latitude data is provided for the majority of fishing methods, but there are exceptions to Danish seining and potting which are reported on a larger statistical scale

39. Danish seining is not prevalent in the Forum region and the potting for blue cod, rock lobster and pāua stocks respectively are closely monitored. Habitat identification also assists knowledge on fish stock for localised areas.

THE NATURAL ENVIRONMENT

40. This section provides a general description of the physical, biological and habitat features of the South Island south-eastern marine environment.

41. More detailed information relating to the natural environment, existing uses and current management regimes were available to the Forum within SeaSketch, the Forum's online mapping tool. This information was critical in formulating the consultation areas and is available to the public via SeaSketch.

42. We recommend that you view this information before making your submission by going online at http://southeastmarine.seasketch.org.

OCEANOGRAPHY

43. Southern New Zealand has long been recognised as distinct in terms of its marine environment due to the mixing of subantarctic and subtropical waters along the coast. The unique physical characteristics of the Forum region contribute to significant regional variation in the habitats and ecosystems from the southern to the northern part of the region.

44. The Southland Current is a special and major influence on the marine ecology of the Forum region. Its water originates from a slow eastward movement in the central Tasman Sea which is turned southwards on meeting the South Westland coast, flows past Fiordland then wraps around the southern South Island and Stewart Island before heading north past the Catlins, Otago and South Canterbury coastlines, keeping inside the Subtropical Convergence, a boundary where subantarctic surface water meets the warmer water of the Southland Current.

45. The Southland Current heads north past the Otago Peninsula, where the Cape Saunders headland pushes it between the coast and the deep canyons, narrowing the current. This may create periods where nutrients from the deeper waters are pushed up and become available in the coastal waters.

46. The main wave exposure is from the south to northeast, with the dominant waves coming from the south. These waves create an exposed coastal environment over most of the region. In places, the structure of the seabed and physical features of the coast provide for more variety of habitats. For example, there are more sheltered areas north of the Otago Peninsula, as well as behind smaller headlands and within bays.

47. Besides waves, the coast is also exposed to tidal currents that can intensify the movement of sediments and affect marine life close to headlands and the mouths of rivers and estuaries. Winds can also reinforce waves and currents, build coastal sand dunes and dry the intertidal zone.

48. The Clutha River is the biggest river by volume in New Zealand and has a major influence on the chemistry and productivity of the neritic (shelf) waters, and on the coastal sedimentation and geomorphology from Nugget Point to Karitāne.

LANDFORMS

49. The region shows significant variation in landforms from south to north, both as a result of the influence of currents, tides and winds, and because of differences in the underlying geology.

50. Along the coast of the Forum region there are a range of shore types, from sandy beaches, to pebbles, cobbles and boulders, wave cut rock platforms, and estuarine and river mouth outlets. Offshore, the continental shelf generally extends beyond the 12 nm territorial sea, apart from a few locations where canyons enter the Forum region off the Otago Peninsula.

51. These differences from north to south are some of the defining features that divide the inshore coastal marine environment into geographical sub-regions (coastal units). These include:

    - Canterbury Bight: a coastline dominated by mixed sand and gravel beaches and braided rivers with hapūa[12] lagoons at their outlets to the sea;
    - North Otago: a sedimentary rock coast, with shallow subtidal reefs supporting forests of giant kelp (*Macrocystis pyrifera*) and also deeper reefs;
    - Otago Peninsula: a prominent volcanic landform that strongly influences coastal currents, bordered seaward by a narrow shelf, resulting in deep water and canyons being found quite close inshore;
    - Clutha: a coastline strongly influenced by fresh water and sediment from the Clutha River;
    - Catlins: a cliffed and embayed coastline with old erosion resistant sedimentary rocks influenced by strong tidal currents and the outflow from Foveaux Strait/Te Ara a Kewa. Special features include the distinctive sedimentary rocks which have been folded so the horizontal strata seen at Long Point are nearly vertical at the Nuggets.[13]

12 *Hapūa lagoons form at river mouths, are elongated, and separated from the sea by a barrier of mixed gravel and sand.*

13 *Fyfe 1992.*

Figure 1: Geographical Sub-units of the South-East Region.

BIODIVERSITY

52. Much of the biodiversity in the marine environment is hidden from sight. What information that exists in a reliable form tends to relate to large-scale structures (biogenic habitats), large-bodied wildlife (birds, marine mammals), or small areas where individual studies have occurred. The lack of detailed biodiversity information is why the MPA Policy uses 'habitat types' as a proxy for biodiversity.

53. Landforms and oceanography, together with the climate of the Forum region, strongly influence the marine environment, creating complex patterns of marine habitats and biodiversity. The complexity of habitats and biodiversity are further influenced by depth and varying levels of wave exposure.

Habitat Types in the Forum Region

54. Ideally, selecting sites for marine protected areas would be based on a complete understanding of where habitats and ecosystems are located, and the relationship of these different habitats with patterns of biodiversity. However, in the marine environment this is difficult to achieve, so we need to use proxies to create habitat types that approximate biodiversity patterns.

55. As discussed in Volume I, Part 1 regarding the MPA Policy habitat classification, there are 44 habitat types defined. It is important to note that classified habitats are very broad and non-descriptive. That is, just because the area is shown as "Deep Gravel" it does not mean it is featureless gravel, but simply that the underlying substrate consists mostly of gravel. Different areas within that gravel habitat type could look quite different in real life.

56. Where possible, the habitat classification is supplemented by extra available information on sites, habitats and features (e.g. the location of biogenic habitats) that might be useful to further inform the selection of sites for marine protected areas.

57. The habitat layer can be found online in SeaSketch, where you can see the detail of the habitat types.[14]

14 *Refer to Appendix 5:* Habitat Types in the Forum Region.

A brief description of some general habitat features is provided below.

Deep Subtidal Habitats (greater than 30 m depth)

58. The continental shelf is an area of gently shelving seabed that extends out from the coastline. In the south-east region the shelf varies in width from about 16 nm (28 km) to 18 nm (33 km) north and south of Otago Peninsula, to less than 6 nm (11 km) adjacent to it. The outer shelf and upper slope are incised by eight canyons, of which two (Papanui and Saunders) project into the 12 nm (22.2 km) boundary of the Forum region.

59. Offshore, the shelf is generally smooth and dominated by soft sediment habitats. Patchy land-derived gravels, sands and muds extend offshore to about 30 -70 m depth. Beyond this, seafloor sediments are predominantly relict sands and biogenic sand and gravel.

60. There is relatively little literature about the biology of the deep subtidal shelf area. The main research focus has been on an extensive area of bryozoan beds on the mid and outer shelf directly east of Otago Peninsula.[15]

61. From about 70 m depth to the shelf break, large, heavily calcified bryozoans are abundant, and dominate an area of about 110 km^2. Bryozoan beds such as this are a rare habitat type around the world and are uncommon in New Zealand waters. Where they occur at sufficient densities, bryozoans enhance local biodiversity by providing attachment surfaces for invertebrates such as anemones, and places for other animals to hide from predators.

62. Dense assemblages of sponges, tulips and tubeworms occur offshore between north of Oamaru to Waianakarua River. These provide habitat for a multitude of invertebrate species, and nurseries for fish including blue cod, rock lobster and tarakihi.

63. In the south-east region there are heads of several canyons; Karitāne, Papanui and Saunders. Canyon habitats are important deep slope environments, they have diverse fauna including brittle stars, sea stars, gastropods, bivalves, shrimps, hermit crabs, bryozoans, sponges and quill worms. They are hotspots for whales and sea bird activity. Shepherd's beaked whale, *Tasmacetus shepherdi*i, one of the world's least known cetaceans, was recently sighted for the first time in New Zealand waters in the vicinity of the Saunders and Taiaroa Canyons.

64. Energy production by microscopic marine primary producers (phytoplankton) over the mid and outer shelf feeds an abundance of tiny animals (zooplankton) and small fish that play an important role in the shelf food web. Swarms of squat lobster *Munida gregaria* are also a feature of the Otago shelf ecosystem. During their early life stages, squat lobster live in the water column, whereas the adults inhabit the mid-shelf bryozoan thickets on the seafloor.[16]

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15 *Refer to* Habitat Forming Bryozoans in the South-Eastern South Island *at* www.south-eastmarine.org.nz/oursea/natural-history

16 *Zeldis & Jillet (1982) Aggregation of pelagic Munida gregaria by coastal fronts and internal waves. Journal of Plankton Research, 4(4):839-857.*

65. Many fishers will be familiar with the reefs in their favourite spots. But, we don't have good records about the actual size and location of offshore rocky reefs. Reefs have been recorded at mid-shelf depths off Makikihi; south-east of Katiki Point, Moeraki; south-east of Otago Peninsula; and off Quoin Point.

Intertidal & Shallow Subtidal Habitats

66. A general pattern of intertidal and subtidal habitats is apparent across the region and described below, but this varies considerably at local scales within the region.

67. Moderately exposed coastal rocky reefs north of Otago Peninsula are characterised by subtidal forests of the giant bladder kelp (*Macrocystis pyrifera)* in depths shallower than 30m.

68. South of the peninsula, the coastline is very exposed to large southerly swells where the shallow subtidal rocky reefs are dominated by dense stands of the bull kelp *Durvillaea spp*.

69. Below 3 m depth *Lessonia variegata, Marginariella spp.* and *Carpophyllum flexulosum* are the dominant brown kelp species. The understorey consists of a diverse assemblage of small red seaweeds, and a variety of sponges, bryozoans and solitary ascidians (a type of filter feeding invertebrate).

70. Beaches and subtidal sediments contain several shellfish species that in some places create extensive shellfish beds (e.g. cockles / tuaki, tuatua, horsemussels), as well as other living things such as marine worms (polychaetes) and crustacea (e.g. crabs). These beds can hold the sediment together, helping to prevent it being washed away, and creating habitats for other animals.

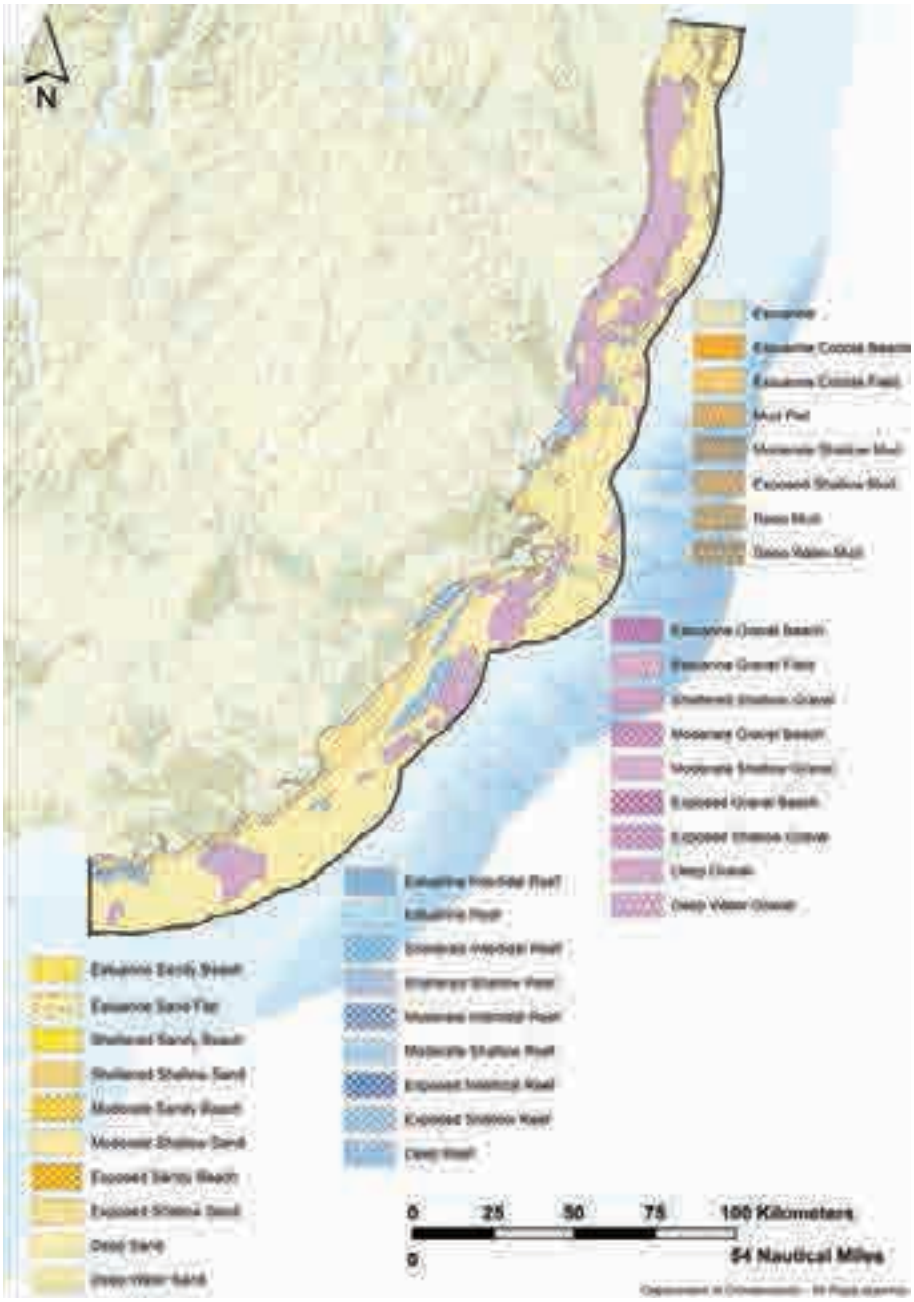


Figure 2: Map of MPA Policy Classified Habitats in the Forum Region. Refer to Appendix 5: *Habitat Type Maps of the Forum Region* or go to OurSeaYourSay.SeaSketch.org

Estuarine Habitats

71. There are more than 30 places where estuarine habitats are found in the Forum region. Estuarine habitats include areas of tidal sandflat and mudflat that support saltmarsh vegetation, seagrass beds, shellfish beds and aquatic birdlife. Seagrass is often present in intertidal areas and provides habitat for many plants and animals, as well as helping to stop the sediments being washed away.[17]

72. Estuaries also provide an important nursery habitat for many types of fish, particularly for some flatfish and galaxiids (including inaka / whitebait). They are also an important part of the migration paths for a range of species, such as wading birds (e.g. godwits, herons), seabirds and some native birds, and fish that live in both salt and freshwater.

Biogenic Habitats

73. Biogenic habitats are habitats formed by living organisms or their remains. Biogenic habitats include the deeper areas of bryozoan beds[18], shellfish beds, sponge gardens, and tube worms. On rocky coasts in water less than 30 m depth, they include bladder kelp forests.[19] In estuarine areas, biogenic habitats include shellfish beds, seagrass beds and saltmarshes.[20]

74. Based on observations by fishers and others, a variety of biogenic habitats are thought to occur throughout the coast of the Forum region from Foveaux Strait (bryozoans), North Otago (bryozoans, sponges and tube worms) and north beyond Timaru (tubeworms).

75. Biogenic habitats are well recognised as important areas for biodiversity and provide areas of refuge and nursery grounds for a variety of fish species. For example, juvenile tarakihi are associated with the tube worm habitats up the east coast of the South Island. Blue cod are associated with biogenic habitats in Foveaux Strait, as well as with the Otago bryozoan beds.

