

MSC SUSTAINABLE FISHERIES CERTIFICATION

On-Site Surveillance Visit - Report for New Zealand Ling Trawl and Longline Fishery



2nd Surveillance Audit

November 2016

Certificate Code F-ACO-176
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1 Introduction

1.1 Scope of Surveillance

This report outlines the findings of the 2nd Annual Surveillance of the New Zealand Ling Trawl and Longline fishery. The scope of the certified fishery and therefore of this surveillance is specified in the Units of Certification set out below:

UoCs 2,3,4,5 and 6

Species:	Ling (<i>Genypterus blacodes</i>)
Geographical area:	LIN3, LIN4, LIN5, LIN6 and LIN7
Method of capture:	Trawl
Stock:	New Zealand Ling caught by Trawl in FMAs LIN3 - 7
Management System:	NZ Quota Management System (Ministry for Primary Industries)
Client Group:	Deepwater Group Limited

UoCs 8,9,10,11 and 12

Species:	Ling (<i>Genypterus blacodes</i>)
Geographical area:	LIN3, LIN4, LIN5, LIN6 and LIN7
Method of capture:	Longline
Stock:	New Zealand Ling caught by Longline in FMAs LIN 3 - 7
Management System:	NZ Quota Management System (Ministry for Primary Industries)
Client Group:	Deepwater Group Limited

1.2 Aims of the Surveillance

The purpose of the annual Surveillance Report is fourfold:

1. to establish and report on whether or not there have been any material changes to the circumstances and practices affecting the original complying assessment of the fishery;
2. to monitor the progress made to improve those practices that have been scored as below “good practice” (a score of 80 or above) but above “minimum acceptable practice” (a score of 60 or above) – as captured in any “conditions” raised and described in the Public Report and in the corresponding Action Plan drawn up by the client;
3. to monitor any actions taken in response to any (non-binding) “recommendations” made in the Public Report;
4. to re-score any Performance Indicators (PIs) where practice or circumstances have materially changed during the intervening year, focusing on those PIs that form the basis of any “conditions” raised.

Please note: The primary focus of this surveillance audit is to assess changes made in the previous year. For a complete picture, this report should be read in conjunction with the Public Certification Report for this fishery assessment, which can be found here:

https://www.msc.org/track-a-fishery/fisheries-in-the-program/certified/pacific/new-zealand-ling-trawl-and-longline-fishery/assessment-downloads-1/20141009_PCR_LIN076.pdf

1.3 Certificate Holder Details

Fishery name	New Zealand Ling Trawl and Longline		
Species and Stock	New Zealand Ling (<i>Genypterus blacodes</i>) caught by longline and trawl in FMAs LIN 3 - 7		
Date certified	16 th September 2014	Date of expiry	15 th September 2019
Surveillance level and type	Surveillance Level 5 – On-site		
Date of surveillance audit	21 st – 23 rd November 2016		
Surveillance stage (tick one)	1st Surveillance		
	2nd Surveillance	✓	
	3rd Surveillance		
	4th Surveillance		
	Other (expedited etc)		
Surveillance team	Lead assessor: Jo Akroyd Assessor(s): Graham Pilling & Rob Blyth-Skyrme		
CAB name	Acoura Marine		
CAB contact details	Address	6 Redheughs Rigg Edinburgh EH12 9DQ	
	Phone/Fax	0131 335 6662	
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Client contact details	Address	Deepwater Group Ltd. PO Box 5872, Wellesley Street, Auckland, 1141, New Zealand	
	Phone/Fax	+64 09 379 05556	
	Email	george@deepwatergroup.org	
	Contact name(s)	George Clement	

2 Surveillance Process

2.1 Findings of the original assessment

As a result of the assessment (2014), three conditions of certification were raised by the assessment team, and maintenance of the MSC certificate is contingent on the ling longline fishery moving to comply with these conditions within the time-scales set at the time the certificate was issued. In addition, one recommendation was made which, whilst not obligatory, the client is encouraged to act upon within the spirit of the certification. At this surveillance audit (2016) all three conditions and the recommendation have been closed.

2.2 Surveillance Activity

2.2.1 Surveillance team details

This on-site surveillance visit was carried out by Jo Akroyd, and Rob Blyth-Skyrme with Graham Pilling as a remote P1 assessor. The Team Leader was Jo Akroyd.

Jo Akroyd (P3 & TL)

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 MSC fishery certification of offshore, inshore and shellfish fisheries as Fisheries Management Specialist and Lead Assessor. 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). Jo is a member of the MSC's Peer Review College, and has completed the MSC v1.3 and v2.0 training modules.

Graham Pilling (P1)

Currently the principal fisheries scientist (stock assessment and modelling section) at the Pacific Community (SPC), Graham has over twenty 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.

Rob Blyth-Skyrme (P2)

Rob started his career in commercial aquaculture, but prior to undertaking his PhD he shifted focus to the sustainable management of wild fisheries. After his PhD he went to the Eastern Sea Fisheries Joint Committee, one of the largest inshore fisheries management bodies in England, where he became the Deputy Chief Fishery Officer. He then moved to Natural England, the statutory adviser to UK Government on nature conservation in English waters, to lead the team dealing with fisheries policy, science and nationally significant fisheries and environmental casework. Rob now runs Ichthys Marine Ecological Consulting Ltd., a marine fisheries and environmental consultancy. As well as carrying out general consultancy, he has undertaken all facets of MSC work as a lead assessor, expert team

member and peer reviewer across a wide range of fisheries, including those targeting groundfish. Rob is a member of the MSC's Peer Review College, and has completed the MSC v1.3 and v2.0 training modules.

2.2.2 Date & Location of surveillance audit

The onsite audit was carried out from the 21st to 23rd November 2016. The meetings were scheduled to take place in Wellington but due to recent earthquake events and safety concerns the meetings were transferred to Auckland. This meant some stakeholders participated via video link and conference calls.

2.2.3 Stakeholder consultation & meetings

All stakeholders were invited to participate in the audit process. They were sent an email inviting them to participate and/or send a written submission.

2.2.4 What was inspected

For P1, stock status and catch status were reviewed.

For P2, a focus of the audit was on the three remaining conditions on the interaction between the longline fishery and ETP seabird species. An update was provided on key work areas that have been undertaken to determine the status of ETP seabird populations and the impact of the fishery on those populations, the management and mitigation of impacts, and the sources of information (including from observers and population studies) used in assessing impacts. Updated capture data were presented to and considered by the audit team.

For P3, management, legislation and compliance were reviewed.

2.2.5 Stakeholder Consultation

A total of nine stakeholder organisations and individuals having relevant interest in the assessment were identified and consulted during this surveillance audit. The interest of others not appearing on this list was sought through the postings on the MSC website.

The stakeholders who attended the meetings included the Ministry for Primary Industries (in person and via conference calls), NIWA research scientists (via video link), Department of Conservation (via conference call) and Forest and Bird (in person).

No written submissions were received.

2.3 Surveillance Standards

2.3.1 MSC Standards, Requirements and Guidance used

This surveillance audit was carried out according to the MSC Fisheries Certification Requirements v.1.3 using process v2.0.

2.3.2 Confirmation that destructive fishing practices or controversial unilateral exemptions have not been introduced

No indication was given or suggested during the surveillance audit to suggest that either of these practices is in evidence for this fishery

3 Updated Fishery Background

3.1 Changes in the management system

There have been no substantial changes in the management system.

