INTERTEK FISHERIES CERTIFICATION

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New Zealand Hake Trawl Fishery

PUBLIC CERTIFICATION REPORT
V5

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Glossary of Acronyms and Abbreviations

ACE	Annual Catch Entitlement
B_0	Unfished Equilibrium Biomass
BPA	Benthic Protection Area
CAB	Conformance Assessment Body
CAY	Current Annual Yield
CITES	Convention on International Trade in Endangered Species
CPUE	Catch per Unit Effort
CR	Certification Requirements
DOC	New Zealand Department of Conservation
DWG	Deep Water Group Ltd
EEZ	Exclusive Economic Zone
ETP	Endangered, Threatened, Protected Species
EU	European Union
F	Fishing Mortality
FAO	Food and Agriculture Organisation of the United Nations
FCV	Foreign Charter Vessels
FAM	Fisheries Assessment Methodology
HAK	Hake
HOK	Hoki
INMARC	Interim Nearshore Marine Classification
IPI	Inseparable or Practically Inseparable
LFR	Licensed Fish Receivers
LIN	Ling
LTL	Low Trophic Level
MCMC	Markov Chain Monte Carlo Method
MCS	Monitor, Control and Surveillance
MCY	Maximum Constant Yield
MFish	New Zealand Ministry of Fisheries
MHR	Monthly Harvest Returns
MPD	Maximum Posterior Density
MPI	Ministry forPrimary Industries
MSY	Maximum Sustainable Yields
NIWA	National Institute of Water and Atmospheric Research
NPA	National Plan of Actions
NZ	New Zealand
OS	Ocean Survey
PSA	Productivity Sensitivity Analysis
QMA	Quota Management Area
QMS	Quota Management System
RFMO	Regional Fisheries Management Organisations
SPRFMO	South Pacific Regional Fisheries Management Organisations
TAC	Total Allowable Catch
TACC	Total Allowable Commercial Catch
TCEPR	Trawl Catch, Effort and Processing Return
UTF	Underwater topographical features
VME	Vulnerable Marine Ecosystem
VMP	Vessel Management Plans
VMS	Vessel Monitoring System
WWF	World Wildlife Fund

1. Executive Summary

1.1 The Intertek Fisheries Certification assessment team

An assessment of the New Zealand hake trawl fishery using Marine Stewardship Council (MSC) Principles and Criteria was carried out in 2009 by a team of three Intertek Moody Marine assessors: Dr Paul Medley (Principle 1), Dr. Graham Pilling (Principle 2) and Jo Akroyd (Principle 3) with Andrew Hough as Lead Assessor. At the client's request the assessment process was put on hold and then recommenced in 2013, with two of the original assessors: Jo Akroyd (Lead and P3) and Graham Pilling (P1 and P2). Paul Knapman joined as Project Director. In the course of this assessment Intertek Moody Marine changed its name to Intertek Fisheries Certification (IFC).

1.2 Process used

A site visit was made to Nelson and Wellington, New Zealand in June 2009, and an evaluation of the New Zealand hake fishery was undertaken against the MSC "Principles and criteria for sustainable fishing (November 2002)". Information gathered during this site visit was then used in conjunction with other available literature to produce a draft report and score the fishery against the MSC Performance Indicators. The MSC Fisheries Assessment Methodology (FAM) v1 (January 2008) was used. The draft report and scores of the fishery were then presented to the client, Deepwater Group (DWG), for review. The client determined that it would delay the assessment process until particular issues within the fishery had been addressed. In August 2013 the client requested that the assessment be resumed. To ensure the assessment was brought up to date with current information and to give stakeholders a further opportunity to participate in the assessment process, a second site visit to Wellington took place in September 2013. Two of the original assessors from IMM (Jo Akroyd and Graham Pilling) formed the IFC assessment team. During this site visit the assessment team made itself available to stakeholders and reviewed all additional information relevant to the hake fishery before preparing this version (v2) of the preliminary client draft assessment report. Part C of the MSC Certification Requirements V1.3 January 2013, the default assessment tree, the MSC Guidance to the MSC Certification Requirements V1.3 and the MSC full assessment report template were used for this assessment.

1.3 The main strengths and weaknesses of the client's operation

The New Zealand hake trawl fishery has been managed under the New Zealand Quota Management System (QMS) since its introduction in 1986. Since then there have been many improvements in the management of the fishery. There are now well-defined and documented processes for most of the operations. The amount of data available to evaluate consistency with the MSC Criteria is also a significant strength. The New Zealand hoki fishery has been MSC certified since 2001. Many of the operators and managers are the same for both fisheries.

There is a partnership approach to fisheries management between the DWG and the Ministry for Primary Industries[1] (MPI), underpinned by a Memorandum of Understanding. The two parties have developed a single joint-management framework with agreed strategic and operational priorities and work plans.

The strong communication and on-going liaison between DWG and their operators is an important factor.

[1] On July 1, 2011 the Ministry of Fisheries (MFish) merged with the Ministry of Agriculture and Forestry. The new Ministry became the Ministry for Primary Industries (MPI) on 30 April 2012.

In recent years, the client has supported a shift away from prescriptive regulatory fisheries management to a strong focus on more collaborative fisheries management, including industry implementation of operational plans which are monitored and audited by Government.

1.4 The determination reached

It has been determined by Intertek Fisheries Certification that this fishery should be certified in accordance to the MSC principles and criteria.

There are no conditions

1.5 Scores for each MSC Principle

Table 1: Table of Scores

UOC 1 (HAK1)	UOC (HAK 4)	UOC 3 (HAK7)
Principle 1: 91.9	Principle 1: 91.3	Principle 1: 90.0
Principle 2: 84.7	Principle 2: 84.7	Principle 2: 83.3
Principle 3: 97.3	Principle 3: 97.3	Principle 3: 97.3

1.6 Conditions and timescales

No conditions were raised.

2. Authorship and Peer Reviewers

2.1 Team members

Jo Akroyd: Expert Advisor P3 and Lead Assessor. Jo is a fisheries management and marine ecosystem consultant with extensive international and Pacific experience. She has worked at senior levels in both the public and private sector as a fisheries manager and marine policy expert. Jo was with the Ministry of Agriculture and Fisheries in New Zealand for 20 years. Starting as a fisheries scientist, she was promoted to senior chief fisheries scientist, then Fisheries Management Officer, and the Assistant Director, Marine Research. She was awarded a Commemoration Medal in 1990 in recognition of her pioneering work in establishing New Zealand's fisheries quota management system. Among her current contracted activities, she is involved internationally in fishery certification of offshore, inshore and shellfish fisheries as Fisheries Management Specialist and Lead Assessor for the Intertek Fisheries Certification audit team. She has carried out the Marine Stewardship Council's (MSC) certification assessment for sustainable fisheries. Examples include New Zealand (hoki, southern blue whiting, albacore, scallops), Fiji (longline albacore) Japan (pole and line tuna, flatfish, snowcrab, scallops), China (scallops), and Antarctica (Ross Sea tooth fishery).

Dr Graham Pilling: P1 and P2 Expert Advisor. Currently a senior fisheries scientist at the Secretariat of the Pacific Community, Graham has over nineteen years' experience working in tropical, temperate and polar marine and freshwater ecosystems, gaining in depth experience in the practical assessment and management of pelagic and demersal fisheries through a wide range of methodologies, and the provision of scientific advice to fisheries managers around the world. Fisheries studied include industrial tuna fisheries and artisanal reef fisheries in the tropics and Arabian Gulf. The impacts of anthropogenic influences such as oil spill events and climate change on fish stocks and fisheries have been examined. Graham has designed and developed models to simulate the long-term impacts of uncertainty in stock biology and assessments on fisheries management, and methods to assess and manage data poor fisheries. He has also reviewed international biological stock assessments for scientific rigor. Chair of STECF SGMED (2008) and FAO GFCM stock assessment meetings for assessment of demersal species within the Mediterranean Sea (2008 and 2009), and chair of the FAO meeting on data poor fisheries (2010). Member of a large number of Marine Stewardship Council accreditation teams assessing fisheries for sustainability against the MSC principles. Has played a key role at international commissions in tropical and polar regions. His work has contributed significantly to the institutional strengthening of fisheries institutions in the tropics.

Paul Knapman: General Manager/Project Director. Paul is the General Manager and a Lead Assessor for Intertek Fisheries Certification. He has extensive experience of the fishing industry in North America and Europe. He was previously a fisheries consultant working in Europe and Canada; Head of a UK inshore fisheries management organization; a senior policy advisor to the UK government on fisheries and environmental issues; and a fisheries officer.

2.2 Peer Reviewers

Dr. Rob Blyth-Skyrme

Rob has worked in aquaculture and then in marine fisheries science, management and policy since 1996. Rob started his career in finfish mariculture, before switching to a focus on wild fisheries. Following his PhD which focussed on fisheries management and the environmental effects of fishing, he moved to Eastern Sea Fisheries Joint Committee, the largest inshore fisheries management organization in England, where he became the Deputy Chief Fishery Officer. He then became a senior advisor to the UK Government on marine fisheries and environmental issues, leading a team dealing with fisheries policy, science and nationally significant fisheries and environmental casework. He has

extensive experience of running and providing lead input to workshops and management fora at a national level, and has published a number of papers in peer-reviewed international journals. Rob now runs Ichthys Marine Ecological Consulting Ltd., a marine fisheries and environmental consultancy. From late 2008, he based the company in Hawaii, but he returned to the UK in summer 2013 to continue the business. In addition to other fisheries and environmental consultancy work, Rob has undertaken all facets of MSC work as a Lead Assessor and expert team member, across varied fisheries including those for Alaska pollock, Pacific cod, Alaska salmon, North Pacific albacore, Grand Bank yellowtail flounder, Arctic surfclams and European mussels.

Dr. Johanna Pierre

Johanna completed her BSc (Hons) in Zoology at the University of Canterbury, New Zealand, and followed that with a PhD in ecology and environmental biology at the University of Alberta, Canada. In the course of conducting her PhD research on the ecological impacts of forestry activities in northern Canada, she became especially interested in working at the environment - economic interface. After completing a post-doctoral fellowship in biodiversity science at the University of Tokyo, Japan, Johanna returned to New Zealand to work at the Department of Conservation (DOC). During her time at DOC, Johanna focussed on the environmental effects of fishing. This included leading a team producing science, policy and management tools for the New Zealand commercial fisheries environment. As well as working with New Zealand-based stakeholders, Johanna maintained extensive international engagement, for example, with Regional Fisheries Management Organisations, as New Zealand representative for the Agreement on the Conservation of Albatrosses and Petrels, and as a practising scientist. Johanna went on to lead New Zealand's science and innovation engagement with Asia for the Ministry of Science and Innovation. She now consults fulltime, currently focussing on marine science and fisheries issues.

3. Description of the Fishery

3.1 Units of certification and scope of certification sought

Intertek Fisheries Certification (IFC) can verify that this fishery is not being conducted under a controversial unilateral exemption to an international agreement and so conforms to Principle 3, Criterion A1 (MSC Certification Requirements v1.3 January 2013 (CR)). Fishing operations do not use destructive fishing practices such as fishing with poisons or explosions so conform to Principle 3, Criterion B14 (MSC CR 1.3)

The Units of Certification (UoC) for the assessment

UoC 1
Species: Hake (*Merluccius australis*)
Geographical Area: HAK1 (see Figure 1 below)
Method of Capture: Trawl
Management System: NZ Quota Management System (Ministry for Primary Industries [MPI])
Client Group: NZ Deepwater Group Ltd

UoC 2
Species: Hake (*Merluccius australis*)
Geographical Area: HAK4 (see Figure 1 below)
Method of Capture: Trawl
Management System: NZ Quota Management System (MPI)
Client Group: NZ Deepwater Group Ltd

UoC 3
Species: Hake (*Merluccius australis*)
Geographical Area: HAK7 (see Figure 1 below)
Method of Capture: Trawl
Management System: NZ Quota Management System (MPI)
Client Group: NZ Deepwater Group Ltd

3.1.1 Rationale for UoCs

The MSC requirements specify that the UoC is "The target stock(s) combined with the fishing method/gear and practice (including vessel/s) pursuing that stock".

The target stock and the fishing method are the same for each UoC. However, there are three geographical management areas requiring three UoCs.

Current management divides the fishery into three fish stocks: (a) the Challenger QMA (HAK 7), (b) the Chatham Rise QMA (HAK 4) and (c), the remainder of the EEZ comprising the Auckland, Central, Southeast (Coast), Southland and Sub-Antarctic QMAs (HAK 1). An administrative fish stock (with no recorded landings) exists for the Kermadec QMA (HAK 10).

The location of the hake fishery geographical areas is shown in Figure 1 below.

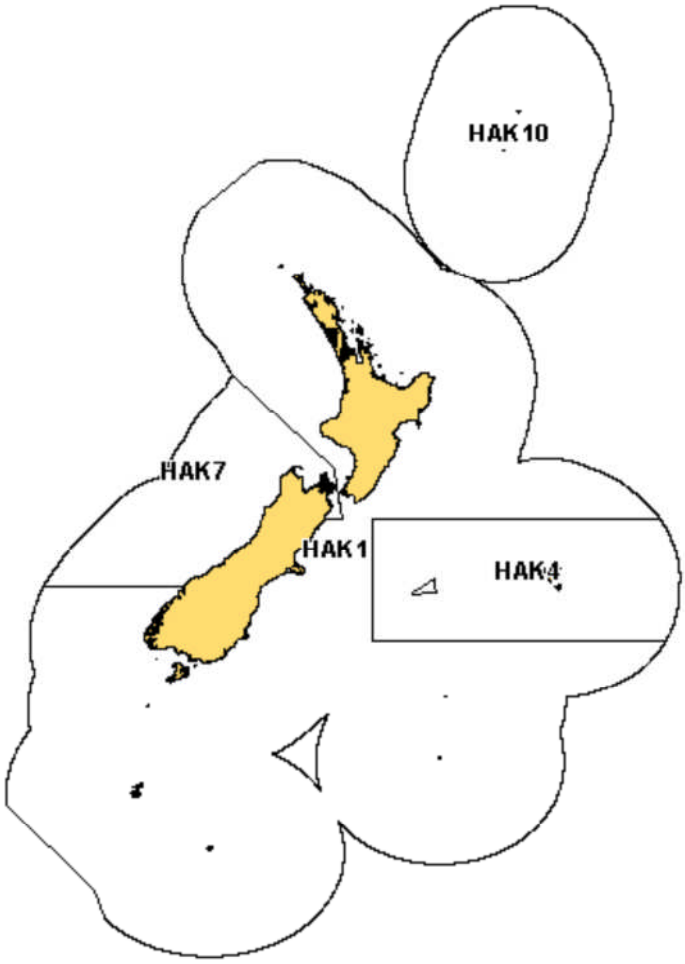


Figure 1 : Location of New Zealand Hake fisheries management areas [2]

3.1.2 Description of eligible fishers

Eligible fishers are those operators who have been fully assessed against the MSC's Principles and Criteria for Sustainable Fishing as part of the Unit of Certification and are not currently part of the client group, but may become eligible to join the client group under a certificate sharing arrangement.

The client group catches between 94 and 96% of the recorded hake landings. Those outside the group comprise fishers targeting the same stock using the same methods/gear and operating under the same management regime as the fishers included in the client group.

In the course of the certification it is possible that these companies/vessels may join the client group. This would be in accordance with the MSC's stated desire to allow fair and equitable access to the certification.

3.1.3 Scope of Assessment in Relation to Enhanced Fisheries

The New Zealand hake trawl fishery is not an enhanced fishery so the scope of assessment in relation to enhanced fisheries does not need to be considered in this assessment.

[2] HAK 1, 4 and 7 are included in this assessment. There have been no landings from HAK 10 in recent history

3.1.4 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

Merluccius australis are native to New Zealand and so the assessment is not required to consider the fishery against the ISBF criteria.

3.2 Overview of the fishery

3.2.1 Management operation

DWG was formed in September 2005. The company is an amalgamation of EEZ fisheries quota owners in New Zealand. It is a non-profit organisation. Fisheries managed by DWG are those targeted commercially and usually fished at depths between 200 and 1,200 m. These include hoki, hake, ling, orange roughy, oreo dory, squid and jack mackerel.

Prior to September 2005, there were separate management companies for each of the hoki, squid and orange roughy fisheries in New Zealand. In 2005, the three companies agreed to amalgamate, and combine all deepwater interests in a single management company with a mission to optimise the sustainable economic value of New Zealand deepwater fisheries.

Activities of the DWG include:

- representing the interests of quota holders with Government and government departments;
- undertaking fisheries research and stock assessment programs;
- implementing and monitoring fisheries management programs;
- working on multiple fronts to manage and minimise any adverse environmental affects;
- ensuring integrity at all levels of process and engagement; and
- maintaining fisheries management standards that meet or exceed those required for MSC Certification.

The New Zealand deepwater fisheries industry involves more than 50 seafood companies, which between them operate more than 60 commercial vessels and collectively employ more than 15,000 people.

3.2.2 Species types

New Zealand hake belongs to the Merlucciidae family. Hake are widely distributed throughout the middle depths of the New Zealand EEZ, mostly south of 40° S. Adults are mainly distributed from 250–800 m, but some have been found as deep as 1200 m, while juveniles (0+) are found in inshore regions shallower than 250 m.

Hake are taken mainly by large trawlers. It is a relatively high value fishery. The largest hake fishery has been off the west coast of the South Island (HAK 7). This fishery has traditionally consisted of by-catch in the much larger hoki fishery but in recent years it has also become an important target fishery. In the last five years about 77% of hake taken was targeted.

The Chatham Rise hake fishery (HAK 4) has also changed from a by-catch of the hoki fishery to a target fishery; about 75% of hake has been caught as a target species in the last five years.

Over the last five years about 57% of hake caught in HAK 1 has also been as a target fishery and most of the catch has come from the Sub-Antarctic.

3.3 Management history, fishing practices, historical fishing levels

3.3.1 Fleet and Gear Description

The fleets for the deep and mid-water fisheries of hake consist of trawls (Table 1).

The trawl vessels utilise high aspect ratio multipurpose doors which allow bottom or midwater operation. Vessels exclusively use Furuno CN22/24 net monitoring system electronics, which monitors the headline height, groundrope/seabed relationship and water temperature. Some of the fleet have Scanmar or Simrad net monitoring of door spread and codend "fullness", but none have trawl sonar, as cabled systems are currently illegal.

Bottom trawl nets are of single or twin-rig and of two types:

- Alfredo derivatives which are characterised by low twine surface area (small nets), low headline height (3-5m), short groundrope (20-30m), small mesh (max 300mm, min 100mm) and medium groundrigs (300-450mm rubber bobbins).
- "Korean" type multipurpose trawls which are characterised by similar headline height and mesh sizes to Alfredo types, but longer groundrope and wings and small groundrope rigs.

The mid-water trawls tend to be domestic in origin with a wide range of sizes measured by either headline length or headline opening (opening from 25-75m). They have an all nylon net with rope construction in the forepanel mesh in body and weights to open the net. Mesh sizes range from 65m to 100mm and can be used as pelagic or semi-pelagic gear.

"Kapron" trawls are used by the Russian/Ukraine fleet. The nets are of nylon construction with 12m maximum mesh size and a 60m maximum opening. They are a multipurpose trawl used on wide variety of species.

The hake fishery has a minimum mesh size of 100mm for the cod end mesh.

Table 1: Number of vessels by gear and target fishery for hake (HAK) stocks that reported landings during recent completed fishing years (October – September). Source: Foster, pers. comm., 2014.

Stock	Year	No. of vessels that landed stock	No. of vessels that targeted stock	No. of trawl target vessels	No. of lining target vessels	No. of target vessels using other methods	No. of target trawl vessels <28m	No. of target trawl vessels >28m	No. of lining target vessels <28m	No. of lining target vessels >28m	No. of target vessels using other methods <28m	No. of target vessels using other methods >28m
HAK1	2007/08	79	6	6	0	0	0	6	0	0	0	0
	2008/09	83	12	11	1	0	0	11	1	0	0	0
	2009/10	82	8	8	0	0	0	8	0	0	0	0
	2010/11	91	6	5	0	1	0	5	0	0	1	0
	2011/12	82	1	1	0	0	0	1	0	0	0	0
	2012/13	81	3	3	0	0	0	3	0	0	0	0
HAK4	2007/08	38	12	12	0	0	0	12	0	0	0	0
	2008/09	36	10	10	0	0	0	10	0	0	0	0
	2009/10	32	3	3	0	0	0	3	0	0	0	0
	2010/11	39	2	2	0	0	0	2	0	0	0	0
	2011/12	35	1	1	0	0	0	1	0	0	0	0
	2012/13	39	1	1	0	0	0	1	0	0	0	0
HAK7	2007/08	68	21	21	0	0	1	20	0	0	0	0
	2008/09	72	23	23	0	0	1	22	0	0	0	0
	2009/10	72	18	18	0	0	1	17	0	0	0	0
	2010/11	61	19	19	0	0	3	16	0	0	0	0
	2011/12	72	19	19	0	0	3	16	0	0	0	0
	2012/13	67	15	15	0	0	4	11	0	0	0	0

3.3.2 History of fishing and management

Hake are taken mainly by large trawlers, often as by-catch in fisheries targeting hoki, although hake target fisheries also exist. The largest fishery has been off the west coast of the South Island (HAK 7) with the highest catch (17 000 t) recorded in 1977, immediately before the EEZ was established. The west coast South Island hake fishery has generally consisted of by-catch in the much larger hoki fishery. In HAK 1 (where most of the catch is taken from the Sub-Antarctic) and HAK 4 (Chatham Rise), hake have also been caught mainly as by-catch by trawlers targeting hoki. However, in both areas some targeting for hake occurs, particularly in Statistical Area 404 in HAK 4, which is a known spawning area for hake north-west of the Chatham Islands, and around the Norwegian Hole in the Sub-Antarctic (Figure2).

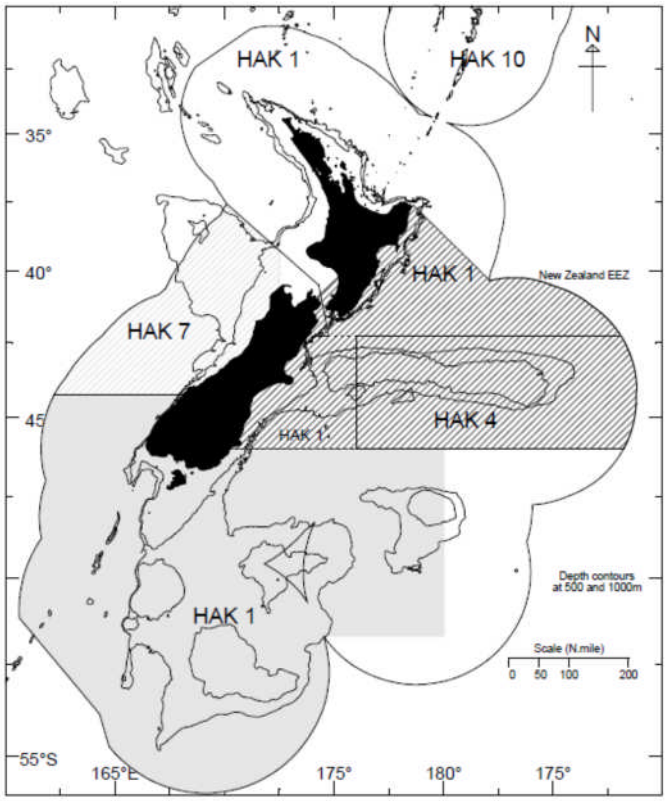


Figure 2 : Quota management areas (QMAs) HAK1, 4, 7 and 10; and the west coast South Island (light shading), Chatham Rise (dark shading) and Sub-Antarctic (medium shading) hake stock boundaries assumed within stock assessments (from Horn, 2013a).

Over the last 15 years the fishing practices have changed, including the gear used, tow duration, and improved fishing strategies to limit the hake by-catch in the hoki fishery. In some years, notably in 1992 and 1993, there has been a fishery targeting hake in September after the peak of the hoki fishery was over. More than 2000 t of hake were taken in this target fishery during September 1993. High by-catch levels of hake early in the fishing season have also occurred in some years.

Reported catches from 1975 to 1987–88 are shown in Table 2. Reported landings for each fish stock since 1983–84 and TACs since 1986–87 are shown in Table 3.

Increases in TACCs from 2610 t to 3632 t in HAK 1, and from 1000 t to 3500 t in HAK 4, from the 1991–92 fishing year allowed the fleet to increase their reported landings of hake from these fish stocks. Reported catches rose over a number of years to the levels of the new TACCs in both HAK 1 and HAK 4. In HAK 1, annual catches remained relatively steady (generally between 3 000 and 4 000

t) up to 2004-05, but have since been generally less than 3 000 t. Landings from HAK 4 declined erratically from over 3 000 t in 1998–99 to a low of 161 t in 2011-12. From 2004-05, the TACC for HAK 4 was reduced from 3 500 t to 1 800 t. Annual landings have been markedly lower than the new TACC since then. From 1 October 2005 the TACC for HAK 7 was increased to 7 700 t within an overall TAC of 7 777 t. This new catch limit was set equal to the average catch level over the last 12 years. However, HAK 7 landings have been relatively low since 2007-08.

An unusually large aggregation of possibly mature or maturing hake was fished on the western Chatham Rise, west of the Mernoo Bank (HAK 1) in October 2004. Over a four week period, approximately 2 000 t of hake were caught from that area. In previous years, catches from this area have typically been between 100–800 t. These unusually high catches resulted in the TACC for HAK 1 being over-caught during the 2004–05 fishing year (4 795 t against a TACC of 3 701 t) and a substantial increase in the landings (> 3 700 t) associated with the Chatham Rise. Fishing on aggregated schools in the same area also occurred during October-November 2008 and 2010.

Table 2 : Reported hake catches (t) from 1975 to 1987–88. Data from 1975 to 1983 are obtained from MAF; data from 1983–84 to 1985–86 are obtained from FSU; and data from 1986–87 to 1987–88 are obtained from QMS.

	New Zealand			Foreign licensed				
Fishing year	**Domestic**	**Chartered**	**Total**	**Japan**	**Korea**	**USSR**	**Total**	**Total**
1975 [1]	0	0	0	382	0	0	382	382
1976 [1]	0	0	0	5 474	0	300	5 774	5 774
1977 [1]	0	0	0	12 482	5 784	1 200	19 466	19 466
1978–79 [2]	0	3	3	398	308	585	1 291	1 294
1979–80 [2]	0	5 283	5 283	293	0	134	427	5 710
1980–81 [2]	No data available							
1981–82 [2]	0	3 513	3 513	268	9	44	321	3 834
1982–83 [2]	38	2 107	2 145	203	53	0	255	2 400
1983 [3]	2	1 006	1 008	382	67	2	451	1 459
1983–84 [4]	196	1 212	1 408	522	76	5	603	2 011
1984–85 [4]	265	1 318	1 583	400	35	16	451	2 034
1985–86 [4]	241	2 104	2 345	465	52	13	530	2 875
1986–87 [4]	229	3 666	3 895	234	1	1	236	4 131
1987–88 [4]	122	4 334	4 456	231	1	1	233	4 689

1. Calendar year.
2. April 1 to March 31.
3. April 1 to September 30.
4. October 1 to September 30.

Table 3: Reported landings (t) of hake by fish stock from 1983–84 to 2011–12 and TACC (t) set for 1986–87 to 2011–12.

Fish stock (QMA)	HAK 1		HAK 4		HAK 7		HAK 10		Total	
FMA(s)	1, 2, 3, 5, 6, 8 & 9		4		7		10			
	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC	Landings	TACC
1983–84 [1]	886	–	180	–	945	–	0	–	2 011	–
1984–85 [1]	670	–	399	–	965	–	0	–	2 034	–
1985–86 [1]	1 047	–	133	–	1 695	–	0	–	2 875	–
1986–87 [2]	1 022	2 500	200	1 000	2 909	3 000	0	10	4 131	6 510
1987–88 [2]	1 381	2 500	288	1 000	3 019	3 000	0	10	4 689	6 510
1988–89 [2]	1 487	2 513	554	1 000	6 835	3 004	0	10	8 876	6 527
1989–90 [2]	2 115	2 610	763	1 000	4 903	3 310	0	10	7 781	6 930
1990–91 [2]	2 603	2 610	743	1 000	6 148	3 310	0	10	9 494	6 930
1991–92 [2]	3 156	3 500	2 013	3 500	3 027	6 770	0	10	8 196	13 780
1992–93 [2]	3 525	3 501	2 546	3 500	7 154	6 835	0	10	13 225	13 846
1993–94 [2]	1 803	3 501	2 587	3 500	2 974	6 835	0	10	7 364	13 847
1994–95 [2]	2 572	3 632	3 369	3 500	8 841	6 855	0	10	14 782	13 997
1995–96 [2]	3 956	3 632	3 466	3 500	8 678	6 855	0	10	16 100	13 997
1996–97 [2]	3 534	3 632	3 524	3 500	6 118	6 855	0	10	13 176	13 997
1997–98 [2]	3 810	3 632	3 524	3 500	7 416	6 855	0	10	14 749	13 997
1998–99 [2]	3 845	3 632	3 324	3 500	8 165	6 855	0	10	15 334	13 997
1999–00 [2]	3 899	3 632	2 803	3 500	6 898	6 855	0	10	13 599	13 997
2000–01 [2]	3 628	3 632	2 784	3 500	7 698	6 855	0	10	14 111	13 997
2001–02 [2]	2 870	3 701	1 424	3 500	7 519	6 855	0	10	11 813	14 066
2002–03 [2]	3 336	3 701	811	3 500	7 433	6 855	0	10	11 580	14 066
2003–04 [2]	3 466	3 701	2 275	3 500	7 945	6 855	0	10	13 686	14 066
2004–05 [2]	4 795	3 701	1 264	1 800	7 317	6 855	0	10	13 377	12 366
2005–06 [2]	2 742	3 701	305	1 800	6 905	7 700	0	10	9 952	13 211
2006–07 [2]	2 025	3 701	899	1 800	7 668	7 700	0	10	10 592	13 211
2007-08 [2]	2 445	3 701	865	1 800	2 620	7 700	0	10	5 930	13 211
2008-09 [2]	3 415	3 701	856	1 800	5 954	7 700	0	10	10 226	13 211
2009-10 [2]	2 156	3 701	208	1 800	2 352	7 700	0	10	4 716	13 211
2010-11 [2]	1 904	3 701	179	1 800	3 754	7 700	0	10	5 837	13 211
2011-12 [2]	1 948	3 701	161	1 800	4 459	7 700	0	10	6 568	13 211

1. FSU data. 2. QMS data.

3.3.3 User rights

The Quota Management System (QMS) is based on controlling outputs and is designed to ensure sustainable use of the fisheries resources while allowing economic efficiency in the industry. The QMS approach is to directly limit the total quantity of fish taken. The major focus is on the amount taken by the commercial fishing industry so that there are sufficient fish available for non-commercial uses and for the conservation of the resource. (The needs of recreational fishers and Maori interests are provided for before commercial quota levels are set.)

Within the commercial catch limit, access is determined by ownership of quota and ownership of Annual Catch Entitlement (ACE). Quota is a right which gives individuals and companies a share of

the TACC for a particular species in a defined area. Quota can be bought or sold. ACE is generated in proportion to the amount of quota owned by an individual of company at the start of each fishing year, and is the right to harvest a particular species in a defined area in that quota year. ACE "disappears" at the end of each fishing year.

The QMS is also being used in dealing with Maori claims to commercial fisheries. The Government has purchased quota and transferred it to the Te Ohu Kai Moana (TOKM, i.e., Treaty of Waitangi Fisheries Commission) in recognition of Maori rights to the commercial fishery. TOKM distributes quota to iwi (Maori tribes). When the initial species were introduced into the QMS (e.g. hake) 10% was given to Maori. 20% of commercial quotas of all new species now brought into the QMS are given to the TOKM to distribute.

3.4 Principle One: Target Species Background

3.4.1 Summary of the fishery

Hake are widely distributed throughout the middle depths of the New Zealand EEZ, mostly south of 40°S. Adults are mainly distributed from 250–800m, but some have been found as deep as 1200m, while juveniles (0+) are found in inshore regions shallower than 250m.

The New Zealand hake reach a maximum age of at least 25 years. Males, which rarely exceed 100 cm total length (TL), do not grow as large as females, which can grow to 120 cm TL or more. Both sexes reach sexual maturity between 6 and 10 years of age, at lengths of about 67–75 cm TL (males) and 75–85 cm TL (females). Colman (1998) suggested that hake reached 50% maturity at between 6–8 years for HAK 1, and 7–8 years for HAK 4. New estimates indicate that Chatham Rise hake reach 50% maturity at about 5.5 years for males and 7 years for females, Sub-Antarctic hake at about 6 years for males and 6.5 years for females, and WCSI hake at about 4.5 years for males and 5 years for females (Horn & Francis 2010).

Horn (1997) validated the use of otoliths readings to age hake, and produced von Bertalanffy growth parameters. Growth parameters have been updated by Horn (2008) using both the von Bertalanffy and Schnute growth models. The Schnute model was found to fit the data better. Readings of otoliths have been used in age-length keys to scale length frequency distributions for hake collected from trawl surveys in HAK 1 and HAK 4 and from commercial vessels in the HAK 1, HAK 4, and HAK 7 fisheries to produce catch at age distributions. Growth rates were found to be slightly different among the stocks with rates highest on the west coast of South Island (HAK 7), and lowest in the sub-Antarctic (HAK 1).

Dunn *et al*. (2000) estimated natural mortality as 0.18 y^{-1} for females and 0.20 y^{-1} for males, slightly reduced from the previous estimates of 0.20 y^{-1} for females and 0.22 y^{-1} for males. Generally lower natural mortality estimates tend to be more precautionary because they tend to increase the estimate of the size of the unexploited stock.

Data collected by observers on commercial trawlers and data from trawl surveys suggest that there are at least three main spawning areas for hake (Colman 1998). The best known area is off the west coast of the South Island, where the season can extend from June to October, usually with a peak in September. Spawning also occurs to the west of the Chatham Islands during a prolonged period from at least September to January. Spawning on the Campbell Plateau, primarily to the north-east of the Auckland Islands, occurs from September to February with a peak in September–October. Spawning fish have been recorded occasionally on the Puysegur Bank, with a seasonality that appears similar to that on the Campbell Plateau (Colman 1998).

Juvenile hake have been taken in coastal waters on both sides of the South Island and on the Campbell Plateau. They reach a length of about 15–20 cm total length at one year old and about 35 cm total length at 2 years (Colman 1998).

3.4.2 Stock assessment and the status of stocks

Three main hake spawning areas have been identified: off the west coast of the South Island, on the Chatham Rise and on the Campbell Plateau. Juvenile hake are found in all three areas. There are differences in size frequencies of hake between the west coast and other areas, and differences in growth parameters between all three areas (Horn 1997; Horn 2008). There is good evidence, therefore, to suggest that at least three separate stocks exist in the EEZ.

Present management divides the fishery into three fish stocks: (a) the Challenger QMA (HAK 7), (b) the Chatham Rise QMA (HAK 4) and (c), the remainder of the EEZ comprising the Auckland, Central, Southeast (Coast), Southland and Sub-Antarctic QMAs (HAK 1). An administrative fish stock (with no recorded landings) exists for the Kermadec QMA (HAK 10).

3.4.3 Assessments and Information

Stock assessments are fully described in reports (Horn 2013a, b) and in the recent Plenary Reports. Details are not reproduced here, but an outline of the approach and implications for meeting the MSC standard are provided. Stock assessments are available from 2011 for the Sub-Antarctic stock (Horn 2013a), 2012 for the Chatham Rise stock (Horn 2013b), and 2013 for the west coast South Island stock. In stock assessment modelling the Chatham stock was considered to include the whole of the Chatham Rise (including the western end currently forming part of the HAK 1 management area). The Sub-Antarctic stock was considered to comprise the Southland and Sub-Antarctic management areas. Although fisheries management areas around the North Island are also included in HAK 1, few hake are caught in these areas.

Fishery independent surveys provide the main abundance information for stock assessments, but standardised CPUE has also been used as an abundance index for HAK7. Comprehensive trawl surveys have been conducted annually on the Sub-Antarctic (HAK 1) and Chatham Rise (HAK 4) stocks, but are only sporadically available for the West Coast South Island (HAK 7) stock. The surveys use a random stratified sampling design and routinely collect acoustic as well as trawl data (e.g. Stevens et al., 2012).

The catch history used in the stock assessments includes the revised estimates of catch reported by Dunn (2003) and updated by Devine (2008). Catch biomass has been recorded accurately except for some area misreporting discovered in 2001. Dunn (2003) provided revised estimates of the total landings by stocks, estimating that the level of hake over-reporting on the Chatham Rise (and hence under-reporting on the west coast South Island) was between 16 and 23% (700–1000 t annually) of landings during 1994–95 and 2000–01, mainly in June, July, and September. Probable levels of area misreporting prior to 1994–95 and between the west coast South Island and sub-Antarctic were estimated as small (Dunn 2003). There is no evidence of similar area misreporting since 2000–01 (Devine 2009). The misreporting problem is not significant enough to affect stock assessments. Due to the isolated location, activity of the legal fishery and enforcement, IUU fishing is not significant.

In earlier years, before the introduction of higher TACCs in 1991–92, there is some evidence to suggest that catches of hake were not fully reported. Comparison of catches between vessels with and without observers, particularly in HAK 7 from 1988–89 to 1990–91, suggested that actual catches were probably considerably higher than those reported. For these years, the ratio of hake to hoki in the catch of vessels carrying observers was significantly higher than in the catch of vessels not carrying observers (Colman and Vignaux 1992). The actual hake catch in HAK 7 for these years was estimated by multiplying the total hoki catch (which was assumed to be correctly reported by vessels both with and without observers) by the ratio of hake to hoki in the catch of vessels carrying observers. This resulted in raised estimates of the hake catch, from 6 835 t to 8 696 t in 1988-89, 4 903 t to 8 741 t in 1989–90, and from 6 189 t to 8 246 t in for 1990–91. More recently, the level of such misreporting

has not been estimated and no such corrections have been applied to either the HAK 1 or HAK 4 fishery.

Age compositions and length compositions are available from the surveys and commercial catches (Horn and Sutton 2012). Commercial catch sampling takes place through the observer programme and is available for all stocks, but does not necessarily form a complete time series. Otolith ageing has been validated (Horn and Sutton 2012).

The state of the stock is the estimate of the spawning stock biomass relative to the reference points (Table 4). The target, hard and soft limit reference points are 40%, 20% and 10% of the unexploited stock (B_0) by default.

Table 4: Reference points and current state of stock for hake. The current value is the best estimate (usually median) and the lower value is a lower bound reported in the assessment (either the lower 90% CI or lower value from the sensitivity analysis). All values are percentages of the unexploited SSB.

Stock	Year	Hard Limit	Soft Limit	Target	Current	Lower Value
Sub-Antarctic (HAK 1)	2011	10	20	40	52.3	39.0
Chatham Rise (HAK 4)	2012	10	20	40	46.8	35.3
West Coast South Is. (HAK 7)	2013	10	20	40	57.7	43.1

3.4.3.1 HAK 1 (Sub-Antarctic stock)

The 2011 stock assessment was carried out with data up to the end of the 2009-10 fishing year, implemented as a Bayesian model using the general-purpose stock assessment program CASAL v2.22 (Bull *et al*. 2008). For final model runs, the full posterior distribution was sampled using Markov Chain Monte Carlo (MCMC) methods, based on the Metropolis-Hastings algorithm.

The base case model ('Single sex') partitioned the Sub-Antarctic stock population into unsexed age groups 1-30 with the last age group considered a plus group. The model was initialised assuming an equilibrium age structure at an unfished equilibrium biomass (B_0), i.e., with constant recruitment set equal to the mean of the recruitments over the period 1974-2007. The model used three double-normal selectivity-at-age ogives; commercial fishing selectivity, and survey selectivities for each of the November-December and April-May trawl survey series (with the September 1992 survey assumed to have a selectivity equal to the April-May series). Selectivities were assumed constant over all years in the fishery and the surveys, and hence there was no allowance for possible annual changes in selectivity. Sensitivity models were also run to investigate the effects of including sex-specific processes, a fishery-dependent CPUE series, varying M with age, and alternative values of q within the summer trawl survey series (see below).

Five-year biomass projections were made assuming future catches in the Sub-Antarctic to be 2 300 t annually (the mean annual catch from 2005 to 2010). For each projection scenario, estimated future recruitment variability was sampled from actual estimates between 1974 and 2007.

Catch-at-age data were fitted to the model as proportions-at-age with a lognormal likelihood, where the proportions-at-age and associated CVs by age were estimated using the NIWA catch-at-age software by bootstrap. Biomass indices were fitted with lognormal likelihoods, with assumed CVs set equal to the sampling CV.

The CVs (for observations fitted with lognormal likelihoods) were assumed to have allowed for sampling error only. Additional variance, assumed to arise from differences between model

simplifications and real world variation (process error), was added to the sampling variance for the survey biomass indices and proportion-at-age data in all model runs. The process error was estimated from MPD runs of the each model. The values for process error were then fixed for the MCMC runs.

Year class strengths were assumed known (and equal to one) for years prior to 1974 and after 2007, when inadequate or no catch-at-age data were available. Otherwise year class strengths were estimated under the assumption that the estimates from the model should average one.

Research survey biomass estimates used were from 1992-1994, 1996, 1998, 2001-2010 (2012 and 2013 estimates not used within the assessment), together with sample CVs for estimates bar those in 1996 and 1998.

The assessment model's prior distributions were intended to be relatively uninformed, and were estimated with wide bounds. The exceptions were the choice of informative priors for the survey qs (catchability); these were estimated by assuming that q was the product of areal availability, vertical availability, and vulnerability. A simple simulation was conducted that estimated a distribution of possible values for the relativity constant by assuming that each of these factors was uniformly distributed. A prior was then determined by assuming that the resulting, sampled, distribution was lognormally distributed. That prior had mean 0.16 and CV. 0.79, with bounds assumed to be 0.01–0.40. Note that the values of survey relativity constants are dependent on the selectivity parameters, and the absolute catchability can be determined by the product of the selectivity by age and sex, and the relativity constant q.

Penalty functions were used a) to constrain the model so that any combination of parameters that resulted in a stock size that was so low that the historical catch could not have been taken was strongly penalised, b) to ensure that all estimated year class strengths averaged 1, and c) to smooth the year class strengths estimated over the period 1974 to 1979.

Estimates of biomass were produced for an agreed base case run (the Single sex model using the defined biological parameters and model input parameters). In addition, four sensitivities were investigated: (1) splitting the summer survey series into early (1992-2006) and recent (2007-09) series with independent qs, (2) including sex in the partition, (3) including the trawl CPUE series, and (4) estimating M as a double-exponential function, thus allowing M to vary with age. For all runs, MPD fits were obtained and qualitatively evaluated, and MCMC estimates of the median posterior and 95% percentile credible intervals were determined for current and virgin biomass, and projected states. However, only the estimates from the base case and estimate M runs are reported in detail here. The other three sensitivities produced estimates of stock status that were little different to those from the reported models.

The estimated MCMC marginal posterior distributions from the base case model indicated that suggested that the Sub-Antarctic stock was characterised by a group of relatively strong year classes in the late 1970s, a very strong year class in 1980, followed by a period of average to less than average recruitment through to 2004. Estimates from 2005 to 2007 were above average. Consequently, biomass estimates for the stock declined, particularly through the early 1990s, but are currently exhibiting an upturn. Biomass estimates for the stock appeared relatively healthy, with estimated current biomass from the two reported models at about 50% of B_0. Annual exploitation rates (catch over vulnerable biomass) were low (less than 0.1) in all years as a consequence of the high estimated stock size in relationship to the level of relative catches.

Projected future annual catches of 2 300 t, in tandem with some recent stronger than average year classes, are projected to allow stock size to increase by about 50% by 2016. However, the lack of contrast in abundance indices since 1991 indicates that while the status of the Sub-Antarctic stock is probably similar to that in the early 1990s, the absolute level of current biomass is very uncertain.

The assessment relied on biomass data from the Sub-Antarctic trawl survey series. The summer survey series was not well fitted and had clear patterns in the residuals. It was also apparent that there

can be marked changes in catchability between adjacent pairs of surveys. Estimated trawl survey catchability constants were very low (about 2-6% based on door-spread swept area estimates), suggesting that the absolute catchability of the Sub-Antarctic trawl surveys is extremely low. While this is not confirmed, it is consistent with hake being relatively more abundant over rough ground (that is likely to be avoided during a trawl survey), and the fact that hake tend to school off the bottom, particularly during their spring–summer spawning season, hence reducing their availability to the bottom trawl.

Horn (2013a) noted that "the stock is probably being well monitored by the November-December trawl survey series. While the stock status appears to be reasonably well defined, estimates of past and current absolute stock size are very uncertain owing to poor contrast in the relative abundance series. Because of the high uncertainty in estimates of absolute biomass, yield estimates are also very uncertain. However, there are probably no current sustainability issues for this stock."

3.4.3.2 HAK 4 (Chatham Rise stock)

The 2012 stock assessment was carried out with data up to the end of the 2010-11 fishing year (Horn, 2013b), using the latest version of CASAL v2.22 (Bull et al., 2008). The assessment used research time series of abundance indices (trawl surveys of the Chatham Rise from 1992 to 2012), catch-at-age from the trawl survey series and the commercial fishery since 1990-91, a CPUE series from the eastern trawl fishery, and estimates of biological parameters. The model structure and assessment method was broadly the same as that described above for the HAK1 stock.

No CPUE was included, and a constant M was used. The models were initialised assuming an equilibrium age structure at an unfished equilibrium biomass (B_0), i.e., with constant recruitment set equal to the mean of the recruitments over the period 1975-2006. There were three double-normal selectivity-at-age ogives; east and west commercial fishing selectivities and a survey selectivity for the Chatham Rise January trawl survey series. Selectivities were assumed constant over all years in both fisheries and the survey, and hence there was no allowance for possible annual changes in selectivity. The age at full selectivity for the trawl survey series was parameterised to be most likely in the range 8±2 years. This range was determined by visual examination of the at-age plots, and was implemented because unconstrained selectivity resulted in age at full selectivity being older than most of the fish caught in the survey series.

Five-year biomass projections were made assuming future catches on the Chatham Rise equal to the HAK 4 TACC of 1800 t. For the projection, estimated future recruitment variability was sampled from actual estimates between 1984 and 2009, a period including the full range of recruitment successes.

