

Proposal for revisions to the MSC FAM default assessment tree for the assessment of salmon fisheries in the Annette Island's Reserve, Alaska

This is a summary of proposed revisions to the MSC Fishery Assessment Methodology's (FAM) Default Assessment Tree for use in the full assessment of the Annette Island's Reserve Salmon fishery. Previous salmon fishery assessments in Alaska, Canada, and Russia were based on a common set of performance indicators and guideposts developed for application to salmon of MSC principles and criteria for sustainable fishing. The MSC has subsequently released a revised FAM to provide a standardized framework for fishery assessment. Subsequent review and discussions among the MSC Technical Advisory Board (TAB) and salmon certification teams highlighted the need to clarify the application of the revised FAM to salmon and to reconcile the new guidance with previous assessment methodologies. In particular, the unique aspects of salmon fishery assessments required more specific treatment of enhancement by hatcheries ~~and definition of target and non-target salmon stocks~~. Further revisions to the proposed tree occurred to take into account the Wild Salmon Center recommendations to remove the designations of target and non-target stock. As a consequence, all stocks harvested in the Annette Island's Reserve, that originated inside and outside the reserve, are treated as target stocks.

Like many salmon fisheries in Alaska, enhancement activities are a key aspect of the fishery on Annette Islands Reserve. The MSC has provided specific directives (TAB D001 v2) for scope application for enhanced fisheries and further, recommended specific components of enhancement activities that warrant a need for additional or revised PIs. The intent of directive is to enable certain types of enhanced fisheries to be eligible for certification against the MSC standard while maintaining the focus on the sustainability of the wild fish stock. Therefore we defined the fishery assessment to include both the fishery and its enhancement activities broadly. Additional indicators were added to Principle I to explicitly address enhancement – these indicators were organized by outcome, management, and information components to match the organization of other Principle I indicators¹. Principle II and III indicators and guideposts were also revised to clarify applicability of enhancement. In addition, indicators and guideposts in P1 were clarified to specifically identify the wild stocks as the focus of the assessment (as distinguished from enhanced stocks).

Pacific salmon are fished as stock complexes (multiple stock and sub-stocks in different environments). According to the MSC (FAM v2), a practical management approach may require that the target levels of biomass for some individual stocks within the complex be different from those usually applied to a single species (i.e. a level consistent with B_{MSY} or some surrogate or measure with similar intent). In these situations the overall target reference points should aim to be consistent with the intent of the performance indicator, and maintain the high productivity of the stock complex.

Stock complexes of salmon typically include a mixture of local and non-local ~~target and non-target~~ stocks of the same species. The unit of certification will include the Annette Island fishery and the intent is that ~~both all salmon target and non-target~~ stocks harvested in that fishery will be certified to carry the logo as long as assessment criteria all performance indicators are met. For the purposes of this assessment, ~~target stocks of a species were defined as the sub-stocks, management units, or populations that are the focus of a specific fishery. Target stocks were defined for this assessment to include~~ all salmon species that are harvested within the area of the Annette Islands Reserve are considered to be target stocks. This includes local salmon stocks that are produced naturally or in

¹ New P1 indicators for enhancement address ~~are to meet~~ the intent of proposals but are organized differently to better match the construct of the current FAM.

~~hatcheries within the area of the Annette Islands Reserve, and non-local stocks that are produced in areas outside the Reserve. that are produced naturally or in hatcheries within the area of the Annette Islands Reserve. Because the fishery does not attempt to avoid specific Non-target stocks are salmon species, sub-stocks, management units or populations, that are not the focus of the fishery but are caught while the fishery is attempting to harvest the target stocks. the delineation between target and Non-target stocks were defined was not warranted for this assessment, to include all salmon species, sub-stocks, management units or populations that originated in areas outside the Annette Islands Reserve. This avoids potentially artificial assumptions regarding target or non-target stock for various stock components and is in line with previous Alaska salmon assessments.~~

~~In addition, it is consistent with FAM Section 6.2.12 guidance that “the overall targets shall be set so as to maintain the high productivity of the stock complex.” At the same time, it needs to accommodate the considerations of differences in fishery exploitation rates among component stocks. Guideposts were included to recognize that stocks can include a mixture of more heavily exploited stock components that typically originate in close proximity to the fishery area and other stock components which are subject to limited interception rates in widely dispersed fisheries far from their area of origin. Under P1, the aggregate impact of all fisheries affecting a stock must be considered in the assessment of the effects of any single fishery. However, each fishery does not account for the same level of impact on stock productivity.~~

~~MSC assessment criteria subject target and non target stocks to different standards. Target stocks are evaluated under Principle 1. Non target stocks are evaluated under Principle 2. Stocks evaluated under Principle 1 typically receive greater scrutiny than those in Principle 2. P1 considers the aggregate effect of the subject fishery and all other fisheries affecting the management unit. P2 considers only the local impact. Salmon assessments are complicated by the fact that target and non target stocks may include fish of the same species originating in different areas. This proposal recommends assessing non target salmon stocks under the P1 indicator but at the P2 standard. This is a higher standard than if treated in P2 but not as high a standard as that defined under P1 for non target stocks. Guidepost language was revised and additional guideposts were added in Principle 1 to clarify application to target and non target stocks. Guideposts were also added to the stock status indicator (1.2.4) from the previous salmon assessments addressing the need to define stocks.²~~

Generally, the SCS Assessment Team modified the existing performance indicators of the Default Assessment Tree as contained in the MSC Fisheries Assessment Methodology v.2. In this version, indicators that have been modified from the FAM and since the last posting on the 28th June have and the accompanying rationale for those modifications and these modifications will can be found in red text. In order to fully capture the effect of enhancement, three additional indicators have been added, 1.3.1, 1.3.2 and 1.3.3.

²~~Stock identification guideposts were adapted from recommendations. However, rather than adding new performance indicators, these guideposts were condensed and added under existing indicators to avoid subject alterations in the indicator weights for scoring.~~

1.1.1 Stock Status

The ~~target and non-target~~ stocks are is at a level which maintains high productivity and has a low probability of recruitment overfishing.

