

Association of Seafood Producers: Canadian Northern Prawn Trawl Fishery Assessment Against the MSC Principles and Criteria For Sustainable Fishing

Guide to Performance Indicators and Scoring Guideposts

Application of the MSC Principles and Criteria for Sustainable Fishing

The MSC Principles and Criteria provide the overall requirements necessary for certification as a 'sustainable and well managed fishery'.

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 considered 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 this fishery have developed, from the MSC Principles and Criteria, a structured hierarchy of 'Subcriteria' and 'Performance Indicators' in order to carry out the assessment. Subcriteria represent separate areas of important information (e.g. Subcriterion 1.1.1.requires a sufficient level of information on the target species and stock, 1.1.2 requires information on the effects of the fishery on the stock and so on). These Subcriteria therefore provide a detailed checklist of factors necessary to meet the MSC Criteria in the same way as the Criteria provide the factors necessary to meet each Principle. Below each Subcriterion, individual 'Performance Indicators' are identified. It is at this level that the performance of the fishery is measured. On the following three pages we show diagrammatically the relationship between our Subcriteria as detailed in the scoring guidelines and the appropriate MSC criterion.

Scoring Methodology

At the scale of the Performance Indicators, performance of a fishery is determined on the basis of compliance with pre-specified Scoring Guideposts, with a score of 80 representing the level required to comply fully with the requirements of the MSC standard. In order to make the assessment process as clear and transparent as possible, the Scoring Guideposts are presented in the scoring table and describe the level of performance necessary to achieve 100 (represents the level of performance for a performance indicator that would be expected in a theoretically 'perfect' fishery), 80 (defines the unconditional pass mark for a performance indicator for that type of fishery), and 60 (defines the minimum, conditional pass mark for each performance indicator for that type of fishery).

To be certified, the fishery must obtain a score of 80 or more for each of the MSC's three Principles, based on the weighted average score for all Performance Indicators under each principle; and obtain a score of 60 or more for each Performance Indicator.

In summary the overall hierarchy is:- MSC Principle > MSC Criterion > Subcriterion > Performance Indicator. Each Performance Indicator has Scoring Guideposts which are considered in allocating the Score.

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.

MSC Principle 1 Criterion 2
Where the exploited populations are depleted, the fishery 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.

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.

1.1.1

1.1.2

1.1.3

1.2.1

1.3.1

1.1.4 Is the stock(s) at or above reference levels?

YES

NO

Criterion 3

Criterion 2 must be answered

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

Are associated biological relationships and productivity affected to unacceptable levels?

NO

YES

Criterion 2

Criteria 2 and 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
- 2.2.2

Are biological diversity and/or endangered, threatened or protected species affected to unacceptable levels?

NO

YES

Criterion 2 is complete

Criterion 3 must be answered

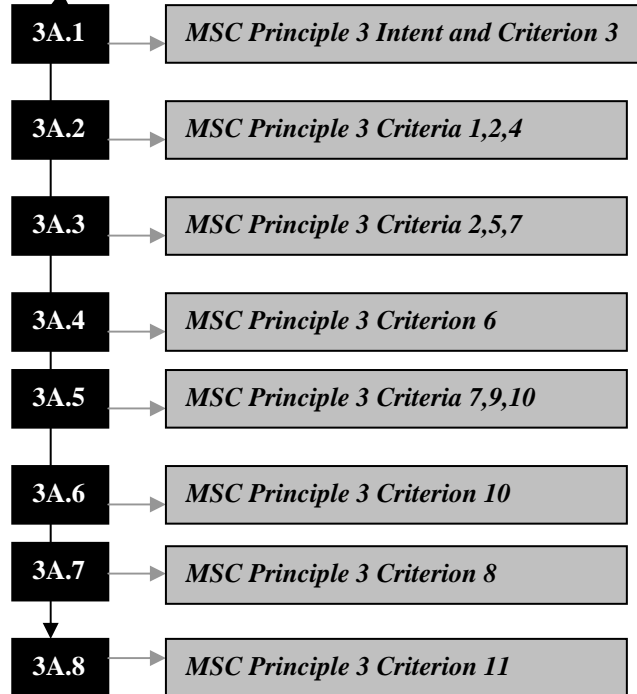
MSC Principle 2 Criterion 3
Where exploited populations (of non-target species) are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

2.3.1

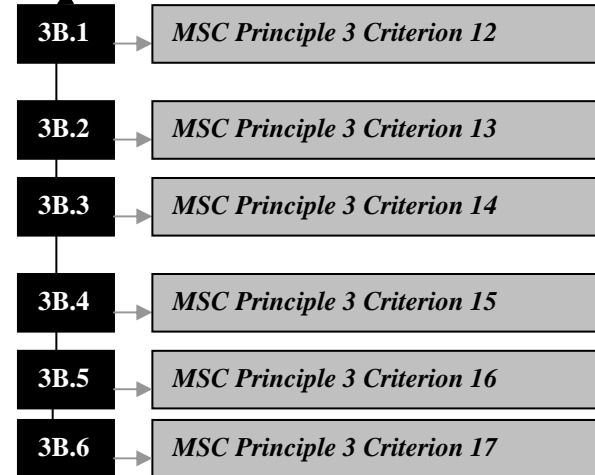
MSC Principle 3

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.