Catch-at-age observations were available for each survey on the Chatham Rise and for commercial trawl fisheries on the eastern and western Rise from observer data in some years. The catch histories included the revised estimates of catch reported by Dunn (2003).

Year class strengths were assumed known (and equal to one) for years before 1975 and after 2009, where inadequate or no catch-at-age data were available. Otherwise year class strengths were estimated under the assumption that the estimates from the model should average one.

Research survey biomass estimates used were from 1992-2012, together with sample CVs for each estimate.

The priors for B_0 and year class strengths were intended to be relatively uninformed, and had wide bounds. Priors for the trawl fishery selectivity parameters were assumed to be uniform. Priors for the trawl survey selectivity parameters were assumed to have a normal-by-stdev distribution, with a very tight distribution set for age at full selectivity, but an essentially uniform distribution for other selectivity function parameters aL and aR. The prior for the survey q was informative and estimated using the same approach as for HAK1.

Estimates of biomass were produced for an agreed base case run (research survey abundance series, constant M). Sensitivity models were run to investigate the effects of estimating M, including the CPUE series, and removing constraints on the survey selectivity ogive. Stock status from these three models was not markedly different to the base case.

Estimated MCMC marginal posterior distributions from the base case model indicated that year class strength on the Chatham Rise stock was characterised by a group of relatively strong relative year class strengths in the late 1970s to early 1980s, and again in the early 1990s, followed by a period of relatively poor recruitment (except for 2002). Consequently, biomass increased slightly during the late 1980s, then declined to about 2005. The growth of the strong 2002 year class has resulted in a recent slight upturn in biomass. Current stock biomass was estimated at about 47% of B_0. Annual exploitation rates (catch over vulnerable biomass) were low (less than 0.1) up to 1993 and since 2007, but moderate (although probably less than 0.25) in the intervening period.

Base case model projections assuming a future annual catch of 1 800 t suggest that biomass will decline to about 38% of B_0 by 2017. There was little risk (i.e., < 1%) that the stock would fall below 20% B_0 in the next five years under this catch scenario. Note that 1 800 t is higher than recent annual landings from the stock (they have averaged about 1 070 t in the last five years), but lower than what could be taken (if all the HAK 4 TACC plus some HAK 1 catch from the western Rise was taken).

CAY (Current Annual Yield) estimates were not reported because of the uncertainty of the estimates of absolute biomass.

3.4.3.3 HAK 7 (West coast, South Island)

A new assessment for HAK 7 was carried out in 2013 using fisheries data up to the end of the 2011–12 fishing year (Horn, 2013b). The model structure was the same as that used for HAK 1 described above, but some changes were introduced to better meet the requirements for fitting the available data. The assessment used catch-at-age from the commercial fishery since 1989–90, two comparable research surveys (in 2000 and 2012), a CPUE series from 2001 to 2011, and estimates of biological parameters. The selected CPUE series incorporated data since the change in 2001 to a new regulatory and reporting regime (involving ACE), and so was considered less likely to be biased by variations in fishing behaviour and catch reporting behaviour.

The stock assessment for HAK 7 had been last updated using data up to the end of the 2008-09 fishing year (Horn 2011). Commercial catch-at-age was the only input data series at that time. No time series of biomass indices were incorporated in the model; no fishery-independent series were available and CPUE indices were considered unreliable. However a CPUE series was used in the 2013 model.

The 2013 model was initialised assuming an equilibrium age structure at an unfished equilibrium biomass (B_0) in 1974, i.e., with constant recruitment set equal to the mean of the recruitments over the period 1973–2007. M was considered constant, and selectivities were assumed constant over all years in the fishery and the surveys; hence there was no allowance for possible annual changes in selectivity. Sensitivities to the base model investigated the effect of estimating M as an age-dependent function, and the effect of excluding the research survey data.

Five-year biomass projections were made assuming future WCSI catches of 4500 t annually (the mean annual catch since 2007-08) and 7700 t annually (the TACC). For each projection scenario, estimated future recruitment variability was sampled from actual estimates from 1995 to 2006, a period including both high and low recruitment success, but excluding the most recent estimated year class (2007).

Commercial fishery catch-at-age observations were available for 1979 (fishing by RV Wesermünde) and 1989-90 to 2010-11 (observer data). Research survey biomass and proportions-at-age data (from 2000 and 2012) were also fitted in the model, together with sample CVs for each year.

The priors for B_0 and year class strengths were intended to be relatively uninformed, and had wide bounds. Priors for all selectivity parameters were assumed to be uniform. The prior for the survey q was informative and was estimated using the Sub-Antarctic hake survey priors as a starting point (see description under HAK1) because the survey series in both areas used the same vessel and fishing gear. However, the WCSI survey area in the 200–800 m depth range in strata 0004 A–C and 0012 A–C comprised 12 928 km^2; seabed area in that depth range in the entire HAK 7 biological stock area (excluding the Challenger Plateau) is estimated to be about 24 000 km^2. So because biomass from only 54% of the WCSI hake habitat was included in the indices, the Chatham Rise prior on μ was modified accordingly (i.e., 0.16 × 0.54 = 0.09), and the bounds reduced to [0.01, 0.25]. Priors for all selectivity parameters were assumed to be uniform.

Estimates of biomass were produced for an agreed base case run (CPUE and survey abundance series, constant M). In addition, two sensitivities were investigated: (1) estimating M as a double exponential function thus allowing M to vary with age, and (2) excluding the research survey biomass series.

WCSI year class strength estimates exhibited a relatively low level of between-year variation, although there was a period of generally less than average recruitment from 1993 to 2003, followed by four years of relatively strong year classes. Estimated biomass declined throughout the late 1970s owing to relatively high catch levels, then increased through the mid 1980s concurrent with a marked decline in catch. Biomass then steadily declined from 1988 to 2007 owing to higher levels of exploitation and the recruitment of year classes that were generally of below-average strength. The increase since 2006 is a consequence of the recruitment of the above-average year classes since 2004. Estimated current biomass from the base model was 58% B_0. Annual exploitation rates (catch over vulnerable biomass) were low to moderate (less than 0.2) up to about 1999, but increased to 0.2 to 0.4 in 1977 and throughout the 2000s, and have subsequently declined. The exploitation rate that produced a biomass equal to 40%B_0 was 0.34.

Deterministic B_{MSY} was also calculated as 26% B_0. However, this was not felt to be a suitable target for management of the HAK 7 fishery. First, it assumes a harvest strategy that involves perfect knowledge (catch, biological information, stock assessment accuracy), a constant-exploitation management strategy, and perfect management implementation. Second, it assumes perfect knowledge of the stock-recruit relationship, which is actually very poorly known. Third, the estimated value is close to the default soft limit of 20%B_0 and hence biomass may occasionally fall below this default soft limit according to the Harvest Strategy Standard. Thus, the actual target needs to be above this theoretical optimum; but the extent to which it needs to be above has not been determined.

Estimates of the status of the WCSI stock suggest that there has been a steady increase in stock size since 2007, when it was about 30% B_0.

Projections assuming future catches similar to recent levels (i.e., 4 500 t annually) will probably allow the stock to grow slightly in the next five years, while catches at the level of the TACC (7 700 t) will probably cause the stock to decline slightly but still be above the management target (40% B_0) in 2017.

3.5 Management advice

3.5.1 Overview

The stated objective is to have the stock fluctuating around the management target (40% of unexploited biomass), but with some acceptable, but undefined, variation. A formal time-constrained rebuilding plan is to be implemented if the soft limit is reached (i.e. is a 'trigger' reference point for action to avoid the stock falling below the 'hard' limit reference point) and the hard limit defines to level below which the fishery should be considered for closure. The rebuilding plan requires that the hake biomass be rebuilt to the target level with an acceptable probability. The rebuild should be

achieved between the time it would take for the stock to rebuild in the absence of fishing and twice that time Ministry of Fisheries (2008).
In 2010/11 the catches appear to have been lower than the TACCs (Table 5) and have been considered sustainable. TACCs have been altered in the past in response to management advice. However, it is less clear that all current TACCs have been set at a sustainable level suggesting that TACCs may only be adjusted when a control on catch is required. Therefore, it is not clear how TACCs will respond to stock assessment results in future. This will be monitored in future annual audits.

The stock assessment results are reported in MPI Fisheries Assessment Plenary documents (e.g. MPI, 2013a, b, c), consistent with the harvest strategy, with the likelihood of current and projected stock status being below target and both soft and hard limit levels being reported. Scientific advice is consistent with achieving the target biomass and achieving acceptable risks.

Table 5 : Current catches, TACCs and results of projections for tested catches (base case models). The low value is the lower bound of the 95% credible interval.

Stock	2011/12 TACC	2011/12 Catch	Projection to Year	Projected Catch	Projected Status	
					Median	Low
Sub-Antarctic (HAK 1)	3701	1948	2016	2300	78.4	53.5
Chatham Rise (HAK 4)	1800	161	2017	1800	38.1	22.0
West coast South Island (HAK 7)	7700	4459	2017	4500	61.2	39.2
				7700	47.4	27.4

Sub-Antarctic stock (HAK 1, excluding the Chatham Rise)

Information	Commentary
Reference Points	Management Target: 40% B_0 Soft Limit: 20% B_0 Hard Limit: 10% B_0
Status in relation to Target	B_{2011} was estimated to be about 50% B_0; Very Likely (> 90%) to be at or above the target.
Status in relation to Limits	B_{2011} is Exceptionally Unlikely (< 1%) to be below both the Soft and Hard Limits.
Recent Trend in Biomass or Proxy	Median estimates of biomass are unlikely to have been below 51% B_0. Biomass is estimated to have been decreasing from the late 1980s to 2009, but is now increasing.
Recent Trend in Fishing Mortality or Proxy	Fishing pressure is estimated to have been relatively low throughout the duration of the fishery.
Trends in Other Relevant Indicators or Variables	Recent recruitment (2005–2007) is estimated to be higher than the long-term average for this stock.
Stock Projections or Prognosis	The biomass of the Sub-Antarctic stock was expected to increase at a catch level equivalent to the mean since 2005 (i.e., 2 300 t annually).
Probability of Current Catch or TACC causing decline below Limits	Soft Limit: Very Unlikely (< 10%) Hard Limit: Exceptionally Unlikely (< 1%)

Qualifying comments included:

- Four sensitivity model runs reported in a FAR but not in the Plenary Report all produced similar estimates of stock status to the base case (i.e., B_{2011} = 45–67% B_0).

Chatham Rise stock (HAK 4 and western Chatham Rise HAK 1)

Information	Commentary
Reference Points	Management Target: 40% B_0 Soft Limit: 20% B_0 Hard Limit: 10% B_0
Status in relation to Target	B_{2012} was estimated to be about 47% B_0; Likely (> 60%) to be at or above target.
Status in relation to Limits	B_{2012} is Exceptionally Unlikely (< 1%) to be below the Soft or Hard Limits.
Status in relation to Overfishing	Overfishing is Exceptionally Unlikely (< 1%) to be occurring.
Recent Trend in Biomass or Proxy	Median estimates of biomass are unlikely to have been below 40% B_0. Biomass has been slowly increasing since 2006.
Recent Trend in Fishing Mortality or Proxy	Fishing pressure is estimated to have been low since 2006 (relative to estimated pressure in most years from 1994 to 2005).
Trends in Other Relevant Indicators or Variables	Recruitment (1995–2009, but excluding 2001) is estimated to be lower than the long-term average for this stock.
Stock Projections or Prognosis	The biomass of the Chatham Rise stock is expected to decrease slightly over the next 5 years at catch levels equivalent to those from recent years (i.e., about 1100 t annually), but is projected to decline markedly if future catches are close to the high catch scenario (i.e. annual catch levels equivalent to the HAK 4 TACC of 1800 t).
Probability of Current Catch or TACC causing decline below Limits	Assuming future catches at the HAK 4 TACC: Soft Limit: About as Likely as Not (40–60%) Hard Limit: Unlikely (< 40%)
Probability of Current Catch or TACC causing Overfishing to continue or to commence	Assuming future catches at the HAK 4 TACC: About as Likely as Not (40–60%)

Qualifying comments included that:

- The increase in relative abundance seen since 2006 is the result of good recruitment in 2002.
- In October 2004, large catches were taken in the western deep fishery (i.e. near the Mernoo Bank). This has been repeated to a lesser extent in 2008 and 2010. There is no information indicating whether these aggregations fished on the western Chatham Rise were spawning; if they were then this might indicate that there is more than one stock on the Chatham Rise. However, the progressive increase in mean fish size from west to east is indicative of a single homogeneous stock on the Chatham Rise.

West Coast South Island stock (HAK 7)

Information	Commentary
Reference Points	Management Target: 40% B_0 Soft Limit: 20% B_0 Hard Limit: 10% B_0
Status in relation to Target	B_{2012} was estimated to be 58% B_0; Very Likely (> 90%) to be at or above the target.
Status in relation to Limits	B_{2012} is Very Unlikely (< 10%) to be below the Soft Limit and Exceptionally Unlikely (< 1%) to be below the Hard limit.
Status in relation to Overfishing	The fishing intensity in 2012 was Very Unlikely (< 10%) to be above the overfishing threshold.
Recent Trend in Biomass or Proxy	Median estimates of biomass are unlikely to have been below 28% B_0. Biomass is estimated to have been decreasing from the late 1980s to 2007, but has been increasing since then.
Recent Trend in Fishing Mortality or Proxy	Fishing pressure is estimated to have been declining since 2007, and is currently lower than in all years since 1995.
Trends in Other Relevant Indicators or Variables	Recent recruitment (2004–2007) is estimated to be higher than the long-term average for this stock.
Stock Projections or Prognosis	The biomass of the WCSI stock is expected to increase slightly at a catch level equivalent to the mean since 2007 (i.e., 4 500 t annually), or decline slightly at a catch level equivalent to the TACC (i.e., 7 700 t annually).
Probability of Current Catch or TACC causing decline below Limits	For either current catches or the TACC: Soft Limit: Very Unlikely (< 10%) Hard Limit: Exceptionally Unlikely (< 1%)
Probability of Current Catch or TACC causing Overfishing to continue or to commence	Unlikely (< 40%)

Qualifying comments included:

- The fishery-independent abundance series is sparse (i.e., two comparable trawl surveys).
- CPUE from this stock has previously been considered too unreliable to be used as an abundance index, but a truncated series from 2001 has been used here under the assumption that any biases owing to changes in fishing or reporting behaviour are small.

3.6 Low trophic level

The team determined that the species under assessment is not considered to be a key low level trophic species (LTL).

3.7 Principle Two: Ecosystem Background

This section provides background on the ecosystem components considered under Principle 2. It provides a general overview of the characteristics of the ecosystem within the New Zealand EEZ, and the information, studies and management that is being carried out. It should be noted that more detailed examinations of information are presented within the Scoring Guidepost Appendix 1.

3.7.1 The aquatic ecosystem, its status and any particularly sensitive areas, habitats or ecosystem features influencing or affected by the fishery

The New Zealand EEZ extends over 30^{o} of latitude, and covers sub-tropical to sub-Antarctic marine ecosystems. Consequently, it is an extremely diverse area biologically, and in terms of habitats. Hake occur widely through New Zealand's EEZ, and fishing takes place in three main areas: West Coast South Island (HAK7), the Chatham Rise (HAK4) and sub-Antarctic (southerly HAK1). The Chatham Rise and Sub-Antarctic areas share many key ecosystem characteristics (e.g. primary productivity, depth, benthos, fish (Pinkerton 2011a)).

Oceanography and primary productivity within the New Zealand EEZ has been well studied through research projects and remote sensing studies. Fairly comprehensive benthic surveys have been performed of seabed types around the New Zealand continental shelf and seamounts. Analyses have developed a Marine Environmental Classification (MEC; Snelder et al., 2005), a Benthic Optimised Marine Environment Classification (BOMEC, Leathwick et al. 2009) and sediment distributions in the New Zealand EEZ using categorical definitions, along with the Interim Nearshore Marine Classification (INMARC) developed by DOC (e.g. Leathwick et al., 2006). Further projects mapping the biodiversity of seabeds and the spatial and temporal extent of fishing are underway through NIWA. These include the ongoing 'Chatham/Challenger' project, which aims to map and compare habitats and diversity of sea-bed communities in fishable depths at key locations across the Chatham Rise and the Challenger Plateau (Probert and Grove, 1998; McKnight and Probert, 1997). The project is employing both acoustic mapping approaches and underwater camera work to map biodiversity and habitat types. In turn, the Ocean Survey 20/20 (OS 20/20) project aims to map the seafloor habitats and biodiversity of New Zealand's marine environment across large areas of the EEZ, but concentrating on the Chatham Rise and Challenger Plateau, and on-going studies are expanding knowledge of the distribution of cold water corals (Bowden et al., 2011). The location of other key vulnerable habitat types (smokers, hydrothermal vents etc.) is known.

Data from surveys, logbooks and the observer programme are available to allow the location of impacts by the fishery on habitat types to be identified. In turn, the footprint of the fishery is well established through VMS records and the Trawl Catch, Effort and Processing Return (TCEPR) data. Bottom trawling that targets the hoki/hake/ling fishery complex is carried out most extensively in the areas of the Chatham Rise and the sub-Antarctic, with effort also concentrated on the west coast of the South Island, commonly in depths of around 200-800m.

The main impacts from demersal trawls on the benthic habitat concentrate on the removals of mobile and sessile species, and the disturbance and modification of the structure of the seafloor. Studies elsewhere in the world (e.g. Thrush and Dayton 2002; Clark and Rowden 2009) have demonstrated that repeated trawl disturbance can alter the benthic community by damaging or removing macrofauna, with the potential encouragement of anaerobic bacterial growth. A loss of sediment diversity can also occur, while processes such as nutrient transfer, oxygenation and productivity can also be impaired. The cumulative impact of trawling on the seabed will also depend upon the degree of previous trawling; there being a reduced impact per trawl over time.

The rate of recovery depends on the nature of the benthic habitat, with more mobile sediments such as mud and sand in high energy environments recovering faster than, for example, rocky sediments with slow growing organisms in low energy environments. This is the subject of continued studies within the New Zealand EEZ (e.g. projects BEN2007/01, BEN2007/04). In the Chatham Rise and sub-Antarctic regions, the majority of trawling is within higher-energy sediments such as sandy silt and clay, although some lower-energy areas exist in these regions (see section 3.7.2.7). Impacts on underwater topographical features (UTFs) have been identified (Clark and Rowden, 2009). Effectively, through Seamount closures or as a result of being within BPAs, 80% of the seamounts within the New Zealand EEZ are closed to demersal trawling. These closures confer effective habitat protection. Closures occur largely outside the areas fished intensively for hake (Ministry of Fisheries 2010a). Finally, Benthic Protection Areas, which close over 30% of the New Zealand EEZ to demersal trawling were established in 2007 for the purpose of benthic biodiversity protection (Helson et al. 2010, but see Leathwick et al. 2008).

Management of the hake fishery has not yet included an extensive assessment of 'significant' habitats. However, relevant information in this regard includes areas of particular importance for fishery sustainability (e.g. for spawning, or occupied by juvenile hake), spatial overlays of trawl tracks with marine environment and/or biological classifications. Currently, the best single tool currently available to characterising the likely impacts of bottom trawling on benthic organisms within different habitat categories is the Benthic-Optimised Marine Environment Classification (BOMEC) for New Zealand waters (Leathwick et al. 2009; Leathwick et al. 2010). However, BOMEC is not in and of itself a spatial map delineating different benthic habitats. It has not been 'ground truthed' against the spatial disposition of extant benthic habitats in the real world and hence should be viewed with some caution. Using the fifteen classes categorised therein, Black and Wood (2011) overlaid demersal trawl tracks comprising hoki fishing effort for each fishing year from 1989/90 – 2009/10. Resulting exposure to demersal trawling is summarised in Black et al. (2013). This analysis highlights the areal extent and intensity of demersal trawling for hake, e.g., trawling covers parts of the same habitat classes inter-annually, and the most extensively trawled BOMEC class is 8, where from 1989/90 - 2009/10, 5.3% was trawled. Black and Wood (2011) overlaid demersal trawl tracks within each Fisheries Management Area to highlight the areal extent and intensity of demersal trawling for hake (e.g., trawling covers parts of the same habitat classes inter-annually). Results from Black (2013) indicate that within the 400-800m depth area, where most of the hake fishing takes place, 3.5% of the area was contacted once or more between 1989-90 and 2009-10, (between 0-400m 1.34% was contacted over the same period). Of the entire fishable region within the EEZ for hake (1,408,210 km^2), 1.25% has been contacted once or more by bottom trawls, between 1989-90 and 2009-10.
The impact of trawling for conservation and species diversity/persistence can be limited if trawling affects small proportions of a habitat type within an area. Trawling of small proportions of each habitat type may therefore be acceptable, and impact on benthic ecosystems reduced, in this situation as the biodiversity is maintained in neighbouring areas.

The New Zealand Government closed 17 BPAs (Benthic Protection Areas) within the New Zealand EEZ (Exclusive Economic Zone) to bottom trawl fishing methods in perpetuity as of late 2007 (see Figure 5 for distribution). These areas comprise over 1.2 million km^2 of seabed. Protection is also provided under the accord to 52% of all UTFs within the New Zealand EEZ and 88% of identified hydrothermal vents. Demersal trawling and dredging is prohibited in these areas (pelagic fishing and demersal longlining being allowed). Regulations promulgated pursuant to the Fisheries Act (1996) implemented the closure of seamounts in 2001, representing 100,997 km^2 (http://www.mfe.govt.nz/environmental-reporting/oceans/protected-areas/management-tools.html).
This is discussed further under Section 3.7.2.7.

The ecosystem structure around New Zealand has been examined through the collection and analysis of stomach contents in key fish species (juveniles and adults) on the Chatham Rise and sub-Antarctic

regions of the New Zealand EEZ (e.g. Livingston and Stevens, 2004). This includes the dietary habits of hake. Dunn et al. (2010) found that the diet of hake on the Chatham Rise was dominated by teleost fishes, in particular Macrouridae (rattails). Macrouridae accounted for 44% of the prey weight and consisted of at least six species, of which javelinfish, *Lepidorhynchus denticulatus*, was most frequently identified. Hoki were less frequent prey, but being relatively large accounted for 37% of prey by weight. Squid were found in 7% of the stomachs, and accounted for 5% of the prey by weight. Crustacean prey were predominantly natant decapods, with pasiphaeid prawns occurring in 19% of the stomachs.

The structure of the mid-water food web is broadly understood for the Chatham Rise and Sub-Antarctic areas through numerous studies, which underpin existing and developing ecosystem models (Bradford-Grieve et al., 2003; ENV 2006/04, ZBD 2004/02; Pinkerton, 2011a). No model has yet been developed for the west coast South Island. Given the different ecosystems covered by existing models and studies, information is adequate to understand the functions of the key elements of the ecosystem. Information from the Ministry for Primary Industries' fisheries observer programme, and the logbooks (for the main 5 species in the catch) as well as continued sampling of stomachs, allow the main consequences for the ecosystem to be inferred.

The developed Ecopath models allow the impacts of the fishery on components to be examined, hake being a component of fish groups within the model, although this analysis has not yet been performed.

The Chatham Rise fishery is best understood in this respect, and an ecosystem model has been developed for this fishery (Pinkerton 2011a). Changes include declines in the mean trophic level of commercial and trawl survey catches and changes in species abundance (Tuck et al. 2009, Pinkerton 2011b) although this may be a consequence of the data analysed in these coming from when the biomass of hoki was declining. The ecosystem supporting the hake fishery in the Sub-Antarctic area is less well studied than that on the Chatham Rise. On-going change is reported from the Sub-Antarctic ecosystem, including declining mean trophic level (Tuck et al. 2009). Again, a key driver of this observed change is expected to have been the decline in hoki (rather than hake) biomass. At an EEZ level, the impacts of fisheries' removals on ecosystem productivity have also been examined. The effects of fisheries were assessed, preliminarily, to be sustainable in an energetic context (Knight et al. 2011). However, with the recovery of hoki stocks and key species being removed at levels close to or above B_{MSY}, there would be a sizeable proportion of biomass remaining in the ecosystem, and removals at this level are unlikely to lead to serious harm.

In summary, the two most significant ecosystem-level considerations in the hake fishery are the effects of removal of hoki biomass from the system through the hake-related fishery, and the impacts of demersal trawling activity on the benthos and benthic habitats. Retained, bycatch, and ETP species are considered further below.

Other fisheries overlap with the hake fishery spatially, such as trawl fisheries targeting hoki and ling (Ministry of Fisheries 2011a). Consequently, while considered separately for the purposes of this assessment, trawl activity in all these fisheries will naturally have additive effects on the marine ecosystems that support them.

3.7.2 The retained, bycatch and endangered, threatened or protected (ETP) species including their status and relevant management history

Data on catch rates and the relative abundance of non-target species in the fishery are available from three main sources:

- The TCEPR forms, which provide green-weight catch totals for the top five species

(dependent on vessel size and fishing method) on a fishing-event basis, and daily summary of TACC species caught.

- The Ministry for Primary Industries' fisheries observer data, which provides catch weight for all QMS and non-QMS species caught, on an observed tow-by-tow basis. This provides accurate and verifiable information, if on variable and patchy coverage). The observers monitored around 22.75% of trawls in 2010/2011in the HAK/HOK/LIN trawl fishery.(Ramm 2012b).
- Fishery independent trawl surveys on the Chatham Rise and Sub-Antarctic regions, provide abundance estimates of finfish, cartilaginous fish, and squid species, as well as catch weights of macro-invertebrates. Further inshore surveys also provide some information on TACC stocks.

3.7.2.1 Retained and bycatch species

The hake fishery is a component of New Zealand's Deepwater and Middle-depth fisheries which target a range of species (Ministry of Fisheries, 2010a). Data from the observer programme were used to assess the main retained and discarded non-target species within the catches by management area. These data were available for a five-year period from 2007/08 to 2011/12, and therefore represent the average catch levels over a significant time period. Temporal trends in the data could not be identified as a result, but the data period does reduce the impact of year-to-year fluctuations on results. Ballara et al. (2010) also provides an overview of catches and discards in the hoki/hake/ling fishery.

The top ten species (retained and bycatch) within hake-targeted trawl fisheries by management area, based upon observer data from a five-year period from 2007/08 to 2011/12. Proportion of QMS species in catch by weight noted. Full tables are available at http://www.deepwater.co.nz/our-species/hake/msc-assessment-of-new-zealand-hake-fisheries/.

Table 6: Top ten (by weight) retained and bycatch species from the hake-targeted trawl fishery. Source: MPI Observer data. Non-QMS species noted with a * (which do not have to be retained). Percentage values reflect the proportion these species contribute to catch totals by weight.

HAK1	HAK4	HAK7
Hoki	Hoki	Hoki
Ling	Silver warehou	Ribaldo
White warehou	Javelinfish*	Ling
Spiny dogfish	Sea perch	Javelinfish*
Silver warehou	Ling	Rattails*
Rattails*	Rattails*	Silver warehou
Javelinfish*	Barracouta	White warehou
Squid	Bellowsfish*	Conger eel*
Ribaldo	Alfonsino	Lookdown dory
Leafscale gulper shark*	Spiny dogfish	Sea perch
97.7%	93.3%	94.9%

It is noted that hake- (and ling-) targeted fishing is undertaken as a part of the main hoki fishery. The key bycatch species within these fisheries are generally comparable to those caught within the related hoki fishery (which are hake (*Merluccius australis*), ling (*Genypterus blacodes*), silver warehou (*Seriolella punctata*), and frostfish (*Lepidopus caudatus*) and the non-commercial spiny dogfish (*Squalus acanthias*) and rattails (Macrouridae)). While some specific differences are found, and the assessment performed here is based upon retained species levels within the hake-targeted fishery,

examination of the retained species levels within the hoki/hake/ling fishery relative to sustainable levels is recommended.

Retained species are, by regulation, the Quota Management System (QMS) species, which are enumerated and retained on board (except '6th schedule' species like spiny dogfish, which are enumerated before return to the sea as per Schedule 6 of the Fisheries Act 1996: Stocks which may be returned to the sea or other waters in accordance with stated requirements). The main QMS species are the subject of analytical stock assessments and active management that is based upon formalised biologically based limits. For the remaining QMS species, the TACC system, which aims to limit the overall catch of species, combined with the 'deemed value' process, represents the management strategy for these species.

Information is sufficient to quantitatively estimate outcome status with a high degree of certainty for the majority of main (>5% of catch) QMS species caught, by target fishery and management area. However, information for some main QMS species and other QMS species is more limited and quantitative estimates of outcome status are not routinely developed, although qualitative assessments have been performed for particular species; trends in the abundance of key retained species that are adequately sampled by trawl surveys on the Chatham Rise and Sub-Antarctic have been reported following each survey. In theory action would be initiated if negative trends in particular species were identified. The potentially low statistical power of the survey data for some species is noted.

The New Zealand system identifies species by 'tier', Tier 1 being target species, Tier 2 being key non-target (bycatch) WMS species and tier 3 being non-QMS species.

For non-QMS species (Tier 3 species) stock assessments are not performed, and assessments of the potential impact of the fishery on population levels are highly uncommon. These species are not managed under the TACC process, although the increasing number of species within the QMS system demonstrates that substantial catches of non-QMS species tends to lead to the establishment of their QMS status, and hence become subject to more formalised monitoring and must be retained on board vessels. Species can be added to the QMS under Section 17B of the Fisheries Act and/or the species managed under Section 11 of the Act (see also the QMS Introduction Process Standard; MPI (2008)). Section 17B of the Act requires that stocks or species be added to the QMS if the existing management is not ensuring sustainability or is not providing for utilization. Under the Act, 'ensuring sustainability' means 'maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations and avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment' while 'utilisation' means 'conserving, using, enhancing and developing a fisheries resource to enable people to provide for their social, economic, and cultural wellbeing'. Two recent species introductions into the QMS were Patagonian toothfish (Ministry of Fisheries, 2010c) and attached bladder kelp (Ministry of Fisheries, 2010d). The latter was added to the QMS *inter alia* because the Ministry of Fisheries concluded that there was increasing demand for the species. While the QMS Introduction Process Standard provides a framework, further formalisation of the procedure for moving non-QMS species within the QMS framework, and monitoring 'minor' (less common, e.g. <5% of catch weigh) QMS species status and trends, given the information collected, would improve the situation. As noted, this has been performed for specific species, and could be prioritised based upon identification of key low-productivity species through a formalised Productivity-Sensitivity Analysis (as indicated within the framework).

Given that formal assessments of non-QMS species are not performed, for the purposes of the current assessment, this has required a number of assumptions to be made. We have assumed that where assessments or qualitative evaluations are lacking, a species may be at risk where they represent >5% of the total catch, or are caught at levels greater than 10 tonnes per year where this species is considered of low productivity (identified through a Productivity-Sensitivity Analysis (PSA)). We

recognise that a species may have low abundance and high catchability, which may lead to incorrect estimation of status using these criteria. This approach is comparable to that taken under P1, in separating the determination of outcome from the management approach and information necessary to underpin that management.

Table 7 summarizes the available information on the status of retained species which constitute over 1% of the observed catch during 2007-08 to 2011-12. Of those species representing the 'main' retained species (>5% of the catch):

- Hoki is assessed as two stocks (HOK1 and HOK10) but only the former overlaps with the areas of hake examined here. HOK1 is estimated to be above both the soft limit and target with high probability (>90%).

- Ling is assessed as five stocks (Chatham Rise (LIN3&4), Sub-Antarctic (LIN5&6), West Coast South Island (LIN7WC), Cook Strait (LIN7CK) and Bounty Plateau (LIN6B). All stocks are estimated to be above the soft limit with high probability > 90% and all stocks are assessed to be likely or highly likely to be above the target reference point.

- Silver warehou represented ~9% of the catch weight of hake-targeted tows in HAK4 (a sub-set of the SWA4 area). Biomass indices from R.V. Tangaroa fishery-independent trawl surveys in QMAs 3 (part), 4 and 5 since 1991 are variable between years and have high CVs. They were therefore unsuitable for stock assessment. The Plenary report noted that "In most years from 2000-01 to 2008-09 catches in SWA 3 and SWA 4 were well above the TACCs as fishers landed catches well in excess of ACE holdings. The sustainability of current TACCs and recent catch levels for these fish stocks is not known, and it is not known if they will allow the stocks to move towards a size that will support the maximum sustainable yield." 2% (~20t) of the observed catch within this area was from hake-targeted tows.

No non-retained (non-QMS) species constituted more than 5% of the catch during 2007-08 to 2011-12, while two species often constituted more than 1% of the catch, being rattails and javelinfish. No assessments exist for these species. However, data on trends in biomass are available from surveys on the Chatham Rise. Both species are very well monitored by these surveys. Javelin fish appear to be increasing, while the most abundant rattail species, Bollons' rattail, exhibits no trend, at least on the Chatham Rise (O'Driscoll et al. 2011).

In relation to Tier 2 species (key bycatch species), it will not always be easy to implement specific harvest strategies. Management Action 28 in the Annual Operational Plan (MPI, 2012) for the deepwater fisheries (Ministry of Fisheries 2011h) aims to develop management procedures for silver warehou and white warehou. These species were selected taking account of their size and extent. Fisheries characterizations, e.g. for silver warehou (Parker and Fu 2011), could provide additional information for lesser species. They involve analysing all available data including: (a) survey data, (b) catch-effort information, and (c) observer data. Catch-effort data can be used to inform spatial distribution as well as how and when a species is caught. Observer data provide better biological data such as length and perhaps age-compositions. In principle, changes in the age-compositions among years can be used to estimate changes in fishing mortality over time.

As noted above, Tier 3 species (non-QMS species, usually discarded) can be added to the QMS system under Section 17B of the Fisheries Act and/or the species managed under Section 11 of the Act (see also the QMS Introduction Process Standard) if a sustainability problem is detected.

It is difficult to detect whether there is a sustainability concern for many Tier 2 (QMS) and Tier 3 (non-QMS) species (e.g. MPI 2013a, b, c) but as noted in the National Deepwater plan (Ministry of

Fisheries, 2011) management of species based on CPUE and size-based trends are underway. A number of projects related to improving the information base for Tier 2 and Tier 3 species are either planned or underway, including a project (DEE2011-03) to conduct Level 1 risk assessments for Tier 3 species which could lead to additional research being conducted (see Management Action #16 of the Annual Operational Plan for Deepwater Fisheries 2012/13; MPI, 2012b). Furthermore, the use of CPUE time series and size classes are becoming more frequent for Tier 2 species (MPI, 2013a, b, c).

Table 7: Overview of the status of the stocks of the QMS species which constitute at least 1% of the observed catch from 2007 -08 to 2011-12.

Stock	Last assessment	Status relative to the soft limit	Status relative to the target	Approximate % of catch
Hoki				
HOK 1	2013 (model)	< 1% probability below $0.2B_0$	>90% probability at or above target (40% B_0)	HAK1:18%; HAK4: 52% ; HAK7: 27%
Ling				
LIN 3&4	2011 (model)	< 1% probability below $0.2B_0$	>90% probability above target (40% B_0)	HAK4: 4%
LIN 5&6	2011 (model)	< 1% probability below 0.2 B_0	>99% probability at or above target (40% B_0)	HAK1: 12%
LIN 6B	2006 (model)	< 10% probability below 0.2 B_0	>90% probability at or above target (40% B_0)	HAK1: 12%
LIN 7WC	2013 (model)	< 1% probability below 0.2 B_0	>90% probability at or above target (40% B_0)	HAK7: 2%
LIN 2&7	2010 (model)	< 1% probability below 0.2 B_0	>60% probability at or above target (40% B_0)	HAK7: 2%
Silver warehou				
SWA 3 & 4	None	Unknown	Unknown	HAK1:1%; HAK4: 9%; HAK7: 1%
White warehou				
WWA1,2,3,5B,8,9	None	Unknown	Unknown	HAK1: 2%
Sea perch				
SPE4[1]	None	Unknown	Unknown	HAK4: 4%
Spiny dogfish				
SPD3[1]	2010 (Trawl survey)	Unknown	Unknown	HAK1: 1%
SPD4[1]	2010 (Trawl survey)	Unknown	Unknown	HAK4: 2%
Barracouta BAR4	None	Unknown	Unknown	HAK4: 2%
Alfonsino BYX3	None	Unknown	Unknown	HAK4: 2%
Ribaldo				
RIB7	None	Unknown	Unknown	HAK7: 4%
Pale ghost shark				
GSP5[2]	None	Unknown	Unknown	HAK1: 2%

[1] While no formal assessments were performed, biomass trends from fishery-independent surveys were assessed and indicated that abundances were at or above the long term average.

3.7.2.2 ETP species

The Wildlife Act 1953 gives absolute protection to wildlife throughout New Zealand and its surrounding marine Exclusive Economic Zone. All marine mammals (including all seal, dolphin and whale species) are fully protected throughout New Zealand and its EEZ under the Marine Mammals Protection Act 1978. The result of this is that almost all native birds and all marine mammals and marine reptiles (including visiting turtles and sea snakes) are fully protected in New Zealand (under one of two Acts), and out as far as the edge of the EEZ. The exceptions are a small number of native birds managed as game birds, and a few other native birds that are partially protected. Just one native bird, the black-backed gull, is currently unprotected. In addition, Schedule 7A of the Wildlife Act lists certain marine species that are legally protected, i.e., all species in the orders Antipatharia (black corals), Gorgonacea (gorgonian corals), and Scleractinia (stony corals) and the family Stylasteridae (hydrocorals). Fish protected under the Wildlife Act include the oceanic whitetip, basking, deepwater nurse, white pointer, and whale sharks, manta and spinetail devilrays, and two groupers. CITES listed species include the New Zealand fur seal, elephant seal, a number of cetaceans, basking, Great white, scalloped hammerhead and porbeagle sharks, as well as black coral (*Antipatharia* spp) (http://www.doc.govt.nz/about-doc/role/international/endangered-species/cites-species/nz-cites-listed-species/).

The national requirements for ETP protection in New Zealand law notes that while interactions are not forbidden the law requires interactions to be reported on MPI's Non-fish and Protected Species Catch Return form. The long-term aim is to minimise mortalities where possible, with zero interactions being the aspirational objective as described in the National Plan of Action. The reports combined observer information provides good information on the potential effects of the fishery on ETP species. No specific limits on interactions have been set; activities aimed at minimising interactions are underway.

It is recognised that the hake fishery is a sub-set of the hoki/hake/ling-targeted fishery. Catch rates of these different components of the effort have been examined. Given that the area-based breakdown between species-specific fisheries management areas is different (not all areas correspond), it is difficult to assess area-specific overall ETP interactions within the hoki/hake/ling complex. The target-fishery-specific area data are used here, although it is recommended that analysis across the fishery complex is performed in future.

Information is available on ETP species interactions through the on-going observer programme on board vessels. This information is analysed based upon the identified 'target' fishery.

For the hake fishery, interactions focus on seabirds, marine mammals, and cold water corals.

3.7.2.3 Seabirds

Bird interactions in the hake fishery have been analysed in a number of studies (e.g. Abraham and Thompson, 2011), which provide detailed breakdowns of interactions and model the likely impact of the total fishing fleet based upon data from observed vessels. Note that the estimates of captures detailed below and in provided references include recorded captures in the net, on the warps, or tangled in line, and hence includes observed warp strikes, and captures are also estimated by fishing method, being categorised by whether they were warp captures, net captures, or reported caught through some other means (see https://data.dragonfly.co.nz/psc/v20121101/birds/hake-trawl/all-vessels/eez/all/ for a breakdown by year and interaction type for the hake trawl fishery). They exclude animals that landed on the deck or collided with the vessel's superstructure (Abraham and Thompson, 2011).

Population estimation studies are also underway for both birds and marine mammals, which will allow the likely impact of interactions on ETP species populations to be evaluated. In turn, ecological risk assessment studies for birds have been completed (Richard et al., 2009), which allow evaluations to focus on potentially more at risk species. These data have been used within the current study to evaluate the potential impact of the fishery on ETP bird and marine mammal populations. In turn, National Plans of Action have been developed for birds and sharks . These have been completed and the Plans published.

Across the deepwater trawl fleet managed by the DWG, vessels >28 m now have Vessel Management Plans in place, which document their fish waste management procedures. The implementation of these plans is audited by onboard observers and DWG staff when vessels are in port. By law, trawlers over 28 m in length fishing in New Zealand waters are required to use at least one of three specified devices to reduce seabird interactions with trawl warps: paired streamer lines, a bird baffler, or a warp scarer (New Zealand Gazette 2010). The efficacy of these devices has been examined in New Zealand (Middleton and Abraham 2007) and internationally (e.g., Bull 2009; Løkkeborg 2011). Streamer lines are the most effective in reducing seabird strikes on trawl warps. The increasing number of trawl vessels operating in HAK7 of sizes smaller than 28 m is noted (see Table 1). Vessel size is included within the models used to estimate seabird interactions (Abraham and Thompson, 2011) and hence will be incorporated within the analysis of overall interaction rates discussed below. However, given the lack of requirements for bird (and other ETP) interaction mitigation approaches for these vessels, a recommendation for the collection and analysis of specific information on ETP interactions for this vessel size class has been generated to confirm interaction rates and develop appropriate mitigation approaches if and as required.

General mitigation approaches that are being employed by trawlers, supported through legislation, include voluntary industry-led codes of practice, detailed in Vessel Management Plans.

Vessel Management Plans are developed on a vessel-specific basis. These include methodologies to limit offal discharge during periods of vulnerability for birds. This approach in reducing interactions allows mitigation methods to be adapted to a particular vessel's operations, but may not eliminate interactions. Cleaning of the net before shooting is also required. Studies on trawl net interaction mitigation processes have been undertaken (Clement and Associates 2009).

Reporting practices are also in place, so that bird captures trigger action by DWG and are reported to MPI. The majority of seabird interactions with the hake fishery involve Salvin's albatrosses, Buller's albatrosses, white-capped albatrosses, cape petrels, Westland petrels, sooty shearwaters, prions, and white-chinned petrels (Table 8; Abraham and Thompson 2011. Note that this information is updated regularly). A Level 1 risk assessment (based on expert knowledge) concluded that the hoki/hake/ling fishery did not represent an especially high risk for seabird populations, as long as effective management measures, including effective mitigation, are in place (Rowe 2013). Richard and Abraham (2013) provide a Level 2 risk assessment (based on semi-quantitative approaches, following Hobday et al., 2007) which identifies at-risk species caught in New Zealand commercial fisheries. This was used to support the updated National Plan of Action – Seabirds (2013, see below).

Table 8 : Summary of all bird captures in hake trawl fisheries, with the number of tows, tows observed, percentage of tows observed, number of observed captures, capture rate per hundred tows, total estimated captures with 95% confidence intervals, and percentage of tows included in the estimate. Estimated type: M - modelled; R - ratio estimated (Source: Abraham and Thompson (2011a)).

		Observed				Estimated			
	Tows	No. obs	% obs	Capt.[s]	Rate	Type	Est. captures		% inc.
2008–09	1 779	350	19.7	9	2.57	M	67	(42 - 108)	100.0
2007–08	1 559	395	25.3	4	1.01	M	24	(14 - 39)	100.0
2006–07	1 606	295	18.4	8	2.71	M	25	(15 - 37)	100.0
2005–06	1 361	421	30.9	1	0.24	M	14	(6 - 24)	100.0
2004–05	1 555	95	6.1	8	8.42	M	50	(30 - 76)	100.0
2003–04	1 651	140	8.5	6	4.29	M	34	(19 - 53)	100.0
2002–03	945	49	5.2	0	0.00	M	18	(8 - 31)	100.0
2001–02	848	42	5.0	0	0.00	R	39	(22 - 60)	99.6
2000–01	800	35	4.4	6	17.14	R	35	(24 - 49)	99.4
1999–00	527	38	7.2	1	2.63	R	22	(13 - 32)	96.8
1998–99	846	23	2.7	3	13.04	R	39	(24 - 57)	98.3

All observed captures by species 1998/99 – 2008/09: sooty shearwater (14), white-capped albatross (10), Salvin's albatross (7), Buller's albatross (6), seabird-large (2), Cape petrels (1), shy albatross (1), wandering albatross (unidentified) (1), fairy prion (1), white chinned petrel (1)

Table 9: Summary of all bird captures in hoki fisheries, broken down by fishing areas, with the number or tows, number of tows observed, percentage of tows observed, number of observed captures, capture rate per hundred tows, total estimated captured with 95% confidence intervals, and percentage of tows included in the estimate. Estimate type: M – modelled, R – ratio estimated, B – both methods, N – not estimated. (Source: Abraham and Thompson (2011)).

		Observed				Estimated		
	Tows	No. obs	% obs	Capt.	Rate	Type	Est. captures	% inc.
2008–09								
West Coast SI	1 003	209	20.8					
White-capped albatrosses				0	0.00	M	3 (0 - 8)	100.0
Other albatrosses				0	0.00	M	7 (1 - 16)	100.0
Other birds				0	0.00	M	6 (0 - 17)	100.0
Chatham Rise	502	63	12.5					
White-capped albatrosses				0	0.00	M	1 (0 - 2)	100.0
White-chinned petrels				0	0.00	M	1 (0 - 5)	100.0
Sooty shearwaters				6	9.52	M	10 (6 - 20)	100.0
Other albatrosses (Salvin's albatross)				1	1.59	M	13 (4 - 28)	100.0
Other birds				0	0.00	M	2 (0 - 6)	100.0
Stewart-Snares	274	78	28.5					
White-capped albatrosses				1	1.28	M	8 (2 - 18)	100.0
White-chinned petrels				0	0.00	M	3 (0 - 10)	100.0
Sooty shearwaters				0	0.00	M	9 (0 - 44)	100.0
Other albatrosses (Salvin's albatross)				1	1.28	M	3 (1 - 7)	100.0
Other birds				0	0.00	M	1 (0 - 3)	100.0
2007–08								
West Coast SI	1 084	320	29.5					
White-capped albatrosses				0	0.00	M	2 (0 - 5)	100.0
Other albatrosses				0	0.00	M	4 (0 - 9)	100.0
Other birds (fairy prion)				1	0.31	M	3 (1 - 9)	100.0
Chatham Rise	318	26	8.2					
White-capped albatrosses				0	0.00	M	0 (0 - 1)	100.0
White-chinned petrels				0	0.00	M	1 (0 - 4)	100.0
Sooty shearwaters				0	0.00	M	1 (0 - 5)	100.0
Other albatrosses				0	0.00	M	5 (0 - 13)	100.0
Other birds				0	0.00	M	0 (0 - 2)	100.0
Stewart-Snares	157	49	31.2					
White-capped albatrosses				0	0.00	M	2 (0 - 7)	100.0
White-chinned petrels				0	0.00	M	1 (0 - 6)	100.0
Sooty shearwaters				3	6.12	M	4 (3 - 8)	100.0
Other albatrosses				0	0.00	M	1 (0 - 3)	100.0
Other birds				0	0.00	M	0 (0 - 1)	100.0

IUCN status of species reported captured ranges from Least Concern (e.g., Cape petrel) to Vulnerable (e.g., Salvin's albatross) (www.iucnredlist.org). Almost all seabirds are legally protected in New Zealand by the Wildlife Act (1953). Some have specific management strategies applied to them (e.g. for indigenous harvest of the sooty shearwater), and some breed on islands with strictly managed access (e.g. the Auckland Islands). Most seabirds interacting with the hake fishery breed on offshore islands where there are no permanent human settlements.

