

## 1. Introduction

This document describes the method to be used for the orange roughy (ORH) risk Assessment of the Environmental Effects of Fishing (AEEF) in August 2013 and the role of the Expert Panel (the Panel).

The risk assessment will be an expert opinion-based analysis and will be conducted by the Panel at the AEEF Workshop at Seafood Industry House in Wellington on 5 and 6 August 2013. It will consider the performance of four orange roughy fisheries, ORH MEC, ORH3B East & South Chatham Rise, ORH3B Northwest Chatham Rise and ORH7A against agreed management objectives. These management objectives and sub-objectives are based on the Marine Stewardship Council (MSC) Certification Requirements for P2 benchmarks and in particular the 80 scoring guidelines.

Essentially the proposed method used will follow that described by Fletcher<sup>1</sup> in 2005. This process developed by Fletcher which was used in the 2010 Hoki ERA, essentially involves:

- The examination of sources of risk (issue identification)
- The potential consequences (impacts) associated with each issue; and,
- The likelihood (probability) of a particular level of consequence actually occurring.

The purpose of the AEEF is to identify the issues or components that are assessed to be of moderate to high risk and to separate these from those that are of negligible to low risk, and to determine the specific sources of risk for each component.

The Panel will not consider future management responses to any identified risks nor will it consider possible future mitigation measures. These will be the subject of a separate considerations by fisheries managers that will be implemented through the Fishery Plan and other management measures.

## 2 Objective of the AEEF

The overall objective of these ORH AEEFs is:

- To inform managers of the risks to ecosystem components associated with each these four target orange roughy fisheries.

Within this overall objective, there are three main sub-objectives:

1. To identify and assess the risks to ecosystem components and the level of those risks;
2. To identify the degree of confidence associated with each assessment; and,
3. To identify any information gaps associated with each assessment.

This information will be used to inform managers who will develop and implement relevant work programs to improve sustainable management outcomes.

<sup>1</sup> Fletcher, W.J., (2005) The application of qualitative risk assessment methodology to prioritise issues for fisheries management, ICES Journal of Marine Science, 2005 62:1576-1587

### 3. Scope

This AEEF will address the ecosystem effects of four target orange roughy fisheries. These are ORH3B East and South Chatham Rise (ORH3B ESCR), ORH3B Northwest Rise (ORH3B NWCR), ORH2A 2B, 3A combined (ORH MEC), and ORH7A (including Westpac Bank which lies outside the EEZ). It will provide a focused assessment of the effect of the four target orange roughy fisheries across five primary ecological components that embrace all parts of the marine ecosystem within which the fisheries operate. These components partition the overall ecosystem into the different ecosystem areas that are potentially impacted by each of these fisheries. They are:

1. **Non-target species** - the direct effects on species or stocks that are incidentally caught along with the target species and are retained either because they have value or there is legal requirement
2. **By-catch** - the direct effect on species or stocks that are incidentally caught along with the target species but are discarded, usually because they have no value
3. **Endangered, threatened and protected species (ETP species)** – the direct effect on ETP species that are incidentally caught - in practice, these will be legally protected species under domestic law or protected under international treaty
4. **Habitats** -direct effects on habitat structure and function that may be directly impacted by the fishery
5. **Ecosystem** - indirect effects on ecosystem structure and function

This AEEF involves the assessment of the direct effects (including capture mortality, cryptic mortality and other direct impacts) of each of the orange roughy fisheries on the first four ecological components above. It will consider only indirect effects of the fisheries on the overall ecosystem – this involves assessing any indirect effects or flow-on effects of the fishery that may be additional to or a consequence of the direct effects on the first four components. In making assessments, the Panel will take into consideration the effectiveness of current management, including mitigation measures that are in place. It will also consider the nature of the information available. The rationale and any qualifiers attached to each assessment will be documented and will form part of the AEEF.

The AEEF aims to cover all ecological components as thoroughly as possible. The wide scope of the AEEF means that the Panel will have the discretion to determine how much time it will allocate to each topic and which particular topics require more or less of its attention within the overall time set aside for the workshop. The assessment will be assisted by input from science providers, stakeholders and observers at the workshop.

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## 4. Workshop Format and Procedure

### 4.1 The Expert Panel

The AEEF assessments will be undertaken by an Expert Panel in a workshop that will be open to any stakeholder and interested party. The makeup of the Panel includes both stakeholder representatives and independent experts.