3 A Management System Criteria



3 B Operational Criteria



PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
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.			
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	There should be sufficient information on the target species and stock separation to allow the effects of the fishery on the stock to be evaluated.			
1.1.1.1	Is the species readily identified as adults and juveniles?	Misidentification is possible and increases recording errors of catches, but this does not compromise monitoring to unacceptable levels.	The target species is unlikely to be confused with other species and/or any misidentification is demonstrably insignificant in the monitoring of catches.	The species is readily identified by fishers and by regulators and is recorded appropriately.
1.1.1.2	Is the life history of the species understood and the spawning and nursery areas well described?	There are gaps in information but the basis of the life history is understood, sufficient to support a basic evaluation of the effects of the fishery. There is some information on spawning and nursery areas.	Critical factors in the life history of the species are clearly documented and understood, sufficient to support a comprehensive qualitative evaluation of the effects of the fishery. Spawning and nursery areas/times are well established.	The life history of the species is clearly documented and well understood including behaviour and ecological interactions. Spawning and nursery areas are sufficiently well documented to support closed area / seasons where this is deemed necessary.
1.1.1.3	Is the geographical range of the target stock(s) known and any seasonal movements described?	A management unit approximating the stock(s) is used with some biological justification. This is based upon a sufficiently robust estimation of the geographical range and biological characteristics of the target stock.	A reliable estimate of the geographic range and biological characteristics of the target stock(s) is available including seasonal patterns of movement and availability.	The complete geographic range and biological characteristics of the stock(s), including seasonal patterns of movement/availability, are demonstrably understood and verified.
1.1.1.4	Is information collected on the abundance/density of the stock(s)?	Either fishery dependent or fishery independent indices are available on the abundance/density of the stock biomass. Qualitative information exists on the appropriateness of the indices as proportional indicators of stock status.	Fishery dependent and/or fishery independent indices are available on the abundance/density of the stock. Uncertainties have been analysed and those uncertainties are such that trends can be determined from indices.	Fishery dependent and fishery independent indices are available on the abundance/density of the stock. Indices are consistent and there is clear evidence that they are proportional to the stock status.
1.1.1.5	Is there information on fecundity, size at maturity, recruitment, growth and factors causing natural mortality?	There is sufficient information available, for key areas of the stock distribution, on the fecundity, size at maturity, growth and natural mortality to support a basic	Quantitative estimates are available of fecundity and maturity at size, growth rates and natural mortality, for most parts of the stock distribution, sufficient to	There is comprehensive and reliable quantitative information on the fecundity/size at maturity/recruitment, growth rates and factors causing natural mortality, for all parts of the stock distribution,

