

Announcement

Final Comment Period

Draft Performance Indicators and Scoring Guideposts Bering Sea/Aleutian Islands and Gulf of Alaska Pollock Fisheries

As part of the evaluation process for the Bering Sea/Aleutian Islands and Gulf of Alaska Pollock fisheries under the Marine Stewardship Council (MSC) Initiative, Scientific Certification Systems, Inc. is making available for final comment the redrafted Performance Indicators and Scoring Guideposts developed for use by an independent evaluation team. Organizations or individuals interested in providing comments (positive or negative) are encouraged to respond directly to Chet Chaffee, Project Leader using the contact information provided below.

The "Performance Indicators and Scoring Guideposts" were initially drafted and made available for comment in October 2001. Based on comments received, the Evaluation Team revised the document and released it in February 2002. In addition to revisions based on comments, the February 2002 draft issued by SCS also included an additional set of Scoring Guideposts at the direct request of the MSC. The additional Scoring Guideposts provide guidance on what constitutes a score of "60" on a scale of 0 to 100. According to MSC assessment requirements, a minimum score of 60 for any given performance indicator is required or the fishery cannot be considered for certification.

Specifically, comments are now being sought regarding the added "60" level Scoring Guideposts. Written or verbal comments to the Evaluation Team should, to the extent possible, focus on providing a clear description of:

1. The specific performance indicator and scoring guidepost concerned,
2. The specific issue of concern.
3. Recommended improvements.
4. Support for recommended improvements.

All comments should be directed to Chet Chaffee at SCS by 5 April 2002 at:

Chet Chaffee
SCS
1939 Harrison St., Suite 400
Oakland, CA 94612
Tel: 650-969-1366 / Fax: 650-969-4731
Email: chaffe3@attglobal.net

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.

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.

Our interpretation of MSC Criterion 1: We focus on 1) management of the target species and 2) management of by-product species (retained commercial species that are not the prime target of the fishery). Other aspects of “associated ecological community” are generally dealt with under Principle 2, although some account is taken at the 100% scoring level of whether, for example, biological reference points also take account of broader ecological considerations. However the approach attempts to maintain reasonable consistency with previous certifications under MSC.

Subcriterion 1.1 - There is a well-defined and effective strategy for managing exploitation of the target species.

SSC 1.1.1: There is an adaptive and precautionary harvest strategy to manage the target stocks, including rules for setting catch limits.

The intention of this sub-criterion is to evaluate whether the “harvest strategy” used to regulate catches of the target species is likely to result over time in a well-managed stock (“maintaining the high productivity of the target population(s)”). The harvest strategy for pollock includes a “harvest control rule” (for determining acceptable biological catches or ABCs), which uses information from a stock assessment, which is in turn based on knowledge and data about the stocks and the fishery. The scoring indicators evaluate the extent to which the harvest strategy is precautionary (resulting in more conservative regulations where uncertainty is higher) and robust to uncertainties in data and assumptions.

Indicator 1.1.1.1: The harvest control rule is well defined.

100 Scoring Guidepost

- The harvest control rule specifies very precisely the way in which ABCs are calculated.

80 Scoring Guidepost

- The harvest control rule specifies in general how ABCs are calculated, but there is latitude for variation and interpretation.

60 Scoring Guidepost

- The way in which ABCs are determined is ill-defined and varies considerably from year to year.

Indicator 1.1.1.2: The harvest control rule is based on appropriate limits to the maximum exploitation rate.

100 Scoring Guidepost

- Maximum exploitation rate is defined using precautionary reference points that take account of impacts on target and associated species.

80 Scoring Guidepost

- Maximum exploitation rate is defined using internationally recognized limit reference points for target species (such as F_{MSY} or its equivalent).

60 Scoring Guidepost

- F_{MSY} or its equivalent is used as a target rather than a limit reference point for exploitation rate.

Indicator 1.1.1.3: The harvest control rule results in appropriate reductions in exploitation rate at low stock sizes.

100 Scoring Guidepost

- Exploitation rate is set to zero if stocks are assessed to be below threshold minimum stock sizes.
- The threshold minimum stock size is selected to take account of ecological as well as target species impacts.

80 Scoring Guidepost

- Exploitation rate is reduced as stocks decline below threshold levels, sufficient to promote rapid stock recovery.
- Threshold levels are selected in relation to internationally recognized limit reference points for target species (such as B_{MSY}).

60 scoring guideline

- Exploitation rate is not reduced as stock levels decline.

Indicator 1.1.1.4: The harvest control rule results in reductions in ABCs as uncertainty increases.

100 Scoring Guidepost

- The harvest control rule includes provision for more conservative regulations as uncertainties about the status of the target species increase.
- The harvest control rule (or associated regulations) takes account of uncertainties about impacts on associated species.

80 Scoring Guidepost

- The harvest control rule includes provision for more conservative regulations as uncertainties about the status of the target species increase.

60 Scoring Guidepost

- The harvest control rule takes limited account of uncertainties in stock status.

Indicator 1.1.1.5: The harvest strategy can be shown to be precautionary.

100 Scoring Guidepost

- The harvest strategy or management procedure has been formally evaluated and demonstrated to be robust to known sources of uncertainty in data and model assumptions.

80 Scoring Guidepost

- The harvest strategy has been demonstrated to be precautionary, based on past management decisions and responses to uncertainty.

60 Scoring Guidepost

- While including some elements of precaution, the harvest strategy has not proved to be sufficiently precautionary.

Indicator 1.1.1.6: The harvest strategy is properly applied.

100 Scoring Guidepost

- The agreed harvest strategy is applied without exception.

80 Scoring Guidepost

- Decisions about catch limits follow the agreed strategy.

60 Scoring Guidepost

- The harvest strategy is not applied consistently, or is regularly over-ridden in ways that result in less precautionary outcomes.

SSC 1.1.2: Stocks are not depleted and harvest rates are sustainable.

In contrast to SSC 1.1.1, which evaluates generic properties of the harvest strategy, SSC 1.1.2 evaluates the current status of the target species or stocks, and the basis for being reasonably certain about their status. The Scoring Guideposts are arranged hierarchically, so that evaluation of the current status depends on the assessment, which in turn depends on data and knowledge about the stocks and the fishery.

Indicator 1.1.2.1: Current stock sizes are assessed to be above appropriate limit reference points.

The intent is to assess whether the stock is currently “overfished”. There is no internationally agreed standard to define this. A recent FAO view is that target stocks should generally be maintained above B_{MSY} , which should be used as a limit reference point. An alternative (but not generally accepted) view is that explicit allowance should be made for predators by increasing target and limit levels well above B_{MSY} (e.g. the “CCAMLR” strategy). Stock levels can also fluctuate due to natural environmental variability, and this needs to be taken into account. In this regard, B_{MSY} is an equilibrium concept and is not easily defined for a naturally fluctuating stock. In the absence of precise or agreed definitions or standards, expert judgments will be made based on the following guideposts.

100 Scoring Guidepost

- Stock assessments show the stock to be above the reference biomass with greater than 90% probability.
- The reference biomass is above B_{MSY} and takes into account the needs of predators.

80 Scoring Guidepost

- Stock assessments show the stock to be above the reference biomass with greater than 70% probability.
- The reference biomass is B_{MSY} or its equivalent and takes into account the natural variability of the stock.

60 Scoring Guidepost

- Stock assessments show that there is a reasonable chance that the stock is at or above B_{MSY} or its equivalent.

Indicator 1.1.2.2: Current exploitation rates are below appropriate limit reference points.

100 Scoring Guidepost

- Stock assessments show the current exploitation rate to be below the limit reference point with greater than 90% probability.
- The limit reference point is below F_{MSY} and takes account of needs of predators.

80 Scoring Guidepost

- Stock assessments show the current exploitation rate to be below the limit reference point with greater than 70% probability.
- The limit reference point is set at F_{MSY} or equivalent.

60 Scoring Guidepost

- Stock assessments show the current exploitation rate to be at or below F_{MSY} or its equivalent.

SSSC 1.1.2.3: There is a robust assessment of the stocks.

Indicator 1.1.2.3.1: Assessment models are appropriate to the biology of the stock and the nature of the fishery.

100 Scoring Guidepost

- The assessment model is fully spatially structured, and takes account of all sources of mortality on the target species.
- Natural mortality is time and age specific and takes explicit account of predation mortality.

80 Scoring Guidepost

- The assessment model is state of the art for single species assessments, and takes account of spatial structure and of all likely sources of fishing mortality.

- Natural mortality can be age and time invariant, and subsumes predation mortality.

60 Scoring Guidepost

- The assessment model does not take proper account of spatial structure and only accounts for fishing mortality from landings from the principle fishery.

Indicator 1.1.2.3.2: Stock assessment methods are statistically rigorous.

100 Scoring Guidepost

- The assessment method has been simulation tested and the results show that major outputs of management interest meet reasonable levels of precision and accuracy.

80 Scoring Guidepost

- The assessment uses parameter estimation procedures that take account of observation and process uncertainty and are recognized to comply with standards of statistical analysis.

60 scoring guideline

- Model estimation procedures take limited or inappropriate account of statistical uncertainty.

Indicator 1.1.2.3.3: Stock assessments explore sensitivities to assumptions, parameters and data, and key sensitivities are taken into account in the harvest strategy.

100 Scoring Guidepost

- There is a comprehensive evaluation of sensitivities to assumptions, parameters and data for key outputs of interest such as stock abundance.
- Uncertainty about key inputs to which assessments are sensitive is taken into account in the harvest strategy.

80 Scoring Guidepost

- There is a thorough evaluation of sensitivities to assumptions, parameters and data for key outputs of interest such as stock abundance.
- Uncertainty about key inputs to which assessments are sensitive is taken into account in the harvest strategy.

60 Scoring Guidepost

- Sensitivity analyses are limited or non-existent.

- Results of sensitivity analyses are not properly taken into account in the harvest strategy.

SSSSC 1.1.2.3.4: There is adequate knowledge about the target stocks.

The intent is to evaluate whether knowledge about the target species is sufficient to allow a reasonable expectation of a robust assessment of the status of stocks. Where knowledge is limited, this may be mitigated to some extent if the assessment or harvest strategy is robust to those sources of uncertainty. This is the sense in which the word “adequate” is used.