The government is in the process of consulting on a number of proposals to ensure the management system promotes sustainable fishing practices (see <https://www.mpi.govt.nz/news-and-resources/consultations/future-of-our-fisheries/>). The proposed changes include the progressive implementation of a new Integrated Electronic Monitoring and Reporting System (IEMRS) across all fishing vessels. VMS (Vessel Monitoring System) is already required on all vessels greater than 28m in length, and the majority of deepwater vessels already utilise an electronic reporting system. However, the IEMRS proposal includes a new electronic reporting system and a roll out of CCTV monitoring from 1 October 2018.

3.2 Changes in relevant regulations

Changes in regulations for foreign charter vessels means that since 31 May 2016 all vessels fishing in New Zealand waters must be NZ flagged and consequently be subject to all NZ legislative requirements in all waters.

3.3 Compliance

There has been no risk assessment of this fishery in last year. There is no current intent to do a compliance review, but will be directed by management as required.

3.4 Changes to personnel involved in science, management or industry

There have been no substantial changes.

MPI have appointed two new important personnel, Manager Fisheries Science and Manager Fisheries Stock Assessment.

Ongoing work at MPI has not been affected by these changes and they continue to support the DWG initiative to maintain certification of the NZ deepwater fisheries

3.5 Changes to scientific base of information including stock assessments

The stock status is reported by UoC. The stock assessments for two ling stocks (LIN 3&4, Chatham Rise; LIN 5&6, Sub-Antarctic) were updated in 2015 (McGregor, 2015). Assessments for other stocks were updated in 2007 (LIN 6B, Bounty Plateau, with a CPUE update in 2014), or 2013 (LIN 7WC, west coast South Island; LIN 7CK, Cook Strait). All assessments were updated using a Bayesian stock model implemented using the general-purpose stock assessment program CASAL (Bull *et al.* 2012).

UoCs 2 and 3: LIN 3 & 4

The stock assessment for LIN 3&4 (Chatham Rise) was updated in 2015 (McGregor, 2015). There was a conflict between the line fishery CPUE and the trawl survey biomass index, where the line fishery biomass index declined between 1991 and 1997, but the trawl survey index remained relatively flat throughout. To remove this conflict, a base case model run (Base) used all the observational data except the line fishery CPUE. The trawl survey biomass index was preferred in the base case because these data were fishery independent, and there was evidence that the longline fishery q had changed over time as very large fish were removed from the population (Horn, 2015). A sensitivity run (Longline) then included the line fishery CPUE, and excluded the trawl survey biomass series; this model is considered a likely 'worst case' scenario. The results are presented in Table 1.

Table 1. Bayesian median and 95% credible intervals (in parentheses) of B_0 and B_{2014} (in tonnes, and as a percentage of B_0) for the Base and Longline model runs, and the probability that B_{2014} is below 40% of B_0 from the Base model run.

Run	B_0	B_{2014}	$B_{2014}(\%B_0)$	$P(40\%B_0)$
Base	126600 (110700-165100)	71800 (50500-115200)	57 (45-71)	0.003
Longline	107400 (98700-122700)	60900 (4200-85600)	40 (30-51)	-

The management reference points for ling stocks are: target range of 40% B_0 ; “*Soft Limit*” of 20% B_0 (requiring a rebuilding plan if breached); “*Hard Limit*” of 10% B_0 (requiring consideration of closure if breached)

For the 2015 assessment: B_{2014} was estimated to be about 57% B_0 ; Very Likely (> 90%) to be above the target and Exceptionally Unlikely (< 1%) to be below either the Soft or Hard Limit. Overfishing was Very Unlikely (<10%) to be occurring.

Projections were performed assuming fixed catches of 6260 or 3564 t. The stock size is likely to remain about the same assuming future catches equal to recent catch levels, or decrease to around 90% of the 2014 biomass by 2019 if catches reach the TACC. Therefore it was Exceptionally Unlikely (< 1%) that biomass would fall below the soft or hard limit under either scenario and those catch levels were Very Unlikely (<10%) to cause overfishing.

The next assessment is scheduled for mid 2019.

UoCs 4 and 5: LIN 5 & 6

The stock assessment for LIN 5 & 6 (Sub-Antarctic) was updated in 2015 (Roberts, 2016). Two key model runs were reported: i) Reference model whose settings included the catch history, all relative abundance series were used, double-exponential M was estimated as an ogive independent of sex, double-normal selectivity ogives were assumed for the trawl fishery, and logistic ogives for the line fisheries and the resource survey series, with multinomial error associated with age composition estimates, and nuisance q 's for the resource survey series; ii) Base case, with settings as the reference model, but using free q 's for the resource survey series. The results are presented in Table 2.

Table 2. Bayesian median and 95% credible intervals (in parentheses) of B_0 and B_{2014} (in tonnes), and B_{2014} as a percentage of B_0 for both model runs, and the probability that B_{2014} is below 40% of B_0 from the Base model.

Run	B_0	B_{2014}	$B_{2014}(\%B_0)$	$P(40\%B_0)$
Reference model	354000 (204000-	317000 (155000-	89 (72-	-
Base case model	289000 (179000-	251000 (127000-	86 (69-	0.000

Therefore: B_{2014} was estimated to be 86% B_0 ; Virtually Certain (> 99%) to be above the target, and Exceptionally Unlikely (< 1%) to be below either the Soft or Hard Limit. Overfishing was Exceptionally Unlikely (< 1%) to be occurring.

Projections were performed assuming fixed catches of 5700 or 12100 t. The probability of B_{2019} being below 40% of B_0 is very small when assuming either one of two future annual catch scenarios (the recent catch level of 5700 t or the TACC of 12 100 t). Stock status is unlikely to change over the next 5 years at recent catch levels or the level of the TACC (i.e., 12 100 t). Therefore it was Exceptionally Unlikely (< 1%) at current catch or TACC to fall below the Soft or Hard Limit, or for those catch levels to cause overfishing.

The next assessment is scheduled for mid 2018.

UoC5 contd: LIN 6B (Bounty Plateau)

The stock assessment for the Bounty Plateau stock (part of LIN 6) was updated in 2007 (Horn, 2007). Model input data included catch histories, line fishery CPUE, catch-at-age and catch-at-length from the line fishery, and estimates of biological parameters. In the absence of sufficient stock-specific data, maturity ogives were assumed to be the same as for LIN 3&4, a stock with comparable growth parameters to LIN 6B. Only a base case model run was presented. The stock assessment model partitions the population into two sexes, and age groups 3 to 35 with a plus group. There is one fishery (longline) in the stock. The results are presented in Table 3.

Table 3. Bayesian median and 95% credible intervals (in parentheses) of B_0 and B_{2006} (in tonnes), and B_{2006} as a percentage of B_0 for the base case model run.

Run	B_0	B_{2006}	$B_{2006}(\%B_0)$
Base case model	13570 (10850-19030)	8330 (4860-14730)	61 (45-79)

Therefore: B_{2006} was estimated to be 61% B_0 ; Very Likely (> 90%) to be at or above the target, Very Unlikely (< 10%) to be below the Soft Limit and Exceptionally Unlikely (< 1%) to be below the Hard Limit.

Projections were performed assuming a fixed catch of 600 t. The stock was projected to decline out to 2011, but probably still be higher than 50% of B_0 . Therefore it was Very Unlikely (< 10%) that biomass would fall below the soft or hard limit.

