SECTION 1: THE CURRENT SITUATION

1 This section provides the best available information on the current situation across three of the broad outcomes of MFish's Statement of Intent (SOI):

- Health of the aquatic environment is protected;
- Best value is able to be realised;
- Credible fisheries management.

2 The fourth SOI outcome is to deliver on the Crown's obligations to Maori. This outcome is fundamental to the Ministry and needs to be a part of all activities undertaken to support the achievement of the other three fisheries outcomes. For this reason, each of the three contributing outcomes outlined above includes measures that are intended to help attain the outcome relating to meeting Crown obligations to Maori.

The Health of the Aquatic Environment is Protected

3 A variety of legislation exists to protect and enhance the aquatic environment on the North Island West Coast. This includes the Environment Act 1986, Resource Management Act 1991, Fisheries Act 1996, Marine Reserves Act 1971, Wildlife Act 1953, Marine Mammal Protection Act 1978 and the Conservation Act.

North West Coast Marine Environment

4 In general, the western North Island coastline is characterised by open, exposed sandy beaches interspersed by stretches of rocky platforms, bluffs and outcrops. Gravel sands and iron sands occur offshore. This region also includes the Whangape, Herekino, Hokianga, Kaipara, Manakau, Raglan, Aotea and Kawhia Harbours. Areas of special interest because of the diversity of their benthic environment include offshore islands and reefs – Spirits Bay, the Sugar Loaf Islands and Gannet Island.

5 Influences including bathymetry (the contours of the sea bed), the width of the continental shelf, substrate types, hydrology, temperature, salinity, oxygen and light, in combination help determine the diversity and assemblages of marine species in coastal regions.

6 The continental shelf on the North-West coast is relatively narrow and extends 40-50 km offshore out to a depth of 200m. There are many small canyons and trenches in this shelf edge that break the shelf margin as it drops into the depths of the New Caledonia basin. Around the Kaipara Harbour, the shelf becomes progressively broader, out to a width of 150-200 km in the northern Taranaki Bight where the continental margin extends on to the deeper expanse of the Challenger Plateau.

7 Sub-tropical water surrounds the New Zealand coast – in the north temperatures range from 15-25 °C in summer to 12-15 °C in the winter. The western North Island nearshore biogeographic region is influenced by the northward flowing Westland current and the

southward flowing West Auckland current.

8 These interactions play important roles in determining the distribution and abundance of the major demersal and pelagic species[1]. Nutrients can be enhanced by upwellings and local freshwater inputs and planktonic productivity can develop in embayments. More complex communities and more abundant fish populations occur in these areas.

9 Localised currents play a major role in the reproductive success of many kinds of fish. Maturing adults migrate in currents, sometimes for long distances to their spawning grounds, while returning adults move with these currents to inshore summer feeding grounds. Annual variations of currents can determine the success of a season's spawning.

10 The North Island West Coast marine environment has been spatially classified using an environmental classification at an EEZ scale. The classification system, called Marine Environment Classification (MEC) was developed in 2003 (Leathwick et al 2003) for environmental and conservation management agencies. The main purpose of this tool was to identify marine areas that have similar environmental characteristics to allow for systematic and structured management and monitoring of the New Zealand marine ecosystems (more information and a map of the North West region is provided in Annex 1).

11 The inclusion of biological information in the MEC is incomplete and only been trialled in specific locations (e.g. Hauraki Gulf).

Managing for Maximum Sustainable Yields

12 Section 13 of the Fisheries Act is applicable to all of the NIWC species. Section 13(2) requires that NIWC stocks are managed at or above a level that produces the maximum sustainable yield. The approach used to meet this requirement consists of the combination of measures that determine the time, place, manner and extent to which a stock is fished. It incorporates all of the management tools in place and how they operate to balance sustainability and utilisation.

Productivity

13 The way that management strategies are applied for individual NIWC species is determined using various kinds of information, including biological characteristics and indices of abundance.

14 Populations of species with high age at maturity, low natural mortality or slow growth are likely to be more stable in the absence of fishing, but slower to recover from overfishing (e.g. rig or school shark). Conversely species with low age at maturity, high natural mortality or faster growth can fluctuate in abundance from year to year even in the absence of fishing. These types of species have the potential to recover quickly from overfishing (e.g. flatfish or grey mullet).

Table 3: Key biological and distribution characteristics of juvenile and adult NIWC species.

Species	Natural mortality rate (M)	Maturity length and age*	Max age	Growth	Nursery areas	Main depth distribution

[1] Demersal species are those that live near the bottom of the ocean and pelagic species live in open oceans or seas.

Species	Natural mortality rate (M)	Maturity length and age*	Max age	Growth	Nursery areas	Main depth distribution
	Very high					
Flatfish: Sand Flounder	1.10-1.30	25cm/2yr	6	Fast	Estuaries	<100m
Red cod	0.76	45-55cm/2-3yr	7	Fast	Unknown	
Pilchard	0.46/0.6	23cm/2-3yr	16	Fast	Unknown	<100m
Barracouta	<0.46	50-60cm/2-3yr	10		Inshore waters	0-400m
John dory	0.38	29-35cm (F) 23-29cm (M)	12	Fast	Unknown	<0-50m
Grey Mullet	0.33	35cm/3yr(F) 33cm/3yr(M)	14	Moderate	Estuaries	Unknown
	High					
Red Gurnard	0.30(F) 0.35 (M)	23cm/2-3yr	16	Moderate	Shallow inshore waters	<100m
	Medium					
Warehou	0.24	4-5yrs	22	Fast	Harbours, bays	
Rig	0.20-0.30	100cm/7-8yr(F) 85cm/5-6yr(M)	20	Slow	Shallow inshore waters	<50m
Kingfish	0.20-0.25	97cm (F) 83cm (M)	Unknown	Unknown	Unknown	0-200m
Spiny dogfish	0.20	58 cm 6 yrs (M) 73 cm 10 yrs (F)	21 (M) 26 (F)		Shallow inshore waters	50-500m
Kahawai	0.18	35-40cm/3-5yr	26	Fast	Harbours, estuaries	Unknown
Bluenose	0.18	62cm/4-5yr	25+	Unknown	Unknown	Unknown
Jack Mackerel†	0.18	26-40cm/2-4yr	25-32	Fast - Moderate	Unknown	0-500m+
	Low					
Blue cod	0.14-0.19	10-28cm/	32	Variable	Shallow inshore waters	0-150m
Snapper	0.051 or 0.054	20-28cm/3yr	60	Slow	Shallow inshore waters	15-60m
Trevally	?	32-37cm/1yr	40+	Moderate	Estuaries, shallow inshore waters	?
School Shark	0.10	110-130cm/13-15yr(F)/12-17yr (M)	50	Slow	Shallow inshore waters	<600m
Tarakihi	0.10	25-35cm/4-6yr	40+	Slow	Shallow inshore waters	<250m
Leatherjacket	?	19-22cm/2yr	7	Fast		40-60m

Species	Natural mortality rate (M)	Maturity length and age*	Max age	Growth	Nursery areas	Main depth distribution
Hapuku/Bass	0.10	85-90cm (F) 80-85cm (M)/ 10-13yr	40- 60	Slow	Some found in surface waters	<500m

**F = female / M = male* † Multiple species with different characteristics (full range shown)

15 For some species the effect of mortality rates will be influenced by other factors, such as environmental conditions and fishing levels. Snapper provide an example of this, with productivity that is influenced by environmental conditions. Snapper recruitment is partially dependent on water temperature, with strong year classes commonly corresponding to warm years and weak year classes corresponding to cold years.