PERFORMANCE INDICATOR		SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
		assessment.	inform a robust evaluation of stock status.	which can be incorporated into assessment models.
1.1.1.6	Is information available on environmental influences on the stock dynamics?	Some relevant studies have been undertaken on the effects of environmental influences on the stock. Research is encouraged and ongoing.	There is sufficient knowledge of the main environmental factors affecting distribution, survival and year class strength to allow an estimation of effects on stock dynamics.	There is sufficient knowledge of environmental factors affecting distribution, survival and year class strength to allow detailed estimation of effects on stock dynamics.
1.1.1.7	Is there information on variability in recruitment and can this be used to predict recruitment to the fishery?	There is some information on recruitment variability and its causes, including some time-series data.	There is some appropriate measurement of recruitment and/or ongoing research into the factors generating recruitment variability so as to predict future recruitment. Time series data are available, sufficient for short-term forecasts.	There is reliable monitoring of recruitment and/or strong evidence of ongoing research projects to study recruitment variability factors with some evidence of an understanding of those factors. Information, built up over a long time series exists and can be reliably used to predict recruitment for medium term stock projections.
1.1.2	There should be sufficient information on the fishery to allow its effects on the target stock to be evaluated			
1.1.2.1	Are fleet descriptions, fishing methods and gear types known throughout the fishery?	Main fishing methods and gear types are known for the fishery with some information on geographical areas of use. Information is available on the size and composition of the fleet, but is not regularly updated.	Main fishing methods and gear types are known and information is available on the geographical areas of use. Recorded information is available on the size and composition of the fleet. This is updated at appropriate intervals. Seasonal and geographical variations are known.	All fishing methods and gear types employed in the fishery are known. In-situ observations are made of fishing practices. Information on the size and composition of the fleet, and seasonal and geographical variability, is recorded and regularly reviewed.
1.1.2.2	Is gear selectivity and composition of landing known for the fishery	Appropriate information is available on selectivity and qualitative changes in selectivity. Data on the composition of catches are sufficient to support a rudimentary evaluation of the fishery.	Selectivities of gear types are well estimated for key locations and times. Data on the composition of catches in the main fisheries affecting the target stock are adequate to support confidence in the evaluation of the fishery.	Full selectivities have been accurately estimated for all gears, locations and times of fishing over a suitable time period. There is comprehensive and reliable data on the size structure and sex ratio of all significant catches; sufficient to support a high degree of confidence in the evaluation of the fishery.
1.1.2.3	Are all major sources of fishery related mortality recorded/ estimated, including landings, fishing effort, discards, incidental mortality and mortality of juveniles?	Sufficient information is recorded to allow accurate estimates to be made of landings and effort. Estimates of discards and incidental mortality are available for key fleets.	Landings and effort are accurately recorded. Discards and incidental mortality are well estimated for most fleets and most parts of the stock.	Landings, effort, discards and incidental mortality are accurately monitored for all fleets and parts of the stock.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
1.1.3	There is a well-defined and effective stock assessment procedure and harvest strategy for managing the target stock.			
1.1.3.1	Is there an effective stock assessment for all relevant parts of the stock?	Stock biomass, fishing mortality and recruitment are estimated periodically for management purposes, using analytical and/or survey-based methods, for relevant parts of the stock.	Time series of stock biomass, fishing mortality and recruitment estimates, and their uncertainty, are available from analytical and/or survey-based methodology for most parts of the stock, and are used to assess stock status and make forecasts.	Time series of stock biomass, fishing mortality and recruitment estimates, and their uncertainty, are available from analytical and/or survey based methodology for all parts of the stock, and are used to assess stock status and make forecasts.
1.1.3.2	Are there appropriate reference points based on stock biomass and/or fishing mortality?	Appropriate limit and precautionary reference points, analogous to those used in standard international practice have been chosen and are justified.	Appropriate limit and precautionary reference points are determined and implemented taking into account stock biology and the limitations of the available fishery and assessment data.	Appropriate limit and precautionary reference points are determined and implemented taking into account stock biology and statistical simulations of the variability and uncertainty of fishery and assessment data.
1.1.3.3	Is the stock status and harvest strategy evaluated relative to reference points?	An approximated evaluation is made of the stock status and an appropriate harvest strategy is implemented relative to reference points. .	At appropriate intervals stock status is evaluated quantitatively, and a harvest strategy identified and implemented relative to the reference points.	There is ongoing evaluation of stock status and a harvest strategy relative to reference points using probabilistic methods that facilitate short and longer term forecasts.
1.1.3.4	Does the evaluation take into account major uncertainties in data and have assumptions been assessed?	Major uncertainties are identified. Some attempt has been made to evaluate these.	The evaluation takes into account major uncertainties in the data and functional relationships. The most important assumptions have been assessed and the consequences are known.	The evaluation addresses all significant uncertainties in the data and functional relationships and evaluates the assumptions in terms of scope, direction and bias relative to management-related quantities.
1.1.3.5	Are uncertainties and assumptions explored and reflected in management advice?	Major uncertainties are recognised and are reported in management advice, as well as possible implications of those uncertainties on the management advice.	Major uncertainties and assumptions are reflected in the management advice and limitations addressed through the appropriate decision rules.	All significant uncertainties and assumptions are addressed and reflected in the management advice, including appropriate decision rules.
1.1.3.6	Does the stock evaluation include the consequences of current harvest strategies?	The evaluation makes an initial approximation of the consequences of current harvest strategies.	The evaluation includes a robust approximation of the consequences of current harvest strategies. Uncertainties are considered in harvest strategy evaluations.	The evaluation includes the consequences of current harvest strategies, forecasts future consequences of these and evaluates stock trajectories under decision rules.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
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1.1.3.7	Are clear, tested decision rules set out?	It can be demonstrated that decision making, though not documented, is logical and appropriate in light of reference points and data and assessment limitations. Rules may not have been tested.	Clear decision making rules exist, are fully documented, but may not have been fully evaluated. Decision rules are reconciled with appropriate reference points and with data and assessment limitations.	Clear, documented and tested decision rules are fully implemented and have been fully reconciled with reference points, and the data and assessment limitations, and have been periodically evaluated.
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1.1.3.8	Are appropriate management tools specified to implement input and/or output controls?	Management tools exist to implement input and/or output controls. Some evidence exists to show that tools are effective in achieving management goals.	Management tools have been specified to implement input and/or output controls. These are generic although some attempt has been made to relate them to the specific fishery OR tools are lacking in some details but are specifically related to the fishery. Evidence exists to show clearly that tools are effective in maintaining the stock at or above appropriate reference levels..	Management tools, appropriate to the species and fishery, have been specified to implement input and/or output controls. Tools are responsive, relevant and timely. Performance of the tools has been evaluated and evidence exists to show clearly that the management system has a high probability of achieving its objectives.
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1.1.4	The stock is/are at an appropriate level to maintain long-term productivity.		
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1.1.4.1	Is there evidence that stock status is consistent with that providing long-term productivity? [Score 80+: Criterion 1.1 is complete and Criterion 1.2 does not apply. Score 79 or less: Answer Criteria 2 in addition]	The stock is likely to be above limit reference levels and trends in the stock are positive.	The stock is likely to be above reference levels, including precautionary levels, consistent with data limitations.	The stock is highly likely to be consistently above precautionary reference levels.
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PERFORMANCE INDICATOR		SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
1.2 (MSC Criterion 2)		Where the exploited populations are depleted, the fishery 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	If the stock is below the appropriate reference levels, are measures to rebuild the stock specified?	<p>Appropriate rebuilding measures through reduction in exploitation exist and are being implemented. Rebuilding aims to restore the stock such that it is likely to be above reference levels, including precautionary levels. Rebuilding measures other than reduction in exploitation are being considered.</p> <p>Measures are implemented, while they may not have been tested, they have been shown to work in similar fisheries or are reasonably expected to work in this situation.</p>	<p>Appropriate rebuilding measures are being implemented to promote recovery within reasonable time frames. Rebuilding aims to restore the stock such that it is likely to be above reference levels, including precautionary levels.</p> <p>Measures have been tested, in this or a comparable situation, and can be shown to be effective in helping to rebuild the stock.</p>	<p>Appropriate and demonstrably effective rebuilding measures are being implemented to promote recovery as quickly as possible. Rebuilding aims to restore the stock such that it is likely to be consistently above precautionary reference levels.</p> <p>Additional measures are being implemented to prevent problems in the future.</p>
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		Fishing activity maintains the age, genetic structure or sex composition of the stock to a degree that does not impair reproductive capacity.		
1.3.1.1	Is there adequate information on the stock sex and size structure and the existence of possible sub-populations or genetic structure?	There is some information available on the sex and age structure, based on some sampling and verification, and the relationship of these to reproductive capacity. There is some information on the genetic structure or presence of sub-populations within the stock, with some monitoring as necessary.	Estimates are available of the sex and size structure, based on adequate sampling and verification for this stock, and the relationship of these to reproductive capacity. Genetic or sub-population studies have been carried out as appropriate.	There is comprehensive and reliable information on the sex and size structure and the relationship of these to reproductive capacity as well as evaluations of the implications of shifts in these parameters on productivity and management quantities. Genetic or sub-population studies have been conducted at appropriate time intervals.
1.3.1.2	Does information indicate any changes in stock structure that would alter reproductive capacity?	Changes in stock structure have been detected but there is no evidence of negative effect on recruitment of the stock. Or potentially adverse changes in structure are identified and remedial measures are implemented, but their effectiveness may not be demonstrated.	Evidence exists that the fishery has not caused changes in stock structure that would affect recruitment. Or potentially adverse changes in structure are clearly identified and effective remedial measures are implemented.	Data strongly indicate a robust age, sex and genetic structure in the stock, such as would maintain reproductive capacity.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
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			
2.1 (MSC 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	There is adequate understanding of ecosystem factors relevant to the distribution and life history strategy of the target species.			
2.1.1.1	Are the nature, sensitivity and distribution of habitats, within which the fishery operates, known?	Appropriate information exists on the main habitat types but may not be comprehensive or up to date. The seasonal distribution of fishing operations is known.	The nature and distribution of all main habitat types are known in adequate detail. Information is recent. The distribution of fishing operations is monitored and the sensitivity of key habitats is understood.	The nature, sensitivity and the distribution of all habitats within which the fishery operates are known in detail. Information is recent. The distribution of fishing operations and their effort is monitored and well recorded.
2.1.1.2	Is information available on non-target species directly affected by the fishery?	The main non-target species affected have been identified.	Appropriate information is available on non-target species directly affected by the fishery including some information on their distribution and ecology.	Information is available on all non-target species directly affected by the fishery including their distribution and ecology.
2.1.1.3	Is information available on the trophic position, status and relationships of the target species within the food web?	Key prey, predators and competitors are known.	Information is available on significant aspects of the position, relationships and importance of target species in the food web at key life stages.	Information is available on the position and importance of the target species and relationships within the food web at key life stages. Specific information is available on major interactions.
2.1.1.4	Is there information on the potential for the ecosystem to recover from fishery related impacts?	Key elements of the functioning of the ecosystem, relevant to the fishery, are identified.	The main elements of the functioning of the ecosystem and its ability to recover from fishery related impacts, are understood.	Detailed information is available on the potential for affected elements of the ecosystem to recover from fishery related impacts.
2.1.2	General risk factors are adequately determined.			
2.1.2.1	Is information available on the nature and extent of the by-catch (capture of non-target species)?	Appropriate qualitative information is available on significant by-catch species.	Quantitative information is available on significant by-catch. If obtained by a representative sampling program, this is considered sufficient to provide adequate information.	Accurate records are kept on the nature and extent of all by-catch species.
2.1.2.2	Is information available on the	Information is available of the extent of	Adequate information is available to allow	Accurate and verifiable information is available on the