A new assessment has not yet been scheduled.

UoC 6: LIN 7 (WC & CK)

The stock assessment for LIN 7WC (west coast South Island) was updated in 2013 (Dunn *et al.*, 2013). Model input data include catch histories, trawl fishery CPUE, extensive catch-at-age data from the trawl fishery, sparse catch-at-age data from the line fishery, biomass estimates and proportion-at-age from comparable *Tangaroa* surveys in 2000 and 2012, and estimates of biological parameters. A line fishery CPUE series was available, but was rejected as unlikely to be indexing stock abundance. The base case estimated instantaneous natural mortality, M , as a constant. The results are presented in Table 4.

Table 4. Bayesian median and 95% credible intervals (in parentheses) of B_0 and B_{2012} (in tonnes), and B_{2012} as a percentage of B_0 for all model runs. The base case estimates M .

Run	B_0	B_{2012}	$B_{2012}(\%B_0)$
Base case model	99200 (58400-304600)	70350 (33000-248400)	71 (56-85)
$M=0.18$	66100 (50300-142900)	39580 (23600-109200)	59 (46-79)

Therefore: B_{2012} was estimated to be about 71% B_0 ; Very Likely (> 90%) to be at or above the target, and Exceptionally Unlikely (< 1%) to be below either the Soft or Hard Limit.

For LIN 7 WC the Working Group did not consider that projections using either run were reliable and so no projections were presented.

A stock assessment of ling in Cook Strait (LIN 7CK) was completed in 2013 (Dunn *et al.*, 2013). However, the model was felt to have failed to accurately represent declines in abundance that appear evident from CPUE values, which have been declining since 2001. As a consequence the model was considered unsuitable for the provision of management advice. The last stock assessment for LIN 7CK (Cook Strait) accepted by the Working Group was completed in 2010 (Horn & Francis, 2013), and was used for management advice. Model input data include catch histories, trawl and line fishery CPUE, extensive catch-at-age data from the trawl fishery, sparse catch-at-age data from the line fishery, and estimates of biological parameters. Initial modeling investigations found that the line CPUE produced

implausible results; this series was rejected as a useful index. The base case used all catch-at-age data from the fisheries, and the trawl CPUE series. Instantaneous natural mortality was estimated in the model. The results are presented in Table 5.

Table 5. Bayesian median and 95% credible intervals (in parentheses) of B_0 and B_{2010} (in tonnes), and B_{2010} as a percentage of B_0 for all model runs.

Run	B_0	B_{2010}	$B_{2010}(\%B_0)$
Base case model	8070 (5290-53080)	4370 (1250-40490)	54 (23-80)

Therefore: B_{2010} was estimated to be 54% B_0 ; Likely (> 60%) to be at or above the target, and Exceptionally Unlikely (< 1%) to be below either the Soft or Hard Limit. Overfishing was Very Unlikely (< 10%) to be occurring.

Projections were performed assuming fixed catches of 220 or 420 t. The stock biomass was likely to increase with future catches equal to recent previous catch levels, or decline slightly if catches were equal to the mean since 1990. Therefore it was Very Unlikely (< 10%) to fall below the soft limit under catches of 220 or 420 t, Exceptionally Unlikely (< 1%) to fall below the hard limit at catch levels of 220 t and Very Unlikely (< 10%) at catches of 420 t. Those catch levels were Very Unlikely (< 10%) to cause overfishing.

The next assessment for the LIN 7 stock is scheduled for mid 2017.

3.6 Traceability

The MSC certified fisheries are for LIN stocks 3, 4, 5, 6 and 7. LIN 2 stocks are not certified. This is not a big fishery however the client was requested to describe protocols in place that would ensure non-MSC certified ling was not sold as MSC certified ling. In particular, if a vessel fished MSC certified and non-MSC certified on the same trip. The response is as follows-

A list of permit-holders that landed LIN2 and another LIN stock (3, 4, 5, 6 or 7) from the same voyage over the last 12 months (2015-16 fishing year) was provided to DWG by MPI. This information was extracted from official catch returns for the year 2015-16. Each of the nine permit-holders listed was contacted by telephone and then by email requesting their protocols for dealing with mixed LIN landings. Their responses are summarized as follows:

- Three permit-holders sell fresh-chilled ling into the local market and do not sell any ling under the MSC banner
- Two permit-holders contract-catch fresh-chilled fish for large companies and do not currently have on-board procedures for separating UoC from non-UoC ling. These two permit-holders sell to large companies. The last bullet point explains that the large companies who purchase the fresh-chilled ling from these permit-holders sell it into the local market and not under the MSC banner if there is any uncertainty over where it was caught (i.e. where fishing occurred in LIN2 and another LIN area during the same voyage).
- One permit-holder lands fresh-chilled fish and separately tags LIN2 and LIN3 catches on the vessel to ensure they can be identified at landing as either MSC-certified or non-certified
- Three permit-holders are large companies that catch using their own vessels and also purchase fish from contracted fresher vessels, including from the permit-holders above. All of the ling from mixed UoC/non-UoC landings by fresher vessels is sold into the local market, none of it under the MSC banner. Their freezer vessels have sophisticated mechanisms to bar-code individual boxes of fish. Non-MSC item codes are used to mark boxes of fish caught in non-UoC areas and can be identified at landing and are not sold under the MSC banner (noting that large freezer vessels (i.e. over 46m in length are prohibited from fishing in LIN 1 and 2).

The audit team was satisfied that there were protocols in place to ensure that non-certified fish were not sold as certified fish.

3.7 TACC and catch data

Table 3.7-1 TACC and Catch Data

TACC	Year	2016-17	Amount	UoC 2 and 8: 2060t UoC 3 and 9: 4200t UoC 4 and10: 3955t UoC 5 and11: 8505t UoC 6 and12: 3080t
UoA share of TACC	Year	2016-17	Amount	UoC 2 and 8: 2060t UoC 3 and 9: 4200t UoC 4 and10: 3955t UoC 5 and11: 8505t UoC 6 and12: 3080t
UoC share of TACC	Year	2016-17	Amount	UoC 2 and 8: 2060t UoC 3 and 9: 4200t UoC 4 and10: 3955t UoC 5 and11: 8505t UoC 6 and12: 3080t
Total green weight catch by UoC	Year (most recent)	2015-16	Amount	UoC 2 and 8: 1,439 t (LIN 3 total) 441 t (trawl)* 461 t (longline) UoC 3 and 9: 2,658 t (LIN 4 total) 569 t (trawl) 1,536 t (longline) UoC 4 and10: 3,868 t (LIN 5 total) 3,640 t (trawl) 219 t (longline) UoC 5 and11: 2,222 t (LIN 6 total) 1,238 t (trawl) 598 t (longline) UoC 6 and12: 3,337 t (LIN 7 total) 1,688 t (trawl) 1,028 t (longline)
	Year (second most recent)	2014-15	Amount	UoC 2 and 8: 1,325 t (LIN 3 total) 731 t (trawl) 494 t (longline)

				<p>UoC 3 and 9: 2,246 t (LIN 4 total) 996 t (trawl) 1,405 t (longline)</p> <p>UoC 4 and10: 3,927 t (LIN 5 total) 3,278 t (trawl) 510 t (longline)</p> <p>UoC 5 and11: 3,115 t (LIN 6 total) 2,161 t (trawl) 607 t (longline)</p> <p>UoC 6 and12: 3,344 t (LIN 7 total) 2,135 t (trawl) 1,252 t (longline)</p>
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*This is targeted trawl catch. For all UoCs, the total trawl catch will be higher as it includes ling taken as bycatch in trawl fisheries targeting other species.