Indicator 1.1.2.3.4.1: There is knowledge of the identity of the target species

100 Scoring Guidepost

- There is a very high degree of confidence in proper identification and reporting of the target species. (Close to 100%)

80 Scoring Guidepost

- There is a high degree of confidence in proper identification and reporting of the target species. (Above 90%)

60 Scoring Guidepost

- There is only a moderate degree of confidence in proper identification and reporting of the target species. (Below 80%)

Indicator 1.1.2.3.4.2 There is knowledge of the identity of stocks in the management area of the fishery.

100 Scoring Guidepost

- The identity and distribution of all genetically separate stocks is known.
- Genetically separate stocks are managed separately.

80 Scoring Guidepost

- The identity and distribution of major spawning sites are known.
- Management boundaries correspond reasonably well with stock boundaries.
- Management boundaries are adjusted as new information on stock boundaries becomes available.

60 Scoring Guidepost

- Stock structure is largely unknown.

- Uncertainty about correspondence between stocks and management units is ignored.

Indicator 1.1.2.3.4.3 There is knowledge of the life history characteristics of the species/stocks.

The intent is to evaluate the adequacy of knowledge of life history characteristics to undertake robust assessments. Life history characteristics include somatic growth, natural mortality, and fecundity (by size and/or age).

100 Scoring Guidepost

- There is comprehensive knowledge of life history characteristics of all significant stocks.
- Dependence of life history parameters on density, environment and ecologically related species is well understood and taken into account.

80 Scoring Guidepost

- The knowledge of life history characteristics of all significant stocks is well enough known that changes in the productivity and abundance of the stocks through time and space can be tracked.
- Sensitivities to uncertainties in life history parameters are included in assessments.

60 Scoring Guidepost

- Life history parameters are uncertain and these uncertainties are not adequately accounted for in assessments or harvest strategies.

Indicator 1.1.2.3.4.4 There is knowledge of the behavior (movement, migration, feeding, reproduction) of the stocks.

100 Scoring Guidepost

- There is comprehensive knowledge of the behavioral ecology of the species and of significant stocks.

80 Scoring Guidepost

- The knowledge of the behavioral ecology of the species and of significant stocks is sufficient to undertake robust assessments.

60 Scoring Guidepost

- Uncertainty about the behavioral ecology of the species results in significant uncertainty in interpretations of data or in assessments of stock status.

Indicator 1.1.2.3.4.5 There is information necessary to measure trends in abundance of stocks.

100 Scoring Guidepost

- Comprehensive fishery independent surveys of abundance are undertaken on an annual basis covering all significant stocks.
- Time series of surveys extend back to the start of significant fishing.
- Survey design and sampling methods are statistically rigorous and robust.

80 Scoring Guidepost

- Fishery independent surveys of abundance are undertaken on a frequent basis covering all significant spatial components of the population.
- Survey design and sampling methods are statistically rigorous and robust.

60 Scoring Guidepost

- Fishery independent surveys of abundance are sporadic.
- Variations in survey design over time have resulted in significant uncertainties about trends in relative abundance.

Indicator 1.1.2.3.4.6 There is knowledge of environmental influences on stock dynamics.

100 Scoring Guidepost

- Impacts of regime shifts and inter-annual variability in environmental conditions are well understood and incorporated in the assessments.

80 Scoring Guidepost

- Impacts of regime shifts on stock abundance have been studied, and where appropriate are taken into account in the assessment.
- Impacts of inter-annual variability in environmental conditions on distribution and availability of fish have been studied and inform the stock assessment process.

60 Scoring Guidepost

- Environmental variability is largely ignored in assessments.

SSSSC 1.1.2.3.5: There is adequate knowledge about the fishery.

As with SSSSC 1.1.2.3.4, adequacy is judged by the impact of uncertainty about particular factors on the assessment, and on the way that feeds through to the harvest strategy and to management of the resource.

Indicator 1.1.2.3.5.1: All major sources of fishing mortality for the stocks are measured and accounted for.

100 Scoring Guidepost

- All sources of fishing mortality, including catches from all fleets, by-catch from other targeted fisheries, and catches outside the management area that impact on the stocks, are measured accurately using a comprehensive at sea observer program.

80 Scoring Guidepost

- Catches from the target fishery and significant by-catch fisheries are recorded through an at sea observer program with adequate statistical coverage.
- Catches from outside the management area of the target fishery that impact on the target stocks are available, and are used in the assessment.

60 Scoring Guidepost

- Catch monitoring is inadequate to estimate significant sources of mortality due to fishing.
- Catches from outside the management area that impact significantly on the stocks are largely ignored.

Indicator 1.1.2.3.5.2: The age and/or size structure of catches are measured.

100 Scoring Guidepost

- Comprehensive data on the age and size structure of all significant catches are available.
- Comprehensive data on the age and size structure of catches from fishery independent surveys are available.

80 Scoring Guidepost

- Data on the age and size structure of catches in the main target fishery are available, with adequate statistical coverage.
- Data on the age and size structure of catches from fishery independent surveys are available, with adequate statistical coverage.

60 Scoring Guidepost

- Age and/or size data are available but sample sizes are barely adequate.
- Analyses do not take proper account of uncertainties in age and/or size samples.

Indicator 1.1.2.3.5.3: Fishing methods and patterns are well understood and recorded.

100 Scoring Guidepost

- There is comprehensive knowledge of spatial and temporal patterns of fishing for all fleets impacting the stocks.
- There is comprehensive knowledge of the gear used in all significant fisheries impacting the stocks, and the selectivities of the gear are well estimated.

80 Scoring Guidepost

- There is comprehensive knowledge of spatial and temporal patterns of fishing for the major target fishery.
- There is comprehensive knowledge of the gear used in the major target fishery, and the selectivities of the gear are well estimated.

60 Scoring Guidepost

- Spatial and temporal patterns of fishing are not well understood or not recorded.
- Changes in the types of gear used over time in the fishery have not been consistently recorded.

Subcriterion 1.2 - There are well-defined strategies for managing exploitation of significant by-product species.

The intent is to ensure that species taken as by-product of targeted fishing for pollock are not overfished due to the impacts of pollock fishing. “Significant” by-product species are here interpreted as either 1) those that are managed using TACs or 2) any species that comprises more than 0.5% of the total catch of the pollock fishery. By-catch of protected species is dealt with under Principle 2.

Indicator 1.2.1: There is formal and comprehensive monitoring of catches of by-product species in this fishery.

100 Scoring Guidepost

- Comprehensive observer coverage provides estimates of catches of all by-product species.

80 Scoring Guidepost

- A statistically robust catch sampling program provides estimates of catches of all by-product species.

60 scoring guideline

- Catches of some by-product species are not recorded, or are inadequate to assess the impact of pollock fishing on those species.

Indicator 1.2.2: There are assessments of significant by-product species.

100 Scoring Guidepost

- There are comprehensive assessments of all significant by-product species.

80 Scoring Guidepost

- The impacts of the pollock fishery on all significant by-product species are assessed.

60 Scoring Guidepost

- The impacts of the pollock fishery on most significant by-product species are assessed.

Indicator 1.2.3: There are strategies to control catches of significant by-product species in the pollock fishery.

100 Scoring Guidepost

- All significant by-product species are subject to robust and precautionary harvest strategies.
- This includes constraints on the catch levels on those species from the pollock fishery.

80 Scoring Guidepost

- Catches by the pollock fishery are constrained for by-product species subject to TACs.
- Catches for other significant by-product species are constrained to be within acceptable limits based on assessments of the impacts of the pollock fishery on those species.

60 Scoring Guidepost

- Catches on some significant by-catch species are not constrained, or the constraints are ineffective.

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.

Our interpretation of MSC Criterion 2: We wish to assess if there is a management strategy designed to keep targeted stocks from becoming depleted, and to promote recovery if they become depleted. Note that this has already been partially assessed under SSC 1.1.1, which considers the harvest control rule for setting ABCs at low stock sizes. SSC 1.1.2 has also assessed whether stocks are in fact depleted.

Subcriterion 2.1 - There is a well-defined and effective strategy to promote recovery of stocks that become depleted.

Indicator 2.1.1: Rules for setting TACs at low stock sizes promote recovery within reasonable time frames.

100 Scoring Guidepost

- Exploitation rate is set to zero if stocks are assessed to be below an appropriate threshold minimum stock size.

80 Scoring Guidepost

- Exploitation rate is reduced as stocks decline below threshold levels, sufficient to promote rapid stock recovery.

60 Scoring Guidepost

- Exploitation rate is not reduced at low stock size, or insufficiently to promote rapid stock recovery.

SSC 2.1.2: Other contingency management measures have been considered to promote stock recovery.

The intent is to assess whether there are additional contingency measures (other than reducing TACs) that would be put in place in the event that stocks were found to be depleted. Such additional measures might include closed areas, seasonal closures and gear restrictions.

Indicator 2.1.2.1: There is a specific recovery plan in place including measures other than TAC reductions.

100 Scoring Guidepost

- There are comprehensive and pre-agreed responses to low stock size that utilize a range of management measures to ensure rapid recovery.

80 Scoring Guidepost

- Recovery plans in the event of severe depletion include a range of management measures other than quota reductions.

60 Scoring Guidepost

- There are no specific recovery plans in the event of stock depletion other than reductions in TACs.

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.

Our interpretation of MSC Criterion 3: The effects of fishing on the “reproductive capacity” of the target populations should already have been assessed under criterion 1. To the extent that Criterion 1 may not have done so, Criterion 3 considers specific concerns about impacts of fishing on age, sex and genetic structure of populations. Because genetic structure is very difficult to determine (and is frequently uninformative) in most exploited fish populations, impacts on “local stocks or spawning units” are used as a proxy at the 80% scoring level.

Subcriterion 3.1 – The harvest strategy maintains the reproductive capacity of the target species.

Indicator 3.1.1: The age, sex and genetic structure of the stocks are monitored.

100 Scoring Guidepost

- There is comprehensive monitoring of the age and sex structure of the populations.
- The genetic structure of the population is monitored.