Proposed members of the AEEF Panel are as follows:

- Richard Wells (Fisheries Specialist, Deepwater Group Ltd)
- Jeremy Helson (MPI, Manager Deepwater)
- Geoff Tingley (MPI, Principal Scientist Stock Assessment)
- Paul Crozier (Marine Advocate, WWF New Zealand)
- Duncan Leadbitter, (Independent Fisheries Expert)

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### 4.1 Independent Facilitator

The Workshop will be guided by an Independent Facilitator.

The Facilitator (who will also be the Chair) will assist the Panel by introducing and opening up each topic or component for consideration and will provide guidance and structure to keep the discussions on topic and reach a conclusion within the available time. He will also lead the Panel in the formation of their final report.

The Independent Facilitator will be Rick Boyd of Boyd Fisheries Consultants Ltd.

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### 4.2 Protocols for Expert Panel and Facilitator

The Panel and the Facilitator will use their respective Protocols (attached as Appendix 1 and Appendix 2) to guide how they undertake their discussions, deliberations and responsibilities.

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### 4.3 Conduct of AEEF Proceedings

The Facilitator will introduce each agenda item or topic and the Panel will determine how it wishes to address it consistent with and in accordance with the Method (see Section 5). It is proposed that each of the five ecological components be addressed in turn in the order listed in Section 3 above unless the Panel, after discussion with the Facilitator, determines that it should alter the order of proceedings. Where a species or group falls into more than one category, it will be assessed only once. Each orange roughy fishery will be considered and assessed individually.

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### 4.4 Sources of Information

The AEEF will use the best science information available in making its assessments. The primary sources of information will be published and peer reviewed MPI science research reports and the primary scientific literature published in refereed scientific journals. Other research results and MPI fishery data will also be considered where it is available. Information provided in presentations to the Panel by science providers (see 4.6 below) will also be used in the assessment.

All information used in the assessment will be evaluated on the basis of its standing. Published and peer reviewed literature will generally be accorded the highest weight and other reports or information lesser weight, although this will depend on the source and particulars of each kind of information. Within this overall guide, the Panel will have discretion as to how it weights and uses information based on its collective expertise after considering the quality and relevance of the information.

Assessments will be based on the expert opinion of the Panel based on its evaluation of the best available science information. Depending on the information available, the Panel's assessments may be based on quantitative analysis or they may make an expert-based qualitative assessment.

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### 4.5 Science Presentations to the Panel

Experts from Science Providers have been commissioned to provide information to the Expert Panel on topics of particular significance to these orange roughy fisheries. In some cases, the scientists providing this information will make formal presentations to the Panel so that there is an opportunity for the Panel to discuss the topics with them. These formal presentations are aimed at ensuring the most recent scientific knowledge and information is available to the Panel.

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#### **4.6 Stakeholder and Other Input**

At appropriate times, and with the agreement of the Panel, the Workshop Facilitator will invite stakeholders and interested parties present to ask questions of the Panel, raise relevant topics or issues for the Panel's consideration, or to provide information or comments to the Panel. Every endeavour will be made to allow free and open contributions from participants and for discussion of any matters they raise in these circumstances provided that it is strictly on topic, assists the risk assessment and does not impede the work of the Panel.

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## 5. AEEF Method – Management Objectives, Assessment and Scoring

### 5.1 Management Objectives

The AEEF focuses on assessing the risks to each of the five ecosystem components in relation to the overall management objectives for the fishery. These management objectives provide the framework for assessing risk, which can be defined as the probability that the management objective will not be achieved. The specific management objectives are slightly different for each ecological component and provide the framework for the determinations of the levels of risk and consequence used in the AEEF method. The management objectives are:

1. **Retained Species Objective:** 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.
2. **Bycatch Species Objective:** The fishery does not pose a risk of serious or irreversible harm to the by-catch species or species groups and does not hinder recovery of depleted by-catch species or species groups.
3. **ETP Species Objectives:** 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.
4. **Habitats Objective:** The fishery does not cause serious or irreversible harm to habitat structure and function, considered on a regional or bioregional basis.
5. **Ecosystem Objective:** The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.

In addressing these objectives, the AEEF assessment method progresses through three main steps in sequence:

1. The examination of sources of risk;
2. An assessment of the potential consequences of those risks and;
3. The likelihood of a particular level of consequence occurring.