16 Other important features of population that will relate to its resilience to overfishing are its spatial distribution and the age at which it is vulnerable to fishing. Species that are not highly mobile and usually restrict their movement to small areas (e.g. individual harbours) are vulnerable to localised depletion, in which the abundance in a small area can be greatly reduced while the abundance of the wider fish stock might remain high.

17 Species which are relatively invulnerable to fishing before the age that they become mature are also more resilient to fishing pressure. This invulnerability can be due to behavioural factors (e.g. the fish live in areas with little fishing pressure) or due to factors in the fisheries, e.g. minimum legal sizes or gear restrictions.

Sustainability indicators and stock status

Research

18 MFish contracts research providers to carry out projects that provide information on the status of NIWC stocks, on recreational catch and on the impacts of fishing on both marine habitats and on protected species. Annex 2 shows how stocks are assessed and when the next assessments are scheduled.

19 Several inshore fishstocks are managed under Adaptive Management Programmes (AMPs). AMPs were introduced in 1991 as a basis for varying the TACC of stocks for which MFish has limited information but which are believed to be above B_{MSY}. Under an AMP, the TACC is increased for a limited period (usually five years) and the fishing industry is required to provide data to MFish that will improve understanding of stock status. The fishing industry is also required to collect biological data and detailed catch and effort data, and to perform the data analyses necessary for monitoring the stock (e.g. CPUE standardisation or age structure).

20 MFish released a letter on 24 August 2007 to confirm that no more AMPs will be established in the future. For existing AMPs, when their respective terms expire decisions will be made on a case-by-case basis to either maintain the AMP until its relevant components can be incorporated within a fisheries plan, or to terminate the AMP and review the TAC and other sustainability measures. The inshore finfish stocks found on the west coast of the North Island that are managed under the AMP are School shark (SCH) 8, Bluenose (BNS) 1 and Bluenose (BNS) 8. Rig (SPO) 1 and 8 were managed under the AMP from 1991-1997.

Total allowable catch

21 The Fisheries Act 1996 contains a number of provisions to ensure a stock is managed sustainably. A key sustainability measure is the total allowable catch (TAC) that the government can set for each stock to ensure that it is at or above a level that produces the maximum sustainable yield (MSY). MSY is the largest average annual yield (catch) that can be produced over a prolonged period of time while maintaining the stock's productive capacity.

22 Total allowable commercial catches (TACCs) were set for the first time in 1986 when the quota management system (QMS) came into effect. Species that were in the main fisheries at that time were introduced into the QMS. On the west coast, snapper, trevally, flounder, gurnard, mullet, tarakihi, rig, school shark, and hāpuku/bass were among those introduced into the QMS in 1986. Leatherjacket was introduced into the QMS in 2003 and kahawai in 2004.

23 Section 13 of the Act requires stocks in the QMS to be maintained at or above the level that can produce the MSY of the stock. This is achieved by requiring the Minister of Fisheries to set TACs that maintain the stock at or above the level that can produce the MSY; or alter the level of a stock that is below or above the MSY to a level that is at or above the MSY.

24 This is the section under which most stocks are managed, including all of those covered by this fisheries plan. There are certain circumstances under which management under section 13 may not be appropriate and alternative options are provided in sections 14, 14A, and 14B, although the circumstances in which these other sections can be used are limited.

25 The Ministry of Fisheries considers that none of the stocks covered in this fisheries plan would meet the requirements to be set under section 14.

26 Sections 14A and 14B enable the Minister to set a TAC for a primarily incidental bycatch stock that allows the TAC for a target stock to be taken. This can only be done if certain criteria are met. No inshore finfish stocks are currently managed under section 14A and 14B on the West Coast of the North Island.

27 Fisheries Working Groups, comprised of stakeholders with technical knowledge, plus research providers, provide most of the technical advice on the current status of NIWC stocks. This includes, where possible:

- Biomass estimates;
- Estimated of the biomass that can produce the MSY and the MSY itself;
- Estimates of current status relative to the biomass level that can produce the MSY;
- Projections of any foreseeable changes in stock size.

28 Table 4 summarises these four indices for the main NIWC stocks. It includes a summary of the current state of the biomass of NIWC stocks in relation to MSY.

Table 4: The Total Allowable Catch, state of NIWC stocks in relation to the maximum sustainable yield and their current status/future projections[2]

Fish stock	TAC (tonnes)	Reference biomass	Where stock is in relation to MSY	Current status or projection
BAR 7	11,173*	Unknown	Unknown	It is not known if current catches, allowances or TACCs are sustainable, or at a level that will support the MSY. In the last seven years, catches have been below the estimated MCY in BAR 1, which suggests that the current catch levels are sustainable.
BCO 1	46*	Unknown	Unknown	Recent catch levels and TACCs considered sustainable; will probably allow stock to move towards MSY.
BCO 8	74*	Unknown	Unknown	Recent catch levels and TACCs considered sustainable will probably allow stock to move towards MSY.
BNS 1	1023	Unknown	Probably above BMSY.	Mostly likely above MSY. but cannot be determined if TACC is sustainable.
BNS 8	103	Unknown	Probably above BMSY.	Likely to be above MSY and may be near virgin biomass. Not known if catch levels or TACC will support the MSY.
FLA 1	1762	Unknown	Unknown	TACCs have never been reached since the beginning of the QMS in 1986. Population sizes are highly variable so constant catches at the level of the TACC are unlikely to be either attainable or sustainable.
GMU 1	1125*	Unknown	Unknown	Not known if the recent catches will allow the sub-stocks to move toward a size that will support the global MSY. Current catches on the west coast of GMU 1 are considered unlikely to be sustainable.
GUR 1	2288*	Base case MCY is estimated at 2760 tonnes with a range of 520-10 400 tonnes.	Current biomass appears to be greater than stock size that will support the BMSY.	GUR 1W stock assessed as lightly exploited. Current catch levels appear to be sustainable, and continued catches at the current level will allow the stock to remain above BMSY.
GUR 8	543*	Unknown	Unknown	Unknown
HPB 1	481*	Unknown	Unknown	Recent catches of HPB 1 are less than the MCY estimates, are considered sustainable, and are probably at levels that will allow the stocks to move towards a size that will support the maximum sustainable yield. Current TACCs are larger than the MCY estimates and it is not known if they are sustainable.
HPB 8	80*	Unknown	Unknown	Recent catches are considered sustainable and will probably support MSY. Not known if current TACC will support MSY.
JDO 1	704*	Unknown	Unknown	Recent catches and TACC likely to be sustainable in the short-term. Unknown if they are sustainable in the long-term.
JDO 2	270*	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
JMA 7	32,537*	Unknown	Unknown	It is not known if current catches are sustainable, or at a level that will support the MSY.
KAH 8	1040	Unknown	Unknown.	It is not known if current catches, allowances or TACCs are sustainable, or at a level that will allow the stock to move towards a size that will support the MSY.
KIN 8	83	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
LEA 2	1196	Unknown	Unknown	No scientific assessment of biomass. It is not known if stocks are at a level that can produce MSY.
PIL 8	80	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
RCO 1	42*	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.

[2] This information is taken from the *Report from the Fishery Assessment Plenary, May 2007: stock assessments and yield estimates*. This document summarises the conclusions and recommendations of scientists on the Northern Inshore Working Group relating to finfish fisheries around the North Island of New Zealand.