3.8 Summary of Assessment Conditions

Table 3.8-1 Summary of Assessment Conditions

Condition number	Performance indicator (PI)	Status	PI original score	PI revised score
1	2.3.1	Closed. Surveillance audit 2 2016	75	80
2	2.3.2	Closed. Surveillance audit 2 2016	75	80
3	2.3.3	Closed. Surveillance audit 2 2016	75	80

4 Results

4.1 Condition 1

Performance Indicator (PI) & Score	Relevant PI	Relevant scoring issue/ scoring guidepost text	Score
	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	Longliners: 75
Condition	The client is required to demonstrate that the direct effects of <34 m longline vessels (not targeting bluenose or snapper) are highly unlikely to create unacceptable impacts to ETP bird species.		
Milestones	<p>By the first annual audit, the client will provide evidence in the form of a report on the work it has undertaken to demonstrate that the direct effects of <34 m longline vessels (not targeting bluenose or snapper) are highly unlikely to create unacceptable impacts to ETP bird species. This milestone has been defined as a means to monitor progress. Meeting the milestone would likely not result in a change in score at this surveillance audit.</p> <p>By the second annual surveillance audit the client will provide evidence in the form of a report to show that the direct effects of <34 m longline vessels (not targeting bluenose or snapper) are highly unlikely to create unacceptable impacts to ETP bird species. Meeting this milestone will demonstrate that all scoring issues of the SG 80 have been met and would result in a score of 80 for this performance indicator.</p>		
Client action plan	<p>Year 1:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed seabird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013). • Review existing information to assess the nature and extent of seabird interactions in the ling longline fisheries. Review will include analyses of captures by species, area, method and vessel size, and take into account New Zealand seabird risk assessment framework. • Assess the operational aspects of seabird interactions in ling long line vessels <34 m. • Develop and implement Operational Procedures for ling long line vessels <34 m, including seabird mitigation, Vessel Management Plans, education and outreach, as required. <p>Year 2:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013) • Continue implementation and monitoring of the Operational Procedures for ling long line vessels (<34 m). • Assess the nature and extent of the of seabird interaction, by the ling long-line vessels (<34 m) including analyses of captures by bird species, area, fishing method and vessel size, and take into account New Zealand seabird risk assessment framework. 		
Progress on Condition: Year 1	The monitoring and reporting of observed seabird captures in the ling fisheries has been continued by MPI observers. MPI has also specifically allocated observer days to small vessels in the ling longline fishery.		

	<p>Deepwater Group (DWG) has identified all longline vessels operating in the ling fishery, and assessed vessel activity and seabird interactions, conducted a programme of directed outreach and training, and developed and implemented an interim code of conduct.</p> <p>A report was presented of the nature and extent of seabird interactions in the longline fisheries, including a time series of estimated annual captures by bird species and fishery (DWG 2015a).</p>															
<p>Progress on Condition: Year 2</p>	<p>Progress on this condition was 'on target' at the first audit. The milestone for this second audit was that the client will provide evidence in the form of a report to show that the direct effects of <34 m longline vessels (not targeting bluenose or snapper) are highly unlikely to create unacceptable impacts to ETP bird species. Information presented at this audit (DWG 2016a, DWG 2016c) shows that this milestone is met, and that the ling bottom longline fishery now fully meets the SG80 requirements of SIb.</p> <p>In coming to this determination, the audit team examined Richard & Abraham 2015a and Baker & Hamilton 2016.</p> <ul style="list-style-type: none"> • Baker & Hamilton (2016) conducted Population Viability Analyses (PVA) of the nine seabird species considered to be most at-risk from the <34 m ling longline fishery, modelling the total annual potential fatalities (APFs) from the fishery (aggregated) as 'incidental mortality' distributed equally between adult males and females. Their results showed: <ul style="list-style-type: none"> ▪ The risk posed by the <34 m fleet to the populations of seven of the nine seabird species considered was negligible. ▪ For Chatham albatross, the <34 m ling bottom longline fishery is responsible for the majority of species-level risk, but the population is known with high certainty to be stable (and likely at the limit of available nesting habitat). ▪ For Salvin's albatross, the population trend is uncertain, but only a minor portion of species-level fisheries risk (11%) is attributable to the <34 m ling bottom longline fishery. • Taking the results from Baker & Hamilton (2016), the results of the risk assessment modeling undertaken by Richard & Abraham (2015a) were examined. Their results indicated that mean APFs for Salvin's and Chatham albatrosses associated with the combined small vessel and large vessel ling bottom longline fisheries are substantially below the estimated mean PBRs for these two populations and are less than the lower 95% CI of the PBRs (see table below). <table border="1" data-bbox="416 1435 1406 1839"> <thead> <tr> <th>Species</th> <th>Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)</th> <th>Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)</th> <th>Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)</th> <th>Small + Large vessel ling BLL fisheries (combined mean APF)</th> </tr> </thead> <tbody> <tr> <td>Salvin's albatross</td> <td>1,020 (638 – 1,650)</td> <td>375</td> <td>5</td> <td>380</td> </tr> <tr> <td>Chatham albatross</td> <td>139 (85-228)</td> <td>77</td> <td>3</td> <td>80</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Further work is being undertaken by MPI in collaboration with DOC to understand New Zealand fishery interactions with seabirds, using a novel modeling approach that will allow the impact of fisheries alone or in combination to be determined. 	Species	Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)	Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Small + Large vessel ling BLL fisheries (combined mean APF)	Salvin's albatross	1,020 (638 – 1,650)	375	5	380	Chatham albatross	139 (85-228)	77	3	80
Species	Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)	Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Small + Large vessel ling BLL fisheries (combined mean APF)												
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Chatham albatross	139 (85-228)	77	3	80												

	<p>This new model is in an advanced state of development, and should be operationalised in early 2017 (MPI, pers. comm., Nov 2016).</p> <p>Overall, the evidence provided demonstrates that the ling bottom longline fishery is highly unlikely to create unacceptable impacts to ETP bird species. As such, the ling longline fishery now meets the SG80 level of performance.</p>
<p>Status of condition: Year 2</p>	<p>The ling bottom longline fishery meets the SG80 requirements of PI 2.3.1 in full, and so this condition is closed.</p>

4.2 Condition 2

	Relevant PI	Relevant scoring issue/ scoring guidepost text	Score
<p>Performance Indicator (PI) & Score</p>	<p>2.3.2</p>	<p>The fishery has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> • 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 	<p>Longliners: 75</p>
<p>Condition</p>	<p>The client is required to demonstrate that there is a strategy in place for managing the inshore longline fishery component'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.</p>		
<p>Milestones</p>	<p>By the first annual audit, the client will provide evidence in the form of a report on the work it has undertaken to develop a strategy for managing the inshore longline fishery component's impact on ETP species, including measures to minimise mortality. This milestone has been defined as a means to monitor progress, meeting the milestone would likely not result in a change in score at this surveillance audit.</p> <p>By the second annual surveillance audit the client will provide evidence in the form of a report on the further work it has undertaken to develop and implement a strategy for managing the inshore longline fishery component's impact on ETP species, including measures to minimise mortality. This milestone has been defined as a means to monitor progress, meeting the milestone would likely not result in a change in score at this surveillance audit.</p> <p>By the third annual surveillance audit the client will provide evidence in the form of a report on the further work it has undertaken to develop and implement a strategy for managing the inshore longline fishery component'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. Meeting this milestone will demonstrate that all scoring issues of the SG 80 have been met and would result in a score of 80 for this performance indicator.</p>		
<p>Client action plan</p>	<p>Year 1:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013). 		