SG 60	SG 80	SG 100
<p>It is <u>likely</u> that the wild<u>target</u>-stock is above the point where recruitment would be impaired:</p> <p>It is likely that non-target stocks are above the point where recruitment would be impaired or fishery impacts are so small as to have no significant affect on non-target stock status.</p>	<p>It is <u>highly likely</u> that the <u>wild</u> stock is above the point where recruitment would be impaired <u>or fishery impacts are so small as to have no significant affect on the stock status.</u></p> <p>The wild target-stock is at or fluctuating around its target reference point.</p> <p>It is highly likely that non-target stocks are above the point where recruitment would be impaired or fishery impacts are so small as to have no significant affect on non-target stock status.</p>	<p>There is a <u>high degree of certainty</u> that the target- wild stock is above the point where recruitment would be impaired <u>or fishery impacts are so small as to have no significant affect on the stock status.</u></p> <p>There is a <u>high degree of certainty</u> that the <u>wild target</u>-stock has been fluctuating around its target reference point, or has been above its target reference point, <u>over recent years.</u></p> <p>-There is a high degree of certainty that non-target stocks are above the point where recruitment would be impaired or fishery impacts are so small as to have no significant affect on non-target stock status.</p>

Rationale for modification of Indicator 1.1.1:

In recognition of broadly including any salmon stock component harvested in the fishery, ~~t~~This indicator was modified to clarify ~~application to target and non-target stocks as defined in the introduction. that h~~High productivity and low probability of recruitment overfishing of ~~non-target~~ stocks can occur in two circumstances. Where fishery harvest rates are significant the scoring guideposts can be met when the subject fishery, in concert with other fisheries affecting the ~~non-target~~-stock, adequately protects spawning escapement. Where fishery harvest rates are very low, status of the ~~non-target~~-stock is independent of the fishery. Most mixed stock salmon fisheries and some more terminal salmon fisheries harvest a complex of local (~~target~~) and non-local (~~non-target~~) stocks. Often non-local stocks are harvested at a very low exploitation rates – ~~this~~ these rates might be so small as to have no measurable ~~affect-effect~~ on status or recruitment of the ~~non-target~~-stock. Very low “*de minimis*” fishing rates are often identified as limit reference points for ~~non-target~~-salmon stocks intercepted at very low rates in mixed stock fisheries. -Status of these ~~non-local~~ stocks typically depends on conditions at the point of origin and fisheries targeting these stocks in closer proximity to the point of origin. For the purposes of this assessment, stock status of non-target stocks is evaluated based on estimates of the significance of fishery harvests on the ~~non-target~~ stocks as identified in 1.2.3. This is not to suggest that the status of the ~~non-target~~-stock can be ignored. Rather it defines a different standard for assessing the status of ~~target and non-target~~ stocks that are harvested at negligible rates, and highlights the possibility that a fishery may pass this indicator under certain conditions even when a ~~non-local non-target~~ stock is below its escapement goals. In this case, specific salmon fisheries in other areas with significant exploitation of targeting the stock in question could fail a specific guidepost while other fisheries, where the stock in question is incidentally harvested at a very low rate while targeting other more ~~abundance-abundant~~ local stocks, could pass the same guidepost. An appropriate definition of ~~target and non-target~~ stocks as identified in 1.2.4 is obviously essential to the assessment of this indicator.

1.1.2 Reference Points

Limit and target reference points or operational equivalents are appropriate for the wild production components of the stock.

SG 60	SG 80	SG 100
<p>Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.</p> <p><u>Where the wild stock is a management unit comprised of more than one subcomponent, it is likely that the target and limit reference points are consistent with maintaining the inherent diversity and reproductive capacity of each stock subcomponent.</u></p>	<p>Reference points are appropriate for the <u>wild</u> stock and can be estimated.</p> <p>The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.</p> <p>The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.</p> <p>For low trophic level species, the target reference point takes into account the ecological role of the stock.</p> <p><u>Where the wild stock is a management unit comprised of more than one subcomponent, it is highly likely that the target and limit reference points are consistent with maintaining the inherent diversity and reproductive capacity of each stock subcomponent.</u></p>	<p>Reference points are appropriate for the <u>wild</u> stock and can be estimated.</p> <p>The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant precautionary issues.</p> <p>The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, <u>or a higher level</u>, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.</p> <p><u>Where the wild stock is a management unit comprised of more than one subcomponent, there is a high degree of certainty that the target and limit reference points are consistent with maintaining the inherent diversity and reproductive capacity of each stock subcomponent.</u></p>

Rationale for modification of Indicator 1.1.2:

Allowing for the use of operational equivalents to limit and target reference points recognizes the unique characteristics of salmon stock structure and fishery management. These characteristics include a complex spatial metapopulation structure consisting of large numbers of local populations whose relatedness is a function of distance, a broadly overlapping mixture of different stocks in the ocean, and fisheries that are typically focused on annual cohorts of semelparous adults destined to die after spawning. The combination of these characteristics typically provides a high degree of species resilience to annual variability in numbers as long as natural stock diversity and habitats are protected. Target reference points are typically defined for salmon in terms of annual escapement levels or exploitation rates established to produce maximum or optimum sustained yield. Limit Reference Points (LRP) are generally identified only for depleted salmon stocks and are sometimes based on escapement levels below which the ability of the stock to sustain itself is uncertain or jeopardized. Operational equivalents of LRPs are also widely utilized for salmon based on maximum fishery harvest or impact rates intended to avoid significant effects on escapement or production. ~~LRPs for any given stock may vary among fisheries. A stock may also be subject to both conventional LRPs in target fisheries for that stock and operational equivalents in non-target fisheries for that stock.~~ Guideposts were also added to explicitly recognize the stock structure typically of salmon species. These guideposts highlight the need to protect the full range of diversity and reproductive capacity among and within stock subcomponents. This diversity is regarded as an essential feature in the long term sustainability of salmon species.

1.1.3 Stock Rebuilding

Where the ~~target-wild~~ stock or wild stock components are ~~is~~ depleted, there is evidence of stock rebuilding.

SG 60	SG 80	SG 100
<p>Where target stocks are depleted rebuilding strategies which have a <u>reasonable expectation</u> of success are in place.</p> <p>Monitoring is in place to determine whether they are effective in rebuilding the stock within a <u>specified</u> timeframe.</p>	<p>Where target stocks are depleted rebuilding strategies are in place.</p> <p>There is <u>evidence</u> that they are rebuilding stocks, or it is highly likely based on simulation modeling or previous performance that they will be able to rebuild the stock within a <u>specified</u> timeframe.</p>	<p>Where target stocks are depleted, strategies are <u>demonstrated</u> to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the <u>shortest practicable</u> timeframe.</p>

Rationale for modification of Indicator 1.1.3:

