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MSC Evaluation of Gulf of St. Lawrence Northern Shrimp Fishery

Final Performance Indicators and Scoring Guideposts for  
Assessment of Shrimp Fishing Areas 9, 10, 12

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## **Guide to Performance Indicators and Scoring Guideposts Introduction to Scoring Methodology**

### **Application of the MSC Principles and Criteria for Sustainable Fishing**

The MSC Principles and Criteria provide the overall requirements necessary for certifying that a fishery meets the Marine Stewardship Council's environmental standard for being well-managed and sustainable.

The certification methodology adopted by the MSC involves the application and interpretation of the Principles and Criteria to the specific fishery undergoing assessment. This is necessary, as the precise assessment of a fishery will vary with the nature of the species, capture method used etc.

Accordingly, the assessment team for the Candidate Fishery has developed, from the MSC Principles and Criteria, a structured hierarchy of 'Performance Indicators' and 'Scoring Guideposts' in order to carry out the assessment. Performance indicators represent separate areas of important information (e.g. Indicator 1.1.1.3 requires a sufficient level of life history information on the target species and stock, 1.1.2.1 requires information on the effects of the fishery on the stock and so on). These indicators therefore provide a detailed framework of performance attributes necessary to meet the MSC Criteria in the same way as the Criteria provide the factors necessary to meet each Principle. Beside each indicator, individual 'Scoring Guideposts' (60, 80 and 100) are identified. It is at this level that the performance of the fishery is measured. It is important to note that the absolute numeric values assigned to each of these guideposts are not intended to reflect any type of percentile scoring system but were established by the MSC to help the assessment teams facilitate weighting and combining different performance indicators (see further discussion below).

### **Scoring Methodology**

For each Performance Indicator, the fishery's management characteristics are compared with pre-specified attributes for each of three Scoring Guidepost to establish a score. A 60 score is intended to reflect 'minimum conditional pass mark', a score of 80 represents 'unconditional pass mark', while a 100 score reflects 'theoretically perfect fishery.' In order for a fishery to be certified it must accomplish three things:

- Achieve 'minimum conditional pass mark' for every performance indicator (as defined by a score of least 60);
- Must achieve 'unconditional pass mark' for each principle (an average aggregated score of 80 for each principle);

- A commitment to continuous improvement for each indicator from minimum conditional pass mark performance up to the unconditional pass mark (as defined by agreed actions to improve any indicator's score to at least 80 if it has been scored between 60 and 80 in the assessment).

In fisheries where any given performance indicator scores below 60, a fishery cannot pass the evaluation process and be awarded certification until the performance issue(s) identified can be corrected to the satisfaction of the certification body and its expert evaluation team.

The evaluation framework noted above is referred to as the fishery assessment tree. It represents a hierarchical application of the Principles and Criteria. The scoring guideposts used to rate an indicator are meant to be hierarchical in that to meet a particular score, the scoring guideposts of all lower scores should also have been met. For any given criterion, sub-criteria and performance indicators are identified as appropriate to the nature of the fishery. All sub-criteria and indicators are weighted indicating their relative importance in setting the overall scores for the fishery. The weighting process will proceed after the evaluation team has received public comments on this draft and been able to incorporate the comments to create a final set of sub-criteria, indicators, and scoring guideposts for use in the evaluation process.

### **Specific Assessment Approach for Gulf of St. Lawrence Northern Shrimp Assessment**

The key to understanding the criteria is to understand the differences between the MSC Principles. Principle 1 focuses on the target population, defined as target species or target stocks. Under this principle, the fundamental areas of concern which identify sound fisheries management are:

1. The definition of the target stocks;
2. The quality of monitoring and stock assessment programs;
3. The specific management goals for target stocks;
4. The procedures to ensure the recovery of target stocks if they are depleted; and
5. The fisheries are conducted in a manner that does not impair reproductive performance (e.g. the fishery does not significantly change the age, size and genetic structure of the target stocks).

An understanding of the context of the GSL Northern Shrimp stock is important for consideration under MSC Principle 1. The GSL shrimp fishery is assessed and managed on the basis of four shrimp fishing areas in the Gulf of St. Lawrence. Within Gulf waters, shrimp are harvested primarily by Quebec and New Brunswick permitted harvesters, although some harvest is conducted by Newfoundland, Prince Edward Island and Nova Scotia permitted harvesters. TAVEL will assess the health of shrimp stocks in each

shrimp fishing area, which will result in a separate scoring activity and ultimately if successfully assessed, a separate certificate of conformance for each shrimp fishing area.

Principle 2 focuses on the impact of the GSL northern shrimp trawl fishery on the ecosystem and non-target populations. The Principle 2 assessments determine how the candidate fishery management deals with:

1. The importance of maintaining a productive, functional and diverse ecosystem;
2. Provisions to minimize the fishery impacts on endangered, threatened, protected or icon species; and
3. Procedures that ensure the recovery of any depleted non-target stocks or degraded ecosystems.

Some considerations of the ecosystem context under Principle 2 are as follows. Northern shrimp are a lower trophic level species which provide food for many different fish species. The population is thought to be effected primarily by environmental variables such as water temperatures and currents. The food web has changed in responses to oceanic regime shifts with significant population fluctuations of upper trophic level prey species (i.e. reduction of groundfish species). Overlain on these shifts are changes in the climate, which may affect larval recruitment success. Principle 2 will also examine the known impacts of the trawl gear used in the fishery.

Principle 3 focuses on DFO's management and operational framework that has been put in place to achieve the management goals. Some indicators under Principle 3 appear to overlap with indicators under Principles 1 and 2, however, the Principles 1 and 2 are concerned with the outcomes of a management system respecting the fact that the resources are maintained at the desired levels of abundance, while Principle 3 is concerned with evaluating whether all of the processes for reaching management objectives are in place. Components unique to Principle 3 include:

1. The evaluation of the consultation process;
2. The procedures used to control fisheries;
3. The extent of internal and external review of the management system;
4. The compliance with legal and administrative requirements; and
5. The implementation of responsible fishing practices.

The evaluation of MSC Principle 3 with respect to the Gulf of St. Lawrence northern shrimp fishery takes into account relevant biological, technical, economic, social and environmental aspects for both the commercial and recreational sectors. The assessment team is specifically looking for an adaptive management program with cooperation between stakeholders. The assessment will also look for well-characterized catch and bycatch data from the commercial sectors of the fishery. In addition, this assessment investigates compliance with relevant local, national and international laws and standards. Particularly, we are looking at DFO Gulf

region management and regulatory approach to the shrimp fishery with considerations of linkages to other DFO regions (eg. Newfoundland).

### **Concurrence between TAVEL Certification Assessment Tree and MSC Principles and Criteria**

The following three pages present a diagrammatic presentation of how the assessment team has defined Performance Indicators and Scoring Guidelines to verify the requirements of the MSC Principles and Criteria.

### **Final Performance Indicators and Scoring Guidelines**

The remaining pages of this document display the finalized Performance Indicators and Scoring Guidelines to be used in the assessment of the Gulf of St. Lawrence Northern Shrimp Fisheries in Shrimp Fishing Areas 9, 10 and 12.

Any questions regarding this certification assessment can be forwarded to:

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GSL Northern Shrimp  
Final Version PI&SGs  
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## MSC Principle 1

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

### MSC Principle 1 Criterion 1

The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.

1.1.1

1.1.2

1.1.3

1.1.4

1.1.5

1.1.6

1.1.6 The stock (s) is at the appropriate reference level.

YES

Criterion 1 Complete

NO

Criterion 2 must be answered

### MSC Principle 1 Criterion 2

Where the exploited populations are depleted, the fisheries will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.

1.2.1

### MSC Principle 1 Criterion 3

Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

1.3.1

1.3.2

## MSC Principle 2

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

### MSC Principle 2 Criterion 1

The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.

2.1.1

2.1.2

2.1.3

2.1.4

2.1.4 Strategies have been developed within the fisheries management system to address and restrain any significant negative impacts of the fishery on the ecosystem.

YES

Criterion 1 Complete

NO

Criterion 3 must be answered

### MSC Principle 2 Criterion 2

The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species.

2.2.1 Fishing is conducted in a manner that does not have unacceptable impacts on recognized protected, endangered or threatened (PET) species as well as on recognized significantly depleted stocks.