	<ul style="list-style-type: none"> • Review existing information to assess the nature and extent of seabird interactions in the ling long line fisheries, use this information in the development of the management strategy for ling long-line vessels. • Assess the operational aspects of seabird interactions in ling long line vessels <34 m. • Develop and implement Operational Procedures for ling long line vessels <34 m, including seabird mitigation, Vessel Management Plans, education and outreach, as required. <p>Year 2:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013). • Continue implementation and monitoring of the Operational Procures for ling long line vessels (<34 m). • Assess the nature and extent of the of seabird interaction, by the ling long-line vessels (<34 m). <p>Year 3:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013). • Report the efficacy of the management strategy (which includes a risk based management framework, observation and reporting, and Operational Plan for long-line vessels.
<p>Progress on Condition:</p> <p>Year 1</p>	<p>The NPOA-Seabirds and sector Annual Operating Plans provide the overall strategy while the MPI seabird risk assessment reports on risk and specific work towards the strategy for managing the inshore longline fishery component's impact was reported (DWG 2015a).</p> <p>The overall strategy for managing bird interactions had now been extended to include the inshore (small vessel) ling longline fishery. Industry has introduced vessel management (operational) plans, and a code of conduct. Annual capture estimates by seabird species and fishery relative to estimated Potential Biological Removal (PBR) reference points were also provided by DWG (DWG 2015a).</p>
<p>Progress on Condition:</p> <p>Year 2</p>	<p>Progress on this condition was 'ahead of target' at the first audit. The milestone for this second audit was that the client would report on the further work undertaken to develop and implement a strategy for managing the inshore longline fishery component's impact on ETP species, including measures to minimise mortality, and this milestone has been met (DWG 2016a).</p> <p>The milestone for the third audit was that the client would provide evidence in the form of a report on the further work undertaken to develop and implement a strategy for managing the inshore longline fishery component'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.</p> <p>In this regard, it is noted that the MSC defines a 'strategy' as "<i>a cohesive and strategic arrangement which may comprise one or more measures, an understanding of how it/they work to achieve an outcome and which should be designed to manage impact on that component specifically.</i>"</p> <p>Information presented at this audit shows that the ling bottom longline fishery now fully meets the SG80 requirements of the Sla. The components of the strategy as presented include:</p> <ul style="list-style-type: none"> • The development and publication of updated bottom longline operational procedures for seabirds and sharks (DWG 2016), which defines: <ul style="list-style-type: none"> ▪ Purpose and objectives

	<ul style="list-style-type: none"> ▪ Legislative framework ▪ Vessel owner and operator responsibilities ▪ Risks to seabirds associated with the fishery ▪ Mandatory mitigation measures to minimise seabird interactions and best practice operational guidelines (i.e., tori line use, weighted line use, offal disposal requirements) ▪ Additional mitigation measures (i.e., use of partially-thawed bait, reduced use of lights during shooting, use of mitigation during hauling) ▪ Seabird handling and release recommendations ▪ Statutory reporting requirements ▪ Trigger thresholds for reporting unusual seabird capture events to DWG ▪ ‘Ten Commandments’ for minimising interactions with seabirds (to be displayed on the bridge of every vessel) ▪ Requirements for shark landing or release. <ul style="list-style-type: none"> • Appointment of a DWG Environmental Liaison Officer, with responsibility to: <ul style="list-style-type: none"> ▪ Compile a comprehensive list of vessels, owners and operational parameters ▪ Visit vessels in port to issue identified ling bottom longline vessels with documentation including MPI’s bottom longline regulations, the operational procedures and the ‘Ten Commandments’ ▪ Brief owners and operators on best practice for seabird impact mitigation ▪ Test tori line designs and materials, and provide samples of the latest materials • Increased levels of observer coverage 2016/17 (450 days planned / 165 achieved since 1st July) <ul style="list-style-type: none"> ▪ More details are provided against Condition 3, below • Assessment of seabird interactions with the ling longline fishery has demonstrated that the level of impact meets national and international requirements for the protection of ETP species <ul style="list-style-type: none"> ▪ More details are provided against Condition 1, above <p>Overall, the approach taken to understand and manage the effect of the ling bottom longline fishery on ETP species, and specifically seabirds, fully meets the MSC definition of a ‘strategy’ – the interactions have been characterised and quantified, impacts are being minimised, and review processes feed findings back in to the management of the fishery. In summary, the strategy is clearly designed to be highly likely to achieve national and international requirements for the protection of ETP species, and so the ling longline fishery now meets the SG80 level of performance.</p> <p>It is noted that the MSC defines a ‘comprehensive strategy’ as “<i>a complete and tested strategy made up of linked monitoring, analyses, and management measures and responses.</i>” (GCB 3.3, MSC 2013). It appears likely that the fishery will meet this higher standard when data from the increased observer coverage and subsequent analysis of the seabird and other ETP species bycatch become available and results are incorporated in to the management of the fishery.</p>
<p>Status of condition:</p> <p>Year 2</p>	<p>The ling bottom longline fishery meets the SG80 requirements of PI 2.3.2 in full, and so this condition is closed.</p>

4.3 Condition 3

	Relevant PI	Relevant scoring issue/ scoring guidepost text	Score
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<p>Performance Indicator (PI) & Score</p>	<p>2.3.3</p>	<p>Relevant information is collected to support the management of fishery impacts on ETP species, including:</p> <ul style="list-style-type: none"> • 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. 	<p>Longliners: 75</p>
<p>Condition</p>	<p>The client is required to demonstrate that information is sufficient to measure trends and support a full strategy to manage impacts on ETP species.</p>		
<p>Milestones</p>	<p>By the first annual audit, the client will provide evidence in the form of a report on the work it has undertaken to demonstrate that information is sufficient to measure trends and support a full strategy to manage impacts on ETP species, including measures to minimise mortality. This milestone has been defined as a means to monitor progress, meeting the milestone would likely not result in a change in score at this surveillance audit.</p> <p>By the second annual surveillance audit the client will provide evidence in the form of a report on the further work it has undertaken to measure trends and support a full strategy to manage impacts on ETP species, including measures to minimise mortality. This milestone has been defined as a means to monitor progress, meeting the milestone would likely not result in a change in score at this surveillance audit.</p> <p>By the third annual surveillance audit the client will provide evidence in the form of a report to demonstrate that information is sufficient to measure trends and support a full strategy to manage impacts on ETP species. Meeting this milestone will demonstrate that all scoring issues of the SG 80 have been met and would result in a score of 80 for this performance indicator.</p>		
<p>Client action plan</p>	<p>Year 1:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013) • Conduct a review of available data to assess the nature and extent of ETP seabird interaction information for ling long-line fisheries • Ascertain whether this information is adequate to support a strategy to manage ETP seabird species and support progress towards determining that the fisheries do not pose a threat to the protection and recovery of ETP species. • Identify main information gaps in order to target future data gathering activities <p>Year 2:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013). • If the gap analysis undertaken in Year 1 fails to demonstrate that there is adequate information available on ETP seabird interactions to support a strategy for management and determine that ling longline fisheries do not pose a threat to the protection and recovery of ETP species: • Develop an agreed strategy to increase the information available to support a management strategy for bycatch. This agreed strategy could include: • Assessing the requirements of observer coverage across seasons, sub-areas and across each fish stock in accordance with MO1.4 of the National Fisheries Plan (MPI, 2013) 		