~~This indicator is focused on target stocks because non-target stocks are effectively addressed in other indicators. The key for non-target stocks originating outside the management area is whether fishery effects are significant (1.1.1), reference points are appropriate to regulate the fishery within the bounds of sustainability or non-significance (1.1.2), and the available information is adequate to effectively assess significance (1.2.3). It would be inappropriate to assess a fishery based on whether depleted non-target stocks are rebuilding, when the fishery is already meeting management reference points designed to protect the depleted non-target stock or when the fishery does not have a significant impact on the non-target stock. This approach is effective because we have defined target stocks in these mixed-stock salmon fisheries broadly to include all sub-stocks and populations originating within a fishery management area. This includes the minor sub-stocks and populations that may not comprise a large portion of the harvest but must still be harvested at sustainable levels.~~

~~Definitions of this indicator intend that non-target stocks can be depleted without rebuilding plans in place in the case where the fishing impact on the non-target stock is so low as to have no significant effect on status. Salmon equivalents of limit reference points based on fishery harvest or impact rates might be established for different salmon fisheries on the same stock depending on whether defined as a target or non-target stock. Fisheries may continue to harvest very low numbers of non-target stocks where low fishing rates do not exceed LRPs established for the non-target stock in that fishery even in cases where harvest in target fisheries for the same stock is curtailed because the fishery-specific LRP equivalent for that stock has been exceeded. This is a unique characteristic of salmon fisheries based on their stock structure and fishery characteristics.~~

~~It is also noted that this is a standard in between the normal P1 standard and that applied to P2 species (which may be below limits so long as the fishery itself ‘does not hinder’ the recovery of those stocks). This again relates to the definition of ‘not significantly affecting’ etc in PI 1.1.1.~~

This indicator was revised to clarify its application to the wild stock or stock components (as opposed to hatchery/enhanced stocks or components).

1.2.1 Harvest Strategy

There is a robust and precautionary harvest strategy in place.

SG 60	SG 80	SG 100
<p>The harvest strategy is <u>expected</u> to achieve <u>wild</u> stock management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy is <u>likely</u> to work based on prior experience or plausible argument.</p> <p><u>Monitoring</u> is in place that is expected to determine whether the harvest strategy is working.</p>	<p>The harvest strategy is responsive to the state of the <u>wild</u> stock and the elements of the harvest strategy <u>work together</u> towards achieving management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy may not have been fully tested but monitoring is in place and <u>evidence</u> exists that it is achieving its objectives.</p>	<p>The harvest strategy is responsive to the state of the <u>wild</u> stock and is <u>designed</u> to achieve stock management objectives reflected in the target and limit reference points.</p> <p>The performance of the harvest strategy has been <u>fully evaluated</u> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.</p> <p>The harvest strategy is <u>periodically reviewed and improved</u> as necessary.</p>

1.2.2 Harvest Control Rules & Tools

There are well defined and effective harvest control rules in place.

SG 60	SG 80	SG 100
<p><u>Generally understood</u> harvest control rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.</p> <p>There is <u>some evidence</u> that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.</p>	<p><u>Well defined</u> harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The <u>selection</u> of the harvest control rules takes into account the <u>main</u> uncertainties.</p> <p><u>Available evidence indicates</u> that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</p>	<p><u>Well defined</u> harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The <u>design</u> of the harvest control rules take into account a <u>wide range</u> of uncertainties.</p> <p><u>Evidence clearly shows</u> that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.</p>

1.2.3 Information and Monitoring

Relevant information is collected to support the harvest strategy.

SG 60	SG 80	SG 100
<p><u>Some</u> relevant information related to target stock structure, stock productivity and fleet composition is available to support the harvest strategy.</p> <p>Target stock-Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.</p> <p>Some relevant information is available on the significance of fishery harvests on <u>various non-target stocks- components</u></p>	<p><u>Sufficient</u> relevant information related to target stock structure, target stock productivity, fleet composition and other data is available to support the harvest strategy.</p> <p>Target stock-Stock abundance and fishery removals are <u>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</u>, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.</p> <p>There is good information on all other fishery removals from the stock.</p> <p>Information is sufficient to estimate the significance of fishery harvests on non-target stocks <u>components</u>.</p>	<p>A <u>comprehensive range</u> of information (on target stock structure, target stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available.</p> <p><u>All information</u> required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent <u>uncertainties</u> in the information [data] and the robustness of assessment and management to this uncertainty.</p> <p>A comprehensive range of information is available to estimate the significance of fishery harvests on non-target stocks <u>components</u>.</p>

Rationale for modification of Indicator 1.2.3:

An additional guidepost was added to clarify the need for relevant information ~~on non-target stocks~~. ~~Separate guideposts were identified in order to distinguish and~~ the nature of ~~the this~~ information ~~needed for target and non-target~~ different stocks components. Information relevant to ~~target the significant~~ stocks in the fishery includes stock structure, productivity, abundance and harvest. Information relevant to ~~non-target incidental~~ stocks includes ~~that the~~ needed to estimate the significance of the fishery to the ~~non-target~~ stock component. Fishing rates on ~~non-target some~~ stocks ~~which by definition originate originating~~ outside the management area are typically less than those on ~~target more local~~ stocks. In most cases, status of the ~~non-target~~ stocks is primarily determined by fishing in the management area of origination. The essential questions for ~~non-target each~~ salmon stocks is ~~do you~~ whether it is known what ~~non-target~~ stock components are being intercepted by the fishery in your management area, ~~have you if~~ estimated the harvest rate of ~~your fishery on these non-target each~~ stock component is estimateds, and ~~have you determined~~ whether the harvest rate is significant to the status of the ~~non-target~~ stock? Significance might be determined based on harvest levels or rates relative to those for the same stock in its management area of origin, harvest levels or rates relative to management reference points established for the ~~non-target~~ stock components, or estimates of the relative productivities of different target and non-target stock components. As discussed under PI 1.1.1, ~~non-target limited harvest of some~~ stock components ~~might be allowed may be acceptable to be caught~~ if harvest or impact rates are so low as to marginally affect escapement and production, or rates fall below fishery-specific limits even where limit reference points for the stock are not met in other fisheries.

1.2.4 Assessment of Stock Status

There is an adequate assessment of the ~~target~~-stock status.