80 Scoring Guidepost

- Monitoring of the age and sex structure of the population is adequate to detect threats to reproductive capacity.
- Assessments include an evaluation of depletion of local stocks or spawning units.

60 Scoring Guidepost

- Monitoring of the age and sex structure of the population is inadequate to reliably detect threats to reproductive capacity.
- No attempt is made to monitor the status of local stocks or spawning units.

Indicator 3.1.2: There is knowledge of the dynamics of sex structure in the species.

100 Scoring Guidepost

- There is comprehensive knowledge of the dynamics of sex structure in the species.

80 Scoring Guidepost

- Knowledge of the sex structure and dynamics are adequate to assess threats to reproductive capacity.

60 Scoring Guidepost

- The dynamics of sex structure in the population is largely unknown.

Indicator 3.1.3: Information from stock assessment does not indicate problems with reproductive capacity (spawning stock and recruitment).

100 Scoring Guidepost

- All data and assessments indicate spawning stock and recruitment at healthy levels for all genetically identifiable stocks.

80 Scoring Guidepost

- There are no long-term downward trends in spawning stock levels or recruitment due to impacts of the fishery for local stocks or spawning units.

60 Scoring Guidepost

- Long-term downward trends in spawning stock levels and recruitment for some local stocks or spawning units have been detected.

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.

Intent: 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.

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.

Our interpretation of MSC Criterion 1. There is a well-defined and effective strategy to ensure that ecological impacts of the fishery are monitored, and restrained to minimize impacts on ecosystem function (trophic relationships, community and habitat structure and biodiversity). This strategy is based on rigorous assessment and a sound database.

Indicator 1.1. There is a management plan with ecosystem considerations that identifies impacts of the fishery on the ecosystem and sets reasonable upper bounds for the identified impacts.

100 Scoring Guidepost

- There is a detailed ecosystem management plan based on well-understood functional relationships between the fishery and components of the ecosystem.
- This forms the basis for a fishery management strategy that restrains impacts on the ecosystem within defined bounds such as using 90% confidence intervals for setting ABCs in the single species context, and establishing a decision rule in the multi-species context similar to that employed in CCAMLR for krill, which explicitly adjusts the single species fishing level downward to account for the needs of other krill consumers in the ecosystem.
- These bounds are set at reasonable levels and are increasingly precautionary where uncertainty is high. They address risks associated with point estimates of ABCs and/or address the needs of dependent and related species explicitly.

80 Scoring Guidepost

- There is a management system with ecosystem components based on general knowledge of ecological relationships. This contains explicit management objectives to understand and control impacts on trophic relationships, community and habitat structure and biodiversity.
- The management system assists fishery managers in making adjustments to reduce impacts on the ecosystem.
- Where uncertainty is high, management to restrain impacts is precautionary.

60 Scoring Guidepost

- Despite attempts to develop a management system that includes ecosystem considerations, impacts of the fishery on the ecosystem have not yet been constrained within agreed and reasonable bounds.

Sc 1.2. Research is carried out on ecological relationships among species, and on impacts of the fishery on the structure and biodiversity of invertebrate and vertebrate communities in relevant habitats.

The intent is to enable an evaluation of the extent to which there are robust assessments or predictions of impacts of the fishery, and monitoring of the communities considered likely to be affected such that any important impacts are likely to be identified. Such assessments require not only relevant monitoring data but also procedures for the measurement of impacts in the context of natural variations. We appreciate that it is neither practical nor necessary to study the ecology of every species of animal in the ecosystem, but we seek to explore whether research is carried out in sufficient detail and for a suitable variety of animal taxa and community metrics in order to identify important functional relationships with regard to impacts of the fishery.

Indicator 1.2.1. Assessments are conducted to identify and estimate impacts of the fishery on habitats, especially on essential fish habitat (EFH) or critical habitat for protected, endangered, threatened or icon species, which are necessary to manage the fishery to minimize identified impacts.

The intention of this performance indicator is to evaluate the extent to which the fishery demonstrates that it does not have unacceptable impacts on important habitats that might be vulnerable to alteration by the fishery.

Elements considered in scoring include:

- The effects of fishing on the habitat structure and productivity in fished areas, especially in areas used for spawning by fish.
- The effects of fishing on foraging economics of predators utilizing the fished area
- The effects of bycatch and discards/discharges on habitat structure and productivity in fished areas.
- Information on the extent of lost fishing gear and any physical damage caused to habitats.
- Information on the discharge of processing wastes, and their effects on the physical environment.
- Management response to these collected data.

100 Scoring Guidepost

- Important adverse effects of trawling on benthic and pelagic habitats are measured at intervals on a programmatic basis.

- Particular attention is given to effects of trawling on vulnerable habitats such as those inhabited by corals, and essential fish habitat or fish spawning areas.
- Impacts of fishing on food-fish abundance and distribution are measured, in particular as they affect availability of food for consumers such as endangered, threatened, protected, or icon species.
- Effects of discards and waste discharges on habitats are measured at intervals on a programmatic basis.
- Quantities of gear lost are recorded, and the impact of lost gear on habitats is measured.
- This information is presented in documents that are made available to stakeholders.
- Responsive management changes occur as a direct result of assessment findings.

80 Scoring Guidepost

- The effects of trawling on benthic and pelagic habitats have been assessed and the results presented in documents available to stakeholders.
- Particular attention is given to vulnerable habitats such as those inhabited by corals and those providing essential fish habitat.
- Impacts of fishing on food-fish abundance and distribution have been considered and presented in documents available to stakeholders.
- Effects of discards and waste discharges have been considered and presented in documents available to stakeholders.
- Gear loss has been reviewed and impacts on habitats considered and presented in documents available to stakeholders.

60 Scoring Guidepost

- Adverse effects of trawling on habitats, especially on essential habitat for fish or critical habitat for protected, endangered, threatened or icon species, are documented by sporadic investigations, but many of these are not in the public domain. Coverage of topics is incomplete. Quantitative estimation of impacts is therefore subject to much uncertainty.

Indicator 1.2.2. Assessments are conducted to identify and estimate impacts on invertebrate or vertebrate biodiversity and community structure

The intention of this performance indicator is to evaluate the extent to which the fishery demonstrates that it does not have unacceptable impacts on biodiversity or structure of animal communities.

Elements considered in scoring include:

- The effects of the fishing on invertebrate and vertebrate biodiversity and community composition.

- The effects of bycatch and discards/discharges on invertebrate and vertebrate biodiversity and community composition.
- Information on the impact of lost fishing gear on fish and wildlife.
- Information on the discharge of processing wastes, and its effects on invertebrate and vertebrate communities and populations.

100 Scoring Guidepost

- Effects of trawling on benthic and pelagic animal communities, including changes in species abundance and composition, are measured at intervals on a programmatic basis.
- Impacts of the bycatch take on animal communities are measured at intervals on a programmatic basis.
- Impacts of pollock removal on populations and communities of lower trophic levels are measured at intervals on a programmatic basis.
- Effects of discards and waste discharges on invertebrate communities and populations are measured at intervals on a programmatic basis.
- Effects of discards and waste discharges on vertebrate communities and populations are measured at intervals on a programmatic basis.
- The impacts of lost gear on fish and wildlife are measured at intervals on a programmatic basis.
- This information is presented in documents that are made available to stakeholders.
- Responsive management changes in research priorities and needs occur as a direct result of assessment findings.

80 Scoring Guidepost

- Gear effects from trawling on benthic and pelagic animal communities, including changes in species abundance and composition, have been assessed.
- Impacts of bycatch on animal communities have been assessed.
- Impacts of pollock removal on populations and communities of lower trophic levels have been assessed.
- Effects of discards and waste discharges on invertebrate communities and populations have been assessed.
- Effects of discards and waste discharges on vertebrate communities and populations have been assessed.
- The impacts of lost gear on fish and wildlife have been assessed.
- These assessments have been made available to stakeholders.

60 Scoring Guidepost

- Adverse effects of trawling on animal communities, species and populations, are documented by sporadic investigations, but many of these are not in the public domain. Coverage of topics is incomplete. Quantitative estimation of impacts is therefore subject to much uncertainty.

Indicator 1.2.3. Research is carried out to allow impacts of the fishery on the biodiversity and structure of invertebrate and vertebrate communities in relevant habitats to be identified, measured, and understood in terms of functional relationships.

The intention of this performance indicator is to evaluate the extent to which a body of knowledge exists to permit the impacts of the fishery to be identified, and discriminated from impacts due to other factors such as natural variations in environmental conditions. This involves both a research plan and an implementation strategy.

100 Scoring Guidepost

- There is detailed information on mechanisms through which the fishery causes adverse effects on habitats.
- There is detailed information on mechanisms through which the fishery causes adverse effects on invertebrate biodiversity, community structure and population dynamics.
- There is detailed information on mechanisms through which the fishery causes adverse effects on vertebrate biodiversity, community structure and population dynamics.
- There is a coordinated research plan to understand fishery impacts on habitats, biodiversity, structure of invertebrate communities, food webs, predator-prey dynamics and population dynamics.
- The results of research findings are made directly available to management authorities and the public on a programmatic basis.

80 Scoring Guidepost

- There is a continuing research program aimed at understanding mechanisms through which the fishery causes adverse effects on habitats.
- There is a continuing research program aimed at understanding mechanisms through which the fishery causes adverse effects on invertebrate biodiversity, community structure and population dynamics.
- There is a continuing research program aimed at understanding mechanisms through which the fishery causes adverse effects on vertebrate biodiversity, community structure and population dynamics.
- A coordinated research plan is being developed to understand fishery impacts on habitats, biodiversity, structure of invertebrate communities, food webs, predator-prey dynamics and population dynamics.
- As research proceeds and new information is learned, it is made available to management authorities and the public in a timely manner.

60 Scoring Guidepost

- Research into the effects of the fishery on habitats, animal communities, populations, food webs, and ecological functional relationships is carried out in sporadic projects with little strategic planning or coordination. Results therefore provide only a weak basis for adjusting fishery management to reduce impacts.

Indicator 1.2.4. There are monitoring programs to quantify fishery impacts on the biodiversity of invertebrate and vertebrate communities in relevant habitats.