Fish stock	TAC (tonnes)	Reference biomass	Where stock is in relation to MSY	Current status or projection
RCO 2	500*	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
SCH 1	893	Unknown	Unknown	There are no indications that current catches are not sustainable in the short-term. However, it is not known whether recent catch levels or the current TACCs are sustainable in the long-term, or if they are at levels that will allow the stocks to move towards a size that will support the maximum sustainable yield.
SCH 8	597	Unknown	Unknown	Same as SCH 1.
SNA 8	1785	Estimate of 9505 tonnes	Current stock size approximately 50% of BMSY	The TACC was reduced to 1300t to ensure a faster rebuild of the stock. At this TACC level the rebuild to BMSY has been projected to occur after 2018.
SPD 8	392	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
SPO 1	752	Unknown	Unknown	Recent catch levels are probably sustainable, as indicated by patterns of relative abundance.
SPO 8	401	Unknown	Unknown	Recent catch levels (which have been below the TACC) are probably sustainable, but unknown whether the TACC is sustainable.
TAR 1	2029	Unknown	Unknown	Current catches and the TACC for TAR 1 appear to be sustainable.
TAR 8	225*	Unknown	Unknown	Current catches and the TACC for TAR 8 appear to be sustainable.
TRE 7	2153*	Unknown	Current stock size assessed as being above BMSY.	Catches at level of TAC and current catches are likely to be sustainable in the short term. Uncertain whether catches at level of TAC sustainable in long term.
WAR 1	41*	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.
WAR 8	233*	Unknown	Unknown	It is not known if current catches and TACCs are sustainable, or at a level that will support the MSY.

* This is the TACC, as no TAC has yet been set for this stock. The requirement to set a TAC has only existed since 2001, so if a stock has not been reviewed since then it is without a TAC.

Biodiversity

29 New Zealand has a unique and particularly rich marine flora and fauna. Some 8000 marine species have been identified in New Zealand. Around seven new species are discovered each fortnight. Scientists tell us that as much as 80% of New Zealand's biodiversity could be found in the sea.

30 New Zealand's EEZ is the fourth largest in the world at 3.8 million km^2. The sea floor area within the EEZ is approximately 15 times the size of New Zealand's land area and contains most of our biodiversity.

31 This richness in New Zealand's marine biodiversity has been caused by two forces:

a) isolation

b) physiographical complexity

32 The New Zealand continent and its submerged margins have been largely isolated in the southwest Pacific for many millions of years, thus reducing the potential for transport of larvae or adults into the region. Isolated New Zealand populations were thus likely to evolve into new species.

33 New Zealand's isolation has also provided us with rich and complex seascapes, because of its extension of 30 degrees of latitude, position on an active plate and its position

in relation to major subtropical and subantarctic water masses and currents.

34 The New Zealand marine region is a hotspot for marine diversity as a very high level (44%) of our species are endemic i.e. they do not occur elsewhere in the world.[3].

35 The status of the West Coast North Island marine biodiversity is unknown. However, we have started to describe New Zealand's marine biodiversity. Major groups of organisms in New Zealand's marine environment have been reviewed in order to provide a description of New Zealand's marine biodiversity[4]. However, understanding of biodiversity for the North Island's west coast is still very broad scale. To help with ecosystem-based management of resources such as fisheries, finer scale information is required to best achieve planning objectives and monitoring of those objectives.

Maintaining biological diversity

36 Section 9 of the Fisheries Act 1996 (the Act) outlines several environmental principles that everyone exercising duties under the Act must take into account. One of these environmental principles is that biological diversity of the aquatic environment should be maintained.

37 The government has determined that for the future the primary means of protecting our marine biodiversity will be through the establishment of a network of marine protected areas that is both comprehensive and representative of New Zealand's marine habitats and ecosystems. The establishment process is being done sequentially, region by region, beginning with the Hauraki Gulf, the South Island West Coast and the Sub-Antarctic Islands. The process in each region will involve analysis of all marine habitat and ecosystem types, followed by an assessment of the extent to which existing controls may protect the biodiversity within such areas.

38 Existing marine reserves, and some fisheries restrictions that have been applied either wholly or in part for marine habitat/ecosystem protection reasons, may become part of the marine protected area network. Customary management tools such as mātaitai may also be used for ecosystem and habitat protection.

39 On the west coast the following areas are currently protected (see Map 2):

c) There is a marine reserve at Kapiti Island (refer Map 2). The reserve is made up of two areas of sea on either side of the island and contains some of the finest underwater scenery in the greater Wellington region.

d) The Parininihi reserve is north of Taranaki and was established in 2006. It protects a substantial inshore reef system, a variety of fish species and large lobster populations. There are also rare and exotic vividly coloured sponges that spread in a across the ocean floor.

e) The Sugar Loaf Islands Marine Protected Area comprises seabed, foreshore and water around the Sugar Loaf Islands (Nga Motu), and covers an area of 749 ha between Port Taranaki breakwater and Herekawa Stream, Black Beach, New Plymouth.

[3] http://www.conservation.org/publications/Pages/hotspots_revisited.aspx

[4] MacDiarmid (2007) www.treasuresofthesea.org.nz

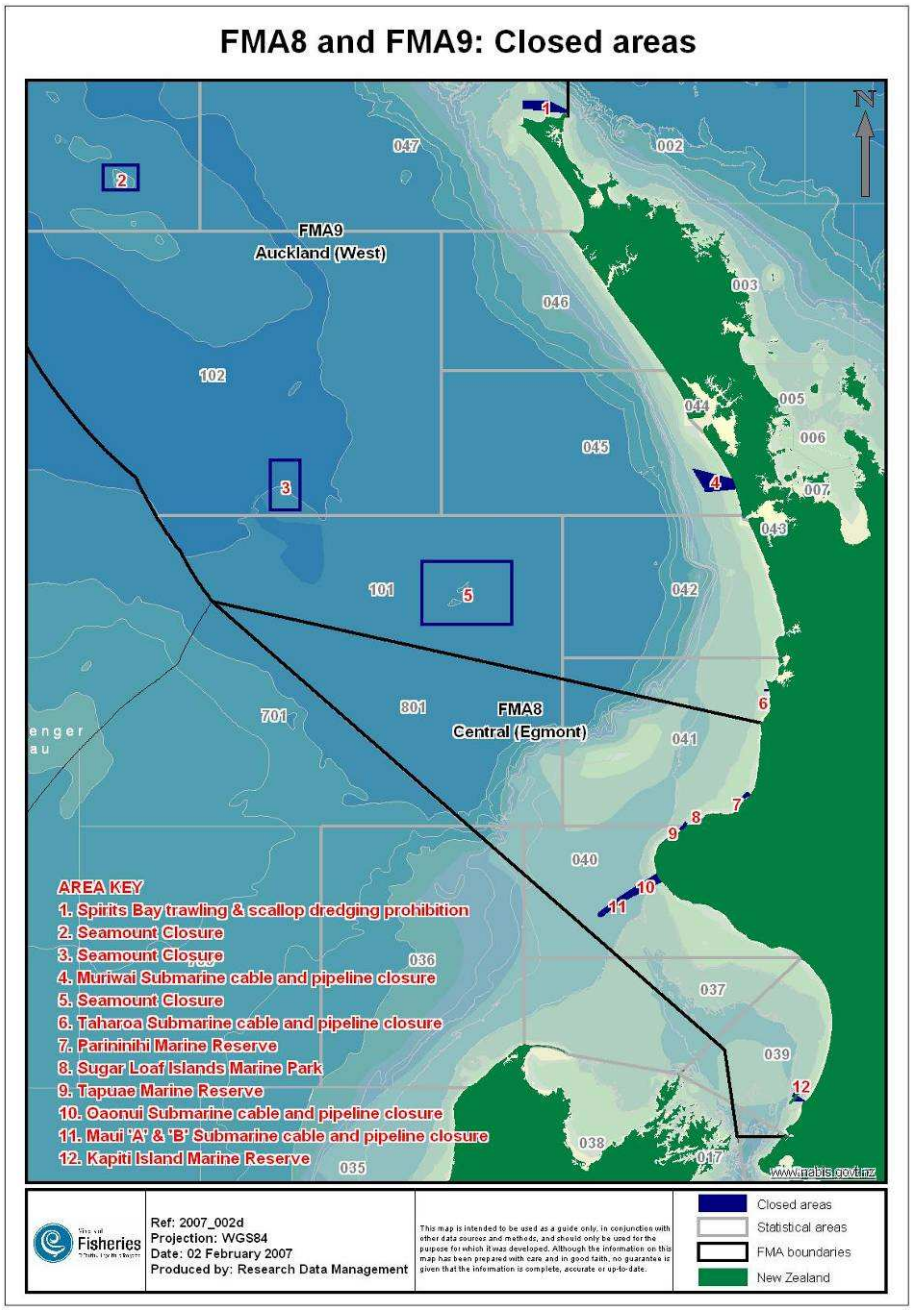
f) The Tapuae marine reserve adjoins the Sugar Loaf Islands Marine Protected area. This reserve was established in 2008. Subtidal habitats include caves, canyons, rock faces with crevices and overhangs, large pinnacles, boulder fields and extensive areas of mud and sand. Waters of the reserve contain a diverse range of fish, invertebrate and algal species.