A new National Plan of Action (NPOA) Seabirds has been developed (MPI, 2013). The NPOA-Seabirds aims to reduce the number of seabird deaths from fishing and sets out an approach for the coming five years. It defines over-arching objectives for the prevention, monitoring and management of incidental seabird capture. It sets out how these objectives are to be addressed and implemented by the Ministry for Primary Industries, and provides clear expectations for regular review and reporting on progress towards meeting the objectives. It outlines ways to reduce fishing-related seabird deaths by raising awareness of the problem and encouraging the research and resourcing of new measures and methods. The risk assessment (Richard and Abraham 2013) underpinning the NPOA-Seabirds guides management expectations. For example, seabird species identified as at very high or high risk of having commercial fisheries bycatch exceed population sustainability limits should be managed to

a lower risk category by 2018. Species in these categories that are reported caught in the hake fishery include white-capped albatross, Buller's albatross and Salvin's albatross.

The level of understanding of seabird populations and ecology is highly variable, and depends on a number of factors, including accessibility of breeding islands and the severity of perceived threats. For example, despite being captured in many New Zealand fisheries, Salvin's albatross is a less well studied species, due to the largest population breeding on the remote and inhospitable Bounty Islands. Population studies have commenced on a number of seabird species affected by fisheries, including the hake fishery, during the last 5-10 years (e.g. white-capped albatross and white-chinned petrel). There are also a small number of longer term studies, e.g. of Buller's albatross on the Snares Islands. Albatrosses and petrels generally lay a single egg each breeding event, and many don't breed every year. Adult survival is the most important parameter determining population trends.

Seabird captures in the hake fishery account for approximately 3% of seabirds caught in New Zealand offshore trawl fisheries in 2007/08 and 2008/09 (Abraham and Thompson 2011b; Table 14). Captures of potentially at-risk species require particularly careful monitoring to ensure that the impact of the hake fishery does not threaten sustainability.

3.7.2.4 Marine mammals

Like all marine mammals in New Zealand waters, fur seals are legally protected. The population of New Zealand fur seals is widely believed to be increasing although there are no robust population count data available. Baird (2011) summarises current knowledge relating to population status. The longest term data set is from three rookeries on the West Coast of New Zealand's South Island. At these sites, surveys of pup production have occurred since the 1990s. Summary findings from this work indicate net declines in pup production between the 1990s and 2000s. In contrast, work around Kaikoura and Banks Peninsula (east coast of the South Island) suggests populations there are increasing/expanding. Despite the lack of accurate population assessments, the life history characteristics of fur seals are well understood (see Baird 2011 for an extensive review).

Fur seals are caught in trawl and other fisheries around New Zealand. Numerically across all fisheries, they are the most captured New Zealand protected species. Captures of fur seals in the hake fishery occur in all fishing areas (Table 10), and estimated total captures peaked in 2007-08 at 53 individuals across all fisheries (mean estimate of 28 in 2008-09). This represents 5-7% of the total estimated trawl captures of New Zealand fur seals in those years. Estimated total captures in hake target trawls have decreased in the fishing years since 2008/09, with a total of 8 fur seals estimated caught the 2011/12 fishing year[3]. Other fisheries capturing fur seals include trawl fisheries targeting hoki, southern blue whiting, and surface longline fisheries (Ramm 2010, 2011).

No interactions have been noted with sea lions within the hake fisheries (Abraham and Thompson, 2011). A marine mammal risk assessment is scheduled for 2014.

There are no specific regulations defining mitigation approaches for marine mammal interactions within this fishery. All vessels managed under the DWG are required to follow specific operating procedures to reduce the risk of seal captures. Procedures are described in the Operating Procedures: Marine Mammals, based on data analyses and expert opinion (Deepwater Group 2011c). These require the rapid reporting of mortalities so that action can be taken. In turn, operating procedures are also provided to minimise the danger period when the trawl net is close to the surface, shallow turns while trawling, and to avoid discharging offal (as in the VMP for bird bycatch mitigation). Some vessels avoid shooting nets where marine mammals are present (Rowe, 2009). Reporting practices are in place, so that marine mammal captures trigger action by DWG and are reported to MPI. Current research and management priorities for fur seals include better assessments of capture levels in Cook

[3] https://data.dragonfly.co.nz/psc/v20130304/about.html

Strait, identifying the regional provenance of by-caught fur seals, and investigating female foraging behaviour.

Table 10: **Summary of New Zealand fur seal captures in hake trawl fisheries, broken down by fishing areas, with the number of tows, tows observed, percentage of tows observed, number of observed captures, capture rate per hundred tows, total estimated captures with 95% confidence intervals, and percentage of tows included in the estimate. Estimated type: M - modelled; R - ratio estimated (Source: Abraham and Thompson (2011)).**

		Observed				Estimated			
	Tows	No. obs	% obs	Capt.	Rate	Type	Est. captures		% inc.
2008–09									
West Coast SI	1 003	209	20.8	3	1.44	M	22	(9 - 44)	100.0
Chatham Rise	502	63	12.5	2	3.17	M	5	(2 - 10)	100.0
Stewart-Snares	274	78	28.5	0	0.00	M	0	(0 - 2)	100.0
2007–08									
West Coast SI	1 084	320	29.5	25	7.81	M	48	(34 - 70)	100.0
Chatham Rise	318	26	8.2	2	7.69	M	3	(2 - 5)	100.0
Stewart-Snares	157	49	31.2	1	2.04	M	2	(1 - 4)	100.0

3.7.2.5 Sharks

Five species of sharks (the basking shark, deepwater nurse shark, white shark, oceanic whitetip shark and the whale shark) are protected by domestic legislation in New Zealand waters. The basking shark has been reported to interact with the related hoki fishery (e.g. Francis and Lyon, 2012; Francis and Sutton, 2012). Observed interactions with the hake fishery have been limited to the Southland–Auckland Islands area (southerly part of HAK1), with 3 captures in 317 tows noted (Francis and Smith, 2010; Table 4), representing 3% of the total observed captures.

3.7.2.6 Protected benthos

The following benthic organisms are protected in New Zealand (e.g. listed on Schedule 7A of the Wildlife Act): black corals (all species in the order Antipatharia), Gorgonian corals (all species in the order Gorgonacea), Stony corals (all species in the order Scleractinia), and Hydrocorals (all species in the family Stylasteridae). As for other protected species, protection does not make capture in commercial fisheries illegal. However, captures are required by law to be reported in accordance with MPI reporting regulations. Similar to other protected species, observers on commercial vessels also document captures of these species. Where identification is unclear, samples can be returned to experts onshore.

Red and Black coral distribution within New Zealand waters is displayed in Figure 3 and Figure 4. The ‘red coral’ is noted to include all species in the genus Errina (which lies within the family Stylasteridae) but is also the common name of a number of coral species in the order Gorgonacea. Cold water corals captured in trawls are noted by observers present onboard, and where they cannot be identified they are returned to NIWA for more detailed examination under DOC funded projects. Fishery-independent surveys are also underway using cameras inside and outside the main fishery areas.

For protected cold water corals, the designation of Benthic Protection Areas, which include seamounts known to include such key species, acts as a non-directed strategy for managing the fishery’s impacts on these species.

Understanding of the distribution of benthic organisms, including protected species, is gradually growing for New Zealand waters. Baird et al. (2012) summarised knowledge gathered from research

surveys and observed commercial fishing effort to develop a data set of 7731 records. Coral records from the four orders (Scleractinia (stony corals), Anthoathecata (hydrocorals), Alcyonacea (gorgonians) and Antipatharia (black corals)) were distributed throughout the Fishery Management Areas, though differences by area and depth were evident at the family and genus level, where lower taxonomic detail was available. Modelled distributions were predicted to concentrate in deeper waters and areas of high relief. Generally the areas predicted to have the greatest probability of coral occurrence were outside the main fisheries areas, except for some deepwater fisheries that occurred on areas of steeper relief.

The fisheries that pose the most risk to protected corals are the deepwater trawl fisheries for species such as orange roughy, oreo species, black cardinalfish, and alfonsino. In shallower waters, scampi trawl fisheries appear to pose the greatest risk to coral in all protected orders. Bottom longline fisheries pose a particular risk to those corals that have a branching or bushy structure. Examining table E1 of the report, Baird et al. (2012), reported interactions within the hake fishery occurred for 3 gorgonian corals (observed in FMAs 5 and 7), 2 hydrocorals (FMAs 5 and 6), 1 order Antipatharia (FMA7) and 28 Scleractinian corals (FMAs 3, 5, 6 and 7). These represented 0.3%, 1.3%, 0.3% and 2% of the noted interactions across fisheries.

3.7.2.7 Details of any critical environments or sources of concern and actions required to address them.

The New Zealand government commissioned an environmental classification to provide a spatial framework that subdivided the Territorial Sea and EEZ into areas having similar environmental and biological character. This Marine Environment Classification (MEC) was launched in 2005 (e.g. Snelder et al., 2005, 2006) using available physical and chemical predictors, and because environmental pattern was thought a reasonable surrogate for biological pattern (e.g. Figure 5). However, the MEC was viewed as less appropriate for benthic invertebrates, and this led to the development of other systems more focused towards benthic systems (e.g. a classification optimised for demersal fish; Leathwick et al., 2006)), and BOMEC in 2009 (Leathwick et al.,(2009)).

MPI commissioned a Benthic-Optimised Marine Environment Classification, BOMEC, to build upon the work underpinning the MEC(MPI, 2012). Many more physical, chemical, and biological data layers were available for the development and tuning of this classification, including information of greater relevance for benthic invertebrates. The BOMEC classes were strongly driven by depth, temperature, and salinity into five major groups: inshore and shelf; upper slope; northern mid-depths; southern mid-depths; and deeper waters (generally beyond the fishing footprint, down to 3000 m, the limit of the analysis). While BOMEC represents the most current tool for likely impacts of bottom trawling on benthic organisms within different defined habitat categories, and recent testing (Bowden et al., 2011) indicated that the BOMEC outperforms the original MEC at predicting benthic habitat classes, there remain limitations at finer spatial scales. Bowden et al (2011) found that only at large spatial scales (100s-1000s km) was there correspondence between the distribution of biotic habitats and the environmental classes defined by MEC and BOMEC classifications. Bowden et al (2011) also found that resolution increased at higher class levels, especially for the MEC; and at finer scales (BOMEC 15 Class level) there was little evidence of correspondence between individual biotic habitats and environmental classes from any of the classifications. Furthermore, the BOMEC classification has as yet not been ground-truthed against direct observations of benthic habitats.

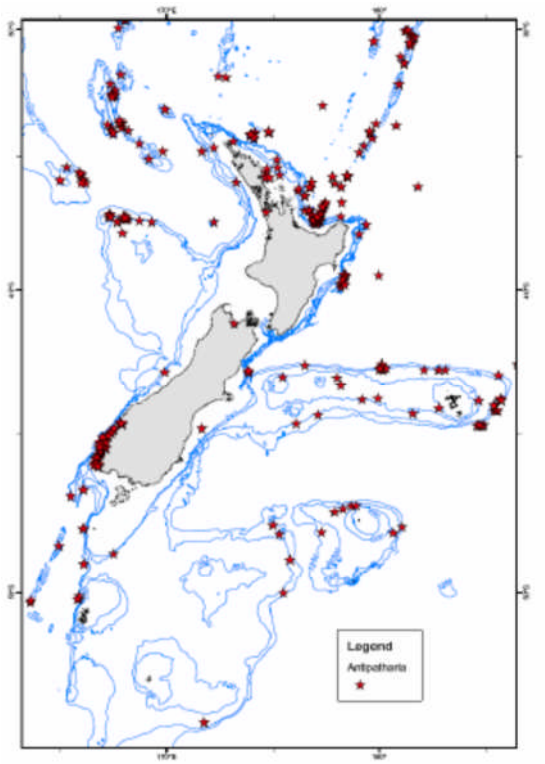


Figure 3. Identified colonies of Black Corals from records within New Zealand waters. Source: from NIWA Client Report: WLG2006-85

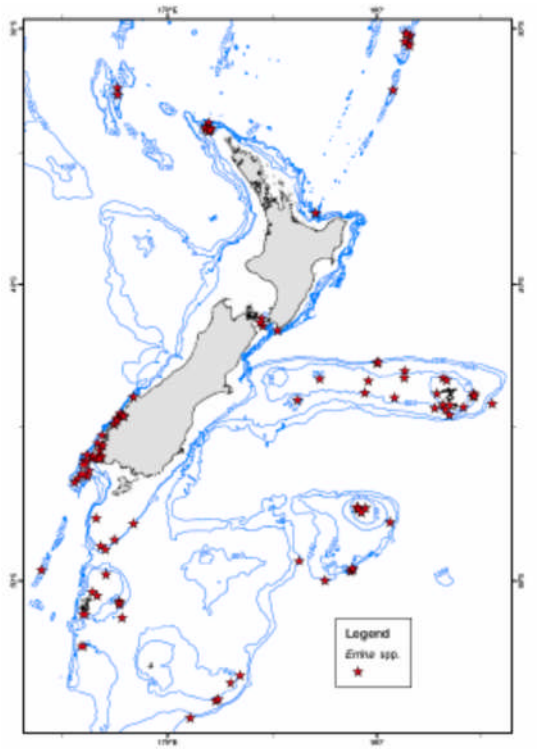


Figure 4: Identified colonies of Errina from records within New Zealand waters. Source: from NIWA Client Report: WLG2006-85

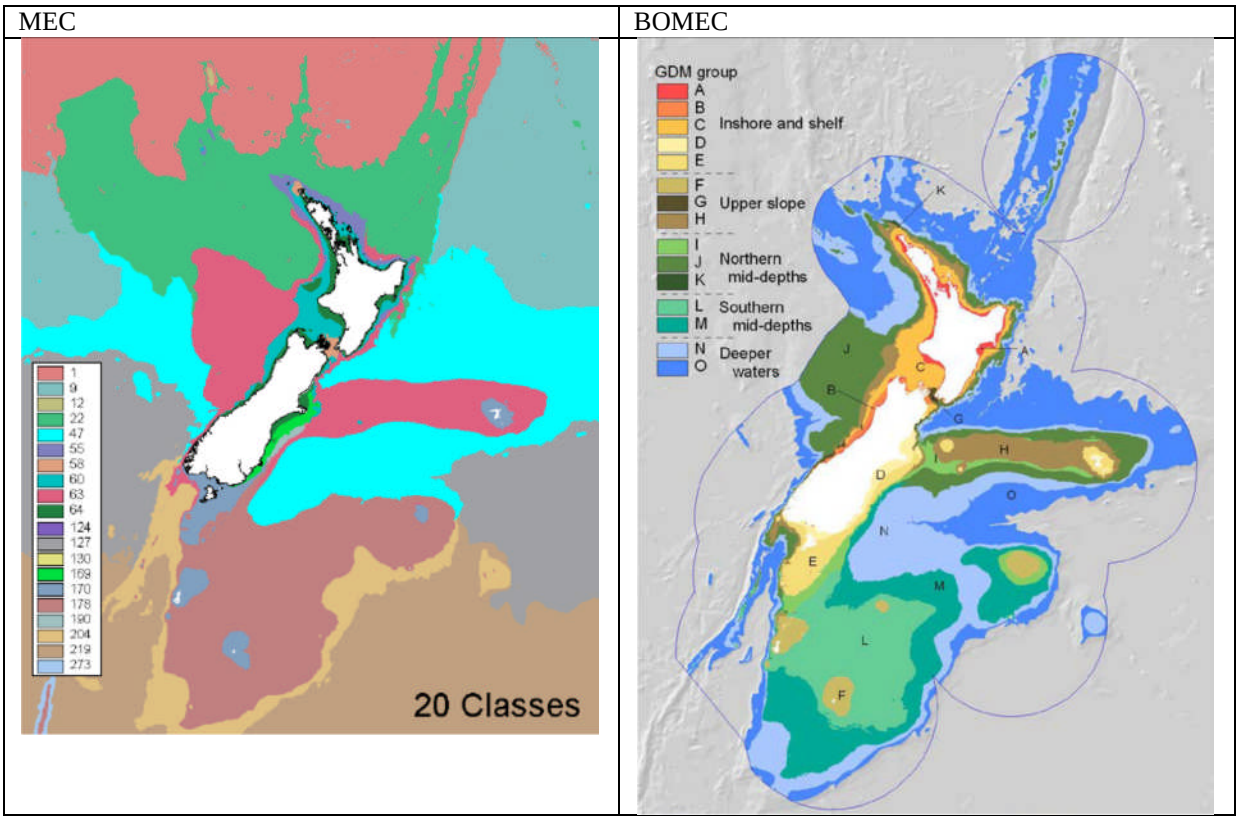


Figure 5 ; Maps of the 20-class version of the 2005 general purpose Marine Environment Classification (MEC, from Snelder et al. 2005; left) and Benthic Optimised Marine Environment Classification (BOMEC; from Leathwick et al., 2010; right).

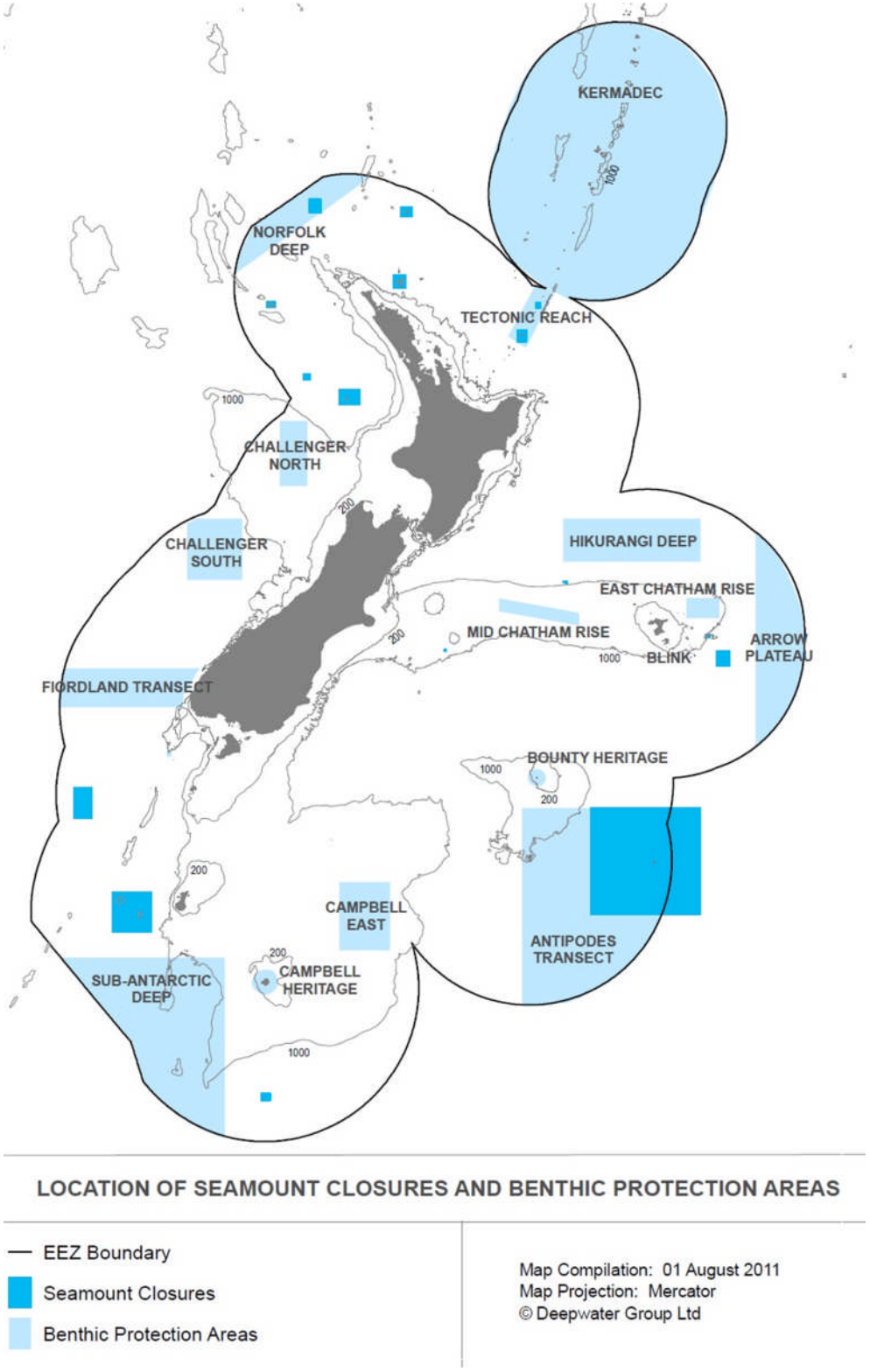
Spatial closures are the main tool used in New Zealand waters to mitigate captures of vulnerable benthic species. For example, 18 seamounts closed to fishing are located around the EEZ. An industry initiative led to the creation of Benthic Protected Areas (see Figure 6). The development of BPAs was based upon the marine environment classification studies available at that time, but further information has continued to be collected.

The changes within previously fished habitats inside BPAs over time have been examined. This work has mainly used camera surveys to examine benthic faunal recovery. The impact of introducing Benthic Protection Areas on previously fished seamounts has been monitored, and evidence of recovery in coral cover has been seen (where extant corals in neighbouring areas may allow better re-recruitment).

Change within the main fished area has not been directly examined, and is inferred from literature on other fisheries. The observer programme notes benthic invertebrates brought up in the trawl fishery, although the taxonomic resolution of these groups is less detailed. Taxonomic guides developed by NIWA for cold water corals and sponges are improving species recognition, while still unidentified corals are returned for professional taxonomic identification.

The pattern of New Zealand's trawl footprint for deepwater fisheries has been monitored relative to the Benthic-Optimised Marine Environment Classification (BOMEC) (e.g. Black et al., 2013). This provides an indicative mechanism with which to regionally assess the impacts of the hake fishery on benthic habitat, keeping in mind that the BOMEC classifications (as outputs from a model) are yet to be ground-truthed, and that the communities inhabiting these habitat types are less known and

relatively difficult to sample. Examined compared to the BOMEC grid codes, the maximum swept area covered represents just over 5% of one BOMEC type (Table 11).



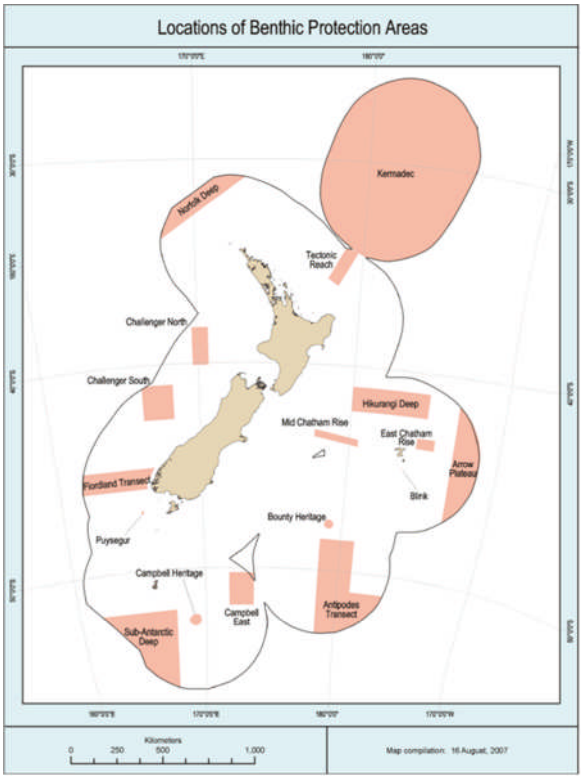


Figure 6: Map showing the general location of benthic protection areas and seamount closures within New Zealand EEZ. Source: Deepwater Group

Table 11: Swept area of hake-targeted tows between 1989-90 and 2009-10 (from Black et al., 2013).

BOMEC Gridcode	Area (km2)	Swept Area (km2)	Swept Area (%)
1	27,557	0	0.00%
2	12,420	4	0.03%
3	89,710	28	0.03%
4	27,268	6	0.02%
5	60,990	175	0.29%
6	38,609	5	0.01%
7	6,342	17	0.26%
8	138,551	7,289	5.26%
9	52,224	1,830	3.50%
10	311,361	6,936	2.23%
11	1,289	0	0.00%
12	198,577	1,117	0.56%
13	233,825	257	0.11%
14	493,034	17	0.00%
15	935,315	2	0.00%
Total	2,627,073	17,681	0.67%

Examinations of the trawl footprint by HAK region have also been undertaken (Black, 2013). Trawling occurred mainly in the 200-800m depth rate, sweeping 7.4% of that depth band in HAK4. The report noted that for each of the hake fisheries, the area closed and/or not trawled was over 98% for 1989/90 to 2011/12. Over the last five fishing years, over 99.5% of each area in HAK1 and HAK4 was closed and/or not trawled while the figure for each area in HAK 7 was 99.0%. For full information and further figures, the reports are available at http://www.deepwater.co.nz/our-species/hake/msc-assessment-of-new-zealand-hake-fisheries/. An example is presented in Figure 7.

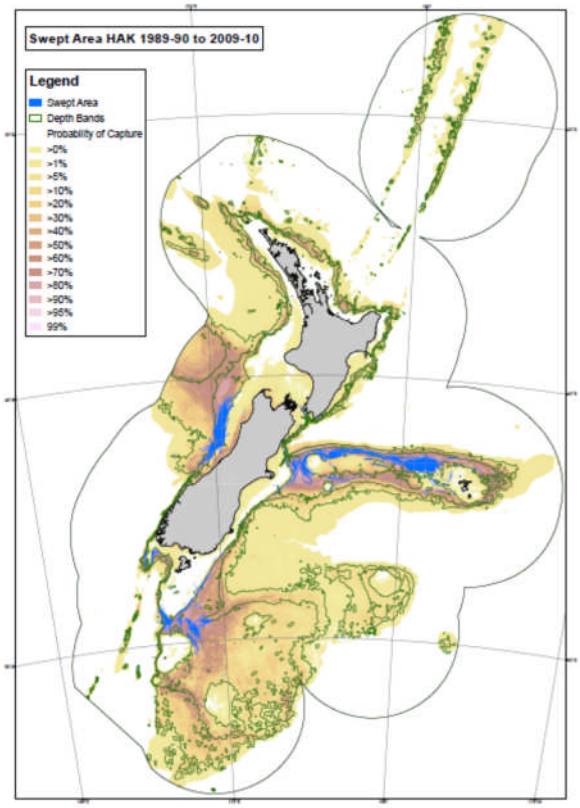


Figure 7. Total swept area of hake-targeted trawls over the period 1989-90 to 2009-10, from Black et al. (2013).

3.8 Principle Three: Management System Background

The New Zealand hake fishery is a single-jurisdiction managed fishery

3.8.1 The management system

Hake was introduced into the QMS in 1986 with three quota management areas (QMAs) that have not changed. These QMAs reflect the three main spawning areas and fishing grounds.

Under the National Deepwater Plan all hake stocks are Tier 1 stocks as they are high volume and/or high value fisheries.

3.8.1.1 Management approach

The current management approach for all hake stocks is based on stock assessment models and involves regular reviews of the TAC/TACCs. Changes to the TAC/TACCs or any other management measures are implemented to ensure the stocks are managed to the default target and limit reference points as specified in the Harvest Strategy Standard.

Stock assessment models have currently been accepted by MPI's Fisheries Assessment Working Group for the three New Zealand hake stocks. Stock specific details can be found in the fishery-specific sections later in this document or in the annual Fisheries Assessment Plenary (MPI 2013a).

The temporal and spatial overlap of hake fishing with the hoki fishery means that management measures implemented in the hoki fishery often affect hake catch and fishing behaviour as well. The

changes in fishing behaviour over the last ten years have added challenges to determining the status of hake stocks.

Since 2006 the following management changes have been made to further improve sustainability:

- Management partnership between the Ministry and quota owners established
- TACC changes in response to research and stock assessments implemented
- Management Reference Points revised and implemented
- Rebuilding strategy developed and implemented
- Management Strategy Evaluation completed and findings implemented
- Fisheries Plan completed, approved by Minister of Fisheries, and implemented
- Compliance Group established to achieve improved compliance
- Audits against agreed KPIs (Key Performance Indicators) show compliance rates of 96-100% with management requirements
- Ecosystem indicators developed
- Ecological Risk Assessment completed and findings being implemented
- Bycatch and discard rates assessed
- Risk assessment of incidental interactions with seabirds completed
- Incidental interactions with seabirds reduced
- Interactions with benthic communities assessed
- Benthic Protection Areas developed and implemented
- Incidental interactions with marine mammals mitigated

3.8.2 Interested parties

- MPI (New Zealand Government department responsible for the management of New Zealand Fisheries;
- DWG (Hake Quota Owners; ACE Owners; Selected Vessel Operators);
- Seafood Industry Council (SeaFIC).Represents all sectors of the seafood industry, now restructured as Seafood New Zealand
- Department of Conservation (New Zealand Government department responsible for the management protected species and marine mammals); and
- E-NGOs (Environmental interests).

NOTE: there are no recreational or customary access rights in this fishery.

3.8.3 Consultations for Fisheries Plan

There is widespread consultation across all stakeholder groups and interested parties on proposed management measures and every encouragement and support is made to incorporate stakeholders' views into final management interventions.

3.8.4 Ongoing consultations

Management decisions are clearly linked to a set of agreed high-level objectives for a fishery. The proven collaborative management regime ensures there is stakeholder participation in the development and implementation of management changes. This collaborative approach means there is good exchange of information to enable full cost/benefit assessments of proposed management measures. The management approach and decisions are documented and are publicly available in a format that is accessible to all interested parties.

3.8.5 Non fishery users

Section 12 of the 1996 Fisheries Act includes a range of specific consultation requirements, and the additional requirement to provide for input and participation of tangata whenua[4] in particular circumstances. There are three aspects to this section:

a) Under Section 12(a) of the 1996 Act, the Minister of Fisheries is required to consult with those classes of persons having an interest (including, but not limited to, Maori, environmental, commercial and recreational interests) in the stock or the effects of fishing on the aquatic environment in the area concerned;
b) Section 12(1)(b) outlines the Crown's commitments to provide for the input and participation of tangata whenua. Involving tangata whenua in fisheries management decisions reflects the provisions in the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, and the Crown's commitment to its partner.
c) Section 12(1)(b)(ii) requires that the Minister have particular regard for the exercise of kaitiakitanga in relation to the people of the area.

Section 12 only relates to certain sections of the 1996 Act. There are many other sections of the 1996 Act that require the Minister or MPI Chief Executive to consult with stakeholders before making a decision. There are also other MPI activities where consultation is encouraged, e.g., setting of policies and guidelines.

Although the consultation requirements set out in Section 12 specifically relate to sustainability decisions, the general principles outlined can be applied to all consultation activities.

- engagement with scientific service providers (including: National Institute of Water and Atmospheric Research Limited (NIWA), GNS Science, Dragonfly, 42^{o}S, Innovative Solutions Ltd, Cawthron Institute,);
- MPI and DWG Partnership Agreement (See DWG (2010) Memorandum of Understanding between the MPI and the Deepwater Group: Continuing a partnership between the MPI and the deepwater fishing industry for the management of New Zealand's deepwater fisheries);
- eNGOs – as required and for specified matters (e.g. ERA), and the Science Working Groups (Middle depth, Deepwater and Aquatic Environment Working Groups).

3.8.6 Decision–making processes

Consultation is required wherever it is prescribed under Section 12 or another section of the 1996 Fisheries Act. Consultation may also be required in cases where it is not legislatively mandated, such as on policy statements or standards.

Other considerations that will influence whether to consult include:

a) whether consultation is required on any decision that is likely to materially affect the ability or interest of a person in fisheries resources;
b) the degree to which the outcome of a decision may affect the interests of a particular group of stakeholders, e.g., a significant change in livelihood or business practices. Note that this impact may not necessarily depend on the number of people affected. However, the manner of consultation will vary depending on whether only one person is potentially affected, or two or more;
c) the appropriateness of limiting consultation (e.g., considerations of legal risk, stakeholder relationships and impacts on the quality of informed decision-making);
d) the nature of the proposed measure, whether the amendment is substantive or technical;
e) the benefits of consulting the widest number of stakeholders for the longest period possible, including considerations of stakeholder buy-in and improvements to Ministry processes and

[4]Māori term of the indigenous peoples of New Zealand and literally means "people of the land", from **tangata**, 'people' and **whenua** land

quality of decision-making. In general MPI will consult widely and for long periods on decisions that affect stakeholders.

f) the management framework, (e.g., development of the Statement of Intent, the development of Environmental Performance Standards, and the development of Fisheries Management Plans).

Administrative law also provides some guidance to the decision-maker. A decision to consult or not to consult, and any decision made after consultation, must be made in accordance with the principles of administrative law, and in accordance with Fisheries Act obligations. These principles require decision-makers to act:

- in accordance with law;
- reasonably; and
- fairly, in accordance with the principles of natural justice.

Decisions not made in accordance with these requirements may be challenged.

The requirement to act fairly is most relevant to consultation. Decision-makers must follow proper processes to ensure that those individuals or groups affected by their decisions are given natural justice. A decision can be challenged if a decision-maker is biased in such a way that prevents him or her from fairly considering the issue with an open mind. Examples include where a decision-maker has a financial interest in the issue or has already made up his or her mind before considering relevant information (i.e., predetermination). Any statements or conduct which may suggest a closed mind or predetermination – in the sense that decision-makers are not open to persuasion or argument - should be avoided.

3.8.7 Objectives for the fishery

The Fisheries Plan (MPI, 2010d) outlines the objectives for the all deepwater and middle-depth fisheries.

The hake-fishery specific chapter of the National Deepwater Plan has specific objectives tailored to the hake fisheries that are achievable, and which directly guide actions in the hake fisheries. These are then specified within the Annual Operational Plan (AOP) by year. These fishery specific objectives are subject to the Annual Review report and are measureable.

Utilisation-focused Operational Objectives

OO1.1 Support the hake fisheries in achieving and maintaining credible third party certification and ensure any Conditions of Certification are met within the required timeframe
OO1.2 Enable quota owners to develop and implement a harvest regime that will maximise the value obtained from hake fisheries within sustainability limits
OO1.3 Ensure satisfactory levels of compliance are achieved in hake fisheries
OO1.4 Ensure all research planned under the 10 Year Research Programme which is used to inform the management of hake fisheries continues to be peer reviewed, meets the requirements of the Research Standard, and is delivered in time to inform management decisions before the start of each October fishing year

Environment-focused Operational Objectives

OO2.1 Develop an agreed harvest strategy for hake fisheries including a stock rebuild strategy that is consistent with the Harvest Strategy Standard
OO2.2 Implement appropriate spatial management measures to address any adverse effects of fishing for hake on the benthic habitat
OO2.3 Ensure that incidental seabird mortalities in hake fisheries are mitigated and minimised

OO2.4 Ensure that incidental marine mammal mortalities in hake fisheries are mitigated and minimised
OO2.5 Monitor incidental bycatch of Tier 3 species in hake fisheries

3.8.8 Fleet characteristics

The hake fishery was initiated in the 1970s by Japanese trawl vessels which were soon joined by Russian and Korean vessels. The fishery was initially mostly bycatch in the hoki fishery, but when the hoki quota was cut in the early 2000s, hake targeting increased. Currently, about 75% of the total catch is from the hake target fishery. Hake is caught almost entirely using bottom and midwater trawl gear, with a small amount caught in bottom longline fisheries for ling.

The commercial fisheries for hake have changed measurably in the past ten years, including changes in fleet structure (some major hake fishing vessels left the fishery in the mid-2000s), average tow speed and duration, and the locations fished. Target fisheries for hake use slightly different fishing gear than that used to fish for hoki meaning that vessels that target hoki do not have the same efficiency in catching hake even when it is targeted. Hoki fisheries have also become more targeted with the development of techniques to avoid bycatch of hake. This has resulted in lower catches of hake in hoki fisheries, even as hoki catches increase. See Table 1.

3.8.9 Rights of access to fishery

Since 1986, the major commercial fisheries in New Zealand fisheries waters have been managed through a QMS based on ITQs. A fishing permit is required to fish for QMS and non-QMS species, all fishing vessels must be registered, and all fishing permit holders are required to furnish accurate monthly returns on locations fished, fishing gear used, catches of main species, information on processing and landing of catches and to reconcile these against ACE.

The Fisheries Act 1996 (the Act) requires that, prior to setting management measures for hake, the Minister of Fisheries shall consult with persons having an interest in the stock or the effects of fishing on the aquatic environment in the area in which the fishery takes place, including Maori, environmental, commercial and recreational interests. In addition, the Act requires that in setting a TAC under section 13, the Minister shall have regard to such social, cultural and economic factors (s)he considers relevant.

Social and cultural factors include those related to the harvesting of hake by all parties; commercial, recreational and customary. However, there is little recreational or customary fishing for hake. There are no recreational or customary allowances for any hake fishstock.

Social and cultural factors also include the non-extractive value of healthy hake and key bycatch stocks and the values associated with an aquatic environment that is not adversely impacted on by hake fishing activity. These intrinsic values must also be considered when determining the appropriate management measures for a fishery.

3.8.10 Measures for regulation of the fishery

MPI and the DWG to work in partnership outlining the priority areas and workplan to better manage deepwater fisheries. The two parties have developed a single joint-management framework with agreed strategic and operational priorities and workplans and timeframes.

The partnership was formed to:

- advise the Minister of Fisheries on clear and agreed objectives for the deepwater fisheries;
- advise the Minister of Fisheries on management measures to support these objectives;
- define service requirements to support these objectives;
- ensure efficient delivery and value from these services; and
- provide consistent and agreed advice to the Minister wherever possible.

The partnership is focused on determining the maximum economic yield of the deepwater fisheries by setting catch limits that maximise returns over the long term within the constraints of ecological sustainability. This collaborative approach to fisheries management has an industry-wide impact on the behaviour of seafood companies by way of creating a "self management" responsibility amongst industry participants.

This co-operation between seafood companies replaces historical competitive behaviours, improves industry wide management initiatives and subsequent compliance with standards and outcomes set, monitored and audited by government.

3.8.11 Monitoring control and surveillance

Vessel registration
Section 103 of the Fisheries Act 1996 requires vessels to be registered in the Fishing Vessel Register in order to take fish, aquatic life, or seaweed for sale, in New Zealand fisheries waters.

Permitting of commercial fishers
Any person who wishes to take fish for the purpose of sale can only do so under the authority of a commercial fishing permit issued under Section 91 of the Fisheries Act 1996 (the Act). Commercial fishers are required to:

- fish from a registered fishing vessel;
- keep records of all catch, effort and landings;
- report regularly to the Ministry their effort and landings;
- not discard quota species (with limited, documented exceptions);
- land catch to approved licensed fish receivers (LFRs) (with limited, documented exceptions); and
- furnish Monthly Harvest Returns (MHRs) to MPI detailing all the catches made for that month by the permit holder, as they may fish from more than one vessel.

Foreign Charter Vessels (FCVs)
Foreign Charter Vessels (FCVs) are vessels owned or operated by an overseas entity under contract or charter to a New Zealand company. While FCVs remain flagged to a foreign State during the time of the charter, their registration status makes them subject to New Zealand's law and fisheries management regime, including an obligation to meet all the requirements listed above, while fishing in New Zealand waters. All products and fishing activities on board such vessels are the responsibility of the New Zealand permit holder, who may be prosecuted for any non-compliance.

General approach
In recent years the industry has supported a shift away from prescriptive regulatory fisheries management to a strong focus on more collaborative fisheries management, including industry

implementation of operational plans which are monitored and audited by government. This collaboration includes all stakeholders and shareholders in the DWG along with government and non-government organisations and interested parties.

3.8.12 Details of any planned education and training for interest groups.

With respect to avoiding or mitigating interactions with ETP species, DWG has implemented a range of non-regulatory measures and supplementary measures. As part of this DWG has an Environmental Liaison Officer whose role is to:

- ensure each vessel's management plan is implemented and up to date;
- assist with development and implementation if required;
- lecture vessel operators, skippers (on all trawlers >28m and from 2011 all trawlers <28m in the Cook Strait) on best practice; and
- provide a best practice manual.

3.8.13 Review and audit of Management Plan

The hake-fishery specific chapter of the National Deepwater Plan has specific objectives tailored to the hake fisheries that are achievable, and which directly guide actions in the hake fisheries. These are then specified within the Annual Operational Plan (AOP) by year. Progress against the objectives in the plan is reviewed annually and reported in the Annual Review Report. The objectives also guide annual planning in the Annual Operational Plan, however, the fish plan itself is only reviewed every 5 years and is not amended during the annual processes.

3.8.14 Research Plan

The 10 Year Research Programme for deepwater fisheries sets out the research and monitoring approach for hake over the next 10 years. The research and monitoring approach differs by fishery based on the available information. All three hake fisheries have accepted stock assessments. The 10 Year Research Program includes projects to assess all HAK stocks regularly and continue to collect the required information to be able to complete stock assessments for all stocks.

4. Evaluation Procedure

4.1 Harmonised Fishery Assessment

Other hake fisheries have been either certified or are under assessment. These include: the South African hake trawl, the Pacific hake mid-water trawl and the Grupo regal Spain hake longline which are certified and the Cornish hake gill net and Denmark northsea hake fisheries which are under MSC assessment. This fishery is not considered to overlap with any of these fisheries.

The New Zealand hake fishery does overlap with the MSC certified hoki fishery and the NZ ling fishery, currently under assessment. The hake and the ling fishery assessments are occurring at the same time.

The hake fishery assessment has been harmonised with hoki and ling in the following ways:

- The same default assessment tree has been used for hoki, hake and ling.
- Consistency of outcomes has been ensured so as not to undermine the integrity of the MSC fishery assessments. In scoring the fishery the assessment team looked to provide consistency of scoring outcome for PIs, reviewed the scoring rationales for the hoki fishery and, where appropriate, i.e. under P2 and P3 in particular, took them into account.
- As the NZ hake and ling fishery are occurring at the same time important steps in the assessment have been harmonised, e.g. site visits, stakeholder inputs, client meetings, assessment planning, coordinated process steps and timing of reports.
- Fisheries information has been shared between fisheries.
- Conclusions, where appropriate, are consistent between the three fisheries with respect to evaluation, scoring and conditions. This is especially relevant for Principle 3 for all species and Principle 2 for hoki, hake and ling trawl UoCs.

4.2 Previous assessments

This fishery has not been previously MSC certified.

4.3 Assessment Methodologies

This assessment of the New Zealand hake fishery has been carried out using the MSC Certification Requirements v 1.3 14 January 2013.

The full assessment reporting template has been used without any adjustments.

The default assessment tree has been used without any adjustments.

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

A number of stakeholders who previously expressed an interest in the New Zealand deepwater and middle depth species certification were contacted prior to the commencement of this latest reassessment. Other potential new stakeholders were also contacted. The full list of those individuals and organisations contacted is contained below in Table 12 for 2009 and Table 13 for 2013.

Inspection of the fishery focused on the practicalities of fishing operations, the mechanisms and effectiveness of management agencies and the scientific assessment of the fisheries.

Table 12 : List of stakeholders consulted during the 2009 assessment

Name	Affiliation	Date	Key Issues
George Clement Aoife Martin Richard Wells	DWG MFish DWG	13/07/09	Fishing operations and management
Nathan Walker (Senior Scientist) Stephanie Rowe (Scientific Officer)	MFish DOC	16/07/09	Ecosystem Interactions
Peter Horn (Hake and Ling Stock Assessor) David Middleton (Chief Scientist) Rosemary Hurst (Scientist) Pamela Mace (Chief Scientist)	NIWA NZ Seafood Industry Council NIWA MFish	14/07/09	Stock assessments
Pamela Mace (Chief Scientist) Martin Cryer (Science Manager) Mary Livingston (Principle scientist) Ed Abraham (Consultant) Cathryn Bridge (Senior Policy Manager) Nathan Walker (Senior Scientist) Stephanie Rowe (Scientific Officer)	MFish MFish MFish Dragonfly MFish MFish DOC	15/07/09	Ecosystem interactions and management effectiveness
Alan Martin (Operation Manager-Observer Services)	MFish	16/07/09	Observer program and data
Diane Tracey (Scientist Deep Sea Fisheries)	NIWA	16/07/09	Ecosystem interactions
David Foster (Fisheries Analyst) Aoife Martin (Manager Deep Water Fisheries) Tom Chatterton (Manager Deep Water Fisheries) Vicky Reeve (Fisheries Analyst) Jeremy Helson (Senior Fisheries Analyst) Andy Hill (Deep Water Fisheries)	MFish	16/07/09	Management effectiveness
Geoff Clarke Andrew Coleman (Compliance) Dean Baigent (Surveillance)	MFish MFish MFish	14/07/09	Compliance and Enforcement
Kevin Hackwell Kirstie Knowles	Royal Forest & Bird	23/07/09	Ecosystem interactions and management effectiveness
Catherine Wallace (Co-Chairman) Barry Weeber (Co-Chairman) Karli Thomas (Oceans Campaigner) Geoff Keey (Political Advisor)	ECO ECO Greenpeace Greenpeace	23/07/09	Ecosystem interactions and management effectiveness
Peter Trott (Fisheries Program Manager) Rebecca Bird (Marine Programme Manager)	WWF Australia WWF New Zealand	24/07/09	Ecosystem interactions and management effectiveness

Table 13 : List of stakeholders consulted during 2013 assessment[5]

Date	Name	Organisation	Purpose of meeting	Type
9th Sept 2013	George Clement	DWG Ltd	Opening meeting	Open
	Aaron Irving	DWG Ltd	Opening meeting	Open
	Richard Wells	DWG Ltd	Opening meeting	Open
	Jeremy Helson	MPI	Opening meeting	Open
	Geoff Tingley	MPI	Opening meeting	Open
	Tiffany Bock	MPI	Opening meeting	Open
	Rosemary Hurst	NIWA	Opening meeting	Open
	Peter Horn	NIWA	Opening meeting	Open
	Charles Edwards	NIWA	Opening meeting	Open
9th Sept 2013	Rosemary Hurst	NIWA	NIWA stakeholder meeting	Open
	Peter Horn	NIWA	NIWA stakeholder meeting	Open
	Charles Edwards	NIWA	NIWA stakeholder meeting	Open
	Jeremy Helson	MPI	NIWA stakeholder meeting	Open
	Geoff Tingley	MPI	NIWA stakeholder meeting	Open
	Tiffany Bock	MPI	NIWA stakeholder meeting	Open
	George Clement	DWG	NIWA stakeholder meeting	Open
	Aaron Irving	DWG	NIWA stakeholder meeting	Open
	Richard Wells	DWG	NIWA stakeholder meeting	Open
10th Sept	Edward Abraham	Dragonfly	Dragonfly stakeholder meeting	Open
	Finlay Thompson	Dragonfly	Dragonfly stakeholder meeting	Open
	Philipp Neubauer	Dragonfly	Dragonfly stakeholder meeting	Open
	Tiffany Bock	MPI	Dragonfly stakeholder meeting	Open
	Richard Wells	DWG	Dragonfly stakeholder meeting	Open
10th Sept	Paul Crozier	WWF NZ	eNGO stakeholder meeting	Closed
	Kevin Hackwell	Forest and Bird	eNGO stakeholder meeting	Closed
	Barry Weeber	ECO	eNGO stakeholder	Closed

[5] Please note IMM Assessors Jo Akroyd and Graham Pilling attended all meetings
Please note all stakeholders were asked if they preferred an open or closed meeting.