17 *Refer to* Significance of Seagrass Ecosystems in Coastal Environments *at* www.south-eastmarine.org.nz/oursea/natural-history

18 *Bryozoans are small (typically, about 0.5 mm long), filter feeding invertebrates (animals that don't have a back bone). Large numbers of bryozoans together make up bryozoan beds. For additional information on bryozoans, refer to* Habitat Forming Bryozoans in the South-Eastern South Island *at* www.south-eastmarine.org.nz/oursea/natural-history

19 *For additional information on kelp forests, refer to* An Overview of Kelp Forest Communities in the South-Eastern South Island *at* www.south-eastmarine.org.nz/oursea/natural-history

20 *Salt marshes are areas of grassland that get flooded by seawater.*

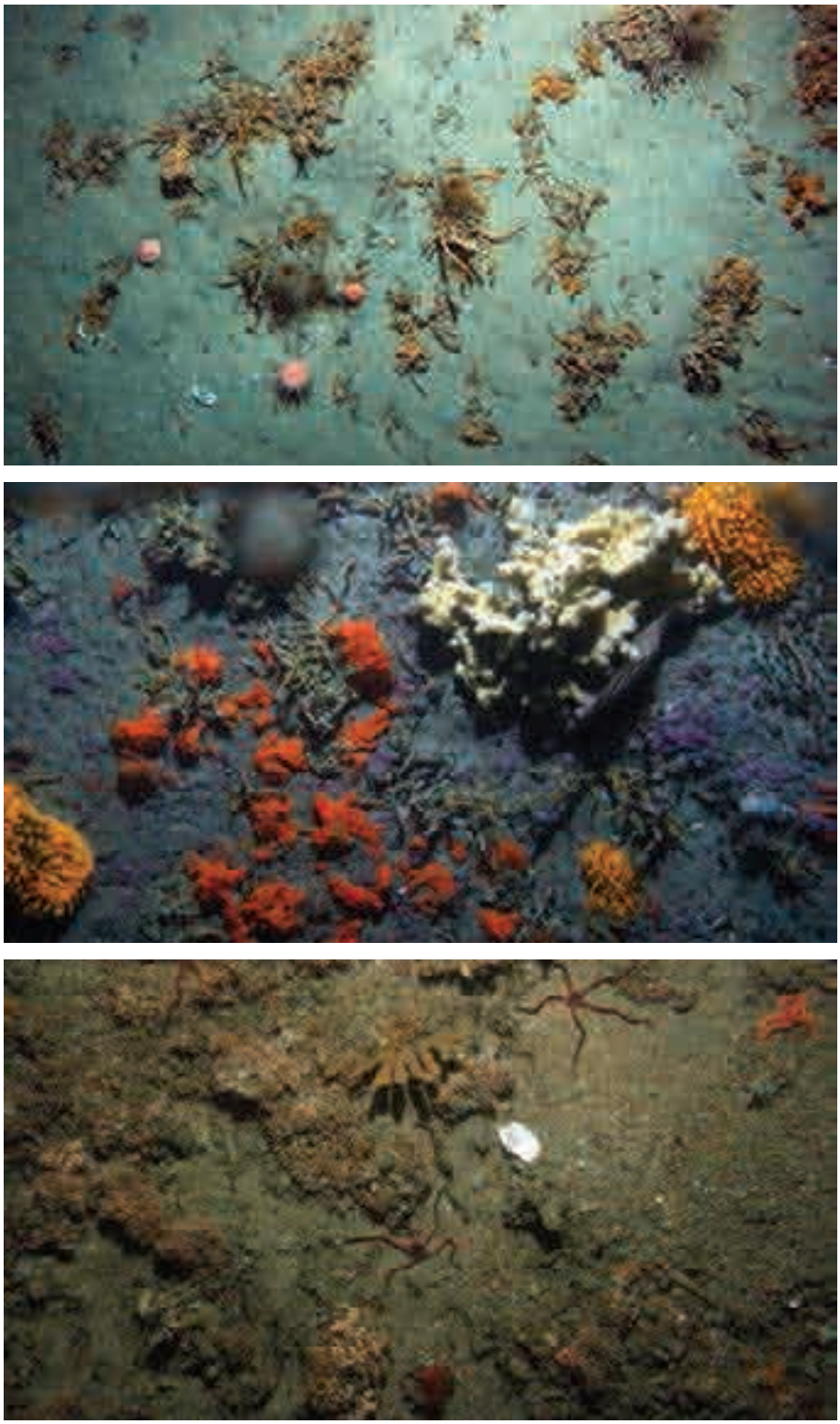


Figure 3: Biogenic habitats off the Otago coast.
A) Example of tube worm biogenic habitat on the Otago shelf;
B) a sponge dominated biogenic habitat on the Otago Shelf;
C) Bryozoan colonies and associated fauna from the Otago Peninsula bryozoan bed. Source: NIWA, collected under MPI project ZBD2008001.

Protected Wildlife

76. The waters from the coast and over the continental shelf are also an important foraging area for marine mammals and seabirds[21] including species protected under the Wildlife Act 1953 and Marine Mammals Protection Act 1978.

77. Threatened yellow-eyed penguins nest on the coast of the Catlins and Otago Peninsula, as well as on the north Otago coast. Yellow-eyed penguins spend considerable amounts of time foraging for benthic prey over the sea floor and adjacent shelf. Other endemic species include northern royal albatrosses, spotted shags and Otago shags. New Zealand fur seals and a small population of the endangered New Zealand sea lion also breed in the region.

78. Prior to commercial whaling the region was the most important calving area for Southern Right whales in New Zealand. As the population recovers, Right whales are now frequently sighted off the Otago coast particularly during the winter months.

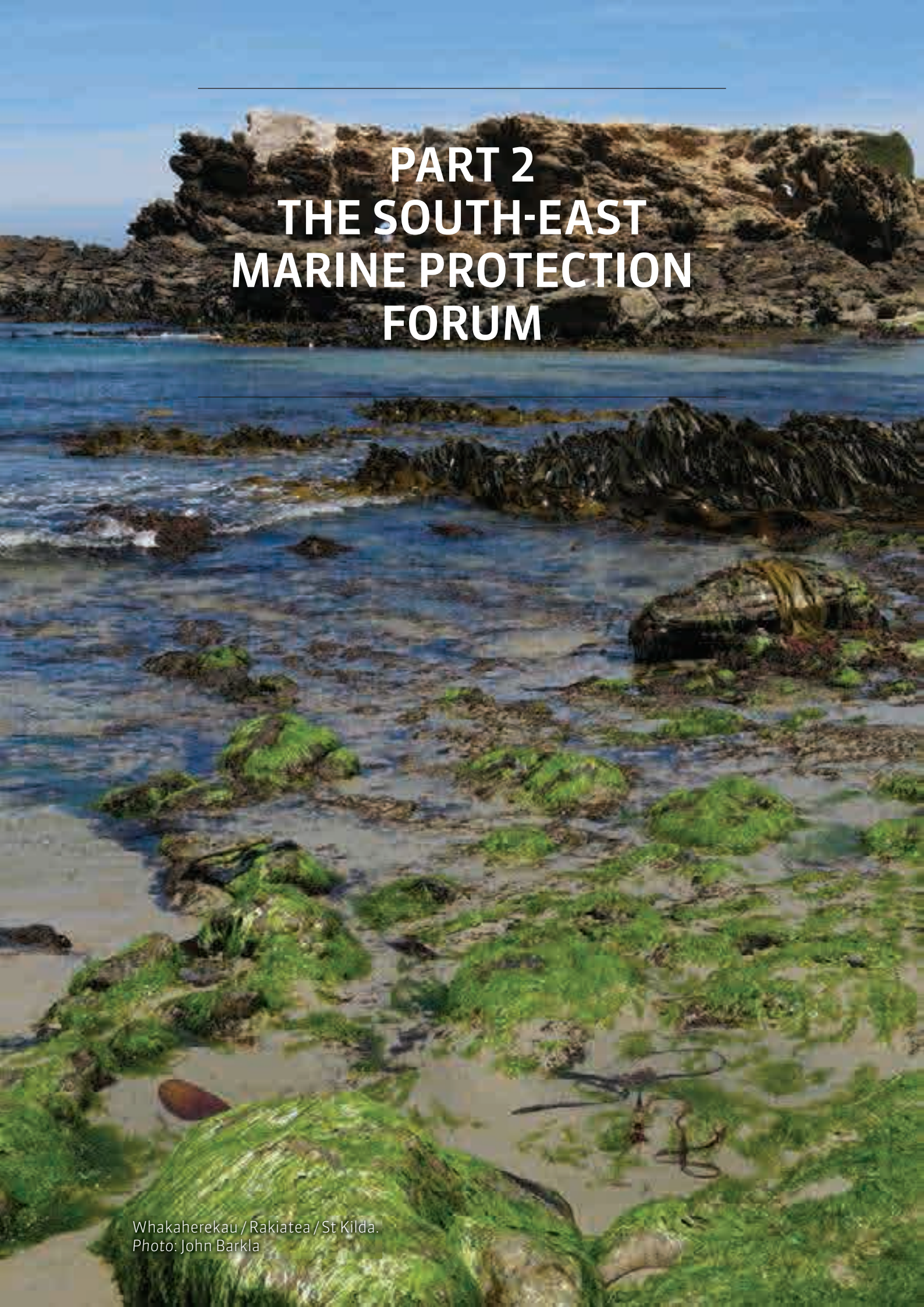
79. Within the Forum region the endangered Hector's dolphin inhabits coastal waters including around Otago Peninsula, north of Moeraki, and the southern Catlins near Waikawa Harbour / Porpoise Bay.

80. Great white sharks and basking sharks occur seasonally off the Otago coast but little is known of their movements or habitat requirements.

21 *Refer to* South-East Marine Protection Forum Information Sheet – Seabirds *at* www.south-eastmarine.org.nz/oursea/natural-history

Tavora, North Otago.
Photo: John Barkla

PART 2
THE SOUTH-EAST MARINE PROTECTION FORUM



Whakaherekau / Rakiatea / St Kilda.
Photo: John Barkla

THE SOUTH-EAST MARINE PROTECTION FORUM

81. In 2014, the government appointed the South-East Marine Protection Forum (the Forum) as the third, regionally based, marine protected areas planning forum. The Forum is tasked with making recommendations to the Government on a network of marine protected areas for the coastal marine area between Timaru and Waipapa Point in Southland, out to 12 nm (22.2 km) from the coast, and including the lower estuarine reaches of some 30 rivers.

82. Ministers prioritised the Forum region for marine protected areas planning because there are no marine protected areas here as yet. The Forum has been asked to recommend protection for each of the habitat types where possible in the south-east region.

83. The Forum's deliberations and recommendations are largely independent of government agencies that otherwise provided guidance on legislative and policy matters. Its fourteen members are drawn from the south-east South Island community and others with interests in the area. A diverse range of community interests and users of the marine environment are represented: manawhenua, commercial fishers, recreational fishers, local government and communities, and environmental, scientific and tourism.

FORUM MEMBERS

Maree Baker-Galloway
Chairperson
Partner at Anderson Lloyd specailising in Environmental Law, Queenstown

Edward Ellison
Deputy Chair, Representing the three Otago Runaka, Dunedin

Dr. Philippa Agnew
Environmental Sector Representative, Oamaru

Stephanie Blair
Representing Awarua Runaka, Invercargill

Simon Gilmour
Commercial Fishers Sector, Dunedin

Nelson Cross
Recreational Fishers Sector, Kaka Point

Ate Heineman
Commercial Fishers Sector, Dunedin

John Henry
Representing Arowhenua, Kāi Tahu, Timaru

Dr. Chris Hepburn
Marine Sciences Sector, Dunedin

Sue Maturin
Environmental Sector, Dunedin

Neville Peat
Community Sector, Dunedin

Dr. Tim Ritchie
Recreational Fishers Sector, Dunedin

Fergus Sutherland
Tourism Sector, The Catlins

Carol Scott
Commercial Fishers Sector, Nelson

Professor Khyla Russell
Representing the three Otago Runaka (Alternate)

Gail Thompson
Representing Awarua, Kāi Tahu, Bluff

The South-East Marine Protection Forum Members

Back row: Ate Heineman, Neville Peat, Edward Ellison, Fergus Sutherland, Chris Hepburn, John Henry, Carol Scott, Philippa Agnew, Simon Gilmour, Nelson Cross, Tim Ritchie.

Front row: Gail Thompson, Sue Maturin, Stephanie Blair, Maree Baker-Galloway.

Inset photo: Khyla Russell.

TRIBUTE TO PAULINE REID

E Whakamaharataka tēnēi mō Pauline Reid
Ka nui rawa tonu o tātou nei whakaaro aroha ki te hākui ko Pauline Reid, e mate ana i aia i te rā o 26 September, 2014. E te tuahine, kua mutu ōu mahi kaha e tiaki ana te ao tūroa, engari e moe mai rā koe i te ringa o te ātua, i te huingā ō rātou kua whetūrangitia, moe mai, oki oki mai rā.

We pay tribute to one of our original members, Pauline Reid, who passed away suddenly at her home on 26 September, 2014. Pauline was one of the Kāi Tahu alternate members on the Forum, with responsibility particularly for the South Canterbury region.

Pauline was a forthright and passionate exponent of customary interests in the early meetings of the Forum, we acknowledge her contribution and legacy of frankness that the Forum has continued to exhibit. We also acknowledge the whānau of Pauline in their loss, moe mai rā e te tuahine.

THE FORUM'S VISION

84. The Forum's vision is:
to ensure that marine habitats and ecosystems along the Southern South-East Coast of New Zealand are healthy and sustainably productive, and treasured for their biodiversity, integrity and special nature.[22]

85. The Forum's principal objective is:
to provide a report for the Ministers recommending levels of marine protection for the Forum's region, which is in line with the MPA Policy and MPA Guidelines.

LISTENING TO THE COMMUNITY

86. As part of its role, Ministers directed the Forum to engage with the community to find out about existing users and interests in the area. Alongside this, we have also reviewed other information available to us,including scientific information about the Forum region, with an aim to gather and use the best information available. The information the Forum has gathered from the community has been essential in helping the Forum develop the proposals in this document.

87. Community engagement has included:

- Public meetings throughout the Forum region, from Timaru to Waipapa: These provided opportunity for local communities to engage with the Forum process and share their thoughts.
- A questionnaire – *Our Sea Your Say – Kei a Koe Te Tikanga*: We used this to get more detailed information about how the communities use their marine environment and what matters to them. The results of the questionnaire are summarised in Appendix 3: *Summary of Community Engagement* as part of the wider summary of community engagement undertaken to date.
- SeaSketch: SeaSketch is an online tool that supports collaborative marine spatial planning and provides an easy way for the Forum and the community to share information and ideas.
- Sector engagement: Each member of the Forum represents a community of interest. Forum members have all engaged with their sector to ensure that the full range of sector views have been represented during Forum deliberations.
- Science workshops: The Forum heard from scientists who are experts in the Forum region and/or particular fields of interest. Topics covered included: oceanography, ecological connectivity, bryozoans, responses to protection, historical changes in the marine environment, reproduction and size/age relationships of species, blue cod, rock lobster, marine mammals, seabirds, soft sediment and esturine ecology, and rocky reefs.

22 *For full details of the Vision and Objectives, see the South-East Marine Protected Areas Revised Terms of Reference with effect from 26 February 2016, and the Forum's Vision, Objectives and Guiding Principles, available at* south-eastmarine.org.nz

- Other communication channels: There is a Forum website, Facebook page, email address and 0800 687 729 available for the community to find out about the process and share information with the Forum. The Forum has provided information to the community through media releases and interviews, advertising in newspapers and magazines, email newsletters, mail-outs, posters and fact sheets. Forum members also attended numerous public events. A full summary of community engagement is provided as Appendix 3: *Summary of Community Engagement*.

WORKING TOGETHER TO DEVELOP THE PROPOSALS

88. The Ministers have asked that the Forum try to reach consensus on its recommendations. This is challenging given the wide range of views that are held by the community and by Forum members.

89. We have had robust discussions on the locations, number, size and extent of each of the sites. Some members believe that some of the proposed areas are too large and the adverse effects on users are too great. Others believe some areas are too small and do not protect a sufficient representative sample of south-east South Island habitats, and that particular habitats are not represented.

90. The Forum wants to hear more from the public through submissions in order to refine the proposals for recommendation to the Ministers. For now, the proposed areas for consultation are considered a compromise by the Forum members.

91. The location, shape and size of the final network will be refined by the feedback received through the public consultation process, hence the importance of this public consultation document and the submission process.