YES

Criterion 2 Complete

NO

Criterion 3 must be answered

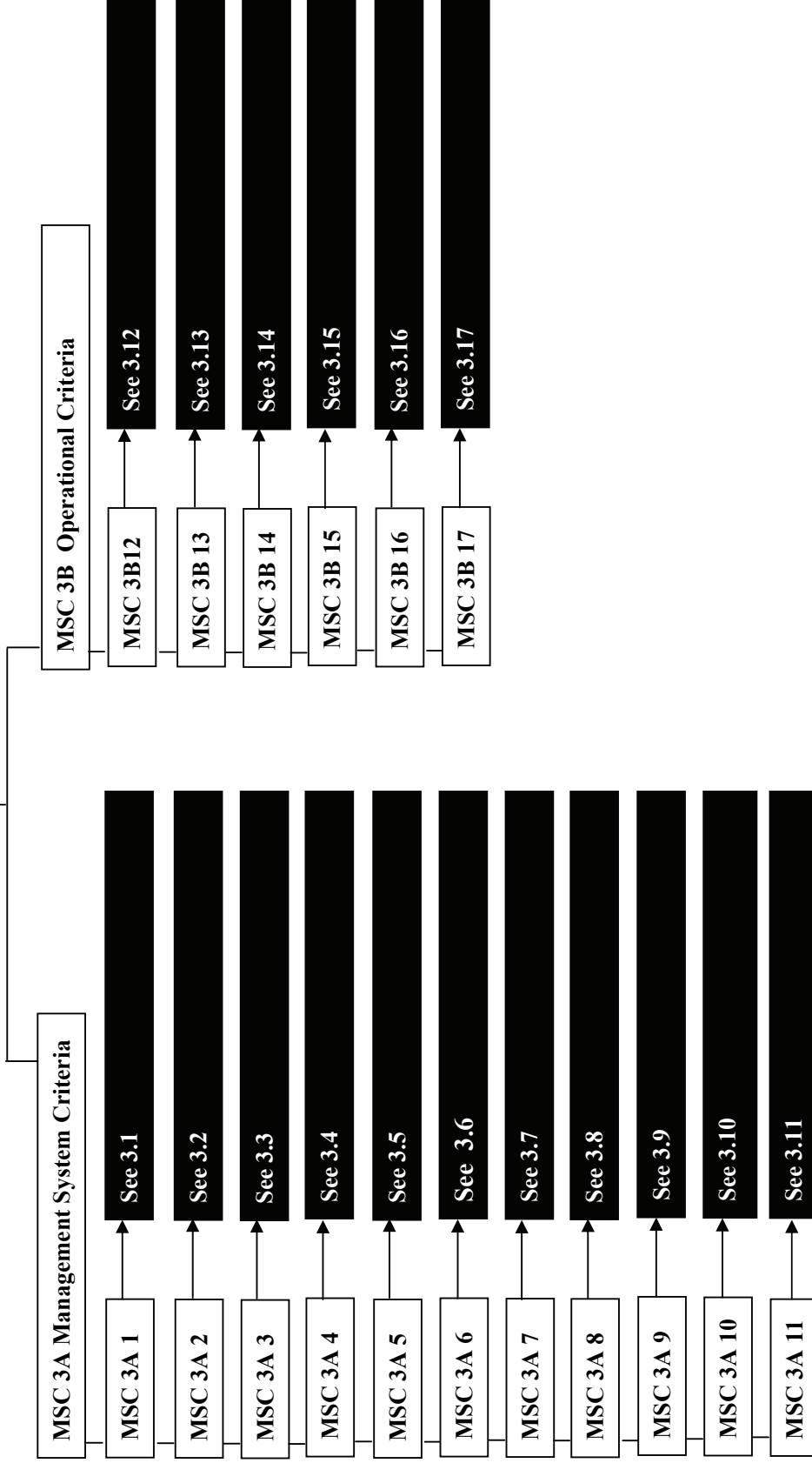
### MSC Principle 2 Criterion 3

Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

2.3.1

### MSC Principle 3

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.



**MSC Principle 1** A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

*Intent*

*The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favor of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.*

**1.1 - MSC Criterion 1** The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.

**1.1.1 TAVEL Sub-Criterion** There should be sufficient information on the target species and stock identity to allow the effects of the fishery on the stock to be evaluated.

1.1.1.1	The target species is readily identifiable and distinguishable from other shrimp species.	<ul style="list-style-type: none"> <li>Misidentification is possible. This increases recording errors of catches, but does not significantly compromise the integrity of monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Misidentification of the target species is unlikely. Misidentification has little or no effect on the recording errors of catches.</li> </ul>	<ul style="list-style-type: none"> <li>The target species is readily identified by fishers and by regulators. There are no recording errors of catches due to misidentification of the target species.</li> </ul>
1.1.1.2	Geographical range and migration patterns of the target stock are known.	<ul style="list-style-type: none"> <li>A fishery dependent estimate of the geographical range of the target species is available. The management unit(s) approximate the stock distribution.</li> </ul>	<ul style="list-style-type: none"> <li>A reliable fishery-independent estimate of the geographical range of the target species is available including information on temporal and spatial migration patterns.</li> </ul>	<ul style="list-style-type: none"> <li>The complete geographic range of the target species, including migration patterns, is understood, verified and updated periodically.</li> </ul>
1.1.1.3	The life history of the species is understood. Age, sex, maturity, natural mortality, growth and fecundity are defined.	<ul style="list-style-type: none"> <li>Aspects of the life history are sufficiently understood to support a basic evaluation of the effects of fishing.</li> </ul>	<ul style="list-style-type: none"> <li>Critical elements of the life history of the species are clearly documented, and support a comprehensive qualitative evaluation of the effects of fishing.</li> </ul>	<ul style="list-style-type: none"> <li>All aspects of the life history of the species are clearly documented and understood, facilitating a comprehensive quantitative evaluation of the effects of fishing.</li> </ul>
1.1.1.4	Spawning and nursery areas and the timing critical to both are identified.	<ul style="list-style-type: none"> <li>There is information on key spawning and nursery areas and times, sufficient to investigate the feasibility of closed areas and/or seasons for key areas.</li> </ul>	<ul style="list-style-type: none"> <li>Spawning and nursery areas and times are known for the majority of the stock. The information is sufficient to evaluate the feasibility of closed areas and/or seasons.</li> </ul>	<ul style="list-style-type: none"> <li>Spawning and nursery areas and times are well documented to support closed areas/seasons where and when necessary.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.1.1.5	Information is collected on the abundance, distribution and composition of the stock.	<ul style="list-style-type: none"> <li>• Fishery dependent and/or fishery independent indices are available on the abundance, distribution and composition of the stock.</li> <li>• Qualitative information exists on the appropriateness of the indices as proportional indicators of stock size.</li> </ul>	<ul style="list-style-type: none"> <li>• Fishery dependent and fishery independent indices are available on the abundance, distribution and composition of the stock.</li> <li>• Uncertainties have been identified and reduced to allow trends to be determined from indices.</li> <li>• Uncertainties in indices have been fully analyzed.</li> <li>• Indices are consistent and there is clear evidence that they are representative of the stock size.</li> </ul>
1.1.1.6	There are studies characterizing the environmental effects (both physical and biological) on the target population.	<ul style="list-style-type: none"> <li>• The effects of biological and physical influences on the population have been studied.</li> <li>• Relevant research is encouraged and ongoing.</li> </ul>	<ul style="list-style-type: none"> <li>• There is sufficient knowledge of biological and physical factors affecting abundance, distribution, survival and year class strength to infer the effects on the population.</li> <li>• There is extensive and well-documented knowledge of biological and physical factors affecting abundance, distribution, survival and year class strength to allow estimation of the effects on the population.</li> </ul>
1.1.1.7	There are sufficient fishery and fishery-independent indices available to evaluate the effects of fishing and ecosystem changes on recruitment variability.	<ul style="list-style-type: none"> <li>• There are indices available to infer the effects of fishing and ecosystem changes on recruitment variability.</li> </ul>	<ul style="list-style-type: none"> <li>• There are fishery dependent and fishery-independent (e.g. oceanographic and fishery research surveys) indices which are used to qualitatively estimate the effects of fishing and ecosystem changes on recruitment variability.</li> <li>• There are fishery and fishery-independent, standardized, time-series indices that are used to quantify the effects of fishing and ecosystem changes on recruitment variability and to provide short and medium-term recruitment forecasts.</li> </ul>
<b>1.1.2 TAVEL Sub-Criterion</b>		There should be sufficient information on the fishery to allow its effects on the target stock to be evaluated.	
1.1.2.1	All fishing related mortality is recorded/estimated. This includes landings, discards, and incidental mortality (adult and juvenile).	<ul style="list-style-type: none"> <li>• Sufficient information is available to allow an accurate estimate to be made of landings.</li> <li>• Qualitative estimates of discards are available.</li> <li>• Potential sources of incidental mortality have been identified.</li> </ul>	<ul style="list-style-type: none"> <li>• Landings and discards are recorded in logbooks and are adequate to provide a reliable source of information.</li> <li>• Discards are well estimated for adult and juvenile shrimp.</li> <li>• Qualitative estimates of incidental mortality are available.</li> <li>• Landings, discards and sources of incidental mortality are accurately monitored and all fishing-related mortality is accounted for.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.1.2.2	Fishing effort is known and standardized.	<ul style="list-style-type: none"> <li>Some effort data are available which can be used to estimate effective fishing effort to support a rudimentary analysis to adequately track trend in the fishery.</li> </ul>	<ul style="list-style-type: none"> <li>Accurate estimates of effective fishing effort are available and give confidence in the evaluation of change in the fishery over time by statistical area.</li> </ul>
1.1.2.3	Commercial fishing vessels, gear and methods are characterized for the fishery.	<ul style="list-style-type: none"> <li>General fishing methods and gear type are known for the fishery.</li> <li>Information is available on the size and composition of the fleet, but is not regularly updated.</li> <li>Seasonal and geographical variations in fishing pattern are estimated.</li> </ul>	<ul style="list-style-type: none"> <li>Main fishing methods and gear type are known for the fishery and information is available on location of fishing from fishing logs.</li> <li>Information on the size and composition of the fleet is recorded and updated at regular intervals.</li> <li>Seasonal and geographical variations in fishing pattern are known.</li> </ul>
1.1.2.4	Gear selectivity for the target species is known.	<ul style="list-style-type: none"> <li>Information is available on selectivity and qualitative changes in selectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Selectivity is estimated for key fishing areas and periods.</li> </ul>
<b>1.1.3 TAVEL Sub-Criterion</b> Reference points which have a high probability of maintaining high productivity have been developed for spawning stock abundance and/or fishing mortality.			
1.1.3.1	Reference points have been identified for biomass and fishing mortality and take ecosystem effects into account.	<ul style="list-style-type: none"> <li>Reference points have been chosen and are justified by general agreement among regional fishery scientists and fishers following qualitative evaluation of fishery effects, ecosystem effects and consideration of stakeholders knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>Reference points are based on stock biology and dynamics, environmental influences and stakeholder knowledge.</li> <li>Major sources of uncertainty, variability and data limitations are known and key sources of uncertainty are accounted for, providing a margin of safety with respect to fishing mortality and stock abundance.</li> </ul>
<b>1.1.4 TAVEL Sub-Criterion</b> There is a well defined and effective harvest strategy to manage the fishery.			