SG 60	SG 80	SG 100
<p>The majority of target and non-target stocks units are defined with a clear rationale for conservation, fishery management and stock assessment requirements.</p> <p>Where indicator stocks are used as the primary source of information for making management decisions on larger groups of stocks in a region, there is some scientific basis for the indicator stocks.</p> <p>The assessment estimates target-stock status relative to reference points.</p> <p>The major sources of uncertainty are identified.</p>	<p>The target and non-target stocks units are well-defined and include details on the major component stocks with a clear rationale for conservation, fishery management and stock assessment requirements.</p> <p>Where indicator stocks are used as the primary source of information for making management decisions on larger groups of stocks in a region, there is some evidence of coherence between the status of the indicator stocks and the status of the other stocks they represent within the management unit.</p> <p>The assessment is appropriate for the target-stock and for the harvest control rule, and is evaluating stock status relative to reference points.</p> <p>The assessment takes uncertainty into account.</p> <p>The stock assessment is subject to peer review.</p>	<p>There is an unambiguous description of the each target-stock unit, including its geographic location, run timing, and component stocks with a clear rationale for conservation, fishery management and stock assessment requirements.</p> <p>Where indicator stocks are used as the primary source of information for making management decisions on larger groups of stocks in a region, the status of the indicator stocks is well correlated with the stocks that are most at risk from a conservation point of view, not just correlated with the most productive stocks in the management unit.</p> <p>The assessment is appropriate for the target stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.</p> <p>The assessment takes into account uncertainty and is evaluating target-stock status relative to reference points in a probabilistic way.</p> <p>The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.</p> <p>The assessment has been <u>internally and externally</u> peer reviewed.</p>

Rationale for modification of Indicator 1.2.4:

This indicator is focused on ~~target~~-stock status and considers the impact of all fisheries affecting this stock ~~in the evaluation of the target fishery~~. Assessments of some component non-target stocks ~~are may be~~ held to a ~~lesser different~~ standard based on direct status assessments or an assessment of the significance of the fishery impact on that stock.

Additional guideposts were identified to recognize the importance of stock unit definition in salmon stock assessments.

1.3.1 Enhancement Outcomes

Enhancement activities do not negatively impact ~~target-wild~~ stocks or substitute for a stock rebuilding strategy.

SG 60	SG 80	SG 100
<p>It is likely that the enhancement activities do not have significant negative impacts on productivity or diversity of wild stocks.</p> <p>Enhancement activities are not routinely used as a stock rebuilding strategy but may be temporarily in place as a conservation measure to preserve or restore wild diversity threatened by human or natural impacts.</p>	<p>It is highly likely that the enhancement activities do not have significant negative impacts on productivity or diversity of wild stocks.</p> <p>Enhancement activities are not used as a stock rebuilding strategy.</p>	<p>There is a high degree of certainty that the enhancement activities do not have significant negative impacts on productivity or diversity of wild stocks.</p> <p>Enhancement activities are not used as a stock rebuilding strategy.</p>

Rationale for addition of new Performance Indicator 1.3.1:

This indicator was added to address the potential for negative effects of enhancement on the genetic diversity and reproductive capacity of the wild ~~stock-target~~ salmon stocks consistent with the direction identified in MSC guidance on scope criteria for enhanced fisheries (TAB D-001 v2).

This indicator addresses outcomes of enhancement impacts on wild stocks targeted by the fishery. Management and information is addressed in separate indicators (1.3.2 and 1.3.3) which are consistent with the organization of other indicators under ~~principle-Principle one-1~~ in the revised FAM. Specific guideposts in this indicator are based on those identified in other comparable P1 indicators regarding stock status (1.1.1) and stock rebuilding (1.1.3). In the initial ~~revision~~-proposal, these guideposts were added to the corresponding indicators. In this revised proposal, they are separated into ~~a~~-new, separate indicators based on comments from the MSC and consistent with the approach proposed by the assessment teams involved with other ~~Alaska and Canada~~ salmon fishery certifications in Alaska and Canada (except ~~the~~-that ~~these proposal-assessment trees~~ combines outcome and management guideposts within specific indicators).

~~Guideposts will be assessed based on~~ The following potentially damaging enhancement effects will be considered: including outbreeding depression due to translocation of dissimilar brood stock into locally-adapted populations; inbreeding depression or loss of native genetic diversity due to directed or inadvertent hatchery selection or domestication; mining of wild fish for hatchery broodstock; competition or predation by hatchery fish on wild fish; and reduced fish health due to increased incidence of disease in hatchery fish. These risks are a function of adult broodstock collection sources, hatchery mating, incubation and rearing practices, juvenile release numbers and sites, and straying of returning adults. Indicative assessment attributes may include the minimal or limited spawning interaction with wild fish by hatchery fish consistent with the magnitude of divergence between hatchery and wild stock units, and minimal competition or predation interactions between hatchery and wild fish. These would minimize potential negative ecological impacts on the growth and survival of other salmon species (e.g. Asian pink vs. Bristol Bay sockeye interactions on the high seas).

Guideposts also recognize problems associated with the use of enhancement as a rebuilding strategy for depleted wild stocks, except in unique circumstances. Populations subsidized by large numbers of hatchery-produced salmon may not be sustainable in the absence of continuing subsidy. Hatchery-produced fish have been widely observed to mask the true status and problems of wild stocks. Lower fitness and productivity of the hatchery fish can also erode wild stock fitness and productivity. This guidepost might also have been considered under 1.1.3.

except that that in this revised assessment tree all enhancement effects are being treated under the new performance indicators 1.3.

1.3.2 Enhancement Management

Effective enhancement and fishery strategies are in place to address effects of enhancement activities on ~~target wild~~ stock status.

SG 60	SG 80	SG 100
Practices and protocols are in place and considered likely to protect wild stocks from significant detrimental impacts of enhancement, based on plausible argument.	There is a partial strategy in place and some objective basis for confidence that the partial strategy will protect wild stocks from significant detrimental impacts of enhancement, based on direct information on the stock or species involved.	There is a comprehensive strategy in place and clear evidence for successful protection of wild stocks from significant detrimental impacts of enhancement.

Rationale for addition of new Performance Indicator 1.3.2:

This indicator was added to ~~address~~ emphasize the need for management ~~needed~~ to address the potential for negative effects of enhancement on the genetic diversity and reproductive capacity of the wild ~~stock target~~ salmon stocks consistent with the direction identified in MSC guidance on scope criteria for enhanced fisheries (TAB D-001 v2). Guideposts are based on the existence of strategies for the protection of wild stocks and the likelihood of their effectiveness. Guideposts address the same potentially damaging enhancement effects identified under 1.3.1. This guidepost captures the need for effective enhancement management measures consistent with past ~~Alaska and Canada~~ salmon assessments in Alaska and Canada.

1.3.3 Enhancement Information

Relevant information is collected and assessments are adequate to determine the effect of enhancement activities on ~~target-wild~~ stock status.