	<ul style="list-style-type: none"> • Assessing whether MPI is able to increase observer coverage ling bottom longline fishing effort • Assessing the feasibility of independent third party observers or fisheries technicians to collect required information <p>Year 3:</p> <ul style="list-style-type: none"> • Continue to monitor and report observed bird captures in the ling fisheries in accordance with MO1.2, MO1.6, MO2.5 and MO2.6 of the National Fisheries Plan (MPI, 2013) • Provide evidence of the nature and extent of the of seabird interaction in ling long-line fisheries, demonstrate that information is sufficient to measure trends and support a full strategy to manage impacts on ETP seabird species in ling long-line fisheries.
<p>Progress on Condition:</p> <p>Year 1</p>	<p>There has been continued monitoring and reporting of observed seabird captures in the ling fisheries, and a report was provided on assessments using available data to determine the nature and extent of seabird interactions in the inshore ling longline fishery, and annual captures and trend estimates (DWG 2015a). The report showed low precision in annual bird capture estimates, which makes determination of trends problematic. Although the efforts to increase MPI observer coverage in the inshore ling longline fishery in order to increase precision were verbally reported, this remained the primary identified information gap.</p>
<p>Progress on Condition:</p> <p>Year 2</p>	<p>Progress on this condition was 'on target' at the first audit. The milestone for this second audit was that the client would provide evidence in the form of a report on the further work undertaken to measure trends and support a full strategy to manage impacts on ETP species, including measures to minimise mortality; this has been met (DWG 2016a).</p> <p>The milestone for the third audit was that the client will provide evidence in the form of a report to demonstrate that information is sufficient to measure trends and support a full strategy to manage impacts on ETP species. Information presented at this audit shows that this has also been met, and that the ling bottom longline fishery therefore now fully meets the SG80 requirements of SIc.</p> <p>As noted last year, observer coverage, especially of small ling longline vessels, has been at a variable and sometimes very low level, such that it has been difficult to ascertain impacts with a high level of confidence. In response, there has been an effort to significantly improve the availability of ETP capture information for small vessels in the ling bottom longline fleet. In 2014-15, MPI planned for 150 days of ling bottom long line fishery coverage, of which 122 days were accomplished. In 2015-16, 175 observer days were planned and 160 were achieved. For 2016/17, 450 observer days have been planned, and 165 have already been achieved since the start of the financial year on 1st July, all of which have been on ling longline vessels <34 m (MPI, pers. comm., Nov 2016).</p> <p>The revised plan is specifically designed for observer coverage to be more representative of the fishery, to achieve 25% coverage of the fishing effort in total, and 15% of the small vessel component. Furthermore, the audit team understood that MPI has committed to this increased level of observer coverage until remote monitoring options (i.e., CCTV) have been trialed and demonstrated to be effective, with tests of cameras for monitoring seabird bycatch having started in the snapper bottom longline fishery.</p> <p>In order to understand seabird-fishery interactions when data are less than comprehensive, MPI has used a risk assessment process to consider risk in a conservative way. This risk assessment process is detailed against Condition 1, but it is also noted that further work is being undertaken by MPI in collaboration with DOC to understand New Zealand fishery interactions with seabirds, using a new risk assessment modeling approach that will allow the impact of fisheries alone or in combination to be determined. This new model, based on several years of work and</p>

	<p>iterations through MPI Working Group reviews is in an advanced state of development, and should be operationalised in early 2017 (MPI, pers. comm., Nov 2016).</p> <p>Overall, and although the available information on seabird bycatch can always be improved when observer coverage is less than 100%, the information available is sufficient to measure trends and support a full strategy to manage impacts on ETP species. As such, the ling longline fishery now meets the SG80 level of performance.</p>
<p>Status of condition: Year 2</p>	<p>The ling bottom longline fishery meets the SG80 requirements of PI 2.3.3 in full, and so this condition is closed.</p>

4.4 Recommendation 1

Performance Indicator (PI) & Score	Relevant PI	Relevant scoring issue/ scoring guidepost text	Score
	2.3.1	N/A	N/A
Recommendation	<p>There are a number of trawl vessels operating in LIN 3, 5 and 7 of vessel lengths smaller than 28 m (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.</p>		
Progress on Recommendation: Year 1	<p>Data on this issue were provided during the audit, and showed that about half (47% of tows) of the small trawl vessels were now included in the DWG programme, meaning seabird risk plans and capture mitigation measures were now in place. For the remainder, 23% had been identified through Southern Inshore Fisheries and implementation of seabird risk management plans was well underway, and the remaining 30% had been identified by DWG and were identified for risk management plans in 2016. A DWG plan was described which would result in all small vessels engaged in the LIN 3, 5 and 7 trawl fishery having seabird risk management plans and mitigation measures in place by the end of 2016. Good progress was therefore being made. The recommendation remains to report on progress at the next surveillance audit.</p>		
Progress on Recommendation: Year 2	<p>Progress on this recommendation was 'on target' at the first audit.</p> <p>At the Year 2 audit, the audit team was provided with an update on progress against the conditions and recommendations against the ling fishery (DWG 2016a).</p> <p>It was confirmed that through active promotion by DWG in collaboration with Southern Inshore Fisheries Management Company (SIFMC) Ltd and the contracted Environmental Liaison Officer, 25 of 28 vessels engaged in the ling trawl fishery in areas LIN 3-7 have now implemented seabird risk management</p>		

	<p>plans. The three vessels not yet covered will be targeted in the coming year, but in any case accounted for <5% of the total number of tows undertaken in 2015/16.</p> <p>Information from Dragonfly Science shows that the estimated seabird capture by all small trawlers in all ling fisheries (i.e. including LIN 1 and LIN 2, which are not UoC) amounts to approximately 20 birds per annum. Based on these data, it appears that implementation of mitigation measures additional to those described above are not required at this time.</p>
<p>Status of recommendation: Year 2</p>	<p>This recommendation is now implemented and closed.</p>

5 Conclusion

5.1 Summary of findings

This fishery remains certified.