PERFORMANCE INDICATOR		SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.1.4.1	There are mechanisms in place to control harvest as required for management of the fishery.	<ul style="list-style-type: none"> <li>Mechanisms exist to monitor and, when necessary, control harvest. These are intended to ensure the target stock maintains or approaches productive levels but they have not been evaluated.</li> </ul>	<ul style="list-style-type: none"> <li>Mechanisms are in place to adjust harvest as and when required. Preliminary evaluation indicates that mechanisms are effective for maintaining, or allowing the target stock to return to, productive levels.</li> </ul>	<ul style="list-style-type: none"> <li>Mechanisms are responsive and timely, mechanism performance has been evaluated and demonstrates a high degree of effectiveness.</li> </ul>
1.1.4.2	Clear, effective harvest control decision rules are described, communicated and enforced.	<ul style="list-style-type: none"> <li>Informal harvest control decision rules exist consistent with stock health indices.</li> <li>Harvesters are aware of harvest control decision rules.</li> <li>Implementation is underway.</li> </ul>	<ul style="list-style-type: none"> <li>Explicit decision rules, linked to stock health indices have been developed and implemented.</li> <li>Industry participates in the crafting and implementation of decision making framework.</li> <li>Rules are periodically evaluated for effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>Explicit, tested decision rules are consistent with reference points.</li> <li>They are regularly evaluated and are being enforced.</li> </ul>
<b>1.1.5 TAVEL Sub-Criterion</b> There is a comprehensive stock assessment.				
1.1.5.1	The assessment methods/models provide a comprehensive assessment of the stock. (e.g. provision for catch and effort data, age, length and sex composition of the catch and population, stock size indices, relationship of recruitment to spawning stock and evaluation of the effects of environmental variables.)	<ul style="list-style-type: none"> <li>Assessments evaluate indices of stock status that are generally believed to reflect abundance, production and mortality.</li> <li>The indices consider aspects of the species biology and the effects of the physical and biological environment, but are primarily qualitative.</li> </ul>	<ul style="list-style-type: none"> <li>Assessments evaluate indices of stock status that have been shown to reflect abundance, production and mortality.</li> <li>The indices incorporate aspects of the species biology and the effects of the physical and biological environment.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment models incorporate all major features appropriate to the biology and ecology of the species and the nature of the fishery.</li> <li>The assessment models include statistical fitting of the data and address both process and measurement error.</li> </ul>
1.1.5.2	The assessment evaluates current stock size and fishing mortality relative to reference points.	<ul style="list-style-type: none"> <li>Provisional estimates of the current stock size and fishing mortality relative to reference points are available.</li> </ul>	<ul style="list-style-type: none"> <li>A qualitative assessment of the current stock size and fishing mortality relative to the reference points has been completed and is reviewed periodically.</li> </ul>	<ul style="list-style-type: none"> <li>Regular assessment quantifies current stock size and fishing mortality relative to the reference points.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.1.5.3	The assessment includes an evaluation of the consequences of harvest options.	<ul style="list-style-type: none"> <li>The assessment makes an initial approximation of the consequences of harvest options.</li> </ul>	<ul style="list-style-type: none"> <li>The assessment clearly demonstrates the consequences of harvest options.</li> <li>The assessment evaluates the consequences of harvest options and evaluates stock trajectories under decision rules.</li> </ul>
1.1.5.4	The assessment takes account of major uncertainties in the data (including evaluation of assumptions).	<ul style="list-style-type: none"> <li>Major uncertainties and underlying assumptions are identified. Attempts has been made to evaluate these in the assessment.</li> </ul>	<ul style="list-style-type: none"> <li>The assessment takes into account major uncertainties in the data. The most important assumptions have been evaluated, the consequences are known.</li> <li>The assessment addresses all significant uncertainties in the data and evaluates the assumptions in terms of importance, trend direction and potential bias to the assessment.</li> </ul>
1.1.5.5	Uncertainties and assumptions are incorporated in the assessment of management options.	<ul style="list-style-type: none"> <li>Assumptions and major uncertainties and possible implications are recognized and are reported in the management process.</li> </ul>	<ul style="list-style-type: none"> <li>The implications of major uncertainties and assumptions are addressed in the management process through the use of appropriate decision rules.</li> <li>All significant uncertainties, assumptions and appropriate decision rules are addressed in the management process.</li> <li>Methods for addressing uncertainty are periodically evaluated with appropriate changes to decision rules.</li> </ul>
1.1.5.6	Methods/models used in the assessment are considered up to date and are fully reviewed by independent peer analysis.	<ul style="list-style-type: none"> <li>The assessment methods/models are considered adequate to evaluate stock status relative to reference points, and have successfully passed internal peer review.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment methods/models have passed independent peer review.</li> <li>The assessment methods/models are considered state-of-the art through independent peer review.</li> </ul>
<b>1.1.6 TAVEL Sub-Criterion</b>			
The stock is at the appropriate reference level.			
1.1.6.1	The spawning stock is at or above the reference point. (If this PI scores less than 80, P1C2 must be scored).	<ul style="list-style-type: none"> <li>Qualitative assessments infer the spawning stock is above the reference point with positive trends, or if below the reference point or declining, an appropriate recovery/rebuilding plan has been implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Assessments demonstrate the stock is above the reference point.</li> <li>Quantitative assessments clearly demonstrate the stock is above, and is expected to remain above, the reference point.</li> </ul>
1.1.6.2	The fishing mortality is below the reference point.	<ul style="list-style-type: none"> <li>Qualitative assessments infer the fishing mortality does not exceed the reference point.</li> </ul>	<ul style="list-style-type: none"> <li>Assessments demonstrate the fishing mortality does not exceed the reference point.</li> <li>Quantitative assessments clearly demonstrate the fishing mortality does not and is not expected to exceed the reference point.</li> </ul>

**1.2 - MSC Criterion 2**

Where the exploited populations are depleted, the fisheries will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.