PERFORMANCE INDICATOR		SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
	extent of non-retained catch (discards)?	major components of non-retained catch, sufficient to identify the likely significance of this.	estimates of the non-retained catch to be calculated and its significance interpreted.	extent of all non-retained catch, and the consequences of these. Or the entire catch is landed.
2.1.2.3	Is there information on any unobserved fishing mortality (i.e. sources of mortality other than those above)?	Areas of potential unobserved fishing mortality are identified but no further information is available.	Information from existing work has allowed qualitative estimates of unobserved fishing mortality to be made.	Research has been carried out on unobserved fishing mortality allowing quantitative estimates to be made (or it is known that significant unobserved mortality does not occur).
2.1.3	There is adequate knowledge of the effects of gear-use on the receiving ecosystem and extent and type of gear losses.			
2.1.3.1	Is there adequate knowledge of the physical impacts on habitat due to use of fishing gear?	Main impacts of gear use on habitat are identified or can be estimated, including extent and locations of use.	Impacts of gear use on the habitat are identified and can be reliably estimated including information on the extent, timing and location of use.	The physical impacts on the habitat due to use of gear have been studied and quantified, including details of any irreversible changes.
2.1.3.2	Is any gear lost during fishing operations and are any effects known (e.g. can 'ghost fishing' occur)?	Some recording of gear losses takes place and an assessment can be made of ecosystem impacts, including possible 'ghost fishing'.	There is knowledge of the type, quantity and location of gear lost during fishing operations. Estimates can be made on the extent of adverse effects, including 'ghost fishing' and habitat impacts.	There is detailed knowledge of the type, quantity and location of gear types lost during fishing operations. The impact of gear loss on target and non-target species can be shown to have negligible effects on habitats, ecosystems or species of concern through, for example, 'ghost fishing'.
2.1.4	Assessments of impacts associated with the fishery including the significance and risk of each impact show no unacceptable impacts on the ecosystem structure and/or function, on habitats or on the populations of associated species.			
2.1.4.1	Does the removal of target species have unacceptable impacts on ecosystem structure and function?	The removal of target species could lead to impacts upon ecological systems (applying the precautionary approach where necessary). A programme is in place to identify these and, if appropriate, reduce mortality to acceptable limits.	Sufficient information is available on consequences of current levels of removal of target species to suggest no unacceptable impacts of the fishery on ecological systems within major fishing areas.	The ecological consequences of current levels of removal of target species have been evaluated and determined to be within acceptable limits.
2.1.4.2	Does the removal of non-target species have unacceptable impacts on populations or ecosystem structure and function?	The removal of non-target species could lead to impacts upon population status and/or ecological systems (applying the precautionary approach where necessary). A program is in place to	Sufficient information is available on consequences of current levels of removal of non-target species to suggest no unacceptable impacts of the fishery on population status and/or ecological	The consequences of current levels of removal of non-target species on population status and/or ecological systems have been evaluated and determined to be within acceptable limits.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
		identify these and, if appropriate, reduce these to acceptable, defined limits.	systems within major fishing areas.	
2.1.4.3	Does the fishery have unacceptable impacts on habitat structure?	There is no evidence that the fishery is having unacceptable impacts, based on a reasonable understanding of the fishery, although the issue has not been directly studied.	It can be demonstrated that the fishery does not have unacceptable impacts upon habitats within major fishing areas or on sensitive habitats elsewhere.	Effects on habitat structure are well documented and are within acceptable tested/justified limits.
2.1.4.4	Are associated biological diversity, community structure and productivity affected to unacceptable levels?	There is no evidence that the fishery is having unacceptable impacts, although the issue has not been directly studied.	Appropriate information is available on the effects of the fishery on biological diversity, community structure and productivity. This does not indicate any unacceptable impacts.	The effects of the fishery on biological diversity, community structure and productivity have been quantified and are within acceptable tested/justified limits
2.1.4.5	Are management strategies in place to address impact identification and avoidance/reduction?	Management strategies include some appropriate consideration of ecosystem impact identification and avoidance/reduction, but may not be tested.	Management strategies are in place to detect and reduce ecosystem impacts, although these may not have been fully tested, they are considered appropriate to adequately protect key elements of the ecosystem within main fishing areas.	Management strategies are in place to monitor, detect and reduce impacts. These are designed to adequately protect ecosystems, habitats and populations of target and non-target species and keep impacts within determined acceptable levels.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
2.2 (MSC 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 recognised protected, endangered or threatened species.			
2.2.1.1	Is there information on the presence and populations of protected, endangered or threatened species?	There is a programme in place to identify protected, threatened and endangered species directly related to the fishery. There is periodic monitoring of the main population trends and status of protected, endangered and threatened species.	Protected, threatened and endangered species directly related to the fishery have been identified. Populations are monitored on a regular basis.	There is knowledge of all populations of protected species directly or indirectly related to the fishery including their dynamics. Regular monitoring of protected, endangered and threatened species is undertaken, supported by research programmes to assess threats and promote their conservation. The type and distribution of critical habitats have been identified.
2.2.1.2	Are interactions of the fishery with such species adequately determined?	The main interactions directly related to the fishery are known.	Appropriate estimates are made of the effects of interactions directly related to the fishery. There is a requirement to record and report all incidental mortalities.	Reliable quantitative estimates are made of the interactions of all populations directly related to the fishery, and qualitative information is available on indirect impacts. Incidental mortalities are recorded and reported.
2.2.1.3	Do interactions pose an unacceptable risk to such species?	Known effects are within acceptable limits of national and international legislative requirements and are believed to create no biological threats to the species concerned.	Direct and indirect effects are well estimated and do not threaten protected species.	It is known that the direct and indirect effects of fishing on threatened and endangered species are within acceptable limits.
2.2.2	Strategies have been developed within the fisheries management system to address and restrain any significant impacts of the fishery on recognised protected, endangered or threatened species.			
2.2.2.1	Are management objectives and accompanying strategies in place in relation to impact identification and avoidance/reduction?	Management systems are in place to address key areas of impact identification and avoidance/reduction.	Management objectives are set to detect and reduce impacts. Accompanying strategies are designed to adequately protect endangered and threatened species within main fishing areas.	Tested management objectives are set to detect and reduce impacts. Accompanying strategies are designed to adequately protect endangered and threatened species.

PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100
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2.3 (MSC Criterion 3)	Where exploited populations (of non-target species) 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.		
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2.3.1	There are management measures in place that allow for the rebuilding of affected populations.		
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2.3.1.1	Is there sufficient information to allow determination of necessary changes in fishery management to allow recovery of depleted populations?	There is some information on functional relationships, sufficient to allow alterations to be made to fishing to recover and rebuild depleted species.	There is adequate information, combined with a precautionary approach wherever necessary, to allow alterations to be made to fishing that would be expected to recover and rebuild depleted species to specified levels within appropriate timeframes.	There is a clear understanding of functional relationships between the impacted population and the fishery. Intervention measures based on this understanding have been tested and /or are known to be effective in promoting recovery of depleted species to specified levels within appropriate timeframes..
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2.3.1.2	Are management measures in place to modify fishery practices in light of the identification of unacceptable impacts?	A mechanism exists for the modification of fishing practices in light of the identification of unacceptable impacts.	Effective management measures are in place to modify fishery practices in light of the identification of unacceptable impacts.	Monitoring programs are in place within the management system to allow modification of fishery practices in light of the identification of unacceptable impacts. Objectives and limits for environmental change are used to guide operational practices. It is demonstrated that these are effective.
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2.3.1.3	Do management measures allow for recovery of affected populations?	Rebuilding measures exist and are being implemented. Measures may not have been tested, but are considered appropriate.	Appropriate rebuilding measures are implemented on appropriate timescales. Measures have been tested and can be shown to be effective in assisting to rebuild the affected populations.	Appropriate rebuilding measures are being implemented to promote recovery as quickly as is possible. Additional measures are being implemented to prevent problems in the future.
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PERFORMANCE INDICATOR	SCORING GUIDEPOST 60	SCORING GUIDEPOST 80	SCORING GUIDEPOST 100	
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			
3.A	Management System Criteria			
3A.1 (MSC Principle 3 Intent and Criterion 3)	A management system containing an institutional and operational framework exists with clear lines of responsibility.			
3A.1.1	Are organisations with management responsibility clearly defined including areas of responsibility and interactions?	Organisations with management responsibility are known. Responsibilities and interactions may require clarification.	Organisations with management responsibility have been defined including key areas of responsibility and interaction	Organisations with management responsibility are clearly defined including all areas of responsibility and interaction. Interactions are demonstrably effective.
3A.1.2	Is the system consistent with the cultural context, scale and intensity of the fishery?	Inconsistencies may arise in some key areas but a programme is in place to address these.	The system is consistent with key elements of the cultural context, scale and intensity of the fishery.	The system is entirely consistent with the cultural context, scale and intensity of the fishery.
3A.1.3	Is the management system subject to internal review?	There are mechanisms in place to allow for internal review.	The management system is subject to internal review at appropriate intervals. Recommendations are reviewed and any improvements are implemented over appropriate timescales.	The management system is subject to regular and frequent internal review. Monitoring and evaluation are ongoing and improvements quickly tested and implemented.
3A.1.4	Is the management system subject to external review?	There are mechanisms in place to allow for external review.	The management system is subject to external review at appropriate intervals. Recommendations are reviewed and any improvements are implemented over appropriate timescales	The management system is subject to rigorous, regular and frequent external review. Monitoring and evaluation are ongoing and improvements quickly tested and implemented.
3 A.2 (MSC Criteria 1, 2, 4)	The management system has a clear legal basis.			
3A.2.1	Is the fishery consistent with International Conventions and Agreements?	The management system operates under relevant international conventions and agreements, but some management actions may be questionable in relation to the terms of these.	The management system appears to be in full compliance with international conventions and agreements.	The management system is demonstrably compliant with all relevant international conventions and agreements.