Date	Name	Organisation	Purpose of meeting	Type
	(subject to proviso)		meeting	
10th Sept	Geoff Tingley	MPI	MPI Science and deepwater	Open
	Jeremy Helson	MPI	MPI Science and deepwater	Open
	Tiffany Bock	MPI	MPI Science and deepwater	Open
	George Clement	DWG	MPI Science and deepwater	Open
	Richard Wells	DWG	MPI Science and deepwater	Open
	Aaron Irving	DWG	MPI Science and deepwater	Open
10th Sept	Dean Baigent	MPI	MPI Compliance	Open
	Geoff Backhouse	MPI	MPI Compliance	Open
	Geoff Tingley	MPI	MPI Compliance	Open
	Richard Wells	DWG	MPI Compliance	Open
	George Clement	DWG	MPI Compliance	Open
	Tiffany Bock	MPI	MPI Compliance	Open
	Aaron Irving	DWG	MPI Compliance	Open
10th Sept	George Clement	DWG	Closing meeting	Open
	Aaron Irving	DWG	Closing meeting	Open
	Richard Wells	DWG	Closing meeting	Open
	Geoff Tingley	MPI	Closing meeting	Open
	Tiffany Bock	MPI	Closing meeting	Open

4.4.2 Consultations

Consultations were held with the individuals and organisations as identified in 4.4.1 above.

A written record was made for all interviews. These were sent to interviewees who, where necessary, made alterations and confirmed by email as a true and accurate record. The corrected and confirmed records are attached as Appendix 2.

4.4.3 Evaluation techniques

4.4.3.1 Media

As well as notification on the MSC website, advertisements were placed in three major New Zealand newspapers, The New Zealand Herald, The Press and the Nelson Mail. This was to inform any New Zealander who wished to participate in the process when the site visit was occurring and who to contact if they were interested. A further notification was made on the MSC website prior to the second site visit and all known interested parties were contacted by email.

4.4.3.2 Methodology used

All recognised stakeholders including government agencies, industry, eNGOs and research providers were contacted prior to the re-assessment and encouraged to participate in the re-assessment process to ensure that the CAB would be exposed to a working knowledge of the management and fishing operations.

Inspection of the fishery focused on the practicalities of fishing operations, the mechanisms and effectiveness of management agencies and the scientific assessment of the fisheries.

4.4.3.3 Scoring process

After the team compiled and analysed all relevant information (including technical, written and anecdotal sources), the fishery was scored against the Performance Indicators and Scoring Guideposts (PISGs) in the default assessment tree. The team:

- discussed evidence together;
- weighed up the balance of evidence; and
- used its judgement to agree a final score following the processes below.

In summary the team used a group consensus approach.

4.4.3.4 Decision rule

The team scored individual performance indicators by applying the following:

If any one or more of the SG60 scoring issues was not met, the fishery would fail and there would be no further scoring. If all of the SG60 scoring issues were met, the PI would achieve at least a 60 score.

The team assessed each of the scoring issues at the SG80 level. If all of the SG80 scoring issues were met, the PI scored 80. If any of the scoring issues under the SG80 were not met an intermediate score (65, 70 or 75) was allocated, reflecting the overall performance against the different SG80 scoring issues.

In order to achieve an 80 score, all of the 60 scoring issues and all of the 80 issues had to be met and each scoring issue justified by supporting rationale.

If all of the SG80 scoring issues were met, the PI achieved at least an 80 score and the team assessed each of the scoring issues at the SG100 level. If not all of the SG100 scoring issues were met the PI was given an intermediate score (85, 90 or 95) reflecting overall performance against the different SG100 scoring issues.

In order to achieve a 100 score, all of the 60 issues, all of the 80 issues, and all of the 100 issues needed to be met and each scoring issue justified by supporting rationale.

In Principle 2, the team scored PIs comprised of differing scoring elements (species or habitats) that comprised part of a component affected by the fishery. If any single scoring element failed substantially to meet SG80, the overall score for that element became less than 80 and a condition raised. The score given reflected the number of elements that failed, and the level of their failure, rather than being derived directly as a numerical average of the individual scores for all elements. Scores were determined for each scoring element by applying the process as above.

Table C2 MSC certification requirements v 1.1 October 2011, was used to determine the overall score for the PI from the scores of the different scoring elements.

The weighted average score for all Criteria under each Principle for the fishery was calculated and if it were less than 80 for any of the three Principles the fishery would not be certified.

Table 14: Principle 1 and 2 species and habitats that were assessed

UoC	Component	Scoring elements	Main/not main	Data-deficient or not
HAK1	1.1/1.2	Hake (*Merluccius australis*)		Not data deficient
	2.1	Hoki (*Macruronus novaezelandiae*)	Main	Not data deficient
	2.1	Ling (*Genypterus blacodes*)	Main	Not data deficient
	2.1	White warehou (*Seriolella caerulea*)	Not main	Not data deficient
	2.1	Spiny dogfish (*Squalus acanthias*)	Not main	Not data deficient
	2.1	Silver warehou (*Seriolella punctata*)	Not main	Not data deficient
	2.1	Pale ghost shark (*Hydrolagus bemisi*)	Not main	Not data deficient
	2.2	Rattails (*Kuronezumia spp*)	Not main	Not data deficient
	2.2	Javelinfish (*Coelorinchus australis*)	Not main	Not data deficient
	2.2	Leafscale gulper shark (*Centrophorus squamosus*)	Main	Not data deficient
	2.3	Buller's albatross (*Thalassarche bulleri*)		Not data deficient
	2.3	Salvin's albatross (*Thalassarche salvini*)		Not data deficient
	2.3	White-chinned petrel (*Procellaria aequinoctialis*)		Not data deficient
	2.3	Fur seals (*Arctocephalus forsteri*)		Not data deficient
	2.3	Basking shark (*Cetorhinus maximus*)		Not data deficient
	2.3	Cold water corals		Not data deficient
	2.4	Benthic habitat		Not data deficient
HAK4	1.1/1.2	Hake		Not data deficient
	2.1	Hoki	Main	Not data deficient
	2.1	Silver warehou	Main	Not data deficient
	2.1	Sea perch (*Helicolenus spp.*)	Not main	Not data deficient
	2.1	Ling	Main	Not data deficient
	2.1	Barracouta (*Thyrsites atun*)	Not main	Not data deficient
	2.1	Alfonsino (*Beryx splendens*)	Not main	Not data deficient
	2.1	Spiny dogfish	Not main	Not data deficient
	2.2	Javelinfish	Not main	Not data deficient
	2.2	Rattails	Not main	Not data deficient
	2.3	Buller's albatross		Not data deficient
	2.3	Salvin's albatross		Not data deficient
	2.3	White-chinned petrel		Not data deficient
	2.3	Fur seals		Not data deficient
	2.3	Basking shark		Not data deficient
	2.3	Cold water corals		Not data deficient
	2.4	Benthic habitat		Not data deficient
HAK7	1.1/1.2	Hake		Not data deficient
	2.1	Hoki	Main	Not data deficient
	2.1	Ribaldo (*Mora moro*)	Not main	Not data deficient
	2.1	Ling	Main	Not data deficient
	2.1	Silver warehou	Not main	Not data deficient
	2.2	Javelinfish	Not main	Not data deficient
	2.2	Rattails	Not main	Not data deficient

UoC	Component	Scoring elements	Main/not main	Data-deficient or not
	2.2	Seal shark (*Dalatias licha*)	Main	Not data deficient
	2.2	Leafscale gulper shark	Main	Not data deficient
	2.2	Shovelnose dogfish (*Deania calcea*)	Main	Not data deficient
	2.3	Buller's albatross		Not data deficient
	2.3	Salvin's albatross		Not data deficient
	2.3	White-chinned petrel		Not data deficient
	2.3	Fur seals		Not data deficient
	2.3	Basking shark		Not data deficient
	2.3	Cold water corals		Not data deficient
	2.4	Benthic habitat		Not data deficient

5. Traceability

5.1 Eligibility Date

The client has aked that in order for client group members to gain the maximum benefit of the certification the actual eligibility date is taken as 6 months prior to the publication of the Public Comment Draft Report (PCDR). The PCDR was published on 3rd June 2014, therefore, the actual eligibility date is 3rd December 2013. It should be noted that any client group member wishing to take advantage of the actual eligibility date will need to meet and be able to demonstrate the necessary chain of custody requirements were in place.

5.2 Traceability within the Fishery

Existing fisheries management requirements include the clear identification of species, quantity, fishing method and area of capture by all vessels landing fish from the fishery. All catches are reported in logbooks and in catch and effort landing returns. On-board observer coverage also monitors, cross checks and verifies catches and landings with the vessels logbook.

Cross referencing of VMS data with logbooks, observer and aerial and at-sea surveillance reports also ensures that fish is reported from the correct area of capture. All landings are monitored by a dockside monitoring program. Vessels have to advise MPI before landing and maybe subject to monitoring by enforcement officers.

5.2.1 Tracking and tracing

As with the certified hoki fishery, clear traceability and tracking is already in place and procedures and audits are regularly carried out. Procedures that are in place include, “when fish product is brought onto a factory site that is not from a MSC fishery or not from a site with a chain of custody certification for (a) reprocessing, or (b) future sale, it must be brought on to inventory with the appropriate quality status and a logistic status. The narrative will read “Not MSC certified”. This will prevent its movement without proper control.” (DWG, Quality Manual).

If a vessel were fishing outside the UoC there are systems in place to record that fact. All factory trawlers in New Zealand are operating under New Zealand Food Safety Authority (NZFSA) and New Zealand Fisheries Act rules and regulations. As such they are required to both land all catch of QMS species (such as hake) and ensure that any fish that will not be fit for human consumption, e.g. through damage or accidental contamination, is not able to be inadvertently sold into market. This drives the need for all vessels to be able to mark, ‘ring-fence’ and inventory product or products on a reasonably regular basis. This is coupled with the fact that all vessels produce a wide range of species and products, all of which are needed to be marked by date and numerous other information and able to be sorted on arrival in port and inventoried for market and export purposes. Both physical and electronic inventory management is inherent in the systems that these vessels operate.

5.2.2 Vessels fishing outside the unit of certification

No hake caught outside New Zealand EEZ is processed in New Zealand. New Zealand vessels do not fish for hake outside New Zealand’s EEZ.

5.2.3 At sea processing

At-sea processing occurs on all the major factory ships participating in this fishery. At-sea processing includes the sorting, heading and gutting, filleting, freezing, reduction to surimi and packaging of hake.

There are two levels of process technology in the fleet.

1. Fully integrated weighing labelling systems which barcode every carton on production and before storage in the ship's hold. This data is downloaded on arrival, reconciled on landing figures and thus final inventory is arrived at. This system allows the tagging of product lines which is non-certified so that it is barcoded as non-certified and trackable and separable ever after simply by scanning. Onshore systems in load-out audit exports.
2. The rest of the fleet practice standard practice where all product (by carton) is labelled as per MPI and NZFSA requirements. The outer markings are used to separate and inventory all product on landing. All hake landed in New Zealand is under this MSC assessment.

The risk of substitution is considered to be well-managed and therefore negligible. In any case, all hake caught in New Zealand are under consideration for this MSC assessment. Under MPI regulations every container in which fish is packaged on a licenced fish receiver's premise shall be marked with species name, date, licenced fish receivers name, processed state, area fished.

5.2.4 Transhipping

Transhipping is rare in the hake fishery. However if it did occur there is legislation in place to ensure the potential traceability risks associated with any transhipping are minimal.

Section 110, of the Fisheries Act states:
Fish taken in New Zealand fisheries waters must be landed in New Zealand—
(1) No person shall land, at any place outside New Zealand, any fish… taken in New Zealand fisheries waters unless… has the prior approval of the chief executive and is in accordance with any conditions imposed… .

(2) For the purposes of subsection (1) of this section, fish, aquatic life, or seaweed shall be deemed to have been landed at a place outside New Zealand if—

- *(a) It is transported beyond the outer limits of the exclusive economic zone by the vessel that took it; or*
- *(b) It is taken… and transferred to a vessel and then transported… beyond the outer limits of the exclusive economic zone without having been lawfully purchased or acquired by a licensed fish receiver in New Zealand before transportation; or*
- *(c) It is transhipped… to another vessel.*

(3) The conditions that may be imposed on any approval granted under subsection (1) of this section include conditions relating to one or more of the following:

- *(a) The vessel that will take the fish, aquatic life, or seaweed:*
- *(b) Any vessel, which will receive the fish, aquatic life, or seaweed:*
- *(c) The manner and conditions under which the storage, transportation, transhipment, recording, reporting, landing, and disposal of the fish, aquatic life, or seaweed will take place.*

If transhipment takes place, the CoC is not compromised due to checks including records and labelling that are in place.

5.3 Eligibility to enter further chains of custody

To be eligible to carry the MSC logo, product from the certified fishery must enter into separate Chain of Custody certifications from first point of landing.

The main points of landing for this fishery are all major New Zealand ports.

The scope of this certification ends at the points of landing. Downstream certification of the product

would require appropriate certification of storage and handling facilities at these locations.

IFC determined that the systems within the fishery for tracking and tracing are sufficient, fish and fish products from the fishery may enter into further certified chains of custody and, as such, be eligible to carry the MSC ecolabel.

The eligible parties to use the fisheries certificate are shareholders of the Deepwater Group. Currently 99.5% of total hake quota is held by DWG shareholders. Anyone who owns hake quota has the opportunity to become a DWG shareholder.

5.4 Eligibility of Inseparable or Practically Inseparable (IPI) stock(s) to Enter Further Chains of Custody

There are no IPI stocks involved with this fishery.

6. Evaluation Results

6.1 Principle Level Scores

Table 15 : Final Principle Scores

Principle Scores UoC 1 (HAK1)	
Principle	**Score**
Principle 1 – Target Species	91.9
Principle 2 – Ecosystem	84.7
Principle 3 – Management System	97.3

Principle Scores UoC 2 (HAK4)	
Principle	**Score**
Principle 1 – Target Species	91.3
Principle 2 – Ecosystem	84.7
Principle 3 – Management System	97.3

Principle Scores UoC 3 (HAK7)	
Principle	**Score**
Principle 1 – Target Species	90.0
Principle 2 – Ecosystem	83.3
Principle 3 – Management System	97.3

6.2 Summary of Scores

Fishery Assessment Scoring Worksheet UoC 1 (HAK1)

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle			Score	Contribution to Principle Score	
						Either		Or			Either	Or
One	1	Outcome	0.5	1.1.1	Stock status	0.5	0.25	0.333	0.1667	100	25.00	16.67
				1.1.2	Reference points	0.5	0.25	0.333	0.1667	90	22.50	15.00
				1.1.3	Stock rebuilding			0.333	0.1667			0.00
		Management	0.5	1.2.1	Harvest strategy	0.25	0.125			95	11.88	11.88
				1.2.2	Harvest control rules & tools	0.25	0.125			80	10.00	10.00
				1.2.3	Information & monitoring	0.25	0.125			90	11.25	11.25
				1.2.4	Assessment of stock status	0.25	0.125			90	11.25	11.25
Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.1.2	Management	0.333	0.0667			85	5.67	5.67
				2.1.3	Information	0.333	0.0667			90	6.00	6.00
		Bycatch species	0.2	2.2.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.2.2	Management	0.333	0.0667			80	5.33	5.33
				2.2.3	Information	0.333	0.0667			90	6.00	6.00
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667			95	6.33	6.33
				2.3.2	Management	0.333	0.0667			85	5.67	5.67
				2.3.3	Information	0.333	0.0667			80	5.33	5.33
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.4.2	Management	0.333	0.0667			80	5.33	5.33
				2.4.3	Information	0.333	0.0667			80	5.33	5.33
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.5.2	Management	0.333	0.0667			90	6.00	6.00
				2.5.3	Information	0.333	0.0667			95	6.33	6.33
Three	1	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125			100	12.50	12.50
				3.1.2	Consultation, roles & responsibilities	0.25	0.125			100	12.50	12.50
				3.1.3	Long term objectives	0.25	0.125			100	12.50	12.50
				3.1.4	Incentives for sustainable fishing	0.25	0.125			90	11.25	11.25
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1			90	9.00	9.00
				3.2.2	Decision making processes	0.2	0.1			95	9.50	9.50
				3.2.3	Compliance & enforcement	0.2	0.1			100	10.00	10.00
				3.2.4	Research plan	0.2	0.1			100	10.00	10.00
				3.2.5	Management performance evaluation	0.2	0.1			90	9.00	9.00

Overall weighted Principle-level scores		Either	Or
Principle 1 - Target species	Stock rebuilding PI not scored	91.9	
	Stock rebuilding PI scored		
Principle 2 - Ecosystem		84.7	
Principle 3 - Management		96.3	

Fishery Assessment Scoring Worksheet UoC 2 (HAK4)

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle			Score	Contribution to Principle Score	
						Either		Or			Either	Or
One	1	Outcome	0.5	1.1.1	Stock status	0.5	0.25	0.333	0.1667	100	25.00	16.67
				1.1.2	Reference points	0.5	0.25	0.333	0.1667	90	22.50	15.00
				1.1.3	Stock rebuilding			0.333	0.1667			0.00
		Management	0.5	1.2.1	Harvest strategy	0.25	0.125			95	11.88	11.88
				1.2.2	Harvest control rules & tools	0.25	0.125			80	10.00	10.00
				1.2.3	Information & monitoring	0.25	0.125			90	11.25	11.25
				1.2.4	Assessment of stock status	0.25	0.125			85	10.63	10.63
Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.1.2	Management	0.333	0.0667			85	5.67	5.67
				2.1.3	Information	0.333	0.0667			90	6.00	6.00
		Bycatch species	0.2	2.2.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.2.2	Management	0.333	0.0667			80	5.33	5.33
				2.2.3	Information	0.333	0.0667			90	6.00	6.00
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667			95	6.33	6.33
				2.3.2	Management	0.333	0.0667			85	5.67	5.67
				2.3.3	Information	0.333	0.0667			80	5.33	5.33
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.4.2	Management	0.333	0.0667			80	5.33	5.33
				2.4.3	Information	0.333	0.0667			80	5.33	5.33
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.5.2	Management	0.333	0.0667			90	6.00	6.00
				2.5.3	Information	0.333	0.0667			95	6.33	6.33
Three	1	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125			100	12.50	12.50
				3.1.2	Consultation, roles & responsibilities	0.25	0.125			100	12.50	12.50
				3.1.3	Long term objectives	0.25	0.125			100	12.50	12.50
				3.1.4	Incentives for sustainable fishing	0.25	0.125			90	11.25	11.25
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1			90	9.00	9.00
				3.2.2	Decision making processes	0.2	0.1			95	9.50	9.50
				3.2.3	Compliance & enforcement	0.2	0.1			100	10.00	10.00
				3.2.4	Research plan	0.2	0.1			100	10.00	10.00
				3.2.5	Management performance evaluation	0.2	0.1			90	9.00	9.00

Overall weighted Principle-level scores		Either	Or
Principle 1 - Target species	Stock rebuilding PI not scored	91.3	
	Stock rebuilding PI scored		
Principle 2 - Ecosystem		84.7	
Principle 3 - Management		96.3	

Fishery Assessment Scoring Worksheet UoC 3 (HAK7)

Prin-ciple	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle			Score	Contribution to Principle Score	
						Either		Or			Either	Or
One	1	Outcome	0.5	1.1.1	Stock status	0.5	0.25	0.333	0.1667	100	25.00	16.67
				1.1.2	Reference points	0.5	0.25	0.333	0.1667	90	22.50	15.00
				1.1.3	Stock rebuilding			0.333	0.1667			0.00
		Management	0.5	1.2.1	Harvest strategy	0.25	0.125			95	11.88	11.88
				1.2.2	Harvest control rules & tools	0.25	0.125			80	10.00	10.00
				1.2.3	Information & monitoring	0.25	0.125			80	10.00	10.00
				1.2.4	Assessment of stock status	0.25	0.125			85	10.63	10.63
Two	1	Retained species	0.2	2.1.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.1.2	Management	0.333	0.0667			85	5.67	5.67
				2.1.3	Information	0.333	0.0667			85	5.67	5.67
		Bycatch species	0.2	2.2.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.2.2	Management	0.333	0.0667			80	5.33	5.33
				2.2.3	Information	0.333	0.0667			85	5.67	5.67
		ETP species	0.2	2.3.1	Outcome	0.333	0.0667			95	6.33	6.33
				2.3.2	Management	0.333	0.0667			85	5.67	5.67
				2.3.3	Information	0.333	0.0667			80	5.33	5.33
		Habitats	0.2	2.4.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.4.2	Management	0.333	0.0667			80	5.33	5.33
				2.4.3	Information	0.333	0.0667			80	5.33	5.33
		Ecosystem	0.2	2.5.1	Outcome	0.333	0.0667			80	5.33	5.33
				2.5.2	Management	0.333	0.0667			90	6.00	6.00
				2.5.3	Information	0.333	0.0667			85	5.67	5.67
Three	1	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125			100	12.50	12.50
				3.1.2	Consultation, roles & responsibilities	0.25	0.125			100	12.50	12.50
				3.1.3	Long term objectives	0.25	0.125			100	12.50	12.50
				3.1.4	Incentives for sustainable fishing	0.25	0.125			90	11.25	11.25
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1			90	9.00	9.00
				3.2.2	Decision making processes	0.2	0.1			95	9.50	9.50
				3.2.3	Compliance & enforcement	0.2	0.1			100	10.00	10.00
				3.2.4	Research plan	0.2	0.1			100	10.00	10.00
				3.2.5	Management performance evaluation	0.2	0.1			90	9.00	9.00

Overall weighted Principle-level scores		Either	Or
Principle 1 - Target species	Stock rebuilding PI not scored	90.0	
	Stock rebuilding PI scored		
Principle 2 - Ecosystem		83.3	
Principle 3 - Management		96.3	

6.3 Summary of Conditions

No conditions have been raised

6.4 Recommendations

Recommendation 1:

The increasing number of trawl vessels operating in HAK7 of vessel lengths smaller than 28 m is noted (see Table 1). Their small size technically excludes them from the requirement to put in place bird interaction mitigation methods, although voluntary code of conduct approaches may be present. Vessel size is included within the models used to estimate seabird interactions (Abraham and Thompson, 2011). Hence if information is available from these smaller vessels, it will be incorporated within the analysis of overall interaction rates, which as noted within this document are below levels of concern. However, it is recommended that the results of existing models be examined to identify vessel-size factors for the UoC, and if necessary targeted data collection undertaken to support further

analyses of ETP interactions for this vessel size class within the UoC be performed. Where results show a basis for concern, appropriate mitigation approaches should be considered.

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Appendices

Appendix 1 Scoring and Rationales

Appendix 1.1 Performance Indicator Scores and Rationale

Evaluation Table for PI 1.1.1

PI 1.1.1		**The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.
	Met?	Y	Y	Y
	Justification	**HAK 1 Sub-Antarctic** The current biomass for the Sub-Antarctic stock as a percentage of B_0 is 52%, which is well above the target reference point (40%). The 95% credibility interval (39–65%) also excludes the current limit reference points. As a result, the latest Plenary report noted that B_{2011} was Exceptionally Unlikely (< 1%) to be below both the Soft and Hard Limits. A score of 100 is given. **HAK 4 Chatham Rise** The current biomass for the Chatham Rise stock as a percentage of B_0 is 47%, which is above the target reference point (40%). The 95% credibility interval (35–63%) also excludes the current limit reference points. As a result, the latest Plenary report noted that B_{2012} was Exceptionally Unlikely (< 1%) to be below the Soft or Hard Limits. A score of 100 is given. **HAK 7 West Coast, South Island** The current biomass for the WCSI stock as a percentage of B_0 is 58%, which is above the target reference point (40%). The 95% credibility interval (43–77%) also excludes the current limit and target reference points. B_{2012} was Exceptionally Unlikely (< 1%) to be below the Hard Limit and very unlikely to be below the soft limit (<10%). A score of 100 is given		
b	**Guidepost**		The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.
	Met?		Y	Y

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing
	Justification	**HAK 1 Sub-Antarctic** The current biomass for the Sub-Antarctic stock as a percentage of B_0 is 52%, which is well above the target reference point (40%). The 95% confidence intervals describe B_{2012} for the base case as 39.0 – 64.5% of B_0. The Plenary report notes that the stock is Very Likely (> 90%) to be at or above the target, while the assessment indicates the stock has been above the target level since the start of the time series. The biomass of the Sub-Antarctic stock was expected to increase at a catch level equivalent to the mean since 2005, based on projection results, and very unlikely (<10%) to fall below the soft limit. A score of 100 is therefore given. **HAK 4 Chatham Rise** The current biomass for the Chatham Rise stock as a percentage of B_0 is 47%, which is above the target reference point (40%). The 95% confidence intervals describe B_{2012} for the base case as 35.3–63.4% of B_0. The Plenary report notes that the stock is Likely (> 60%) to be at or above the target, while the assessment indicates the stock has been above the target level since the start of the time series. A score of 100 is therefore given. However, the biomass of the Chatham Rise stock is expected to decrease slightly over the next 5 years at catch levels equivalent to those from recent years (i.e., about 1100 t annually), but is projected to decline markedly to just below the management target (and toward the soft limit at the lower end of the 95% credible interval), if future catches are close to the high catch scenario (i.e. annual catch levels equivalent to the HAK 4 TACC of 1800 t), and at such levels is 'About as Likely as Not' (40–60%) to fall below the soft limit level. While recent catches have been lower than the high catch scenario, and hence this scenario is less likely, this will be monitored in future audits. **HAK 7 West Coast, South Island** The current biomass for the WCSI stock as a percentage of B_0 is 58%, which is well above the target reference point (40%). The 95% confidence intervals describe B_{2012} for the base case as 43.1–77.4% of B_0. The Plenary report notes that the stock is Very Likely (> 90%) to be at or above the target, while the assessment indicates the stock has been below the target level during the period 2005-2010, and then above the target in more recent years. The biomass of the WCSI stock is expected to increase slightly at a catch level equivalent to the mean since 2007 (i.e., 4 500 t annually), or decline slightly at a catch level equivalent to the TACC (i.e., 7 700 t annually), but is very unlikely (<10%) to fall below the soft limit in the next 5 years. A score of 100 is therefore given.
References		MPI 2013a Horn, 2013a,b

Stock Status relative to Reference Points

	Type of reference point	Value of reference point	Current stock status relative to reference point
Target reference point	Biomass relative to unfished levels (B_0)	40%	Mean values: 52% (HAK1), 47% (HAK4), 58% (HAK7)
Limit reference point	Biomass relative to unfished levels (B_0)	20% (soft limit) 10% (hard limit)	

OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues of the 60, 80 and 100 scoring guideposts are met. The final score is 100 for all stocks.	**100**
CONDITION NUMBER (if relevant):	**N/A**

Evaluation Table for PI 1.1.2

PI 1.1.2		**Limit and target reference points are appropriate for the stock** **NB Applies to HAK 1, 4 and 7**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	Y	Y	
	Justification	The Management Target ($0.4B_0$) is consistent with maintaining the stock above the B_{MSY} calculated under deterministic considerations (e.g. B_{MSY} = 0.26 B_0 for HAK7). The limit reference point on which this assessment is based (the soft limit of $0.2B_0$) is around 75% of B_{MSY} and 50% of the Management Target. The values for the B_0 reference points are calculated as part of the stock assessment. The reference points are therefore appropriate for the stocks and can be estimated. A score of 80 is given.		
b	**Guidepost**		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		Y	N
	Justification	Given the assumed form of the stock-recruitment relationship (Beverton-Holt) and the assumed extent of compensation (a steepness of 0.9), the hard limit corresponds to a reduction in expected recruitment from virgin levels of around 40% and the soft limit to a reduction in expected recruitment from virgin levels of around 25%. Given the nature of time-series of stock and recruitment for hake, it is currently not possible to estimate steepness. However, steepness estimates for similar species tend to be higher than 0.75. The limit reference point is therefore above the level at which there is an appreciable risk of impairing reproductive capacity. However, the hard and soft limits are defaults for 'medium productive species' under the harvest strategy standard. There is no evidence that they were selected to be deliberately precautionary; the limit reference point does not take account of the uncertainty in estimating B_0 or current biomass. A Score of 80 is given.		
c	**Guidepost**		The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?		Y	Y

PI 1.1.2		**Limit and target reference points are appropriate for the stock** **NB Applies to HAK 1, 4 and 7**		
	Justification	While $0.4B_0$ is often used as a proxy for MSY, and is the basis for the Harvest Strategy Standard, in the case of the biological assumptions made for hake the management Target ($0.4B_0$) is actually higher than deterministic estimates of B_{MSY} (e.g. B_{MSY} = 0.26 B_0 for HAK7). This is primarily because these estimates are based on the assumption of perfect information about the fishery and the population, and because targeting a deterministic B_{MSY} would lead to an undesirably high probability of breaching the soft limit (as noted in stock assessment documents). The Management Target is precautionary in the sense that it reduces the risk of the stock dropping below the soft and hard limits, and the target reference point will maintain the stock above B_{MSY}. A score of 100 is therefore given.		
d	**Guidepost**		For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?		Not relevant	
	Justification	Hake does not satisfy the criteria for a LTL species: (a) family Merlucciidae does not appear in the list of "key LTL species" in MSC Certification Requirements, and (b) the diet of hake is not predominantly plankton and hake do not have the biological characteristics of LTL species identified in the MSC Certification Requirements.		
References		Horn, 2013a,b MPI, 2013a Helser and Martell, 2007 Punt et al., 2013 Ministry of Fisheries, 2008 MSC, 2012		
OVERALL PERFORMANCE INDICATOR SCORE: The score is 90 because all of the scoring issues for the 80 scoring guidepost are met as is one of the two scoring issues for the 100 scoring guidepost.				**90**
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 1.1.3

PI 1.1.3		**Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe** **NB Applies to HAK 1,4 and 7**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Where stocks are depleted rebuilding strategies, which have a reasonable expectation of success, are in place.		Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the specified timeframe.
	Met?	(Y/N)		(Y/N)
	Justification	The three stocks are currently above the target reference point level, so rebuilding is not necessary and this performance indicator does not apply.		
b	**Guidepost**	A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	A rebuilding timeframe is specified for the depleted stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	The shortest practicable rebuilding timeframe is specified which does not exceed one generation time for the depleted stock.
	Met?	(Y/N)	(Y/N)	(Y/N)
	Justification	N/A		
c	**Guidepost**	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within a specified timeframe.	There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a specified timeframe.	
	Met?	(Y/N)	(Y/N)	

PI 1.1.3		**Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe** **NB Applies to HAK 1,4 and 7**
	Justification	N/A
References		[List any references here]
OVERALL PERFORMANCE INDICATOR SCORE:		**N/A**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 1.2.1

PI 1.2.1		**There is a robust and precautionary harvest strategy in place**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.
	Met?	Y	Y	Y
	Justification	The harvest strategy for hake is consistent with the New Zealand Harvest Strategy Standard, HSS. The strategy aims to "provide a consistent and transparent framework for setting fishery and stock targets and limits and associated fisheries management measures, so that there is a high probability of achieving targets, a very low probability of breaching limits, and acceptable probabilities of rebuilding stocks that nevertheless become depleted, in a timely manner". The harvest strategy standard specifies probabilities for each of these outcomes and includes the definition of (a) a target level about which a fishery or stock should fluctuate, (b) a soft limit that triggers a requirement for a formal, time-constrained rebuilding plan, and (c) a hard limit below which fisheries should be considered for closure. The HSS requires a rebuilding plan when a stock is depleted to be below the soft limit (or fishery closure if the stock is estimated to be below the hard limit). This contrasts with the MSC guidelines for PI 1.1.3 which consider a stock to be depleted when it is consistently below the target reference point. However, under the HSS objectives, management measures and controls should result in the stock fluctuating about the target level. How that is to be achieved for stocks between the target and soft limit is not explicitly prescribed in the HSS. A recent management decision for scampi illustrates management actions for a stock projected to drop below the soft limit, suggesting that the harvest strategy will react before a stock drops below the limit reference point. The harvest strategy standard was established following extensive consultation and review (including international peer-review of a draft of the standard). A review was undertaken in 2007 of the fisheries stock assessment process and the sustainability advice and found that broadly the process worked well. It also identified some weaknesses in implementation. The stock assessment documents report stock status relative to the reference points and quantify the implications of future TACC levels. It is noted that the standard does not address issues pertinent to multispecies catches, since hake is taken as bycatch in the hoki fishery. However, it should be noted that the TACC, ACE and Deemed Value system provides a flexible framework which should in theory allow management of these issues. The harvest strategy is therefore responsive to the state of the stock and is designed to achieve stock management objectives, as reflected by the target and limit reference points. A score of 100 is given.		
b	**Guidepost**	The harvest strategy is likely to work based on prior experience or plausible argument.	The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	Y	Y	N

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Justification	The implementation of the proposed harvest strategy for all hake stocks includes: (a) a stock assessment estimating the current biomass (b) a precautionary region between the soft limit reference point and the hard limit reference point where a formal rebuild strategy is needed, (c) fishery closure to be considered if the stock is below the hard limit. The harvest strategy is not specified as a mathematical function. The current HAK 1 Sub-Antarctic TACC has remained constant for over 20 years. That TACC has been exceeded in the past usually by no more than 5%, although in 2004/05 it was exceeded by around 30%. Since that year, catches have been below the TACC. The HAK 4 TACC has not been exceeded in the past by any significant amount and despite being reduced in the 2003-04 season, it is currently set at a level that does not limit the fishery. The HAK 7 TACC has been exceeded regularly by up to 19% in each year between 1997/98 – 2004/05 until the TACC was raised from 6855 to 7700, which suggests the TACC did not tightly control the harvest. The HAK 7 landed catch since 2007-08 has been well below the TACC. The relatively low catches in recent years may at least in part be due to the reduced hoki exploitation rate which is undergoing rebuilding, and increases in the TACC for that species are mirrored by increases in HAK7 catches in recent years. With the current low catches and high biomass, the harvest strategy is not being placed under significant pressure. The quota management area does not quite coincide with the HAK 4 Chatham Rise stock assessment, which includes the western end of the Chatham Rise currently forming part of the HAK 1 management area. This is accounted for in the assessment and this has not caused a detectable stock management problem. The strategy has not been fully tested, preventing a higher score under this indicator. Although stock assessments are not annual, stock status indices (primarily catches and age compositions, with intermittent fishery-independent surveys in the case of HAK 7, but including abundance indices for HAK 1 and 4; see PI 1.2.3) are updated each year for monitoring purposes. This level of monitoring should detect significant problems created by the harvest strategy. However, the implications of uncertainty on the performance of the harvest strategy have not been evaluated formally and the harvest strategy has not been in place sufficiently long that it is possible to evaluate its performance empirically. Evidence exists that management is prepared to apply controls consistent with the harvest strategy standard. This appears to be consistent with the relative risks posed to these stocks by the fishery. While the HSS recognizes the value of MSE to evaluate harvest strategies, MSE has not been used for New Zealand hake stocks. Specifically, given that the harvest strategy is not mathematically specified, any MSE evaluation can only be approximate. Thus, it is premature to conclude that the harvest strategy has been fully evaluated. A score of 80 is given.		
c	**Guidepost**	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	Fishery-dependent and independent data are available to monitor trends in abundance as well as the age and sex-structure of the populations and the removals from the population. These data are included in the stock assessment, which estimates stock status relative to limit and target reference points. A plan is in place which determines future levels of monitoring (surveys and sampling for age and length; see the 10 year research plan for Deepwater Fisheries). Thus, monitoring is in the place that is expected to determine whether the harvest strategy is working. The fishery passes the 60 level.		

PI 1.2.1		**There is a robust and precautionary harvest strategy in place**		
d	**Guidepost**			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	The HSS was published in 2008, and represents the current constraints on the harvest strategy. The guidelines for applying the HSS were revised in 2011. The major changes to the document relate to metrics for quantifying fishing intensity as well as to the roles and responsibilities of Science Working Groups and fisheries managers. For specific stocks, TACC levels for hake have been changed, along with changes in hoki TACC but as noted above do not appear to constrain the fishery. However, the harvest strategy for hake has evolved over time, with the development of formal limits and target reference points, demonstrating that the harvest strategy has been reviewed periodically and revised. A score of 100 is therefore given.		
e	**Guidepost**	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	Sharks are not a target species, hence this element is not scored.		
References		Ministry of Fisheries, 2008 Ministry of Fisheries, 2010c Ministry of Fisheries. 2011a, b, c MSC. 2012		
OVERALL PERFORMANCE INDICATOR SCORE: The score is 95 because all of the scoring issues for the 80 scoring guidepost are met as are two of the three scoring issues for the 100 scoring guidepost.				**95**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 1.2.2

PI 1.2.2		**There are well defined and effective harvest control rules in place**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	The harvest control rule for New Zealand hake is comprised of "Management actions determined by the results of a series of forward projections under a range of catch assumptions, guided by the biological reference points". The harvest control rule is not a catch control rule (a mathematical function which pre-determines TACCs based on stock status relative to limit and target reference points). Rather the harvest control rules are consequences of the requirements of the Fisheries Act 1996 and Harvest Strategy Standard. For this PI, and consistent with the hoki certification, the harvest control rule is interpreted as comparing estimated stock status with the soft and hard limits, implementing a rebuilding plan if the stock is assessed to be below the soft limit, considering the fishery for closure if the stock is below the hard limit, and using 5-year projections to assess future stock status given assumptions regarding future recruitment, TACCs and catch limits for the western and eastern stocks. The HSS indicates that the probability of breaching the soft limit should not exceed 10%. While the harvest strategy standard recognizes the need for action when stocks are below targets, but above the soft limit, consistent with the MSC standard, it lacks details on exactly how the exploitation rate will be reduced below the soft limit (the deemed value system may make actual control difficult). The short-term consistency of TACC levels with the target biomass (0.4 B_0) is identified through projections. In practice, TACCs have remained by default at the same level unless there is a practical need to change them. However, action has been demonstrated in other fisheries; e.g. the TACC for scampi was reduced in 2011 when stock was projected to drop between the target and limit reference points. Thus, the harvest rules are well defined and consistent with the harvest strategy and will act to reduce the exploitation rate as the limit reference point is approached. A score of 80 is given.		
b	**Guidepost**		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		Y	N

PI 1.2.2		**There are well defined and effective harvest control rules in place**		
	Justification	The assessment is based on a series of scenarios which capture the main assessment-related uncertainties. Short-term projections are undertaken for a subset of these scenarios, using specific scenarios for future catch, and those projections account for uncertainty regarding future recruitment (by drawing on estimated historical recruitments, which while ignoring the potential change in future recruitment due to the stock-recruitment relationship is not unreasonable given an assumed steepness of 0.9 and the longevity of the species). The results of the projections are expressed in terms of probabilities of failing to achieve various goals. Thus, the selection of the harvest control rules takes into account the main uncertainties related to stock status and conducting projections. However, while the harvest strategy standard provides a formal and well specified process for setting harvest regulations and is designed so that a range of uncertainties can be accounted for, the uncertainty examined within the stock assessment and projection process for hake cannot be said to be 'wide', given the potential for structural and biological uncertainties noted within the assessment documents. A score of 80 is given.		
c	**Guidepost**	There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	N
	Justification	The main tool used to implement the harvest control rules are the TACC. A system of deemed values is used to deter or deal with catches over quota. There are other ways to handle over catch by individual operators, e.g. purchase of ACE from other quota holders. However, the deemed value also discourages discarding, an important attribute where hake is taken as retained non-target species in the much larger hoki fishery. The estimated catch has been less than the TACC since 2005 in all regions and clearly do not currently constrain catches, although some overruns have occurred prior to that time. Overall, it is not yet clear how effective the tools will be during current hoki rebuilding, when the quota value would become very high if the hake quota constrains the hoki fishery. While available evidence shows that the tools used to implement harvest control rules are appropriate and effective in controlling exploitation, clearer evidence under developing conditions within the fishery should be provided over the coming years. A score of 80 is given.		
References		Ministry of Fisheries, 2008 Ministry of Fisheries, 2011a, b MPI, 2013a,b,c		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 80 scoring guidepost are met.				**80**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 1.2.3

PI 1.2.3		**Relevant information is collected to support the harvest strategy**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	N
	Justification	The report of the Stock Assessment Plenary (and individual stock assessment reports) summarizes information on stock structure and biology of hake, including growth, natural mortality and maturity. Stock abundance is estimated from a stock assessment, which requires data on catches, abundance indices, age and size composition. Otolith ageing has been validated. Sufficient data are all available to obtain good estimates of stock abundance from the assessment. Information on all vessels is held through a registry and licence system. Vessel activity is monitored through VMS and an observer programme. Monitoring of information not directly used in the harvest strategy includes mapping of spawning aggregations, remote sensing environmental change, productivity, physical oceanographic processes and bathymetry. 1. Stock structure. The three stocks of hake have been distinguished based primarily on differences in morphology, biology and age structure, as well as the presence of separate spawning grounds. While available information is clearly sufficient to support the stock hypothesis, there is not a full understanding of whether the differences between the stocks are genetic or not. 2. Productivity. Data on growth rates are available from age and growth studies, fecundity-at-size has been estimated for the three stocks. Natural mortality estimates have been estimated using empirical approaches and also within the assessment model, but in common with most assessments is kept constant over time. Understanding of the drivers of recruitment remains poor, and consequently the assessment conducts projections where future recruitment is sampled from historical estimates. 3. Fleet composition. The total effort in the fishery is known, and comprehensive data are available at fine spatial scales (e.g. Ballara et al. 2011). Although detailed information is available on catch and effort, including gear type and location, this information is generally not used to construct an index of abundance that is used in the stock assessment, primarily because of the availability of fishery-independent data sources. However, a commercial CPUE time series has been developed for HAK7. 4. A variety of other data sources (diet, environmental conditions etc.) is also available for use in assessments and other analyses. Thus, relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. However, while there is considerable information on the biology of hake in New Zealand, sufficient data gaps remain (e.g. environmental influences, movement) that it cannot be concluded that the range of information available is comprehensive. A score of 80 is therefore given.		

PI 1.2.3		Relevant information is collected to support the harvest strategy		
b	Guidepost	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Y	Y	Y: HAK1 and HAK4 only
	Justification	While extensive survey time series is available from regions HAK1 and HAK4, it is noted that the survey has changed over time, with different periods of the year (HAK1 in particular), depth ranges (e.g. HAK4) and occasionally different vessels. Developing a consistent series shortens the time period available. Surveys in HAK7 have been intermittent and 'one off', limiting the time series available; only two Tangaroa surveys (2000 and 2012) were included within the latest assessment, supplemented by a commercial CPUE time series. The assessment also allows for the sampling errors associated with the survey data and catch samples, as well as additional variance based on the methodology of Francis (2001). The sampling coefficients of variation, CVs, of the abundance indices range from 0.12 to 0.43, with estimates commonly in the range of 0.12-0.2, while that of the commercial time series is fixed at 0.04. Additional variance (“process error”) is usually added to these CVs to account for unquantified uncertainty between stock abundance and the abundance indices. Removals are estimated by region and fishery, and information on age and length are sampled from the catches and the surveys. Catches are regularly sampled for age and structure, and analyses account for the sampling protocol when assembling the data for use in the stock assessment. Length- and age-frequencies are based on '00s of measurements and otoliths of fish each survey. Comparisons have been made between vessels with and without observers. In earlier years, before the introduction of higher TACCs in 1991–92, there is some evidence to suggest that catches of hake were under reported. Misreporting of catches among areas (stocks) has occurred between 1994/95 – 2000/01 seasons. There is no evidence of similar area misreporting since 2000–01 and there is no evidence of IUU catches. There are negligible recreational or customary non-commercial catches. There is likely to be some mortality associated with escapement from trawl nets, but the level is not known and is assumed to be negligible. No time series of survey biomass indices are available for the west coast South Island stock, and CPUE indices calculated for the stock have previously been uncertain. The series analysing observer estimated tow-by-tow data from 2001 to 2011 was selected. It was believed that this series, incorporating catch data after the establishment of the deemed value system, was the least likely to be biased owing to variation in fishing behaviour and catch reporting behaviour. Issues with age data sampling across time and space were noted, leading to an under-estimate of uncertainty. The assessment was noted to be 'clearly uncertain' due to the requirement to be based primarily on a CPUE series. For HAK1 and HAK4, the information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the data and the robustness of the assessment and management to this uncertainty. A score of 100 is given.		