**Scoring Intent**

The MSC Technical Advisory Board directs that this Criterion is only scored in the instance that the candidate fishery stock is determined to be in a depleted state hence a recovery plan is already in action. The decision whether the fishery is in a depleted state will be made at the beginning of the Fishery Assessment process.

**1.2.1**

When the spawning stock is below the precautionary limit, and/or the fishing mortality is above the precautionary limit, there are measures designed and implemented for recovery and rebuilding.

- Appropriate recovery and rebuilding measures are being implemented through reduction in exploitation rates.
- Measures are implemented and, even if not tested, are founded on precautionary principles. Fishing mortality is further reduced if the stock remains below the precautionary limit.

- A recovery plan is in place, implementing appropriate protective measures that mitigate recruitment failure within the time frame specified in the plan.
- Measures have been tested and can be shown to aid in maintaining reproductive potential.

- Appropriate and proven protective measures are implemented to improve recruitment potential by increasing the reproductive capacity within the specified time frame.
- Fishing mortality is negligible if the stock is below the precautionary limit.

**1.3 - MSC Criterion 3**

**Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.**

**1.3.1**

The effects of the fishery on spatial structure or age or sex or genetic composition of the population do not impair reproductive capacity.

- The knowledge of the effect of fishing on the geographical distribution and on biological characteristics such as age, size, gender, sex change and fecundity is adequate to identify potential threats to the reproductive capacity of the target stock.

- The knowledge of the effect of fishing on the geographical distribution and on biological characteristics such as the age, size, gender, sex change and fecundity is adequate to detect threats from fishing on the reproductive capacity of the target stock.

- There is extensive knowledge of the effect of fishing on the geographical distribution and on biological characteristics such as the age, size, gender, sex change, fecundity and genetic structure of the target stock.
- Knowledge is adequate to quantify how fishery induced changes in these characteristics impact reproductive capacity.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.3.2	Adverse fishery impacts on reproductive capacity are considered by management and remedial action are incorporated in management planning and processes.	<ul style="list-style-type: none"> <li>Potential threats have been identified and are considered in the planning process.</li> </ul>	<ul style="list-style-type: none"> <li>Known threats are addressed through remedial action specified in management plans.</li> </ul>
	<ul style="list-style-type: none"> <li>Management plans contain harvest control rules that address specific quantified fishery impacts on reproductive capacity.</li> </ul>		
<p><b>MSC Principle 2</b>  <b>Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.</b></p>			
<i>Intent</i>	<p><i>The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.</i></p>		
<b>2.1 - MSC P2 Criterion 1</b>	<p><b>The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.</b></p>		
<b>2.1.1 TAVEL Sub-Criterion</b>	<p>There is adequate understanding of ecosystem factors relevant to the distribution and life history of the target and non-target species.</p>		
2.1.1.1	The nature, distribution and availability of habitats (i.e. sediment type, substrate type, community structure, etc.) are known in relation to fishing operations.	<ul style="list-style-type: none"> <li>Nature and distribution of main habitats are known but information is not comprehensive or recent.</li> <li>Seasonal fishing areas are known and mapped.</li> </ul>	<ul style="list-style-type: none"> <li>Nature and distribution of all main habitats are known in moderate detail and information is recent.</li> <li>Distribution of fishing operations are monitored periodically.</li> </ul>
	<ul style="list-style-type: none"> <li>The nature, distribution and availability of all habitats types are monitored on an ongoing basis.</li> <li>Seasonal distribution of fishing effort is monitored on an ongoing yearly basis.</li> </ul>		
2.1.1.2	Information is available on non-target species directly and indirectly affected by the fishery.	<ul style="list-style-type: none"> <li>Qualitative information is available on main non-target species affected by the fishery including their distribution and relative abundance.</li> </ul>	<ul style="list-style-type: none"> <li>Quantitative information is available on all non-target species affected by the fishery including their distribution, abundance and ecology.</li> </ul>
	<ul style="list-style-type: none"> <li>Qualitative information including distribution and abundance is available on other non-target species affected by the fishery.</li> </ul>		