SG 60	SG 80	SG 100
<p><u>Some</u> relevant information is available on the contribution of enhanced fish to the harvest and wild-escapement of the <u>wild</u> target stock.</p> <p>The effect of enhancement activities on target-wild stock status, productivity and diversity are taken into account.</p>	<p><u>Sufficient</u> relevant information is available on the contribution of enhanced fish to the harvest and wild-escapement of the <u>wild</u> target stock.</p> <p>The assessment includes estimates of the impacts of enhancement activities on target-wild stock status, productivity and diversity.</p>	<p><u>A comprehensive range of</u> relevant information is available on the contribution of enhanced fish to the harvest and wild-escapement of the <u>wild</u> target-stock.</p> <p>The assessment is appropriate and takes into account the major features relevant to the biology of the species and the effects of any enhancement activities on the target-wild stock status, productivity and diversity.</p>

Rationale for addition of new Performance Indicator 1.3.3:

This indicator was added to ~~address-emphasize the~~ information needed to address the potential for negative effects of enhancement on the genetic diversity and reproductive capacity of the wild ~~stock target~~ salmon stocks consistent with the direction identified in MSC guidance on scope criteria for enhanced fisheries (TAB D-001 v2). Guideposts address the same potentially damaging enhancement effects identified under 1.3.1. Specific guideposts in this indicator are based on those identified in other comparable P1 indicators regarding collection of relevant information (1.2.3) and assessment adequacy (1.2.4). In the initial ~~revision~~-proposal, these guideposts were added to the corresponding indicators. In this revised proposal, they are separated into a new, ~~separate~~-indicators based on comments from the MSC. Marking and monitoring programs will be particularly relevant to evaluations of sufficiency for this indicator.

2.1.1 Retained Species - Outcome

The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.

SG 60	SG 80	SG 200
<p>Main retained species are <u>likely</u> to be within biologically based limits or if outside the limits there are <u>measures</u> in place that are <u>expected</u> to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.</p> <p>If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.</p>	<p>Main retained species are <u>highly likely</u> to be within biologically based limits, or if outside the limits there is a <u>partial strategy</u> of <u>demonstrably effective</u> management measures in place such that the fishery does not hinder recovery and rebuilding.</p>	<p>There is a <u>high degree of certainty</u> that retained species are within biologically based limits.</p> <p>Target reference points are defined and retained species are at or fluctuating around their target reference points.</p>

2.1.2 Retained Species – Management

There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.

SG 60	SG 80	SG 200
<p>There are <u>measures</u> in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.</p> <p>The measures are considered <u>likely</u> to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>partial strategy</u> in place, if necessary that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.</p> <p>There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or species involved.</p> <p>There is <u>some evidence</u> that the partial strategy is being <u>implemented successfully</u>.</p>	<p>There is a <u>strategy</u> in place for managing retained species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and <u>testing</u> supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being <u>implemented successfully</u>, and intended changes are occurring.</p> <p>There is some evidence that the strategy is <u>achieving its overall objective</u>.</p>

2.1.3 Retained Species – Information

Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.

SG 60	SG 80	SG 200
<p><u>Qualitative information</u> is available on the amount of main retained species taken by the fishery.</p> <p>Information is <u>adequate</u> to <u>qualitatively</u> assess outcome status with respect to biologically based limits.</p> <p>Information is adequate to support <u>measures</u> to manage <u>main</u> retained species.</p>	<p><u>Qualitative information</u> and some quantitative information are available on the amount of main retained species taken by the fishery.</p> <p>Information is <u>sufficient</u> to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a <u>partial strategy</u> to manage <u>main</u> retained species.</p> <p>Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).</p>	<p>Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.</p> <p>Information is <u>sufficient</u> to <u>quantitatively</u> estimate outcome status with a <u>high degree of certainty</u>.</p> <p>Information is adequate to support a <u>comprehensive strategy</u> to manage retained species, and evaluate with a <u>high degree of certainty</u> whether the strategy is achieving its objective.</p> <p>Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.</p>

2.2.1 Bycatch Species – Outcome

The fishery and its enhancement activities does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.

SG 60	SG 80	SG 200
<p>Main bycatch species are <u>likely</u> to be within biologically based limits, or if outside such limits there are mitigation <u>measures</u> in place that are <u>expected</u> to ensure that the fishery does not hinder recovery and rebuilding.</p> <p>If the status is poorly known there are measures or practices in place that are expected result in the fishery not causing the bycatch species to be biologically based limits or hindering recovery.</p>	<p>Main bycatch species are <u>highly likely</u> to be within biologically based limits or if outside such limits there is a <u>partial strategy</u> of <u>demonstrably effective</u> mitigation measures in place such that the fishery does not hinder recovery and rebuilding.</p>	<p>There is a <u>high degree of certainty</u> that bycatch species are within biologically based limits.</p>

Rationale for modification of Indicator 2.2.1:

~~Broadened~~ The definition of the Performance Indicator was broadened to ensure that the team ~~looks at~~ considers the ~~prospect~~ possibility of harm to bycatch species due to the enhancement activities.

2.2.2 Bycatch species - Management

There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.

SG 60	SG 80	SG 200
<p>There are <u>measures</u> in place, if necessary, which are expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.</p> <p>The measures are considered <u>likely</u> to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>partial strategy</u> in place, if necessary, for managing bycatch that is expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.</p> <p>There is <u>some objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or the species involved.</p> <p>There is <u>some evidence</u> that the partial strategy is being implemented successfully.</p>	<p>There is a <u>strategy</u> in place for managing and minimising bycatch.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.</p>

2.2.3 Bycatch Species - Information

Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.

SG 60	SG 80	SG 200
<p><u>Qualitative information</u> is available on the amount of main bycatch species affected by the fishery.</p> <p>Information is <u>adequate to broadly understand</u> outcome status with respect to biologically based limits.</p> <p>Information is adequate to support <u>measures</u> to manage bycatch.</p>	<p><u>Qualitative information and some quantitative information</u> are available on the amount of main bycatch species affected by the fishery.</p> <p>Information is sufficient to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a <u>partial strategy</u> to manage main bycatch species.</p> <p>Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).</p>	<p><u>Accurate and verifiable information</u> is available on the amount of all bycatch and the consequences for the status of affected populations.</p> <p>Information is <u>sufficient</u> to quantitatively estimate outcome status with respect to biologically based limits with a <u>high degree of certainty</u>.</p> <p>Information is adequate to support a <u>comprehensive strategy</u> to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective.</p> <p>Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.</p>

2.3.1 ETP Species - Outcome

The fishery meets national and international requirements for protection of ETP species.

The fishery and its enhancement activities do not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.