The Panel will score the potential consequence or risk and the likelihood or probability of that consequence using a set of standards or definitions for each level of consequence and likelihood that are based on the management objectives above. The Panel will also determine its level of confidence in the scores that it has given.

Together the consequence and likelihood scores will be combined to generate a matrix that indicates the level of risk.

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### 5.2 Identifying Sources of Risk

Risk will be identified, but not scored. Risk to ecological components arises from any actual or potential interaction between the activity of fishing and the ecological component that may have a negative impact on its biological wellbeing or sustainability and affect the management objective.

Where data exist these are to be used to assess the scale and intensity or significance of the interaction or exposure. For example, where there is known or suspected distributional overlap between any of the orange roughy fisheries and the ecological component under consideration, this information will be used to assess the potential consequence of the exposure. Similarly, where there is specific research information or a quantitative analysis that provides information on the potential impact of the fishery on a component, this is to be used in the assessment.

Where data do not exist, a precautionary approach will be adopted. For example, where the distribution of a particular fishery is known but the distribution of the ecological component (e.g. a species) is unknown or in doubt, there will be an assumption that the potential risk is higher because the ecological component under consideration may be exposed to the orange roughy fisheries.

The identified risks and consequences and the reasons for them will be recorded in the proceedings of the AEEF.

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### 5.3 Scoring Consequence

Based on the identified risks and influence such as the scale, intensity and significance of the exposure of the ecological component to those risks from the orange roughy fisheries, the Panel will discuss, evaluate and score the consequences of that exposure on a scale of 1 to 4. using a set of standard pre-prepared consequence descriptions. Tables A1 to A5 at the end of the document provide the descriptions of the consequence levels and scores for the five ecological categories. These descriptions will be reviewed by the Panel prior to the workshop.

As the nature of the potential consequences of exposure to the fishery depends on the particular ecological component being considered, there are different set of descriptions of consequence levels for each of the ecological categories.

The consequence scores and the reasons for them will be recorded in the proceedings of the AEEF.

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### 5.4 Scoring Likelihood

Following the scoring of the consequence, the Panel will discuss, assess and then score the likelihood of that consequence occurring. Likelihood will consider the factors that affect the probability of a particular consequence such as the nature of the species (productivity), the susceptibility of the species to the fishery, any management measures or management regime that is in place, and any active monitoring or measurement of the status of the species or component. Likelihood scores will range from 1 to 4 to reflect the Panel's assessment of the probability of level of consequence.. The likelihood descriptions are provided (Table A6 at the end of the document) and will be reviewed by the Panel prior to the workshop.

The likelihood scores and the reasons for them will be documented and recorded in the proceedings of the AEEF.

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### 5.5 Recording Confidence

When it has completed the evaluation of risk and likelihood for each ecological component, based on the evidence and its judgment, the Panel will rate its confidence in its assessment (high or low). Table A7 provides the confidence ratings together with a set of prepared rationales. These will have been reviewed by the Panel prior to the workshop.

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## 6. Main Species and Ecological Components to be Assessed

Any species can be selected for assessment in the AEEF although assessing large number of minor non-target species that are caught in small quantities may not be a useful contribution to the overall result. Therefore, it is important to discriminate between species that need to be assessed from those that do not.

The target species, orange roughy does not need to be assessed because the purpose of the AEEF is to assess the impacts of orange roughy target fishing on all other components of the ecosystem.

### 6.1 Retained and By-catch (Discard) Species Components

Up to several hundred individual species or species groups occur in the non-target catch of the New Zealand wide orange roughy fishery (Anderson 2011, 2013). Similar numbers of species appear in the Observer Data Report from the MPI Observer Programme that summarises fish and invertebrate non-target catch for the four individual orange roughy fisheries in this assessment.

Any species can be selected for assessment in the AEEF although assessing the large number of non-target species that are caught in small quantities that are very unlikely be at risk would not be a useful contribution to the overall result. Therefore, it is necessary to discriminate between species that need to be assessed from those that do not.

Two principal criteria are suggested for the selection of the main species for assessment in the retained and bycatch (discarded) species components consistent with the AEEF objectives.