PI 1.2.3		**Relevant information is collected to support the harvest strategy**		
	Justification	For HAK7, while the assessment approach has improved and deemed acceptable as the basis for advice, the harvest control rule requires high accuracy and the stock assessment method used to achieve this accuracy seems to require explicit abundance indices. This suggests that while stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule, and while the sources of uncertainty are understood, the information cannot be said to have a high degree of certainty. A score of 80 is given.		
c	**Guidepost**		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	Catches by gears other than trawl are negligible. The landed catches by Maori for customary purposes and by recreational fishers are considered negligible. Catches by all commercial fishing sectors (including non-hake fisheries) are counted against the TACC. Thus, there is good information on all fishery removals from the stocks. A score of 80 is given.		
References		Ballara, 2012 Colman, 1998a, b Bagley et al., 2013 Francis et al., 2001 Francis et al., 2003 MPI 2013a,b,c Horn, 2013a,b Dunn, 2003		
OVERALL PERFORMANCE INDICATOR SCORE: All HAK areas meet the scoring issues at SG80. One 100 scoring guidepost is met in HAK1 and HAK4, and hence they score 90				**HAK1 & 4: 90** **HAK7: 80**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 1.2.4

PI 1.2.4		**There is an adequate assessment of the stock status**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**		The assessment is appropriate for the stock and for the harvest control rule.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
	Met?		Y	Y (HAK1), N (HAK4, HAK7)
	Justification	The latest assessments for each stock were carried out in 2011-2013, dependent upon the stock, using an age-structured CASAL model with Bayesian estimation of posterior distributions. The assessment uses fishery independent abundance indices (or primarily commercial catch indices in the case of HAK7), catch-at-age from the commercial fishery and trawl surveys, and estimates of biological parameters. The population model can account for the biology of different sexes, but this option has only been pursued, along with M varying with age, as a sensitivity option for HAK1. Stock structure has been examined using size composition, so that appropriate size selectivity and stock structure is used in the model. There is no formal (i.e. mathematical) harvest control rule for New Zealand hake. Rather, decisions regarding the TACC is based on stock status as it assessed relative to biomass-based reference points. The projections conducted for different levels of future catches are adequate to inform decision makers regarding changes in (relative) abundance (stock status is not generally well known in absolute terms, for example due to limited contrast in the relative abundance time series; HAK1). The assessment is appropriate for the stock and the harvest control rules. However the assessment is seen to be sensitive to the assumptions made on the biological structure (sex separation, natural mortality, etc., e.g. in HAK1) within the model, although relative outputs for HAK1 were robust to these uncertainties. Given the assessment for HAK1 examined the major features relevant to the biology of hake, a score of 100 is given for this stock. The more limited evaluation of biological assumptions evaluated in their stock assessments means a score of 80 is given for HAK4 and HAK7.		
b	**Guidepost**	The assessment estimates stock status relative to reference points.		
	Met?	Y		
	Justification	The stock assessment provides estimates of spawning biomass relative to (a) the soft and hard limits (0.1 and $0.2B_0$), (b) for some stocks estimates B_{MSY} values under the assumption of deterministic dynamics, and (c) the Management Target ($0.4\ B_0$). Thus, the assessment estimates stock status relative to reference points, and meets the SG.		
c	**Guidepost**	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Y	Y	Y

PI 1.2.4		**There is an adequate assessment of the stock status**		
	Justification	The assessment is based on the CASAL package, which accounts for both observation and process error. Each assessment includes sensitivity tests ("runs") which explore key uncertainties. Uncertainty is explored in the report of the Stock Assessment Plenary, but in greater detail within the stock assessment reports reviewed by the Fisheries Assessment Working Group, which includes some structural uncertainty. The report of the Stock Assessment Plenary does contain a 'major sources of uncertainty' section, and the outputs of alternative runs are noted in a 'qualifying comments' section. The Plenary report also identifies uncertainty regarding recent and future recruitment as key. The results of the assessment include the probability that the current spawning stock biomass exceeds the hard and soft limits, and the Management Target. Posterior distributions based on MCMC sampling are also provided for current spawning biomass and for year class strength. The results of the projections include probability intervals for future stock size, and the probability of dropping below various biomass levels. Thus, the assessment takes uncertainty into account, and is evaluating stock status relative to reference points in a probabilistic way. A score of 100 is given. It is noted that the choice of a 'key' stock assessment run as the basis for management advice, while common practice, does not incorporate the full structural uncertainty within the assessments.		
d	**Guidepost**			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	The assessment method, CASAL, has been applied extensively in New Zealand and elsewhere. However, results of, for example, simulation studies exploring estimation performance for CASAL as it is applied to hake are not available. The assessment considered alternative hypotheses regarding some factors, but all analyses are within the CASAL framework. Thus, it cannot be concluded that the assessment has been fully tested and alternative assessment approaches are rigorously explored.		
e	**Guidepost**		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Y	N
	Justification	The assessment is reviewed internally at NIWA before review at the Fisheries Assessment Working group and publication in the Plenary document. This is the primary form of peer-review; Fisheries Assessment Working Groups (FAWGs) evaluate relevant research, determine the status of fisheries and fish stocks and evaluate the consequences of alternative future management scenarios. They do not make management recommendations or decisions (this responsibility lies with MPI Fisheries Management and the Minister of Fisheries). These groups are open to the public (see Ministry of Fisheries [2011] for Terms of Reference). The Working Group is chaired by MPI, and includes members from NIWA, MPI, industry and environmental NGOs, Thus, the assessment of stock status is subject to peer review. However, the stock assessments have not been subject to external peer review. A score of 80 is therefore given.		
References		Horn, 2013a, b MPI, 2011a Bull et al. 2008, 2012		

PI 1.2.4	There is an adequate assessment of the stock status	
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 80 scoring guidepost are met in all three regions. Two of the four scoring issues for the 100 scoring guideposts are met for HAK1 and one of the SG 100 are met for HAK4 and HAK7		**90 (HAK1), 85 (HAK4 and HAK7)**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 2.1.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	Y	Y	N
		It is noted that the main bycatch species within the hake-targeted (and ling-targeted) fishery are generally comparable to those caught within the related hoki fishery (which are hake (*Merluccius australis*), ling (*Genypterus blacodes*) and silver warehou (*Seriolella punctata*)). Retained species are, by regulation, the Quota Management Species (QMS), which are enumerated and retained on board (unless 6th schedule species like spiny dogfish). The main QMS are the subject of analytical stock assessments and active management that is based upon formalised biologically based limits, which represents a full strategy. For the remaining QMS species, the TACC system, which aims to limit the overall catch of species, combined with the 'deemed value' process, represents a partial strategy for these species. For others, the impact of the fishery on these species depends upon the extent to which they are caught within the hake trawl fishery. Examining the 'main' (>5% of the catch) species for each: **HAK1 (sub Antarctic)** The main retained species in this fishery are: • hoki, assessed to be above the soft limit with very high probability (>99%) and above the target with high probability (>90%) • ling, assessed to be above the soft limit with high or very high probability (>90%) and above the target with high or very high probability (>90%) **HAK4 (Chatham Rise)** The main retained species in this fishery are: • hoki, assessed to be above the soft limit with very high probability (>99%) and above the target with high probability (>90%) • ling, assessed to be above the soft limit with very high probability (>99%) and above the target with high probability (>90%) • silver warehou (SWA3&4). There are no assessments available for this stock. Biomass indices from R.V. Tangaroa trawl surveys in QMAs 3 (part), 4 and 5 since 1991 are variable between years and have high CVs, which limits their usefulness for stock assessment. However they suggest no declines in estimated biomass. Combined with the generally low levels of annual capture in the hake fishery (the average time series capture being skewed by a large event in one year) and pattern of catches against the TACC, this suggests that the stock is highly likely to be within biologically based limits. However, the level of capture should be monitored in annual audits. **HAK7 (west coast South Island)** The main retained species in this fishery are: • hoki, assessed to be above the soft limit with very high probability (>99%) and above the target with high probability (>90%) • ling, assessed to be above the soft limit with high or very high probability (>90%) and above the target with reasonable or high probability (>60%)		

PI 2.1.1		**The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species**		
	Justification	While the main retained species in each fishery are highly likely to be within biologically based limits, and most can be confirmed to be and fluctuating around their target reference points, this cannot be confirmed for all retained species. Other retained QMS species within the HAK areas are subject to TACC limits. However, these levels are not necessarily based upon analytical assessments and biologically based limits, although these could be performed for some species with available bycatch information and data from fishery-independent surveys. This would be required for a higher score. A score of 80 is given.		
b	**Guidepost**			Target reference points are defined for retained species.
	Met?			N
	Justification	Target reference points are defined for several retained species, e.g. hoki and ling. Explicit target reference points are, however, not set for many other retained species, although the harvest strategy standard provides guidance on what these might be were assessments available. Therefore target reference points are not defined for all retained species. The SG100 is not met.		
c	**Guidepost**	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	N/A	N/A	
	Justification	N/A. However, TACCs are set for all of the retained species and could be adjusted given the results of assessments. The assessments for hoki and ling assess stocks relative to formally-specified limit and target reference points. The harvest strategy standard (Ministry of Fisheries 2008) includes specific measures which need to be implemented if the soft limit is breached. Therefore, had assessments/data suggested that one of the stocks of the main retained species were outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.		
d	**Guidepost**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	N/A		

PI 2.1.1		**The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species**
	Justification	N/A
References		Ministry of Fisheries. 2008. Harvest Strategy Standard for New Zealand Fisheries MPI (2013a,b,c)
OVERALL PERFORMANCE INDICATOR SCORE: The main retained species are the subject of stock assessments and are within biologically based limits. However, not all retained species are the subject of stock assessments and managed relative to reference points. This would be required for a higher score.		**80**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 2.1.2

PI 2.1.2		**There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	N
	Justification	TACCs are set for all of the retained species in the QMS, and the status of each QMS species is reviewed by the Stock Assessment Plenary. The process for providing management advice involves collecting fishery-dependent and –independent data, analysing those data using a stock assessment model, catch survey analysis or trends in biomass indices, assessing stock status relative to agreed reference points and conducting projections under alternative TACCs for stocks with stock assessments, and setting a TACC, which is consistent with the Fisheries Act 1996. This type of harvest strategy has all the characteristics of a system which is expected to achieve stock management objectives as reflected in the target and limit reference points. Two of the retained species (ling, hoki) are managed using the same harvest strategy (based on hoki). The TACCs for most of the other retained species are seldom changed, but the species are all monitored under the QMS, and using observer and vessel-based reporting. Management Action 28 in Annual Operational Plan aims to develop specific management procedures for silver warehou and white warehou; these are not yet in place although SWA1 is currently managed through an adaptive management programme (noting that this overlaps with one of the areas of importance for hake) and work is planned to establish CPUE series for SWA3&4, related to the hoki fishery (Annual Operational Plan for Deepwater Fisheries for 2012/13). There is a wider range of QMS species taken in this fishery relative to other fisheries noted above. For these species, there is little documented evidence on the frequency and framework for assessing the catches of minor QMS species against TACC over time, the full basis of the TACC levels set, and the relationship between these catches and trends in the survey data, nor the decision making process behind many of the changes made. The implementation of such a formalised management plan and process for all QMS species, including the development of routine monitoring of bycatch indicators currently planned, would represent a strategy that would increase the score against this PI. A score of 80 is therefore given.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Y	Y	N

PI 2.1.2		**There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species**		
	Justification	Few changes have been made to the TACCs for the main target species. However, the stocks of the main target species are all assessed to be above their target levels. There is consequently some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved. However, no testing of the strategies for the retained species has been undertaken. A score of 80 is therefore given.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	All of the stocks of ling and hoki are currently above their target reference points and trends in silver warehou biomass are at least flat and potentially increasing. Observers conduct detailed monitoring of trawled catches at sea as well as operational measures. In the hake/hoki/ling fishery in HAK1, 4 and 7, 16.8-30.3% of tows have been covered by observers in 2010/11 fishing years. Reporting on the main species caught is also required from vessels. This provides a comprehensive dataset for species with which to assess implementation of catch management strategies for these species. There is clear evidence, based on this information, that the strategy for managing *main* retained species is being implemented successfully, through the stock assessments and variations in TACC that result where required. Alternative strategies have been applied for other species, including the adaptive management approach for SWA1 and SPE3, and changes to the deemed value rate for SWA 3&4. However, for other species of key interest changes in the TACC or deemed value have not been reported despite catches exceeding the TACC level in recent years. For many species, the phrase used within the Plenary document is "Estimates of current and reference biomass are not available for any [species] stocks and therefore it is not known if current TACCs and recent catches are sustainable or whether they are at levels which will allow the stocks to move towards a size that will support the maximum sustainable yield". This indicates that the strategy is not formally applied to all the other QMS species. A score of 80 is given. However, the increasing use of the survey time series to support indications of stock status is noted as a positive development. Continued surveys within HAK7 would further support this.		
d	**Guidepost**			There is some evidence that the strategy is achieving its overall objective.
	Met?			N
	Justification	Regular updates of stock assessments underlying harvest strategies for the main species occur to include new information and TACCs are reviewed regularly. With these tools and processes, there is therefore <u>some</u> evidence that the strategy is achieving its overall objective for main species, but the effectiveness for the minor QMS species is not clear and as noted, supporting evidence for stock levels is not always available. The SG100 level is not met.		
e	**Guidepost**	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
	Met?	Y	Y	Y
	Justification	Shark finning, as defined by the MSC standard, is "The practice of removing any of the fins of a shark (including the tail) while at sea and discarding the remainder of the shark at sea". Under current provisions of the Animal Welfare Act 1999, it is an offence to willfully ill-treat an animal. It is considered that the practice of removing the fins from a shark and returning it to the sea while still alive fits within the definition of ill-treating an animal. All retained shark species are within the QMS, and hence are required to be retained on board: "No commercial fisherman shall return to or abandon in the sea or any other waters any fish, aquatic life, or seaweed of legal size, or for which no legal size is set, that is subject to the quota management system (See Fisheries Act 1996, s 72(1))". The exception is Schedule 6 species, detailed in the Fisheries Act 1996. This lists species and stocks which may be returned to the sea in accordance with stated requirements. For fish species listed on this schedule, the requirements include that the individual be likely to survive on return to the sea, and that the return takes place as soon as practicable after the take. Spiny dogfish have a unique status on Schedule 6, in that they are allowed to be returned to the sea either alive or dead as long as they are reported and counted against Annual Catch Entitlement. This allows operators to choose whether to land spiny dogfish or return them to the sea. At the time this provision was implemented there were limited markets for spiny dogfish and the management objective was to set catch limits and ensure that there was full reporting against those limits. The provision of choice to fishers aimed to mitigate costs associated with landing spiny dogfish and possibly needing to dispose of them on land. This approach was expected to result in better reporting of spiny dogfish catches by reducing the incentive to illegally dump and not report catches. Without accurate reporting, appropriate management settings for this fishery could not be established. Since the NPOA-sharks 2008, school shark (*Galeorhinus galeus*), has been added to Schedule 6, an extremely rare bycatch in hake fisheries (<0.01% of catch weight). The Deepwater Group has implemented a number of principles in order to optimize the applicability of the NPOA sharks of banning shark finning consistent with the MSC definition. The new NPOA-sharks which has now been finalised, has one specific objective of eliminating shark finning in New Zealand fisheries (Objective 2.4). As noted in that document, within the deepwater fishery as a whole, excluding spiny dogfish, 97.4% of QMS sharks were fully utilised or released. Half of all deepwater spiny dogfish catch was fully utilised, with the remainder returned to the sea under Schedule 6 provisions. The information available is supported by the 16-30% of trawls monitored by observers in 2010/11 in the HAK/HOK/LIN trawl fishery. MPI note that the catch balancing system ensures that nothing is landed that isn't reported, and that sharks were confirmed to be returned to the water whole. A score of 100 is given.		
References		Ramm, 2012 MPI, 2013b MPI, 2013d Observer species catch records, 2007/08 to 2011/12 Interview with MPI Ballara et al., 2010 MPI 2012c MPI 2013a, b, c		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met as is one of four 100 scoring guideposts. The resultant score is 85.				**85**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.1.3

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	Data on catch rates and the relative abundance of non-target catch species in the fishery are available from three main sources: • The TCEPR (Trawl catch, effort and processing return) forms, which provide green-weight catch totals for the top five species (dependent on vessel size and fishing method) on a fishing-event basis, and daily summary of TACC species caught. • The MPI fisheries observer data, which provides catch weight for all QMS and non-QMS species caught, on an observed tow-by-tow basis. This provides accurate and verifiable information (if on variable and patchy coverage). The observers monitored around 16-30% of trawls in 2010/11 in the HAK/HOK/LIN trawl fishery. • Fishery independent trawl surveys on the Chatham Rise and Sub-Antarctic regions, and much less frequently the west coast South Island region, provide abundance estimates of finfish, cartilaginous fish, and squid species, as well as catch weights of macroinvertebrates. Further inshore surveys also provide some information on TACC stocks. Data on removals of all retained species are collected and are available are summarized in the report of the Stock Assessment Plenary (Ministry of Fisheries 2011). Thus, some quantitative information is available on the amount of main retained species taken by the fishery. However, due to lack of knowledge of population parameters of all species across the geographic regions of interest, consequences for the status of all affected populations cannot be assessed as required at the SG100 level. A score of 80 is given.		
B	**Guidepost**	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	Y	Y	N
	Justification	The stocks of hoki and ling are assessed using the CASAL modelling platform. These assessments make use of indices of abundance from trawl surveys, catch-rate indices, as well as age and length composition data. Trends in abundance from surveys are also available for some other retained species, combined with observer coverage, provide independent monitoring of landed catch. Thus, information is sufficient to estimate outcome status with respect to biologically based limits. However, not all of the retained species are indexed well by surveys and trends in catch-rate indices may not always be plausible. While a number of research projects are either underway or are planned which could increase the information base for the retained species, currently the sustainability of some TACC levels is unknown. Therefore it cannot be said that information is sufficient to quantitatively estimate outcome status with a high degree of certainty. A score of 80 is therefore given.		

PI 2.1.3		**Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species**		
c	**Guidepost**	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	Y (HAK1 & 4), N (HAK7)
	Justification	The Harvest Strategy Standard provides a basis for a comprehensive strategy to manage retained species and there are survey results, length composition information, and catch-rate data. In addition, in the hake/hoki/ling fishery in HAK1, 4 and 7, 16.8-30.3% of tows have been covered by observers in 2010/11 fishing year. This coverage provides independent monitoring of fishery operations and catch characteristics. Many of these data are used to investigate and analyse fishery performance against strategic and management objectives. Combined with the regular trawl surveys undertaken in HAK1 and HAK4, information being collected is adequate to support a comprehensive strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective, and a score of 100 is given. The current lack of trawl survey time series for HAK7 that allows a time series of relative abundance to be developed means that in this area, information is adequate to support a partial strategy. A score of 80 is given.		
d	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		Y	Y
	Justification	Observer monitoring and catch reporting is extensive, both in terms of placements on vessels and coverage of tows (see above). Vessel-based logbook reporting also occurs for the main species caught. Thus, monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities of all retained species. A score of 100 is given.		
References		MPI, 2013a, b, c Bagley et al., 2013 Ballara et al., 2010 O'Driscoll et al., 2011 MPI (2012a)		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met in all regions. One of four for the 100 scoring guidepost is met within area HAK7, and the resultant score is 85. Two of the four for the 100 scoring guidepost are met within HAK1 and HAK4, and the resultant score is 90.				**90 (HAK 1 and 4)** **85 (HAK7)**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.2.1

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	Y	Y	N
		Due to the lack of information on status for non QMS species, we have taken the following approach. The main bycatch species are defined as those considered to represent >5% of the catch, or as being particularly vulnerable (e.g. non-QMS elasmobranch species). For the purposes of this assessment, we have therefore assumed that a species may be at risk where they represent >5% of the total catch, or are caught at levels greater than 10 tonnes per year where this species is considered of low productivity. We recognise that a species may have low abundance and high catchability, which may lead to incorrect estimation of status using these criteria. This is picked up under PI 2.2.2. This approach is comparable to that taken under P1, in separating the determination of outcome from the management and information. All interactions with birds, marine mammals etc. are considered under 2.3. Observers present on vessels record and estimate the weight of all species brought on board, while vessel logbooks also record these species if they are among the most frequent species within the catch. Monitoring bycatch and addressing significant levels of catch represents a partial strategy, based upon the review of potential QMS status (see 2.2.2). There are no main (>5% of the catch weight) bycatch species within the HAK1, 4 or 7 targeted fisheries, based upon observer records. Javelinfish and rattails constitute the largest proportions of the observed catch (up to 1-3% over the last few years). **HAK1** With respect to potentially vulnerable non-QMS species in this region, this includes leafscale gulper shark (*Centrophorus squamosus*). Interactions with basking sharks are covered under 2.3. Bycatches of leafscale gulper shark were low and showed no consistent trend. **HAK4** There are no major non-QMS bycatch species based on low productivity criteria, all being <10 tonnes per annum based upon the observer data and coverage. **HAK7** With respect to potentially vulnerable non-QMS species in this region, this includes seal shark (*Dalatias licha*), leafscale gulper shark (*Centrophorus squamosus*) and shovelnose dogfish (*Deania calcea*). Examining bycatch rates showed no trends in these species (Ballara et al., 2010).		

PI 2.2.1		**The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups**		
	Justification	The 2010 ERA for related hoki fisheries (Boyd 2011) concluded that impacts on deepwater sharks and rays were negligible-minor (although the confidence in this conclusion was 'low'), and deepwater dogfish was minor-moderate (although the confidence in this conclusion was 'low'). Given the trends in bycatch levels and survey indices available, and the relatively small catches considered, it reasonable to conclude the main vulnerable species are highly likely (probability> 0.7) to be within biologically based limits. However, given the large number of bycatch species and the difficulty monitoring many of these, it is not possible to draw conclusions regarding <u>all</u> bycatch species in each UoC with a high degree of certainty, as required at the SG100 level. A score of 80 is given.		
b	**Guidepost**	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	N/A	N/A	
	Justification	N/A		
c	**Guidepost**	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	N/A		
	Justification	N/A. However, if a sustainability problem is detected, a species can be added to the QMS and/or the species managed under Section 11 of the Act. However, it is difficult to detect whether there is a sustainability concern for many of the bycatch species.		
References		Ballara et al., 2010 Bagley et al., 2013 Bagley and O'Driscoll, 2012 Blackwell, R.G., 2010 O'Driscoll et al., 2011		
OVERALL PERFORMANCE INDICATOR SCORE: The score is 80 because all of the scoring issues for 80 scoring guidepost are met, but none for the 100 scoring guidepost.				**80**

PI 2.2.1	The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups	
CONDITION NUMBER (if relevant):		**NA**

Evaluation Table for PI 2.2.2

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing and minimizing bycatch.
	Met?	Y	Y	N
	Justification	There are no bycatch species considered to be 'main' bycatch species in this fishery on the basis of the weight of catch (<5%), although specific 'vulnerable' species are discussed under 2.1.1. Ongoing monitoring of trawl catches through the observer programme provides ongoing data monitoring. The QMS Introduction Process Standard is one of the ways to give effect to the Ministry's statutory requirements for sustainability of species caught. This approach limits catch, which may also limit fishing effort. Species outside the QMS system tend to be considered as low risk of being caught unsustainably. Substantial catches of non-QMS species tends to lead to the establishment of their QMS status. Furthermore, the framework of continual monitoring of bycatch catches through the observer programme, and the noting of species catches within vessel logbooks if they represent the most frequent species caught in a fishing event, provides a basis for simple assessments of the impact of the fishery on these species or species groups. Once included in the QMS, reports have to be produced for such species, and TACCs could be adjusted to ensure that the stock remains above the soft limit. There is increasing evidence of continued monitoring of non-QMS species through the observer data (all regions) and available survey time series (primarily HAK1 and HAK4). Continued monitoring and quantification of bycatch is also a key management objective of the National deepwater plan 2012-13 (MO2.1), with activities including the accurate reporting of bycatch information through observer programmes, with a focus on identifying deepwater shark species (Action #16), while Action #30 describes monitoring catches of and assessing risks to non-QMS (Tier 3) species from deepwater fishing activity. Completion and action on the findings of these activities for the fishery under certification would demonstrate a cohesive strategy. Combined with the QMS Introduction Process Standard and associated activities, this forms a partial but developing strategy for managing bycatch. A score of 80 is given.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.

PI 2.2.2		**There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations**		
	Met?	Y	Y	N
	Justification	Adding a species to the QMS allows catches of the species to be restricted. Catches are generally below TACCs, especially for lower value non-target species. A system of deemed values is used to deter or deal with catches over quota and this has been adjusted for specific retained species/stocks to address overfishing. There are other ways to handle over catch by individual operators, e.g. purchase of quota from other quota holders. Components of the QMS framework are regularly reviewed, based on species harvests recorded and any other significant new information. The strategy has been tested through various species being incorporated into the QMS and represents an explicit part of the management framework for hake. No apparent collapses have been identified through examination of survey time series. However, as noted within the Plenary document, there is no fully objective basis for confidence that the TACCs for all minor QMS species are set within biologically based limits and hence the strategy cannot be said to be fully tested. A score of 80 is given.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	As species have moved from bycatch to QMS status within the fishery, they have been subject to more formalised monitoring and must be retained on board vessels. Two recent examples of species introduced through the QMS Introduction Process Standard are Patagonian toothfish and attached bladder kelp. The Patagonian toothfish was introduced because MPI recognised that continued management outside the QMS (as an open-access fishery) could lead to an unsustainable increase in catch over a relatively short timeframe. Attached bladder kelp was introduced firstly to ensure the sustainable use of this resource, and secondly to prevent future sustainability concerns that could arise from unrestricted use. A further example is prawn killer, which is a bycatch species in other fisheries, but whose addition to the QMS was recommended on a precautionary basis given uncertainty over abundance, yield or stock status. There is clear evidence that the strategy is being implemented successfully for main bycatch species but not for all bycatch species A score of 100 is therefore given.		
d	**Guidepost**			There is some evidence that the strategy is achieving its overall objective.
	Met?			N
	Justification	The strategy appears to be achieving its objective, in that the Standard is followed and new species are brought under the QMS framework, facilitating closer and more formal management of sustainability issues. The strategy is not for ALL bycatch species A score of 100 is notgiven.		
References		Ministry of Fisheries 2005 Ministry of Fisheries 2010a,b Ministry of Fisheries, 2008b, c MPI 2013a, b, c		

PI 2.2.2	**There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations**	
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met in all regions. None of the four 100 scoring guideposts are met, and the resultant score is 80		**80**
CONDITION NUMBER (if relevant):		**NA**

Evaluation Table for PI 2.2.3

PI 2.2.3		**Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	There are no species considered to be "main" bycatch species by weight in this fishery, although specific 'vulnerable' species are discussed under 2.1.1. An increasing number of studies have examined and summarized trends in abundance of non-target species from trawl surveys for the Chatham Rise and sub-Antarctic region, and compared the disjointed time series for the west coast South Island. However, survey information is not available for all regions of the fishery and some bycatch species are not well monitored by the surveys undertaken. Observer records of catches are also evaluated; this programme provides for the production of estimates of bycatch by quota area. The precision of the estimates depends on the level of observer coverage. Therefore, while qualitative information and some quantitative information is available on the main bycatch species affected by the fishery, it is not possible to evaluate the consequences of fishing activities on all bycatch species populations in each of the areas. A score of 80 is given.		
b	**Guidepost**	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	Y	Y	N
	Justification	There are no species considered to be "main" bycatch species by weight in this fishery. The main vulnerable species caught in bycatch are monitored on the through available trawl surveys, noting that the survey in the WCSI provides a very limited time series. It is noted that the 10 year research plan includes a combined trawl/acoustic survey on the WCSI. To date, negative trends in abundance have not been detected in any of the surveys. On this basis, information is sufficient to estimate relative abundance, as a proxy for outcome with respect to biologically-based limits in combination with estimates of species productivity. However, although observer reporting provides high quality information on trawl catches and trawl survey data supplements this in HAK1 and HAK4 (while an increasing time series in HAK7 will develop in the future), information available on population parameters is not sufficient to quantitatively estimate outcome status for bycatch species with respect to biologically-based limits with a high degree of certainty. A score of 80 is therefore given.		
c	**Guidepost**	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage bycatch species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	Y

PI 2.2.3		**Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch**		
	Justification	The primary source of bycatch information is through the observer programme. In the hake/hoki/ling fishery in HAK1, 4 and 7, 16.8-30.3% of tows have been covered by observers in 2010/11 fishing year. In addition to data collection by observers, there is also vessel-based reporting of species caught where those catches are significant. When combined with information collected through trawl surveys, a significant body of data is available to support a comprehensive strategy to manage bycatch, and evaluate whether this strategy is achieving its objective. A score of 100 is given.		
d	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		Y	Y (HAK1, HAK4) N (HAK7)
	Justification	The data collected from surveys are generally sufficient to cover the major areas of the fishery (Chatham Rise & sub-Antarctic), but the time series in west coast South Island is notably limited. In combination with the ongoing observer coverage and actions detailed in the Annual Operational Plan for the fishery, this is sufficient to detect increases in risk to the main bycatch species. That said, the precision of estimates for particular bycatch species within the trawl surveys, in particular the WCSI, is more limited. This will improve with further surveys in this area. A score of 100 is given for HAK1 and HAK4, and a score of 80 is given for HAK7, reflecting the reduced information from fishery-independent surveys in this area which would help support monitoring of additional unobserved mortalities as required at the SG100 level.		
References		Ballara et al., 2010 Bagley et al., 2013 Ramm, 2012 O'Driscoll et al., 2011		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met in all regions. Two of the four 100 scoring guideposts are met for HAK1 and HAK4, and the resultant score is 90. One of the four 100 scoring guideposts are met for HAK7, and the resultant score is 85				**90 (HAK 1, HAK4) 85 (HAK7)**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.3.1

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	Y	Y	Y

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**		
	Justification	The Fisheries Act specifies that associated or dependent species should be maintained above a level that ensures their long-term viability and that biological diversity of the aquatic environment should be maintained. Further, in the absence of a population management plan, the Minister of Fisheries may, after consultation with the Minister of Conservation, take such measures as s/he considers are necessary to avoid, remedy, or mitigate the effect of fishing-related mortality on any protected species. Thus, accidental and incidental captures of legally protected species by permitted commercial fisheries operations are not prohibited in New Zealand. Captures must be reported to the Ministry of Fisheries on a mandatory form (Compliance Information Sheet 8), and the long-term aim is to minimise mortalities where possible. This provides good information on the potential effects of the fishery on ETP species. It is also noted that the NPOA-Seabirds requires that seabird species identified as at very high or high risk of having commercial fisheries bycatch exceed population sustainability limits should be managed to a lower risk category by 2018. The new NPOA-sharks also specifies a risk-based approach to identifying and managing impacts on sharks. Trawl vessels over 28 m in length are also required to deploy specified mitigation measures to reduce seabird captures; compliance with these measures is assessed by government observers. Occasionally, the New Zealand government will identify a maximum allowable mortality level for protected species in accordance with legislative provisions. No specific limits on interactions have been set in the hake fishery; the activities aimed at minimising interactions are underway. It is noted that the interaction rate will be population size dependent and therefore there is a need to explicitly consider population size estimates to evaluate unacceptable impact levels. CITES Appendix 1 includes the Basking shark, which is also legally protected in New Zealand fisheries waters. The Agreement for the Conservation of Albatrosses and Petrels (ACAP) covers 29 species of these seabirds, the majority of which occur in New Zealand waters (and are legally protected). This Agreement requires New Zealand to take measures to achieve and maintain a favourable conservation status for albatrosses and petrels. Good observer coverage and reporting within the hake fishery mean that the effects of the fishery are known and estimable, in terms of bycatch of ETP species and implementation of sustainability measures (e.g. deployment of mitigation devices) required. Observers identify and photograph all protected species landed dead. They also return most protected species landed dead for expert identification onshore. Focused coverage can be implemented to improve knowledge where additional information is required for management. These include protection and monitoring of bird and mammal breeding sites. Data collected are subjected to appropriate exploratory and/or quantitative analyses, e.g. monitoring populations, modelling population parameters, the Ecological Risk Assessment, and a level 2 risk assessment (for seabirds). Limits focus on sustainability and minimising incidental catch of ETP species. Regular (annual) estimates of interactions of fisheries with ETP species are developed raising observer information up to the level of the fishery. Through these approaches, the risk assessment for birds, existing population estimates for key ETP species allow the current interaction rates to be viewed in relation to national and international requirements with a high degree of certainty, and are highly likely to be within limits of national and international requirements. A score of 100 is given.		
b	**Guidepost**	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	Y	Y	Y
		The hake-targeted fishery is a sub-set of the hoki- and ling-targeted fishery, hake-targeted trawls representing ~ 10% of the total.		

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species
		Birds Observer reports of bird kills within the hake fishery have varied over time, and by HAK area. Numbers available from the observer programme focus on warp-strike events (all gears), hooking (longliners), as well as trawl-net interactions, and less on deck-strikes, since the former events were the most common prior to the implementation of mitigation measures. It is recommended that the recording of deck-strike and in particular trawl net interactions continue to be improved. Conservative population estimates are: sooty shearwaters around 5 million adult pairs; white-capped albatross around 100,000 pairs; Buller's albatross around 13,635 pairs; Salvin's albatross around 31,000 pairs. When taking the overall mortalities within the fishery into account, the Buller's (southern) albatross is within the 'moderate-high' risk category and both Salvin's albatross and white-chinned petrel within the 'moderate' risk category. Based upon these numbers and the catch rate in the hake trawl fishery, the effects of the trawl fishery appear highly likely to be within national limits. This is supported by the risk assessment for birds, which indicated that annual potential seabird fatalities within the deepwater trawl complex were between 1% and 50% of the PBR. Seabird captures in the hake fishery account for approximately 3% of seabirds caught in New Zealand offshore trawl fisheries in 2007/08 and 2008/09. **Marine mammals** Interactions between the hake fishery and marine mammals are typically with fur seals. In the past few years, interactions have varied between HAK areas. HAK1: no mortalities estimated in 2008-09, two in the previous year. HAK4: five mortalities estimated in 2008-09, three in the previous year. HAK7: (west coast South Island), greater numbers of interactions estimated, being 48 in 2007-08 (model estimates ranging between 34-70) and 22 (9-44) in 2008-09. Populations are monitored, and estimates of total New Zealand population sizes, and number of breeding colonies are generally increasing; total population estimates around New Zealand exceed 50,000 adults and are thought to be expanding following direct historical exploitation. However there remains some uncertainty over population status in the WCSI. Overall population growth suggests that mortalities in HAK1 and HAK4 are highly unlikely to directly affect the increasing population, although continued study is warranted. While catch rates are higher in HAK7, total interaction rates are within precautionary estimated PBR levels for this region. Common dolphin interactions are primarily within the mackerel trawl fishery, and negligible in the fishery under certification. **Fish** Observed interactions of basking sharks with the hake fishery have been limited to the Southland–Auckland Islands area (southerly part of HAK1), with 3 captures within two events in 2003-04, representing 3% of the total observed captures. Further individual interactions were noted in recent years. These one-off events, while unfortunate, are highly unlikely to lead to unacceptable impacts.
	Justification	**Cold water corals** Observer data shows that protected cold water corals are brought up in trawls in the areas under certification, and reported interactions within the hake fishery have been detailed in the main text. These represented 0.3%, 1.3%, 0.3% and 2% of the noted interactions across fisheries. Recent reports indicated that the hake/hoki/ling fishery did not pose a great risk to coral. A score of 100 is therefore given.

PI 2.3.1		**The fishery meets national and international requirements for the protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species**		
c	**Guidepost**		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	N
	Justification	Indirect effects are being managed through attempts to limit the discharge of offal through Vessel Management Plans. Offal provides food for birds and, to a lesser extent, marine mammals. It is therefore unlikely that indirect effects will create unacceptable impacts. Indirect effects on ETP species are subject to ongoing review by DOC as part of the Marine Conservation Services Programme.		
References		Abraham and Thompson 2011b Thompson et al., 2013a, b Thompson et al., 2010 Richards et al., 2011 Richards and Abraham, 2013a; 2013b Francis and Smith, 2010 Baird et al., 2012 Baird, 2011 Ministry of Fisheries Compliance Information sheet 8 New Zealand Gazette 2010 www.acap.aq DOC, 2012 Baker et al., 2009 Hamilton and Baker, 2010 Thompson et al., 2013 Baird, 2008		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met in all regions. Two of the three 100 scoring guideposts are met				**95**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.3.2

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place that minimise mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	Y	Y	N
		Key legislation for ETP species includes the Fisheries Act (1996), Wildlife Act (1953), Marine Mammals Protection Act (1978), and specific regulations for birds (relating to bycatch mitigation approaches). Combined with the requirement to report injury or mortality of protected species to the Department of Conservation without offence, and the observer programme on board trawlers, these provide a strategy to monitor the fishery and hence implement the legislation. An environmental risk assessment process has been performed to support the revision of New Zealand's NPOA – Seabirds, by identifying those species most under pressure from additional mortality above natural levels. A new NPOA sharks has been finalised and is publically available. General mitigation approaches for trawlers, supported through legislation, include voluntary industry-led codes of practice. These include individual vessels developing a Vessel Management Plan, which covers methodologies to limit offal discharge during periods of vulnerability for birds, and which are audited by MPI observers. This approach allows mitigation methods to be adapted to the particulars of vessel operations, but as a result may be unable to eliminate interactions. In turn, regulations require the use of one of three potential bird scaring devices: paired streamer lines, a bird baffler or warp deflector, which must be deployed as soon as possible after trawl shooting by all vessels 28 m or greater in length (we note the increasing (but still low) number of vessels under 28 m operating in HAK7 and a recommendation has been developed for this component of the fishery). These devices have been shown through the observer programme data to have successfully reduced mortalities through warp strikes. While mealing of offal has been suggested prior to discharge, the efficacy of this approach is not clear. The cleaning of the net before shooting is also required. Reporting practices are also in place, so that bird captures trigger action by DWG and are reported to MPI.		

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**		
	Justification	While there are no specific regulations defining mitigation approaches for marine mammal interactions within this fishery, the industry has developed operating procedures to identify and react to marine mammal bycatch events. Reporting practices are in place, so that marine mammal captures trigger action by DWG and are reported to MPI. In turn, operating procedures are also provided to minimise the danger period when the trawl net is close to the surface, shallow turns while trawling, and to avoid discharging offal (as in the VMP for bird bycatch mitigation). Vessels avoid shooting nets where marine mammals are present, consistent with the MMOP. For ETP fish species, legislation provides the main strategy to minimise mortality. Any implementation of this strategy is essentially operational. For protected cold water corals, the operational strategy of towing within the historical footprint provides some protection, although it is noted that corals are still brought up in trawls. The designation of Benthic Protection Areas, which include seamounts known to include such key species, act as a non-directed strategy for managing the fishery's impacts on these species. While the effectiveness of these areas relative to the overall population of protected corals has not been specifically examined, risk assessments indicate that the hake fishery is unlikely to cause a risk to populations. While operational plans appear effective, not all ETP are managed through comprehensive strategies, as defined by MSC, designed to exceed national and international requirements (e.g. basking sharks, corals). A score of 80 is given.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.	The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Y	Y	N
		There is an objective basis for confidence that the strategy will work, based on information derived from scientific research, knowledge of species and their interactions with fisheries, global best practice and past performance under operational plans. Seabirds: Tori lines (one of the three gazetted measures that can be selected for seabird bycatch reduction) are an international best practice measure for reducing warp strikes. Quantitative analyses in other fisheries (involving some of the same seabird species) demonstrate the efficacy of these devices. VMPs describe offal retention measures demonstrated to reduce seabird interactions with trawl gear. The efficacy of VMPs as a whole has not been tested. However, there is a substantial body of work on fisheries waste management which shows quantitatively that holding waste, discharging in batches, etc is effective in reducing seabird interactions with vessels. Fur seals: The MMOP is based on detailed knowledge (and expert opinion) of marine mammal species, the hoki/hake/ling fishery, and interactions with marine mammals. Quantitative analyses of fur seal interactions with the fishery have been conducted. However, the efficacy of the particular measures the strategy contains have not been evaluated quantitatively in the fishery. Protected fish: No specific operational actions are in place to minimise captures of protected fish, specifically the basking shark, noting the rarity of interactions.		

PI 2.3.2		**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**		
	Justification	Protected corals: Spatial management measures have not yet been fully evaluated with respect to their efficacy in managing impacts on protected corals (e.g. inclusion of corals within closed areas especially BPAs and representativeness of habitats protected). However, as noted the risk assessment indicates that the hake fishery is not a risk factor for these species. While the management strategy is multi-faceted, and considers information from the fishery, the efficacy of some components has not been evaluated quantitatively. A score of 80 is therefore given.		
c	**Guidepost**		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	For the framework in place, detailed monitoring is conducted by fisheries observers, at levels clearly sufficient to estimate interaction levels and rates. Observers complete the "Vessel Management Plan/Marine Mammal Operating Procedure Observer Reviews" form, as well as record ETP interactions with fishing gear. Compliance monitoring of spatial management areas also occurs; BPAs are monitored through VMS and observer coverage, and evidence shows that they are being adhered to. Camera surveys on closed seamounts have shown that the closure of areas with protected cold water corals within them has allowed some recovery to begin where impacts have occurred previously. Strategic documents are also reviewed from time to time, e.g. the Annual Operational Plan, the new NPOA – Sharks and NPOA - Seabirds (both reviewed every five years), and legislation (reviews in recent years have included the addition of new species as legally protected, revised reporting regulations, and gazetting of required mitigation measures). A score of 100 is therefore given.		
d	**Guidepost**			There is evidence that the strategy is achieving its objective.
	Met?			N
	Justification	Management objectives to achieve environmental outcomes desired from the hake fishery focus on avoiding and minimising adverse environmental impacts, including on ETP species. As noted, the strategic framework includes operational procedures developed with the intent of reducing impacts. However, empirical evidence that the strategy is achieving its objectives is difficult to provide for all ETP. The 100 scoring guidepost is not met. Noting that vessels less than 28 m are not specifically required to implement bird interaction mitigation approaches under Vessel Management Plans, a recommendation for further study of this component of the fishery has been developed.		
References		New Zealand Gazette 2010 Abraham and Thompson, 2011 Bull LS. 2009. New mitigation measures reducing seabird by-catch in trawl fisheries. Fish and Fisheries 10:408–427. Deepwater Group Ltd., 2009.		

PI 2.3.2	**The fishery has in place precautionary management strategies designed to:** • **Meet national and international requirements;** • **Ensure the fishery does not pose a risk of serious harm to ETP species;** • **Ensure the fishery does not hinder recovery of ETP species; and** • **Minimise mortality of ETP species.**
	Deepwater Group Ltd., 2011. Department of Conservation. 2012. MPI. 2013d. Ministry of Fisheries. 2010 MPI, 2012b MPI, 2013d Ministry of Fisheries. 2011d. New Zealand Gazette 2010. Pierre et al., 2012. Ramm, 2012. Rowe, 2010.
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues of the 60 and 80 scoring guideposts are met, and one component of the 100 scoring guidepost.	**85**
CONDITION NUMBER (if relevant):	**NA**

Evaluation Table for PI 2.3.3

PI 2.3.3		**Relevant information is collected to support the management of fishery impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	Y	Y	N
	Justification	The DOC Marine Conservation Services programme aims to monitor the effects of commercial fishing on protected species. Estimates of captures for seabird and marine mammal bycatch are publically available online. Monitoring seabird mortality within trawl fisheries is a specific role of the observer on board vessels. The coverage of observers has been sufficient to develop reasonably precise estimates of the likely total mortality of seabirds in each fishery and area, and to monitor trends in the mortalities over time, including the impacts of bird mortality mitigation approaches discussed under 2.3.2. Captures are observed by 'type', including entanglement within the net and warp strikes. Surveys of bird populations are underway, and estimates of breeding population size are available which allow quantitative estimates of outcome status. However, there remain difficulties in assessing bird mortalities other than through warp strikes, such as those related to of cryptic mortality – i.e., where birds are caught but not detected by observers, e.g. when they fall off the warps or out of the trawl net before being landed dead on-board vessels. Monitoring of marine mammal mortalities within the trawl fishery is also a specific role of the observer on board vessels. The coverage of observers has been sufficient to develop estimates of the likely total mortality of marine mammals, and to monitor trends in the mortalities over time. Where information is less robust, specific data collection initiatives have been developed. Surveys of relevant marine mammal populations are underway, but these are not yet able to definitively indicate abundance levels in all areas to allow the outcome status to be identified with a high degree of certainty. For particular protected fish species (e.g. basking sharks), specific projects have been funded in an attempt to gather some information on population sizes. In turn, tagging projects have been performed on great white sharks. Low interaction rates noted by observers do allow quantitative estimates to be made. Cold water corals captured in trawls are noted by observers present onboard, and where they cannot be identified they are returned to experts on shore for more detailed examination. Fishery-independent surveys are also underway using cameras inside and outside the main fishery areas and the recovery of corals within newly closed areas of the New Zealand EEZ have been undertaken. Further projects have examined other biological aspects of cold water corals. These data have been combined to examine the overlap of fishing vessel operations with the distribution of protected cold water corals to be identified, and a risk-based evaluation of the potential degree of impacts undertaken. For areas or fishing units where observer coverage has been relatively low, which affects the certainty of ETP interaction estimates, and for species without a robust population estimate, the outcome status of ETP species cannot be quantitatively estimated with a high degree of certainty. A score of 80 is therefore given.		