SG 60	SG 80	SG 200
<p>Known effects of the fishery are <u>likely</u> to be within limits of national and international requirements for protection of ETP species.</p> <p>Known direct effects of the fishery <u>including its enhancement activities</u> are <u>unlikely</u> to create <u>unacceptable impacts</u> to ETP species.</p>	<p>The effects of the fishery are known and are <u>highly likely</u> to be within limits of national and international requirements for protection of ETP species.</p> <p>Direct effects of the fishery <u>including its enhancement activities</u> are <u>highly unlikely</u> to create <u>unacceptable impacts</u> to ETP species.</p> <p>Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.</p>	<p>There is a <u>high degree of certainty</u> that the effects of the fishery are within limits of national and international requirements for protection of ETP species.</p> <p>There is a <u>high degree of confidence</u> that there are <u>no significant detrimental effects (direct and indirect)</u> of the fishery <u>including its enhancement activities</u> on ETP species.</p>

Rationale for modification of Indicator 2.3.1, 2.3.2 and 2.3.3:

The assessment team members felt the need to emphasize that in ~~the~~ case of ~~an enhanced~~-stock enhancement, ~~that the concern is not just the traditional fishery implementation but that~~ the impact of the enhancement operation as a whole is reviewed for potential effects on ETP species (potential water diversion, effluent, etc.); This is considered conservative and precautionary given the situation.

2.3.2 ETP Species - Management

The fishery has in place precautionary management strategies designed to:

- meet national and international requirements;
- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;
- ensure the fishery does not hinder recovery of ETP species; and
- minimise mortality of ETP species.

SG 60	SG 80	SG 200
<p>There are <u>measures</u> in place that minimise mortality due to the fishery <u>and its enhancement activities</u>, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>The measures are <u>considered likely</u> to work, based on <u>plausible argument</u> (eg general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a <u>strategy</u> in place for managing the impact due to the fishery <u>and its enhancement activities</u> on ETP species, including measures to minimize mortality that is designed to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>There is an <u>objective basis for confidence</u> that the strategy will work, based on <u>some information</u> directly about the fishery and/or the species involved.</p> <p>There is <u>evidence</u> that the strategy is being implemented successfully.</p>	<p>There is a <u>comprehensive strategy</u> in place for managing the impact due to fishery <u>and enhancement activities</u> on ETP species, including measures to minimise mortality that is designed to achieve <u>above</u> national and international requirements for the protection of ETP species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and a <u>quantitative analysis</u> supports <u>high confidence</u> that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is evidence that the strategy is achieving its objective.</p>

2.3.3 ETP Species - Information

Relevant information is collected to support the management of fishery impacts on ETP species, including:

- information for the development of the management strategy;
- information to assess the effectiveness of the management strategy; and
- information to determine the outcome status of ETP species.

SG 60	SG 80	SG 200
<p>Information is <u>adequate</u> to <u>broadly understand</u> the impact of the fishery <u>and its enhancement activities</u> on ETP species.</p> <p>Information is adequate to support <u>measures</u> to manage the impacts on ETP species</p> <p><u>Information</u> is sufficient to <u>qualitatively</u> estimate the fishery <u>and enhancement activities</u> related mortality of ETP species.</p>	<p>Information is <u>sufficient</u> to determine whether the fishery <u>and enhancement activities</u> may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a <u>full strategy</u> to manage impacts.</p> <p><u>Sufficient data</u> are available to allow fishery <u>and enhancement activities</u> related mortality and the impact of fishing to be <u>quantitatively</u> estimated for ETP species.</p>	<p>Information is <u>sufficient</u> to <u>quantitatively</u> estimate outcome status with a high degree of certainty.</p> <p>Information is adequate to support a <u>comprehensive strategy</u> to manage impacts from both the fishery <u>and enhancement activities</u>, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.</p> <p><u>Accurate and verifiable information</u> is available on the magnitude of all impacts from the fishery <u>and enhancement activities</u>, mortalities and injuries and the consequences for the status of ETP species.</p>

2.4.1 Habitats – Outcome

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

SG 60	SG 80	SG 200
<p>The fishery is <u>unlikely</u> to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p> <p>The fishery-enhancement activities are <u>unlikely</u> to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p>	<p>The fishery is <u>highly unlikely</u> to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p> <p>The fishery-enhancement activities are <u>highly unlikely</u> to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p>	<p>There is <u>evidence</u> that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p> <p>There is <u>evidence</u> that the enhancement activities are <u>highly unlikely</u> to reduce habitat structure and function to a point where there would be serious or irreversible harm.</p>

Rationale for modification of Indicators 2.4.1, 2.4.2 and 2.4.3:

This performance indicator was revised to ensure that the full scope of hatchery concerns are addressed in regard to impact on ecosystem components as required under TAB D-001v2.

2.4.2 Habitats – Management

There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.

SG 60	SG 80	SG 200
<p>There are <u>measures</u> in place for managing the impact of the fishery <u>and enhancement activities</u> on habitat types, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.</p> <p>The measures are considered <u>likely</u> to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/habitats).</p>	<p>There is a <u>partial strategy</u> in place for managing the impact of the fishery <u>and enhancement activities</u> on habitat types, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.</p> <p>There is some <u>objective basis for confidence</u> that the partial strategy will work, based on some information directly about the fishery and/or habitats involved.</p> <p>There is <u>some evidence</u> that the partial strategy is being implemented successfully.</p>	<p>There is a <u>strategy</u> in place for managing the impact of the fishery <u>and enhancement activities</u> on habitat types.</p> <p>The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work.</p> <p>There is <u>clear evidence</u> that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.</p>

2.4.3 Habitats – Information

Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.

SG 60	SG 80	SG 200
<p>There is a basic understanding of the types and distribution of main habitats in the area of the fishery.</p> <p>Information is adequate to broadly understand the main impacts of gear use <u>and enhancement activities</u> on the main habitats, including spatial extent of interaction.</p>	<p>The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery.</p> <p>Sufficient data are available to allow the nature of the impacts of the fishery <u>and enhancement activities</u> on habitat types to be identified and there is reliable information on the spatial extent, timing and location of use of the fishing gear.</p> <p>Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).</p>	<p>The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.</p> <p>Changes in habitat distributions over time are measured.</p> <p>The physical impacts of the gear <u>and enhancement activities</u> on the habitat types have been quantified fully.</p>

2.5.1 Ecosystem – Outcome

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

SG 60	SG 80	SG 200
<p>The fishery is <u>unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</p> <p><u>The enhancement activities are unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</u></p>	<p>The fishery is <u>highly unlikely</u> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</p> <p><u>The enhancement activities are highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</u></p>	<p>There is <u>evidence</u> that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</p> <p><u>There is evidence that the enhancement activities are highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.</u></p>

Rationale for modification of Indicator 2.5.1, 2.5.2 and 2.5.3:

To-The performance indicator was revised to ensure that the full scope of enhancement activities are addressed in regard to impact on ecosystem components as required under TAB D-001v2 relating specifically to translocation risks. Note that salmon ecosystem components include effects of competition and predation within and among salmon species in nearshore and high seas ocean waters.