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
2.1.1.3	Information is available on the structure and functioning of the food web, and the position and importance of the target species.	<ul style="list-style-type: none"> <li>• Key prey, predators and competitors of the food web are known.</li> <li>• General ecosystem roles of these species are known.</li> </ul>	<ul style="list-style-type: none"> <li>• General qualitative ecosystem knowledge exists regarding the position and general roles of the target species in the food web structure and function.</li> </ul>	<ul style="list-style-type: none"> <li>• Quantitative information on the position and importance of the target species within the food web at all life stages is available.</li> </ul>
2.1.1.4	The reaction of the ecosystem to fishing pressure is understood.	<ul style="list-style-type: none"> <li>• Key elements of the ecosystem, affected by the fishery, are identified and provide some understanding of how the ecosystem may recover from fishery related impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• The main elements of the ecosystem affected by the fishery have been documented and are understood, and this provides a convincing scenario of how the ecosystem could recover from fishery related impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• Fishery impacts on the functioning of the ecosystem have been comprehensively evaluated and have been proven to be within safe limits.</li> </ul>
2.1.1.5	Sufficient information exists to support required changes in the fishery management system that will allow recovery of depleted non-target populations.	<ul style="list-style-type: none"> <li>• There is information on functional relationships, sufficient to recommend changes in fishing regulations that may reasonably be expected to recover and rebuild depleted non-target populations</li> </ul>	<ul style="list-style-type: none"> <li>• There is information on functional relationships to understand the implications of changes in harvest options.</li> <li>• Fishery regulations are designed to recover and rebuild depleted non-target populations.</li> </ul>	<ul style="list-style-type: none"> <li>• There is a comprehensive understanding of functional relationships between the impacted non-target populations and the fishery.</li> <li>• Intervention measures based on this understanding have been tested, and shown to be effective in promoting recovery and rebuilding of depleted non-target populations.</li> </ul>
<b>2.1.2 TAVEL Sub-Criterion</b> Fishery impacts on non-target species are understood.				
2.1.2.1	There is information available on the nature, extent and fate of the by-catch (landings and discards of non-target species).	<ul style="list-style-type: none"> <li>• The management system requires a portion of the fishery to be monitored to quantify the catch of non-target species, but the accuracy of the sampling is non-verified.</li> </ul>	<ul style="list-style-type: none"> <li>• The management system requires monitoring of and accounting for (i.e. fate) catch and fate of non-target species throughout all significant components of the fishery.</li> <li>• Information is considered accurate based on independent sampling programs.</li> <li>• Measures are taken to reduce the capture of non-target species.</li> </ul>	<ul style="list-style-type: none"> <li>• There is real-time, reliable monitoring of and accounting for catch and fate of non-target species throughout the fishery.</li> <li>• The management measures are linked to the real-time information and have been evaluated as effective.</li> <li>• The management system has achieved continued improvement in the accuracy and precision of monitoring and accounting of catch and fate of non-target species.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
2.1.2.2	There is information on unobserved fishing mortality on non-target species (i.e. sources of mortality other than those above).	<ul style="list-style-type: none"> <li>• Areas of potential unobserved fishing mortality are identified, but no further information is available.</li> </ul>	<ul style="list-style-type: none"> <li>• Information from existing work has allowed qualitative estimates of unobserved fishing mortality to be made.</li> <li>• Research has been carried out on unobserved fishing mortality allowing quantitative estimates to be made and it has been determined that unobserved mortality is not significant.</li> </ul>
<b>2.1.3 TAVEL Sub-Criterion</b> The effects of gear-use on the ecosystem and extent and type of gear losses are known.			
2.1.3.1	The physical impacts on the habitat resulting from use of gear are known.	<ul style="list-style-type: none"> <li>• Extent and location of gear use are identified.</li> <li>• Effects of habitat perturbations have been inferred from similar gear in similar habitats.</li> </ul>	<ul style="list-style-type: none"> <li>• All types of impacts on the habitat resulting from the use of gear have been studied and quantified.</li> </ul>
2.1.3.2	Gear loss during fishing operations and its effects are known (i.e. ghost fishing).	<ul style="list-style-type: none"> <li>• Some recording of gear losses takes place.</li> <li>• The effects of ghost fishing have been qualitatively estimated.</li> </ul>	<ul style="list-style-type: none"> <li>• There is knowledge of the type, quantity and location of gear lost during fishing operations.</li> <li>• Estimates of the ghost fishing mortality are made.</li> <li>• There is detailed, reliable knowledge of the type, quantity and location of gear lost during fishing operations.</li> <li>• The impacts of ghost fishing mortality on target and non-target species and habitats have been measured.</li> </ul>
<b>2.1.4 TAVEL Sub-Criterion</b> Strategies have been developed within the fisheries management system to address and restrain any significant negative impacts of the fishery on the ecosystem.			
2.1.4.1	Assessments of fishery impacts on ecosystem structure and/or function, habitats and on the populations of associated species are conducted.	<ul style="list-style-type: none"> <li>• Some assessments of the main impacts of the fishery on ecosystem structure and function, habitats have been conducted.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular assessments of the impacts of the fishery on ecosystem structure and function, habitats and associated species are carried out and there is periodic feedback for improvement of assessment tools.</li> <li>• There is a frequent feed back mechanism for improvement of assessment tools.</li> </ul>
2.1.4.2	All significant effects of the fishery on the ecosystem have been identified and quantified.	<ul style="list-style-type: none"> <li>• Effects of the fishery that have potentially significant impacts on the ecosystem have been identified from existing information, but have not been evaluated.</li> </ul>	<ul style="list-style-type: none"> <li>• The main effects of the fishery that are known to impact the ecosystem have been evaluated.</li> <li>• All significant effects of the fishery on the ecosystem have been characterized by appropriate comparative and/or experimental studies.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
2.1.4.3	<p>Management objectives are set in terms of impact identification and avoidance/reduction.</p>	<ul style="list-style-type: none"> <li>Management objectives exist that characterize most important impacts, and have identified possible impact avoidance/reduction techniques.</li> </ul>	<ul style="list-style-type: none"> <li>Management objectives are set to detect and avoid/reduce adverse impacts on key ecosystem components. Avoidance/reduction measures have been defined and implemented and are their effectiveness is being evaluated.</li> <li>These measures have demonstrated effective avoidance/ reduction in similar fisheries.</li> </ul>	<ul style="list-style-type: none"> <li>Management objectives and tested measures are set to detect and avoid/reduce all significant adverse impacts. These are designed to adequately protect ecosystems, habitats and populations of target and non-target species. Avoidance /reduction measures are routinely evaluated to ensure effectiveness.</li> </ul>
2.1.4.4	<p>Acceptable impacts are determined and reviewed.</p>	<ul style="list-style-type: none"> <li>There is information to determine acceptable impacts to some key non-target species and habitats.</li> </ul>	<ul style="list-style-type: none"> <li>Acceptable impacts for all key non target species and habitats have been determined and are reviewed periodically.</li> </ul>	<ul style="list-style-type: none"> <li>Acceptable impacts for all key populations and habitats have been determined and are subject to frequent review and adjustment.</li> </ul>
2.1.4.5	<p>Management responds to assessment results and implements measures that are effective in preventing any significant negative fishery impacts on the ecosystem.</p>	<ul style="list-style-type: none"> <li>Management considers assessment results and demonstrates a commitment to restraining significant negative ecosystem impacts.</li> <li>Testing of effectiveness of measures that prevent significant impacts are underway.</li> </ul>	<ul style="list-style-type: none"> <li>Management responds to assessment results and implements measures that have demonstrated effectiveness in restraining the key significant negative ecosystem impacts.</li> </ul>	<ul style="list-style-type: none"> <li>Management responds proactively to assessment results, and implements measures that clearly result in prevention of significant negative ecosystem impacts.</li> </ul>
2.1.4.6	<p>Monitoring, surveillance and enforcement ensure the implementation of agreed measures to restrain negative impacts on the ecosystem.</p>	<ul style="list-style-type: none"> <li>Required monitoring, surveillance and enforcement are focused on key fishing areas.</li> <li>These activities have been qualitatively evaluated with respect to their efficacy in restraining negative impacts on the ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring, surveillance and enforcement activities cover most fishing areas.</li> <li>The efficacy of these activities for restraining negative impacts are periodically evaluated , resulting in changes as warranted.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring, surveillance and enforcement of the management system is ongoing in GSL waters.</li> <li>Evaluation is quantitative and regular, resulting in timely changes to the management system, when necessary.</li> </ul>
<p><b>2.2 - MSC P2 Criterion 2</b>  <b>The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels, and avoids or minimizes mortality of, or injuries to endangered, threatened, or protected species.</b></p>				
2.2.1 TAVEL Sub-Criterion	<p>Fishing is conducted in a manner that does not have unacceptable impacts on recognized protected, endangered or threatened (PET) species as well as on recognized significantly depleted stocks.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
2.2.1.1	<p>There is adequate information on the presence and populations of protected, endangered or threatened (PET) or significantly depleted species</p>	<ul style="list-style-type: none"> <li>• There is a program implemented to identify PET or significantly depleted species directly related to the fishery.</li> <li>• There is periodic monitoring of the general population trends and status of PET or significantly depleted species.</li> </ul>	<ul style="list-style-type: none"> <li>• All PET or significantly depleted species directly related to the fishery have been identified and characterized.</li> <li>• Populations are monitored and assessed on a regular basis.</li> <li>• There is knowledge of all populations of PET or significantly depleted species directly or indirectly related to the fishery including their dynamics.</li> <li>• Regular monitoring of PET or significantly depleted species is undertaken, supported by research programs to assess threats and promote their conservation.</li> <li>• The type and distribution of critical habitats have been identified.</li> </ul>
2.2.1.2	<p>Interactions of the fishery with endangered, threatened, and protected species are adequately characterized.</p>	<ul style="list-style-type: none"> <li>• The main interactions directly related to the fishery are known through independent monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>• Quantitative estimates are made of the effects of interactions with key species directly related to the fishery.</li> <li>• There is a requirement to record and report all incidental mortalities.</li> <li>• Reliable quantitative estimates are made of the interactions of all populations directly related to the fishery, and qualitative information is available on indirect impacts.</li> <li>• Enforcement assures incidental mortalities are recorded and reported.</li> </ul>
2.2.1.3	<p>The level of interaction that results in an unacceptable risk to PET species is known.</p>	<ul style="list-style-type: none"> <li>• The level of interaction that results in an unacceptable risk is known for the PET species most likely to be affected by the fishery, within the key fishing areas.</li> </ul>	<ul style="list-style-type: none"> <li>• The level of interaction that results in an unacceptable risk on all PET species is known for the full range of the fishery.</li> </ul>