The intention of this performance indicator is to evaluate the suitability of monitoring programs that provide data on the impacts of the fishery on protected, endangered, threatened or icon species, and on the biodiversity and structure of invertebrate and vertebrate communities in relevant habitats. We appreciate that it is neither practical nor necessary to monitor every species of animal in the ecosystem, but we seek to explore whether monitoring is carried out for a suitable variety of animal taxa and community metrics in order to assess important impacts of the fishery.

100 Scoring Guidepost

- There is a monitoring program collecting empirical data on habitat metrics that are most liable to fishery impacts.
- There is a monitoring program collecting empirical data on invertebrate biodiversity, community structure and population dynamics, focused on metrics that are most liable to fishery impacts.
- There is a monitoring program collecting empirical data on vertebrate biodiversity, community structure and population dynamics, focused on metrics that are most liable to fishery impacts.
- There is a monitoring program collecting empirical data on food-web and predator prey dynamics most liable to fishery impacts.
- Changes in research needs and priorities occur as a direct result of monitoring.

80 Scoring Guidepost

- A monitoring program is being established to collect empirical data on habitat metrics that are most liable to fishery impacts.
- A monitoring program is being established to collect empirical data on invertebrate biodiversity, community structure and population dynamics, focused on metrics that are most liable to fishery impacts.
- A monitoring program is being established to collect empirical data on vertebrate biodiversity, community structure and population dynamics, focused on metrics that are most liable to fishery impacts.
- A monitoring program is being developed to collect empirical data on food-web and predator prey dynamics most liable to fishery impacts.

- As monitoring proceeds, and new information is learned, responsive management actions occur.

60 Scoring Guidepost

- Monitoring programs to quantify fishery impacts on the biodiversity of invertebrate and vertebrate communities in relevant habitats are only weakly developed and are very incomplete. Their outputs do not provide adequate information to set action thresholds for management responses to constrain fishery impacts within agreed and reasonable limits.

Sc 1.3. As a consequence of research and monitoring during the development of the fishery, or use of spatial contrasts to infer impacts of fishing, there is now adequate knowledge of the ecosystem where the fishery operates, in relation to invertebrate and vertebrate communities in relevant habitats, and ecosystem structure.

The intent is to enable an evaluation of the extent to which sufficient knowledge of the ecosystem and of the natural functional relationships between species has been accumulated so that the fisheries management system can determine the nature of the effects of fishing on the ecosystem. This includes the extent to which there is a sufficient and appropriate process that operates to gather such knowledge.

Indicator 1.3.1. Abundance and/or productivity of animals have been monitored over time such that the fishery can be managed taking into account both natural and fishery impacts on animal abundance

The intention of this performance indicator is to assess the extent to which there is a body of knowledge available on the natural dynamics and productivity of animals that would permit perturbations caused by the fishery to be identified against a noisy background.

100 Scoring Guidepost

- Population abundances of invertebrates and vertebrates within the fishery area have been measured over a wide spatial scale and over many years so that densities, and variability in abundance are well known for the more abundant species and for species of particular conservation concern.
- Productivity of animal communities has been measured at a large number of locations across the geographical range of the fishery and in a large number of years.
- Spatial, and temporal, variations in productivity, and in trophic relationships have been measured.

80 Scoring Guidepost

- Studies of invertebrate and vertebrate population densities across the geographical range of the fishery are being carried out on species identified as being affected by fishing.
- Studies of trophic relationships, production, and spatial variations in animal abundance and productivity, are being carried out.

60 Scoring Guidepost

- Studies of animal population densities, trophic relationships, production and spatial variation in animal abundance have been carried out sporadically, such that the parameters that affect the natural dynamics of these processes are not understood well enough to identify important perturbations caused by the fishery against a noisy background of natural variations.

Indicator 1.3.2. Communities of animals in the habitats likely to be affected by the fishery are known.

The intention of this performance indicator is to evaluate the extent of knowledge of animal communities in habitats thought to be vulnerable to impacts of the fishery.

100 Scoring Guidepost

- The distribution of habitats has been mapped over the geographical range of the fishery, with particular attention to the occurrence of habitats that are liable to be affected by fishing.
- Invertebrate, and vertebrate, community compositions have been measured for a large number of sites across the geographical range of the fishery and over a large number of years.
- Changes in habitat and animal distributions over time are measured.

80 Scoring Guidepost

- There is basic knowledge of the distributions of different types of habitat present across the geographical range of the fishery.
- There is basic knowledge of the distributions of invertebrate, and vertebrate, community compositions for most of these habitat types
- There is some general information about whether major changes in habitats and/or animal distribution patterns have occurred over time.

60 Scoring Guidepost

- Information on the distributions of habitats and the species of animals in these habitats is patchy and incomplete.

Indicator 1.3.3. Data on spatial and temporal variations in abundances of animal populations and communities have been synthesized into a set of internally consistent

explanatory hypotheses that can provide the basis for making predictions about future system states and consequences of management actions.

The intention of this performance indicator is to evaluate how well data collected under 1.3.1 and 1.3.2 have been compiled and reviewed to enable intelligent choices among management actions.

100 Scoring Guidepost

- There is sufficient understanding of the information collected on functional relationships between fisheries actions and responses of animal populations and communities such that management decisions can be made to mitigate effects from fishing.
- Information on changes in the status of animal populations and communities is provided in a timely fashion such that management decisions can be made, where appropriate, to mitigate the effects of fishing.

80 Scoring Guidepost

- At a minimum, estimates of empirical relationships between fisheries actions and responses of animal populations and communities have been made and provided to management for consideration in reducing the effects of fishing on animals species and communities and for informing research decisions.
- Where it seems to be appropriate, management decisions respond to changes in the status of animal populations and communities, on a precautionary basis.

60 Scoring Guidepost

- For species that have been identified as effected by fishing, there is insufficient knowledge to estimate spatial and temporal variations in abundances of animal populations and communities adequate to permit management decisions to be made in response to changes in the status of animal populations and communities.

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 minimizes mortality of, or injuries to endangered, threatened or protected species.

Our interpretation of MSC Criterion 2. There is a well-defined and effective strategy to ensure that ecological impacts of the fishery are monitored, and restrained to minimize impacts on endangered, threatened, protected or icon species (we define icon species as any species of particular public interest that does not qualify under the terms 'endangered, threatened, or protected'). These impacts may be identified at the genetic, population, or community level.

Indicator 2.1. The fishery is conducted in a manner, which does not have unacceptable impacts on biological diversity at the genetic, species or population level of endangered, threatened or protected species.

100 Scoring Guidepost

- An ecological risk assessment has been conducted, based on knowledge of functional relationships, to determine the potential impacts of the fishery on the genetic, species and population level biodiversity endangered, threatened or protected species. Fishery management is constrained to minimize impacts on the basis of this risk assessment. Impacts are held below levels that would be unacceptable.

80 Scoring Guidepost

- An assessment has been conducted to estimate the potential impacts of the fishery on the genetic, species and population level biodiversity for endangered, threatened or protected species. Fisheries management has shown itself to be responsive to this risk assessment and attempts to minimize impacts.

60 Scoring Guidepost

- There is inadequate knowledge of endangered, threatened or protected species such that important impacts of the fishery on their biodiversity cannot be identified and it is impossible to adjust management to confidently expect reductions in these impacts.

Indicator 2.2.1. The management system keeps impacts of the fishery on protected species within agreed and reasonable bounds, and keeps impacts on threatened or endangered species within the limits set by the Endangered Species Act

100 Scoring Guidepost

- There is a detailed management plan that includes ecosystem considerations based on the functional relationships between the fishery and endangered, threatened, protected or icon species.
- This forms the basis for a fishery management strategy that restrains impacts on endangered, threatened, protected or icon species within defined bounds.
- These bounds are set at reasonable levels and are increasingly precautionary where uncertainty is high.

80 Scoring Guidepost

- There is a management strategy with consideration for ecological impacts on endangered, threatened, protected and icon species.
- This assists fishery management to adjust to reduce impacts on endangered, threatened, protected or icon species.
- Where uncertainty is high, management to restrain impacts is precautionary.

60 Scoring Guidepost

- Ecosystem aspects of management are treated as minor, ‘bolt-on’ aspects of the management system of the fishery, which is essentially single-species target stock management, adapted where necessary to comply with other legislation.

Indicator 2.2.2. Management of the fishery includes provisions for acquiring, integrating and synthesizing new scientific information from protected species research, management and recovery programs outside fishery management.

100 Scoring Guidepost

- The management system fully recognizes applicable legislative and institutional responsibilities outside fishery management regarding protected species.
- The management system has established mechanisms to conduct integrated and synthetic environmental assessment.
- Relevant data from protected species research, management and recovery programs are integrated into the fishery management system to inform policy.

80 Scoring Guidepost

- The management system recognizes applicable legislative and institutional responsibilities outside fishery management regarding protected species.

60 Scoring Guidepost

- The management system is reactive rather than proactive.

Sc 2.3. Research is being carried out to measure impacts of the fishery on endangered, threatened or protected species.

The intent is to enable an evaluation of the extent to which there are robust assessments or predictions of impacts of the fishery, and monitoring of the populations considered likely to be affected such that any impacts are likely to be identified. Such assessments require not only relevant monitoring data but also procedures for the measurement of impacts in the context of natural variations.

Indicator 2.3.1. Assessments are conducted to identify and estimate impacts of the fishery on protected, endangered, threatened or icon species.

The intention of this performance indicator is to evaluate the extent to which the fishery can demonstrate that it does not have unacceptable impacts on protected, endangered, threatened or icon species, and particularly those identified for protection under United States legislation.

Elements considered in scoring include:

- Information on the direct interactions of the fishery with protected, endangered, threatened or icon species, such as through by-catch, entanglement with lost fishing gear, effects on behavior, or physical disruption of seabird and sea mammal populations is available, and management strategies have put in place systems to reduce direct impacts to minimum levels.
- Information on the indirect interactions of the fishery with protected, endangered, threatened or icon species, such as through alterations to their foraging opportunities, is available, and management strategies have put in place systems to reduce indirect impacts to minimum levels.
- Levels of impacts on protected, endangered, threatened or icon species do not have detrimental effects on their populations.

100 Scoring Guidepost

- Direct and indirect impacts of fishing on all protected, endangered, threatened and icon species are measured and are known to be below levels that harm population size (defined as causing a significant decrease in population size or a significant risk of local extinction).