SEASKETCH – THE FORUM'S MAPPING TOOL

What is SeaSketch?

92. SeaSketch is an online tool specifically designed for use in Marine Protected Area (MPA) planning, and more importantly, to support collaborative processes in establishing MPA networks. It is designed to be easy to use by non-specialists, anytime, anywhere. All you need is an internet connection. SeaSketch is not just for the Forum. Anybody can view the project and if signed up with an account, can draw their own MPA network.

93. To access the main SeaSketch project go to
http://southeastmarine.seasketch.org

    Or, if you are looking to make a submission go to
http://OurSeaYourSay.seasketch.org

Figure 4: SeaSketch Interface.

Why is the Forum using SeaSketch?

- **Information;** Spatial information and background science relevant to the Forum region is available on-demand.
- **Drawing;** Forum members are able to create their own options for a Marine Protected Area, or create a network to bring to the discussion table.
- **Reporting;** SeaSketch provides instant reports that describe the habitats protected and effects on some existing users. It can also compare options in terms of habitat protection and effects on users.
- **Sharing;** Forum members can share their ideas and designs with others to help facilitate the discussions.

The 4 components of SeaSketch

- **Browsing through spatial information**
  An intuitive web interface enables users to view and explore more than 80 fit-for-purpose map layers of biological, physical and socio-economic information of the south-east region.
- **Sketching MPAs**
  Users can create their own areas on a map and assign different protection levels to it. They can assign it a Type 1 or Type 2 MPA status, and add in other restrictions that they think are appropriate. They can also create collections of different MPAs to form a network. They can get reports on the consequences of their MPA, or share it with others.
- **Instant feedback via reports**
  SeaSketch is tailored to produce live reports that show how a proposal fares against the objectives of the MPA Policy, and what other implications the proposal may have.
- **Online sharing and discussing of MPA proposals**
  SeaSketch can be used to engage with others face-to-face and online. Users can share their designs with others via a built-in chat function. Individually or collaboratively, users can explore alternative use scenarios and ultimately work towards designs that reflect agreement across different interest groups.

Puketuroto / Hopper's Inlet, Otago Peninsula.
Photo: John Barkla

GLOSSARY

Otago Peninsula.
Photo: Sue Maturin

ACRONYMS AND ABBREVIATIONS

ACE	Annual Catch Entitlement
DOC	Department of Conservation
EEZ	Exclusive Economic Zone
FMA	Fisheries Management Area
MPI	Ministry for Primary Industries
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MPA	Marine Protected Area
MPA Guidelines	Marine Protected Area: Classification, Protection Standard and Implementation Guidelines (Department of Conservation and Ministry of Fisheries, 2008)[23]
MPA Policy	Marine Protected Areas: Policy and Implementation Plan (Department of Conservation and Ministry of Fisheries, 2005)[24]
MPPF	Marine Protection Planning Forum
NIWA	National Institute of Water and Atmospheric Research
Nm	Nautical miles (1 nautical mile = 1.8 kilometres)
NTSCA	Ngāi Tahu Claims Settlement Act 1998
NZCPS	New Zealand Coastal Policy Statement
NZMS	New Zealand Map Series
QMS	Quota Management System
RCP	Regional Coastal Plan
RNZN	Royal New Zealand Navy
RMA	Resource Management Act 1991
RV	Research Vessel
SEMPF	South-East Marine Protection Forum
SILNA	South Island Landless Natives Act 1906
TAC	Total Allowable Catch

TE REO

In the south of the South Island the local Māori dialect use a 'k' interchangeably with 'ng'. The preference is to use a 'k', so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu. In this document the 'ng' is used for the iwi in general and the 'k' for Southern Māori in particular.

Ahi kaa
Continuous occupation / title to land through occupation

Hapū
Kinship, clan tribe

Hapūa
Tidal lagoon

Inaka
Whitebait

Iwi
Nation, Tribe, People

23 *Refer to Volume II, Appendix 2:* Marine Protected Areas Classification, Protection Standard and Implementation.

24 *Refer to Volume II, Appendix 1:* Marine Protected Areas Policy and Implementation Plan.

Kāeo
Sea tulip

Kāi Tahu
Tribal group of much of the South Island of New Zealand, sometimes referred to as Ngāi Tahu, who also incorporate two earlier tribes; Waitaha and Kāti Māmoe

Kaitaki
Leader, leader of a haka

Koeke
Common Shrimp

Mātauraka Māori
Māori traditional knowledge

Kaitiakitaka
Guardianship – exercise of customary custodianship, in a manner that incorporates spiritual matters, by takatawhenua who hold manawhenua status for a particular area or resource as per Kāi Tahu ki Ōtākou Iwi Resource Management Plan 2005

Koeke
Common shrimp

Mana
Prestige, spiritual power

Mahika Kai
Food gathering place

Mana Moana
Authority over the seas and lakes

Manawhenua
Territorial Rights

Mātaitai Reserves
Mātaitai reserves as coastal management areas are one of the suite of management tools created under Part IX of the Fisheries Act 1996. These are designed to give effect to the obligations stated in the Treaty of Waitangi Fisheries Claims Settlement Act 1992 to develop policies to help recognise use and management practices of Māori in the exercise of non-commercial fishing rights. Tākata whenua may apply to establish a reserve on a traditional fishing ground for the purpose of recognising and providing for customary management practices and food gathering. Traditional and recreational fishing are still allowed in mātaitai reserves

Nohoaka
Dwelling places for the purposes of food gathering

Papatipu
Traditionally owned, Customary title, ancestral

Poatiri
Mt Charles – Otago Peninsula

Poha
Kelp bag in which foods are preserved

Rāhui
Temporary closure on pāua gathering

Rakatahi
Younger generation

Rimurapa
Kelp / Seaweed

Rohe moana
Area of sea which particular manawhenua have authority

Rokoā
Traditional medicines

Taiāpure
A local area management tool established in an area that has customarily been of special significance to an iwi or hapū as a source of food or for spiritual or cultural reasons (s 174 of the Fisheries Act). Taiāpure can be established over any area of estuarine or coastal waters to make better provisions for rakatirataka and for the rights secured under Article Two of the Treaty. Taiāpure provisions are contained within sections 174-185 of the Fisheries Act 1996. All fishing (including commercial fishing) can continue in a Taiāpure and this tool offers a way for manawhenua to become involved in the management of both commercial and non-commercial fishing in their area. [MPI website: http://www.fish.govt.nz/en-nz/Māori/Management/Taiāpure/default.html] or

Areas that are given special status to recognise rakatirataka (as Taiāpure); management arrangements can be established (under the Fisheries Act 1996) for Taiāpure that recognise the customary special significance of the area to iwi or hapū as a food source or for spiritual or cultural reasons. (Biodiversity Strategy)

Tāoka
Highly prized

Te Tai o Araiteuru
Southern coastal and sea area between the Waitaki and Mataura rivers

Topūni
Cloaking a special place 'cloak of protection' over a special place/s

Tuaki
Cockles

Wāhi tapu
Sacred place, sacred site - a place subject to long-term ritual restrictions on access or use, e.g. a burial ground, a battle site or a place where tapu objects were placed

Wāhi tōaka
Places of special value

Waitaha
The tribe that formerly occupied the South Island before they were displaced by Kāti Māmoe.

Whānui
Broad

Whānau
Family group; to be born, give birth

DEFINITIONS OF TERMS

Many of the definitions for the following terms are taken from or based on definitions used in the New Zealand Biodiversity Strategy,[25] Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines (MPA Guidelines),[26] and the Fisheries Act 1996.

Annual Catch Entitlement
A property right, which gives the holder the right to take a certain weight of a fish stock during a fishing year.

Artificial Structures
Human-made structures that are placed in the marine environment for the purpose of human use (for example, marinas, wharfs, marine farms), habitat enhancement or recreation.

Ascidian
Belonging or pertaining to the class *Ascidiacea*.

Bedrock
Stable hard substratum, not separated into boulders or smaller sediment units. These rock exposures, typically consisting of sedimentary rock benches or platforms, may also include other rock exposures such as metamorphic or igneous outcrops. Possibly with various degrees of concealment from attached plant and animal colonisation.

Benthic
Dwelling on or associated with the seabed. Benthic organisms live on or in the seabed. Examples include burrowing clams, sea grasses, sea urchins and acorn barnacles.

Benthic boundary layer
The dynamic environment at the interface between the deep water and the ocean floor.

Biodiversity (biological diversity)
The variability among living organisms from all sources including among other things terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. It includes genetic (the variability in genetic make up among individuals of the same species), species and ecological diversity. In this report, the term refers specifically to indigenous biodiversity.

Biogenic reefs
Biogenic reefs (elevated structures on the seabed constructed of living and dead organisms) include fragile erect bryozoans and other sessile suspension feeders. Examples are bryozoan beds, rhodolith beds, tube worm mounds, sponge gardens and cold-water corals. These communities develop in a range of habitats from exposed open coasts to estuaries, marine inlets and deeper offshore habitats, and may be found in a variety of sediment types and salinity regimes.

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25 *Department of Conservation and Ministry for the Environment (2000). The New Zealand Biodiversity Strategy. Wellington, 146pp.* www.biodiversity.govt.nz

26 *Refer to Volume II, Appendix I, Ministry of Fisheries and Department of Conservation. 2008. Marine Protected Areas: Classification, Protection Standard and Implementation Guidelines. Ministry of Fisheries and Department of Conservation, Wellington, New Zealand. 54 pp.* www.biodiversity.govt.nz

Bioregion (biogeographic region)
An area that is defined according to patterns of ecological characteristics in the seascape.

Coastal environment
An environment in which the coast is a significant element or part. The extent of the coastal environment will vary from place to place depending on how much it affects, or is affected by, coastal processes and the management issues concerned. It includes at least three distinct, but inter-related, parts: the coastal marine area, the active coastal zone, and the land back-drop.

Coastal marine
For the purposes of developing a network of protected areas, the MPA Policy specifies two planning processes – one for the coastal environment and one for the deep water marine environment. For the purpose of implementing the network of protected areas, the coastal/deep water planning boundary is the limit of the Territorial Sea (12 nautical miles).

Comprehensiveness
The degree to which the full range of ecological communities and their biological diversity are incorporated within protected areas.

Continental shelf
A broad expanse of ocean bottom sloping gently and seaward from the shoreline to the shelf-slope break. The shelf area is commonly subdivided into the inner continental shelf, mid continental shelf, and outer continental shelf. The sea floor below the continental shelf break is the continental slope. Below the slope is the continental rise, which finally merges into the deep ocean floor, the abyssal plain. The pelagic (water column) environment of the continental shelf constitutes the neritic zone. The continental shelf and the slope are part of the continental margin.

Continental slope
A sloping bottom extending seaward from the edge of the continental shelf and downward toward the rise. Continental slopes are the relatively steep inclines between the continental shelf and the surrounding ocean basins and, in New Zealand, are typically inclined at an angle of three to six degrees (Lewis et al. 2006). The slope is often cut with submarine canyons.

Convention on Biological Diversity
An international agreement on biological diversity that came into force in December 1993. The objectives of the Convention are: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

Demersal
Occurring near the seabed. Demersal organisms live near, but not on, the seabed, and usually feed on benthic organisms.

Diving
Includes scuba, free diving and snorkeling.

Ecosystem
An interacting system of living and non-living parts such as sunlight, air, water, minerals, and nutrients. Ecosystems encompass communities and their surrounding environments and function through three basic cycles of matter and energy; biogeochemical cycles, life cycles and histories, and food webs. The 'interconnectedness' within and among ecosystems is provided both by the physical environment and by biological interactions.

Epipelagic zone
The 0 to 200 metre depth zone, seaward of the shelf-slope break. The epipelagic zone extends from the surface downward as far as sunlight penetrates during the day. It is a very thin layer, up to about 200 metres deep. The endemic species of this zone either do not migrate, or perform only limited vertical migrations, although there are many animals that enter the epipelagic zone from deeper layers during the night or pass their early development stages in the photic zone. The epipelagic zone overlies the mesopelagic zone.

Estuarine
The estuarine environment includes estuaries, tidal reaches, mouths of coastal rivers and coastal lagoons. The dominant functions are the mixing of freshwater and seawater, and tidal fluctuation, both of which vary depending on degrees of direct access to the sea. Estuaries are semi-enclosed bodies of water which have a free connection with the open sea. They differ from other coastal inlets in that sea water is measurably diluted by inputs of freshwater and this, combined with tidal movement, means that salinity is permanently variable.

Estuary
A partially enclosed coastal body of water which is either permanently or periodically open to the sea and within which there is a measurable variation of salinity due to the mixture of seawater and freshwater derived from land drainage (Day 1981 in Hume & Herdendorf 1988).

Exclusive Economic Zone
The area of ocean from the outside edge of the territorial sea (which covers inland waters, harbours and the area out to 12 nautical miles from the coast) out to 200 nautical miles from the coast. The resources of New Zealand's exclusive economic zone are under New Zealand control.

Exposure
Exposure is related to the prevailing energy of water movement, tidal, wave or current. Wave exposure is determined by the aspect of the coast (related to direction of prevailing or strong winds), the fetch (distance to nearest land), openness (the degree of open water offshore) and profile (the depth profile of water adjacent to the coast). For the purposes of the protected area coastal classification three levels of relative exposure are used to identify deferent categories structuring intertidal and shallow subtidal communities.

- High – describes areas where wind/wave energy is high in areas of open coasts which face into prevailing winds and receive oceanic swell (fetch >500 kilometres e.g. ocean swell environment; current >3 knots).
- Medium – describes areas of medium wind/wave energy generally including open coasts facing away from prevailing winds and without a long fetch (fetch 50-500 kilometres e.g. open bays and straits).
- Low – describes areas where local wind/wave energy is low (fetch <50 kilometres e.g. sheltered areas; small bays and estuaries; current <3 knots).

Habitat
The place or type of area in which (life/an organism) naturally occurs.

Hard bottom
Rocky reef and boulders

Indigenous species
A plant or animal species which occurs naturally in New Zealand. A synonym is "native".

Intertidal
The area of land at the land-sea interface that is marine in character influenced periodically by the rise and fall of twice-daily tides, of bimonthly spring and neap tides, or by ebb and flow in tidal reaches of rivers.

Invertebrate
An animal without a backbone or spinal column. Insects, spiders, worms, slaters and many marine animals such as corals, sponges and jellyfish are examples of invertebrates. Invertebrates make up the vast majority of all animal species; only fish, amphibians, reptiles, birds and mammals are not invertebrates.

Marine environment
Includes all areas in which the ocean and coast are significant parts, and all natural and biological resources contained therein. It includes the area from mean spring high water mark to the full extent of our EEZ (to 200 nautical miles offshore). Environments covered in the "marine environment" include estuarine, near-shore coastal, continental shelf, seamounts, and sea trenches.

Marine Protection Tools[27]
A range of management methods that can be used to establish a marine protected area.

Other tools such as Hectors dolphins set net controls, whitebaiting closed areas, and protected land status (public conservation land), already exist on the West Coast and contribute to the protection and management of the marine environment. Other tools that are similar to those for marine protected areas (referred to as 'Type 3 tools' in the MPA Protection Standard) are relevant when measuring progress towards the Biodiversity Strategy target. However, only some tools qualify as MPAs for the purpose of the MPA Policy.

Management tools
Management tools are mechanisms that, directly or incidentally, establish a protected site and/or manage threats to the maintenance and or recovery of the site's biodiversity at the habitat or ecosystem level. Direct management tools can therefore include marine reserves, fisheries restrictions, and mechanisms to reduce adverse impacts of land-based activities or shipping. Incidental management tools could include cable protection zones or marine mammal sanctuaries.