2.2.1.4	<p>Strategies have been developed to address and restrain impacts of the fishery to adequately protect PET species.</p>	<ul style="list-style-type: none"> <li>• Management measures exist in terms of impact identification and avoidance/reduction in relation to PET species.</li> </ul>	<ul style="list-style-type: none"> <li>• Management measures to detect and reduce impacts on PET species have been tested and verified.</li> <li>• These are designed to protect all ecosystems, habitats and populations of target and non-target species.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
2.2.1.5	The effects of the fishery on biological diversity and productivity have been determined.	<ul style="list-style-type: none"> <li>Qualitative estimates of fishery impacts on biological diversity have been inferred using general information from similar fisheries and the scientific literature.</li> </ul>	<ul style="list-style-type: none"> <li>Effects of fishery impact on biological diversity and productivity within fishing areas are qualitatively understood.</li> <li>Research has been conducted to characterize the impacts of fishing on biological diversity in the GSL shrimp fishing areas.</li> </ul>	<ul style="list-style-type: none"> <li>Quantitative effects of fishery impacts on biological diversity and productivity are well documented, and GSL fishery related impacts are monitored and regularly assessed.</li> </ul>
<b>2.3 - MSC P2 Criterion 3</b> <b>Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.</b>				
<b>Scoring Intent</b> <b>The MSC Technical Advisory Board directs that this Criterion is only scored in the instance that non target species are determined to be in a depleted state hence a recovery plan is already in action. The decision whether the non target species are in a depleted state will be made at the beginning of the Fishery Assessment process.</b>				
<b>2.3.1 TAVEL Sub-Criterion</b> There are management measures in place that allow for the rebuilding of affected populations.				
2.3.1.1	Management measures are in place to modify fishery practices to minimize further degradation of depleted non-target populations.	<ul style="list-style-type: none"> <li>Informal management measures exist allowing modification of fishing practices to reduce unacceptable mortality of non-target depleted populations.</li> </ul>	<ul style="list-style-type: none"> <li>Effective management measures (e.g. reducing fishing effort, requiring gear modifications, setting bycatch quotas) are in place to modify fishery practices in light of the identified unacceptable impacts.</li> <li>Affected non-target species fishing mortality is minimized if the affected population is below the precautionary limit.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring programs periodically verify the effectiveness of management measures to modify fishery practices when necessary.</li> <li>Fishing mortality is negligible if the non-target population is below the precautionary limit.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
2.3.1.2	<p>In response to identified unacceptable impacts, rebuilding mechanisms allow for recovery of affected populations.</p>	<ul style="list-style-type: none"> <li>Rebuilding mechanisms for depleted populations have been identified and implementation is underway.</li> <li>Testing of effectiveness of these mechanisms is underway.</li> </ul>	<ul style="list-style-type: none"> <li>Rebuilding mechanisms to promote recovery of the affected population within specific time frames are implemented.</li> <li>Mechanisms have been tested and can be shown to allow rebuilding of the affected populations.</li> <li>Affected non-target species fishing mortality is minimized if the affected population is below the precautionary limit.</li> </ul> <ul style="list-style-type: none"> <li>Specific rebuilding mechanisms are implemented to promote recovery as quickly as is possible.</li> <li>Additional measures are being implemented to prevent problems in the future.</li> <li>Fishing mortality is negligible if the population is below the precautionary limit.</li> </ul>
<p><b>MSC Principle 3</b>  <b>The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.</b></p>			
<i>Intent</i>	<p><i>The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2,</i></p>		
<p><b>MSC Principle 3A</b>  <b>Management System Criteria</b></p>			
<p><b>3.1 - MSC Criterion 1</b>  <b>The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.</b></p>			
3.1.1	<p>The fishery is conducted in a manner consistent with international law</p>	<ul style="list-style-type: none"> <li>The fishery is not known to contradict international agreements</li> </ul>	<ul style="list-style-type: none"> <li>The fishery is known to comply with all relevant international fisheries agreement.</li> </ul>
<p><b>3.2 - MSC Criterion 2</b>  The management system shall demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
3.2.1	<p>The management system contains clear short- and long-term objectives</p>	<ul style="list-style-type: none"> <li>Short- and long-term resource and environment objectives are implicit within the management system.</li> </ul>	<ul style="list-style-type: none"> <li>The management system contains clear and explicit short- and long-term resource, environmental, and socio-economic objectives that are regularly evaluated.</li> </ul>
3.2.2	<p>All agencies in the fisheries management system have clear-cut lines of responsibility. Their functions, particularly those involving interactions between these authorities, are clearly defined.</p>	<ul style="list-style-type: none"> <li>All organizations responsible for interacting in the management process have been identified. <ul style="list-style-type: none"> <li>Functions and responsibilities among entities are generally understood.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Interactions between entities are periodically evaluated and modified where necessary.</li> </ul>
3.2.3	<p>The management system solicits and takes into account relevant information from all categories of stakeholders.</p>	<ul style="list-style-type: none"> <li>The management system has mechanisms to receive information and policy recommendations from stakeholders and technical sources within and external to the fishing community. <ul style="list-style-type: none"> <li>Information and advice is evaluated but there are no formal procedures for responding to such information and advice.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>The management system has a formal and open process to solicit and receive relevant information. <ul style="list-style-type: none"> <li>The management system evaluates information in an unbiased, objective manner and reports publicly on its evaluation results.</li> <li>There is an active program of familiarizing stakeholder groups with the management system's principles and criteria for decision making.</li> </ul> </li> </ul>
3.2.4	<p>The management system takes into account socio-economic impacts in the development of management plans.</p>	<ul style="list-style-type: none"> <li>The fishery management system gives consideration to the long-term socio-economic interests of people and communities dependent on fishing.</li> </ul>	<ul style="list-style-type: none"> <li>The management system's objectives and strategies to improve the long-term socio-economic well-being of people and communities dependent on fishing have been tested and proven effective.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
3.2.5	<p>The management system presents managers with clear, useful, and relevant information about policy options and their likely consequences.</p>	<ul style="list-style-type: none"> <li>The management system presents decision makers with clearly differentiated policy alternatives for action.</li> <li>Decision makers incorporate formal and informal information to predict the consequences of various options and choose among them to determine best actions.</li> </ul>	<ul style="list-style-type: none"> <li>Policy options are responsive to relevant stakeholders via a process prescribed by fisheries management law and procedures.</li> <li>The management system's decision makers show evidence of understanding and consistently incorporating the information provided to them.</li> <li>Technical information reflects the most recent and rigorous scientific understanding.</li> </ul> <ul style="list-style-type: none"> <li>The management system provides decision makers with timely and comprehensive information suitable for the nature of the decisions under consideration.</li> <li>Managers also demonstrate consistent and precautionary procedures for accounting for information gaps and uncertainties.</li> <li>Procedures for addressing information gaps are in place and are regularly utilized.</li> </ul>
<b>3.3 MSC Criterion 3</b>	<p>The management system shall be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings.</p>		
3.3.1	<p>The management system provides for program evaluation and review.</p>	<ul style="list-style-type: none"> <li>The management system conducts informal, internal program reviews.</li> </ul>	<ul style="list-style-type: none"> <li>The management system has explicit provision for an objective, systematic, internal evaluation of management performance.</li> <li>The criteria for and results of the evaluation of management performance are made public.</li> <li>Reviews are carried out at time intervals that foster continual improvements in management system.</li> </ul> <ul style="list-style-type: none"> <li>The criteria for and results of the external evaluations of management performance are made public and reflect input from all interested participants and stakeholders.</li> <li>The management system uses the results of the evaluations to improve management performance.</li> <li>The management system is periodically reviewed to ensure that all outside stakeholder interests are considered and incorporated into the decision process.</li> </ul>
3.3.2	<p>The management system responds to outcomes of internal or external reviews.</p>	<ul style="list-style-type: none"> <li>The management system is informally responsive to reviews of management performance.</li> </ul>	<ul style="list-style-type: none"> <li>The management system has established explicit objective guidelines for responding to reviews of management performance.</li> <li>The management system shows evidence of improved performance based on the results of reviews of management performance.</li> </ul> <ul style="list-style-type: none"> <li>The management system has established comprehensive, objective standards or triggers for responding to reviews of management performance.</li> <li>The management system has demonstrated a consistent pattern of responding to the results of reviews of management performance.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
<p><b>3.4 MSC Criterion 4</b></p> <p>The management system shall observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability.</p>			
<p>3.4.1</p> <p>The management system takes into account the legal and customary rights and long term interests of people dependent on fishing for food and livelihood in the development of management plans while ensuring conservation objectives.</p>	<ul style="list-style-type: none"> <li>The fishery management system gives consideration to the legal and customary rights and long-term interests of people dependent on fishing for food and livelihood while ensuring that conservation objectives are met.</li> </ul>	<ul style="list-style-type: none"> <li>The management system incorporates objectives and strategies aimed at protecting the legal and customary rights and long term interests of people dependent on fishing for food and livelihood.</li> </ul>	<ul style="list-style-type: none"> <li>The management system's objectives and strategies aimed at protecting the legal and customary rights and long-term interests of people dependent on fishing for food and livelihood have been tested and proven effective.</li> </ul>
<p><b>3.5 MSC Criterion 5</b></p> <p>The management system shall incorporate an appropriate mechanism for the resolution of disputes arising within the system.</p>			
<p>3.5.1</p> <p>The management system provides for timely and fair resolution of disagreements arising within the fishery management system, including any disputes with third parties with an interest in the fishery.</p>	<ul style="list-style-type: none"> <li>Informal dispute resolution mechanisms are in place to resolve interjurisdictional or third party conflicts.</li> </ul>	<ul style="list-style-type: none"> <li>The management system has formal and codified mechanisms for timely resolution, of significant disputes arising within or external of the system.</li> <li>The management system's dispute resolution procedures are clear, open and transparent.</li> </ul>	<ul style="list-style-type: none"> <li>The management system provides for appropriate documentation of the nature and resolution of disputes.</li> <li>The management system's dispute resolution procedures show no evidence of a pattern of discrimination against any participants in other jurisdictions or significant stakeholder interest.</li> </ul>
<p><b>3.6 MSC Criterion 6</b></p> <p>The management system shall provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