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3A.2.2	Is the fishery consistent with national legislation?	The management system operates under relevant national legislation, but some management actions may be questionable in relation to the terms of these.	The management system appears to be in full compliance with national legislation.	The management system is demonstrably compliant with all relevant national legislation.
3A.2.3	Does the system observe the legal and customary rights of people dependent upon fishing?	The customary and legal rights of the people dependent upon fishing are known and no major conflicts have been identified.	The system observes the legal and customary rights of people dependent upon fishing but does not necessarily have a formal codified system.	The system observes all legal and customary rights of people dependent upon fishing under a formal codified system.
3A.3 (MSC Criteria 2, 5, 7)		The management system includes strategies to meet objectives including consultative procedures and dispute resolutions.		
3A.3.1	Does the management system contain clear short and long-term objectives?	Short and long-term resource and environment objectives are implicit within the management system.	The management system contains short and long-term resource and environment objectives.	The management system contains clear and explicit short and long-term resource and environment objectives that can be measured by performance indicators.
3A.3.2	Do operational procedures exist for meeting objectives?	Operational procedures exist which are applied to the meeting of objectives.	Transparent operational procedures are applied to the meeting of objectives. These procedures can be expected to support the objectives.	Operational procedures are transparent and clearly applied. There is a feedback mechanism testing effective application.
3A.3.3	Do procedures include a precautionary approach in the absence of sufficient information?	Measures exist to implement a precautionary approach in the absence of sufficient information. There is some evidence that this is occurring.	Appropriate, formalised measures exist to evaluate and implement a precautionary approach in the development and application of operational procedures in the absence of sufficient information.	All procedures include for evaluation of uncertainty and application of precaution at an appropriate level.
3A.3.4	Are there procedures for measuring performance relative to the objectives?	Operational procedures exist which can be used to measure performance relative to the objectives.	There are appropriate evaluated procedures used for measuring performance relative to the objectives.	Tested procedures are used for regular measurement of performance relative to the objectives.
3A.3.5	Does the system include a consultative process including relevant and affected parties?	The system incorporates a consultative process including key stakeholders within the fishery.	The system has an appropriate consultative process including all main public and private stakeholders and can demonstrate consideration of representations made or a reliable mechanism for such	The system incorporates an appropriate consultative process including all affected stakeholders. Decisions specifically discuss and/or address stakeholder concerns.