1. Using observer data, the catch as a percentage of total catch is  $\geq 5\%$ ; or
2. The species or group is considered vulnerable, either because it has low productivity or there is other evidence (e.g. the total catch weight is large) to indicate it is vulnerable to the impacts of the target ORH fishery.

The criteria are not intended to exclude additional species that should be included in the assessment for other reasons such as species listed in the IUCN Red List.

Table 1: Main species for assessment in the ORH AEEF Retained and By-catch Components

	ORH MEC	ORH 7A	ORH3B NWR	ORH3B ESR	Criterion	AEEF Component
Alfonsino	Y	N	N	N	$\geq 5\%$	Retained
Oreo dories	Y	N	N	Y	$\geq 5\%$	Retained
Slickheads	Y	Y	Y	Y	Low productivity	Bycatch (discarded)
Morid cods	Y	Y	Y	Y	Low productivity	Bycatch (discarded)
Deepwater sharks	Y	Y	Y	Y	Low productivity	Bycatch (discarded)
Deepwater skates & rays	Y	Y	Y	Y	Low productivity	Bycatch (discarded)
Chimaeras	Y	Y	Y	Y	Low productivity	Bycatch (discarded)
IUCN Red list species	TBA	TBA	TBA	TBA	TBA	TBA

## 6.2 ETP Species Component

All protected species or species groups will be assessed individually in the ETP Component of the orange roughy AEEF. In addition any other species listed under CITES Appendix 1 not included in the current list of New Zealand protected species will also be considered in the ETP species component.

Protected and other ETP species to be assessed in the AEEF are set out in Table 2

Table 2: Species for assessment in the ETP Component

	ORH MEC	ORH 7A	ORH3B NWR	ORH3B ESR	Criterion
All seabirds except black backed gulls	Y	Y	Y	Y	Protected
All marine mammals	Y	Y	Y	Y	Protected
White pointer, basking shark, whale shark, deepwater nurse shark, giant grouper, spotted black grouper, manta ray, spine tail devil ray	Y	Y	Y	Y	Protected
All marine reptiles	Y	Y	Y	Y	Protected
All corals in the orders Gorgonacea and Scleractinia, and hydrocorals of the family Stylasteridae.	Y	Y	Y	Y	Protected
Additional species not otherwise included above	TBA	TBA	TBA	TBA	Listed in CITES Appendix 1

## 6.3 Habitat Component

The target orange roughy fishery uses bottom trawls on or over two different types of seabed or benthic habitat; underwater topographic features (UTFs) which characteristically rise from the flat surrounding seafloor and are comprised of areas of hard or rocky substrate, and the flat or gently sloping continental slope which characteristically is comprised of soft relatively uniform sediments.

## 6.4 Ecosystem Component

The AEEF will consider the indirect effects of the orange roughy fishery on the characteristic features of the wider ecosystem within which the fishery takes place that are considered to be the most important in maintaining its character and its ability to continue to provide ecosystem services. These indirect effects include such impacts as a significant increase or decrease in the abundance of species lower down in the food web, depletion of top predators that may play a key role in the shape of the ecosystem and any effects on the overall size composition in the fish community that may affect its structure.



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## 7. Workshop Proceedings

A written record will be kept of the proceedings, including all decisions and the reasons for them. Throughout the AEEF assessment and scoring process a record will be kept of any matter where the Panel is unable to reach a consensus, and in each such case will record the different views and the reasons for them.

The proceedings of the workshop will be incorporated into the AEEF Report.

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## 8. Post Workshop

The draft AEEF report will contain the results of the Panel's assessments and scoring together with the recorded reasons and rationales. The report will also document the areas where there were divergent views amongst the members of the Panel and any topics where the Panel considered they lacked expertise to reach an informed opinion.

This draft report will be provided to the AEEF Panel members as soon as possible after the Workshop for their confirmation and any corrections before it is finalised. However the draft report will not include any new considerations.

The final report will be released to the public by Deepwater Group Ltd.