<p>3.6.1</p> <p>The management system provides economic and social incentives that contribute to sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.</p>	<ul style="list-style-type: none"> <li>The fishery does not operate with subsidies that contribute to unsustainable fishing.</li> <li>The management system considers possible behavioral responses to effort control, e.g. shorter seasons cause investments in vessel mobility.</li> <li>Management measures exist to limit entry and prevent excessive capitalization.</li> </ul>	<ul style="list-style-type: none"> <li>The fishery management system promotes measures that achieve conservation objectives in a cost-effective manner.</li> <li>Measures for managing effort have been adopted that reduce race-to-fish incentives.</li> <li>Management has adopted measures to prevent excess capacity growth.</li> </ul>	<ul style="list-style-type: none"> <li>Managers have adopted measures that give individual fishermen incentives to increase the economic value rather than the volume of catch.</li> <li>The fishery management system provides incentives that foster a stewardship ethic among participants.</li> <li>The fishery management system generates incentives that direct innovation toward maximizing value from a biologically sustainable fishery.</li> </ul>
<p><b>3.7 MSC Criterion 7</b></p>	<p>The management system shall act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty.</p>		
<p>3.7.1</p> <p>The management system measures and records and evaluates all aspects of the fishery to provide a basis for assessments of stocks.</p>	<ul style="list-style-type: none"> <li>The management system has a program that monitors the basic indicators of the stock health status.</li> <li>The program is subject to internal evaluation on a periodic basis.</li> <li>Monitoring results are compiled, analyzed, and disseminated to fishery managers.</li> </ul>	<ul style="list-style-type: none"> <li>There is a monitoring program that covers all indicators of stock health.</li> <li>The monitoring program has been subjected to independent outside review to identify gaps.</li> </ul>	<ul style="list-style-type: none"> <li>The management system has a comprehensive stock health monitoring program.</li> <li>Full records are kept of monitoring results and these are made available to relevant research and management bodies.</li> <li>The results of monitoring efforts are compiled, analyzed, and disseminated to fishery managers such that management and research efforts can be informed as to needed improvements in a timely manner.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
<p>3.7.2</p> <p>The management system incorporates and applies an adaptive and respyible exploitation strategy consistent with a precautionary approach.</p>	<ul style="list-style-type: none"> <li>Management objectives seek to maintain highly productive stock biomasses.</li> <li>The harvest control strategy is informal but consistent with objectives.</li> <li>The harvest control strategy takes into consideration uncertainties in the status of the stocks.</li> <li>The management system provides for a periodic assessment of the status of target stocks.</li> </ul>	<p>A responsible management strategy is followed, including:</p> <ul style="list-style-type: none"> <li>explicit long-term management objectives seek to maintain highly productive stock biomasses</li> <li>an explicit harvest strategy which accounts for uncertainty.</li> <li>the management system assesses the status of target stocks at intervals appropriate for the life history of the species.</li> </ul>	<p>A responsible management strategy is followed, including:</p> <ul style="list-style-type: none"> <li>a management plan that is explicit.</li> <li>an explicit harvest strategy, that is precautionary, accounting for variances in survey estimates, uncertainties in stock assessment advice, and other risk factors.</li> </ul>
<p>3.7.3</p> <p>Procedures exist for measuring performance relative to the objectives.</p>	<ul style="list-style-type: none"> <li>Measures are used to gauge performance relative to objectives.</li> </ul>	<ul style="list-style-type: none"> <li>Periodic, comprehensive measurement of performance indicators is undertaken.</li> <li>When necessary, management measures are adapted to meet objectives.</li> </ul>	<ul style="list-style-type: none"> <li>Procedures are used for regular empirical measurement of performance relative to the objectives.</li> <li>There is a regular process for adapting management measures when objectives are not being met.</li> </ul>
<p><b>3.8 MSC Criterion 8</b></p> <p>The management system shall incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
<p>3.8.1</p> <p>There is a research program that supports management of target species and protection of the ecosystem.</p>	<ul style="list-style-type: none"> <li>• Research supports short term information needs for stock assessment and evaluation of effectiveness of harvest control measures.</li> <li>• Major areas requiring further research for the protection of the ecosystem have been identified.</li> </ul>	<ul style="list-style-type: none"> <li>• The research program provides the management system with reliable, timely information on the status of the stocks and of other ecosystem health performance indicators required for management.</li> <li>• There is internal review of the content and scope of the research program.</li> <li>• Longer term research periodically provides improvements in basic scientific understandings of the stock, ecosystem and fishery economics.</li> <li>• Research is planned to address major gaps in knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>• There are regular reviews of the content and scope of the research program by peer groups and stakeholders.</li> <li>• Research provides continuing, significant progress in scientific understanding of:               <ol style="list-style-type: none"> <li>1) Fluctuations in target and impacted non-target species</li> <li>2) Effectiveness of harvest strategies</li> <li>3) Effects of fishing on the ecosystem</li> <li>4) Ecosystem based management strategies</li> <li>5) Economic considerations related to the fishery.</li> </ol> </li> <li>• Funding is adequate to address significant knowledge gaps, is adjusted in a timely and appropriate manner to serve changing research priorities and is predictable over a long-term time scale.</li> </ul>
<p>3.8.2</p> <p>Relevant research is carried out by the fishing industry and other organizations and taken into consideration by the management system.</p>	<ul style="list-style-type: none"> <li>• The management system is aware of research carried out by the industry and other organizations and elements of this are taken into consideration.</li> </ul>	<ul style="list-style-type: none"> <li>• Applicable research carried out the by fishing industry and other organizations is used by management.</li> </ul>	<ul style="list-style-type: none"> <li>• Research conducted by the fishing industry and other organization is coordinated with existing research plans of the management system.</li> </ul>
<p>3.8.3</p> <p>Research results are available to interested parties in a timely fashion.</p>	<ul style="list-style-type: none"> <li>• The majority of research results are available to interested parties.</li> </ul>	<ul style="list-style-type: none"> <li>• Research results are available to interested parties on a regular and timely basis.</li> </ul>	<ul style="list-style-type: none"> <li>• Research results are proactively made available to all interested stakeholders on a regular basis and in a timely manner.</li> </ul>
<p><b>3.9 MSC Criterion 9</b></p> <p>The management system shall require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
3.9.1	The management system evaluates the biological status of the resource and the impacts of the fishery.	<ul style="list-style-type: none"> <li>Stock assessments are internally peer reviewed on an irregular time basis.</li> </ul>	<ul style="list-style-type: none"> <li>Internally peer reviewed stock assessments are conducted on a regular basis in processes open to stakeholders.</li> <li>Externally peer reviewed stock assessments are conducted at time intervals appropriate for the biology of the species.</li> </ul>
<b>3.10 MSC Criterion 10</b>	<p>The management system shall specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:</p> <ol style="list-style-type: none"> <li>setting catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species;</li> <li>identifying appropriate fishing methods that minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;</li> <li>providing for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames;</li> <li>mechanisms in place to limit or close fisheries when designated catch limits are reached;</li> <li>establishing no-take zones where appropriate;</li> </ol>		
3.10.1	The management system establishes catch limits	<ul style="list-style-type: none"> <li>Catch limits are based on the average of a recent period and catch limits are adjusted periodically.</li> </ul>	<ul style="list-style-type: none"> <li>Catch limits are based on the examination of a comprehensive set of stock status indicators and are adjusted when necessary.</li> <li>Catch limits are set based on formal stock projections from an accepted multispecies assessment model.</li> </ul>
3.10.2	The management system identifies appropriate fishing methods and any restrictions for use in critical or sensitive habitats.	<ul style="list-style-type: none"> <li>Information suggests that gears used in the fishery have minor impact on the environment and on non-targeted species.</li> <li>Gear use restrictions are defined for key identified critical or sensitive habitats.</li> </ul>	<ul style="list-style-type: none"> <li>The management system monitors the effect of the gears used and-implements adjustments to minimize impacts.</li> <li>Gear use restrictions are defined for all critical or sensitive habitats.</li> <li>The management system actively promotes improvements in fishing gear to minimize the environmental impact.</li> </ul>
3.10.3	The management system provides for the recovery of depleted stocks	<ul style="list-style-type: none"> <li>Limits on catch and/or effort are adjusted periodically to account for estimated changes in stock status.</li> </ul>	<ul style="list-style-type: none"> <li>Limits can be adjusted within the fishing season if the stock status requires it.</li> </ul>
3.10.4	The management system has mechanisms to close fisheries when limits are reached.	<ul style="list-style-type: none"> <li>Monitoring of catch and/or effort is on a monthly basis.</li> <li>Fishery closure mechanisms are adequate but TACs have been exceeded in the past.</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring is on a daily basis.</li> <li>Fishery closure mechanisms are effective within 24 hours, the TAC has never been exceeded.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
3.10.5	The management framework includes a plan to assess causes of stock declines and promote recovery.	<ul style="list-style-type: none"> <li>The causes of decline cannot be differentiated, but some catch or effort reductions are implemented by regulation.</li> </ul>	<ul style="list-style-type: none"> <li>The causes of decline can be differentiated into fisheries and other causes.</li> <li>Harvest control measures to promote recovery are coordinated with other responsible authorities.</li> </ul>	<ul style="list-style-type: none"> <li>Specific measures to remove fishery-dependent causes and adapt to other causes to promote recovery are developed in a comprehensive plan with other authorities.</li> </ul>
3.10.6	The management system incorporates and applies measures (e.g. no take zones or closed areas) to manage ecological impacts of fishing (including impacts on spawning and nursery areas) using an approach consistent with MSC Principle 2.	<ul style="list-style-type: none"> <li>Where impacts have been identified, steps have been taken to develop appropriate control measures.</li> </ul>	<ul style="list-style-type: none"> <li>Where assessments demonstrate possible ecological impacts, the management plan explicitly addresses such impacts.</li> <li>The regulations to manage ecological impacts of fishing is consistent with the precautionary approach.</li> </ul>	<ul style="list-style-type: none"> <li>The management system explicitly includes a plan with clear long-term objectives for managing ecological impacts of fishing.</li> <li>The plan requires regular quantitative assessments of the status of ecosystem components, taking into account all significant (identified or estimated) ecological impacts of the fishery, including but not limited to food competition, disruption of prey fields, disruption of foraging behavior, disruption to animals, impacts on spawning/nursery areas and alterations in food webs and habitats.</li> <li>The plan is explicitly precautionary, accounting for uncertainty.</li> </ul>
<b>3.11 MSC Criterion 11</b> The management system shall contain appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective actions to be taken in the event that they are.				
3.11.1	Surveillance and enforcement are in place to ensure that requirements of the management system are complied with.	<ul style="list-style-type: none"> <li>Surveillance activities and enforcement measures are reactive and focused on key management measures.</li> </ul>	<ul style="list-style-type: none"> <li>Enforcement systems have been implemented and there is control and adequate compliance with most management measures that affect fishing mortality over the key fishing areas.</li> </ul>	<ul style="list-style-type: none"> <li>There is a high degree of control on and compliance to all regulations that affect fishing mortality and stock health, for target and non target populations, over all fishing areas.</li> </ul>