80 Scoring Guidepost

- Direct impacts of fishing on all protected, endangered, threatened and icon species are measured and are known to be below levels that harm population size.
- Indirect impacts of fishing (including food competition, changes in foraging behavior, disruption to animals and prey fields) on all protected, endangered, threatened and icon species have been examined and the evidence suggests that these impacts are below levels that harm population size.
- Research needed to measure indirect impacts of fishing on all protected, endangered, threatened and icon species is being carried out.

60 Scoring Guidepost

- Knowledge of direct and indirect impacts of the fishery on protected, endangered, threatened and icon species is fragmented, incomplete and inadequate to permit management to develop methods to limit these impacts to within agreed and reasonable bounds. Research being carried out is not adequately focused to provide the missing information.

Indicator 2.3.2. Permitted take levels for endangered and threatened species, and threshold levels of unacceptable impact have been identified for protected or icon species in fished areas and the fishery is managed in accordance with national and/or international laws on endangered and threatened species. Threshold levels of unacceptable impact have been identified for habitats in fished areas.

The intention of this performance indicator is to evaluate the extent to which appropriate reference levels have been set for fishery impacts on animals and habitats.

100 Scoring Guidepost

- Permitted take levels for endangered and threatened species, and threshold levels of unacceptable take of protected and icon species have been set at levels that can be expected to keep impact well below levels that would harm population size and are in accordance with international and/or national laws.

80 Scoring Guidepost

- Permitted take levels for endangered and threatened species have been set at levels that can be expected to keep impact well below levels that harm population size and are in accordance with international and/or national laws
- Threshold levels of unacceptable take of protected and icon species have been set at levels that can be expected to keep impact below levels that harm population size.

60 Scoring Guidepost

- Permitted take levels for endangered and threatened species, or threshold levels of unacceptable take for protected and icon species are set at levels that may still permit damaging impacts on these populations to continue, because they are not sufficiently precautionary in relation to high levels of uncertainty in the fishery or animal population dynamics.

Indicator 2.3.3. Research is carried out to allow impacts of the fishery on endangered, threatened, protected and icon species to be identified and measured.

The intention of this performance indicator is to evaluate the extent to which a body of knowledge exists to permit the impacts of the fishery to be identified, and discriminated from impacts due to other factors such as natural variations in environmental conditions.

100 Scoring Guidepost

- There is a regular and continuing research program aimed at understanding mechanisms through which the fishery causes adverse effects on endangered, threatened, protected and icon species, not only considering direct take issues, but also indirect effects on food availability, foraging behavior, disturbance, etc.

80 Scoring Guidepost

- The research program is developing into a regular and continuing effort to determine mechanisms through which the fishery causes adverse effects on endangered, threatened, protected and icon species, not only considering direct take issues, but also indirect effects on food availability, foraging behavior, disturbance, etc.

60 Scoring Guidepost

- The existing research program may contribute to a better understanding of the relationships between the fishery and endangered, threatened, protected and icon species, but is not sufficiently focused on the functional relationships that need to be understood in order to permit significant improvements to management.

Indicator 2.3.4. There are monitoring programs to assess fishery impacts on endangered, threatened, protected or icon species that have been identified as vulnerable to fishing impacts.

The intention of this performance indicator is to evaluate the suitability of monitoring programs that provide data on the impacts of the fishery on protected, endangered, threatened or icon species.

100 Scoring Guidepost

- Population sizes and demography of endangered, threatened, protected and icon species that are vulnerable to fishery impacts are monitored to the level that will permit impacts of the fishery to be measured and trends reported.

80 Scoring Guidepost

- Population sizes and demography of protected and icon species that are vulnerable to fishery impacts are monitored, but with varying levels of

- effectiveness in different locations and not necessarily following standardized protocols.
- Information necessary to properly manage the fishery to comply with existing laws on endangered and threatened species is being collected.

60 Scoring Guidepost

- Monitoring programs exist, but are inadequate and/or incomplete.

Sc 2.4. There are data sets and knowledge of the ecosystem sufficient to measure impacts of the fishery on protected, endangered, threatened or icon species.

The intent is to enable an evaluation of the extent to which there is sufficient knowledge of the natural functional relationships between species so that the fisheries management system can determine the nature of the effects of fishing on the species of concern. This includes the extent to which there is a sufficient and appropriate process that operates to gather such knowledge.

Indicator 2.4.1. Functional relationships involving endangered, threatened, protected or icon species are adequately understood for the purposes of minimizing the fishery's impacts on such species.

The intention of this performance indicator is to assess the state of knowledge of the functional relationships that determine the dynamics of endangered, threatened, protected or icon species, as a prerequisite to assessing the mechanisms by which these processes may be altered by the fishery. The species of interest here include all marine mammals, sea turtles and seabirds.

100 Scoring Guidepost

- Knowledge of relevant species' ecology is sufficient to allow functional relationships of endangered, threatened, protected and icon species to be described, especially functional relationships between increased mortality and population dynamics, and between animal foraging success and prey abundance/spatial distribution.

80 Scoring Guidepost

- There is basic knowledge of the ecology of endangered, threatened, protected and icon species in the fishery area.
- Research is being conducted to determine the functional relationships of endangered, threatened, protected and icon species, especially functional relationships between increased mortality and population dynamics, and between animal foraging success and prey abundance/spatial distribution.

- A research plan/strategy is in place to ensure that the research being conducted is continued until there is an understanding about the functional relationships of endangered, threatened, protected and icon species, especially functional relationships between increased mortality and population dynamics, and between animal foraging success and prey abundance/spatial distribution.

60 Scoring Guidepost

- Too little is known about the functional relationships between endangered, threatened, protected and icon species and the fishery to permit the fishery impacts on such species to be significantly reduced by alterations in fishery management, and there is insufficient effort to promote and conduct research that will lead to better management of the situation.

Indicator 2.4.2. Trophic (predator-prey) relationships, especially those involving endangered, threatened, protected or icon species, are adequately understood for the purposes of minimizing the fishery's impacts on such trophic relationships.

The intention of this performance indicator is to evaluate the extent of knowledge of dietary habits of animals, especially endangered, threatened, protected or icon species, that may be affected by the fishery altering food availability. The species of interest here include all marine mammals, certain sharks, sea turtles and seabirds.

100 Scoring Guidepost

- Diets and foraging requirements of important animals in the food webs, especially endangered, threatened, protected, and icon species are well known.

80 Scoring Guidepost

- There is a basic understanding of the diets and foraging behavior of important animals in the food web, especially endangered, threatened, protected and icon species.
- Further research on this topic is being carried out, especially with respect to species thought to be vulnerable to indirect impacts from the fishery.

60 Scoring Guidepost

- Too little is known about the trophic relationships, diets and feeding ecology of endangered, threatened, protected and icon species to permit the fishery impacts on such species to be significantly reduced by alterations in fishery management, and there is insufficient effort to promote and conduct research that will lead to better management of the situation.

Indicator 2.4.3. Population sizes and population trends of endangered, threatened, protected or icon species are adequately known, together with the nature and distributions of their essential habitats.

The intention of this performance indicator is to evaluate the extent of knowledge of population sizes and population trends of animals thought to be vulnerable to impacts of the fishery. The species of interest here include all marine mammals, certain sharks, sea turtles and seabirds.

100 Scoring Guidepost

- There are reliable and up-to-date data on total population sizes, locations of breeding sites, numbers breeding at each site, and also on the spatial distributions of animals outside the breeding season, for all species of animals thought to be vulnerable to impacts of the fishery.
- Population trends, especially trends in breeding numbers and in breeding productivity, are known over a period of years relevant to the duration and scale of the fishery.
- Population estimates and trends are known for a period prior to when the fishery began operating, or when the fishery was small enough to have negligible impact on these parameters.
- Where the occurrence of fishery impacts on a particular animal species is uncertain, the animal species is included in the list in order to be precautionary.

80 Scoring Guidepost

- The presence and distributions of endangered, threatened, protected and icon species in the area of the fishery are known.
- There is knowledge of the major species and their habitats in the area of the fishery, and relevant aspects of their spatial and seasonal distributions.
- Research is being undertaken as part of an overall research plan or strategy to add to the existing basic knowledge of numbers, distribution, demography and population trends.

60 Scoring Guidepost

- Information on habitats, numbers, distributions and population trends of endangered, threatened, protected and icon species in the area of the fishery are at best vaguely known.

MSC 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.

Our interpretation: We interpret this criterion to be considering the question whether populations of animals that have been reduced in abundance over time by past actions of the fishery are now being enabled to recover through alterations in the management of the fishery that promote their recovery and rebuilding. We take ‘exploited populations’ to mean ‘impacted populations of species other than the fishery target species since Principle 2 is directed at aspects of the ecosystem beyond the maintenance of the target stock (which is dealt with in Principle 1).

Subcriterion 3.1. There is a well-defined and effective strategy to ensure that ecological impacts of the fishery would be restrained to permit recovery and rebuilding of populations of impacted species that had been depleted by previous actions of this fishery.

Indicator 3.1.1. Management strategies include provision for restrictions to the fishery to enable recovery of populations of impacted species that have been depleted by previous actions of this fishery.

100 Scoring Guidepost

- The ecosystem components of the management plan include mechanisms to reduce fishing in locations or ways that remove impacts on depleted species to the extent necessary to permit the impacted species’ populations to recover and rebuild.

80 Scoring Guidepost

- The ecosystem components of the management plan are being improved to provide a framework for decisions about ways to modify fishing to reduce impacts on depleted species, to allow them to recover and rebuild.

60 Scoring Guidepost

- Management takes account of statutory requirements to protect endangered and threatened species but contains little or no provision for recovery of populations of other impacted species that do not enjoy ESA protection.

Indicator 3.1.2. Changes in management have been implemented in order to recover affected communities of animals, habitats, or populations of impacted species that are believed to have been depleted by previous actions of this fishery.

100 Scoring Guidepost

- Where there is evidence of depletion of animal communities, damage to habitats or depletion of populations (endangered, threatened, protected and icon species, or species recognized by leading scientific information as key component to ecosystem sustainability in the area of the fishery) the fishery management has been altered in a timely manner to reduce the impact to a level that results in recovery and rebuilding of affected populations.