   The sub-tidal marine habitats around the Sugar Loaf Islands include: large canyons, caves, rock faces with crevices and overhangs, large pinnacles, boulder fields and extensive sand flats. These waters are extremely rich in species diversity with at least 89 species of fish, as well as sponges and a variety of other forms of marine life. The Islands mark the northern most limits of some cooler water species as well as the southern most limits of some warmer water species.

g) There is an area in the vicinity of Spirits Bay where trawling and scallop dredging is not permitted. This closure has been applied to protect a community of sponges.

h) Nineteen seamounts were closed to trawling in 2001; three of these closures are within the NIWC region. Information about the types of species found on seamounts is still very limited, and research into the biological diversity and the effect of fishing on seamounts is continuing. However existing research shows that marine life on seamounts is diverse, with a number of species which are long-lived, slow-growing and slow to reproduce. Many are potentially vulnerable to the impact of trawl fishing methods.

Map 2: NIWC marine reserves, seamounts, Sugar Loaf Islands Marine Park, Spirits Bay restricted area



40 At this stage it is unclear when work will begin on developing a marine protected area network for the NIWC region.

Benthic impacts

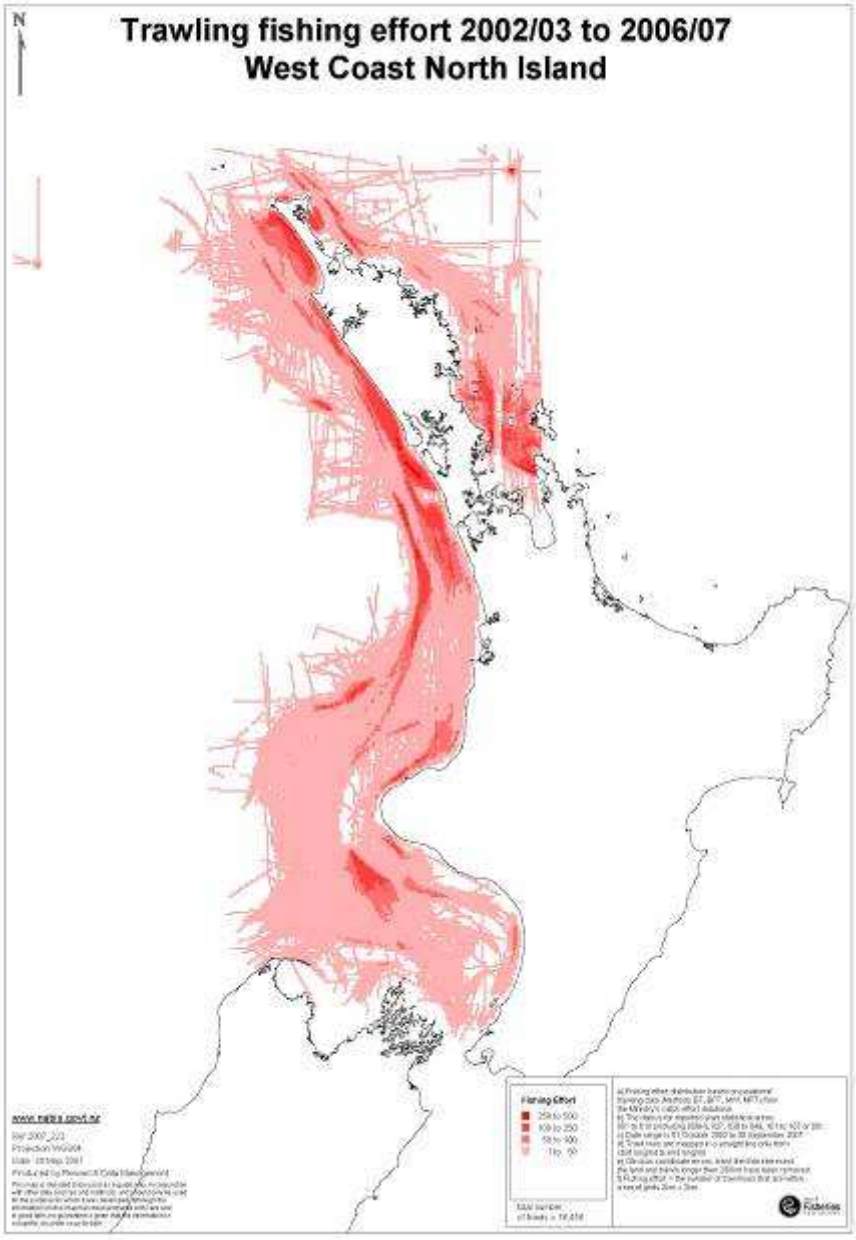
41 Benthic impacts are impacts on the animals and plants attached to or living on the seafloor. Some of the fishing methods used on the NIWC, trawling in particular, involve the use of equipment that comes into contact with the seabed. Some of this equipment is heavy enough to leave furrows through soft sediment and dislodge harder material. Such impacts

can in turn harm bottom dwelling organisms.

42 Bottom trawling, bottom pair trawling, Danish seining and some mid-water trawling are the methods that are most likely to change the natural composition of the benthos. Both the set nets used in harbours and longlining on the coast have minimal impacts on the benthos other than the localised physical impacts of anchors at each end of set nets.

43 Map 3 below shows the distribution of bottom trawl, bottom pair trawl and mid-water trawl fishing activity on the NIWC – this is the area where there may be impacts on the benthic environment.