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## Appendix 1: Protocols for the ORH AEEF Panel (the Panel)

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1. The Panel will adopt its collective expertise, knowledge and professional judgement in an objective manner in undertaking the formal AEEF for the orange roughy fisheries.
  2. A precautionary approach will be adopted where there is an absence of information.
  3. The Panel will adopt consensus decision making as a guiding principle. Where consensus cannot be reached, alternative views will be recorded and the reasons for these will be documented.
  4. The Panel members will use their professional knowledge and expertise in an independent manner rather than representing any policies or viewpoints of the organisations to which they may belong.
  5. The AEEF Panel members will operate openly and constructively together in the course of undertaking their assessment and all information will be shared.
  6. The AEEF Panel will endeavour to make its assessment technically robust to the extent that is possible given the available information or lack of information and its collective expertise.
  7. Panel members individually or collectively may seek advice, information or comments from stakeholders or observers present at the orange roughy AEEF workshop that have specific technical knowledge, expertise or information but having received any advice, information or comments, the AEEF Panel will by itself make the assessment.
  8. At the AEEF workshop, the AEEF Panel will be responsible for matters of interpretation but will be guided by the Facilitator in doing so.
  9. The AEEF Panel may add to or amend these protocols by agreement between themselves but only after approval by the Facilitator.
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## Appendix 2: Protocols for the ORH AEEF Panel (the Panel)

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1. The Facilitator will be independent of stakeholder groups.
  2. The Facilitator will ensure that all members of the orange roughly AEEF Panel (the Panel) have opportunities to express their views and receive a fair hearing.
  3. The Facilitator's primary role at the Workshop will be to ensure the Panel's deliberations remain focused on assessing risks and the reasons for them.
  4. The Facilitator will assist the Panel to reach a consensus in its deliberations where this may be necessary.
  5. The Facilitator will assist with the resolution of technical or other issues that arise during the Panel's deliberations.
  6. The Facilitator will be responsible for managing input from observers at the Workshop whilst allowing Panel members to engage with observers directly where such inputs contribute to the work of the Panel as a whole.
  7. The Facilitator will not have input to risk determinations which will be the sole responsibility of the Panel.
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**Table A1: Retained Species Consequence Table**

**Objective:** 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.

Consequences score				
Sub objective	1	2	3	4
<b>a. Status of biomass</b>	Biomass is at or above target reference point or proxy	Biomass is below target but above soft limit or proxy	Biomass is below soft limit but at or above hard limit or proxy	Biomass below hard limit, proxy or there is no information
<b>b. Biomass trend</b> (only applicable if the is a score of 2 or more for a)	Increasing	Steady	Not increasing at a rate sufficient to allow the stock to rebuild to the target level within a reasonable time.	Decreasing
<b>c. Population structure</b> (size/age/sex) and reproductive capacity t	No significant changes	Observed changes are consistent with reduction in biomass to biologically based limits	Significant changes but are considered reversible	Changes may not be reversible.
<b>d. Scale of fishery (considered in relation to proportion of TACC or total catch of retained species stock)</b>	Inconsequential (<10%)	Some (10-20%)	Significant (20-40%)	Major (40 + %)

**Table A2: Bycatch (discarded) Species Consequence Table**

**Objective:** The fishery does not pose a risk of serious or irreversible harm to the by-catch species or species groups and does not hinder recovery of depleted by-catch species or species groups.

Consequences score				
Sub objective	1	2	3	4
<b>a. Status of biomass</b>	Biomass is above a level that provides for its “long term viability”	Biomass is at a level that provides for its “long term viability”	Biomass is below a level that provides for its “long term viability”	There is insufficient information to assess biomass status
<b>b. Biomass trend</b> (only applicable if the is a score of 2 or more for a)	Increasing	Steady	Not increasing at a rate sufficient to allow the stock to rebuild to the target level within a reasonable time.	Decreasing
<b>c. Population structure</b> (size/age/sex) and reproductive capacity t	No significant changes	Observed changes are consistent with reduction in biomass to biologically based limits	Significant changes but are considered reversible	Changes may not be reversible.
<b>d. Scale of fishery (considered in relation to proportion of TACC or total catch of retained species stock)</b>	Inconsequential (<10%)	Some (10-20%)	Significant (20-40%)	Major (40 + %)

**Table A3: ETP Species Consequence Table**

- Objective: 1. The fishery meets national and international requirements for the protection of ETP species.  
 2. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.