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			considerations.	
3A.3.6	Is there an appropriate mechanism for the resolution of disputes within the system?	Mechanisms are theoretically adequate but have not been consistently applied or tested.	There is an appropriate and effective mechanism for the resolution of disputes within the system.	There is an appropriate, effective and tested mechanism within the system for the documentation and resolution of disputes of varying magnitude.
3A.4 (MSC Criterion 6)		The management system operates in a manner appropriate to the objectives of the fishery.		
3A.4.1	Does the system include subsidies that contribute to unsustainable fishing?	Subsidies exist that could contribute indirectly to unsustainable fishing. These are short-term and are in the process of being removed within acceptable timescales.	The system is essentially free from subsidies that contribute to unsustainable fishing or ecosystem degradation.	The system has no subsidies that contribute to unsustainable fishing or ecosystem degradation.
3A.4.2	Does the system include economic/social incentives that contribute to sustainable fishing?	Measures to allocate fishing opportunities and/or entry to the fishery, or other incentives, are generally supportive of achieving fishery objectives related to sustainability.	Allocations of fishing opportunities and/or entry to the fishery, and/or other incentives, promote fishery and ecosystem management goals.	The system has established economic and social incentives that contribute to sustainable fishing and ecosystem management.
3A.5 (MSC Criterion 8)		A research plan exists in line with the management system to address information needs.		
3A.5.1	Have key research areas requiring further information been identified?	Some major areas requiring further research have been identified.	Key areas requiring further research have been identified.	A comprehensive review of information and research requirements has been undertaken.
3A.5.2	Is research planned/undertaken by the scientific advisers to meet the specific requirements of the management plan?	Research is planned for highest priority information needs.	Research is planned and undertaken to provide necessary scientific support to the plan. There are demonstrable resources to allow implementation of the programme.	There is an ongoing, funded, comprehensive and balanced research programme, linking research to the management plan.
3A.5.3	Is relevant research carried out by other organizations (e.g. Universities) and is this taken into consideration?	The management system is aware of research carried out by other organisations and elements of this are taken into consideration.	Appropriate research carried out by other organisations is taken into consideration, although there is not necessarily any proactive co-ordination between organisations.	Relevant research carried out by other organisations is taken into account for management considerations. This research is often co-ordinated with existing research plans of the management system.

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3A.6 (MSC Criteria 7, 9, 10) The management system includes measures to achieve objectives for the stock.				
3A.6.1	Are the resource and effects of the fishery monitored?	A monitoring programme is in place that addresses some key aspects of resource and effects and which can be extended.	A monitoring programme is in place that addresses all key aspects of resource and effects at appropriate intervals and results are recorded.	The resource and effects of the fishery are closely monitored over appropriate geographical areas and time periods. Full records are kept of monitoring results and these are made available to relevant research and management bodies.
3A.6.2	Are results of monitoring evaluated against appropriate reference point(s)?	Reference points exist and some level of evaluation against these is possible.	Results of monitoring are regularly interpreted in relation to reference points	Results of monitoring are quantitatively evaluated against precautionary reference points on a regular and timely basis.
3A.6.3	Do procedures exist for reductions in harvest in light of monitoring results and how quickly and effectively can these be implemented?	Practical procedures exist to reduce harvest. Programmes to link these with monitoring results are underway.	Practical procedures exist to reduce harvest in the light of monitoring results and provide for stock recovery to specified levels. Measures can be implemented speedily.	Practical procedures exist to reduce harvest in light of monitoring results and provide for stock recovery to specified levels within specified time frames. There are well documented procedures to implement changes and these can be introduced with immediate effect.
3A.7(MSC Criterion 10) The management system includes measures to achieve objectives for the affected ecosystem.				
3A.7.1	Are measures in place to address (avoid or minimise) significant environmental impacts?	Negative environmental effects caused by fishing have been identified. Measures are being applied to reduce any key impacts.	Measures are being applied to minimise any significant environmental impacts and there is evidence that the measures are working.	Measures are in place to avoid any significant environmental impacts and are subject to monitoring and periodic review, OR, no significant environmental impacts are known to exist.
3A.7.2	Are no take zones, Marine Protected Areas or closed areas for specific periods appropriate and, if so, are these established and enforced?	Suitability of no-take zones and/or closed areas / seasons has been reviewed against objective biological criteria. Plans are in place to implement some or all of these as appropriate.	Suitability of no-take zones and closed areas / seasons has been reviewed and these have been or are currently being implemented and enforced if and where appropriate.	No-take zones and closed areas / seasons are established and enforced if and where appropriate and, if implemented, the consequences are being monitored.
3 A.8 (MSC Criterion 11) There are control measures in place to ensure the management system is effectively implemented.				
3A.8.1	Are information, instruction and/or training provided to fishery operatives in the aims and methods of the management	Mechanisms exist for the dissemination of information, instruction and training of fishery operatives. Implementation of these mechanisms may not be universally	Information, instruction and training are provided to fishery operatives in the aims and methods of the management system allowing effective management of the	Information, instruction and training are provided to fishery operatives in the aims and methods of the management system allowing effective management of the fishery and operatives demonstrate comprehensive