Map 3: Trawl activity within NIWC



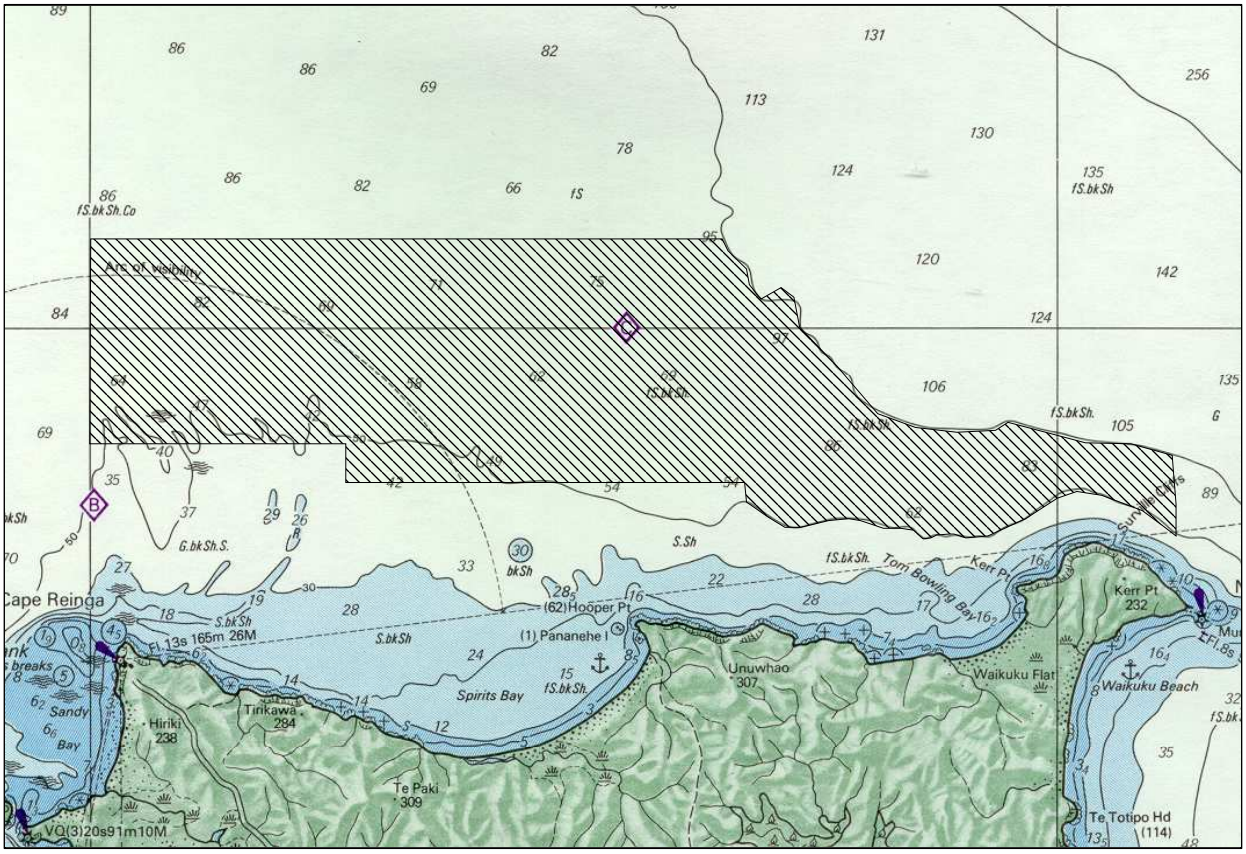
Spirits Bay Sponges

44 Research surveys in 1999 re-confirmed previous findings that the biodiversity of an area between North Cape and Cape Reinga is unparalleled in known similar environments in New Zealand. The area is characterised by diverse sponge and bryozoan assemblages (218 and 170 species respectively identified to date), and corals, soft corals, gorgonians, black corals (probably) and a wide variety of invertebrate taxa with subtropical affinity.

45 The survey report identified some potential effects of fishing. Several parts of the survey strata between North Cape and Cape Reinga were found to have either very few sponges or mainly unattached individual sponges. These tended to be in areas where scallop dredging had occurred, or where trawling had been reported. Further, one of the scallop survey strata previously rich in sponges and large hydroids appeared to have few of either of these species.

46 The information available did not confirm that either trawling or scallop dredging was altering marine life on the seabed. However there were increasing indications in scientific literature suggesting that bottom-fishing methods such as dredging and trawling may have adverse effects on the benthic environment.

47 Scallop fishers voluntarily agreed not to dredge in a substantial part of the "special" area and trawling was prohibited in the shaded areas shown on Map 4. There have been no more recent surveys of the area. However research is planned to assess the effectiveness of the protection.



Map 4: Restricted Trawl Area, Spirits Bay

Habitats of Particular Significance to Fisheries Management

48 Protecting habitats of particular significance to fisheries management is another of the environmental principles outlined in section 9 of the Act. It refers to protection of areas that are important at different parts of the lifecycles of fish species and the habitat areas of species that are rare or vulnerable to some fishing methods.

Habitats that appear to be of particular significance on the west coast of the North Island are:

- **Spawning and recruitment areas** - there are indications that a substantial part of the recruitment for the SNA 8 population may come from the west coast harbours[5]. There is a regulation closing Urenui Bay, (north Taranaki) to trawling because this area is deemed to be an important nursery area for several important finfish species.

- **Estuaries** - on the west coast, harbours, estuaries and shallow/sheltered coastal waters have significant values for fisheries management, especially as nursery areas. Juveniles of many west coast species, such as rig, school shark, grey mullet, flatfish, and kahawai all tend to congregate in these areas. Recent studies have shown that fish are considerably more abundant around estuarine sea grass beds, than where there are few seabed features.[6] This has shown to be particularly important for snapper with one study estimating that 90% of juvenile snapper on the NIWC, spent time in the Harbour. Horse mussel beds and seagrass meadows have been demonstrated to hold significantly higher densities of juvenile fishes, in comparison to surrounding bare sediments.[7]

- **Migratory routes** - fishers on the west coast have observed what they believe may be migrations of mullet just offshore along the ocean beaches.

- **Areas of particularly high biodiversity** – The marine fauna and flora found within the Tapuae marine reserve, the Parininihi Marine Reserve, the Spirits Bay area and Kaipiti Island have been assessed as having very high biological/ecological values (i.e. species diversity and richness). The three protected seamounts in the region are all areas with notable biodiversity.

49 Controls already in place, such as the prohibition on trawling within harbours and within one nautical mile of the coast, reduce the risk that current fishing activities could have an adverse impact on important habitats.

50 Other human activities have historically affected coastal areas on the West Coast of the North Island, particularly from population growth in harbour catchment areas. These activities include clearing of vegetation and resulting sedimentation, pollution of waterways, alteration of the coast in the form of structures and reclamation, and the discharge of sewage and other waste products directly into marine environments. These effects on the

[5] *Fish usage of estuarine and coastal habitats*, NIWA report
[6] This information is recorded in the *Report from the Fishery Assessment Plenary, May 2007: stock assessments and yield estimates*. This document summarises the conclusions and recommendations of scientists on the Inshore Working Group relating to school shark fisheries in New Zealand
[7] *Fish usage of estuarine and coastal habitats*, NIWA report

environment are currently managed under the Resource Management Act 1991 (RMA), but threats to the environment still remain from human activities in terms of both existing land use and urbanisation and development. For further discussion on the RMA and the role of district and regional councils see "other resource users" page 29 of this document.

Associated or Dependent Species

51 Maintaining associated or dependent species above a level that ensures their long-term viability is one of the environmental principles outlined in the Fisheries Act.

52 Associated or dependent species are any species not intended to be caught that are taken or affected in some way by the catching of target species. Associated or dependent species can include marine mammals, seabirds, non-commercial bycatch species, corals and bryozoans. Some such species may also have protected status.

Protected Species

53 There is a combination of New Zealand legislation (such as the Marine Mammals Protection Act 1978 and the Wildlife Act 1953) and international conventions (such as the United Nations Convention on the Law of the Sea) that provides for a range of species to be given protected status of some kind. Prominent amongst the species given such status are: dolphins, seabirds, turtles, black coral, black spotted groper and white pointer (great white) sharks. A consequence of this is that fishing activities that could potentially harm any of these species must be carried out in ways that as far as possible avoid this happening.