Consequences score				
Sub objective	1	2	3	4
a. Mortality or cryptic impacts on individuals	The number of the ETP species killed or impacted is known with a high degree of certainty and is either nil or minimal	The number of the ETP species killed or impacted is known with a acceptable degree of certainty and is minor relative to the population size or significantly below the PBR	There is good information on the number of the ETP species killed or impacted relative to the population size and/or fishery induced mortalities are at or near the PBR	There is no information on the number of the ETP species killed or impacted relative to the population size and/or fishery induced mortalities are much higher than the PBR
b. Effects on population status (size/ age/ reproductive capacity).	The effects of the fishery on the ETP population are known and there is a high degree of certainty that there is not a risk of serious or irreversible harm	The effects of the fishery on the ETP population are known and it is highly unlikely that there will be a risk of serious or irreversible harm	There is some information on the effects of the fishery on the ETP population and it is unlikely that there will be a risk of serious or irreversible harm	There is no information on the effects of the fishery on the ETP population

**Table A4: Habitat Consequence Table**

**Objective:** The fishery does not cause serious or irreversible harm to habitat structure and function, considered on a regional or bioregional basis.

Consequences score				
Sub objective	1	2	3	4
<b>a. Extent of impact (each habitat type – UTF or slope – to be assessed separately).</b>	The fishery impacts <20% of the habitat type on a regional or bioregional basis	The fishery impacts 20-30% of the habitat type on a regional or bioregional basis	The fishery impacts <40% of the habitat type on a regional or bioregional basis	The fishery impacts ≥ 40% of the habitat type on a regional or bioregional basis and/or there is no information on how much of the habitat type is impacted by the fishery
<b>b. Habitat structure and function</b>	There is evidence that it is highly unlikely that the alteration or impacts have resulted in serious or irreversible harm to habitat structure and function.	It is highly unlikely that the alteration or impacts have resulted in serious or irreversible harm to habitat structure and function.	It is unlikely that the alteration or impacts have resulted in serious or irreversible harm to habitat structure and function.	It is unknown whether the alteration or impacts have resulted in serious or irreversible harm to habitat structure and function.

**Table A5: Ecosystem Consequence Table**

**Objective:** The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.

Consequences score				
Sub objective	1	2	3	4
<b>a. Community composition and abundance/biodiversity.</b>	There is evidence to show that there are insignificant changes, if any, in overall community composition	Community composition and the abundance of some species show changes but such changes are highly likely to be the result of factors such as compensatory processes within the ecosystem as it adjusts to the effects of fishing.	Community composition and the abundance of some species show changes but such changes are likely to be the result changes within the ecosystem as it adjusts to the effects of fishing.	There is a loss of key species and major changes in community composition and species abundance or there is no information.
<b>b. Trophic structure</b>	There is evidence that alteration or impacts to functional groups are highly unlikely to be disrupting ecosystem processes or structural elements to the point of failure or loss of key ecosystem components or functions.	It is highly unlikely that alteration or impacts to functional groups are disrupting ecosystem processes or structural elements to the point of failure or loss of key ecosystem components or functions.	It is unlikely that alteration or impacts to functional groups are disrupting ecosystem processes or structural elements to the point of failure or loss of key ecosystem components or functions.	It is unknown whether there is serious or irreversible harm to key elements of ecosystem structure or function.



**Table A6: Likelihood**

Likelihood				
Consideration	1	2	3	4
<b>a. Ability to control impact</b>	There is an agreed and comprehensive management system in place	There are targeted or specific management measures in place, that are indicative of a partial management system	There are general management measures or controls in place	There are no controls in place.
<b>b. Performance</b>	There is evidence that indicates that management objectives are being met	There is information that indicates that management objectives are highly likely to be achieved	There is information to indicate that management objectives are likely to be achieved	There is little or no information on performance

**Table A7: Confidence in the Assessment**

Confidence				
Issue	1	2	3	4
<b>a. Information availability and quality</b>	Most or all of the required scientific data directly relevant to the assessment are available to support a fully quantitative assessment.	Adequate information directly relevant to the assessment is available to support a qualitative assessment supplemented by other science information	There are some relevant data available supplemented by other science information	No information is available
<b>c. Monitoring/review</b>	There is a comprehensive system of on-going monitoring or data collection that is regularly reviewed	There is some on-going monitoring or data collection that is periodically reviewed	There are occasional or periodic monitoring or collection of data that is sometimes reviewed	There is no monitoring or review.
<b>d. Consensus amongst experts</b>	There is full consensus	There is a consensus but with unresolved matters requiring further information	There is consensus but with low confidence amongst most or all of the experts	There is no consensus