27 *Refer to Volume II, Appendix I: MPA Policy and Implementation Plan (page 11), Integrating Marine Management Tools to Build an MPA Network.*

Marine Protected Area (MPA)
An area that has been given a level of protection through a range of management tools that protect habitats and ecosystems. The Implementation Guidelines (MFish and DOC 2008 p13) prescribe 3 marine protection types, 2 of which provide enough protection to be considered MPAs. These marine protection types; type 1 (Marine Reserve) and type 2 (Other MPA) are the only types of marine protection that meet the MPA protection standard. The protection standard sets the outcome irrespective of the management tool. The outcome is described in the MPA Policy as 'enabling the maintenance or recovery of the site's biological diversity at the habitat and ecosystem level to a healthy functioning state'.

Megafaunal
Large bodied animals

Mesopelagic
The 200 metre - 1000 metre depth zone, seaward of the shelf-slope break. Midwater or "twilight zone", where there is still faint light but not enough for photosynthesis. Bacteria, salps, shrimp, jellys, swimming (cirrate) octopods, vampire and other squids, and fish are typical; many are bioluminescent.

National park or reserve status
National parks and some types of reserves provide high levels of protection and could count towards the marine protected areas network if they are of sufficient size and extend below mean high water spring (MHWS). National parks and other conservation areas under the Reserves Act 1977 can include estuarine and intertidal areas.

National Institute for Water and Atmospheric Research (NIWA)
NIWA is the Crown Research Institute providing a scientific basis for the sustainable management of New Zealand's atmosphere, marine and freshwater ecosystems and associated resources.

Neritic zone
This spans from the low-tide line to the edge of the continental shelf and extends to a depth of about 200 metres.

Network Design Principles
Principles that guide the design of the protected areas network (including concepts of representative, rare/unique, viable, replication, resilience, connectivity).

Oceanic water column
Those waters of the 'open ocean,' in areas beyond the shelf break (about 200-250 metres depth) extending to the maximum ocean depths. These waters are removed from primary continental influences, and the sea bottom interacts little or not at all with the water column.

Pelagic
Associated with open water. Pelagic organisms live in the open sea, away from the seabed.

Protection standard
The protection standard provides the guidance for assessing whether a tool, or a combination of tools, provides for the maintenance and/or recovery of biological diversity at the habitat and ecosystem level in a healthy functioning state at a particular site. The standard is described in Planning Principle 2.

Protected area network
A network or system of protected areas. The principal criteria for New Zealand's protected area network are comprehensiveness and representativeness.

Ramsar Convention
An international convention to protect internationally important wetlands. It was agreed in 1971 and signed by New Zealand in 1976.

Relict
Survived from an earlier period or in a primitive form.

Representativeness
The extent to which areas selected for inclusion in the protected area network are capable of reflecting the known biological diversity and ecological patterns and processes of the ecological community or ecosystem concerned, or the extent to which populations represent or exemplify the range of genetic diversity of a taxonomic unit (Biodiversity Strategy).

Marine areas selected for inclusion in reserves should reasonably reflect the biotic diversity of the marine ecosystems from which they derive (MPA Guidelines).

Resilience
The ability of a species, or variety or breed of species, to respond and adapt to external environmental stresses.

Resource Management Act 1991 (RMA)
The RMA provides a framework for coastal management that includes the New Zealand Coastal Policy Statement (NZCPS), which sets out national priorities for the coast including biodiversity. RMA tools can contribute to the MPA network by, establishing and reinforcing protected areas in coastal plans, and contributing to the management of existing marine protected areas. However, they do not qualify as MPAs for the purposes of the MPA Policy.

Restoration
The active intervention and management of degraded biotic communities, physical features and seascapes in order to restore biological character, ecological and physical processes and their cultural and visual qualities.

Rhodolith
Rhodoliths are free living calcified red algae.

Salinity
The quantity of dissolved salts in water, especially of seawater or its diluted products. Salinity is recorded, by convention, as parts per thousand (‰); that is, grams of salts per litre of water. Fully saline - 30 - 40‰; variable salinity/ salinity fluctuates on a regular basis - 18 - 40‰; reduced salinity -18 - 30‰; low salinity - <18‰.

Saltmarsh
A wetland in estuarine habitats of mainly mineral substrate in the intertidal zone.

Seagrass
Seagrasses are vascular marine plants with the same basic structure as terrestrial (land) plants. They have tiny flowers and strap-like leaves. They form meadows in estuaries and shallow coastal waters with sandy or muddy bottoms. Most closely related to lilies, they are quite different from seaweeds, which are algae. The leaves support an array of attached seaweeds and tiny filter-feeding animals like bryozoans, sponges, and hydroids, as well as the eggs of ascidians (sea squirts) and molluscs. They also provide food and shelter for juvenile and small fish.

Soft bottom
Substrate defined by small particle size and unstable bottom conditions, generally with organisms that live buried beneath the surface (for example, cobble, gravel, sand and mud bottoms).

Species
A group of organisms capable of interbreeding freely with each other but not with members of other species.

Statistical area
The purpose of commercial fisheries reporting, New Zealand's exclusive economic zone is divided into statistical areas.

Submarine canyon
A valley on the seafloor of the continental slope. Submarine canyons are generally found as extensions to large rivers, and have been found to extend 1 kilometre below sea level, and extend for hundreds of kilometres. The walls are generally very steep. The walls are subject to erosion by turbidity currents, bioerosion or slumping.

Substrate
The type of bottom sediments, such as sand and gravel. Substrate type and sediment grain size have a strong influence on the types of plants and animals that can inhabit a given place. Substrates and sediment sizes range from tiny mud particles, to fine sand, to coarse sand, to pebbles, to cobbles, to boulders, to solid rock outcrop.

Subtidal
The zone of estuarine and coastal areas below the level of lowest tide; permanently inundated.

Threatened species
A species or community that is vulnerable, endangered or presumed extinct.

Type 1 MPAs
Marine reserves are established under the Marine Reserves Act 1971 to give the highest possible level of protection for the purpose of preserving marine life for scientific study. This qualifies them as a Type 1 MPA. A broad range of activities can be managed, controlled or excluded in marine reserves, including marine farming, fishing, other extraction, anchoring, point discharges, research, bioprospecting and commercial tourism.

Type 2 MPAs
The MPA Policy uses various management tools under the Fisheries Act 1996 to protect habitats. These tools include regulations that prohibit fishing methods which impact the seabed (bottom trawling, Danish seining, and dredging). The removal of these bottom impact fishing methods qualifies as a Type 2 MPA protection standard (MFish & DOC 2008, p13).

Understorey
The shrubs and plants growing beneath the canopy of a kelp forest or other dense plant cover.

Upwelling
A process where subsurface, nutrient-rich, and usually cooler water is carried upward into the ocean's surface layers. Upwelling is caused by a complex interaction of wind, currents and the topography of the sea floor.

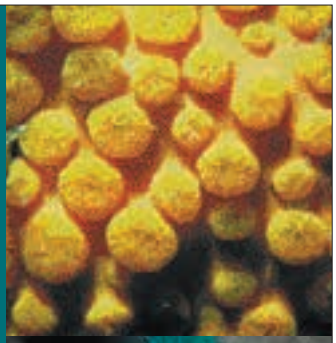
Vertebrate
Animal with backbone; amphibians, reptiles, birds, mammals and fish.

Huriawa Peninsula.
Photo: John Barkla

APPENDICES

Otago Peninsula.
Photo: Garth Cadzow

APPENDIX 1



Marine Protected Areas

Policy and Implementation Plan

Published by
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December 2005

Front cover photos (from top) Blue cod, close up of head, South Westland, February 1996 (photo: Paddy Ryan); Feather star on Black coral; Sponge; Finger sponge and seaweeds, near Arapwaiti Point, Kapiti Island Marine Reserve, December 2000 (photo: Malcolm Francis).

Foreword

New Zealand has a biologically rich and complex seascape. Our marine environment covers some 480 million hectares of ocean and our Exclusive Economic Zone is the fourth largest in the world. More than 15,000 marine species have been found in this sea. Because New Zealand is so isolated, a particularly high proportion of species is found only here.

The Government, as a signatory to the United Nations Convention on Biological Diversity, is committed to maintaining and preserving the natural heritage of both our lands and waters, and is doing so through the New Zealand Biodiversity Strategy. An aim of the Strategy is that marine habitats and ecosystems will be maintained in a healthy functioning state, and degraded areas will be allowed to recover.

A full range of New Zealand's marine habitats and ecosystems will be protected. The Marine Protected Areas Policy and Implementation Plan (MPA Policy) will be a key means of achieving this, and is a project led by the Ministry of Fisheries and the Department of Conservation.

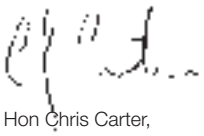
In the past, the approach to marine protection has been fragmented. The MPA Policy does much better. It provides an integrated process, including regional consultation, for establishing a network of marine protected areas around New Zealand.

This new process is designed to be inclusive and transparent. We want regional councils, marine users, tangata whenua and those with an interest in marine biodiversity to all be involved. Implementation will be underpinned by a commitment to minimise the impact of new protected areas on existing users of the marine environment and Treaty settlement obligations.

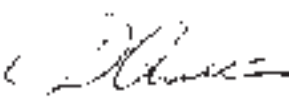
Planning for marine protection will be science-based, using a consistent approach to habitat and ecosystem classification, and an inventory of marine protected areas to determine gaps in the network. This will drive priorities for protection. Consideration of threats would influence further priorities.

The resulting network will be comprehensive, by protecting both representative areas and areas that are outstanding and rare. A range of management tools will be used, including marine reserves, Fisheries Act tools, and tools under the Resource Management Act.

The aim is to have 10% of New Zealand's marine environment with some form of protection by 2010. These protected areas will provide an invaluable store of genetic diversity that will contribute to maintaining the health of the wider marine environment. They will also provide opportunities for recreation, marine tourism, scientific research and education, and will enhance New Zealand's environmental performance.



Hon Chris Carter,
MINISTER OF CONSERVATION



Hon Jim Anderton,
MINISTER OF FISHERIES

Table of Contents

Executive Summary

This document sets out the policy and implementation plan to protect New Zealand's marine biodiversity by establishing a comprehensive and representative network of Marine Protected Areas (MPAs).

The Government is committed to ensuring that New Zealand's marine biodiversity is protected, and the MPA Policy is a key component of this commitment. The MPA Policy objective is to:

Protect marine biodiversity by establishing a network of MPAs that is comprehensive and representative of New Zealand's marine habitats and ecosystems.

Key components of the MPA Policy are:

i. A consistent approach to classification of the marine habitats and ecosystems

Classification of marine habitats and ecosystems will help to ensure the MPA network is representative. The policy is based on an approach to classification that incorporates best available scientific information and which is approved by Ministers. This consistent approach to classification will be applied to the marine environment as part of the MPA planning process.

ii. Mechanisms to co-ordinate a range of management tools

These include: a protection standard that will be used to assess whether individual management tools or a combination of management tools provide sufficient protection to a site for it to be designated as an MPA; and planning processes that enable a multi-agency approach to MPA planning for both nearshore and offshore MPAs.

iii. Inventory to identify areas where MPAs are required

An inventory will be taken of existing marine areas that have some level of protection, and the extent to which those areas cover representative habitats and ecosystems (based on the classification of habitats and ecosystems) will be assessed. The protection standard will be used to determine whether existing areas have sufficient protection to be designated as MPAs. The inventory of MPAs will be continually updated as new areas are protected.

iv. A nationally consistent basis for planning and establishing new MPAs

The MPA Policy outlines processes for MPA planning that are based on a common approach to habitat and ecosystem classification and which are directed by the priorities identified in the inventory process. Planning for offshore MPAs will be implemented at a national level, while planning for nearshore MPAs will be implemented at a regional level. Both the nearshore and offshore processes will be designed to allow for constructive engagement with tangata whenua, user groups, and the public to ensure that MPA planning is inclusive, without compromising biodiversity protection objectives. Both processes will be underpinned by a commitment to minimise the adverse impacts of new MPAs on existing users of the marine environment and Treaty settlement obligations.

Commonly Used Terms

Biological diversity (biodiversity): The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Convention on Biological Diversity). Components include:

> ***Genetic diversity:*** The variability in the genetic make up among individuals within a single species. In more technical terms, it is the genetic differences among populations of a single species and those among individuals within a population.
>
> ***Species diversity:*** The variety of species – whether wild or domesticated – within a particular geographical area. A species is a group of organisms, which have evolved distinct inheritable features and occupy a unique geographic area. Species are usually unable to interbreed naturally with other species due to such factors as genetic divergence, different behaviour and biological needs, and separate geographic location.
>
> ***Ecological (ecosystem) diversity:*** The variety of ecosystem types (for example, forests, deserts, grasslands, streams, lakes, wetlands and oceans) and their biological communities that interact with one another and their non-living environments.

Ecosystem: An interacting system of living and non-living parts such as sunlight, air, water, minerals and nutrients. Ecosystems can be small and short-lived, such as water-filled tree holes or rotting logs on a forest floor, or large and long-lived, such as forests or lakes.

Habitat: The place or type of area in which an organism naturally occurs.

Management tools: Management tools are mechanisms that, directly or incidentally, establish a protected site and/or manage threats to the maintenance and or recovery of the site's biodiversity at the habitat or ecosystem level. Direct management tools can therefore include marine reserves, fisheries restrictions, and mechanisms to reduce adverse impacts of land-based activities or shipping. Incidental management tools could include cable protection zones or marine mammal sanctuaries.

Protection standard: The protection standard provides the guidance for assessing whether a tool, or a combination of tools, provides for the maintenance and/or recovery of biological diversity at the habitat and ecosystem level in a healthy functioning state at a particular site. The standard is described in Planning Principle 2. Stage One of the implementation process provides for independent scientific advice to better define the components of a protection standard and verify that the standard proposed for use in the implementation of the MPA Policy will achieve the Government's biodiversity objectives in all circumstances.

Biogeographic region: An area that is defined according to patterns of ecological and physical characteristics in the seascape. Biogeographic regions will form the basis of MPA nearshore planning.

Introduction

New Zealand Commitment to Marine Biodiversity

1 Marine biodiversity is among the great taonga (treasures) of Aotearoa/New Zealand. The geological isolation, range and complexity of habitats, and number of major ocean currents that influence New Zealand have created diverse marine communities. The Government, recognising both the environmental importance of marine biodiversity and the value that it provides to all New Zealanders, has made an explicit commitment to ensure its protection.

2 The New Zealand Biodiversity Strategy (NZBS) reflects the commitment by the Government, through its ratification of the international Convention on Biological Diversity, to help stem the loss of biodiversity worldwide.

3 The NZBS establishes the strategic framework for action, to conserve and sustainably use and manage New Zealand's biodiversity. The strategy provides statements of desired outcomes and objectives for different aspects of biodiversity management. The strategy also lists a number of actions that, when combined with existing management measures, will achieve the objectives and outcomes.

4 The following are the desired outcomes for Coastal and Marine Biodiversity in 2020:

a) *New Zealand's natural marine habitats and ecosystems are maintained in a healthy functioning state. Degraded marine habitats are recovering. A full range of marine habitats and ecosystems representative of New Zealand's marine biodiversity is protected.*

b) *No human-induced extinctions of marine species within New Zealand's marine environment have occurred. Rare or threatened marine species are adequately protected from harvesting and other human threats, enabling them to recover.*

c) *Marine biodiversity is appreciated, and any harvesting or marine development is done in an informed, controlled and ecologically sustainable manner.*

d) *No new undesirable introduced species are established, and threats to indigenous biodiversity from established exotic organisms are being reduced and controlled.*

5 There are seven objectives under the Coastal and Marine Biodiversity theme, and of direct significance to the Marine Protected Areas (MPA) Policy is Objective 3.6, which is to:

Protect a full range of natural marine habitats and ecosystems to effectively conserve marine biodiversity, using a range of appropriate mechanisms, including legal protection.