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P1

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Appendix 1 – Re-scoring evaluation tables

Evaluation Table for PI 2.3.1, Ling bottom longline UoCs (LIN 3-7)

PI 2.3.1		<p>The fishery meets national and international requirements for the protection of ETP species</p> <p>The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species</p>		
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	N
	Justification	All longline UoCs scored 80 at full assessment. No change is made at this rescoring.		
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	N
	Justification	<p><u>Relevant Section of the Original Scoring Text</u></p> <p>In 'small bottom-set longline' fisheries (described as vessels <34m not targeting bluenose or snapper, but combining the targeting of a number of species), the seabird risk assessment noted estimated Salvin's albatross and Chatham albatross fatalities were notable; indeed the small-vessel group had the highest vulnerability. Conservative population estimates for key bird species are: white-chinned petrels are around 70,000 (uncertain estimate) and when taking the overall mortalities within fisheries into account, white-chinned petrel were within the 'moderate' risk category; sooty shearwaters around 5 million adult pairs; this species was within the low risk category. The uncertainty in the risk ratio was more sensitive to uncertainty in bottom-longline fatalities than information on mortalities in other fisheries or biological characteristics. The risk assessment suggested that the larger bottom longline vessels were of relatively low risk with a mean annual potential fatality value between 1-10% of the PBR, suggesting direct effects are highly unlikely to create unacceptable impacts to ETP species. The smaller bottom longline vessels (noting that this was not split into ling vessels specifically - see 2.3.3) showed greater risk, with black petrel interactions being greater than the mean PBR, Salvin's albatross and Chatham Island albatross interactions being between 30-100% of the PBR, and Flesh-footed shearwater interactions being between 10-30% of the PBR. While the ling small bottom longline component of this category is unlikely to create unacceptable impacts to ETP species, this uncertainty needs to be addressed. As the longline UoC combines both small and large longline vessels, and given the risk and uncertainty over interaction rates for these gears resulting from variable observer coverage, a score of 60 is given for the longline fishery.</p>		

PI 2.3.1	<p>The fishery meets national and international requirements for the protection of ETP species</p> <p>The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species</p>															
	<p><u>New Scoring Text</u></p> <p>Through a revised risk-assessment process, Baker & Hamilton (2016) conducted Population Viability Analyses (PVA) of the nine seabird species considered to be most at-risk from the <34 m ling longline fishery, modeling the total annual potential fatalities from the fishery (aggregated) as ‘incidental mortality’ distributed equally between adult males and females. Their results showed the risk posed by the <34 m fleet to seven of the nine seabird populations was negligible.</p> <p>The results also showed the risk to Chatham albatross and Salvin’s albatross was not negligible, but that direct effects are highly unlikely to create unacceptable impacts to these ETP species.</p> <ul style="list-style-type: none"> ▪ For Chatham albatross, the <34 m ling bottom longline fishery is responsible for the majority of species-level risk, but the population is known with high certainty to be stable (and likely at the limit of available nesting habitat). ▪ For Salvin’s albatross, population trend is uncertain, but only a minor portion of species-level fisheries risk (11%) is attributable to the <34 m ling bottom longline fishery. <p>Using the results of Baker & Hamilton (2016) that indicate the greatest risk is to Salvin’s and Chatham albatrosses, it is possible to review the risk assessment results of Richard & Abraham (2015a), who considered all New Zealand fisheries individually. Their results show that the mean annual potential fatalities (APFs) associated with the combined small vessel and large vessel ling bottom longline fisheries are substantially below the estimated mean PBRs for these two populations and are less than the lower 95% CI of the PBRs (see table below).</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="text-align: left;">Species</th> <th>Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)</th> <th>Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)</th> <th>Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)</th> <th>Small + Large vessel ling BLL fisheries (combined mean APF)</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Salvin's albatross</td> <td>1,020 (638 – 1,650)</td> <td>375</td> <td>5</td> <td>380</td> </tr> <tr> <td style="text-align: left;">Chatham albatross</td> <td>139 (85-228)</td> <td>77</td> <td>3</td> <td>80</td> </tr> </tbody> </table> <p>It is noted that there are a number of developments in the fishery that may, in time, lead to a higher score being achieved.</p> <ul style="list-style-type: none"> ▪ Low levels of observer coverage in the small vessel (<34 m) ling bottom longline fishery has been an issue of concern, but is being addressed. The observer coverage for the ling bottom longline fleet as a whole has increased from 2014/15 (150 days planned, 122 days achieved) to 2015/16 (175 days planned, 160 achieved), with a substantial increase for 2016/17 now confirmed (450 days planned, 165 already achieved since the start of the budgetary year on 1st July, all of which have been on the <34 m fleet- MPI, pers. comm., Nov 2016). This level of observer coverage should significantly reduce the element of uncertainty in the seabird bycatch data, and the audit team understood that MPI has committed to this increased level of observer coverage until remote monitoring 	Species	Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)	Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Small + Large vessel ling BLL fisheries (combined mean APF)	Salvin's albatross	1,020 (638 – 1,650)	375	5	380	Chatham albatross	139 (85-228)	77	3	80
Species	Estimated PBRp values (95 % C.I.) (From Table 9, Richard & Abraham 2015)	Small vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Large vessel ling BLL fisheries (mean APF) (From table A-11, Richard & Abraham 2015)	Small + Large vessel ling BLL fisheries (combined mean APF)												
Salvin's albatross	1,020 (638 – 1,650)	375	5	380												
Chatham albatross	139 (85-228)	77	3	80												

PI 2.3.1		<p>The fishery meets national and international requirements for the protection of ETP species</p> <p>The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species</p>		
		<p>options (i.e., CCTV) have been trialed and demonstrated to be effective. Tests of cameras for monitoring seabird bycatch having started in the snapper bottom longline fishery, and the audit team expects to receive an update on these trials at the next audit or assessment of the fishery.</p> <ul style="list-style-type: none"> Further work is being undertaken by MPI in collaboration with DOC to understand New Zealand fishery interactions with seabirds, using a novel modeling approach that will allow the impact of fisheries alone or in combination to be determined. This new model is in an advanced state of development, and should be operationalised in early 2017 (MPI, pers. comm., Nov 2016). <p>While the results of these developments are anticipated, existing data indicate that the direct effects of the ling bottom longline fishery are highly unlikely to create unacceptable impacts to ETP species. As such, the fishery meets the SG80 level of performance, and the condition on this SI is closed.</p>		
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	All longline UoCs scored 80 at full assessment. No change is made at this rescoring.		
References		Baker & Hamilton, 2016; Richard & Abraham, 2015a.		
OVERALL PI SCORE:		Ling BLL fishery (All UoCs)		80
CONDITION NUMBER		Ling BLL fishery (All UoCs)		N/A

Evaluation Table for PI 2.3.2, Ling bottom longline UoCs (LIN 3-7)

PI 2.3.2		<p>The fishery has in place precautionary management strategies designed to:</p> <p>Meet national and international requirements;</p> <p>Ensure the fishery does not pose a risk of serious harm to ETP species;</p> <p>Ensure the fishery does not hinder recovery of ETP species; and</p> <p>Minimise mortality of ETP species.</p>		
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
	Justification	<p><u>Relevant Section of the Original Scoring Text</u></p> <p>General mitigation approaches for longliners, supported through legislation, include voluntary industry-led codes of practice. These include individual vessels' Vessel Management Plans, which cover 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, regulation requires the use of a streamer line during the setting of bottom longlines on vessels greater than 27 m in length, and therefore may not cover the whole fleet. Line weighting approaches are also used. Reporting practices are also in place, so that bird captures trigger action by DWG and are reported to MPI.</p> <p>For longliners, information suggests that the (not regulated) implementation of bird-scaring devices may be less rigorous in the inshore sector. The 60 level is met but not the 80 and a condition raised.</p> <p><u>New Scoring Text</u></p> <p>The components of the strategy for the ling bottom longline fishery now include:</p> <ul style="list-style-type: none"> • The development and publication of updated bottom longline operational procedures for seabirds and sharks (DWG 2016b), which has been provided to and applied to all bottom longline owners and operators, and which defines: <ul style="list-style-type: none"> ▪ Purpose and objectives ▪ Legislative framework ▪ Vessel owner and operator responsibilities ▪ Risks to seabirds associated with the fishery ▪ Mandatory mitigation measures to minimise seabird interactions and best practice operational guidelines (i.e., tori line use, weighted line use, offal disposal requirements) ▪ Additional mitigation measures (i.e., use of partially-thawed bait, reduced use of lights during shooting, use of mitigation during hauling) ▪ Seabird handling and release recommendations ▪ Statutory reporting requirements 		