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	system?	implemented.	system.	knowledge of this information.
3A.8.2	Is surveillance and monitoring in place to ensure that requirements of the management system are complied with?	An enforcement system has been implemented; however, its effectiveness and/or compliance has not been fully demonstrated relative to conservation objectives.	An effective enforcement system has been implemented and there is an appropriate degree of control and compliance.	An effective enforcement system has been implemented and there is a high degree of control and compliance.
3A.8.3	Can corrective actions be applied in the event of non-compliance and is there evidence of their effectiveness?	Mechanisms exist or are being developed which can be implemented or applied to deal with non-compliance. Their effectiveness is to be evaluated	There are set measures that can be applied in the event of non-compliance although these may not be included in a formal or codified system. Their effectiveness has been or will be evaluated.	Agreed and tested corrective actions can be applied in the event of non-compliance.
3.B		Operational Criteria		
3B.1(MSC Criterion 12)		There are management measures that include practices to reduce impacts on non-target species and inadvertent impacts upon target species.		
3B.1.1	Do management measures, principally through the use of gear and other fishing practices, include avoidance of impacts on non-target species and inadvertent impacts upon target species? These would include by-catch, discards, slippage and high grading.	Measures have been, or can be, implemented as appropriate that are intended to reduce the major impacts on non-target species and inadvertent impacts on target species, but their effectiveness is uncertain.	Measures have been, or can be, implemented as and when appropriate to avoid or reduce any major impacts on non-target species and inadvertent impacts on target species and there is evidence that they are having the desired effect when applied.	Measures have been implemented to avoid or reduce the major impacts on non-target species and inadvertent impacts on target species, and their effectiveness is clearly demonstrated.
3B.2 (MSC Criterion 13)		There are management systems in place that encourage fishing methods that minimise adverse impacts on habitat.		
3B.2.1	Do fishing operations implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning or nursery areas?	Fishing operations use measures to reduce major impacts on habitat, especially in critical or sensitive zones such as spawning or nursery areas.	There is evidence that fishing operations are effective in avoiding significant adverse effects on the environment, especially in critical or sensitive zones such as spawning or nursery areas.	There is direct evidence that fishing operations implement appropriate methods to avoid significant adverse impacts on all habitats.

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3B.3 (MSC Criterion 14) The management system incorporates measures that discourage destructive practices.				
3B.3.1	Does the fishery employ destructive fishing practices (such as poisons or explosives)?	The fishery does not allow any such destructive fishing practices.	The fishery does not employ any such destructive fishing practices and enforcement is considered sufficient to prevent their use.	The fishery does not employ any destructive fishing practices. There is a code of conduct for responsible fishing, prohibiting these that is fully supported by fishers.
3B.4 (MSC Criterion 15) The management system incorporates measures that reduce operational waste.				
3B.4.1	Do measures exist to reduce operational waste?	Measures/facilities are in place to reduce sources of operational waste that are known to have detrimental environmental consequences, but further reductions may be possible.	Measures/facilities are in place to reduce all sources of operational waste that are known to have detrimental environmental consequences, and there is evidence they are effective.	Measures/facilities are in place to reduce all sources of operational waste that are known to have detrimental environmental consequences, and there is evidence they are effective and these measures are supported by the fishers.
3B.5 (MSC Criterion 16) Fishing operations are conducted in compliance with the management system and legal and administrative requirements.				
3B.5.1	Are fishers aware of management system, legal and administrative requirements	Fishers are aware of key management and legal requirements.	Fishers are aware of management and legal requirements upon them and are kept up to date with new developments.	All fishers are aware of management legal requirements through a clearly documented and communicated mechanism such as a code of conduct.
3B.5.2	Do fishers comply with management system, legal and administrative requirements?	Fishers appear generally to comply with requirements, but there is incomplete information o the actual extent of compliance.	Fishers appear compliant with relevant management and legal requirements and there are no indications of consistent violations.	Fishers are fully compliant with, and fully supportive of, legal, and administrative requirements, such as through a code of conduct.
3B.5.3	What is the record of enforcement of regulations in the fishery: e.g. quota control, by-catch limits, MLS, mesh regulations and closed areas?	There is information on breaches of regulations and on corrective action to prevent or curtail these.	Evidence of rigorous monitoring of all the enforcement measures and evidence of actions taken in the event of breaches is available.	Strong evidence of rigorous monitoring and control of the enforcement measures through for example satellite monitoring, shipboard observers and nominated landing ports. Strong evidence of firm action taken in the event of breaches
3B.6 (MSC Criterion 17) The management system involves fishers in data collection.				
3B.6.1	Do fishery operatives assist in the collection of catch, discard and other relevant data?	Fishery operatives are involved in the collection of some catch, discard and other information.	Fishery operatives are regularly involved in the collection and recording of relevant catch, discard and other information.	Fishery operatives assist significantly in the collection and recording of all appropriate catch, discard and other information.