Contribution of other Marine Management Initiatives to Marine Biodiversity Protection

6 The Marine Protected Areas (MPA) Policy is intended to guide the development of a comprehensive and representative network of MPAs using a number of marine management tools. The network will significantly contribute to meeting Objective 3.6 and the NZBS outcome that natural marine habitats and ecosystems are maintained in a healthy functioning state. However, it is just one of a wide range of management initiatives designed to protect marine biodiversity. The other initiatives include effects-based management of the coastal and marine area under the Resource Management Act 1991 (RMA), management for sustainable utilisation of fisheries under the Fisheries Act 1996 (Fisheries Act), protection of marine mammals and threatened species under conservation legislation, and management of marine incursions under the Biosecurity Act 1993 (Biosecurity Act).

APPENDIX 3
SUMMARY OF COMMUNITY ENGAGEMENT

Public Meetings

The series of public meetings introduced communities to what the MPA Policy is trying to achieve, and the role of the Forum was explained. At these meetings the Forum also learnt about the issues and concerns of local communities. Venues varied with some meetings being held on local marae and some at fishing clubs.

Questionnaire

The *Our Sea Your Say - Kei A Koe Te Questionnaire* was one of the early points of contact with stakeholders during the initial stages of the project. It was an opportunity for the Forum to gather quite broad information about the areas of importance to the person filling in the questionnaire; where the place is, what they do there, any changes they may have seen and if they believe that some sort of protection is needed. It was not intended to be a rigorous social survey, rather it allowed the Forum to identify activities and areas of interest and enable further discussions within the Forum and across stakeholder groups.

The questionnaire was distributed to interested members of the public and was available on the website. 303 people participated in the questionnaire. Participants who expressed an interest in following the progress of the Forum also went into the database of interested users of the coast.

The following provides an overview of the main themes raised in the results of the questionnaire with regard to the values of the area; threats / risks to the marine environment; changes and threats in the environment; sorts of protection that may need to be put in place; and activities that should be allowed to continue if an area is going to be protected.

What the community values in its marine spaces

The most popular activities selected by the online questionnaire participants were:

Going to the beach	(70%)
Swimming	(54%)
Fishing – recreational	(52%)
Marine mammal watching	(50%)
Collecting shellfish	(50%)

The main values that the south-east region holds include:

- Biodiversity values - bryozoan reefs and other biogenic habitats
- Coastal reefs
- Educational value
- Employment (fishing, shellfish harvesting, tourism etc)
- Family holidays
- Fishing, food gathering, mahika kai, kaimoana
- Good access
- Healthy marine environment / ecosystem
- Intrinsic values
- Recreation – swimming, surfing, diving, snorkeling, boating etc.
- Scenic value, beauty, landscape, remoteness, natural features
- Spiritual/emotional connections with the area
- Topūni, (areas of significance) wāhi tapū, wāhi tāoka
- Artifacts dig, fossils
- Vegetation – rare natural coastal conditions
- Water quality/water visibility (e.g. for swimming, diving, snorkeling, spear fishing)
- Wildlife –dolphins, whales, seals/sea lions, fish, shorebirds, penguins (many places are breeding sites, migration roots and home for wildlife).

Has the environment changed?

The majority of respondents considered that the environment had declined to some degree (50%), with 15% believing it hasn't changed and 8% considering the environment had improved to some degree. This was relatively consistent across all regions of the questionnaire.

The main risks/threats to the environment identified related to: fishing, wildlife, land use practices and development, water quality, erosion, rubbish and pollution, sedimentation, pests, vehicles and dogs, and visitor pressure.

Is protection something the community would like in place?

The questionnaire results showed that:

- 90% of the respondents said 'Yes something needs to be done to protect the values of the region'
- 8% of the respondents said 'Nothing needs to be done'.

What sort of protection or management would the community like in place?

The main matters raised were regarding: commercial fishing, recreational fishing, protected areas, monitoring and compliance, wildlife protection and habitat restoration, surf breaks, more education, protect native plants and algae, eradication of invasive vegetation, land use management and water quality, access/vehicles/dogs, and rubbish.

Overall, the main suggestions for protection were: Marine reserves, various options for Type 2 Marine Protected Areas, network of MPAs, land/sea protection and restoration, access, fisheries restrictions and to not impact recreational fishing.

What activities the community thinks should be allowed to continue if an area is going to be protected.

The main activities that the respondents thought should be allowed to continue included:

- Allow Mahika Kai practices to continue
- Blanket and permanent closure of areas to all fishing would restrict people's ability to feed themselves from the marine environment. This traditional practice must be allowed.
- Continue to have access to kaimoana in all coastal areas with restrictions (local catch limits, etc) based on real local data (possibly collected from local people)
- Make sure the local fishing fleet can still function and Kāi Tahu people can carry on traditional food gathering from the sea and rocks
- Scuba diving, swimming, surfing, snorkeling, boating, walking
- Sustainable practices enforced, cultural rights recognised and respected
- Sustainable recreational and commercial fishing and shellfish collection

Website

The Forum website www.south-eastmarine.org.nz was developed as the primary communication tool for community engagement.

The website has also posted all Forum meeting minutes, media releases and newsletters, Q&As and encourages people to make contact either by email or via the 0800 number.

SeaSketch

The online tool SeaSketch has been used to engage stakeholders and the public in developing their plans. SeaSketch is a valuable resource that supports collaborative marine spatial planning and provides easy to find marine information. The SeaSketch site also hosts an interactive public discussion Forum and encourages people to share their ideas.

Social Media

Facebook has been used to raise awareness of the opportunity to contribute to decisions through the Forum and to receive feedback.

Print Advertising

Advertisements were carried in daily newspapers and a variety of magazines including *The Fishing Paper, Fish and Game Magazine, Te Karaka* and *Mana Magazine*. These had a call to action to encourage people to have their say via the 0800 number, online or by post.

Email Newsletter

The database of interested parties has received numerous email newsletters notifying them of the Forum's progress. Information they have received has included:

- Granting of time extension for the process and new timetable for consultation
- Summary of Questionnaire findings
- Links to media stories about the process and other articles related to marine environment issues.
- Updates on SeaSketch and its capabilities
- Encouragement to have their say and channels available to do so.

Mailouts

There has been widespread distribution in the region of two information posters and a fact sheet. These have been sent to camping grounds, coastal taverns and hotels, hunting and fishing shops, fishing clubs, fish shops, sea sport and recreational clubs and coastal tourism operators.

All mail outs have carried a strong call to action to 'have your say' and to visit the website.

- An introductory poster on the Forum – "*Consulting on what's important to you in our marine environment from the Timaru Breakwater to Waipapa Point.*"
- Poster with map showing areas under discussion by the Forum and details of the new Forum timeframe.
- Fact sheet
- Public events

Media Activity

- In relation to communicating with the media, the Chair of the Forum, Maree Baker- Galloway, has been the Forum's spokesperson.
- In the early stages of the Forum's formation the major daily newspapers in the region, the *Timaru Herald*, the *Southland Times* and the *Otago Daily Times* ran stories on the process along with Radio New Zealand. Media releases were distributed following public meetings.
- Interest was reignited in the media with the announcement of the Forum requesting an extension of time for the process and again when that extension was granted.
- In April 2016 the *Otago Daily Times*, in its weekend magazine *The Mix*, ran a three-page feature on the Forum and its work. This included interviews with the Forum Chair and marine scientist Dr. Chris Hepburn, plus a representative from each stakeholder group contributed a 100 word summary on their perspective and these were all published verbatim.
- The *Otago Daily Times* also published an Opinion Piece written by recreational fishers representative Tim Ritchie – encouraging recreational fishers to have constructive input into the process.
- A media release on the summary of findings of the *OurSeaYourSay* Questionnaire - Community Support for Marine Protection on south-east coast – was given coverage in the *Timaru Herald*, the *Otago Daily Times* and *The Star* community newspaper. Plus it prompted an interview with Neville Peat on Channel 39 Dunedin Television and featured in Mediaworks local news bulletins.
- The *Taieri Times* ran a story about local concerns about what form of protection might be proposed for Green Island, and *The Star* community newspaper also followed up with their own story.

Summary of Stakeholder Engagement

Public Meetings

Public meetings were held at the following locations and dates:

- October 2014 – Puketeraki
- November 2014 – Bluff
- February 2015 – Oamaru
- March 2015 – Owaka
- April 2015 – Dunedin
- May 2015 – Timaru
- June 2015 – Invercargill
- July 2015 – Port Chalmers
- August 2015 – Dunedin
- October 2015 – Waikawa

Recreational Fishers Engagement

Meetings & publications included:

- Tautuku Fishing Club Meeting (with Nick Smith Minister for the Environment) Sept 2014
- Direct Mail to fishing clubs and boat shops Dec 2014
- Brighton Fishing Competition Feb 2015
- FMA 3 & 5 Recreational Forum Meeting Feb 2015
- Lure News Feb 2015
- Oamaru Fishing Club Feb 2015
- Measly Beach Fishing Club Feb 2015
- South Otago Town and Country Club - Hunting and Fishing Competition Feb 2015
- Kakanui Combined Fishing Club March 2015
- Seaweek Meeting at Toitu Museum March 2015
- Kaka Point Fishing Competition April 2015
- Fisheries Officers Meeting April 2015
- Balclutha Town and Country Club April 2015
- Fortrose Fishing Club April 2015
- Gore Fishers April 2015
- MPI FMA 3 and 5 Recreational Fishing Forum Meeting May 2015
- Lure Publication May 2015
- Bluff Oyster Festival May 2015
- Matariki Meeting Otago Museum June 2015
- Kakanui Combined Fishing Clubs July 2015
- The Fishing Paper July 2015
- Fish and Game Magazine July 2015
- Blueskin Bay Meeting July 2015
- MPI FMA 3 and 5 Recreational Fishing Forum Meeting July 2015
- Green Island Fishing Club Meeting, August 2016
- Shag Point, Moeraki, Karitāne and Palmerston Fishing Clubs Nov 2015
- MPI Recreational Fishing Team Meeting Dec 2015
- Shag Point, Moeraki, Karitāne and Palmerston Fishing Clubs Feb 2016
- Dunedin Combined Club, Tautuku, Green Island, Brighton and Otago Dive Club March 2016
- Opinion Piece Otago Daily Times - Tim Ritchie April 2016
- Responses to a variety of letters to the Editor in the Otago Daily Times, May 2016
- Tautuku Fishing Clubs including Club Reps from Green Island, Port Chalmers May 2016
- Kāi Tahu and Commercial Dunedin May 2016

- Kāi Tahu and Commercial Ōtākou June 2016
- Kakanui Combined Fishing Clubs June 2016
- Otago Dive Club July 2016
- Fortrose Fishing Club/Gore Fishers July 2016
- Owaka, Measly Beach and Nuggets Fishing Club July 2016
- Various meetings and conversations with members of Pāua to the People 2014-16
- Brighton Fishing Club August 2016
- Tautuku Fishing Club September 2016

In addition, various meetings with individual fishers and fishery officers in the region.

Commercial Fishers Engagement
Meetings & publications included:
- Federation of Commercial Fishermen's newsletter November/December 2014
- Otago Harbour Salmon Fishing Competition Jan 2015
- Cra8 Executive Meeting Invercargill Feb 2015
- Fisher Sector Meeting Invercargill/ Bluff March 2015
- Dive Otago March 2015
- Southern Inshore Fisheries Board Meeting Christchurch March 2015
- Hampden, Port Chalmers and Timaru Fishers April 2015
- Mail out to commercial fishers April 2015
- Timaru Fishermen's Association Meeting April 2015
- NZ Federation of Commercial Fishermen's Annual Conference Napier May 2015
- Seafood Magazine June 2015
- Port Chalmers Seafood Festival Sept 2015
- Seafood Industry Annual Conference Wellington Oct 2015
- Port Chalmers Fishermen's Co-op Meeting April 2016
- Federation of Commercial Fishermen's Facebook Page and Newsletter – Fact sheet and Poster – April 2016
- Distribution of maps to network of commercial fishermen May - April 2016
- Waikawa Commercial Fishers Meeting July 2016
- Taieri Mouth Commercial Fishers Meeting July 2016
- Bluff Commercial Fishers Meeting July 2016

Tourism Engagement
Meetings & events included:
- Poster distribution Nov 2014 (x 44 outlets)
- Kaka Point Market Day Dec 2014
- Oamaru Farmers Market Dec 2014
- Papatowai New Year Carnival 2015
- Owaka Boating Clubs Fishing Competition Jan 2015
- Papatowai and Districts Association Annual Meeting Jan 2015
- Waitaki Tourism Association Feb 2015
- Direct Mail to Tourism Industry March 2015
- Tourism Waitaki April 2015
- Yellow-Eyed Penguin Trust newsletter (1300 hard copies) May 2015
- Forest and Bird Meeting Southland Organisation May 2015
- Waitaki Tourism Email April 2015
- Nugget Point /Kaka Point Fishing Competition April 2015
- Catlins Coast website

- Southland Forest and Bird AGM April 2016
- Meeting with Environment Southland staff April 2016
- Catlins Promotions Group kept updated at all meetings – continuous.
- Tourism email database (including tourism operators, locals and interested parties) developed and kept informed- continuous.
- South Catlins Charitable Trust AGM July 2016

Marine Science Engagement
Events included:
- East Otago Taiāpure Research Evening at Puketeraki Dec 2014
- Science Workshops 2015
- Posters and fliers sent to University Departments May 2015
- NZ Marine Science Conference Auckland July 201

Community Engagement
Events & publications included:
- Palmerston A and P Show Feb 2015
- North Otago A and P Show Feb 2015
- Oamaru Library Seaweek Feb 2015
- Waitaki District Council Public Meeting Feb 2015
- Seaweek Meeting Toitu Museum March 2015
- Otago and Southland Mayoral Forums March 2015
- Enviroschool Stand Otago Farmers Market Feb/March 2015
- Otago Conservation Board April 2015
- Yellow-eyed Penguin Trust at Trust Office May 2015
- Local Government Magazine May 2015
- FYI (DCC website and publication) May 2015
- Southland Conservation Board June 2015
- Input to Dunedin City Council's inaugural Environment Strategy May 2016
- Neville Peat interview on Channel 39 Dunedin Television May 2016
- Canterbury Conservation Board June 2015
- Otago Mayoral Forum Balclutha June 2015
- Port Chalmers Seafood Festival Sept 2015

Environmental Engagement
Events & publications included:
- Oamaru Penguin Symposium June 2014
- Discussions with Pew Charitable Trusts & Yellow-Eyed Penguin scientists, at Zoology Department University of Otago Nov 2014
- Yellow-eyed Penguin Symposium Aug 2014
- Yellow-eyed Penguin Trust AGM March 2015
- Southland Forest and Bird May 2015
- Ornithological Society of NZ newsletter June 2015
- Southern Forest and Bird News Letter – January and June 2015
- Otago Dive School June 2015
- Otago Tramping and Mountaineering Club June 2015
- Forest and Bird AGM in Upper Clutha 2015
- Musselburgh School 2015
- Southern Forest and Bird publication2015
- Yellow-Eyed Penguin Symposium August 2015
- Waitaki Forest and Bird - February Talk (Sue Maturin) 2016
- Waitaki Forest and Bird AGM – April 2016
- Southland Forest and Bird AGM April 2016
- Oamaru Penguin Symposium May 2016

- Forest and Bird Annual General Meeting Wellington June 2016
- Sector group log in on SeaSketch
- Regular Forest and Bird Dunedin Branch meetings 2015/16

Kāi Tahu Engagement
Events & publications included:
- Full page Mana Magazine and online June/July 2015
- Panui Runaka June/July2015
- Hui of Ōtākou Runaka members, August 2015
- Waka Ama Invercargill 2015
- Trustees Hui Bluff 2015
- Monthly update to Awarua Runanga Trustees
- Mahika Kai Forum. Quarterly Forum Meetings 2015
- Southland Conservation Board Meeting 2015
- Matariki Week Kāi Tahu Gallery Toitu June 2015
- Karaitiana, RL Karaitiana & Taituha Trust, October 2015
- Korako Karetai Trust, October 2015
- Hui-a-iwi November 2015
- Consultation with Waikoau Runaka (South Otago Runaka), Balclutha, November 2015
- Otakou Rūnanga Hui 2016
- Moeraki Rūnanga Hui 2016
- Hui for Kāi Tahu, Ōtākou Marae, January 2016
- Komiti Kaupapa Taiao Hui 2016
- Hokonui Rūnanga Hui April 2016
- Consultation with Te Runanga o Moeraki, April 2016
- Ōtākou Hui with MPI to discuss Otakou Mataitai Reserve application April 2016
- Kāi Tahu, Ōtākou Marae, May 2016
- Ōtākou Hui May 2016
- Mahinga Kai Forum Muruhiku Marae, June 2016
- Regular liaison and discussion with Te Runaka o Ōtākou
- Karaitiana, RL Karaitiana & Taituha Trust, October 2016
- Korako Karetai Trust, October 2016

Whakaherekau.
Photo: John Barkla


SANSPEUR 7383

APPENDIX 4
FISHERIES REPORTING

Otago Peninsula.
Photo: Otago Daily Times

Overview

The Ministry for Primary Industries (MPI) requires reporting of catch and method details of fishing events in all commercial fishing trips in the EEZ. Since October 2007, MPI has modelled the likely or possible space involved in all fishing events and mapped the aggregated average annual intensity of fishing or catch.