PI 2.3.3		**Relevant information is collected to support the management of fishery impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**		
b	**Guidepost**	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	Y	Y	N
	Justification	Information from the observer programme is sufficient to support the strategy of bird mitigation to manage impacts, and data have shown decreases in bycatch following the introduction of mitigation methods, allowing the impact to be identified with a reasonably high degree of certainty, with captures noted by type (entanglement, warp strike, etc.). This programme also provides information on the interactions between gears and sea mammals, ETP fish species and coral. Combined with the fishery-independent underwater surveys, they allow the effectiveness of any mitigation approaches to be evaluated. However, for many seabird species and fur seals, population estimates can be dated or imprecise and fate information is not comprehensive. Current information has, however, allowed assessments to be made of fishing risks to some ETP species populations. A score of 80 is given.		
c	**Guidepost**	Information is adequate to support measures to manage the impacts on ETP species.	Information is sufficient to measure trends and support a full strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	Y	Y	N
	Justification	Information on ETP species available through observer data collection and scientific research is sufficient to support a full strategy to manage impacts on ETP species. For seabirds, effective bycatch reduction measures are known; for example, monitoring of warp strikes has indicated reductions in Salvin's albatross and white-capped albatross within fisheries following the introduction of mandatory warp mitigation in January 2006. For fur seals, some effective bycatch reduction measures are known, and others (which would benefit from testing) are based on expert opinion and observation of the species. Fishing impacts on protected coral species are determined by weight, and managed using spatial measures. Knowledge of the distribution of coral species is broadly known in areas of relevance to the fishery. Trends in fisheries captures and mortalities are measured through observer data collection. A number of population-level research projects are also underway on ETP species, which will provide information useful for management. However, as noted, gaps in coverage and fate information prevents evaluations having a high degree of certainty whether a strategy is achieving its objectives. A score of 80 is given.		
References		Thompson et al., 2013a,b Tracey et al., 2011 Richard et al., 2011 Rowe, 2010 Richard and Abraham, 2013 Richard and Abraham, 2011 Abraham and Thompson, 2011 https://data.dragonfly.co.nz/psc/v20121101/birds/hake-trawl/all-vessels/eez/all/		

PI 2.3.3	**Relevant information is collected to support the management of fishery impacts on ETP species, including:** • **Information for the development of the management strategy;** • **Information to assess the effectiveness of the management strategy; and** • **Information to determine the outcome status of ETP species.**	
	https://data.dragonfly.co.nz/psc/v20130304/new-zealand-fur-seal/hake-trawl/all-vessels/eez/all/	
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues of the 60 and 80 scoring guideposts are met.		**80**
CONDITION NUMBER (if relevant):		**NA**

Evaluation Table for PI 2.4.1

PI 2.4.1		**The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	Y	Y	N
	Justification	As the trawl net is deployed to towing depth, pelagic habitats will experience short-term disruption. Some disruption of the water column and its inhabitants will also occur as the net is towed. However, longer term and more severe effects of the fishery on habitat structure are benthic, given the bottom trawl method widely used. The degree of trawling impact on the seabed will be dependent upon sediment types, and is some concern. Research in other geographic areas and studies of the impacts of trawling on the Chatham Rise have identified the stirring of sediments and benthos, the degree of impacts dependent upon the substrate type and level of previous trawl disturbance events. The footprint of the trawl fisheries has been examined within the New Zealand EEZ. Currently, the best single tool currently available to evaluate benthic habitat types is the Benthic-Optimised Marine Environment Classification (BOMEC) for New Zealand waters. The pattern of New Zealand's trawl footprint for deepwater fisheries has been monitored relative to the BOMEC categories. The estimated swept area of the gear in relation to the BOMEC category areas within the New Zealand EEZ as a whole (rather than within the individual regions of certification under this assessment) has been a maximum of 5%, and generally less than 0.6%. Examinations of the trawl footprint by HAK region have also been undertaken. Trawling occurred mainly in the 200-800m depth rate, sweeping 7.4% of that depth band in HAK4. The report noted that for each of the hake fisheries, the area closed and/or not trawled was over 98% for 1989/90 to 2011/12. Over the last five fishing years, HAK1 and HAK4 had an area closed and/or not trawled of over 99.5%, for HAK7 it was 99.0%. Vessel operational strategy indicates that the same tracks are being trawled; it is highly unlikely that habitat structure and function will be degraded further, pending appropriate management action. Lost gear events appear to be rare, and given the value of the gear all efforts are made to retrieve any that are lost. The examination of the trawl footprint of the fishery relative to the area of BOMEC classifications and HAK fishery areas provides evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm. However, further evidence on the basis of the inter-relationship between the BPAs, ground-truthing of the latest habitat classification (relative to the rate of recovery following disturbance), combined with the current analysis of trawl paths, is recommended to increase the score. Note that issues with cold water corals are dealt with under PI2.3. A score of 80 is given.		
References		Black et al. 2013 Black, 2013 Hewitt et al., 2011 Snelder et al., 2005, 2006 Leathwick et al., 2006 Bowden et al. 2011 MPI, 2012		

PI 2.4.1	**The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function**
OVERALL PERFORMANCE INDICATOR SCORE: The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost, but not the 100 scoring guidepost.	**80**
CONDITION NUMBER (if relevant):	**NA**

Evaluation Table for PI 2.4.2

PI 2.4.2		**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	Y	Y	N
	Justification	The Marine Reserves Act (1971) provides the basis for enacting marine protected areas within New Zealand, while the Conservation Act (1987), Wildlife Act (1953), and Fisheries Act (1996) also provide a framework for implementation. The New Zealand Biodiversity Strategy (2000) identified the need to develop a Marine Protected Areas Policy to protect a full range of natural marine habitats and ecosystems to effectively conserve marine biodiversity, using a variety of appropriate mechanisms, including legal protection. The MPI Strategy for Management of the Environmental Effects of Fishing provides a further framework for managing impacts, aiming to implement an Ecosystem Approach to Fisheries, make significant improvements in managing the environmental effects of fishing, and to ensure the Ministry for Primary Industries meets its environmental obligations under the Fisheries Act 1996 and other legislation in an efficient and consistent manner. While the processes are ongoing, currently around a third of the New Zealand EEZ has been encompassed by Benthic Protection Areas (from 2007). The requirement for the BPA design was to encompass not less than 10% of each oceanic class of the MEC and each oceanic class was to be represented in two or more BPAs. They were also spread by latitude and longitude throughout the New Zealand EEZ, which runs from sub-tropical waters to sub-Antarctic waters, and to protect benthic habitats over a range of depths. The designated BPAs are indicated to protect: 28 percent of Underwater Topographic Features (including seamounts); 52 percent of seamounts (underwater mountains over 1000 metres in height); and 88 percent of active hydrothermal vents. Demersal trawling and dredging is prohibited in these areas (pelagic fishing and demersal longlining being allowed). In turn, data continue to be collected to underpin studies. Further development of Marine Protected Areas continues primarily within the Territorial Sea (from the coast to the 12-mile limit). Combined, the BPAs and seamount closures, along with the operational strategy of towing within the path of historical trawl footprints, represent a partial strategy. The fishery does not have a cohesive and strategic arrangement in place to manage the fishery impacts on habitats, which also includes mechanisms for the modification fishing practices in the light of the identification of unacceptable impacts (MSC 2011). For example, the work overlaying trawl tracks and habitat types is extremely informative, but there is no clear link between the findings and its use for management of habitat impacts. Issues for consideration could include when an impact on a habitat class is deemed worthy of management attention, how practices might be changed to manage identified impacts, any restrictions on trawling new areas or trawl gear, etc. A score of 80 is therefore given.		
b	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	N

PI 2.4.2		**There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types**		
	Justification	Reporting of interactions between fisheries and habitats is critical to understanding habitat impacts. Spatial management is the most effective measure currently deployed for mitigating habitat impacts due to demersal trawling and the closure of areas such as seamounts and the Benthic Protection Areas, combined with their location, the use of VMS and the analysis of trawl tracks relative to BOMEC areas provides some objective basis that the partial strategy will work. A score of 80 is given. We noted that there was a proposal to review BPAs in 2013, which has not as yet been progressed.		
c	**Guidepost**		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	Fisheries observers monitor compliance with the boundaries of Benthic Protection Areas or other closed areas. The MPI and DWG are able to follow up if compliance anomalies are detected. VMS data also provides information on the trawl footprint which has been related to the BOMEC areas. There is therefore clear evidence that the strategy as stands is being implemented successfully. This provides some evidence that the partial strategy is being implemented. A score of 80 is given.		
d	**Guidepost**			There is some evidence that the strategy is achieving its objective.
	Met?			N
	Justification	While there is some objective basis for confidence that the partial strategy will work,and ongoing monitoring of patterns of fishing relative to the BPAs and BOMEC classifications, there has been no recent review of the BPA framework and its effectiveness to provide evidence that the approach is achieving its objective.		
References		Black et al., 2013 DOC, 2012 DOC, 2005 MPI, 2012b		
OVERALL PERFORMANCE INDICATOR SCORE: The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost, but none at the 100 scoring guidepost.				**80**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.4.3

PI 2.4.3		**Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	N
	Justification	Oceanography and primary productivity has been well studied through projects and remote sensing studies. Fairly extensive benthic surveys have been performed of seabed types around the New Zealand continental shelf and seamounts. Characteristics of habitats within the New Zealand EEZ have been classified and mapped through several projects, e.g. the Marine Environment Classification, the Oceans 20/20 work (e.g. on the Chatham rise; the Chatham-Challenger project), and BOMEC. The projects aimed to map and compare habitats and diversity of sea-bed communities in fishable depths at key locations across the Chatham Rise and the Challenger Plateau, using both acoustic mapping approaches and underwater camera work to map biodiversity and habitat types. In turn, the Ocean Survey 20/20 (OS 20/20) project aimed to map the seafloor habitats and biodiversity of New Zealand's marine environment across large areas of the EEZ, concentrating on the Chatham Rise and Challenger Plateau. The location of key vulnerable habitat types (smokers, hydrothermal vents etc) is known. Habitat mapping data, combined with the results of specimen collections from known trawl locations by fisheries observers, allow the nature, distribution and vulnerability of main habitat types to be known in the fishery, at a level of detail relevant to the scale and intensity of the fishery. Beyond areas of fishing activity, the degree of habitat knowledge at sub-regional scales is patchier. In turn, the footprint of the fishery is well established through VMS records and the TCEPR data, and has been used within risk assessments for key benthic species. However, the extent of habitat knowledge at sub-regional scales, including for vulnerable habitat types, is patchier. A score of 80 is therefore given.		
b	**Guidepost**	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N

PI 2.4.3		**Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types**		
	Justification	Data from surveys, logbooks and the observer programme are available to allow impacts of the fishery on habitat types to be identified. The VMS provides reliable information on the spatial extent, timing and location of use of the fishing gear. In turn, reviews of the distribution of BOMEC classes and recent fishing trawl survey tracks has clarified the distribution and change of the fishery footprint relative to the ecosystem, providing an assessment of the main areas of potential impact sensitive to recovery times. The changes within previously fished habitats inside BPAs over time have been examined, particularly for seamounts. That on the main fished area has not been examined, and is inferred from literature on other fisheries; demersal trawling is a fishing method that typically destroys habitat features and complexity. The observer programme notes benthic invertebrates brought up in the trawls. Taxonomic guides developed by NIWA for cold water corals and sponges are improving species recognition, while still unidentified corals are returned for professional taxonomic identification. The body of information on the physical impacts of the gear on habitat is therefore growing, but cannot be said to have been quantified fully. A score of 80 is therefore given.		
c	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	The continuation of the observer programme, logbook records, and surveys, provides sufficient data to detect any increase in risk to habitat. The continued collection of information and study of cold water corals has allowed risk assessments to be performed for the fisheries in general, and the continued overlay of BOMEC distributions and trawl footprints provides a mechanism to identify increased risk. However, no regular sampling regimes exist that are designed to measure changes in habitat distributions over time. A score of 80 is therefore given.		
References		Snelder et al., 2007 Leathwick et al. 2009 Bowden et al. 2011 Hewitt et al., 2011 Black et al., 2013		
OVERALL PERFORMANCE INDICATOR SCORE: : The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost, but none at the 100 scoring guidepost.				**80**
CONDITION NUMBER (if relevant):				**NA**

Evaluation Table for PI 2.5.1

PI 2.5.1		**The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	Y	Y	N
	Justification	At an EEZ level, New Zealand fisheries have been preliminarily assessed to be sustainable in an energetic context. However, Knight et al. (2011) note that this energetic-based sustainability assessment is not a replacement for a food web-based analysis, and that their frameworks are appropriately deployed as a high-level guide for monitoring cumulative effects of multiple fisheries, rather than considering removals at a species-specific level. Beyond energetic demands, high volume removals of species are expected to result in some level of ecosystem effects. Relative to this, the Chatham Rise fishery is best understood as change is ongoing; the ecosystem has not stabilised at an alternative state. However, studies show: no evidence of loss of community constituents, although mean trophic level of commercial and trawl survey catches is declining, i.e. fishing is affecting higher trophic levels. There is also evidence for changes in species abundance; no evidence of loss of ecosystem function; no evidence of loss of species over time. However, in other systems biogeochemical cycles have been reported to be disrupted by bottom trawling. This can be evaluated using the presence and dynamics of organisms over time. Based upon logical argument and the position of hake within the ecosystem in the areas under certification, the extraction of hake and the range of QMS and non-QMS species from the ecosystem through the fishery is unlikely to disrupt key elements of underlying ecosystem structure and function. Ecosystem models developed for the sub-Antarctic region and Chatham Rise have not yet been specifically used to assess whether fishery removals at current levels (with stocks often well above single species B_{MSY} levels) may impact upon the modelled ecosystems. However, the trophic model of the Southern Plateau ecosystem, where hoki, rather than hake, forms a large part of the fish component, suggests the area has low productivity and energy transfer between components is efficient. A model for Chatham Rise suggests a more productive web. Stock sizes of hake in these areas indicate there remains a sizeable proportion of biomass in the ecosystem, and removals at this level are unlikely to lead to serious harm. This is particularly true given the recovery of the hoki population within these ecosystems. Developing understanding of relationships between ecosystem components (e.g. functional groups), indicators and fishery characteristics would effectively contribute to improving management. “Evidence” in this SG requires a 20% probability that the true status of the component is within the range where there is risk of serious or irreversible harm. Sufficient uncertainty exists on the impact of fishing for this specific species such that further work on ecosystem effects of the fishery would be worthwhile, particularly for less-studied areas. A score of 80 is given.		
References		Knight et al., 2011 Tuck et al. 2009 Thrush and Dayton, 2002 MacDarmid et al., 2005 Bradford-Grieve et al., 2003		

PI 2.5.1	**The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function**
OVERALL PERFORMANCE INDICATOR SCORE: The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost, but not the 100 scoring guidepost.	**80**
CONDITION NUMBER (if relevant):	**NA**

Evaluation Table for PI 2.5.2

PI 2.5.2		**There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	Y	Y	Y
	Justification	The partial strategy in place is represented by the TACCs in operation within the fishery for all the QMS species, combined with numerous measures in place to reduce impacts of the fishery on individual ecosystem components (and thereby structure), e.g., for ETP species as described above (PI 2.3.2) and the target (e.g. PI 1.1.1, 1.1.2), retained (PI 2.1.2) and bycatch (PI 2.2.2) species. This takes into account available information collected through the logbook system, observer programme and fishery-independent surveys. In addition, implementation of BPAs will help maintain ecosystem integrity in nearby areas. There are no measures in place relating to ecosystem function specifically. There is, however, a legislative, policy and operational framework to manage ecosystem impacts, and address knowledge gaps relevant to fishery management, which builds on the partial strategy. This includes components such as: The Fisheries Act (to avoid, remedy or mitigate any adverse effects of fishing on the aquatic environment) and Wildlife Act; The Annual Operational Plan for Deepwater Fisheries; The National Fisheries Plan for Deepwater and Middle-depth Fisheries; and research specifications for the 10 year research programme for deepwater fisheries, which includes a specific focus on ecosystem functioning and trophic linkages. The result of these elements includes: to maintain QMS species at or above target levels, limit impacts on non-QMS species, and reduce the impact of gear on habitats. While they do not form a specific strategy aimed primarily at ecosystem maintenance, they work together to do so to form a plan. A score of 100 is therefore given.		
b	**Guidepost**	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem. This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.
	Met?	Y	Y	N

PI 2.5.2		**There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function**		
	Justification	The measures listed above either require some consideration of impacts (e.g. the Fisheries Act), take account of them with the intent of delivering better management (e.g. fisheries management objectives), or seek to manage them to reduce the environmental effects of fishing (e.g. ETP bycatch measures). Furthermore, research outcomes are fed back into management, although in the areas of ecosystem structure and function, stronger links could be developed. Where unacceptable impacts are detected, the current framework allows them to be addressed, including through fishery management measures. It is noted that, to date, responses have focussed on individual ecosystem components (e.g. target stock status, seabird bycatch levels) rather than broader effects, demonstrating that while the elements naturally work together, this is not through a specific ecosystem design; they are currently not developed across ecosystem components/functions to the level required for the SG100 level. A score of 80 is therefore given.		
c	**Guidepost**	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	Y	Y	N
	Justification	Strategic and operational measures that are in place are considered likely to work, based on information about the fishery and ecosystem components involved (e.g. target and retained species, some ETP species, habitat). For example, target species stocks have been actively managed, fish species brought under the QMS structure, and seabird bycatch mitigation measures introduced, to address sustainability concerns specifically, while BPAs have been put in place. Annual review of the Annual Operational Plan for Deepwater Fisheries provides a natural forum for reviewing the efficacy of measures, and identification of ongoing and new issues. Detailed monitoring of many aspects of the fishery (e.g. catches of target, retained species, and bycatch) allows such review. Hake is not a low trophic level species and current populations are likely or highly likely to be above the target biomass reference levels. However, it is also a subset of the hoki fishery and a bycatch in hoki-targeted trawls. Indeed the role of hoki in the fishery, and the response of the ecosystem to hoki removals, has been studied in greater depth than that of hake across the fishery areas evaluated here. This provides plausible argument that the strategy for the hake fishery is likely to work. It will be monitored during the surveillance audits based upon the decisions made on TACC levels - noting the potential for increased hake bycatch in hoki targeted fishing -which have generally remained unchanged following recovery of the hoki fishery. A score of 80 is given.		
d	**Guidepost**		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		Y	Y

PI 2.5.2		**There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function**
	Justification	With particular reference to individual ecosystem components (rather than functions), there is evidence that the strategy is being implemented successfully. For example, stock assessments of the target and retained species and monitoring of incidental mortalities of ETP species are ongoing, while TACCs and other control mechanisms are being monitored and for the main species adjusted where necessary. BPAs are monitored through observer and VMS coverage, and as part of the partial management strategy should provide some ecosystem buffering. There is therefore evidence that the approaches are being implemented successfully. A score of 100 is given.
References		MPI, 2013a, b, c MFish 2010b New Zealand Gazette, 2010 Thompson et al., 2013a Richard and Abraham, 2013a Baird et al., 2012 Francis and Lyon, 2012 Horn, 2013a, b
OVERALL PERFORMANCE INDICATOR SCORE: The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost, and two of the four at the 100 scoring guidepost.		**90**
CONDITION NUMBER (if relevant):		**NA**

Evaluation Table for PI 2.5.3

PI 2.5.3		**There is adequate knowledge of the impacts of the fishery on the ecosystem**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	Stomach content analysis projects that have been performed provide information to adequately broadly understand the functions of the key elements of the ecosystem, including trophic structure, community composition, productivity and biodiversity. Studies on the Chatham Rise have expanded existing analyses and include the diet of juvenile fish of key species. However, recent projects have not examined the predators of the key fish species, although they are generally understood. The structure of the mid-water food web is broadly understood for the Chatham Rise and Sub-Antarctic areas through a number of studies, which underpin ecosystem models. No model has yet been developed for the west Coast South Island but information from other areas is adequate to broadly understand the key elements of the ecosystem. Given the different ecosystems covered by existing models and studies, information is adequate to broadly understand the functions of the key ecosystem elements. A score of 80 is given.		
b	**Guidepost**	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.
	Met?	Y	Y	Y (HAK1, HAK4), N (HAK7)
	Justification	The main impacts of the fishery on the ecosystem elements can be inferred from the stock assessments (for key species), QMS catch trends, and surveys which cover the target, related species, and most levels of the ecosystems. Investigations have been particularly detailed on the Chatham Rise. With the exception of the Southern Plateau and Chatham Rise where models includes hake within fish groups, existing models have not been used to investigate the impacts of fishing on those ecosystems or feed into the fishery management process and hence the main interactions have not been fully investigated for the hake fishery. For HAK1 and HAK4, therefore, a score of 100 is given. For HAK7, a score of 80 is given.		
c	**Guidepost**		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these Components in the ecosystem are understood.
	Met?		Y	N

PI 2.5.3		**There is adequate knowledge of the impacts of the fishery on the ecosystem**		
	Justification	The main functions of the components of the ecosystem have been identified through the ecosystem sampling programme undertaken to parameterise the ecosystem models for the Chatham Rise and sub-Antarctic regions around New Zealand. It is noted that ecosystem data for the west of New Zealand is less abundant. The main functions of ecosystem components are known, though not in detail for some species. Diet studies have been integral to the development of this knowledge. The impacts of the fishery on target, bycatch, and ETP species are identified through ongoing monitoring that is a core component of the fishery management regime. The main functions of some of these species can be understood from existing information. However, for some bycatch species and protected benthic species, knowledge of ecosystem functions is minimal, or absent. There is also the potential for trawl gear to affect the productivity of benthic communities. Scientific research suggests that while certain communities will be adversely affected, others might benefit from increased availability of particular organisms, and that productivity may overall be increased. A score of 80 is therefore given.		
d	**Guidepost**		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	Y (HAK1 and HAK4), N (HAK7)
	Justification	Information from the observer programme, and logbooks (for the main 5 species in the catch) as well as continued sampling of stomachs, allow the main consequences for the ecosystem to be inferred. The developed Ecopath models allow the impacts of the fishery on components to be examined, although this analysis has not yet been performed for all areas. There is therefore considerable knowledge about the ecosystem components, and some elements that the fishery coexists with. While the consequences of fishery impacts on some ecosystem characteristics are not well understood, sufficient information is available on the components and elements of the ecosystem to allow the main consequences of the fishery to be inferred in HAK1 and HAK4, as evidenced by the ecosystem models developed for these regions. A score of 100 is therefore given. For HAK7, the reduced survey frequency and lack of an existing ecosystem model reduce the score for this region, noting that sufficient information is still available on the impacts of the fishery on the Components to allow some of the main consequences for the ecosystem to be inferred. A score of 80 is given.		
e	**Guidepost**		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		Y	Y
	Justification	There is a growing body of information available on the ecosystem components in which hake occurs and interacts. Linkages between all ecosystem components and the hake fishery cannot be quantified, making the scale of responses to changes in fishing patterns difficult to predict. However, sufficient information is available to support the development of strategies to manage ecosystem impacts. A score of 100 is given.		

PI 2.5.3	**There is adequate knowledge of the impacts of the fishery on the ecosystem**	
References	Dunn et al., 2010 Stevens et al., 2011 Horn, 2013a,b Pinkerton, 2011 Bradford-Grieve et al., 2003 Horn and Dunn, 2010 Baird 2011	
OVERALL PERFORMANCE INDICATOR SCORE: The fishery satisfies the scoring issues for the 60 scoring guidepost and the scoring issues of the 80 scoring guidepost. For HAK1 and HAK4, three of the four 100 scoring guideposts are met and the score is 95. For HAK7, one of the four 100 scoring guideposts are met and the score is 85.		**95 (HAK1 and HAK4), 85 (HAK7)**
CONDITION NUMBER (if relevant):		**NA**

Evaluation Table for PI 3.1.1

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	MPI is responsible for the utilisation of New Zealand's fisheries resources while ensuring sustainability in accordance with its governing legislation - the Fisheries Act 1996. Where ensuring sustainability means: (a) maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; P1 and (b) avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment P2 Utilisation means conserving, using, enhancing, and developing fisheries resources to enable people to provide for their social, economic, and cultural well-being. The Fisheries Act binds the Crown. Decisions made under power given by the Act are judicially reviewable by the Courts in the event of disputes. Procedures and processes that apply to disputes about the effects of fishing on the fishing activities of any person that has a current fishing interest provided for under the Act, are set out under Part 7 of the Fisheries Act. MPI's fisheries management responsibilities extend to the 200 nautical mile limit of the NZ EEZ. MPI provides management, licencing (where applicable) research and compliance and education services for commercial, recreational and customary fishing. MPI assists the Minister of Primary Industries in the administration of the relevant Acts. The Government’s commitment to wide consultation and engagement is set out in Section 12 of the Act. MPI is required to consult with those classes of persons having an interest (including, but not limited to, Maori, environmental, commercial and recreational interests) in the stock or the effects of fishing on the aquatic environment in the area concerned. MPI do this in a number of ways eg through regular meeting of working groups. These meetings are open to everyone, and consider fish stocks and the effects of fishing on the aquatic environment. There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2. This SI meets 100.		

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**		
b	**Guidepost**	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the fishery.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.
	Met?	Y	Y	Y
	Justification	The Fisheries Act provides opportunities to negotiate and resolve disputes. The Minister may appoint a Dispute Commissioner and the Minister makes the final determination. The consultation process is an attempt to avoid unresolved disputes by ensuring all interested parties have an opportunity to participate and have an input into decisions. There have been occasions when there has not been a satisfactory outcome and then this has gone to litigation and the Court has made a decision. The Memorandum of Understanding between the Deepwater Group Ltd and the Ministry for Primary Industries has encouraged better working relationships and avoided the need for litigation between the Ministry and the industry. The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective. A score of 100 is given		
d	**Guidepost**	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Y	Y	Y
		MPI is responsible for the administration of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, which implements the 1992 Fisheries Deed of Settlement under which historical Treaty of Waitangi claims relating to commercial fisheries have been fully and finally settled. The Ministry is also responsible for the Maori Fisheries Act 2004, which provides that the Crown allocates 20% of quota for any new quota management stocks brought into the QMS to the Treaty of Waitangi Fisheries commission. For non-commercial fisheries, the Kaimoana Customary Fishing Regulations 1998 and the Fisheries (South Island Customary Fishing) Regulations 1998 strengthen some of the rights of Tangata Whenua to manage their fisheries.		

PI 3.1.1		**The management system exists within an appropriate legal and/or customary framework which ensures that it:** • **Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and** • **Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and** • **Incorporates an appropriate dispute resolution framework.**
	Justification	These regulations let iwi and hapü manage their non-commercial fishing in a way that best fits their local practices, without having a major effect on the fishing rights of others. When the government sets the total catch limits for fisheries each year, it allows for this customary use of fisheries. Before allocating comercial quotas. The management system therefore has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. A score of 100 is given.
References		Fisheries Act 1996 DWG Partnership 2010 Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 Deed of Settlement 1992 Maori Fisheries Act 2004 Customary Fisheries Regulations 1998 MFish 2009a
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring guideposts are met for 60, 80 and 100.		**100**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.1.2

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	Y	Y	Y
	Justification	The Ministry for Primary industries (MPI) is the Government agency responsible for the utilisation and sustainable management of the fisheries resources. The role of the MPI, working with other government agencies, is to advise on and implement government policy in the following areas of core responsibility: • ensuring sustainability of fish stocks and the protection of the aquatic environment; • meeting international and Deed of Settlement obligations; • providing for maximum value to be realised; • facilitating sustainable development; and • ensuring integrity of management systems. MPI is charged with consistently monitoring the fishery resource, and making timely and appropriate policy advice on all aspects of fisheries management to the Government. The Ministry is also responsible for carrying out the Government's policies to manage and conserve fisheries, and to actively encourage compliance of fisheries regulations by all fishers. The Department of Conservation (DOC) is the central government organisation charged with conserving the natural and historical heritage of New Zealand. The department is responsible for marine reserves, seabirds, and for marine mammals such as dolphins, whales, sea lions and fur seals. DWG is an amalgamation of EEZ fisheries quota owners in New Zealand. DWG is a non-profit organisation, and is the commercial stakeholder organisation responsible for the majority of deepwater and middle-depth fisheries. It is working in partnership with the MPI and other interest groups to ensure New Zealand gains the maximum economic yields from its deepwater fisheries resources managed within a long-term, sustainable framework. The vast majority (95%) of hake quota owners are represented through the DWG. The MPI and DWG signed a Memorandum of Understanding (MOU) in 2006 which sets out how DWG and MPI would work collaboratively to improve the management of deepwater fisheries (including hake). eNGOs and other stakeholders have an important role in participating and contributing to management processes. Therefore, organisations and individuals involved in the management process have been identified and their functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction. A score of 100 is given.		

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**		
b	**Guidepost**	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.
	Met?	Y	Y	Y
	Justification	Section 12 of the 1996 Act includes a range of specific consultation requirements. MPI is required to consult with those classes of persons having an interest (including, but not limited to, Maori, environmental, commercial and recreational interests) in the stock or the effects of fishing on the aquatic environment in the area concerned; Section 12 only relates to certain sections of the 1996 Act. However there are other sections of the 1996 Act that require the Minister or MPI Chief Executive to consult with stakeholders before making a decision. MPI has a well-defined process for stakeholder consultation. The consultation process: - sets out best practice process for how MPI will meet its obligations under Section 12 of the Fisheries Act 1996 and for other decisions requiring consultation with fisheries stakeholders; - helps to ensure a consistent approach across all MPI business groups when consulting with fisheries stakeholders; and - sets out minimum performance measures where appropriate, e.g., a minimum period for stakeholder consultation. The consultation process standard includes the following: • identification of stakeholders “having an “interest” for consultation purposes; • a timeframe for consultation; • notification of decision to stakeholders; and • monitoring, review and oversight. There is evidence that consultation occurs on a regular basis and that information provided by stakeholders is often taken into account. Explanations on how information is used or not used are conveyed by letters, emails and in Final Advice papers. The management system therefore includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used. A score of 100 is given.		
c	**Guidepost**		The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?		Y	Y
		MPI has a well-defined process for stakeholder consultation. The consultation process:		

PI 3.1.2		**The management system has effective consultation processes that are open to interested and affected parties.** **The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties**
	Justification	- sets out best practice process for how MPI will meet its obligations under Section 12 of the Fisheries Act 1996 and for other decisions requiring consultation with fisheries stakeholders; - helps to ensure a consistent approach across all MPI business groups when consulting with fisheries stakeholders; and - sets out minimum performance measures where appropriate, e.g., a minimum period for stakeholder consultation. The consultation process standard includes the following: • identification of stakeholders having an "interest" for consultation purposes; • a time frame for consultation; • notification of decision to stakeholders; and • monitoring, review and oversight. There is evidence of the MPI seeking stakeholder views throughout the year using, for example, the Initial Position Paper process, the Working Group, and fisheries planning meetings. As part of the consultation process, stakeholders are given the opportunity to provide feedback on the delivery of the process itself. The feedback is evaluated and used to fine-tune future consultation processes. Stakeholders are encouraged to be involved. The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement. MPI have also set up an Environmental Engagement forum. A score of 100 is given
References		Fisheries Act 1996 DWG 2010 MFish 2010e MFish 2010 l MFish 2012b MFish 2011b DOC 2012
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring guideposts are met for 60, 80 and 100.		**100**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are implicit within management policy	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.
	Met?	Y	Y	Y
		Long-term fishery and environmental objectives are included within both NZ fisheries and environmental legislation and these guide decision making. In regard to information principles, Section10 of Fisheries Act states: *"All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:* *(a) Decisions should be based on the best available information:* *(b) Decision makers should consider any uncertainty in the information available in any case:* *(c) Decision makers should be cautious when information is uncertain, unreliable, or inadequate:* (d) *The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act*." Fisheries 2030 sets the strategic direction for the management and use of New Zealand's fisheries resources. One of the principles guiding Fisheries 2030 is "*Precautionary approach: particular care will be taken to ensure environmental sustainability where information is uncertain unreliable or inadequate*." The National Fisheries Plan for Deepwater and Middle-depth Fisheries (the National Deepwater Plan) establishes the 5-year enabling framework for the management of New Zealand's deepwater fisheries. It is further divided into two parts – Part 1A and Part 1B. Part 1A details the overall strategic direction for New Zealand's deepwater fisheries. Specifically it describes: (a) the wider strategic context that Fisheries Plans are part of, including Fisheries 2030; (b) the nature and status of the management objectives that will apply across all deepwater fisheries; and (c) how the National Deepwater Plan will be implemented and how stakeholders will be engaged during the implementation phase. Part 1A of the National Deepwater Plan has been approved by the Minister of Fisheries under Section 11A of the Fisheries Act 1996. This means that it must be considered each time the Minister makes decisions or recommendations concerning regulation or control of fishing or any sustainability measures relating to the stocks managed through this plan.		

PI 3.1.3		**The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach**
	Justification	Part 1B of the National Deepwater Plan comprises the fishery-specific chapters of the National Deepwater Plan which provide greater detail on how deepwater fisheries will be managed at the fishery level, in line with the management objectives. To date, fishery-specific chapters have been completed for the hoki, orange roughy, southern blue whiting, and ling fisheries. The fishery specific chapter for hake is in draft form. The fishery-specific chapters describe the operational objectives for each target fishery and their key bycatch species, as well as how performance against both the management and operational objectives will be assessed at the fishery level. These chapters also describe any agreed harvest strategy for the relevant species. On an annual basis the National Deepwater Plan is delivered through the Annual Operational Plan which describes management actions scheduled for delivery during the financial year for which the Operational Plan applies, and the management services required to deliver the management actions. The Annual Operational Plan also clearly demonstrates how these management actions contribute to the long-term objectives in the National Deepwater Plan. The annual review of performance and delivery of objectives is provided in MPI's annual reports Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy. This SI scores 100.
References		Fisheries Act MFish 2010d MFish 2010f Pricewaterhouse Coopers 2008
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring guideposts are met for 60, 80 and 100.		**100**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.1.4

PI 3.1.4		**The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that perverse incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices.
	Met?	Y	Y	P
	Justification	**Incentives**: The QMS and the use of ITQs provides stability and security for quota owners and hence incentives for sustainable utilisation (Fisheries Act). The management system also includes customary provisions (e.g., Maori Fisheries Act 2004 and Treaty of Waitangi (Fisheries Claims) Settlement Act 1992). **Subsidies**: There are no subsidies in the New Zealand hake fishery. The management system has explicit mechanisms that facilitate regular review of management policy or procedures (Fisheries Act). Under Section 13 of the Fisheries Act 1996 the Minister of Fisheries needs to take social, cultural and economic factors into account as well as the status of the stocks and all environmental considerations when setting a TAC for a fishery. There are regular reviews of the Quota Management System and MPI management policy and procedures to ensure they contribute to sustainable fishing. Other strategies that contribute to sustainable fishing are also regularly reviewed e.g. deemed values and the harvest strategy. There do not appear to be explicit incentives and encouragement not to catch marine mammals and protected species, i.e. there is no positive feedback for those not catching these species. The management system does not explicitly consider incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices. As such, the fishery only partially meets the 100 level of performance.		
References		Fisheries Act 1996 Lock et al 2007		
OVERALL PERFORMANCE INDICATOR SCORE: The scoring guideposts are met for 60 and 80 and partially met for 100.				**90**
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 3.2.1

PI 3.2.1		**The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's management system	Short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.	Well defined and measurable short and long-term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.
	Met?	Y	Y	Y
	Justification	The management system has explicit short and long-term objectives which are set out in long-term plans e.g. Fisheries 2030, National Fishing Plan Deepwater and Middle Depths Plan and Annual Operational Plan. Objectives are subject to an annual review report. Objectives specific for hake are set out in the hake chapter of the National Fishing Plan Deepwater and Middle Depths Plan and Annual Operational Plan. These are then specified within the annual Operating Plan. These are fishery specific, subject to annual review and are measurable. However, the objectives tend to be high-level and not measurable.		
References		MFish 2010d MPI2012b MPI 2013e Pricewaterhouse Cooper 2008		
OVERALL PERFORMANCE INDICATOR SCORE:				**100**
CONDITION NUMBER (if relevant): The scoring guideposts are met for 60 and 80 and partially met for 100.				

Evaluation Table for PI 3.2.2

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Y	Y	
	Justification	The decision-making process is clearly outlined in the Fisheries Act (specifically Sections 10, 11&12). Section 10 of the Fisheries Act requires that all decisions be based on the best available information. The management of fisheries to achieve these goals is based upon the scientific evaluation of: • the sustainable yield from fisheries resources; • the effects of fishing on the aquatic environment, including on the viability of associated or dependent species, and on biological diversity; • alternative strategies for achieving the desired level of yield while avoiding, remedying, or mitigating adverse effects of fishing on the aquatic environment; • relevant cultural, economic, and social factors that may need to be included in the management decision process; and • the specific measures needed to implement the preferred strategy. There ais also the working group process which is an example of how scientific information is incorporated into management There are therefore established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. A score of 80 is given		
b	**Guidepost**	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Y	Y	N

PI 3.2.2		**The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.**		
	Justification	Section 10 of the Fisheries Act requires **all** decisions to be based on the best available information. The management of fisheries to achieve these goals is based upon the scientific evaluation of: • the sustainable yield from fisheries resources; • the effects of fishing on the aquatic environment, including on the viability of associated or dependent species, and on biological diversity; • alternative strategies for achieving the desired level of yield while avoiding, remedying, or mitigating adverse effects of fishing on the aquatic environment; • relevant cultural, economic, and social factors that may need to be included in the management decision process; and • the specific measures needed to implement the preferred strategy. Consultation is a central component of the management decision making process (Fisheries Act Section 12, Stakeholder Consultation Process Standard). The Minister makes the final decision based on advice received from other parties (Section 12 - *the Minister shall consult with such persons or organisations as the Minister considers are representative of those classes of persons having an interest in the stock or the effects of fishing on the aquatic environment in the area concerned including Maori, environmental, commercial, and recreational interests*). The MPI ensures that the Minister is provided with analysed alternatives for consideration before making any decisions (information is both from within and outside the Ministry (Stakeholders, Science)). The feedback process is formalised, involving planning, consultation, project development, and scientific enquiry. The IPP/FAP process highlights the extent of consultation, engagement and transparency of the decision making process; see the following: • Hon. Phil Heatley (2011). Minister's Decision Letter on Sustainable Measures. • Ministry of Fisheries (2011) Review of Sustainability Measures and Other management Controls for Deepwater Fisheries – Final Advice Paper. • Ministry of Fisheries (2011) Submissions received on the Review of Sustainability Measures and other management Controls for Deepwater Fisheries. Thus, decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. Although management decision-making can be shown to respond to serious and important issues, a very large number of 'issues' are identified during research and monitoring. Management does not respond formally to all of these. However, response may be informal or through discussion at various fora such as working groups. All issues are addressed through such mechanisms, although this may not be to the satisfaction of all stakeholders. The assessment team does not have full evidence that decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. A score of 80 is met.		
c	**Guidepost**		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	

PI 3.2.2		**The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.**		
	Justification	The FAO technical consultation on the precautionary approach to capture fisheries took place in Sweden in 1995. One outcome of this consultation was a set of guidelines which set out principles for the precautionary approach for capture fisheries The precautionary approach must be followed by the MPI. Section 10 of the Fisheries Act Information principles states:" *All persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability, shall take into account the following information principles:* *(a) Decisions should be based on the best available information:* *(b) Decision makers should consider any uncertainty in the information available in any case:* *(c) Decision makers should be cautious when information is uncertain, unreliable, or inadequate:* *(d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.* Evidence of the application of the precautionary approach is seen in the Ministry of Fisheries (2011) Review of Sustainability Measures and Other Management Controls for Deepwater Fisheries – Final Advice Paper. Thus, decision-making processes use the precautionary approach and are based on best available information. This SI meets 80		
d	**Guidepost**	Some information on fishery performance and management action is generally available on request to stakeholders.	Information on fishery performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on fishery performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Y	Y	Y
	Justification	Management decision-making processes are clearly outlined in the Fisheries Act 1996. Intentions are shared through a transparent process, which includes long- and short-term goals and objectives that are publically available (e.g., National Fisheries Plan, Annual Operational Plan, Statements of Intent, Initial Position Papers, press releases and reports). These publications are considered to be responses or invitations to respond to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. These reports also include cultural/social issues as well as fisheries management issues. Formal responses on management decisions research, monitoring and evaluation are provided. Formal responses consistent with formalised reporting and consultation processes such as the IPP/FAP process, the Stakeholder Consultation Process Standard or the National Fisheries Plan for Deepwater and Middle- Depth Fisheries and the annual Operating Plan for Deepwater Fisheries are always provided to stakeholders. A score of 100 is given.		

PI 3.2.2		**The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery under assessment.**		
e	**Guidepost**	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Y	Y	Y
	Justification	There are procedures and processes under Part 7 of the Fisheries Act that apply to disputes about the effects of fishing on the fishing activities of any person that has a current fishing interest provided for under the Act. The Act provides opportunities to negotiate and resolve disputes. The Minister may appoint a Disputes Commissioner and the Minister makes the final determination. However, this mechanism does not seem to be widely used. Rather, the consultation process is an attempt to avoid unresolved disputes by ensuring all interested parties have an opportunity to participate and have an input into decisions. There have been occasions when there has not been a satisfactory outcome and then this has gone to litigation and the Court has made a decision. The Memorandum of Understandings between the Deepwater Group Ltd and the MPI should encourage better working relationships, and avoid the need for litigation between the Ministry and industry. The management system is therefore subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the fishery. There are procedures and processes under Part 7 of the Fisheries Act that apply to disputes about the effects of fishing on the fishing activities of any person that has a current fishing interest provided for under the Act. The Act provides opportunities to negotiate and resolve disputes. Co-operation and partnership between the Ministry and Industry has been successful in pre-empting disputes. The management system is therefore attempting to comply in a timely fashion within binding judicial decisions arising from any legal challenges. The 'inform and assist' compliance model, as well as the co-operation and partnership between the Ministry and Industry have been successful in pre-empting disputes. MPI Compliance acts proactively in providing education and awareness programmes, fact sheets and meetings with management and industry. MPI Compliance also works collegiately with the fishing industry to proactively avoid legal disputes. A score of 100 is given.		
References		Fisheries Act 1996 MFish 2009a MFish 2010 l MFish 2011b		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues for the 60 and 80 scoring guidepost are met as is two of the three for the 100 scoring guidepost.				**95**
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 3.2.3

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	Y
		The Hake management system has a comprehensive and effective monitoring, control and surveillance system. 1. **Satellite Vessel Monitoring System**. All New Zealand fishing vessels exceeding 28 m in overall length must participate in the compulsory satellite Vessel Monitoring System (VMS) and carry and operate on board an automatic location communicator (ALC) (see Fisheries (Satellite Vessel Monitoring) Regulations). Both the vessel operator and the vessel master must ensure that the ALC on board is in working order and is transmitting information. It is an offence to not have a working ALC on board, and the person in breach can be liable to a fine not exceeding $100,000 unless they can show that the breach occurred due to accidental mechanical or technical failure. 2. **Government observers** may be placed on board any vessel for the purpose of collecting information for fisheries research, fisheries management, and fisheries enforcement (Fisheries Act, ss 223-224). Observers may be placed on board to observe fishing and as well as any transhipment, and transportation, and collect any information on hake fisheries resources (including catch and effort information), and the effect of hake fishing on the aquatic environment (ss 223-224). Any person on board a fishing vessel who fails to provide reasonable assistance or hinders the observer in any way is committing an offence (s225). 3. **Accurate Reporting and Recordkeeping**. The Fisheries Act and Fisheries Regulations impose on all persons operating in the hake fisheries (including: fishers, masters and owners of vessels, and owners of premises, vessels or vehicles where fish is received, purchased, stored, transported, processed, or sold) record-keeping and recording requirements (Fisheries Act ss 187-195; also see Fisheries Regulations). The purpose of these requirements is to establish auditable and traceable records to ensure all catches are counted and do not exceed the ACE held by each operator (Fisheries Act s 190; also see Fisheries Regulations). Accurate reporting and recordkeeping also demonstrates effectiveness. Compliance with recordkeeping and recording requirements is essential to fulfil the fishers legal obligations in relation to the commercial fishing for hake (Fisheries Act ss 189-190; also see Fisheries Regulations).The required returns include: (a) catch, effort, and landing returns (CELR); (b) catch landing returns (CLR); (c) trawl catch, effort, and processing returns (TCEPR); and (d) non-fish and protected species catch return (NF-PSCR).		

<table>
<tr><td colspan="2">PI 3.2.3</td><td colspan="3">Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with</td></tr>
<tr><td></td><td>Justification</td><td colspan="3">Other measures include:
• fishing permit requirements;
• requirement to hold ACE to cover all target and bycatch species caught, or alternatively, to pay deemed values;
• fishing permit and fishing vessel registers;
• vessel and gear marking requirements;
• fishing gear and method restrictions;
• vessel inspections;
• control of landings (e.g. requirement to land only to licensed fish receivers);
• auditing of licensed fish receivers;
• control of transhipment;
• monitored unloads of fish;
• information management and intelligence analysis;
• analysis of catch and effort reporting and comparison with VMS, observer, landing and trade data to confirm accuracy;
• boarding and inspection by fishery officers at sea; and
• aerial and surface surveillance.