80 Scoring Guidepost

- Management responds in a timely manner by altering fishery regulations and practice in ways that are thought to reduce impacts to an extent that should lead to population recovery and rebuilding of species (endangered, threatened, protected and icon species, or species recognized by leading scientific information as key component to ecosystem sustainability in the area of the fishery).
- A monitoring program is put in place to assess whether or not management measures are effective.

60 Scoring Guidepost

- Management responds to reduce impacts on endangered and threatened species but it is unclear whether changes are adequate to achieve recovery and rebuilding.

Indicator 3.1.3. There are sufficient data, and understanding of functional relationships, to determine what changes in fishery management are necessary to recover depleted populations of impacted species.

100 Scoring Guidepost

- Alterations to fishing to recover and rebuild depleted species are based on a sound understanding of functional relationships between the impacted population and the fishery. This includes understanding predator-prey dynamics, species interactions, prey abundance/spatial distribution, foraging behavior, food web requirements and habitat needs.

80 Scoring Guidepost

- Alterations to fishing to recover and rebuild depleted species are based on incomplete data and understanding, but take a precautionary approach to reduce impacts.

60 Scoring Guidepost

- Alterations to fishing to recover and rebuild depleted species are based on incomplete data, and are of largely unknown efficacy.

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.

Intent: The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

SCS Criterion 1 - The management system has a clearly defined scope capable of achieving MSC Principles and Criteria and includes short and long-term objectives, including objectives for managing ecological impacts of fishing, consistent with a well managed fishery. *[This criterion and those that follow are intended to assess the match between the BSAI/GOA pollock fisheries management systems and the terms and intentions of the MSC Principles and Criteria, particularly as understood in the context of the complete text of the Airlie House Draft. As used throughout, the term “management system” is used broadly to include both governmental and private sector components. Governmental components include all applicable governmental systems, not merely the direct regulatory function of a single agency or statute. The judicial system is intended to be considered part of the “management system.” Private sector components include the fishing industry itself.]*

Indicator 1.1 The management system incorporates and applies an adaptive and precautionary exploited stock strategy [Relates to MSC Criteria 3.2, 3.7, 3.9, 3.10]

Elements considered in scoring include

- Clear long-term objectives
- Application of precautionary approach
- Use of best scientific information
- Explicit catch control rule (e.g., ABC, TAC)
- Annual assessment of stocks

100 Scoring Guidepost

- The management plan includes long-term stock management objectives that are explicit and consistent with MSC Principles and Criteria
- The harvest strategy, including catch control rule, is explicitly precautionary, accounting for variances in survey estimates, uncertainties in stock assessment advice, and other risk factors
- Annual assessments are undertaken for all components of the population, based on sound long-term data, including data developed prior to inception of the pollock fishery, if any

80 Scoring Guidepost

- Management objectives seek to maintain stocks at high levels of productivity
- The harvest strategy, including catch control rule, is explicitly precautionary
- Annual assessments are based on best available information from ongoing data collection efforts.

60 Scoring Guidepost

- There is no agreed harvest control rule in place
- The harvest control strategy does not take account of uncertainties in stock status
- The harvest control strategy can not be shown to be precautionary
- The harvest control strategy is not applied consistently or is overridden

Indicator 1.2 The management system incorporates and applies an effective strategy to manage ecological impacts of fishing [*Relates to MSC Criteria 3.2, 3.7, 3.9, 3.10*]

Elements considered in scoring include:

- Clear long-term objectives
- Application of precautionary approach
- Consideration of impacts on non-target species and habitats over time and space

100 Scoring Guidepost

- The management system includes a management plan with clear long-term objectives for managing ecological impacts of fishing that are explicit and consistent with MSC Principles and Criteria
- The management plan includes ecosystem components and is explicitly precautionary, accounting as appropriate for uncertainty.
- The management plan contains ecosystem components that take 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, and alterations in food webs and habitats.
- The management plan includes mechanisms (such as representative areas set aside as no-take zones) to minimize, where appropriate, identified impacts from fishing.

80 Scoring Guidepost

- The management system includes a management plan that explicitly takes into account ecological impacts of the fishery
- Regulation of the fishery to manage ecological impacts of fishing is precautionary
- Assessments (empirical or other) of likely significant ecological impacts of fishing are undertaken on a regular basis
- Control mechanisms are used where appropriate to minimize impacts

60 Scoring Guidepost

- The management system does not take into account or attempt to limit significantly the adverse ecological impacts of the fishery

Indicator 1.3 The management system incorporates and applies an effective strategy to manage the socioeconomic impacts of the fishery [*Relates to MSC Criteria 3.2, 3.4, 3.6, 3.7*]

Elements considered in scoring include:

- Compatibility of economic incentives with exploited stock and ecosystem goals and objectives, including effects of subsidies
- Observation of long-term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability
- Application of precautionary approach

100 Scoring Guidepost

- The fishery is free from subsidies that directly and substantially promote overfishing or ecosystem degradation
- Participants in the fishery have access to short- and long-term economic incentives that, taken alone or in combination with other management measures, act to prevent overfishing and ecosystem degradation
- Economic rent from the pollock fishery is shared in a manner that recognizes those dependent of fishing for food and livelihood and does not promote overfishing or ecosystem degradation.
- New entrants are accommodated without unduly disrupting other participants or undermining fishery and ecosystem management goals.
- The fishery management system provides for long-term predictability or other risk management and hedging tools such that rational and prudent investments can be made that are consistent with ecological sustainability (i.e. no overfishing or ecosystem degradation).
- The fishery management system continually seeks to understand social and economic consequences of management decisions and seeks and accepts input from all stakeholders regarding management decisions.

80 Scoring Guidepost

- The fishery is free from subsidies that directly and substantially promote overfishing or ecosystem degradation
- Economic rent from the pollock fishery is shared by communities historically dependent on pollock and those dependent on other ecosystem resources affected by the pollock fishery, including subsistence fisheries, if any
- The fishery management system provides for long-term predictability or other risk management and hedging tools needed for rational and prudent investment
- The fishery management system seeks to understand social and economic consequences of decision-making

60 Scoring Guidepost

- The fishery management system creates economic incentives for overharvest or unproductive use of harvested species, or ecosystem degradation.

- The fishery management system does not recognize the rights of subsistence fishers or others dependent on fishing for a livelihood.
- The fishery management system does not seek stakeholder input regarding management decisions.
- The significant environmental and social externalities of the fishery are poorly understood or, if understood, generally not internalized by the fishery

Subcriterion 1.4 There is a well defined strategy for research related to the objectives of the fishery

Indicator 1.4.1 There is a research strategy to support the harvest strategy and to address information needed to support the identification and mitigation of ecosystem impacts
[Relates to MSC Criterion 3. 8]

Elements considered include:

- Role of science in setting research agenda
- Diversity and quality of input
- Transparency of process
- Relationship between those who design research and those responsible for implementation
- Relationship to present and future management needs

100 Scoring Guidepost

- Stable, well-led, diverse and objective research planning organization
- Ample and secure funding to support near and long-term research needs
- Significant and regular agreement between fishery managers and research scientists on research needs and priorities in the fishery
- Continuing, significant progress in scientific understanding of target and impacted species
- Continuing, significant progress in application of scientific understanding to harvest strategy
- Continuing, significant progress in scientific understanding of ecosystem impacts of fishery
- Continuing, significant progress in application of scientific understanding to ecosystem management strategy
- Continuing, significant progress in understanding of social and economic considerations related to the fishery
- Continuing, significant progress in application of social and economic understanding to management of the fishery

80 Scoring Guidepost

- Stable, well-led, diverse and objective research planning organization
- Funding to support near-term research needs
- Regular agreement between fishery managers and research scientists on near term research needs and priorities in the fishery

- Evident progress in scientific understanding related to target and impacted species
- Evident application of scientific understanding to harvest strategy
- Evident progress in scientific understanding related to ecosystem impacts of fishery
- Evident application of scientific understanding to strategy for managing ecological impacts of fishing
- Evident progress in understanding of social and economic considerations related to the fishery
- Evident application of social and economic understanding to management of the fishery

60 Scoring Guidepost

- Research is carried out in sporadic projects with little strategic planning or coordination
- Fishery managers fail to support research with the potential to reduce or otherwise constrain harvest levels
- Fishery managers fail to apply research results in a rational or objective manner
- Fishery managers on average do not heed the advice of research scientists in the fishery

SCS Criterion 2 - The management system recognizes applicable legislative and institutional responsibilities and coordinates implementation on a regular, integral, and explicit basis

Indicator 2.1 The fishery is managed and conducted in a manner that respects international conventions and agreements and not under any controversial unilateral exemption to an international agreement [Relates to MSC Criterion 3.1]

100 Scoring Guidepost

- The management system is in full compliance with all aspects of applicable international law, including but not limited to international law on specie and ecosystem protection, indigenous cultures, property, labor, law enforcement, communications, and jurisdictional boundaries.
- The management system does not employ or in any manner seek to operate within any exemption to otherwise applicable international law
- The management system regularly and consistently seeks and uses appropriately the advice of experts in international law, including independent experts.

80 Scoring Guidepost

- The management system is in full compliance with international fisheries and environmental law
- The management system does not operate under any controversial exemption to an international fisheries or environment-related agreement

- The management system has access to and makes use of experts in international law

60 Scoring Guidepost

- The management system can be shown to have a consistent pattern of failing to reliably monitor and act to assure its compliance with international fisheries and environmental law

Indicator 2.2 The fishery is managed and conducted in a manner that respects domestic law [*Relates to MSC Criterion 3.16*]

Elements considered in scoring include:

- Consistency and quality of compliance with federal law (efforts to assure compliance, reasons for incidents of non-compliance, severity of consequences of non-compliance)
- Integration of compliance requirements among the multiple domestic legal regimes that apply to the fishery

100 Scoring Guidepost

- The management system is in compliance with all substantive and procedural aspects of applicable domestic law
- The management system, including its component institutional entities, has not been found at any time to be in willful violation of any order of any domestic court of jurisdiction on any matter related to performance of any statutory duty concerning the pollock fishery
- No officer or agent of the management system, including its component entities, has at any time been found to be in contempt of any domestic court of jurisdiction on any matter related to performance of official duties on behalf of the management system concerning the pollock fishery
- The management system regularly and consistently seeks and uses appropriately the advice of experts in domestic law, including independent experts

80 Scoring Guidepost

- The management system makes consistent, good faith efforts to be in compliance with all substantive and procedural aspects of applicable domestic law
- The management system, including its component institutional entities, has not been found repeatedly by any domestic court of jurisdiction to be in violation of any significant aspect of any domestic law related to protection of the human or natural environment, individual species, ecosystems, or fishery dependent communities
- The management system has access to and makes use of experts in domestic law.