The detail that the spatial information supplied to MPI by commercial fishers varies, depending on the fishing methods they are using. Fishing methods like offshore trawling require the recording of both start and end points but other methods (like hand gathering) may only require a statistical area as a locational reference for a fishing event. Any point location supplied to MPI usually has an accuracy of approximately 1 nautical mile (1.8 km).

The Ministry is in the process of providing updated fisheries information, to include the two most recent complete fishing years in SeaSketch. SeaSketch currently includes data to the end of the 2012-2013 fishing year. Data for the 2013-14 and 2014-15 fishing years will be added shortly. The Forum has not had this additional information and so has not been able to discuss it at the time of writing, and it is not provided in this document or the tables for fishery displacement. But, the Forum will consider it in its final deliberations along with information from submissions.

How are fishing events drawn?

- In the case of inshore trawling, the end position of tows is estimated based on the location of the next trawl start position in that fishing trip.
- A similar rectangle is created for tuna longline start and end positions with 100m width, giving an estimate of the number of hooks/ha.
- The start position of other long line sets are buffered by a radius of the length of the line set to give a circle. Set net fishing is mapped to 2 nm (3.6 km) buffered circles around the reported start position for each event.
- For all other fishing events including set netting and long lining by vessels less than 6m length, which are not required to report start positions, the location of fishing is reported by large statistical areas. Where possible the likely location of each fishing event is constrained within the reported statistical area based on environmental data like depth, topography, habitat type, or narratives provided by fishers.

METHOD	REQUIRED REPORTED LOCATION	APPLIED AREA VALUES	ESTIMATED LOCATIONS
Trawl (offshore)	Start and end points	Trawl doorspread width (specific to different fisheries)	
Trawl (inshore)	Start point	Trawl doorspread width (specific to different fisheries)	End points are estimated using the bearing to the start location of the next tow within the same trip. Trawl length is calculated using the reported time and speed values. Missing values are populated using medians from similar fisheries
Set Net (>6m vessel length)	Start point	Buffered by 2 nautical miles (3.6 km)	
Longlining (>6m vessel length)	Start point	Buffered using the reported line length	
Jig	Location at midnight	Buffered by 5 nautical miles (9.2 km)	
Pāua	Statistical area		Rocky reef locations within the statistical areas
Pot (with coordinates)	Start point	Buffered by 1 nautical mile (1.8 km)	
Cray pot	Statistical area		Rocky reef locations within the statistical areas
Crab pot	Statistical area		Areas described by fishers within statistical areas
Pot (without coordinates)	Statistical area		Statistical areas reduced to certain depths in certain fisheries
All other fishing events	Statistical area		

Figure 1: Reported location and any assumptions made when mapping commercial fishing methods.

Forum region layers

The information made available to the South-East Marine Protection Forum during the proposal development stage represented the reported commercial catch within the Forum region between October 2007 and September 2013. All commercial catch data had been averaged over all to the available years to create annually averaged catch data.

The information provided to the Forum was in two parts:

1. Layers for display as map layers within the SeaSketch application, and
2. Layers used for analysis and reporting by SEMPF members within SeaSketch.

Display layers

The commercial fishing intensity layers visible within the SeaSketch application represent the average reported catch of all species within the Forum region over the six years of available information. The layers have a spatial resolution of 1 km^2 and have been separated by fishing gear type (Trawl = bottom and midwater trawl, Pot = cod, rock lobster and crab pots etc.) as well as a single layer containing the total catch for all combined fishing methods.

As these layers were intended for public viewing, there was a requirement to ensure the activities of individual fishers are not identifiable. To maintain fisher confidentiality a methodology was developed which identified areas where fewer than three permit holders were active. These areas were then merged with neighbouring areas which also contained fewer than three permit holders to form 2 km^2 grid cells. If three or more permit holders were present within the expanded area, the catch values were averaged across all those values present within the larger cell areas. If the number of permit holders present within one of the increased cells was still fewer than three, the cell size was increased to 5 km^2 and so on up to 50 km^2, or until three or more permit holders were active within an area.

The map layers were then classified into a 10-class, high to low ranking system. The ranking system allows for the identification of areas with differing fishing intensity and also removed the ability for users to extract catch estimate values from the data.

Analysis layers

The layers used within the SeaSketch reporting are based on the same base information used to create the display layers but with two differences. These layers did not undergo the same anonymising process as the display map layers, and the categories were broken down into individual fisheries rather than the broad scale gear types present in the display maps.

The 'Fishery Displacement' category represents the percentage of fishery catch within an area of interest compared to the total catch for that fishery within the Forum region. For example; if a SeaSketch report indicates an MPA option has a fishery displacement value of 10%, it indicates that 10% of that fishery within the Forum region was likely caught in that particular area and might move elsewhere if the commercial fishing restrictions provided by that MPA are enforced.

Otago Peninsula.
Photo: Otago Daily Times

Okahau / Warrington, Dunedin.
Photo: John Barkla

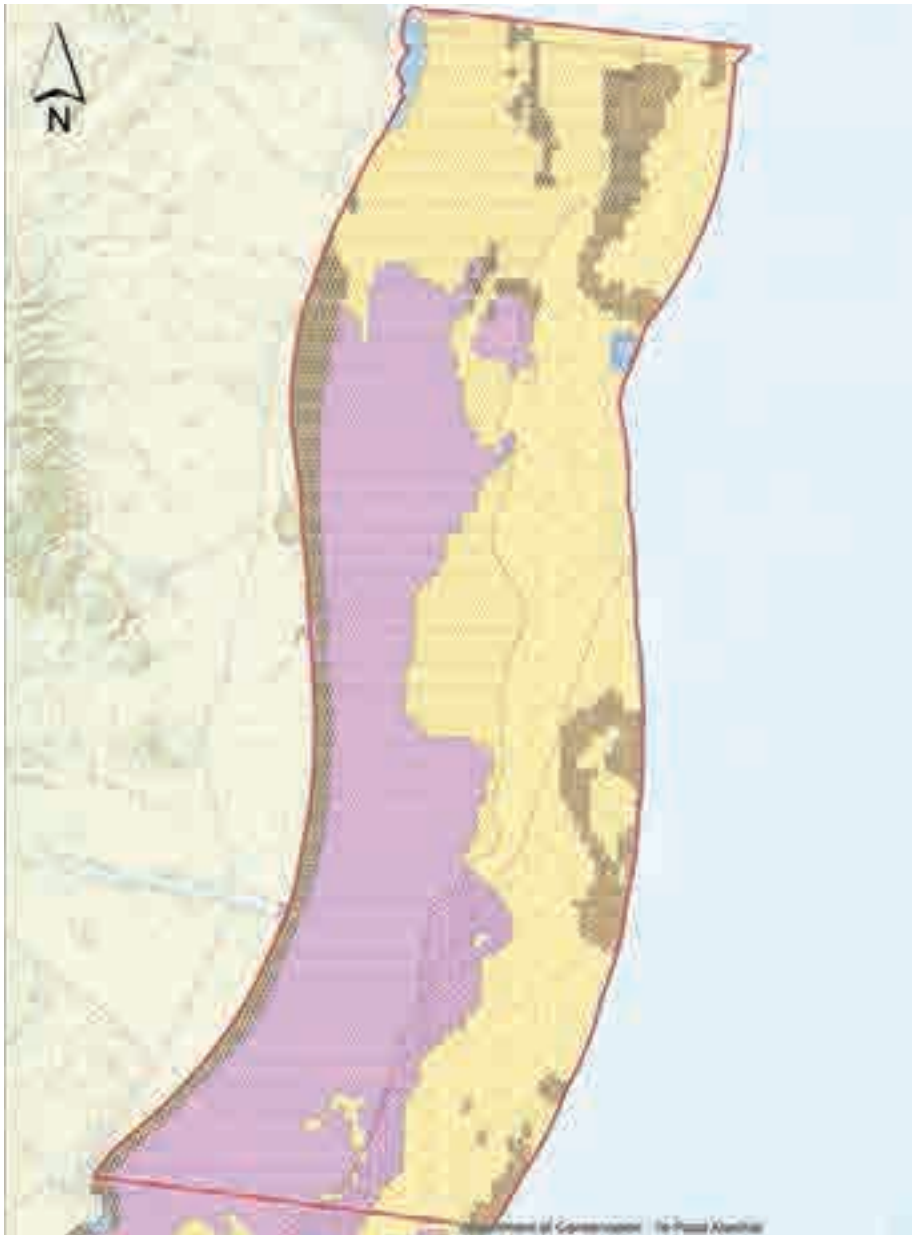
APPENDIX 5
HABITAT TYPE MAPS OF THE FORUM REGION

The habitat classification, as defined in the 'Marine Protected Areas classification, protection standard and implementation guidelines', uses a combination of depth, exposure and substrate (seafloor type) to create a number of different habitat types.

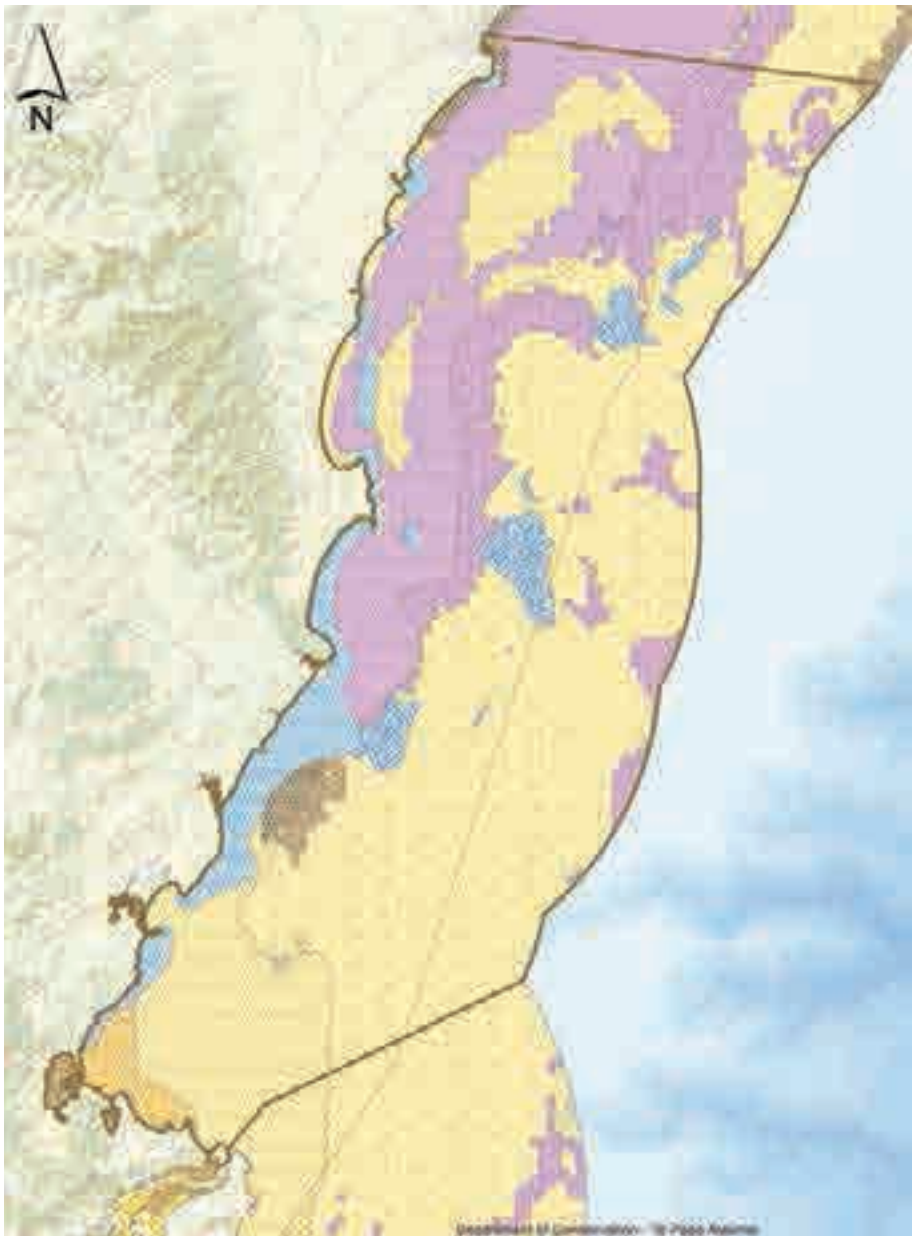
While based on best available information it is acknowledged that the habitat types modelled are an approximation. Wherever possible, additional information has been used to supplement the habitat classification.