2.5.2 Ecosystem – Management

There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.

SG 60	SG 80	SG 200
<p>There are <u>measures</u> in place, if necessary, that take into account potential impacts of the fishery <u>and enhancement activities</u> on key elements of the ecosystem.</p> <p>The measures are considered likely to work, based on <u>plausible argument</u> (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p>	<p>There is a <u>partial strategy</u> in place, if necessary, that takes into account available information and is expected to restrain impacts of the fishery <u>and enhancement activities</u> on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.</p> <p>The partial strategy is considered likely to work, based on <u>plausible argument</u> (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p> <p>There is <u>some evidence</u> that the measures comprising the partial strategy are being implemented successfully</p>	<p>There is a <u>strategy</u> that consists of a <u>plan</u>, containing measures to address all main impacts of the fishery <u>and enhancement activities</u> on the ecosystem and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem.</p> <p>This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery <u>and its enhancement activities</u> do not cause serious or irreversible harm.</p> <p>The measures are considered likely to work based on <u>prior experience</u>, plausible argument or <u>information</u> directly from the fishery/ecosystems involved.</p> <p>There is <u>evidence</u> that the measures are being implemented successfully.</p>

2.5.3 Ecosystem – Information

There is adequate knowledge of the impacts of the fishery on the ecosystem.

SG 60	SG 80	SG 200
<p>Information is adequate to <u>identify</u> the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity).</p> <p>Main impacts of the fishery <u>and enhancement activities</u> on these key ecosystem elements can be inferred from existing information, but <u>have not been investigated in detail</u>.</p>	<p>Information is adequate to <u>broadly understand the functions</u> of the key elements of the ecosystem.</p> <p>Main impacts of the fishery <u>and enhancement activities on</u> these key ecosystem elements can be inferred from existing information, but <u>may not have been investigated in detail</u>.</p> <p>The main functions of the Components (i.e. <u>T</u>target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are <u>known</u>.</p> <p>Sufficient information is available on the impacts of the fishery <u>and enhancement activities</u> on these Components to allow some of the main consequences for the ecosystem to be inferred.</p> <p>Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).</p>	<p>Information is adequate to <u>broadly understand the key elements</u> of the ecosystem.</p> <p>Main <u>interactions</u> between the fishery and these ecosystem elements can be inferred from existing information, and <u>have been investigated</u>.</p> <p>The impacts of the fishery <u>and enhancement activities on T</u>target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are <u>understood</u>.</p> <p>Sufficient information is available on the impacts of the fishery <u>and enhancement activities</u> on the Components <u>and elements</u> to allow the main consequences for the ecosystem to be inferred.</p> <p>Information is sufficient to support the development of strategies to manage ecosystem impacts.</p>

3.1.1 Legal/Customary Framework

The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:

- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;
- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and
- Incorporates an appropriate dispute resolution framework.

SG 60	SG 80	SG 300
<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a <u>mechanism</u> for the resolution of legal disputes arising within the system.</p> <p>Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.</p> <p>The management system has a mechanism to <u>generally respect</u> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes which is <u>considered to be effective</u> in dealing with most issues and that is appropriate to the context of the fishery.</p> <p>The management system or fishery is attempting to comply in a timely fashion with binding judicial decisions arising from any legal challenges.</p> <p>The management system has a mechanism to <u>observe</u> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a <u>transparent mechanism</u> for the resolution of legal disputes that is appropriate to the context of the fishery and has been <u>tested and proven to be effective</u>.</p> <p>The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.</p> <p>The management system has a mechanism to <u>formally commit</u> to the legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>

3.1.2 Consultation, Roles & Responsibilities

The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.

SG 60	SG 80	SG 300
<p>Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>generally understood</u>.</p> <p>The management system includes consultation processes that <u>obtain relevant information</u> from the main affected parties, including local knowledge, to inform the management system.</p>	<p>Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>key areas</u> of responsibility and interaction.</p> <p>The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.</p> <p>The consultation process <u>provides opportunity</u> for all interested and affected parties to be involved.</p>	<p>Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <u>explicitly defined and well understood</u> for <u>all areas</u> of responsibility and interaction.</p> <p>The management system includes consultation processes that <u>regularly seek and accept</u> relevant information, including local knowledge. The management system demonstrates consideration of the information and <u>explains how it is used or not used</u>.</p> <p>The consultation process <u>provides opportunity and encouragement</u> for all interested and affected parties to be involved, and <u>facilitates</u> their effective engagement.</p>

3.1.3 Long Term Objectives

The management policy has clear long-term objectives to guide decision-making for wild stock components and the use of enhancement programs that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.

SG 60	SG 80	SG 300
<p>Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>implicit</u> within management policy.</p>	<p><u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit</u> within management policy.</p>	<p><u>Clear</u> long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are <u>explicit within and required by</u> management policy</p>

3.1.4 Incentives for Sustainable Fishing

The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.

SG 60	SG 80	SG 300
The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and <u>explicitly considers</u> incentives in a <u>regular review</u> of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.

3.2.1 Fishery Specific Objectives

The fishery and its enhancement activities have clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.

SG 60	SG 80	SG 300
<u>Objectives</u> , which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>implicit</u> within the fishery's management system <u>and enhancement activities</u> .	<u>Short and long term objectives</u> , which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery's management system <u>and enhancement activities</u> .	<u>Well defined and measurable short and long term objectives</u> , which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <u>explicit</u> within the fishery's management system <u>and enhancement activities</u> .

Rationale for modification of Indicator 3.2.1:

To ensure that the full scope of enhancement activities effects is considered by management when defining objectives as required under TAB D-001v2.

3.2.2 Decision-Making Processes

The fishery-specific and hatchery management systems include effective decision-making processes that result in measures and strategies to achieve the objectives.