60 Scoring Guidepost

- The management system fails to reliably monitor and assure its compliance with all substantive and procedural aspects of applicable domestic law

- Harvest management decisions made by fishery managers are regularly overturned or disallowed upon review by judicial authorities based on the same or substantially similar (i.e., chronic) violations of applicable substantive law

Indicator 2.3 The fishery is managed or conducted in a manner that observes legal and customary rights *[Relates to MSC Criterion 3.4]*

Elements considered in scoring:

- Recognition of and respect for applicable private property rights
- Recognition of and respect for applicable subsistence or customary rights

100 Scoring Guidepost

- The fishery management system recognizes and makes affirmative efforts to enhance the security and value of property rights in the fishery
- The fishery management system recognizes and makes affirmative efforts to enhance the security and value of subsistence and customary rights in the fishery
- The fishery management system provides a fair, efficient, predictable means to avoid and reconcile conflicts between legal and customary rights.

80 Scoring Guidepost

- The fishery management system recognizes property rights in the fishery
- The fishery management system recognizes subsistence and customary rights in the fishery
- The fishery management system provides a fair means to avoid and reconcile conflicts between legal and customary rights.

60 Scoring Guidepost

- The fishery management system is largely indifferent to, or makes inadequate efforts to understand and recognize property, subsistence, and customary rights, if any, in the fishery.

SCS Criterion 3 - The management system includes a rational and effective process for acquisition, analysis and incorporation of new scientific, social, cultural, economic, and institutional information.

Indicator 3.1 The management system solicits and takes account of relevant information *[Relates to MSC Criterion 3.2]*

Elements considered in scoring include:

- Solicitation and treatment of scientific information from NMFS, NPFMC and other sources
- Solicitation and treatment of information from stakeholders
- Accommodation of dissent and respect for differing perspectives
- Training at all appropriate levels with respect to management principles and criteria

100 Scoring Guidepost

- The management system has a stable, well-led, predictable, open and tolerant process to solicit relevant information
- The management system seeks affirmatively to acquire information that may be controversial or reveal weaknesses in the management system, including matters related to compliance with applicable international and domestic law
- The management system evaluates information in an unbiased, objective manner and does not discriminate against information solely upon the basis of the identity of stakeholder category from which it was supplied

80 Scoring Guidepost

- The management system has a stable, well-led, predictable, open and tolerant process to solicit relevant information
- The management system accepts information that may be controversial or reveal weaknesses in the management system
- The management system shows evidence of listening and responding to diverse points of view

60 Scoring Guidepost

- The management system presents significant overt or implicit resistance to introduction or consideration of new information that is potentially relevant to the management of the fishery

Indicator 3.2 The management system involves all categories of stakeholders appropriately on a regular, integral, explicit basis [*Relates to MSC Criterion 3.2*]

Elements considered in scoring:

- Composition of decision-making and advisory bodies and terms of service
- Process for appointment to standing or ad hoc bodies, criteria for selection and rejection
- Quality of advance notice of meetings, availability of information, and other elements of management process

100 Scoring Guidepost

- The management system provides for direct representation of all significant public and private stakeholder interests
- The management system does not show any distinct evidence of a pattern of discrimination against significant stakeholder interests
- The management system produces decisions that take fully into account and address all significant stakeholder interests
- The management system operates pursuant to stable, predictable, objective procedures

80 Scoring Guidepost

- The management system provides for involvement by all significant public and private stakeholders and consideration of their interests

- The management system operates pursuant to stable, predictable, objective procedures
- The management system does not show any distinct evidence of a pattern of discrimination against significant stakeholder interests

60 Scoring Guidepost

- The management system regularly omits involvement by one or more significant stakeholder interest
- The management system fails to follow its own official or formal procedures or routinely observes “unofficial” or “informal” decision making procedures that deviate significantly from formal or official procedures

Indicator 3.3 The management system assesses relevant information pursuant to objective, fair, equitable processes. *[Relates to MSC Criterion 3.2]*

Elements considered in scoring:

- Burden of proof/persuasion applied to types of proposal or category of stakeholder
- Efforts to quantify relative risks borne by different species, ecological systems, and stakeholders as a result of uncertainty

100 Scoring Guidepost

- The management system allots analytical and deliberative resources in a manner that does not show any distinct evidence of a pattern of discrimination against significant stakeholder interests
- The management system does not place an unfair burden of proof on proposals of a certain type or arising from a particular category of stakeholder
- The management system attempts to quantify and document the degree of risk imposed on different species, ecological systems, and stakeholders by particular decisions or courses of action, particularly in light of scientific uncertainty.

80 Scoring Guidepost

- The management system allots analytical and deliberative resources in a manner that does not show any distinct evidence of a pattern of discrimination against significant stakeholder interests
- The management system attempts to characterize and reveal the risks of harm to different species, ecological systems, and stakeholders arising from management decision making.

60 Scoring Guidepost

- The management system regularly fails to analyze potentially significant information concerning the fishery or its impacts
- The management system lacks a rational approach to identify and reduce sources of uncertainty affecting the quality of management decision-making

Indicator 3.4 The management system provides for timely and fair resolution of disagreements [*Relates to MSC Criteria 3.2, 3.5*]

Elements considered in scoring:

- Established, routine system available to all
- Objective decision maker
- Explanation of decision

100 Scoring Guidepost

- The management system has established mechanisms for resolution of disputes at the principal levels of, and for major issues arising within, the system
- The management system provides for appropriate documentation of the nature and resolution of disputes
- The management system's dispute resolution procedures show evidence of being open to and used by a variety of participants and stakeholders
- The management system's dispute resolution procedures show no evidence of a pattern of discrimination against any participants or significant stakeholder interest

80 Scoring Guidepost

- The management system has established mechanisms for resolution of significant disputes arising within the system
- The management system's dispute resolution procedures show evidence of being open to a variety of participants and stakeholders

60 Scoring Guidepost

- Although dispute resolution mechanisms are in place, the management system fails to demonstrate meaningful progress toward resolution of outstanding disputes

Indicator 3.5 The management system presents managers with clear, useful, relevant information, including advice [*Relates to MSC Criterion 3.2*]

Elements considered in scoring include:

- Presentation of alternatives
- Characterization of risk, uncertainty, consequences
- Opportunity for deliberation

100 Scoring Guidepost

- The management system regularly presents decision makers with a reasonable number of carefully analyzed alternatives for action that fall in, and extend to the margins of a range that includes all legally permissible options
- The management system provides decision makers with time and opportunity for deliberation in a manner suitable for the nature of the decisions under consideration

- The management system shows evidence of a pattern of behavior by decision makers that reveals that they have found the information provided to them to be useful, adequate in scope and detail, and otherwise appropriate to the performance of their duties

80 Scoring Guidepost

- The management system regularly presents decision makers with a reasonable number of carefully analyzed alternatives for action that fall in a range that includes all legally permissible options proposed by stakeholders
- The management system's decision makers show evidence of relying consistently upon the information provided to them.

60 Scoring Guidepost

- The management system's decision makers repeatedly base decisions on information or factors not developed or presented through the "official" or routine process
- The management system's decision makers repeatedly act in a manner contrary to the advice developed or presented through the "official" or routine process
- The management system's decision makers appear frequently to be unaware of the consequences of or risks inherent in their decisions

SCS Criterion 4 - The management system applies information through implementation of measures and strategies (by rule or by voluntary action of fishery) that demonstrably control the degree of exploitation of the resource in the light of the natural variation in ecosystems

Subcriterion 4.1 The management system applies appropriate techniques and tools

Indicator 4.1.1 Catch levels are set to maintain high productivity of the target population and the ecosystem [Relates to MSC Criterion 3.10]

100 Scoring Guidepost

- Catch levels are set regularly in a manner directly tied to, and limited by, target species population goals, including goals for population subcomponents
- Catch levels are set regularly in a manner directly tied to, and limited by, specific ecological productivity goals, such as, but not limited to, protection of biodiversity, predator-prey dynamics, prey abundance and spatial distribution, food web requirements, and habitat needs
- No evidence that the productivity of target populations, including population subcomponents, is declining as a consequence of harvest levels
- No evidence that ecological productivity is declining as a consequence of harvest levels
- Application of precautionary approach

80 Scoring Guidepost

- Catch levels and/or catch arrangements are regularly set in a manner directly tied to, and limited by, target species population goals, including goals for population subcomponents
- Catch levels are regularly set in a manner that considers ecological productivity goals, such as, but not limited to, protection of biodiversity, predator-prey dynamics, prey abundance and spatial distribution, food web requirements, and habitat needs

60 Scoring Guidepost

- Catch levels are set in a manner that is indistinctly or unreliably related to impacts of harvest on target species or the ecosystem
- Catch levels are not appropriately adjusted in a timely manner to respond to information indicating that harvest is having unacceptable adverse impacts on target species or the ecosystem

Indicator 4.1.2 Restricts gear and practices to avoid catch of non-target species, minimize mortality of this catch, and reduce unproductive use of non-target species that cannot be released alive [Relates to MSC Criterion 3.12]

100 Scoring Guidepost

- The management system applies an established, widely accepted program to minimize catch of non-target species, including specific goals, such that the take of these species does not exceed established thresholds where appropriate, or is precautionary.
- The management system has achieved a fishery-wide, multi-year trend of reduced catch of non-target species through restrictions in gear and fishing practices
- The management system has achieved a fishery-wide, multi-year trend of reduced discards through restrictions in gear and fishing practices
- The management system provides for productive economic or social uses of non-target species that are not released alive