KEY TO COLOURS FOR HABITAT REGIONS

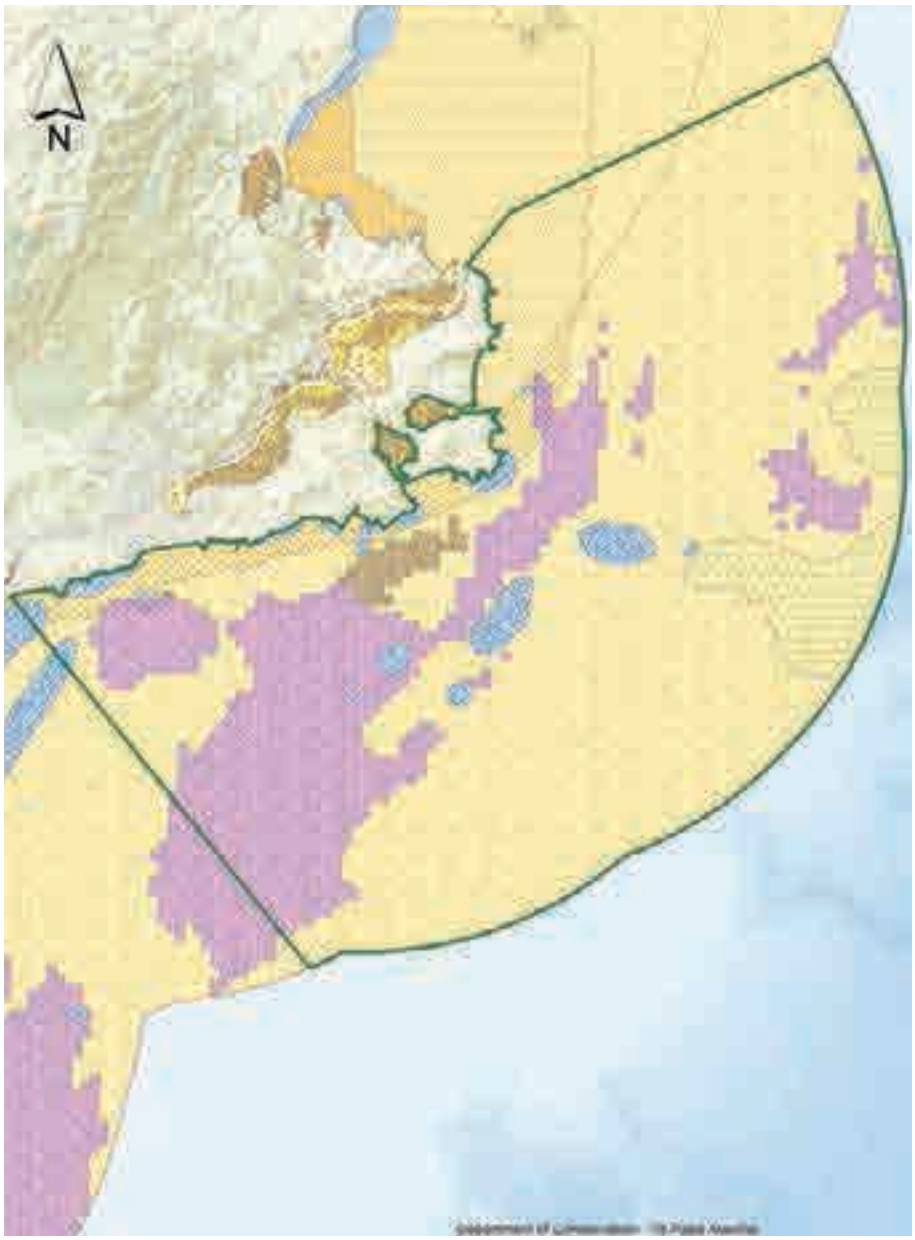
SOUTH CANTERBURY BIGHT



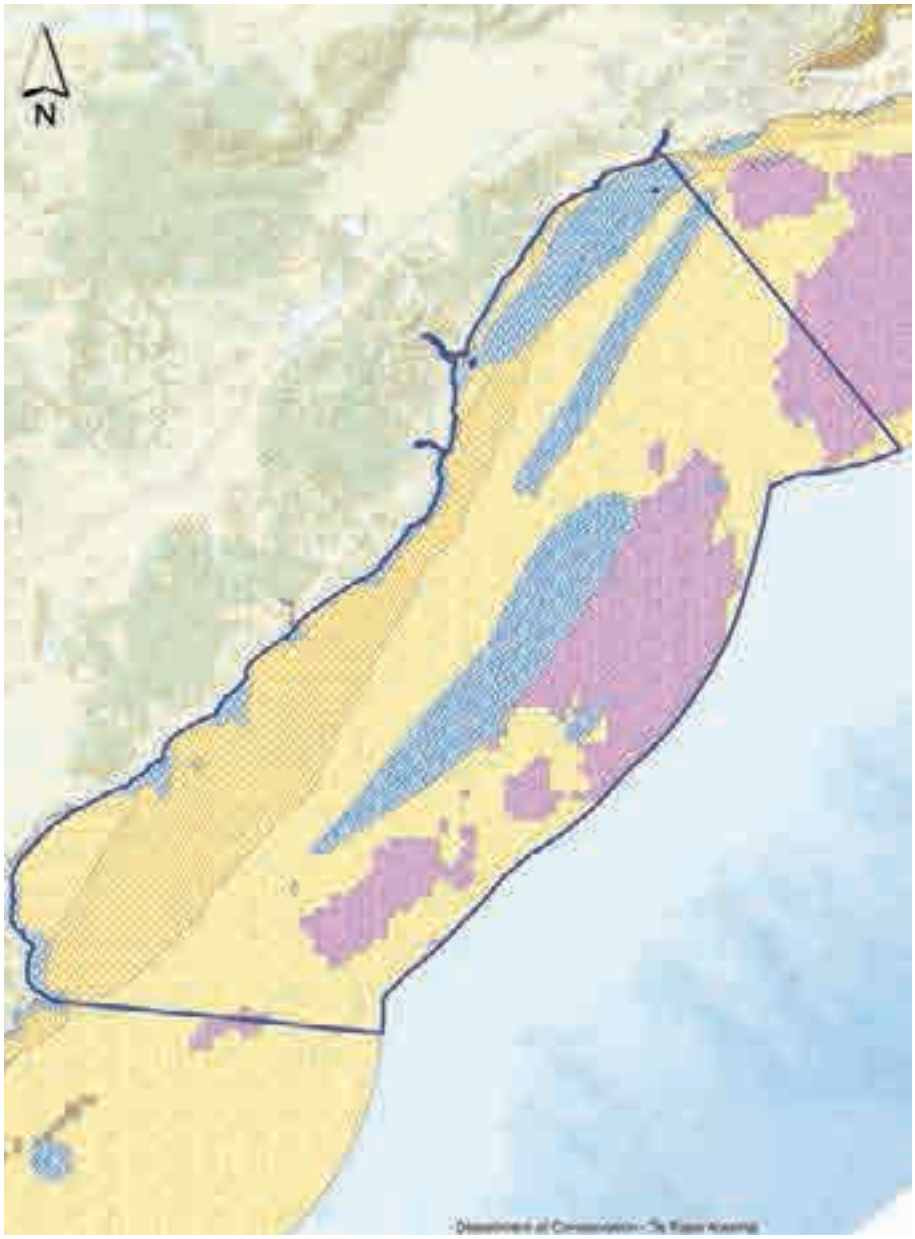
NORTH OTAGO



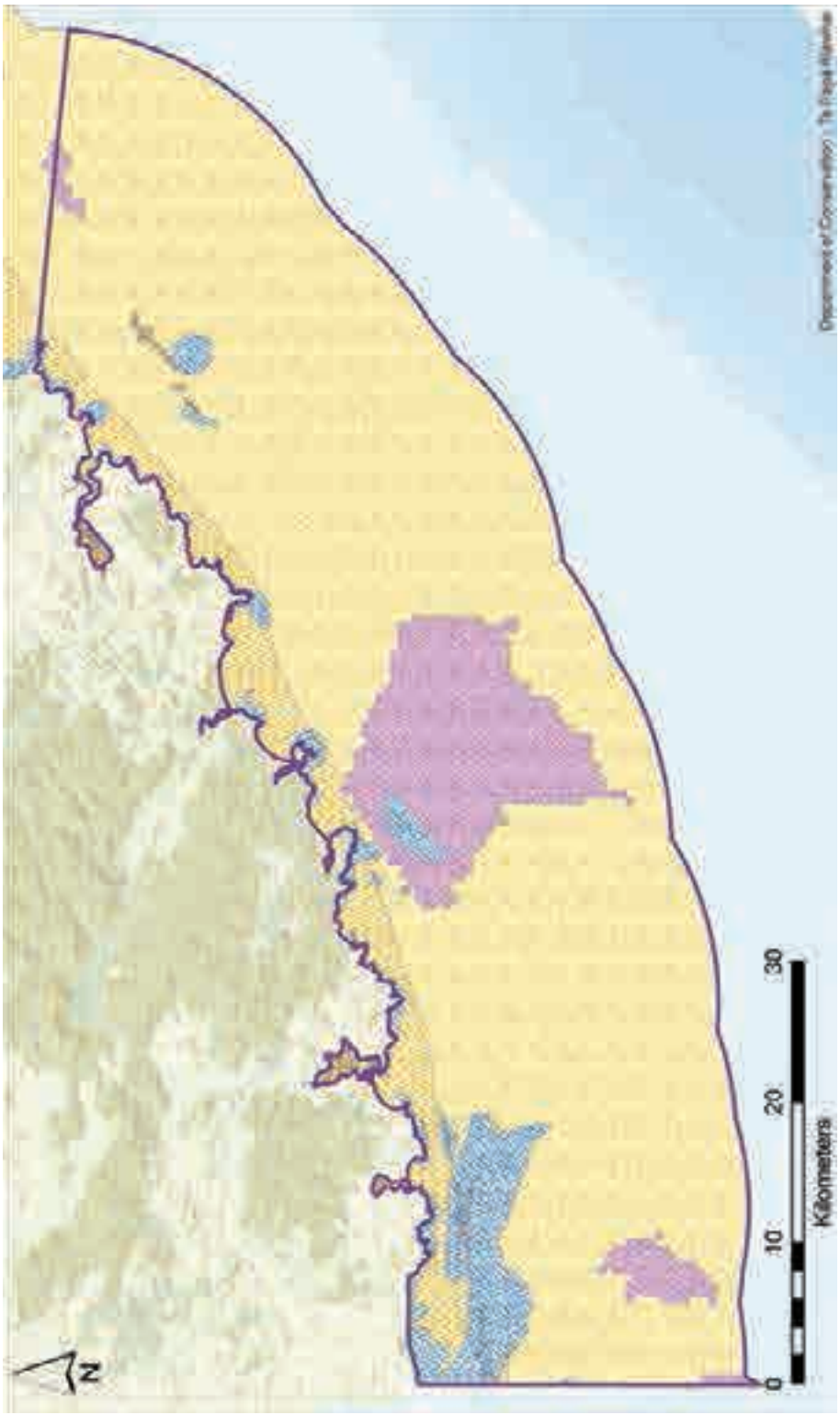
OTAGO PENINSULA



CLUTHA



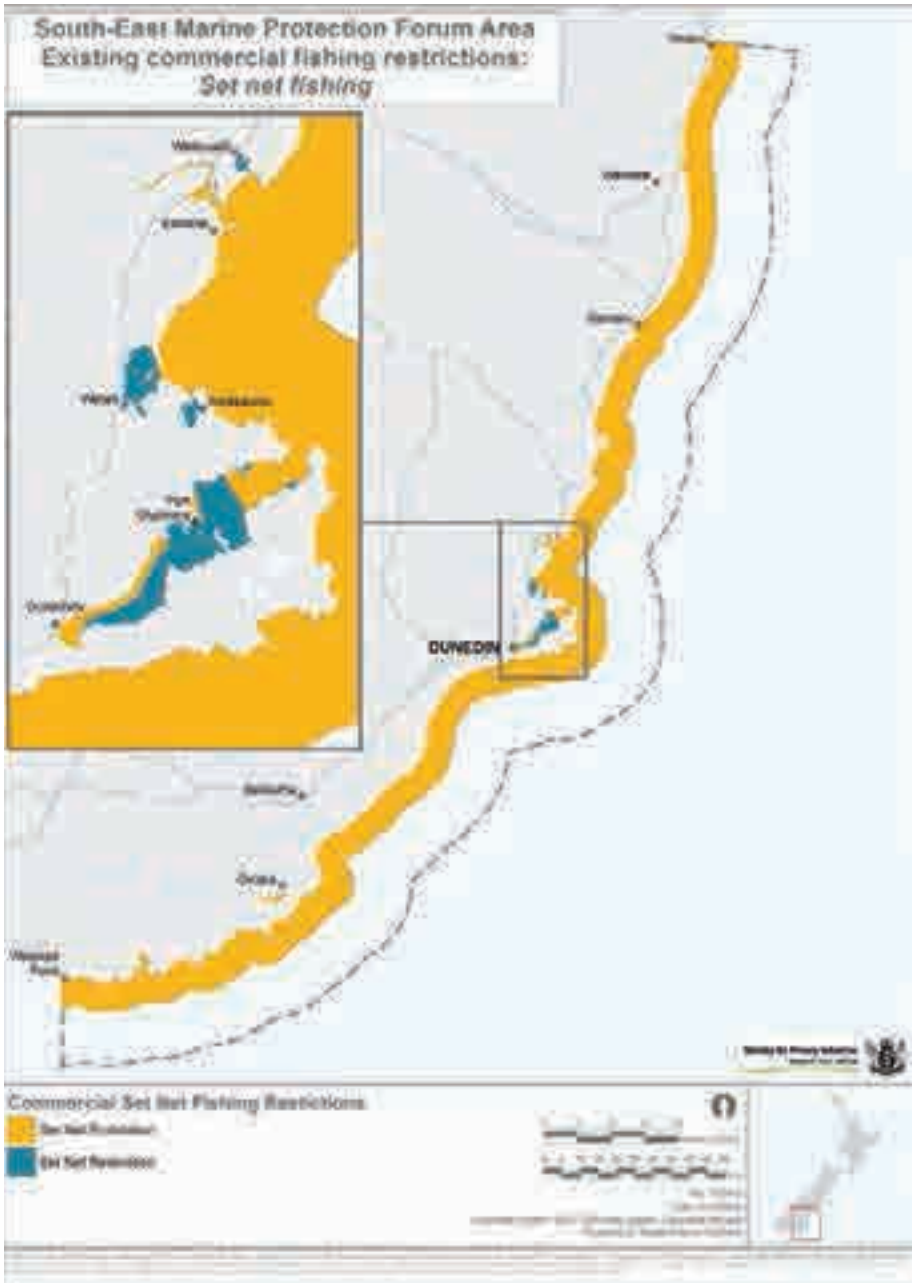
CATLINS

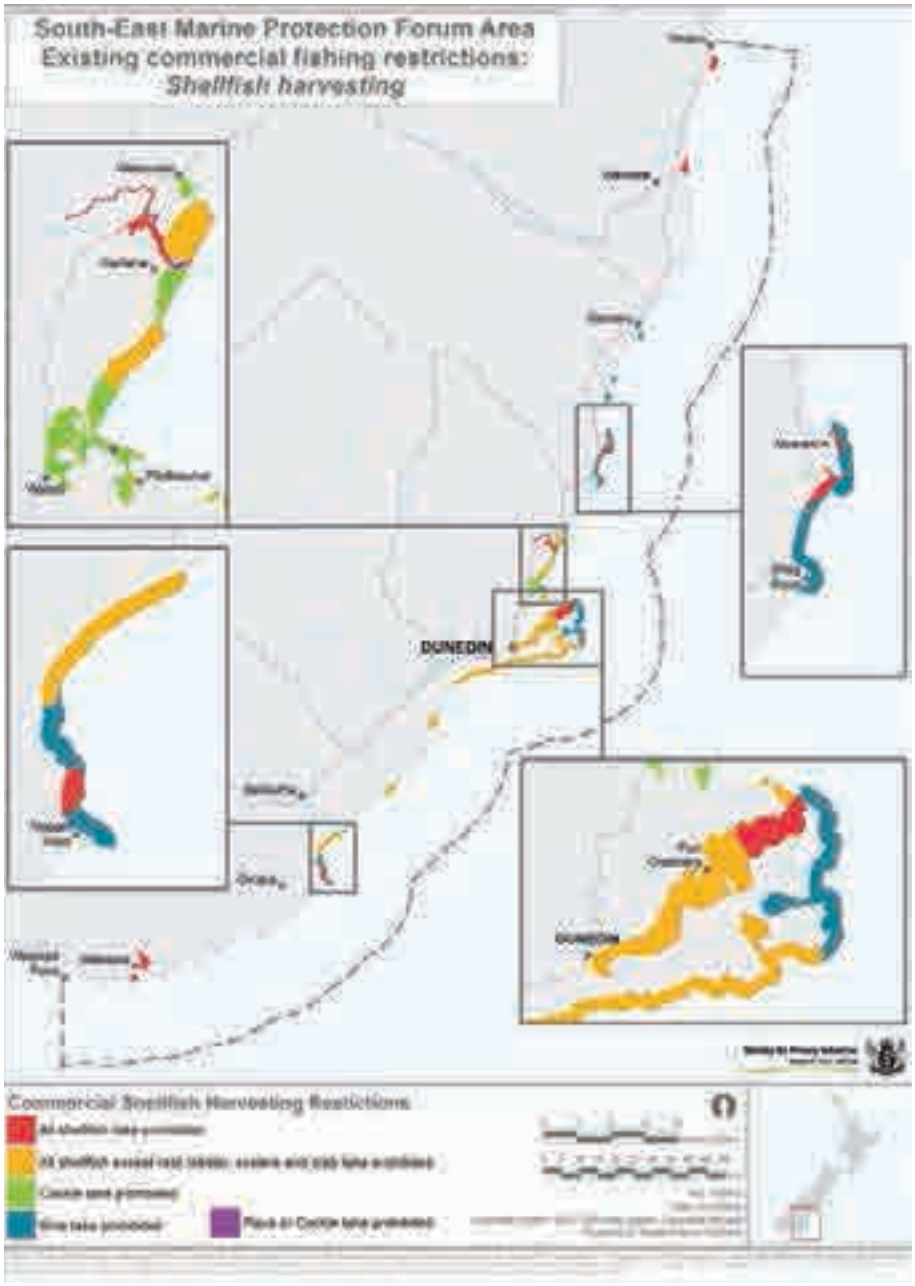

Department of Conservation | Te Papa Atawhai
N
0
10
20
30
Kilometers

Deborah Bay, Dunedin.
Photo: Otago Daily Times

APPENDIX 6
EXISTING FISHING RESTRICTIONS

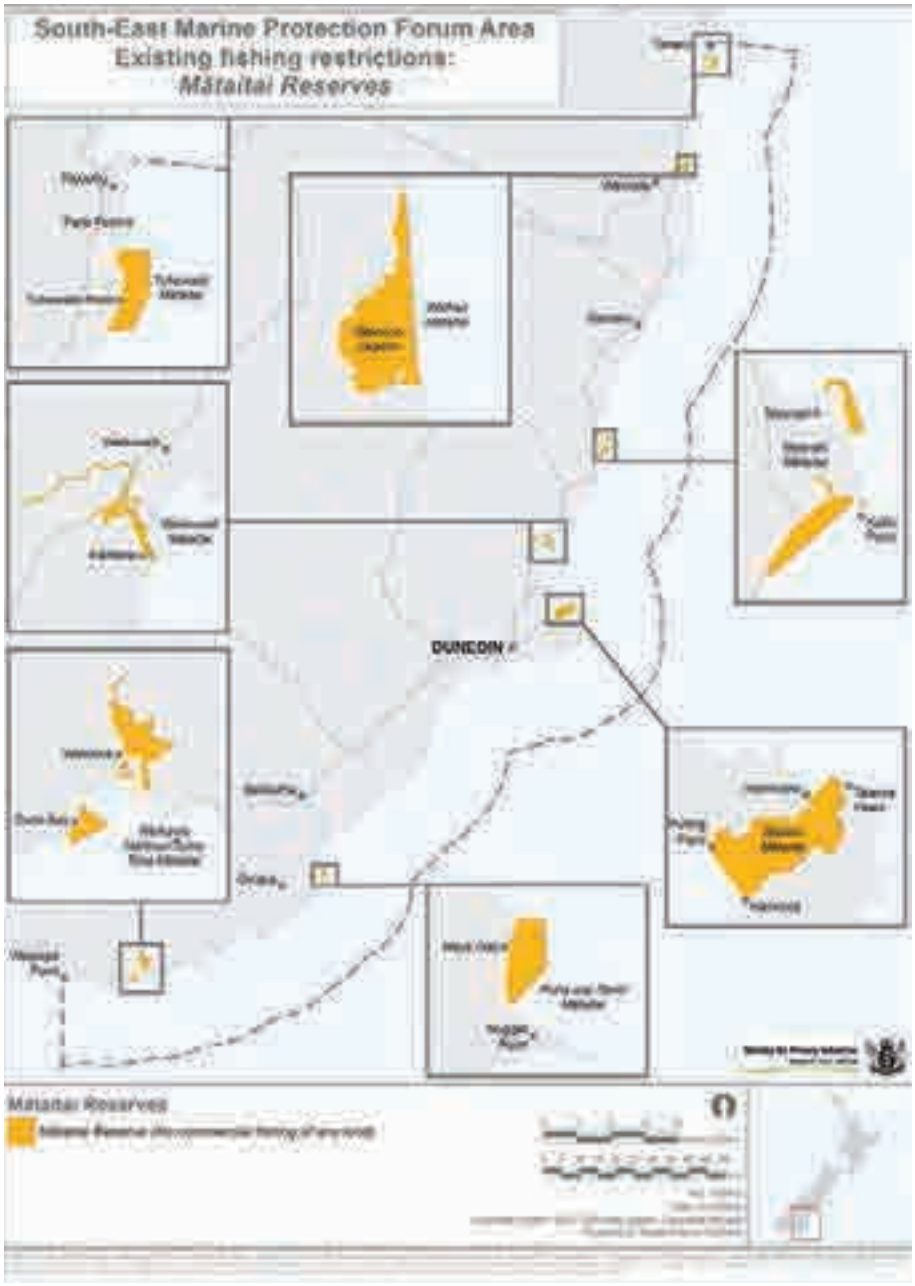

South-East Marine Protection Forum Area
Existing commercial fishing restrictions:
Danish seine, Purse seine and Trolling
DUNEDIN
Commercial Danish seine, Purse seine and Trolling Fishing Restrictions


South-East Marine Protection Forum Area
Existing commercial fishing restrictions:
Set net fishing
DUNEDIN
Commercial Set Net Fishing Restrictions


South-East Marine Protection Forum Area
Existing commercial fishing restrictions:
Shellfish harvesting
DUNEDIN
Commercial Shellfish Harvesting Restrictions


South-East Marine Protection Forum Area
Existing commercial fishing restrictions:
Trawl fishing
DUNEDIN
Commercial Trawl Fishing Restrictions


South-East Marine Protection Forum Area
Existing amateur fishing restrictions:
All fishing methods
DUNEDIN
Amateur Fishing Restrictions


South-East Marine Protection Forum Area
Existing fishing restrictions:
Mātaitai Reserves
DUNEDIN
Mātaitai Reserves

New Zealand fur seals.
Photo: John Barkla

APPENDIX 7
TĀONGA SPECIES NTCSA, SCHEDULES 97 & 98

Schedule 97
Taonga species

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Birds

Name in Māori	Name in English	Scientific name
Hoiho	Yellow-eyed penguin	*Megadyptes antipodes*
Kāhu	Australasian harrier	*Circus approximans*
Kākā	South Island kākā	*Nestor meridionalis meridionalis*
Kākāpō	Kākāpō	*Strigops habroptilus*
Kākāriki	New Zealand parakeet	*Cyanoramphus* spp
Kakaruai	South Island robin	*Petroica australis australis*
Kakī	Black stilt	*Himantopus novaezelandiae*
Kāmana	Crested grebe	*Podiceps cristatus*
Kārearea	New Zealand falcon	*Falco novaeseelandiae*
Karoro	Black-backed gull	*Larus dominicanus*
Kea	Kea	*Nestor notabilis*
Kōau	Black shag	*Phalacrocorax carbo*
	Pied shag	*Phalacrocorax varius varius*
	Little shag	*Phalacrocorax melanoleucos brevirostris*
Koekoeā	Long-tailed cuckoo	*Eudynamys taitensis*
Kōparapara *or* Korimako	Bellbird	*Anthornis melanura melanura*
Kororā	Blue penguin	*Eudyptula minor*
Kōtare	Kingfisher	*Halcyon sancta*
Kōtuku	White heron	*Egretta alba*
Kōwhiowhio	Blue duck	*Hymenolaimus malacorhynchos*
Kūaka	Bar-tailed godwit	*Limosa lapponica*
Kūkupa/Kererū	New Zealand wood pigeon	*Hemiphaga novaeseelandiae*
Kuruwhengu/Kuruwhengi	New Zealand shoveller	*Anas rhynchotis*
Mātā	Fernbird	*Bowdleria punctata punctata* and *Bowdleria punctata stewartiana* and *Bowdleria*

Name in Māori	Name in English	Scientific name
		punctata wilsoni and *Bowdleria punctata candata*
Matuku moana	Reef heron	*Egretta sacra*
Miromiro	South Island tomtit	*Petroica macrocephala macrocephala*
Miromiro	Snares Island tomtit	*Petroica macrocephala dannefaerdi*
Mohua	Yellowhead	*Mohoua ochrocephala*
Pākura/Pūkeko	Swamp hen/Pūkeko	*Porphyrio porphyrio*
Pārera	Grey duck	*Anas superciliosa*
Pateke	Brown teal	*Anas aucklandica*
Pīhoihoi	New Zealand pipit	*Anthus novaeseelandiae*
Pīpīwharauroa	Shining cuckoo	*Chrysococcyx lucidus*
Pīwakawaka	South Island fantail	*Rhipidura fuliginosa fuliginosa*
Poaka	Pied stilt	*Himantopus himantopus*
Pokotiwha	Snares crested penguin	*Eudyptes robustus*
Pūtakitaki	Paradise shelduck	*Tadorna variegata*
Riroriro	Grey warbler	*Gerygone igata*
Roroa	Great spotted kiwi	*Apteryx haastii*
Rowi	Ōkārito brown kiwi	*Apteryx mantelli*
Ruru koukou	Morepork	*Ninox novaeseelandiae*
Takahē	Takahē	*Porphyrio mantelli*
Tara	Terns	*Sterna* spp
Tawaki	Fiordland crested penguin	*Eudyptes pachyrhynchus*
Tete	Grey teal	*Anas gracilis*
Tīeke	South Island saddleback	*Philesturnus carunculatus carunculatus*
Tītī	Sooty shearwater/Muttonbird/ Hutton's shearwater Common diving petrel South Georgian diving petrel Westland petrel Fairy prion Broad-billed prion White-faced storm petrel Cook's petrel	*Puffinus griseus* and *Puffinus huttoni* and *Pelecanoides urinatrix* and *Pelecanoides georgicus* and *Procellaria westlandica* and *Pachyptila turtur* and *Pachyptila vittata* and *Pelagodroma marina* and *Pterodroma cookii* and *Pterodroma inexpectata*

Name in Māori	Name in English	Scientific name