<p>PI 2.3.2</p>	<p>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.</p>			
		<ul style="list-style-type: none"> ▪ Trigger thresholds for reporting unusual seabird capture events to DWG ▪ ‘Ten Commandments’ for minimising interactions with seabirds (to be displayed on the bridge of every vessel) ▪ Requirements for shark landing or release. <ul style="list-style-type: none"> • Appointment of an Environmental Liaison Officer by DWG, with responsibility to: <ul style="list-style-type: none"> ▪ Compile a comprehensive list of vessels, owners and operational parameters ▪ Visit vessels in port to issue identified ling bottom longline vessels with documentation including MPI’s bottom longline regulations, the operational procedures and the ‘Ten Commandments’ ▪ Brief owners and operators on best practice for seabird impact mitigation ▪ Test tori line designs and materials, and provide samples of the latest materials • Increased levels of observer coverage 2016/17 (450 days planned / 165 achieved since 1st July), with a commitment to continue at this level until remote monitoring options have been trialled and shown to be effective at determining seabird bycatch levels (MPI, pers. comm., Nov 2016). • Assessment of seabird interactions with the ling longline fishery by Baker & Hamilton (2016) and Richard & Abraham (2015a) has demonstrated that the level of impact meets national and international requirements for the protection of ETP species. A revised risk assessment modeling approach is also being developed, with the model anticipated to be operationalised early next year (MPI, pers. comm., Nov 2016). <p>Overall, the approach taken to understand and manage the effect of the ling bottom longline fishery on ETP species, and specifically seabirds, fully meets the MSC definition of a ‘strategy’ – the interactions have been characterised and quantified, impacts are being minimised, and review processes feed findings back in to the management of the fishery. In summary, the strategy is clearly designed to be highly likely to achieve national and international requirements for the protection of ETP species, and so the ling longline fishery now meets the SG80 level of performance. The Condition has therefore been closed.</p>		
<p>b</p>	<p>Guidepost</p>	<p>The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).</p>	<p>There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved.</p>	<p>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.</p>
	<p>Met?</p>	<p>Y</p>	<p>Y</p>	<p>N</p>
	<p>Justification</p>	<p>All longline UoCs scored 80 at full assessment. No change is made at this rescoring.</p>		
<p>c</p>	<p>Guidepost</p>		<p>There is evidence that the strategy is being implemented successfully.</p>	<p>There is clear evidence that the strategy is being implemented successfully.</p>

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.		
	Met?		Y	N
	Justification	All longline UoCs scored 80 at full assessment. No change is made at this rescoreing.		
d	Guidepost			There is evidence that the strategy is achieving its objective.
	Met?			N
	Justification	All longline UoCs did not meet this SG100 requirement at full assessment. No change is made at this rescoreing.		
References		Baker & Hamilton, 2016; DWG, 2016b; Richard & Abraham, 2015a.		
OVERALL PI SCORE:		Ling BLL fishery (All UoCs)		80
CONDITION NUMBER		Ling BLL fishery (All UoCs)		N/A

Evaluation Table for PI 2.3.3, Ling bottom longline UoCs (LIN 3-7)

PI 2.3.3		Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"> 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	All longline UoCs scored 80 at full assessment. No change is made at this rescoreing.		

PI 2.3.3		<p>Relevant information is collected to support the management of fishery impacts on ETP species, including:</p> <ul style="list-style-type: none"> • 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	All longline UoCs scored 80 at full assessment. No change is made at this rescoring.		
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	<p><u>Relevant Section of the Original Scoring Text</u></p> <p>Trends in fisheries captures and mortalities are measured through observer data collection. Trends can be derived using effort information and observations from specific years, these interpolations can only be adequate to support measures (SG60), rather than sufficient to measure trends (SG80) given the additional uncertainty that results in the modeling process, and the potential for unusual years to form the basis of model results. Available reports providing estimates by UoC demonstrate the patchy nature of data. Where observer coverage has been relatively high (e.g. LIN6), confidence intervals remain relatively high, suggesting bycatch patterns that vary, and which affect the measurement of trends.</p> <p><u>New Scoring Text</u></p> <p>Observer coverage, especially of small ling longline vessels, has been at a variable and sometimes very low level, such that it has been difficult to ascertain impacts with a high level of confidence. In response, there has been an effort to significantly improve the availability of ETP capture information for small vessels in the ling bottom longline fleet. In 2014-15, MPI planned for 150 days of ling bottom long line fishery coverage, of which 122 days were accomplished. In 2015-16, 175 observer days were planned and 160 were achieved. For 2016-17, 450 observer days have been planned, and 165 have already been achieved since the start of the financial year on 1st July. Most of which have been on vessels <34 m (MPI, pers. comm., Nov 2016).</p> <p>The revised plan is specifically designed for observer coverage to be more representative of the fishery, to achieve 25% coverage of the fishing effort in total, and 15% of the small vessel component. Furthermore, the audit team understood that MPI has committed to this increased level of observer coverage until remote monitoring options (i.e., CCTV) have been trialled and demonstrated to be effective, with tests of</p>		

<p>PI 2.3.3</p>	<p>Relevant information is collected to support the management of fishery impacts on ETP species, including:</p> <ul style="list-style-type: none"> • 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. 		
	<p>cameras for monitoring seabird bycatch having started in the snapper bottom longline fishery.</p> <p>In order to understand seabird-fishery interactions when data are less than comprehensive, MPI has used a risk assessment process to consider risk in a conservative way. This risk assessment process is detailed against Condition 1, but it is also noted that further work is being undertaken by MPI in collaboration with DOC to understand New Zealand fishery interactions with seabirds, using a novel ling approach that will allow the impact of fisheries alone or in combination to be determined. This new model is in an advanced state of development, and should be operationalised in early 2017 (MPI, pers. comm., Nov 2016).</p> <p>Overall, and although the available information on seabird bycatch can always be improved when observer coverage is less than 100%, the information available is sufficient to measure trends and support a full strategy to manage impacts on ETP species. As such, the ling longline fishery now meets the SG80 level of performance</p>		
<p>References</p>	<p>MPI, pers. comm., Nov 2016.</p>		
<p>OVERALL PI SCORE:</p>		<p>Ling BLL fishery (All UoCs)</p>	<p>80</p>
<p>CONDITION NUMBER</p>		<p>Ling BLL fishery (All UoCs)</p>	<p>N/A</p>

Appendix 2 - Stakeholder submissions

None received.

Appendix 3 - Surveillance audit information

N/A.

Appendix 4 - Additional detail on conditions/ actions/ results

NA.

Appendix 5 - Revised Surveillance Program

Although this fishery is not due for reassessment until 2019, It is proposed that it enters the reassessment process in April 2017. This allows for all four MSC certified NZ deepwater fisheries to be assessed at the same time.