80 Scoring Guidepost

- The management system applies an established, widely accepted program to minimize catch of non-target species, including specific goals, such that the take of these species does not exceed established thresholds where appropriate, or is precautionary.
- There is evidence of a fishery-wide, multi-year trend of reduced catch of non-target species
- There is evidence of a fishery-wide, multi-year trend of reduced non-productive economic or social use of non-target species

60 Scoring Guidepost

- Fishery management system demonstrates significant resistance to adoption of measures and practices to minimize catch or avoid non-productive use of non-target species

Indicator 4.1.3 Accounts for catch of non-target species [*Relates to MSC Criteria 3.10, 3.17*]

100 Scoring Guidepost

- The management system requires real-time, reliable monitoring of and accounting for catch and use or discard of non-target species throughout the fishery
- The management system has achieved continued improvement in the accuracy and precision of monitoring and accounting of catch and use or discard of non-target species

80 Scoring Guidepost

- The management system requires reliable, timely monitoring of and accounting for catch of non-target species and use or discard of that catch throughout all significant components of the fishery

60 Scoring Guidepost

- Information available to managers on catch of non-target species is untimely, imprecise, or inaccurate

Indicator 4.1.4 Minimizes adverse impacts on habitat [*Relates to MSC Criteria 3.10, 3.13*]

100 Scoring Guidepost

- The management system requires continuing, comprehensive effort to identify, document, and assess the risks of fishery impacts on habitat
- The management system has demonstrated a pattern of actions to restrict fishery gear and practices to reduce adverse impacts on habitat
- The management system has achieved a demonstrated trend of reductions in adverse habitat impacts from fishery

80 Scoring Guidepost

- The management system requires continuing, comprehensive effort to identify, document, and assess risks of fishery impacts on habitat
- The management system has taken significant actions to restrict fishery gear and practices to reduce fishery impacts on habitat

60 Scoring Guidepost

- Fishery shows evidence of causing significant, unmitigated damage to habitat

Indicator 4.1.5 Does not use destructive fishery practices [*Relates to MSC Criterion 3.14*]

100 Scoring Guidepost

- The management system affirmatively prohibits fishery or operational practices that damage or destroy natural geologic, biologic, or chemical features or characteristics of the aquatic area in which the fishery occurs, except those

impacts that are physically unavoidable consequences of authorized uses of fishing gear

80 Scoring Guidepost

- The fishery does not use explosives or toxic chemicals to kill or stun aquatic species.

60 Scoring Guidepost

- Fishery management system lacks reliable mechanism to determine whether participants use destructive fishery practices

Indicator 4.1.6 Provides for rebuilding and recovery, where applicable [Relates to MSC Criterion 3.10]

100 Scoring Guidepost

- The management system sets and has demonstrated a trend toward achieving rebuilding and recovery goals for all over-fished stocks
- The management system does not allow fishing on any stock impacted by the fishery that has declined below limit reference points until the fishery can be demonstrated to be significantly above the limits imposed.

80 Scoring Guidepost

- The management system sets and has demonstrated a trend toward achieving rebuilding and recovery goals for all over-fished stocks

60 Scoring Guidepost

- The management system fails to reliably ascertain when stocks are over-fished, including those stocks not subject to targeted fisheries at the present time, but depressed due to earlier fishery activity
- The management system does not respond in a timely manner to information regarding the need to rebuild and recover stocks.

Indicator 4.1.7 Applies closures or restrictions when catch limits reached [Relates to MSC Criterion 3.10]

100 Scoring Guidepost

- The management system has demonstrated a consistent ability and willingness to close or restrict the fishery to prevent exceedence of catch limits by all participants in the fishery
- The management system has a record of identifying and eliminating factors in season that impair the effectiveness of catch limit-related closures or restrictions.

80 Scoring Guidepost

- The management system has demonstrated a consistent ability and willingness to close or restrict the fishery to prevent exceedence of catch limits by all participants in the fishery

- The management system has a record of identifying and eliminating factors that impair the effectiveness of catch limit-related closures or restrictions.

60 Scoring Guidepost

- The management system applies closures or restrictions in a manner that repeatedly has allowed significant exceedence of catch limits

Indicator 4.1.8 Incorporates no-take zones, and MPAs, or other mechanisms, where appropriate to achieve harvest limits and ecosystem protection objectives [Relates to MSC Criterion 3.10]

100 Scoring Guidepost

- The management system has demonstrated a consistent ability and willingness to establish no-take zones or MPAs or other mechanisms where appropriate in order to achieve harvest limit or ecosystem protection goals
- The management system has identified criteria and standards for establishment of control mechanisms.

80 Scoring Guidepost

- The management system has established no-take zones, MPAs, or other control mechanisms, where appropriate

60 Scoring Guidepost

- The management system has established control mechanisms that have produced no significant benefit to target species or the ecosystem

Indicator 4.1.9 Minimizes operational waste [Relates to MSC Criterion 3.15]

100 Scoring Guidepost

- The management system has established rules to minimize operational waste
- The management system has established a monitoring and enforcement program for operational waste and has achieved a significant trend in reduction of such waste

80 Scoring Guidepost

- The management system has established rules to minimize operational waste, including monitoring and enforcement

60 Scoring Guidepost

- Major participants in the fishery lack internal programs or controls to minimize operational waste

Indicator 4.2 The management system provides for compliance [Relates to MSC Criteria 3.11, 3.16]

Elements considered in scoring include:

- Contains procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that management system controls are not violated and appropriate corrective actions are taken
- Actual adherence to procedures

100 Scoring Guidepost

- The management system has established a comprehensive compliance and enforcement system
- The management system has demonstrated a consistent ability to enforce applicable rules, including an independently verified system for validation of reported results
- The fishery operates with no significant patterns of evasion or non-compliance

80 Scoring Guidepost

- The management system has established a comprehensive compliance and enforcement system
- There is not a record of consistent violations in the fishery
- There is a record of consistent enforcement and prosecution of violations in the fishery

60 Scoring Guidepost

- There is a record of regular violations in the fishery regardless of an existing enforcement system
 - Penalties for violations of rules are insignificant in terms of deterrence value

Indicator 4.3 The management system provides for monitoring [*Relates to MSC Criterion 3.10, 3.11, 3.17*]

Elements considered in scoring include:

- Fishery includes a monitoring program
- Monitoring procedures are followed
- Monitoring results are useful and used

100 Scoring Guidepost

- The management system has established a comprehensive monitoring program
- The management system has demonstrated a consistent ability to monitor all relevant aspects of the fishery and employs an independently verified system for validation of reported results
- The fishery operates with no significant “blind spots”.

80 Scoring Guidepost

- The management system has established a comprehensive monitoring program
- The monitoring programs established in the fishery have been subject to outside review and comment

- 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

60 Scoring Guidepost

- Monitoring results are poorly integrated with harvest management actions

SCS Criterion 5 - The performance of the management system is regularly and candidly evaluated and adapted as needed to improve

Indicator 5.1 The management system provides for internal assessment and review [Relates to MSC Criterion 3.3]

Elements considered in scoring:

- Frequency
- Candor (accuracy and precision)
- Transparency
- Participation

100 Scoring Guidepost

- The management system has an internal, continuing, objective system for evaluation of management performance
- The criteria for and results of the on-going evaluation of management performance are made public and reflect input from all interested participants and stakeholders
- The management system shows a consistent pattern of seeking and using the results of the on-going evaluation of management performance

80 Scoring Guidepost

- The management system has a continuing, objective, open system for evaluation of management performance that includes input from interested participants and stakeholders with respect to criteria and results
- The criteria for and results of the on-going evaluation of management performance are made public.

60 Scoring Guidepost

- The management system does not have a regular program to evaluate management performance

Indicator 5.2 The management system provides for external assessment and review [Relates to MSC Criterion 3.2, 3.3]

Elements considered in scoring:

- Frequency
- Candor (accuracy and precision)
- Transparency

- Participation

100 Scoring Guidepost

- The management system provides for independent, expert review of all significant aspects of management performance on a regular and continuing basis
- The criteria for evaluation of management performance are set outside the management system
- The results of the independent review are made public
- The management system shows a consistent pattern of seeking and using the results of the independent evaluation of management performance

80 Scoring Guidepost

- The management system provides for independent, expert review of all significant aspects of management performance
- The criteria for evaluation of management performance are set outside the management system
- The results of any independent review are made public

60 Scoring Guidepost

- Significant aspects of the management system are not open to outside view or evaluation

Indicator 5.3 The management system includes guidelines for responding to assessment outcomes [*Relates to MSC Criteria 3.3, 3.7*]

Elements considered in scoring:

- Nature of the guidelines
- Timing, scope of response to assessment outcomes (actual relevance of process)

100 Scoring Guidepost

- The management system has established comprehensive, objective standards or triggers for responding to internal and external assessments of management performance
- The management system has demonstrated a consistent pattern of responding to the results of internal and external assessments of management performance
- The management system has not demonstrated a consistent pattern of disregarding significant recommendations for improvement developed through internal or external assessments of management performance

80 Scoring Guidepost

- The management system has established objective guidelines for responding to internal and external assessments of management performance
- The management system shows evidence of improved performance based on the results of internal and external assessments of management performance

60 Scoring Guidepost

- The management system responds in an arbitrary fashion to assessments of management performance

Indicator 5.4 The management system identifies research needs and directs appropriate funding and other resources [*Relates to MSC Criteria 3.3, 3.7*]

Elements considered in scoring:

- Adequacy of funding
- Predictability of funding
- Prioritization/allocation of funding

100 Scoring Guidepost

- Funding for research is adequate to address all significant knowledge gaps
- Funding is adjusted in a timely and appropriate manner to serve changing research priorities
- Funding is predictable over a long-enough time scale to allow research planning appropriate to long-term research needs

80 Scoring Guidepost

- Funding for research is adequate to address major gaps in knowledge
- Funding is adjusted to meet requirements of newly identified research priorities
- Funding is predictable over long-enough time scale to allow continuity of all major stock assessment and ecological interactions research programs

60 Scoring Guidepost

- Research funding supports only sporadic investigations, allowing incomplete coverage of topics, resulting in considerable uncertainty as to the fishery and its impacts