SG 60	SG 80	SG 300
<p>There are <u>informal</u> decision-making processes that result in measures and strategies to achieve the fishery-specific <u>and enhancement</u> objectives.</p> <p>Decision-making processes respond to <u>serious issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take <u>some</u> account of the wider implications of decisions.</p>	<p>There are <u>established</u> decision-making processes that result in measures and strategies to achieve the fishery-specific <u>and enhancement</u> objectives.</p> <p>Decision-making processes respond to <u>serious and other important issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information. <u>Explanations</u> are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>	<p>There are <u>established</u> decision-making processes that result in measures and strategies to achieve the fishery-specific <u>and enhancement</u> objectives.</p> <p>Decision-making processes respond to <u>all issues</u> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information.</p> <p><u>Formal reporting</u> to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>

Rationale for modification of Indicator 3.2.2:

This performance indicator was revised to ensure that enhancement activities are explicitly considered and subject to the fishery's decision making process.

3.2.3 Compliance & Enforcement

Monitoring, control and surveillance mechanisms ensure the fishery and hatchery management measures are enforced and complied with.

SG 60	SG 80	SG 300
<p>Monitoring, control and surveillance <u>mechanisms</u> exist, and are implemented in the fishery <u>and enhancement activities</u> under assessment, and there is a reasonable expectation that they are effective.</p> <p>Sanctions to deal with non-compliance exist and there is some evidence that they are applied.</p> <p>Fishers are <u>generally thought</u> to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.</p>	<p>A monitoring, control and surveillance <u>system</u> has been implemented in the fishery <u>and enhancement activities</u> under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.</p> <p>Sanctions to deal with non-compliance exist, <u>are consistently applied</u> and thought to provide effective deterrence.</p> <p><u>Some evidence exists</u> to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.</p> <p>There is no evidence of systematic non-compliance.</p>	<p>A <u>comprehensive monitoring, control and surveillance system</u> has been implemented in the fishery <u>and enhancement activities</u> under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.</p> <p>Sanctions to deal with non-compliance exist, are consistently applied and <u>demonstrably provide</u> effective deterrence.</p> <p>There is a <u>high degree of confidence</u> that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.</p> <p>There is no evidence of systematic non-compliance.</p>

Rationale for modification of Indicator 3.2.3:

The performance indicator was revised to ensure that the regular monitoring, control, surveillance and enforcement mechanisms that are in place for the fishery also include the hatchery management and enhancement activities.

3.2.4 Research Plan

The fishery **and its related enhancement activities** have a research plan that addresses the information needs of management.

SG 60	SG 80	SG 300
<p><u>Research</u> is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2. Research results are <u>available</u> to interested parties.</p>	<p>A <u>research plan</u> provides the management system with a strategic approach to research and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion.</p>	<p>A <u>comprehensive research plan</u> provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and <u>reliable and timely information</u> sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Research <u>plan</u> and results are <u>disseminated</u> to all interested parties in a <u>timely</u> fashion and are <u>widely and publicly available</u>.</p>

Rationale for modification of Indicator 3.2.4:

To ensure that the fishery's research plans address the role, function and effects of the enhancement activities.

3.2.5 Management & Performance Evaluation

There is a system for monitoring and evaluating the performance of the fishery **and hatchery** management system against its objectives.

There is effective and timely review of the fishery **and hatchery** management system.

SG 60	SG 80	SG 300
<p>The fishery has in place mechanisms to evaluate <u>some</u> parts of the management system and is subject to <u>occasional internal</u> review.</p>	<p>The fishery has in place mechanisms to evaluate <u>key</u> parts of the management system and is subject to <u>regular internal</u> and <u>occasional external</u> review.</p>	<p>The fishery has in place mechanisms to evaluate <u>all</u> parts of the management system and is subject to <u>regular internal</u> and <u>external</u> review.</p>

Rationale for modification of Indicator 3.2.5:

~~To~~ **This performance indicator was revised to** ensure that the fishery's regular mechanism for monitoring and reviewing the performance of the fishery addresses the role, function and effects of the enhancement activities.

AIR Scoring Worksheet:

Principle Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle		Score	Contribution to Principle Score		
						either	or		either	or	
One	Outcome	0.375	1.1.1	Stock status	0.500	0.1875	0.3333	0.1250		0.00	0.00
			1.1.2	Reference points	0.500	0.1875	0.3333	0.1250		0.00	0.00
			1.1.3	Stock rebuilding					0.3333	0.1250	
	Management	0.375	1.2.1	Harvest strategy	0.25	0.094				0.00	
			1.2.2	Harvest control rules & tools	0.25	0.094				0.00	
			1.2.3	Information & monitoring	0.25	0.094				0.00	
			1.2.4	Assessment of stock status	0.25	0.094				0.00	
	Enhancement	0.250	1.3.1	Enhancement Outcomes	0.333	0.0833				0.00	
			1.3.2	Management	0.333	0.0833				0.00	
			1.3.3	Information	0.333	0.0833				0.00	
Two	Retained species	0.200	2.1.1	Outcome	0.333	0.0667				0.00	
			2.1.2	Management	0.333	0.0667				0.00	
			2.1.3	Information	0.333	0.0667				0.00	
	Bycatch species	0.200	2.2.1	Outcome	0.333	0.0667				0.00	
			2.2.2	Management	0.333	0.0667				0.00	
			2.2.3	Information	0.333	0.0667				0.00	
	ETP species	0.200	2.3.1	Outcome	0.333	0.0667				0.00	
			2.3.2	Management	0.333	0.0667				0.00	
			2.3.3	Information	0.333	0.0667				0.00	
	Habitats	0.200	2.4.1	Outcome	0.333	0.0667				0.00	
			2.4.2	Management	0.333	0.0667				0.00	
			2.4.3	Information	0.333	0.0667				0.00	
	Ecosystem	0.200	2.5.1	Outcome	0.333	0.0667				0.00	
			2.5.2	Management	0.333	0.0667				0.00	
			2.5.3	Information	0.333	0.0667				0.00	
Three	Governance and policy	0.500	3.1.1	Legal & customary framework	0.25	0.125				0.00	
			3.1.2	Consultation, roles & responsibilities	0.25	0.125				0.00	
			3.1.3	Long term objectives	0.25	0.125				0.00	
			3.1.4	Incentives for sustainable fishing	0.25	0.125				0.00	
	Fishery specific management system	0.500	3.2.1	Fishery specific objectives	0.2	0.1				0.00	
			3.2.2	Decision making processes	0.2	0.1				0.00	
			3.2.3	Compliance & enforcement	0.2	0.1				0.00	
			3.2.4	Research plan	0.2	0.1				0.00	
			3.2.5	Management performance evaluation	0.2	0.1				0.00	

Overall weighted Principle-level scores		Either	Or
Principle 1 – Target Species	Stock rebuilding PI not scored	0.0	0.0
	Stock rebuilding PI scored		
Principle 2 - Ecosystem		0.0	
Principle 3 - Management		0.0	