Maui's dolphin

54 The critically endangered Maui's dolphin can potentially interact with fishing activities on the North Island west coast. The North Island Maui's dolphin population, estimated size of 111 individuals (95% Confidence Interval = 48 – 252), is ranked as nationally critical by the DOC and critically endangered by the International Union for the Conservation of Nature.

55 Maui's dolphins are threatened by even low levels of mortality due to their slow reproduction rates resulting in low potential for population growth. There are a number of actual and potential threats facing the dolphins, including fishing-related mortality, boat strike, pollution, disease, mining and tourism impacts. Dolphin researchers have carried out a Potential Biological Removal (PBR)[8] analysis to help guide the development of management strategies for Maui's dolphin. Estimates showed that there can be no more than 1 dolphin death every 5 years due to non-natural causes to reduce extinction risk for Maui's dolphin.

Fishing interactions with Maui's dolphins

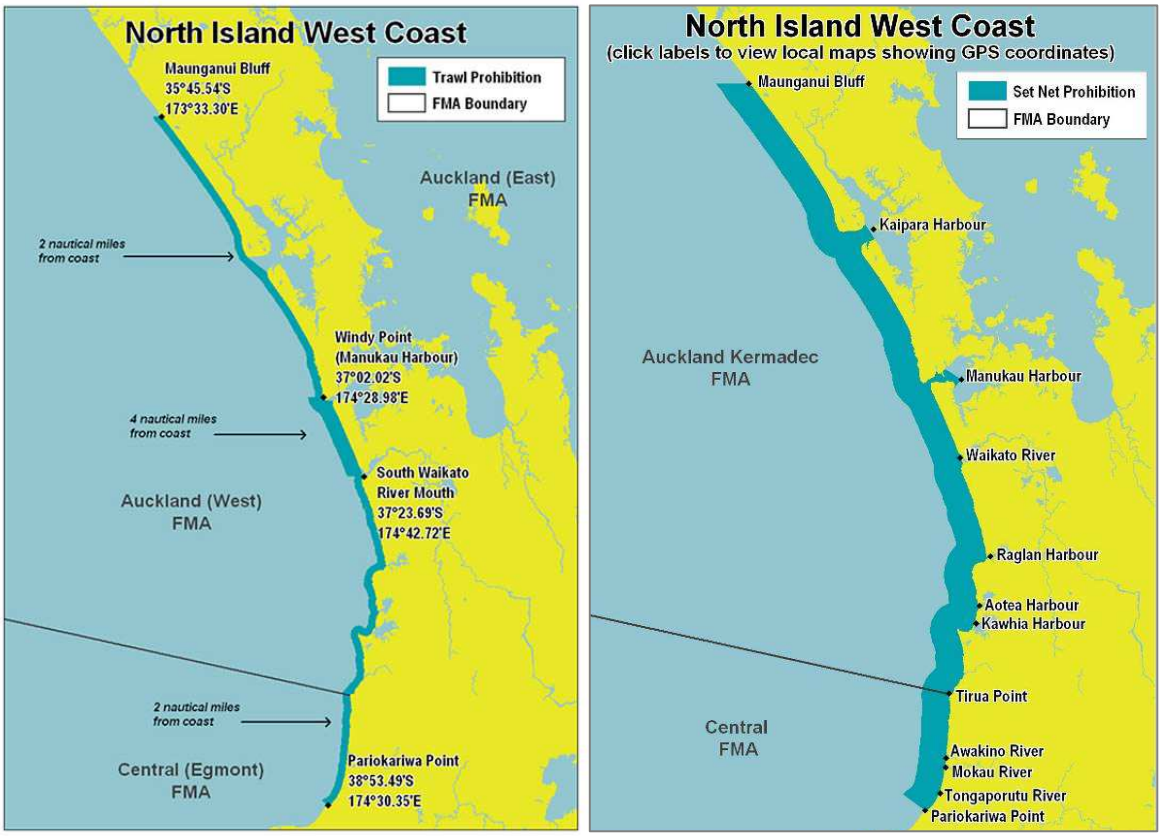
56 The DOC dolphin incident database provides information on the 41 dead Maui's dolphin that have been retrieved and assessed for cause of death since records began in 1921. Of the 41, 30 were not assessed because of their condition. Fishing mortality was assessed as the cause of two dolphin deaths, in nets that appear to have been drift or set nets. Three more were assessed as "possible or probable fishing net entanglements".

57 In 2003 MFish prohibited all set net fishing on the west coast throughout the dolphin's known range. This range was assessed as extending out to 4 nm from Mangonui Bluff in the north to Pariokariwa Point in the Taranaki Bight and included the mouth of the Manukau

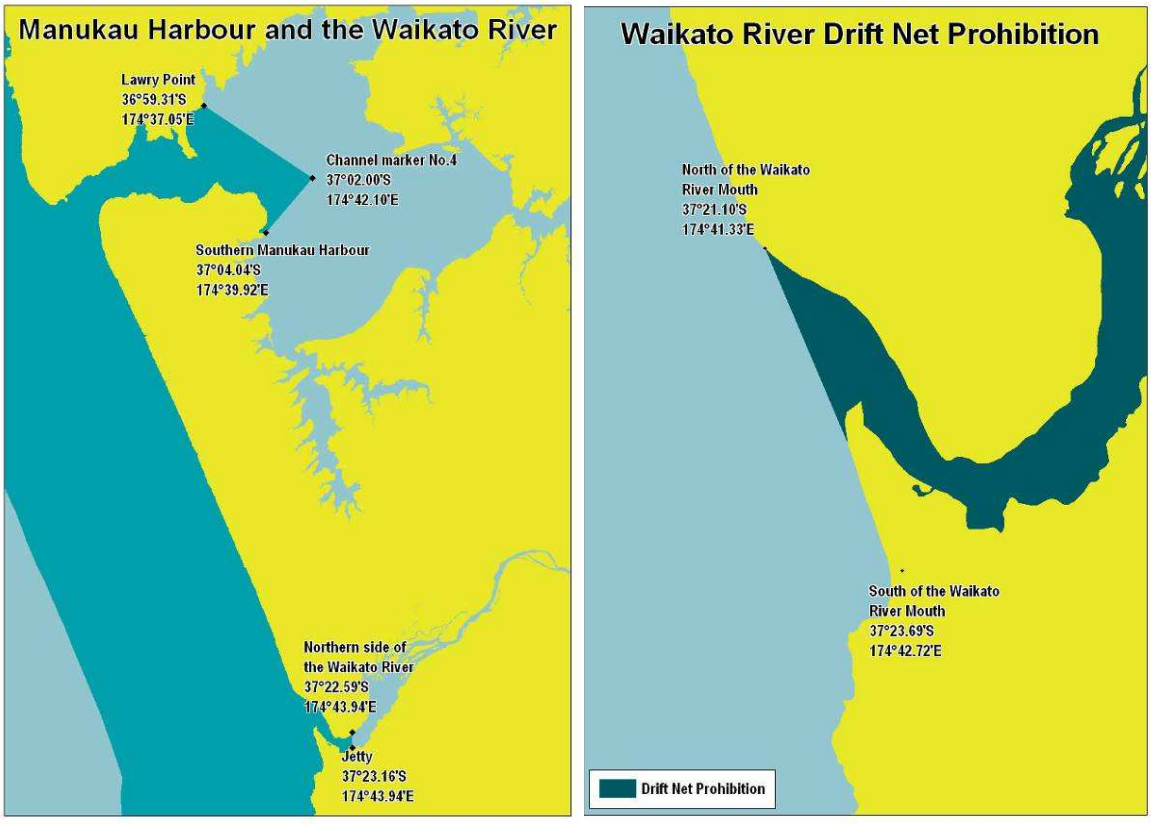
[8] Potential Biological Removal is the maximum number of dolphins that could die due to non-natural causes while still allowing the population to reach or maintain a sustainable size.