Thus, a monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.
A score of 100 is given.</td></tr>
<tr><td rowspan="3">b</td><td>Guidepost</td><td>Sanctions to deal with non-compliance exist and there is some evidence that they are applied.</td><td>Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.</td><td>Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.</td></tr>
<tr><td>Met?</td><td>Y</td><td>Y</td><td>Y</td></tr>
<tr><td></td><td colspan="3">Offences. The majority of offences against the Fisheries Act 1996 or any of the Fisheries Regulations are strict liability offences (s 240).
Defences. For offences against the Fisheries Act 1996 or any of the Fisheries Regulations, the offender has to satisfy a reverse onus and establish that the offence was outside their control, that they took reasonable precautions and exercised due diligence to avoid the contravention and, where applicable, they returned fish that was unlawfully taken and complied with all recording and reporting requirements.
Penalties - Penalties are very severe. They include:
- Monetary penalties and Imprisonment - Fines range $250 and $750 (for infringement-type offences)to more serious intentional offences that in addition to imprisonment for up to five years, include a fine up to $500,000 (ss 231, 233 & 252, also see Fisheries (Infringement Offences) Regulations 2001).
- Forfeiture of property. Upon conviction, any vessel and other property used in the commission of any of the more serious fisheries offences will automatically be forfeited to the Crown. This is subject of course to the existence of 'special reasons' (s 255 A-E).Forfeiture is in addition to other penalties imposed by the Court (s 256).
- Prohibition. Upon conviction of two or more separate fisheries offences the court shall, in addition to any other penalty imposed, prohibit, for a period of three years, from holding any licence or permit, engaging in fishing or fishing related activity and deriving any beneficial income from activities associated with the taking of fish (s 257).</td></tr>
</table>

PI 3.2.3		**Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with**		
	Justification	Sanctions are consistently applied if necessary. However, the preferred approach is to work collaboratively with industry to prevent non-compliance. Sanctions to deal with non-compliance exist, and are consistently applied. The MPI Compliance Group report that they do demonstrably provide effective deterrence. Major noncompliance is rare and, if detected, the penalties are very severe including fines, loss of vessel, and loss of quota. Vessels do not reoffend. A score of 100 is given.		
c	**Guidepost**	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Y	Y	Y
	Justification	The combination of rigorous legal requirements, traceable documentation, effective surveillance, landing and reconciliation of catch against ACE, catch documentation audits, and checks against past catch all lead to a very high degree of confidence in compliance. An external report of fisher compliance and perceptions of compliance found that compliance with the management system is good (Kazmierow et al. 2010.) The Ministry is currently working in collaboration with Industry on the Observer Programme and there is an acknowledgement that observers will play a greater monitoring role into the future in New Zealand Deepwater fisheries, with observers not just conducting scientific and biological sampling, but also used in mitigating risks. Currently, the MPI Compliance Business Group has 100 dedicated sea days. However, the MPI Observer Business coming back into the Field Services Business Group, coupled with enhanced maritime surveillance planning, use of defence assets and the six new navy vessels for domestic use, will see a substantially increased surveillance and monitoring effort in the deepwater fisheries, including a greater utilisation of observers. There is a designated liaison person acting between MPI and industry. Fishers cooperate, where necessary, with management authorities in the collection of catch, discard and other information that is of importance to the effective management of the resources and the fishery. A score of 100 is given.		
d	**Guidepost**		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	Although there has been evidence, in the past, of non-compliance in the hake fishery; e.g. 'trucking' and high grading, this has been investigated by MPI compliance. This is not considered to be systematic, and has been dealt with by MPI. Those vessels now have high levels of observer coverage. SG80 is met.		
References		DWG 2009 DWG 2011b		

PI 3.2.3	**Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with**	
	MFish 2009a MFish 2010e MFish 2010h MFish 2010i MFish 2010j MPI 2013f MPI 2013g	
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring issues of the 60, 80 and 100 scoring guideposts are met.		**100**
CONDITION NUMBER (if relevant):		

Evaluation Table for PI 3.2.4

PI 3.2.4		**The fishery has a research plan that addresses the information needs of management**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	There is a MPI Deepwater, Middle Depths and Aquatic Environment medium term research plan that provides a strategic approach to research, and includes timelines and priorities. A Research Co-ordinating Committee meets fisheries stakeholders annually to discuss, evaluate, and make recommendations on the direction of research that is to be conducted, that is based on the goals and objectives of Fisheries 2030, Statements of Intent, the National Fisheries Plan, and the Annual Operational Plan. The recommendations come from Research Planning Groups who contribute to the process in regards to specific research areas. The MPI, in collaboration with the DWG, has developed and implemented a 10-Year Research Program for deepwater fisheries. The research programme focuses on research to monitor and assess stock status, and research to monitor interactions with the marine environment. Fisheries research falls into several key areas, each of which has its own specific goal. These research areas and associated goals are: (a) Fisheries Resources - to provide the information on sustainable yields and stock status required for the sustainable utilisation of New Zealand's fisheries resources; (b) Harvest Levels - to determine the nature and extent of commercial and recreational catch, Maori customary take, illegal catch, and fishery induced mortality; (c) Cultural, Economic, and Social Research - to provide information on cultural, economic, and social factors that may need to be considered in the management decision-making process to enable people to provide for their social, economic and cultural well-being; and (d) Traditional and Customary Research - to provide information on the traditional and customary factors that may need to be considered in the management decision making-process to enable the Minister to discharge his/her obligations to tangata whenua under the Deed of Settlement and the Treaty of Waitangi (Fisheries Claims) Settlement Act to enable Maori to provide for their traditional and customary well-being. The research programme also has the flexibility to deliver one-off specific research projects to address particular management requirements. The hake fisheries are included in this programme and the research has been planned and contracted for delivery for the ten year period starting in 2010-11. Reports are released into the public domain. As a comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2, this SI meets the 100 level.		

PI 3.2.4		**The fishery has a research plan that addresses the information needs of management**		
b	**Guidepost**	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	Y	Y
	Justification	The Middle Depths and Aquatic Environment Medium Term Plans are readily available, and stakeholders provide input into these plans. The Working Group meetings where research results are discussed are scheduled at the start of the year so that all can be aware of upcoming timeframes. There is a MPI Deepwater, Middle Depths and Aquatic Environment medium term research plan that provides a strategic approach to research, and includes timelines and priorities. A Research Co-ordinating Committee meets fisheries stakeholders annually to discuss, evaluate, and make recommendations on the direction of research that is to be conducted, that is based on the goals and objectives of Fisheries 2030, Statements of Intention, the National Fisheries Plan, and the Annual Operational Plan. The recommendations come from Research Planning Groups who contribute to the process in regards to specific research areas. Regular research projects are planned and contracted to monitor the environmental effects of deepwater fishing activity on the marine environment. The MPI research planning process ensures that results are disseminated to all interested parties in a timely fashion. Research is planned, discussed and evaluated in the Deepwater, Middle Depths Working Group and Aquatic Environment Working Group (which are results-focused) in a timely fashion. Plans and results are widely disseminated – all Plans from goals and objectives of Fisheries 2030, Statements of Intention, the National Fisheries Plan, & the Annual Operational Plan, are readily available and stakeholders provide input into these plans. Research results are reported in publically available reports and articles, press statements to media. Working groups are open to any stakeholder to join and meetings are simarily open. Working group members are all able to provide feedback on work presented to the group. This SI meets the 100 level.		
References		DOC 2102 MFish 2010c MFish 2010d MFish 2010k MFish 2011a MFish 2011e MPI 2013e		
OVERALL PERFORMANCE INDICATOR SCORE: All the Scoring guideposts are meet for 60, 80 and 100.				**100**
CONDITION NUMBER (if relevant):				

Evaluation Table for PI 3.2.5

PI 3.2.5		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives** **There is effective and timely review of the fishery-specific management system**		
Scoring Issue		SG 60	SG 80	SG 100
a	**Guidepost**	The fishery has in place mechanisms to evaluate some parts of the management system.	The fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	Y	Y	Y
	Justification	The management system has internal processes to evaluate management performance. These include evaluations of policy, research, operations, compliance and enforcement. The stock assessment process is rigorously reviewed. The development and implementation of the Fisheries Plan framework – National Deepwater Plan, fishery specific chapters, Annual Operational Plan and Annual Review Report – ensures there is a structured process to ensure the performance of the fishery specific management system against its objectives. There is full stakeholder engagement on the development of all components of the Fisheries Plan framework and all documents are publicly available. The Ministry implements a comprehensive peer-review process for all science research that is used to inform fisheries management decisions. In addition to the recently-released Research Standard it also includes: (a) a range of science working groups which include members of the scientific community, research providers, commercial fishers, fisheries managers and environmental stakeholders (b) the availability of all peer-reviewed and accepted research papers to the wider public; and (c) options for independent and external peer-review of novel or contentious research. Thus, mechanisms are in place to evaluate key parts of the management system. The management system has internal processes to evaluate many, but not all, aspects of management performance. These include evaluations of policy, research, operations; compliance and enforcement (see MFish (2011) Statement of Intent, 2011-14; MFish (2010) Statement of Intent, for the period 1 July 2010 to 30 June 2015; MFish (2010) National Fisheries Plan for Deepwater and Middle-depth Fisheries. Part 1A & 1B). In addition, the planning process, which includes both the development and implementation of fisheries plans (Fisheries 2030, Statements of Intention, the National Deepwater Plan, the Annual Operational Plan & and Annual Review Report) is not only driven by Goals and objectives, it also ensures the performance of the fishery specific management system conforms to its goals and objectives. DWG have mechanisms in place to evaluate all parts of the management system and is subject to regular internal and external review. MPI and DWG have in place mechanisms to evaluate all parts of the management system. A score of 100 is given.		
b	**Guidepost**	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.

PI 3.2.5		**There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives** **There is effective and timely review of the fishery-specific management system**		
	Met?	Y	Y	N
	Justification	The Ministry implements a comprehensive peer-review process for all science research that is used to inform fisheries management decisions. In addition to the recently released Research Standard it also includes: (a) a range of science working groups which include members of the scientific community, research providers, commercial fishers, fisheries managers and environmental stakeholders (b) the availability of all peer-reviewed and accepted research papers to the wider public; and (c) options for independent and external peer-review of novel or contentious research The harvest strategy was subject to external review. However there has not been a review of the hake stock assessment in recent times. The fishery-specific management system is subject to regular internal and occasional external review. This SI meets the 80 SG.		
References		MFish 2010d MFish 2010f MFish 2010k MFish 2010l MFish 2011b MFish 2011e MPI 2012a MPI 2012b MPI 2013f		
OVERALL PERFORMANCE INDICATOR SCORE: All of the scoring guideposts meet the 60 and the 80 and one of the two at 100 level.				**90**
CONDITION NUMBER (if relevant):				

Appendix 1.2 Conditions

None raised

Appendix 2 Peer reviewers reports

Peer Reviewer A

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	**Yes/No Yes**	**Conformity Assessment Body Response**
Justification: **The report clearly lays out rationale for the scores given and reaches an overall conclusion appropriate to the information presented.**		

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	**Yes/No NA**	**Conformity Assessment Body Response**
Justification: **No conditions were raised.** **The single recommendation made usefully addresses an important knowledge gap relevant to ETP species (seabirds).**		

If included:

Do you think the client action plan is sufficient to close the conditions raised?	**Yes/No NA**	**Conformity Assessment Body Response**
Justification: **No conditions were raised.**		

General Comments on the Assessment Report (optional)
Minor and primarily editorial comments have been included on the draft report.

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
Example:1.1.2	*No*	*No*	*NA*	*The certifier gave a score of 80 for this PI. The 80 scoring guidepost asks for a target reference point that is consistent with maintaining the stock at Bmsy or above, however the target reference point given for this fishery is Bpa, with no indication of how this is consistent with a Bmsy level.*	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	Yes	Yes	NA	Ministry for Primary Industries' Plenary Reports reflect the best available information describing the status of New Zealand commercial fish stocks. The information used to assess stock status is drawn from these reports. Stock assessments captured in plenary reports are conducted by contracted scientists and reviewed by a working group process open to all stakeholders. Stock assessment results convey confidence intervals which relate to the certainty levels required in assessing the scoring issues (e.g., a high degree of certainty).	
1.1.2	Yes	Yes	NA	The scoring justification provides sound rationale for the scores given. In 1.1.2 (c) the dominant precautionary issue considered appears to be the imperfect information base on the fishery and population, rather than ecological context *per se*.	
1.1.3	Yes	Yes	NA	As the assessed stocks are not depleted, this PI is not scored.	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.2.1	Yes	Yes	NA	The Harvest Strategy Standard provides a clear framework for stock management, including identification of targets and limits. As highlighted in the scoring justification, it cannot be considered fully evaluated as yet.	
1.2.2	Yes	Yes	NA	The scoring rationale could reflect that (while recognising actual catch is lower) model projections to 2017 undertaken using the current HAK4 TACC cause the stock to decline just below the management target (and toward the soft limit at the lower end of the 95% credible interval), i.e., B_{2017} as a percentage of B_0: 38.1 (22.0–57.2). Adjusting the TACC may be appropriate, especially if catches increase in future.	Agreed, we have added text to PI 1.1.1 to reflect this, as we feel the comment is better directed there.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.2.3	Yes	Yes	NA	In highlighting relevant areas of incomplete information under scoring issue 1.2.3(a), the scoring justification could also refer to the sources of key uncertainties in stock assessments, e.g., little fishery-independent abundance information in HAK 7.	Agreed, but we note that this issue is already captured under 1.2.3b "Surveys in HAK7 have been intermittent and 'one off', limiting the time series available; only two Tangaroa surveys (2000 and 2012) were included within the latest assessment, supplemented by a commercial CPUE time series."
1.2.4	Yes	Yes	NA		

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.1.1	Yes	Yes (except 2.1.1(d))	NA	In my view, silver warehou (SWA 4) should be considered under 2.1.1(d) (or the rationale for its exclusion presented). It is identified as a 'main' retained species for HAK 4 in section 3.7.2.1. While some biomass estimates have been produced, the MPI Plenary Report is clear that the status of this stock is unknown, and the sustainability of the current TACC (and catch level) is also unknown.	We disagree with this comment, noting that 2.1.1d forms part of the SG60 hierarchy text in the MSC CR, and hence would be scored if a main stock were considered only likely to be within biologically based limits. Given that SWA4 is part of the TACC process, we have covered SWA4 under 2.1.1a for the reasons articulated in that section and considered it highly likely to be within biologically-based limits. As noted in the scoring guidepost text for 2.1.1.a (80) "Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below)." As noted we recommend that the level of

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.1.2	Yes (except 2.1.2(e))	Yes	NA	The revised National Plan of Action-Sharks was finalised in 2013. Therefore, text for scoring issue 2.1.2e can now be updated. See: www.mpi.govt.nz/Default.aspx?TabId=126&id=2126	Agreed, the NPOA was finalised following the submission of the review draft. The text has been updated. accordingly.
2.1.3	Yes	Yes	NA		
2.2.1	Yes	Yes (except 2.2.1(c))	NA	The approach to characterising bycatch species is well explained and reasonable, given the information available. It seems to me that 2.2.1(c) should be scored, as it relates to all bycatch species (not just main species). If not scored, rationale for considering this scoring issue to be not applicable should be included.	We agree with this comment, and have reduced the score accordingly.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.2.2	Yes	Yes	NA	2.2.2(c): Are there any examples where a species of no commercial value has been transitioned into the QMS? This would add weight to the body of evidence demonstrating the efficacy of the partial strategy.	While QMS introduction is generally focused on species of direct or indirect commercial interest (and thereby aims to gain better information on their catch levels and hence sustainability), we note that many of these fisheries are relatively small-scale. An example is added to the text.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.2.3	Yes	Yes (except 2.2.3(d))	NA	In my view, given the data recorded by observers, ensuring adequate levels of ongoing observer coverage should ensure that sufficient detail is available to assess ongoing mortalities to all bycatch species (assessed in 2.2.3(d)). Confirming that there are adequate levels of observer coverage, and that the data collected are examined, seems more important than the availability of fishery-independent information (such as trawl surveys) for this scoring issue.	We agree that the observer information is key to this component, however assessment of ongoing mortalities at SG100 includes all species (beyond the main species of SG80) and according to the MSC CR must also include those that die as a result of unobserved mortality, which cannot easily be identified from observer data alone and needs fishery-independent information to support it in this fishery. We have clarified this in the scoring table.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.3.1	No	Yes	NA	Information, including estimated captures, is now publicly available for seabird and marine mammal bycatch, to the end of the 2010/11 fishing year (https://data.dragonfly.co.nz/psc/v20121101/birds/hake-trawl/all-vessels/eez/all/; https://data.dragonfly.co.nz/psc/v20130304/new-zealand-fur-seal/hake-trawl/all-vessels/eez/all/). Noting the requirement of the NPOA-Seabirds (i.e., that seabird species identified as at very high or high risk of having commercial fisheries bycatch exceed population sustainability limits should be managed to a lower risk category by 2018-see text edits in section 3.7.2.3) would be useful. Similarly, requirements of the National Plan of Action-Sharks should be considered, to the extent that these relate to ETP shark species. For scoring issue (b), most captures reported by observers since the 2003/04 fishing year to 2011/12, for which a capture method has been reported, have been net captures (25), followed by warp or door (4) and paravane (4) captures (Source: https://data.dragonfly.co.nz/psc/).	Noted, these further references have been added to the text of this PI as well as PI2.3.3 where relevant to information.
2.3.2	Yes	Yes	NA		
2.3.3	Yes	Yes	NA		

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.4.1	Yes	Yes	NA		
2.4.2	No	Yes	NA	Scoring issue (a): The Marine Reserves Act (1971) seems to be the Act intended here, rather than the Reserves Act (1977) which focuses on terrestrial land areas. Scoring issue (b): There was a proposal to review BPAs in 2013, which has not as yet been progressed. The 2014 hoki fishery audit report refers to this.	Text has been added/adjusted based on these comments.
2.4.3	Yes	Yes	NA	I would consider the benthic survey work completed in NZ's EEZ to be extensive, rather than comprehensive. Significant knowledge gaps remain.	The text has been changed based on this comment.
2.5.1	Yes	Yes	NA		

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.5.2	Yes	Yes	NA		
2.5.3	Yes	Yes (except 2.5.3(e), for HAK 7).	NA	Sufficient information is available to develop strategies to manage impacts on some ecosystem components (e.g., seabirds). However, where ecosystem characteristics are less well known, developing effective strategies to manage impacts on these systems is challenging. On that basis, in my view, HAK 7 should be scored N for scoring issue (e), or, additional rationale provided to support the current score.	We take this comment to reflect the more sporadic nature of the fishery-independent surveys undertaken in HAK7. We note this issue under 2.5.3d and mark this unit of certification 'down' accordingly. This is consistent with the approach taken for e.g. 2.2.3, where we note that information available is sufficient to support the development of strategies to manage ecosystem impacts, but the sporadic nature of the HAK7 survey means that monitoring (in this case of impacts on both components AND ELEMENTS of the ecosystem) is insufficient.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.1.1	Yes	Yes	NA		
3.1.2	Yes	Yes	NA	Rationale for scoring issue (c) could also mention MPI's environmental engagement forums.	The text has been chnaged to include this comment.
3.1.3	Yes	Yes	NA	This PI could note the annual review of performance, and delivery on objectives, provided by MPI's annual review reports, e.g., for deepwater fisheries: www.mpi.govt.nz/Default.aspx?TabId=126&id=1827 and http://deepwater.hosting.outwide.net/wp-content/uploads/2014/03/MPI-2013-Annual-Review-Report-2012-13-ARR.pdf	The text has been changed to include this comment.
3.1.4	Yes	Yes	NA		
3.2.1	Yes	Yes	NA		

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.2.2	Yes	Yes	NA	Rationale for scoring issue (a) could also refer to the working group process, i.e., how scientific information is incorporated into management. For scoring issue (c), identifying key outcomes from the FAO document and comparing those to the Fisheries Act provisions would be useful. Fisheries Act s10 (d), included in the justification for scoring issue (c), could be considered as not in support of managing according to the precautionary principle, when information is lacking.	Comments noted and changes to text made.
3.2.3	Yes	Yes	NA		
3.2.4	Yes	Yes	NA	Scoring issue 3.2.4(b) could reflect that working groups are open to any stakeholder to join and meetings are similarly open. Working Group members are all able to provide feedback on work presented to the Group.	Comments noted and text added

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.2.5	Yes	Yes (except 3.2.5(a))	NA	Scoring issue (a): The rationale includes the sentence "The management system has internal processes to evaluate many, but not all, aspects of management performance", but a score of 100 is given. This seems to be on the premise that the score of 100 is met by the combined work programmes of the Deepwater Group and the Ministry – i.e., issues not addressed by the Ministry are addressed by the DWG. It would be useful for the text to clarify that this is the case. (b) Note that the working group reviews stock assessments, and so it may only be the external review component that is lacking there. The Annual Review Report provides another form of internal review, of the performance and delivery of the management system.	The Peer reviewers comments/suggestion have been taken into account and the text revised accordingly.

Any Other Comments

Comments	Conformity Assessment Body Response
There appeared to be one consistency issue in the report around the assessment of partial strategies and strategies across scoring issues. In PI 2.4.2, scoring issue (a) identifies whether a partial strategy or a strategy is in place. Scoring issue (d) is based on a strategy (which is not considered to exist in this case, and the scoring issue is not assessed). However, in previous situations (e.g., PI 2.1.2, scoring issues (a) and (d); PI 2.2.2, scoring issue (a), (c) and (d)), the assessment of 'strategy' scoring issues continued in cases where only partial strategies were considered to be in existence. Including a list of scientific names of species discussed (e.g., by adding a column in Table 14) in the report would add clarity.	The text for 2.4.2d (which was consistent with that for the hoki assessment) has been updated to provide better justification for the scoring. Latin names have been added to Table 14

INTERTEK FISHERIES CERTIFICATION (IFC)

Peer Reviewer B

Overall Opinion

Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?	Yes, subject to clarification on points raised	**Conformity Assessment Body Response**
Justification: In general, yes, the assessment team has arrived at an appropriate conclusion based on the evidence presented. Specific comments are made with respect to PIs in the scoring assessment, below (and particularly with respect to some P1 and P2 PIs), and clarification on those points is required. Assuming that the information is provided and the data (for example on retained and bycatch species) show what is expected, the fishery should still proceed through to assessment without conditions of certification.		

Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe?	N/A	**Conformity Assessment Body Response**
Justification: There are no conditions raised in any of the three UoCs, and this appears to be appropriate.		

If included:

Do you think the client action plan is sufficient to close the conditions raised?	N/A	**Conformity Assessment Body Response**
Justification: There are no conditions raised in any of the three UoCs, and therefore a CAP is not required, and this appears to be appropriate.		

For reports using the Risk-Based Framework please follow the link. N/A

For reports assessing enhanced fisheries please follow the link. N/A

General Comments on the Assessment Report (optional)

1. The Executive Summary does not describe the fishery – there is no indication of what gears are used, where the fishery operates, how much of the target species is taken and what other species are taken

as incidental catches. It would be very useful for readers to have that description before being presented with the scores for 3 UoCs (and what do the acronyms HAK1, HAK4 or HAK7 mean?).
We note that this information is contained within the later sections, in particular Section 3. This conforms to the standard template provided to CABs.

2. Section 3.3.1. The report states "*The fleets for the deep and mid-water fisheries of hake consist of semi-pelagic trawls*" but then goes on to describe Alfredo and Korean bottom trawl net designs. Please clarify if the fleets use only semi-pelagic gears or a combination of bottom trawl and semi-pelagic gears.
Clarified in the text.

3. Section 3.3.1. It is noted that "*An unpublished report written by Baird, et al. (2002) on the spatial extent and nature of mobile bottom fishing methods within the New Zealand EEZ, 1989-90 to 1998-99 provides further data on trawl gear types.*" But, unless it is available (i.e. published), this report is not useful. In any case, the citation for Baird *et al.* 2002 is not provided in the reference list.
Reference removed.

   Table 1 source is Foster 2014. This is missing in the reference list.
   Noted as pers. comm.

4. Table 3. As well as individual years, it would be interesting/helpful to see the mean landings for the last 10 years of the fishery, or maybe since the 05-06 season, since when TACs have remained constant in the 3 HAK areas.
   These are available on the MPI website, and to ensure the report is not overly long is not reproduced here.

5. Section 3.4.3.1. Please define/describe 'survey q'.
   Word 'catchability' added.

6. Section 3.4.3.2. Please define/describe the parameters aL and aR.
   Noted as other selectivity function parameters.

7. Section 3.4.3.2. Please define/describe the acronym CAY.
   Noted as Current Annual Yield.

8. A lot of the language in the introductory stock assessment sections (i.e. 3.4.3.1 – 3.4.3.3) is complex and insufficiently well explained for non-specialists to understand. For example, "*So because biomass from only 54% of the WCSI hake habitat was included in the indices, the Chatham Rise prior on μ was modified accordingly (i.e., 0.16 × 0.54 = 0.09), and the bounds reduced to [0.01, 0.25]. Priors for all selectivity parameters were assumed to be uniform*". The use of simpler language, rather than more information, appears likely to be helpful to most people.
   The language is taken directly from the stock assessment documents, and reflects the scientific advice available to the stakeholders and to the Assessment Team as evidence to support the scorings provided. In this main document section it provides background to support the decisions made within the scoring guidepost table.

9. Section 3.5.1. Please state what the hard and soft limits are in the text.
   The text has been expanded slightly to note that the soft limit acts as a trigger reference point for action to avoid the stock reaching the hard limit reference point. As already noted in the text, at the hard limit the fishery will be considered for closure.

10. Section 3.7.1. As there are ongoing studies of seabed habitats, including ones that are 'expanding knowledge of distribution of cold water corals', it is not clear how the statement "*The location of key vulnerable habitat types (smokers, hydrothermal vents etc.) is known.*" is justified.

Clarified by adding the word 'other' to the second sentence.

11. Section 3.7.1. The report states "*The rate of recovery depends on the nature of the benthic habitat, with more mobile sediments such as mud and sand in high energy environments recovering faster than, for example, rocky sediments with slow growing organisms in low energy environments ... In the Chatham Rise and sub-Antarctic regions, the majority of trawling is within higher-energy sediments such as sandy silt and clay, although some lower-energy areas exist in these regions*". In general, I would expect 'high energy' environments to occur in either shallow waters (i.e., less than 100 m depth) where wave energy extends to the seabed, or in areas of strong currents. Mud or silt is also more typical of low energy environments. More information to justify the statement in the report that the majority of the trawling is within higher-energy sediments is required.
    A cross-reference to section 3.7.2.7 has been added.

12. Section 3.7.1 The report states "*The impact of trawling for conservation and species diversity/persistence can be limited if trawling affects small proportions of a habitat type within an area."* I agree, but is there any information available on the time taken for recovery in these areas?
    Within this Assessment we focus more on whether the analyses available suggest there is sufficient area left 'untrawled'. A cross-reference to section 3.7.2.7 is again added.

13. Section 3.7.1. The report states "*The New Zealand Government closed 17 BPAs (Benthic Protection Areas) within the New Zealand EEZ (Exclusive Economic Zone) to bottom trawl fishing methods in perpetuity as of late 2007 ... Demersal trawling and dredging is prohibited in these areas (pelagic fishing and demersal longlining being allowed)*". As at least some of the gear used in the hake fishery is semi-pelagic, so do these BPA closures extend to the hake fishery?
    See Section 3.7.2.7.

14. Section 3.7.2. This states that Ministry of Fisheries observer data are available, and that these provide accurate and verifiable information on catch weight for all QMS and non-QMS species caught. However, Table 6 does not indicate which are retained and which are bycatch (i.e. discarded) species, does not provide quantities or a percentage of each species relative to the hake catch, and is only for the top 10 species (how is 'top ten' defined – by weight??). This lack of information prevents the reader from understanding which are main retained or main bycatch species, and whether or not there are more species that should have been considered as 'main'. There is also no indication of what period these data were collected over. Some of this information is provided in Table 7 but, still, Table 7 provides no indication of whether these species and quantities are retained or bycatch, or some combination of both. It would be simplest and clearest to extend Table 6 and provide totals for all species taken down to a sensible minimum contribution (noting that Table 7 provides information on stock derivation).
    Within Table 6, non-QMS species (which are not required to be retained, a point which has been added to the Table heading) are noted with a *.
    Clarified that the top 10 are defined by weight.
    We note that the paragraph above the table states "The top ten species (retained and bycatch) within hake-targeted trawl fisheries by management area, based upon observer data from a five-year period from 2007/08 to 2011/12. Proportion of QMS species in catch by weight noted".

15. Section 3.7.2.1. Please define '6th schedule species'?
    Clarified as Schedule 6 of the Fisheries Act 1996

16. Section 3.7.2.1. Please explain the 'tier' system of stock assessment approaches.
    Text added to clarify this.

17. Section 3.7.2.1. The report states that a Productivity – Sensitivity Analysis (PSA) was carried out. This is somewhat confusing as a PSA is also a term used specifically by the MSC, with respect to the

risk-based framework. It is presumed that this is not what is being referred to here, but a quick clarification point would be helpful.
PSA is a tool used fairly widely to identify vulnerability, and is comparable to the type of analysis performed within one step of the RBF of MSC. No change required.

18. Section 3.7.2.3. The report states: "*General mitigation approaches that are being employed by trawlers, supported through legislation, include voluntary industry-led codes of practice*". What do these voluntary codes of practice entail?
Phrase "detailed in Vessel Management Plans" added

19. Section 3.7.2.3. Please define 'Level 2 risk assessment?'
Described and reference to Hobday et al., 2007 added.

20. Section 3.7.2.7. Figures 3, 4 and 5 are somewhat useful but they would more useful if they included the fishing areas or, even better, summary trawl VMS data, in order to allow readers to see where the fishery was working in comparison to habitats.
A figure (Figure 8) and reference to the location of the documents on the DWG website has been added.

21. Section 3.7.2.7. A figure showing fishing activity (e.g., summary VMS data or hours fished by grid square) would be a very useful addition to the report. At present, readers are given no indication of where fishing occurs except on a gross scale.
See response to comment 20.

22. Section 4.1. It is stated that harmonization between the hake, fishery and the ling and hoki fisheries has occurred (e.g. "*Consistency of outcomes has been ensured*" and "*Conclusions, where appropriate, are consistent between the three fisheries with respect to evaluation, scoring and conditions*"), but no evidence has been provided. A table showing scores and providing reasons for any substantial differences would be useful.

    MSC requirements state that "where an assessment overlaps with a certified fishery or fishery in assessment that a CAB has already scored, the team shall base their assessment on the rationale and scores detailed for the previously scored fishery". In this case the CAB has taken into account the certified hoki fishery and the under assessment ling fishery.
    Further the MSC requirements state "to achieve harmonisation, CABs shall undertake the following key activities:
    a. The use of complementary assessment trees.
    b. The sharing of fishery information.
    c. The achievement of consistent conclusions with respect to evaluation, scoring and conditions.".This has been done and
    CI3.2.3.3 says "The team shall explain and justify any difference in the scores in the scoring rationale for relevant PIs." There are no substantial differences in the scores for these fisheries for relevant PIs.
23. A number of typographic mistakes were spotted in the report. These were highlighted and the report returned to the authors.
The text has been amended to correct these errors

INTERTEK FISHERIES CERTIFICATION (IFC)

Performance Indicator Review

Please complete the table below for each Performance Indicator which are listed in the Conformity Assessment Body's Public Certification Draft Report.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
1.1.1	No (UoCs 1 and 3) Yes (UoC 2)	No (UoCs 1 and 3) Yes (UoC 2)	N/A	UoC 1. Section 3.4.3.1 states "However, the lack of contrast in abundance indices since 1991 indicates that while the status of the Sub-Antarctic stock is probably similar to that in the early 1990s, the absolute level of current biomass is very uncertain" and "Horn 2013a.... While the stock status appears to be reasonably well defined, estimates of past and current absolute stock size are very uncertain owing to poor contrast in the relative abundance series." Its is not clear therefore that the fishery meets SIb SG100: "There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.". A score of 90 (SIa Yes, SIb No) seems appropriate for this UoC. UoC 3. Section 3.4.3.3 implies some uncertainty in the assessment, but the scoring text for PI 1.2.3 provides more detail. That states: "*No time series of survey biomass indices are available for the west coast South Island stock, and CPUE indices calculated for the stock have previously been*	We disagree for both UoC. While the stock assessment documents indicate the uncertainties within the assessment, as appropriate, the stock status results reported in the Plenary document as reviewed by the Fisheries Assessment Working Group, represent the agreed best scientific advice on the stock status relative to agreed limit and target reference point levels and are used as the basis for management decisions. This information forms the basis for the commentary for PI1.1.1 as a result. We note that key (but not all, as noted under 1.2.2) uncertainties are included within the advice provided through the use of probability estimates of status. The results are consistent with the scorings given.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				uncertain. The series analysing observer estimated tow-by-tow data from 2001 to 2011 was selected. It was believed that this series, incorporating catch data after the establishment of the deemed value system, was the least likely to be biased owing to variation in fishing behaviour and catch reporting behaviour. Issues with age data sampling across time and space were noted, leading to an under-estimate of uncertainty. The assessment was noted to be 'clearly uncertain' due to the requirement to be based primarily on a CPUE series." This implies that the fishery does not meet teh SG100 level for SIb. A score of 90 again appears appropriate for this UoC.	
1.1.2	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
1.1.3	N/A	N/A	N/A	N/A	
1.2.1	Yes (all UoCs)	Yes (all UoCs), subject to clarification	N/A	Section 3.5.1. The 2011/12 TACCs for all three hake fishing areas were set well above the level of reported catch in 2011/12. The report states: "*However, it is less clear that all current TACCs have been set at a sustainable level suggesting that TACCs may only be adjusted when a control on catch is required. Therefore, it is not clear how TACCs will respond to stock assessment results in future."* This feels like it contrasts with the score provided for PI 1.2.1 (*There is a robust and*	Given that this comment refers to the potential need to adjust TACCs in the future based on stock assessment results, we have added text that this should be monitored in future audits within section 3.5.1. This is also consistent with the suggestion by the other reviewer for HAK4, and we have also added text to PI 1.1.1.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				precautionary harvest strategy in place) of 95, and so a comment would be welcomed.	
1.2.2	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
1.2.3	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
1.2.4	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
2.1.1	No (all UoCs)	No (all UoCs)	N/A	There is no information provided in the report on the quantities of the retained non-target species in the different UoCs. At present, readers are informed which are the main retained species, and this looks to have been determined on the basis of weight as a percentage of catch (based on Table 7). However, while weight is an important criterion for 'main', the MSC GCR requires that vulnerability and value are also considered. In my opinion it is essential that readers are provided with catch data or observer data to allow them to determine if the decisions have been taken appropriately with regard to deciding which species are main or not. Further to this expectation that a list of all retained species and their catch quantities is provided, PI 2.1.1 SId SG60 does not specify only 'main' species. What measures or practices are in place that are expected to result in the fishery not causing the retained species (i.e., all retained species) to be outside biologically based limits or hindering recovery – N/A is not an appropriate answer,	Note response to earlier main-text comments and reference to the location of the full spreadsheet on the DWG website. Note we have also included an evaluation of the vulnerability of stocks when considering non-QMS species in particular (see section 3.7.2.1) We disagree with this part of the comment, noting that 2.1.1d forms part of the SG60 hierarchy text in the MSC Certification Requirements and hence would be scored if a main stock were considered only 'likely' to be within biologically based limits. That is not the case for the main species in this fishery.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				here, given the lack of other information.	
2.1.2	No (all UoCs)	No (all UoCs)	N/A	Understanding the scoring rationale here is again hampered by the lack of inrformation provided on catch composition. SId requires that there is a strategy in place, but SIa indicates that there is not a strategy in place. Assuming that information on catch composition reveals no surprises, a score of 85 is approproate.	See comments above. The score has been amended to 85
2.1.3	Yes (all UoCs)	Yes (all UoCs)	N/A	The score for this PI seems appropriate, but the rationale talks about information which is not presented to readers (i.e., catch composition).	See comments above.
2.2.1	No (all UoCs)	No (all UoCs)	N/A	Simialr to the comment on PI 2.1.1., there are no data provided on actual catch composition. The assertion that there is 'no consistent trend' in the bycatch data could, presumably, be easily backed up by providing the data. Also similar to PI 2.1.1, PI 2.2.1 SIc SG60 does not specify only 'main' species. What measures or practices are in place that are expected to result in the fishery not causing the bycatch species (i.e., all bycatch species) to be outside biologically based limits or hindering recovery?	See comments above. We disagree with this part of the comment, noting that 2.2.1c forms part of the SG60 hierarchy text in the MSC Certification requirements, and hence would be scored if a main bycatch stock were considered only 'likely' to be within biologically based limits. That is not the case here.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
2.2.2	No (all UoCs)	No (all UoCs)	N/A	SIc and SId require that a strategy is in place. As this is not the case (SIa), all UoCs can achieve no more than the SG 80 level of performance. It would be helpful to restate which species are considered to be main (even if there are none that are main by weight, PI 2.2.1 infers that there are main species by vulnerability), and focus on those species in the text. More information on how species outside the QMS syetem '*tend to be considered as low risk*', and which species are outside the system, would supoprt the scoring, here.	Score ammended to 80 A reference to PI 2.1.1. has been added, where only vulnerable species are considered (no species being 'main' species by weight). However, given 2.2.2 focuses on strategy, rather than specific stocks, the current text is viewed as appropriate. Agreed, we have re-arranged the text to clarify the process.
2.2.3	No (all UoCs)	Yes (all UoCs), subject to clarification on points raised		Again, it would be helpful to restate which species are considered to be main, here. SIb is not specific to 'main' species and so all species need to be considered. It is not clear if all species have been considered, however. More explanation is required of the statement "To date, trends in abundance have not been detected in any of the surveys. On this basis, information is sufficient to estimate relative abundance, as a proxy for biologically-based limits." as it is not clear how abundance estimates without trend may be a proxy for biologically-based limits. Is this intended	A reference to PI 2.1.1. has been added, where only vulnerable species are considered (no species being 'main' species by weight). As per earlier responses, scoring element (b) relates to the text under a), hence at the 60 and 80 level refers to (at least) the 'main' species. Agreed, we have clarified that negative trends in abundance have not been detected, and that the abundance estimates - in combination with estimates of species productivity (added text) may be used as a proxy for outcome with respect to biologically-based limits.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				to read "…as a proxy for being within biologically-based limits"?	
2.3.1	Yes (all UoCs)	Yes (all UoCs)	N/A	A reference or references for the statement "Recent reports indicated that the hake/hoki/ling fishery did not pose a great risk to coral." would be helpful.	While constrained by the MSC reporting layout that places all relevant references within the 'references' box, the specific reference is Baird et al. (2012), and is used within the main-text discussion in section 3.7.2.6
2.3.2	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
2.3.3	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
2.4.1	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
2.4.2	Yes (all UoCs)	Yes (all UoCs)	N/A	The report states in this section that "*For example, the work overlaying trawl tracks and habitat types is extremely informative...*". It is noted, though, that there is no graphical representation of the areas fished in comparison to habitat provided in the report! I agree that such a figure or figures would be informative, and shoudl be provided.	Agreed, a figure has been added (Figure 8) along with a reference to the documents on the DWG website to the main text.
2.4.3	Yes (all UoCs)	Yes (all UoCs)	N/A	As noted in another comment, a reference and clarification for the statement "*The location of key vulnerable habitat types (smokers, hydrothermal vents etc) is known*." would be helpful, particualrly given the latter statement that "*However, the extent*	See response to earlier comment.

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
				of habitat knowledge at sub-regional scales, including for vulnerable habitat types, is patchier".	
2.5.1	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
2.5.2	Yes (all UoCs)	No (all UoCs)	N/A	The rationale for SIa iis insufficient to justify a score of 100. The report states "There are no measures in place relating to ecosystem function specifically" while the MSC GCR states "A strategy ... should be designed to manage impact on that component specifically."A score of 80 is appropriate, however.	The text has been clarified to note that the partial strategy of TACCs and measures to control impacts on individual ecosystem components is built upon by a legislative framework that together form a plan. We feel that (consistent with the scoring for NZ hoki) this achieves the SG100 level.
2.5.3	No (all UoCs)	Yes (all UoCs)	N/A	Given this is in part at least a demersal fishery, a comment on any impacts of the fishery on ecosystem productivity and links to marine habitats may be appropriate.	Additional text on the impact of benthic trawling on ecosystem productivity has been added. We note that, given the specific layout of the MSC process, benthic habitat issues are dealt with under 2.4 and are not covered here.
3.1.1	Yes (all UoCs)	Yes (all UoCs)	N/A	PI 3.1.1., SIa states that "MPI is required to consult with those classes of persons having an interest (including, but not limited to, Maori, environmental, commercial and recreational interests) in the stock or the effects of fishing on the aquatic environment in the area concerned" An example of how and where this has happened may be useful.	Text has been added to give examples

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.1.2	Yes (all UoCs)	Yes (all UoCs)	N/A	PI 3.1.2., SIb states: "There is evidence that consultation occurs on a regular basis and that information provided by stakeholders is often taken into account.".. Similarly to PI 3.1.1, an example of how and where this has happened may be useful.	Example added to text
3.1.3	Yes (all UoCs), subject to clarification on points raised	Yes (all UoCs), subject to clarification on points raised	N/A	SG100 is marked 'P', usually meaning 'partial'. However, the summary score is listed as 100. Clarification is required, but the scoring rationale suggests that the 'P' should be a 'Y'.	Agree the P has been changed to a "Y"
3.1.4	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
3.2.1	Yes (all UoCs)	No (all UoCs)	N/A	PI 3.2.1 SG100 requires "Well defined and measurable short and long-term objectives ... are explicit within the fishery's management system". The report states: "However, the objectives tend to be high-level and not measurable", while scoring the fishery at 100. A score of 80, or possible a partial score, is more appropriate.	A partial score has been given
3.2.2	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
3.2.3	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	
3.2.4	Yes (all UoCs)	Yes (all UoCs)	N/A	N/A	

Performance Indicator	Has all the relevant information available been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	Justification Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.	Conformity Assessment Body Response
3.2.5	Yes (all UoCs)	No (all UoCs)	N/A	PI 3.2.5, SI a, SG100 requires that "The fishery has in place mechanisms to evaluate all parts of the management system." The report then states "The management system has internal processes to evaluate many, but not all, aspects of management performance", but SIa is scored 100. Clarification on this is required.	The text has been clarified and examples provided.

Any Other Comments

Comments	Conformity Assessment Body Response
None.	

Appendix 3. Stakeholder submissions

2009 Stakeholders Interviews

MSC Interview Record NZ EEZ Fisheries

IMM Attendees
Lead Auditor/Coordinator: Seran Davies

Team Members:
Geoff Tingley (Lead Principle 1), Graham Pilling (Lead Principle 2) and Jo Akroyd (Lead Principle 3)

Stakeholders:

Affiliation	***Representatives***
Greenpeace	*Karli Thomas (Oceans Campaigner)*
	Geoff Keey (Political Advisor)
ECO	*Barry Weeber (Co-Chair and Main Fisheries Specialist)*
	Cath Wallace (Co-Chair and Economist)
***Location**:*	*Ministry of Fisheries, Wellington, New Zealand.*

***Date**: 23rd July 2009*

2. Status
What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

eNGO

3. Stakeholder Key Issues
What, if any, specific substantive issues or concerns are identified regarding the fishery? (P1 – P2 – P3)
What information is available to allow us to determine the status of the fishery in relation to each issue?

P1
TACC is higher than the stock. TACC should be reduced. There is a verbal agreement to "shelve" the TACC i.e. they will not fish to the higher TACC.

These fisheries have areas where there are either none or very old stock assessments.

6A and 6R stock is unknown as there is no stock assessment. 6R was last assessed in 1998 based upon one ecosound reading. The biggest catch was through tracking of southern blue whiting (Japanese vessel in 2001).

There are no stock assessments for LIN 1 and LIN 2. HAK4 and HAK1 have reasonable assessments. HAK7 there is a problem with the fishery information. All of HAK7 needs to be acoustically assessed.

The extent to which New Zealand manages the TAC/TACC follows stocks enables the approach to effectively fish stocks right down.

Ambiguities within section 10 of the Fisheries Act.

P2

BPAs are not marine reserves and are not deemed as being suitable for protecting endemic biodiversity. Around ½ of these areas are located in areas where no fishing occurs. They therefore provide limited protection from a threat which historically does not occur there. Also, these BPAs are voluntary so industry could potentially revoke the non-fishing activity. It is considered that this industry led approach is actually undermining the actual MPA programme.

Bottom trawling cannot be considered as a sustainable fishing practice. Greenpeace require a broader definition of the term "destructive fishing" which should include bottom trawling, canyoning, dredging and drift nets.

Trawling is destructive and causes damage, has been reported by NIWA scientists that trawlers can "wander" into closed and protected areas such as sea mounts.

Bycatch of fur seals and sea lions within these fisheries.

The long line fleet have a large impact upon seabirds (range of petrels and albatross species). The trawl fishery is better managed to avoid bird with various forms of mitigation.

There are discrepancies in observer coverage across these fisheries.

Compliance issue with the non-reporting of bycatch species on boats which do not carry observers. The West coast hake and Ling fisheries, SBW, Campbell and Bounty Island fisheries all have marine mammal bycatch.

There is a large shark bycatch in the deepwater fisheries. Spiny dogfish in ling fishery (previously non QMS).

Concern that hake and ling are being certified "on the coat tails" of New Zealand hoki. Two independent review panels state that this (hoki) fishery should not have been certified.

P3

Hake has a high rate of juvenile catch both retained and discarded (run through fish meal plant). This is affecting small areas which are targeted and this calls into question how this is affecting stock.

High grading occurs within the hoki fishery.

Public access to fishery management is required. Management is currently deemed to be quite secretive and management documents are not within the public domain (no public engagement within the process). Section 12 of the fisheries act- no public right to be involved in management of fisheries.

Management is reliant on the fishing industry for money.

4. Other issues
(e.g. any other stakeholders we should contact, any written submissions to follow?)

Seran Davies
IMM Project Coordinator

INTERTEK FISHERIES CERTIFICATION (IFC)

MSC Interview Record NZ EEZ Fisheries

IMM Attendees
Lead Auditor/Coordinator: Seran Davies

Team Members:
Geoff Tingley (Lead Principle 1), Graham Pilling (Lead Principle 2) and Jo Akroyd (Lead Principle 3)

Stakeholders:

Affiliation	***Representatives***
Royal Forest & Bird Advocate)	*Kevin Hackwell (Advocacy Manager) and Kirstie Knowles (Marine Conservation*

Location*: Ministry of Fisheries, Wellington, New Zealand.*

Date*: 23rd July 2009*

2. Status
What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

eNGO

3. Stakeholder Key Issues
What, if any, specific substantive issues or concerns are identified regarding the fishery? (P1 – P2 – P3)
What information is available to allow us to determine the status of the fishery in relation to each issue?

The BPA's should not be considered very highly within this assessment. The position of them is incorrect and no research, knowledge of habitat or suitable benthos was undertaken to support them. RF&B do not agree that the BPA's address the protection of some of the hake, ling & SBW (Southern Blue Whiting) grounds. Research needs to be undertaken on the habitats and the BPA's should not be given much weighting within these EEZ fishery assessments.

High grading occurs within the NZ EEZ fisheries.

Southern Blue Whiting (SBW)
Key issues raised with regard to P2 but also some concerns regarding status of stock under P1. High catches of marine mammals (mostly NZ fur seals but also some NZ sea lions). The squid trawl fishery has the worst record for this and has a plan to rectify the situation. Argue to the contrary that the code of practice does not work. Murray Smith has undertaken modelling work on bycatch & Sophie Manual (NIWA). Bounty Islands pose the biggest risk area with large amounts of bycatch. Factors contributing to capture include turning whilst trawling plus the time of day when trawling takes place- these things are not picked up by the codes of practice. Also seasonal strategies do not come into play. This fishery has killed more mammals than the squid fishery. 95% of New Zealand Sea lions are breeding on the Auckland Islands. Louise Chilvers (DOC) and Igor Debsky (DoC)/Nathan Walker (MFish) have further information on this. Observer coverage is misaligned to the period of increased bycatch. Seabird bycatch is not particularly high but it is a diverse range of birds. There is potential underreporting of marine mammal bycatch.
In addition there are trophic impacts and habitat impacts associated with bottom trawling. The range of species caught as bycatch is not as well-known as from the hoki fishery.

Ling
Long line: Currently low level in NZ waters. Fishing occurs around the Bounty Islands in smaller vessels. Vessels over 28m have seabird mitigation in place. Ed Abraham has information showing high seabird bycatch from longline fishery (smaller vessels). Also sponges and corals are brought up from the seabed by the lines. There is a long history of misreporting from this Ling fishery.

Problem raised with Hoki are the same for hake and ling as it is the same fishery. There is a research paper on misreporting in the hoki fishery which also includes ling misreporting information (Philip Clarke, 2009). Other research includes information n the misreporting of observer documents (Tracey Batman (MFish) Richard Burns & Geoffrey Cove (Lincoln University), Graham Brewer (Dunedin).
Trawl
Issue with P2- fur seal bycatch. The SLEDS (Sea Lion Exclusion Devices) do not work for fur seals and this results in unacceptably high levels of fur seal bycatch.