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
3.11.2	<p>Corrective actions can be applied in the event of non-compliance and there is evidence of their effectiveness.</p>	<ul style="list-style-type: none"> <li>Mechanisms exist or are being developed to address non-compliance, testing of effectiveness is underway.</li> </ul>	<ul style="list-style-type: none"> <li>Corrective actions are systematically applied in the event of non-compliance, and these have been demonstrated to be effective.</li> </ul>	
<b>MSC Principle 3B</b>				
<b>Operational Criteria</b>				
<b>3.12 MSC Criterion 12</b>	The fishing operation shall make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimise mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive.			
3.12.1	<p>The fishery adheres to gear restrictions and mandatory practices to avoid catch of non-target species, minimizing mortality.</p>	<ul style="list-style-type: none"> <li>The fishery has implemented measures for minimizing catches of non-target species.</li> <li>Qualitative evidence from at-sea and dockside observations indicates some success in reducing non-target by-catch.</li> </ul>	<ul style="list-style-type: none"> <li>The fishery follows a formal and comprehensive program to minimize catch of non-target species, including explicit by-catch objectives and strategies that reduce the take of these species to acceptable levels.</li> <li>There is independent evidence of fishery-wide adoption of measures undertaken to reduce by-catch of non-target species.</li> </ul>	<ul style="list-style-type: none"> <li>Fishery-wide acceptable by-catch objectives have been achieved, resulting in a reduced catch of non-target species.</li> <li>The effectiveness of by-catch reduction measures has been demonstrated through independent at-sea measurement.</li> </ul>
<b>3.13 MSC Criterion 13</b>	The fishing operation shall implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas.			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
<p>3.13.1</p> <p>The fishery evaluates and uses appropriate fishing methods to minimize adverse impacts on habitat, especially in critical zones.</p>	<ul style="list-style-type: none"> <li>Where impacts have been identified, steps have been taken to develop appropriate adjustments to address those impacts.</li> </ul>	<ul style="list-style-type: none"> <li>Where assessments demonstrate possible ecological impacts, effective measures are taken to protect sensitive habitats and critical zones.</li> <li>The regulations to manage ecological impacts of fishing are consistent with the precautionary approach.</li> </ul>	<ul style="list-style-type: none"> <li>The fishery uses and adjusts fishing methods to be fully compliant with a plan with clear long-term objectives for managing ecological impacts of fishing.</li> <li>There are regular quantitative assessments of the status of ecosystem components, taking into account all significant (identified or estimated) ecological impacts of the fishery, including but not limited to food competition, disruption of prey fields, disruption of foraging behavior, disruption to animals, impacts on spawning/nursery areas and alterations in food webs and habitats.</li> <li>Fishing practices are explicitly precautionary, accounting for uncertainty.</li> </ul>
<p><b>3.14 MSC Criterion 14</b></p> <p>The fishing operation shall not use destructive fishing practices such as fishing with poisons or explosives.</p>			
<p>3.14.1</p> <p>The fishery does not use destructive (e.g. poison, explosives) fishing practices.</p>	<ul style="list-style-type: none"> <li>There is no evidence that destructive fishing practices take place within the fishery.</li> </ul>	<ul style="list-style-type: none"> <li>Fishery management system prohibits use of destructive fisheries practices.</li> <li>Monitoring and enforcement efforts are sufficient to identify a problem if it exists.</li> </ul>	<ul style="list-style-type: none"> <li>Active monitoring and enforcement in the fishery has verified that no destructive fishing practices exist.</li> </ul>
<p><b>3.15 MSC Criterion 15</b></p> <p>The fishing operation shall minimise operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
3.15.1	<p>The fishery minimizes operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.</p>	<ul style="list-style-type: none"> <li>The fishery encourages the reduction of operational waste.</li> </ul>	<ul style="list-style-type: none"> <li>The fishery has established targets and implemented rules to minimize operational waste.</li> <li>There is evidence that operational wastes have been reduced.</li> </ul>
<p>The management system provides fishermen with incentives to minimize operational waste.</p> <ul style="list-style-type: none"> <li>Evaluation of the monitoring and enforcement programs demonstrate targets for reducing operational waste have been achieved.</li> </ul>			
<p><b>3.16 MSC Criterion 16</b> The fishing operation shall be conducted in compliance with the fishery management system and all legal and administrative requirements.</p>			
3.16.1	<p>The fishery is managed and conducted in a manner that respects domestic law.</p>	<ul style="list-style-type: none"> <li>The fishery and its management system make consistent efforts to operate in accordance with key substantive and procedural aspects of applicable domestic law.</li> <li>No known violations have been identified that would jeopardize the management of fishery.</li> </ul>	<ul style="list-style-type: none"> <li>The fishery and its management system are fully consistent with both letter and intent of relevant legislation and regulations.</li> </ul>
3.16.2	<p>Fishermen are aware of the management system and legal and administrative requirements.</p>	<ul style="list-style-type: none"> <li>Fishermen are aware of key management and legal requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Fishermen are aware of all management and legal requirements and are kept up to date with new developments.</li> </ul>
3.16.3	<p>There is a clear record of enforcement actions (e.g. by-catch limits, gear regulations, closed areas and seasons).</p>	<ul style="list-style-type: none"> <li>Informal evidence of violations and corrective actions exist.</li> </ul>	<ul style="list-style-type: none"> <li>All fishermen are aware of all management legal requirements through a clearly documented and communicated mechanism such as a code of conduct.</li> <li>Violations are fully documented at dockside as well as through investigative actions.</li> <li>Results of convictions are considered in adjusting enforcement efforts.</li> </ul>
<p><b>3.17 MSC Criterion 17</b> The fishing operation shall assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.</p>			

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
3.17.1	Fishermen assist in the collection of catch, discard and other relevant data.	<ul style="list-style-type: none"> <li>Fishermen are involved in the collection of some catch, discard and other information.</li> </ul>	<ul style="list-style-type: none"> <li>Fishermen are regularly involved in the collection and recording of relevant catch, discard and other information.</li> </ul>
			<ul style="list-style-type: none"> <li>Fishermen assist significantly in the collection and recording of all appropriate catch, discard and other information.</li> </ul>