Harbour.

Map 5 and 6: Area closed to all set netting and trawling to protect Maui's dolphin



Map 7: Manukau Harbour Set Net Closed Area and Map 8: Waikato River Drift Net Prohibition



58 In 2007 MFish and DOC jointly developed a draft Maui's Dolphin Threat Management Plan (TMP) to mitigate the effects of human activities on dolphins. Issues covered in this plan were whether:

- Maui's dolphins' range extends into any of the west coast harbours and/or seaward or further south of the set net closed area on a regular basis;
- It is possible to confirm either that trawlers operating close to shore are, or are not, a threat;
- Whether set and drift netting at Port Waikato represents a threat to the dolphins.

59 Following a review of further information on Maui's dolphin sightings and submissions on the TMP, MFish implemented further measures to protect Maui's dolphins on the west coast of the North Island in October 2008. The set net ban was extended from Maunganui Bluff north of Kaipara to Pariokariwa Point north of New Plymouth and out to seven nautical miles. The set net ban also includes the entrances to the Kaipara, Manukau (extended area from previous ban) and Raglan Harbours and the mouth of the Waikato River (see Maps 5-8 for details). Trawling is now prohibited within the same length of coast offshore to two nautical miles and to four nautical miles between Manukau Harbour and Port Waikato. Drift netting is now prohibited within the Waikato River.

60 The New Zealand Federation of Commercial Fishermen and other industry parties recently lodged a legal challenge against some of the new rules. This case will be heard at the High Court in June 2009. The rules that are being challenged on the NIWC are the 7 nautical mile ban for set netting from Maunganui Bluff to Pariokariwa Point and the Manukau Harbour entrance set net ban.

Other Marine Mammals

61 The bottlenose dolphin is ranked as "range restricted" by DOC and "data deficient" by the International Union for the Conservation of Nature.

62 Information gathering about the extent and nature of marine mammal interaction with set netting and trawling is a priority. However, monitoring of the fishing-related mortality of marine mammals is difficult, and mostly relies on the fishers' legal requirement to report incidental catches of these animals.

63 DOC's incident reporting programme is reasonably effective for mortalities associated with recreational fishing. The reason for this is that recreational fishing occurs close inshore where accidental marine mammal catches are likely to be noticed and reported.

64 Monitoring of marine mammal mortalities associated with commercial fishing relies on voluntary reporting. Consequently, it may be necessary to monitor catch of marine mammals on small vessels using monitoring and surveillance technology, ie, video. There are also a number of regulatory and voluntary codes of practice measures that are intended to reduce the incidence of fishing-related mortality on marine mammals and seabirds (refer services section).

Seabirds

65 The current impact of NIWC finfish fisheries on seabird populations is unclear. Trawl fisheries can be beneficial to seabirds by providing new food sources, but incidental

captures of seabirds affects seabird populations and removal of prey may do so as well. White-capped albatross and sooty shearwater are the species most frequently killed by trawling.

66 For other seabird species, the large-scale purse seining of inshore fish species such as trevally may have had a negative impact on populations. Species such as white-fronted terns, Hutton's and fluttering shearwaters which typically feed in association with schooling fish, are at greatest risk.

67 In the *National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries*, the snapper longline fishery has been identified through existing observer coverage information as interacting with seabird species. The reasons for this include the type of fishing methods used by the fishery and its geographical location. The need to manage incidental catch in this fishery is considered a high priority because the level of potential interaction with seabird species is high.

68 Longlining is not a common method of snapper fishing on the west coast. On the NIWC most longlining is done in the bluenose and hāpuku / bass fisheries. These are relatively small fisheries, with a slightly greater portion of the catch in both taken in the northern parts (FMA 9) of the coast. With generally less use of this method on the NIWC, there should be relatively few problems with accidental capture of seabirds in the region.

White pointer (great white) sharks

69 While information is scarce, it does not seem that west coast fishing activities have had a major impact on the white pointer sharks that are found on the west coast. This species has recently been given protected status under the Wildlife Act 1953. This means that it is illegal to hunt, kill or harm a white pointer within the EEZ. The action has been taken in part because New Zealand is a signatory to the Convention on the Conservation of Migratory Species of Wild Animals and therefore has an obligation to protect white pointer sharks.

70 While white pointers have a reputation as a predator, the species is vulnerable and is becoming increasingly rare around the world. Fishers on the west coast sometimes see these sharks. Commercial fishers are not known to have targeted them, but to have occasionally taken them unintentionally as bycatch. Some recreational fishers may have targeted white pointers in view of the demand that exists for jaws and teeth. Some sharks may have been accidentally caught in set nets.

71 Although white pointers have protected status, this should not noticeably impact west coast fisheries – the main consequence should be cessation of whatever target fishing that may have been occurring, and fishers continuing to try to avoid accidental capture.

National Plan of Action for Sharks

72 MFish has developed and consulted on a draft National Plan of Action for the Conservation and Management of sharks (NPOA-Sharks). This details measures to manage or conserve sharks that are either targeted or taken as incidental catch in New Zealand fisheries waters.

73 To address global concerns about the management of sharks, the Food and Agriculture Organization of the United Nations (FAO) developed an International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks). The overarching goal of the IPOA-Sharks is 'to ensure the conservation and management of sharks and their long-term

sustainable use'.

74 To achieve this goal, the IPOA-Sharks identifies principles and objectives for shark management at the national level. In New Zealand, these will be implemented through the NPOA-Sharks. The challenge for New Zealand is to ensure that management strategies for sharks are in place to provide a sufficiently high probability of achieving these internationally-accepted goals for shark stocks.

Reef species

75 In recent years growing numbers of fishers became concerned about depletion of reef species, by commercial set netting in particular. In response, nineteen species commonly found around reefs were prohibited from being sold in the Auckland and Kermadec Fisheries Management Area. The species are banded wrasse, red moki, black angelfish, red mullet (goatfish), butterfly perch, red pigfish, giant boarfish, rock cod, green wrasse, sandager's wrasse, kelpfish (hiwihiwi), scarlet wrasse, long-finned boarfish, silver drummer, marblefish, splendid perch, notch-headed marblefish, toadstool groper and painted moki. The purpose of this restriction is to discourage commercial fishers setting nets close to reefs, so providing protection for the diversity of species with reefs as their principal habitat.

76 There are few reefs in the northern parts of the west coast. However, the Taranaki near shore region is dominated by a low profile intertidal/sub tidal reef platform that in places extends quite some distance offshore. There are also several offshore reefs that are targeted by recreational fishers.

77 However, many of what had been the more preferred reefs are now encompassed within the Parininihi Marine Reserve and several 'no-fishing' oil exploration zones. This combination of prohibited species and closed areas gives reasonable protection to the diverse marine life around Taranaki reefs.

"Ghost Fishing"

78 A potential problem in the past in areas with rocky bottoms and/or strong currents has been loss of nets that continue to catch fish indiscriminately – "ghost fishing". In the northern region several areas with these characteristics have been closed to set netting. West coast areas are from Cape Rēinga to Scott Point and Tauroa Point (Reef Point) to Whangape Harbour.

Resource Management

79 Water, rivers, lakes and the coastal marine area are all considered in the Resource Management Act 1991 (RMA). The RMA is a key piece of legislation for managing the effects of resource use on the environment.

80 The purpose of the RMA is to promote the sustainable management of natural and physical resources while:

- Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- Avoiding, remedying, or mitigating any28 adverse effects of activities on the

environment.