Hake
The hake fishery has the same issues as identified for Ling. Problem with single species focus stock assessments (as hake, ling and hoki are all caught together e.g. hake/ling may be bycatch in the hoki fishery and vice versa. Issue therefore with the three overlap species of hoki, hake and ling.
Issue with process and transparency at the Ministry (MPI). Scientists' results and information are not always integrated into Ministry decisions especially with regard to ETP and habitats.
RF&B support real time catch reporting.
Bounty Islands has a serious fur seal bycatch problem. Some areas are good, but equally some are not e.g. no seabird standard in place etc. ENGO's contacted to comment by MPI. DW Fish plan (DWG & DWTeam) provided to RF& B to comment on but there was no scientific involvement & they do not consult with scientists internally.
There is no drive regarding the working towards minimising the bycatch. Aerial counts of fur seal populations are informative for distribution but cannot be used for abundance information. Boat based information undertaken in Fjordland (South Island) is the same.
Trawls should only go over old trawl areas- no expansion into new areas. For BPAS – areas of significance need to be identified as well as areas being put to one side to study the rate of recovery of the seabed from trawling in order to better understand the impact of the fishery.
NO MPAs are planned within NZ's EEZ until 2013. The considered approach for the MPA protection was squashed by the BPA plan.
RF&B would like to discuss the BPAs with DWG. MFish and DOC have been told to freeze all work due to the agreement for the BPAS.
Overview:
Issue with P2 for Southern Blue Whiting
Autoliners are ok within the longline fleet (but the small vessels are not- less regulations, more issues with bycatch etc)
With regard to the trawl fisheries, RF&B do not think that the hoki fishery met the MSC standard (although hake and ling are slightly better than hoki).

4. Other issues
(e.g. any other stakeholders we should contact, any written submissions to follow?)

Hugh Best (Marine conservationist) has 16 years worth of fur seal data.
Barry Weever (ECO) - key person to be contacted on fisheries stock assessments.
Louise Chilvers (DOC) and Igor Debsky (DoC)/Nathan Walker (MFish)
Murray Smith & Sophie Manual (NIWA)
Ed Abraham

Seran Davies
IMM Project Coordinator

INTERTEK FISHERIES CERTIFICATION (IFC)

MSC Interview Record

IMM Attendees
Lead Auditor/Coordinator: Seran Davies

Team Members:
Geoff Tingley (Lead Principle 1), Graham Pilling (Lead Principle 2) and Jo Akroyd (Lead Principle 3)

Stakeholders:

Affiliation	***Representatives***
WWF	*Peter Trott (WWF-Australia. Fisheries Programme Manager)*
	Rebecca Bird (WWF- New Zealand. Marine Programme Manager)

Location*: Talley's Seafood, Nelson, New Zealand.*

Date*: 24th July 2009*

2. Status
What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

eNGO

3. Stakeholder Key Issues
What, if any, specific substantive issues or concerns are identified regarding the fishery? (P1 – P2 – P3)
What information is available to allow us to determine the status of the fishery in relation to each issue?

There is no management in place for bycatch species (except if QMS) e.g. what about sharks? General harvest strategies are in place not specific to the fisheries themselves for appropriate reference points e.g. SBW.
There is not enough information on the habitat types e.g. % of areas fished and sensitivity level of habitat. Require demonstrable proof regarding impacts to trophic structure and ecosystem modelling.
There is not enough convincing evidence that seals will survive SLEDs. Critical injury and hypoxia may occur. SEDs are effective in other fisheries and should be introduced here in addition to the SLEDS.
Hake
Similar issues as for Hoki. Bycatch problems with fur seals, birds, sharks and skates. Issues with Trawl footprints. Concerns for hake stock on Chatham rise classified as overfished in last 5 years. Information is not causing concern for sub-Antarctic stocks.
Hake and Ling fisheries are not precautionary enough. Variability in stocks not considered.
Concerned that the harvest strategy is not tried and tested as it is a generic strategy.
There is an impact of this fisheries gear type on the habitat. The severity of this impact is not well known.
Discarding is occurring within the fishery predominantly of bycatch species (also happens with QMS species).
Monitoring & compliance: prosecutions are occurring due to high grading within the hoki fishery (same fishery as for hake). There is also a compliance issue with tracking the products fo this fishery.
There is underreporting present throughout the EEZ fisheries and the trawl fisheries have an issue with compliance.
Ling
Chatham rise is fully fished. There is limited information regarding stock status for west coast South Island.
Impacts of this fishery upon bycatch species are unknown also; discarding of bycatch is known to occur.
Inshore long lines have high interactions with seabirds and no effective mitigation nor codes of practice. Australian fisheries abide by CCAMLR regulations which are proving to be effective- suggest the same approach for NZ fisheries.
Southern Blue Whiting
There is an issue with the stock especially Campbell and Bounty stocks. Uncertainties in stock assessments also unknown stock trend. Damaging gear type used in fishery. Protected species are affected-especially around

the Bounty's e.g. sea lions, birds and other marine mammals. Model is based upon the squid fishery only (using information based upon sea lion capture). Not enough convincing information to suggest that the usage of the SLEDS is allowing survival (high percentage is suffering hypoxia or serious injury). Current on-going monitoring is not effective and further information is required.

4. Other issues
(e.g. any other stakeholders we should contact, any written submissions to follow?)

Seran Davies
IMM Project Coordinator

2012 Interviews

Site Visit - Stakeholder Meeting Checklist

Stakeholder Interview Record MPI deepwater and Science, MPI Compliance

Assessment Team	*Names*
Lead Assessor	*Jo Akroyd*
P1 Team Member	*Graham Pilling*
P2 Team Member	*Graham Pilling*
P3 Team Member	*Jo Akroyd*

Meeting Location	Wellington
Date	10th September 2013
Stakeholders Name	*Affiliation*
Jeremy Helson	*MPI – Deepwater*
Tiffany Back	*MPI – Deepwater*
Geoff Tingley	*MPI – Science*
Dean Baigent	*MPI – Compliance*
Geoff backhouse	*MPI – Compliance*

Comments:
Meeting 1. Deepwater and Science
Meeting 2 Compliance

2. Status
What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

MPI are the Managers of the NZ fisheries

3. IMM Assessment Team Questions
Assessment team questions for stakeholders

Deepwater and science
Please describe the processes involved in the management of the fishery and the activities involved relating to management of P1 and P2 species, as well as the processes relevant to P3.
Compliance
Please could you describe the compliance in these two fisheries, any concerns you have and any enforcement issues

4. Stakeholder Key Issues and responses

Deepwater and Science

- *With regard the process involved in setting the TACCs, the underpinning science was defined within the 10 year research programme, which holds for 5 years with a subsequent 5 year extension. The science is peer reviewed through the NZ working group structure and put forward to managers who consider options for TACC changes (including status quo) usually based upon constant catch projections of future status. These options undergo statutory consultation through the IPP (initial position paper) that allows the incorporation of stakeholder views and commentary. This consultation process is a requirement of the Fisheries Act. Based on consultation, final advice is then provided to the Minister. The final advice paper (FAP) includes information on the environmental impacts, biology of the stocks, ETP and bycatch, as well as multispecies issues. The IPPs and FAPs are placed on the website. Advice is probabilistic where feasible which was generally discussed in detail at the Working Group level.*
- *The criteria for the rebuilding period (less than twice the time that stock rebuilding would occur in the absence of fishing) was detailed.*
- *A paper by Dr Mace on the harvest strategy, as submitted to the MSC process for hoki, was noted.*
- *MPI provided details on the number of recent decisions on TACC change, their directions, and the level of support for these from the industry stakeholder*
- *The working relationship between MPI and DWG was described*
- *The consultation process on the 10 year research plan was described, including the consultation planning meeting in 2010*
- *Further examples of the process involved were noted through the NPOA seabirds and sharks process*
- *The QMS and tier levels of species were described, noting that the Fishery Plan provides the higher level goals that drive the Annual Operational Plan, progress on which is reported on annually (Annual report reviewing progress vs the Annual Operational Plan). The pattern of introduction of species into the QMS was described, noting the QMS Introduction and Final Advice Paper 2008*
- *The Official Information Act was also noted*
- *The role of the PBR within the management system was discussed. It was noted that the Fisheries Act (section 15(2)) presents an obligation on protected species, along with in*

section 9. However, neither presents specific numbers or statutory targets for specific protected species. In general, the Minister may take measures considered necessary to avoid, remedy or mitigate the effect of fishing on any protected species. PBR were considered to act as one indicator for action, rather than absolute trigger values. Trigger values are available under the Fisheries Act but require a formal process to be established. This has not occurred in the fisheries in question as it has been deemed unnecessary based on historical catch of protected species. It was noted that one interaction itself acts as a trigger for action. The AEWG has not reviewed the PBRs for key species (e.g. sea lions). Some PBRs have been reviewed by the AEWG Working Group; there are also more detailed Bayesian models for other sea lion populations that have been extensively peer reviewed. The exception is the sea lion PBR for the Campbell Islands southern blue whiting fishery (SBW6I).

- *The Science 2012 process aims to provide a better understanding of the risk that fisheries pose for other ETP species beyond seabirds (a risk assessment for which has already been completed). This project is currently running up to 2013 and was started in 2012. It will examine cumulative impacts on species as well as the risk posed by individual fisheries*
- *It was noted that the squid SQU6T has been closed in some years due to sea lion bycatch levels, based on assumed strike rates, so that sanction can be used in that fishery and could be extended to other fisheries if deemed necessary.*
- *The history of the BPAs and their utility was discussed, and the discussions undertaken as part of the recent hoki assessment were noted. MPI are monitoring the fishery footprint and inter-annual changes through statutory reporting of fishing positions and VMS (required on vessels >28m).*
- *Fishery plans for hake and ling (and SBW, ORH, JMA and HOK) have been approved by the Ministry and relate to management objectives,*
- *The pattern of trawl surveys, as detailed in the 10 year plan, was described. The importance of the surveys in the WCSI to support the fishery-based CPUE time series was noted.*

Compliance

- *Currently there are no particular compliance concerns with risk in the hake or ling fisheries*
- *MPI compliance are looking at wider compliance eg FCV reviews, corrective actions and culture on some of the fishing vessels.*
- *MPI compliance are working collaboratively with DWG to identify risks.*
- *There have been no recent compliance issues*
- *In 2007/2008 using MPI profiling and observed vs non observed data, misreporting between LIN 5 and 6 was identified. Three major operations took place involving Korean, Japanese and Russian vessels. This resulted in 3 prosecutions. It was the first time a co Director had been taken to court, sending clear signals that companies and Directors would be held accountable.*
- *Since then observers and profiling have confirmed that there is now minimal risk of this occurring however monitoring still takes place.*
- *A number of years ago trucking in Hake was identified as an issue involving ~1500t of hake per year, taken in HAK7 but misreported as having been taken in HAK4 and HAK1. An investigation was launched – it involved Korean vessels. Six vessels were prosecuted. There has since been close monitoring with good results. The catches were taken into account in the stock assessments.*

- *Hake and ling are now considered low risk fisheries; this has been largely attributed to a change in behavior in foreign charters.*
- *Any minor compliance issues are brought to the attention of the DWG who have the opportunity to work with the company or vessel to resolve an issue. If this is not resolved satisfactorily then target specific vessels will be targeted and if no behavioral change, will be prosecuted if it is a deliberate criminal offence, repetitive or serious.*
- *the "VADE" (Voluntary, Assisted, Directed, Enforced) compliance model seems to be working well and it was emphasized that hake and ling are not considered a compliance risk*

6. Closing

IMM Lead Assessor:

- *Summary of key points – stakeholder to confirm in writing (sign if hard copy)*

7. Confirmation of record of meeting:

IMM Lead Assessor Signature: ***Stakeholder Signature:***

16/09/13 By email

Stakeholder Interview Record NZ Hake and Ling : NIWA 10th September 2013

Assessment Team	*Names*
Lead Assessor	*Jo Akroyd*
P1 Team Member	*Graham Pilling*
P2 Team Member	*Graham Pilling*
P3 Team Member	*Jo Akroyd*

Meeting Location	*Wellington*
Date	*10th September 2013*
Stakeholders Name	*Affiliation*
Rosemary Hurst	*NIWA*
Peter Horn	*NIWA*
Charles Edwards	*NIWA*

2. Status
What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

Research providers

3. IMM Assessment Team Questions
Assessment team questions for stakeholders

What are the key updates with the HAK and LIN stock assessments in recent years?
What are the areas of uncertainty within the stock assessments?
Have the assessments been subject to external review?
What analyses are performed for lower tier species?
What is the latest work on cold water coral distribution and status?
What research has been undertaken on ecosystem analyses?
*What activities have been undertaken on benthic habitat structure**?***

4. Stakeholder Key Issues and responses

- *Recent HAK assessments in regions 1,4 and 7*
- *General patterns in stock size detailed in the plenary report were detailed, and the frequency of resource fishery-independent surveys noted*
- *Noted that while Chatham Rise stock has increased in recent years due to better recruitments, projections show the stock is likely to decline in the future*
- *West Coast South Island stock assessment was the subject of some uncertainty due to the lack of fishery-independent stock assessments. The assessment therefore relied on commercial CPUE data. Two surveys in 2000 and 2012 allowed some 'ground-truthing' of the commercial CPUE time series and reduced (but did not eliminate) the uncertainty. A further survey has recently been completed and will be included in the next assessment.*
- *Recent LIN assessments in regions 3&4, 5&6, and 7, as well as the Bounty Plateau (part of the LIN6 area) and Cook Strait (overlapping parts of areas LIN2 and 7)*
- *No stock assessment for LIN2*
- *LIN7 assessment contained the same uncertainty as HAK7*
- *The Cook Strait assessment was not accepted, and suffered from conflicts in the catch-at-age and CPUE data*

- *The hoki assessment was externally reviewed, which covered the CASAL modeling approach. However, the specific hake and ling assessments have not been externally reviewed. It was noted that the internal review process of new assessments is quite rigorous*
- *Tier II and Tier III species are subject to risk assessment approaches (tier III) and characterization analyses (e.g. using trends in CPUE – tier II), as detailed in the 10 year research plan. An internally funded NIWA project is looking into data poor assessment approaches, while others are progressing ageing for non-tier I species (e.g. deepwater shark ageing)*
- *A summary of cold water coral analyses will be provided*
- *Trophic studies of the Chatham Rise have supported Ecopath analyses for areas 3&4*
- *These will also underpin future 'Atlantis' ecosystem modeling of the Chatham Rise region*
- *There are ongoing discussions on spatial modeling of benthic species, including Vulnerable Marine Ecosystem work. Further analyses to examine the BOMEC activities, including the ocean survey 2020 on Chatham Rise, are ongoing. Relevant camera-based work will be summarized.*

6. Closing

IMM Lead Assessor:

- *Summary of key points – stakeholder to confirm in writing (sign if hard copy)*

7. Confirmation of record of meeting:

16/09/2013

18/9/2013

IMM Lead Assessor Signature: ***Stakeholder Signature:***

INTERTEK FISHERIES CERTIFICATION (IFC)

Site Visit - Stakeholder Meeting Checklist

Stakeholder Interview Record

Meeting Dragonfly for MSC Assessment NZ Hake and Ling : September 10th 2013

Assessment Team	*Names*
Lead Assessor	*Jo Akroyd*
P1 Team Member	*Graham Pilling*
P2 Team Member	*Graham Pilling*
P3 Team Member	*Jo Akroyd*

Meeting Location	*Dragonfly offices, Wellington*
Date	*10/09/2013*
Stakeholders Name	*Affiliation*
Edward Abraham	*Dragonfly*
Finlay Thompson	*Dragonfly*
Philipp Neubauer	*Dragonfly*

2. Status

What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

Research Providers

4. IMM Assessment Team Questions

Assessment team questions for stakeholders

Please detail the approach, outputs and uncertainties in the modeling of non-target (ETP) species in the hake and ling fisheries

3. Stakeholder Key Issues

What, if any, specific substantive issues or concerns are identified regarding the fishery? (P1 – P2 – P3) and what information is available to allow us to determine the status of the fishery in relation to each issue?

- A summary of the results available in the Dragonfly reports was given, broken down by unit of certification

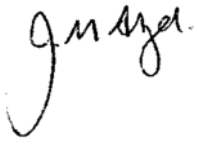
- *Noted differences between the autoliner (offshore) and smaller manual setting longliners (inshore)*
- *Noted that year trend model estimates in the trawl fishery were influenced by the pattern seen in the hoki fishery, as those year effects were modeled across the fishery*
- *Noted that the 2010 mitigation requirements (e.g. integrated weight line) were integrated into the model (in terms of the capture rates) but not directly taken into account within the model*
- *The recent coverage of observers within the fleets has been sufficient to estimate interactions, but a greater coverage tends to increase precision in the estimates, and reduce biases due to uneven coverage of fleet units*
- *Model details are available in the 2010/2011 Dragonfly report*
- *Results are presented and reviewed at the Scientific Working Group and further analysis performed on the basis of feedback*
- *Noted that the risk assessment for seabirds has been completed, and highlights uncertainty in the estimates for the smaller inshore vessels due to the low observer coverage. Current estimates indicate, for example, a high risk for black petrels*
- *Analyses for marine mammals were also detailed*
- *Month-effects were noted with greater movement potential in the winter months as individuals may move further offshore, while pupping activity may constrain activity in summer months*
- *Links between the Auckland Island and Campbell Island were noted for sealions based on tagging info*
- *A risk assessment approach for marine mammals is currently underway*
- *Uncertainties in the inputs to the PBR calculation were discussed, with Rmax considered reasonably consistent for marine mammals, with population size being viewed as a key area of uncertainty. PBR was viewed more as a figure to provide context rather than a 'critical level' value*

6. Closing

IMM Lead Assessor:

- *Summary of key points – stakeholder to confirm in writing (sign if hard copy)*

7. Confirmation of record of meeting:



16/09/13 Confirmation by email

IMM Lead Assessor Signature: ***Stakeholder Signature:***

INTERTEK FISHERIES CERTIFICATION (IFC)

Site Visit - Stakeholder Meeting Checklist

Stakeholder Interview Record e NGOs 9th September 2013

Assessment Team	*Names*
Lead Assessor	*Jo Akroyd*
P1 Team Member	*Graham Pilling*
P2 Team Member	*Graham Pilling*
P3 Team Member	*Jo Akroyd*

Meeting Location	*WWF Wellington Offices*
Date	*10th September 2013*
Stakeholders Name	*Affiliation*
Paul Crozier	*WWF NZ*
Kevin Hackwell	*Forest and Bird*
Barry Weeber	*ECO*

Comments:
- *The representative from Eco requested that it be clearly noted that his presence at the meeting did not legitimize the MSC process being undertaken in NZ, in particular for these fisheries, and noted concerns over the composition of the audit team and the availability of information for the stakeholders*

2. Status

What is the nature of the organisations interest in the fishery (e.g. client / science / management / industry / eNGO etc)

E NGO

3. Stakeholder Key Issues

What, if any, specific substantive issues or concerns are identified regarding the fishery? (P1 – P2 – P3) and what information is available to allow us to determine the status of the fishery in relation to each issue?

ENGO's concerns

- *It was noted by all eNGO representatives that their attendance and involvement at Working Groups, in particular for stock assessment, were hindered by funding and manpower. If possible, they would concentrate on stock assessment meetings for those fisheries under MSC certification, and noted that given industry received Government support for the MSC process that it was unfair that NGOs did not receive the same*
- *With respect to reference points, it was noted that for particular species (e.g. black cardinalfish) management action may not be taken when limits were reached*
- *It was noted that changes in TACC tended to take a long time after the stock assessment advice was supplied, and that it appeared easier to increase TACCs than decrease them*
- *eNGOs felt they and other key stakeholders were not involved sufficiently in the development of the 10 year research plan in recent years*
- *EFF groups were felt to be useful and engagement on the NPOAs for seabirds and sharks was more successful, but communications between eNGOs and other stakeholders remained limited*
- *The proposed identification guides for sharks as part of the NPOA sharks was noted as a positive development to improve data collection*
- *The issue of the charter fleet and the recent Parliamentary Enquiry were noted, which raised management issues such as misreporting*
- *The limited observer coverage on the inshore longline fleet fishing for ling was noted*
- *80% of Benthic Protection Areas were noted to be outside the depth that formed the focus of trawl activities*
- *A Standards NZ review of benthic impact standards was said to have stalled after 6 months. A report by Leathwick on fisheries captures by habitat types was noted as an important document*
- *On ecosystem issues, the compendium from the Aquatic Environment Working Group was noted.*
- *For ETP species, issues with uncertainty in the ling inshore (small) longline fleet was noted, given patchy observer coverage, while fur seals were also noted within the trawl fishery*
- *Concern was raised that recent decisions to increase the TACC for hoki might lead to increases in the catch of hake and ling to levels above the TACC for those species, or potential discarding*
- *It was noted that while 100% observer coverage had been achieved on the hoki/hake/ling fishery this year, the 24 hour pattern of activity in these vessels would mean that some tows may be unobserved as the observer must sleep at some point*
- *concern with the amount of by-catch of deep water sharks in these fisheries, and the fact that they are extremely vulnerable to fishing practices*

6. Closing

IMM Lead Assessor:

- *Summary of key points – stakeholder to confirm in writing (sign if hard copy)*
- *Comments not to be attributed to individuals with the exception of Mr Weeber's concern re the process and expertise of the auditors.*

- *The IMM team would take the eNGOs concerns into account when writing the report and scoring the fishery*

7. Confirmation of record of meeting:

16/09/13 Confirmation by email

IMM Lead Assessor Signature: ***Stakeholder Signature:***

Written submissions made by stakeholders

INTERTEK FISHERIES CERTIFICATION (IFC)

Marine House 1
Snow Hill

London EC1A 2DH United Kingdom

Tel: +44 (0)20 7246 8900

Fax: +44 (0)20 7246 8901

Date: 02/07/2014

SUBJECT: MSC Review and Report on Compliance with the scheme requirements

Dear Jo Akroyd

Please find below the results of our partial review of compliance with scheme requirements.

CAB	Intertek Fisheries Certification Ltd. (IFC)
Lead Auditor	Jo Akroyd
Fishery Name	New Zealand EEZ hake trawl
Document Reviewed	Public Comment Draft Report

Ref	Type	Page	Requirement	Reference	Details	PI
6052	Minor	62	CR-27.6.1 v.1.3	27.6.1 The CAB shall nominate a date from which product from a certified fishery is likely to be eligible to bear the MSC ecolabel (the target eligibility date). This could be:27.6.1.1 The date of the certification of the fishery; or27.6.1.2 Any date prior to the certification of the fishery up to a maximum of six months prior to the publication of the most recent Public Comment Draft Report. This date should be linked to: a. The beginning of the fishery management year in which the Public Comment Draft Report is published; or, b. The start of the fishing season in which the Public Comment Draft Report is publsihed; or, c. Any other logical date with regard to the applicant fishery.	The target eligibility date is given as 16th June 2014 as the date of the final report and determination. However this is not the date of the final report and determination. The report should therefore either state 'date of final report and determination' or '16th June 2014…' with justification for either date.	

6053	Minor	63-64	CR-27.12.2.1 v.1.3	27.12.2 If the CAB determines the systems are sufficient, fish and fish products from the fishery may enter into further certified chains of custody and be eligible to carry the MSC ecolabel. The CAB shall determine:27.12.2.1 The scope of the fishery certificate, including the parties and categories of parties eligible to use the certificate and the point (s) at which chain of custody is needed. a. Chain of custody certification shall always be required following a change of ownership of the product to any party not covered by the fishery certificate. b. Chain of custody certification may be required at an earlier stage than change of ownership if the team determines that the systems within the fishery are not sufficient to make sure all fish and fish products identified as such by the fishery originate from the certified fishery. c. If the point where chain of custody certification is required is covered by the fishery certificate, the team shall determine the parties or category of parties covered by the fishery certificate that require chain of custody certification.	Section 5.3 refers to Chain of custody being required from first point of sale, and then later in the section from first point of landing. The wording is not clear on this point. Also, the report confirms that not all Hake fishers in the New Zealand EEZ are part of the client group, or covered by a certificate sharing agreement. However a link to the latest list of fishers and/or vessels covered by the certification is not provided. It also does not confirm who are the eligible parties that can sell the MSC certified seafood, and if it can be sold by the the fishers from their vessels.	
6055	Guidance	62	*N/A v.n/a	(blank)	Section 5.2.1 second paragraph - first two sentences should be joined as one.	

6056	Guidance	62	CR-27.12.1.3 v.1.3	27.12.1 The CAB shall determine if the systems of tracking and tracing in the fishery are sufficient to make sure all fish and fish products identified and sold as certified by the fishery originate from the certified fishery. The CAB shall consider the following points and their associated risk for the integrity of certified products: 27.12.1.3 The opportunity of substitution of certified with non-certified fish prior to or at landing fraudulent claims from within and outside ther certified fishery.	It is not fully explained how the risks of substitution between certified and non-certified are addressed at point of landing. For example are there any auctions where fish from fishers from within the DWG and from outside it will land and sell fish?	

This report is provided for action by the CAB and ASI in order to improve consistency with the MSC scheme requirements; MSC does not review all work products submitted by

Conformity Assessment Bodies and this review should not be considered a checking service. If any clarification is required, please contact Maylynn Nunn on +61 2 9524 8400 for more information.

Best regards,
Fisheries Oversight Director
Dan Hoggarth
Marine Stewardship Council

INTERTEK FISHERIES CERTIFICATION (IFC)

Intertek Fisheries Certification omment

MSC REF 6052 Minor CR-27.6.1 v1.3

The target eligibility date is given as 16th June 2014 as the date of the final report and determination. However this is not the date of the final report and determination. The report should therefore either state 'date of final report and determination' or '16th June 2014…' with justification for either date.

The report has been changed to state that the target eligibility date is the date of the final report and determination.

MSC REF 6053 Minor CR 27.12.3.1

Section 5.3 refers to Chain of custody being required from first point of sale, and then later in the section from first point of landing. The wording is not clear on this point.

Also, the report confirms that not all Hake fishers in the New Zealand EEZ are part of the client group, or covered by a certificate sharing agreement. However a link to the latest list of fishers and/or vessels covered by the certification is not provided. It also does not confirm who are the eligible parties that can sell the MSC certified seafood, and if it can be sold by the the fishers from their vessels.

Section 5.3 has been changed to read Chain of Custody required from first point of landing.

The Ministry of Primary Industries were asked to check the recent catch records for HAK by DWG Shareholders and other companies/fishers who contract catch, buy HAK ACE, or whose catches of HAK are sold by DWG shareholders to establish both the level of representation of 'fishers' in the hake fisheries and as a basis to assess the CoC matters. Over the last five years 99.5% of hake catch is related to DWG catch. The report has been amended to say this.

MSC REF 6055 Guidance.

Section 5.2.1 second paragraph - first two sentences should be joined as one.

Section 5.2.1 has been corrected.

MSC REF 6056 Guidance CR 27.12.1.3 V 1.3

It is not fully explained how the risks of substitution between certified and non-certified are addressed at point of landing. For example are there any auctions where fish from fishers from within the DWG and from outside it will land and sell fish?

DWG vessels will have only certified hake at point of landing. These will be clearly labelled eg vessel name and as MSC certified fish. The labelling and documentation accompanies fish all the way from landing to final point of sale. Hake from a non Deepwater Group vessel will not be able to be labelled as certified. The fish will be clearly identified as to which vessel the fish was caught. Hake from different vessels is never mixed and never sold together.

INTERTEK FISHERIES CERTIFICATION (IFC)

Template for Stakeholder Input into MSC Fishery Assessments

The forms included in this document are to guide stakeholders in providing written comments during an MSC fishery assessment process

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Thank you for your interest in participating in and contributing to an MSC fishery assessment! Stakeholder contributions are integral to ensuring robust assessments and certification decisions. The forms contained in this document, are intended to be used alongside the *Stakeholder's Guide to the Marine Stewardship Council*, to assist you in contributing relevant information to the certifier at each appropriate stage in the assessment process.

There are six steps in the MSC fishery assessment process where stakeholders are formally invited to comment. These are:

1. Fishery announcement, stakeholder identification and assessment team formation
2. Defining the assessment tree
3. Information gathering, stakeholder meetings and scoring
4. Client and peer review
5. Public review of the draft assessment report
6. Final assessment report and determination

The final phase of the assessment process, once the Final assessment report and certification determination has been posted, is the opportunity for stakeholders who have been involved in the process to lodge a formal objection to the decision before it becomes final. Guidance for stakeholders on the Objections Procedure can be found here: www.msc.org/get-certified/fisheries/assessment/objections

If a fishery becomes certified, stakeholders will continue to have regular opportunities to provide input over the life of the certificate through the annual surveillance audits required by the MSC.

In the pages that follow, we have provided template forms that will help organize your written input at each relevant phase of the process, including the post-certification surveillance phase. For each phase, there are a series of options you may choose from on the left, and a box on the right in which to provide justifications. In order for your comments to be actionable, justifications are crucial, because certifiers can only consider information that is relevant, factual and substantiated. These forms have been developed to help ensure that your input and contributions may have maximum impact.

A series of footnotes have been provided, linking to a list of the MSC documents containing the specific requirements for certifiers at the different assessment stages. If you wish to read these requirements, you may download them from the MSC website by clicking the links.

Comments must be submitted directly to the certifier (not to the MSC). Certifiers are required to acknowledge receipt of your comments, and provide an indication to you of how and when they will be addressed, within 10 days of receipt.

Finally, if at any time during the assessment process you have complaints about the conduct of the certifier in undertaking a fishery assessment, please know that you can ask the certifier for their complaints procedure, or you can provide your complaint directly to Accreditation Services International (www.accreditation-services.com/contact0.html), which is the body that oversees the certifiers in the MSC programme.

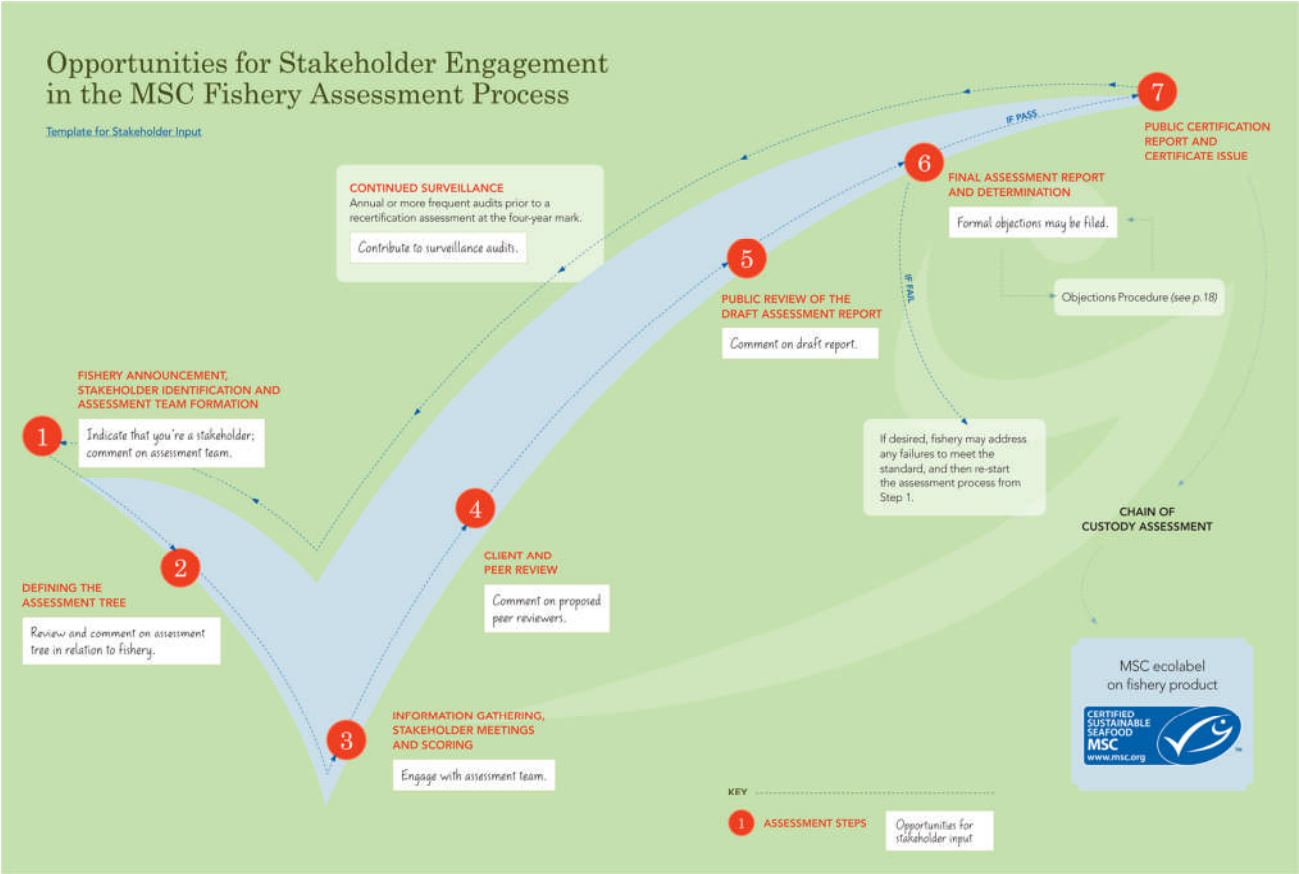
Contact Information Make sure you submit your full contact details at the first phase you participate in a specific assessment process, subsequent participation will only need your name unless these details have changed.					
Contact Name	*First* David		*Last* Wiedenfeld		
Title	Dr.				
On behalf of (organisation, company, government agency, etc.) – *if applicable*					
Organisation	*Please enter the legal or registered name of your organisation or company.* American Bird Conservancy				
Department					
Position	*Please indicate the position or function you exert within your organisation or company.* Senior Conservation Scientist				
Description	*Please provide a short description of your organization.* American Bird Conservancy (ABC) is a non-profit organization whose mission is to conserve native birds and their habitats throughout the Americas.				
Mailing Address, Country	PO Box 249, The Plains, Virginia 20186 USA				
Tel	+ 540-253-5780	**Mob**	+ 540-260-5596	**Fax**	+ 540-253-5782
Email	**dwiedenfeld@abcbirds.org**			**Web**	www.abcbirds.org

Assessment Details	
Fishery	New Zealand hake
Certification Body	Intertek Fisheries Certification

INTERTEK FISHERIES CERTIFICATION (IFC)

Assessment Stage* Clicking on the section numbers will bring you to the appropriate section for providing input to the respective assessment stage. It is only necessary to complete those sections corresponding to stages where you wish to comment.	
	Fishery announcement and stakeholder identification—go to section 1 *Opportunity to indicate that you are a stakeholder and identify other stakeholders*
	Assessment team formation—go to section 2 *Opportunity to comment on the assessment team*
	Defining the assessment tree—go to section 3 *Opportunity to review and comment on the assessment tree in relation to the fishery*
	Information gathering and stakeholder meetings—go to section 4 *Opportunity to engage with and provide information to the certifier*
	Client and peer review—go to section 2 *Opportunity to comment on proposed peer reviewers*
	Public review of the draft assessment report—go to section 5 *Opportunity to review and comment on the draft report, including the scoring of the fishery*
	Announcement of surveillance visit—go to section 6 *Opportunity to provide information to the certifier*
* Note, to register an objection following the publication of the Final Report and Determination, please see www.msc.org/get-certified/fisheries/assessment/objections	

INTERTEK FISHERIES CERTIFICATION (IFC)



Assessment Stage	Fishery	Date	Name of Commenter or Organisation
Fishery announcement and stakeholder identification[i] *Opportunity to indicate that you are a stakeholder and identify other stakeholders*			

Nature of Comment (select all that apply)		**Additional Information/Detail** Please attach additional pages if necessary.
e.g. ☒ ☐	I wish to indicate that I am a stakeholder in this fishery, please keep me informed about each stage of the assessment process	*Example: My company has been operating five charter boats for recreational fishing on this fish stock for 20 years, and I wou ld like to be informed and involved as this MSC assessment progresses. In addition, we have kept detailed logs over the years o f our clients' catches, including sizes, weights, and fish caught per trip and would be happy to share these with the assessment team.*
☐	I wish to suggest information or documents important for the assessment of this fishery *(you may either attach documents or provide references)*	
☐	I wish to suggest other individuals or organizations who should be considered stakeholders in the MSC assessment of this fishery *(please name them with contact information)*	
☐	Other *(please specify)*	

• **SECTION 2** • Return to Page 3

Assessment Stage	Fishery	Date	Name of Commenter or Organisation
☐ **Assessment team formation**[ii] *Opportunity to comment on the assessment team*			
☐ **Client and peer review**[iii] *Opportunity to comment on proposed peer reviewers*			

Nature of Comment (select all that apply)		Justification Please attach additional pages if necessary.
☐	I believe this team member/peer reviewer does not have appropriate demonstrated technical expertise to perform this role[iv] *(please provide justification as to why)*	*Example: I have noted that a requirement of the assessment team is to have current knowledge of the country, language and local fishery context. After looking at the CVs of the proposed assessment team members, I have difficulty understanding how this requirement is met, as the fishery is in Indonesia, and all the team members are British, with backgrounds in European fisheries.*
☐	I believe a team member/peer reviewer has a conflict of interest *(please provide justification as to why)*	
☐	I wish to propose alternative or additional team member(s)/peer reviewer(s) (please include relevant details about your proposed team members/peer reviewers)	

☐	Other *(please specify)*	

Assessment Stage	Fishery	Date	Name of Commenter or Organisation
☐ **Defining the assessment tree**[v] *Opportunity to review and comment on the assessment tree in relation to the fishery*			

Nature of Comment (select all that apply)		Additional Information/Detail Please attach additional pages if necessary.
☐	I **DO NOT** believe the default FAM assessment tree (including Performance Indicators and/or Scoring Guideposts) is appropriate to assess this fishery against the MSC environmental standard *(please provide details and rationale).*	*Example: This is an unusual fishery, in that there is significant habitat modification to the area from the growing structure s in place. I think the default set of performance indicators in the FAM do not evaluate this type of impact well. Therefore I think the assessment team should consider adding some additional performance indicators against which to evaluate the impacts of the habitat modification that doesn't exist in normal capture fisheries.*
☐	I **DO NOT** believe the proposed modifications to the FAM assessment tree are appropriate to assess this fishery against the MSC environmental standard *(please provide details and rationale).*	
☐	I wish to suggest modifications to the FAM for the purposes of assessing this fishery against the MSC environmental standard *(please provide details and rationale).*	
☐	I **DO NOT** think the RBF should be used to assess Performance Indicator(s) (select all that apply below), because there is sufficient information available to follow the conventional process[vii] *(please provide details and rationale).* ☐ 1.1.1 ☐ 2.1.1 ☐ 2.2.1 ☐ 2.4.1 ☐ 2.5.1	

☐	I **DO** think the RBF should be used to assess Performance Indicator(s) (select all that apply below) because there is NOT sufficient information available to follow the conventional process[vii] *(please provide details and rationale).* ☐ 1.1.1 ☐ 2.1.1 ☐ 2.2.1 ☐ 2.4.1 ☐ 2.5.1	
☐	Other *(please specify)*	

• **SECTION 4** • Return to Page 3

Assessment Stage	Fishery	Date	Name of Commenter or Organisation
Information gathering and stakeholder meetings[viii] *Opportunity to engage with and provide information to the certifier*			

Nature of Comment (select all that apply)		Additional Information/Detail Please attach additional pages if necessary.
☐	I wish to request an in-person meeting with the assessment team during their assessment visit (meetings without the fishery client present may be requested at this phase of the process if needed)	*Example: I am unable to attend the scheduled on-site meetings with the assessment team about this fishery, but would like to ensure the following documents are considered when the team reviews the available information:* *1. Doc A; 2. Doc B; 3. Doc C.* *All of these are available for download at the following web address…*
☐	I wish to submit written information about the fishery and its performance against the FAM and/or RBF to the assessment team *(please provide documents or references).*	
☐	Other *(please specify)*	

Assessment Stage	Fishery	Date	Name of Commenter or Organisation
Public review of the draft assessment report[ix] *Opportunity to review and comment on the draft report, including the scoring of the fishery*	New Zealand hake	27 June 2014	David Wiedenfeld, American Bird Conservancy

☒ I wish to comment on the evaluation of the fishery against specific Performance Indicators.
A table with these indicators and the scores and rationales provided by certifiers can be found as an appendix to the report.

Nature of comment *(Please code below)*

1. I do not believe all the relevant information[x] available has been used to score this performance indicator *(please provide details and rationale)*
2. I do not think the information and/or rationale used to score this performance indicator is adequate to support the given score[xi] *(please provide details and rationale)*
3. I do not believe the condition(s) set for this performance indicator are adequate to improve the fishery's performance to the SG80 level[xii] *(please provide details and rationale)*
4. Other *(please specify)*

Performance Indicator	Nature of Comment Indicate relevant code(s) from list above.	Justification Please support your comment by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.
Example: 1.1.2	*2*	*The certifier gave a score of 80 for this PI. The 80 scoring guidepost asks for a target reference point that is consistent with maintaining the stock at Bmsy or above, however the target reference point given for this fishery is Bpa, with no indication of how this is consistent with a Bmsy level.*

2.2.3 and 2.3.3	1	There is a significant information gap for both of these PIs with regard to seabird mortality. In trawl fisheries, there are rarely birds found in the net and therefore called "bycatch." The threat to seabirds in trawl fisheries is from warp strikes (or third-wire strikes). Very few of the seabirds that might be killed by warp strikes are ever recovered, especially not in the trawl net. Birds injured but which die later or are killed outright by warp strikes are therefore not accounted for in observations which only include the contents of the net when hauled. To detect such issues, it is necessary to have observers stationed onboard, watching for warp strikes, and recording what they see. Note that warp strike mortality of seabirds is more often an issue in areas with many large body size seabirds, such as albatrosses. Although the New Zealand hake fishery has observation data from the fishery itself and from other trawl fisheries in New Zealand, the information cited in this certification report on seabirds is only for seabirds as "bycatch," without information on warp-strike mortality. There is little or no information presented on warp-strike mortality. This information is indeed difficult to obtain; however, it is also key information. Because of this lack of information, PI 2.2.3 cannot be said to meet Scoring Issue (a) at the SG80 level, nor for PI 2.3.3 Scoring Issue (a). The same is true of PI 2.3.3 Scoring Issue (b). If it is true that the vessels in the fishery always follow the procedures described on page 37, requiring one of the three mitigation devices (paired streamer lines, a bird baffler, or warp scarer) and appropriate offal management, there may indeed be no seabird mortality arising from warp strikes. However, this is not demonstrated in this certification report. Therefore, it is necessary to provide information on warp strikes in this document, and to demonstrate that the additional warp strike information does not cause the PI scores for 2.2.3 and 2.3.3 to be reduced. If that cannot be provided, scores for those PIs should be reduced. This information is import for a complete certification report.

Comment	Nature of Comment	Justification Please attach additional pages if necessary.
☐ I wish to comment on the adequacy of the consultation process used to gather information about this fishery (for example, related to the RBF process, selection of stakeholders consulted, etc.)		

Comment	Nature of Comment	Justification Please attach additional pages if necessary.
☐ I wish to comment on other portions of the report (e.g. background information, species biology, peer review reports and CB responses, list of consultees, etc.)		

Comment	Nature of Comment	Justification Please attach additional pages if necessary.
☐ I wish to provide general comments about the assessment of this fishery against the MSC Principles and Criteria for Sustainable Fishing		

Assessment Stage	Fishery	Date	Name of Commenter or Organisation
Announcement of surveillance visit[xiii] *Opportunity to provide information to the certifier*			

Nature of Comment (select all that apply)		Justification Please attach additional pages if necessary.
☐	I wish to alert the assessment team to important changes in relation to the circumstances of this fishery relevant to the MSC assessment.	*Example: Since this fishery was certified 2 years ago, government scientists have been working closely with the fishery client to develop a system for monitoring stock status capable of ensuring a precautionary harvest strategy. Although not published, the progress on this work to date can be found in the following report (attached)…*
☐	I wish to provide information relevant to fulfilment of the conditions of certification.	
☐	Other *(please specify)*	

INTERTEK FISHERIES CERTIFICATION (IFC)

Intertek Fisheies Certification comment

Comment on PIs 2.2.3 and 2.3.3 on "a significant information gap for both of these PIs with regard to seabird mortality."

The report has been clarified:

- within Section 3.7.2.3 of the main text to highlight the fact that current estimates of mortality developed by Dragonfly (e.g. Abraham and Thompson, 2011) include recorded captures in the net, on the warps, or tangled in line, and hence include observed warp strikes. Captures are also estimated by fishing method, being categorised by whether they were warp captures, net captures, or reported caught through some other means (see https://data.dragonfly.co.nz/psc/v20121101/birds/hake-trawl/all-vessels/eez/all/ for a breakdown by year and interaction type for the hake trawl fishery). They exclude animals that landed on the deck or collided with the vessel's superstructure (Abraham and Thompson, 2011).
- Within PI 2.2.1 to clarify that interactions with birds and marine mammals are considered under 2.3.
- Within PI 2.3.1 and 2.3.3 to clarify that warp strike mortalities are included within seabird mortality estimates, and that warp-strike mitigation methods have been found successful for key seabirds (for example, monitoring of warp strikes has indicated reductions in Salvin's albatross and white-capped albatross within fisheries following the introduction of mandatory warp mitigation in January 2006).

Appendix 4. Surveillance Frequency

Table C3 CR 27.22.1: Criteria to determine surveillance score

Criteria	Surveillance Score
Default Assessment tree used	0
Number of open conditions	0
Principle level scores	2
Conditions on outcome PIs	0

Table C4 CR 27.22.1: Fishery Surveillance Plan

Score from CR Table C3	Surveillance Category	Year 1	Year 2	Year 3	Year 4
2	[e.g. Normal Surveillance]	On-site surveillance audit]	On-site surveillance audit]	On-site surveillance audit]	On-site surveillance audit & re-certification site visit]

Appendix 5. Client Agreement

Email 18/08/2014 from
George@clementgroup.co.nz
Client Fishery's acceptance of hake report.

Paul,

Confirm acceptance of your PCR on New Zealand hake fisheries.

George Clement

Chief Executive

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P +64 9 374 4440
E george@deepwatergroup.org
W www.deepwatergroup.org

Appendix 5.1 Objections Process

No Objections were received