	Mottled petrel	
Tītitipounamu	South Island rifleman	*Acanthisitta chloris chloris*
Tokoeka	South Island brown kiwi	*Apteryx australis*
Toroa	Albatrosses and Mollymawks	*Diomedea* spp
Toutouwai	Stewart Island robin	*Petroica australis rakiura*
Tūī	Tūī	*Prosthemadera novaeseelandiae*
Tutukiwi	Snares Island snipe	*Coenocorypha aucklandica huegeli*
Weka	Western weka	*Gallirallus australis australis*
Weka	Stewart Island weka	*Gallirallus australis scotti*
Weka	Buff weka	*Gallirallus australis hectori*

Plants

Name in Māori	Name in English	Scientific name
Akatorotoro	White rata	*Metrosideros perforata*
Aruhe	Fernroot (bracken)	*Pteridium aquilinum* var *esculentum*
Harakeke	Flax	*Phormium tenax*
Horoeka	Lancewood	*Pseudopanax crassifolius*
Houhi	Mountain ribbonwood	*Hoheria lyalli* and *H. glabata*
Kahikatea	Kahikatea/White pine	*Dacrycarpus dacrydioides*
Kāmahi	Kāmahi	*Weinmannia racemosa*
Kānuka	Kānuka	*Kunzia ericoides*
Kāpuka	Broadleaf	*Griselinia littoralis*
Karaeopirita	Supplejack	*Ripogonum scandens*
Karaka	New Zealand laurel/Karaka	*Corynocarpus laevigata*
Karamū	Coprosma	*Coprosma robusta, coprosma lucida, coprosma foetidissima*
Kātote	Tree fern	*Cyathea smithii*
Kiekie	Kiekie	*Freycinetia baueriana* subsp *banksii*
Kōhia	NZ Passionfruit	*Passiflora tetranda*
Korokio	Korokio Wire-netting bush	*Corokia cotoneaster*

Name in Māori	Name in English	Scientific name
Koromiko/Kōkōmuka	Koromiko	*Hebe salicfolia*
Kōtukutuku	Tree fuchsia	*Fuchsia excorticata*
Kōwahi Kōhai	Kōwhai	*Sophora microphylla*
Mamaku	Tree fern	*Cyathea medullaris*
Māni a	Sedge	*Carex flagellifera*
Mānuka Kahikātoa	Tea-tree	*Leptospermum scoparium*
Māpou	Red matipo	*Myrsine australis*
Mataī	Mataī/Black pine	*Prumnopitys taxifolia*
Miro	Miro/Brown pine	*Podocarpus ferrugineus*
Ngaio	Ngaio	*Myoporum laetum*
Nīkau	New Zealand palm	*Rhopalostylis sapida*
Pānako	(Species of fern)	*Asplenium obtusatum*
Pānako	(Species of fern)	*Botrychium australe* and *B. biforme*
Pātōtara	Dwarf mingimingi	*Leucopogon fraseri*
Pīngao	Pīngao	*Desmoschoenus spiralis*
Pōkākā	Pōkākā	*Elaeocarpus hookerianus*
Ponga/Poka	Tree fern	*Cyathea dealbata*
Rātā	Southern rātā	*Metrosideros umbellata*
Raupō	Bulrush	*Typha angustifolia*
Rautāwhiri/Kōhūhū	Black matipo/Māpou	*Pittosporum tenuifolium*
Rimu	Rimu/Red pine	*Dacrydium cypressinum*
Rimurapa	Bull kelp	*Durvillaea antarctica*
Taramea	Speargrass, spaniard	*Aciphylla* spp
Tarata	Lemonwood	*Pittosporum eugenioides*
Tawai	Beech	*Nothofagus* spp
Tētēaweka	Muttonbird scrub	*Olearia angustifolia*
Tī rākau/Tī Kōuka	Cabbage tree	*Cordyline australis*
Tīkumu	Mountain daisy	*Celmisia spectabilis* and *C. semicordata*
Tītoki	New Zealand ash	*Alectryon excelsus*
Toatoa	Mountain Toatoa, Celery pine	*Phyllocladus alpinus*

Name in Māori	Name in English	Scientific name
Toetoe	Toetoe	*Cortaderia richardii*
Tōtara	Tōtara	*Podocarpus totara*
Tutu	Tutu	*Coriaria* spp
Whararikī	Mountain flax	*Phormium cookianum*
Whīnau	Hīnau	*Elaeocarpus dentatus*
Wī	Silver tussock	*Poa cita*
Wīwī	Rushes	*Juncus* all indigenous *Juncus* spp and *J. maritimus*

Marine mammals

Name in Māori	Name in English	Scientific name
Ihupuku	Southern elephant seal	*Mirounga leonina*
Kekeno	New Zealand fur seals	*Arctocephalus forsteri*
Paikea	Humpback whales	*Megaptera novaeangliae*
Parāoa	Sperm whale	*Physeter macrocephalus*
Rāpoka/Whakahao	New Zealand sea lion/ Hooker's sea lion	*Phocarctos hookeri*
Tohorā	Southern right whale	*Balaena australis*

Schedule 98
Customary fisheries

s 297

Part A
Taonga fish species

Name in Māori	Name in English	Scientific name
Kāeo	Sea tulip	*Pyura pachydermatum*
Koeke	Common shrimp	*Palaemon affinis*
Kōkopu/Hawai	Giant bully	*Gobiomorphus gobioides*
Kōwaro	Canterbury mudfish	*Neochanna burrowsius*
Paraki/Ngaiore	Common smelt	*Retropinna retropinna*
Piripiripōhatu	Torrentfish	*Cheimarrichthys fosteri*
Taiwharu	Giant kōkopu	*Galaxias argenteus*

Part B
Shellfish Species

Name in Māori	Name in English	Scientific name
Pipi/Kākahi	Pipi	*Paphies australe*
Tuaki	Cockle	*Austrovenus stutchburgi*
Tuaki/Hākiari, Kuhakuha/Pūrimu	Surfclam	*Dosinia anus, Paphies donacina, Mactra discor, Mactra murchsoni, Spisula aequilateralis, Basina yatei,* or *Dosinia subrosa*
Tuatua	Tuatua	*Paphies subtriangulata, Paphies donacina*
Waikaka/Pūpū	Mudsnail	*Amphibola crenata, Turbo smaragdus, Zedilom* spp

Back cover photos (from top):
Otago Daily Times
John Barkla
Otago Daily Times
Chris Hepburn
Otago Daily Times