81 Regional councils and territorial authorities have key responsibilities in managing resource use under the RMA.

82 The 6 regional councils on the North Island West Coast are Northland, Auckland, Environment Waikato, Taranaki, Horizons (Manawatu-Wanganui), and Greater Wellington. The function of these regional councils is largely environmental and includes managing water quality and the coastal and marine environment.

83 Within these regions there are a number of territorial authorities (city and district councils) who have responsibilities that include managing the environmental effects of developments and activities that occur in their territory.

84 The other key players with roles under the RMA are the Ministry for the Environment and DOC.

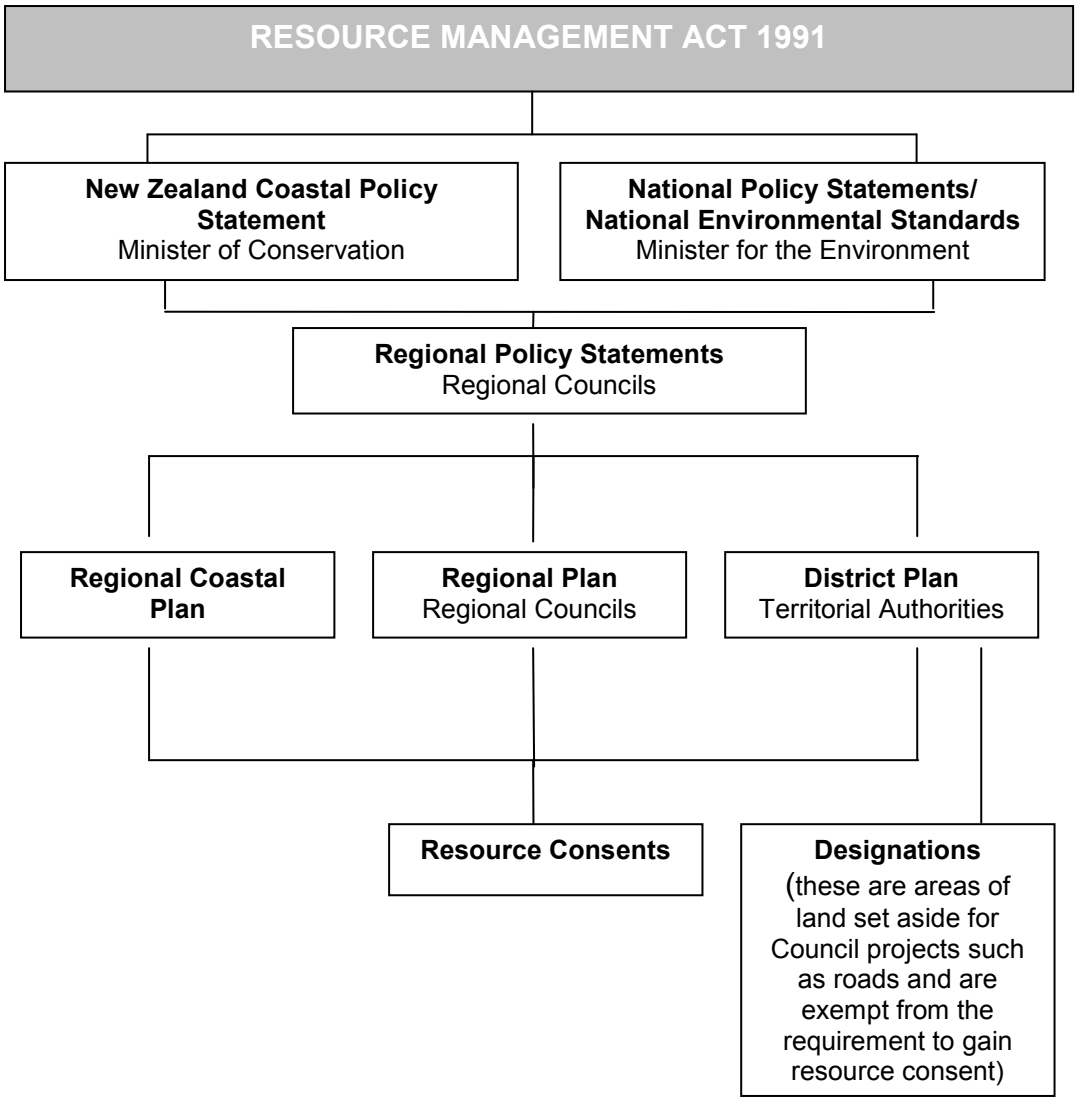
85 The role of the Ministry for the Environment includes the recommendation of National Policy Statements and National Environmental Standards, providing leadership on environmental sustainability, monitoring and reporting on the health of the environment and resolving environmental issues that require central government intervention.

86 DOC has an important role in the management of the coastal marine environment. Functions of the Minister of Conservation under the RMA include preparing and recommending New Zealand Coastal Policy Statements, approving regional coastal plans, making decisions on coastal permits required for restricted coastal activities and monitoring the effects of these statements and permits.

87 Under the RMA both regional councils and territorial authorities formulate plans that tell resource users what they can or cannot do as of right. These plans are guided by Regional Policy statements formulated by Regional Councils which take into account national policy statements.

88 Resource consents are required for any proposed activities that are not allowed as of right or are specified as requiring consent by the relevant regional or district plan. This includes the establishment and operation of aquaculture. The council considers the potential effects of a proposed activity on the environment when it makes a decision on whether to grant resource consent. Disputes on the Council's decision can be taken to the Environment Court.

Figure 1: Relationship between Standards, Policies and Plans as provided by the Resource Management Act 1991



Other Resource Users

89 Other resource users can have an impact on the sustainability and utilisation of fisheries resources. Impacts of non-fishing activities on fisheries resources are outside the scope of the Fisheries Act 1996. Addressing the impacts of activities such as farming, development and oil and mineral extraction on fisheries is important. However, this will need to be done in conjunction with the agencies which have regulatory responsibility for the activities. Some specific examples of potential impacts are provided below.

- The Ministry of Economic Development manages oil and mineral extraction. Oil extraction occurs in Taranaki and sand extraction south of Kawhia and inside the entrance to the Kaipara Harbour. None of these operations appears to have had noticeable adverse impacts on the finfish30 fisheries on the west coast. However,

there have been reports of oil spills near Taranaki which will not have been beneficial for marine life.

- There is displacement of fishing effort around the Trans Tasman cable that runs offshore from Muriwai Beach. Fishing is prohibited from Muriwai Beach out to the 12 nautical mile territorial limit.

- Regional Councils have been considering establishing aquaculture management areas in the Kaipara Harbour and there is an application for a sizable oyster farm there. If these proposals proceed they would displace fishing from those parts of the harbour. The actual impact on fisheries depends on whether the areas have any habitats of special significance to fisheries and/or special qualities that make them especially good places to fish. Offshore sea conditions are such that it is very unlikely that the extensive mussel farms that have been proposed for parts of the east coast would be viable on the west coast.

- On the west coast the most harmful activities may be those with effects such as sedimentation and discharges coming from land use activities. Sedimentation and discharges can affect rivers, harbour estuarine areas and sea grass beds – all habitats and feeding areas for juveniles of many NIWC finfish species.

- There is a proposal currently under consideration to place energy generating turbines at the mouth of the Kaipara Harbour. If the proposal goes ahead, the turbines could have an impact on the environment and marine life of the Kaipara Harbour.

- There has been an ongoing community effort around the Raglan Harbour to control such effects by planting harbour margins. It is probably not possible to measure to what extent this has improved harbour fisheries there. Local observations are that fishing is improving (measured by time taken to catch snapper in the harbour) since the planting began.