Marine Stewardship Council

MSC 漁業認証規格

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バージョン発行履歴

版	発行日	改訂内容
1.0	2011 年 8 月 15 日	審査機関（CABs）申請用の第 1 版発行。
1.1	2011 年 10 月 24 日	グループ CoC 要求事項を組み入れ、タイプミスやページ番号、参照間違い及び解読不能のフローチャートの校正発行。
1.2	2012 年 1 月 10 日	技術諮問委員会第 20 回会議が承認した、再認証、異議申し立て手続き、二枚貝漁業の審査に適用する通常審査ツリーの修正、実施期限及び水産養殖管理協議会（ASC）要求事項への変更を組み入れた版の発行。 多少の編集、参照事項の間違い及び不足、タイプミス、解読不能な図の校正。
1.3	2013 年 1 月 14 日	技術諮問委員会第 21 回会議及び評議員会が承認した変更を組み入れた版を発行。 多少の編集や明瞭化も反映。
2.0	2014 年 10 月 1 日	時間とコストの見直しによる、MSC 漁業認証規格の見直し及び審査機関による手順の変更を受けて行われた規格改訂を組み入れた版の発行。
2.01	2018 年 8 月 31 日	漁業認証プロセスへの修正に伴う改訂を組み入れた版の発効
3.0	2022 年 10 月 26 日	漁業認証規格の見直しに伴う改定を組み入れた版の発行。
3.1	2024 年 7 月 22 日	MSC 漁業認証規格第 3.0 版の発行後のフィードバックを受け、特定の問題に対処するための修正を組み込んだ版の発行。

MSC（海洋管理協議会）

ビジョン

世界中の海が生命にあふれ、現在そして将来の世代にわたり水産物の供給が確保されること、これがMSCのビジョンである。

使命

エコラベルと漁業認証制度を通じて、持続可能な漁業に向けた取り組みに報いるとともに、水産物を購入する際の消費者の選択に影響をもたらし、パートナーと共に水産物市場を持続可能なものへと転換することで、世界の海洋環境の保全に貢献すること、これがMSCの使命である。

はじめに

漁業認証

MSC の持続可能な漁業と水産物のトレーサビリティ規格は、ステークホルダーとのグローバルな協議を通じて策定されたものである。これによって、MSC ラベル表示の水産物は、供給元である持続可能な漁業まで遡って追跡することができる製品であることの確証が得られるのである。

MSC の規格及び要求事項は、認証及びエコラベル制度の最優良事例のための国際的なガイドラインに準拠している。

適切に管理された持続可能な漁業であることを主張するためには、MSC 漁業認証規格の要求事項に準拠していなければならない。

世界各国の漁業によって推進されている適切な管理方策は、生計の安定、次世代のための漁業資源の確保、そして海洋環境の保全に貢献している。持続可能な漁業は、独立した第三者機関による信頼性の高い審査によって、科学的根拠に基づく MSC の持続可能な漁業のための環境規格を遵守しているとして認証される。これにより、持続可能な漁業は水産市場において認識され、報奨される。また、消費者は、適切に管理された持続可能な漁業を供給元とする水産製品を購入しているという安心を得られる。

MSC 漁業認証規格は、セクション 1 の要求事項を満たす天然魚漁獲漁業に適用される。

MSC 漁業認証規格は三原則から成り立っている。

原則 1 ：持続可能な漁獲対象資源

漁業は、過剰漁獲もしくは枯渇を引き起こさない方法で行わなければならず、枯渇状態にある固体群については、回復が実証できる方法で漁業が行われなければならない。

原則 2 ：漁業の環境への影響

漁業活動は、漁業が依存する生態系（生息域や相互依存種、生態学的関連種を含む）の構造、生産力、機能、多様性を維持できるものでなければならない。

原則 3: 適切な管理

漁業は、地域や国内、国際的な法律と規制を尊重し、責任ある持続可能な資源利用を義務付ける制度及び運営体制を有する適切な管理システムが必要である。

実施期限

MSC 漁業認証規格第 3.1 版の発行日

本セクションでは、MSC の漁業認証規格第 3.1 版が適用される状況について概説する。MSC の意図は、以下のすべての場合においてこの版が確実に適用されることである。

- 初回審査については、可能な限り速やかに MSC 漁業認証規格第 3.1 版を適用する。
- 既存の認証単位については、GSSI グローバル・ベンチマーク・ツールの重要要素 A.3 22 に則り、規格改定版に適合するために少なくとも 3 年間の猶予が与えられる。
- 認証単位は、MSC 漁業認証規格第 3.0 版の発行から 8 年以内に MSC 漁業認証規格第 3.0 版もしくは第 3.1 版に対して審査される。

公開日：2024 年 7 月 22 日

審査機関は、2026 年 7 月 1 日以降に発表された初回審査については、MSC 漁業認証規格第 3.1 版に対して審査を実施しなければならない。

審査機関は MSC 漁業認証規格第 3.1 版を発行日（2024 年 7 月 22 日）付けで適用する選択をすることができる。

審査機関は、MSC 漁業認証規格第 3.1 版 の発行日以降、MSC 漁業認証規格第 3.0 版に対する本審査または更新審査を発表してはならない。

審査機関は、MSC 漁業認証規格第 3.0 版以前に発行された版に対して認証された漁業については、MSC 漁業認証プロセス第 3.1 版の 7.32（日本語版の公開は未定）に則り、2030 年 11 月 1 日までに MSC 漁業認証規格第 3.1 版を適用しなければならない。

MSC 漁業認証規格第 3.0 版に対する審査が発表されている場合、審査機関は、認証書の有効期間中、MSC 漁業認証規格第 3.1 版を適用することができる。審査機関は、ステークホルダーにその旨を通知し、MSC ウェブサイトで公表するために、ステークホルダー向け報告書を MSC データベースにアップロードしなければならない。

見直し

MSC では、漁業認証規格に関するご意見を随時受け付けております。頂いたご意見は次回の見直しの参考にさせていただきます。次回の見直しは本文書の発行から 5 年以内に開始されます。standards@msc.org までメールにてご意見をお送りください。

MSC の方針策定プロセス並びに規格策定手続きに関する詳細は、MSC のウェブサイト（msc.org）をご覧下さい。

本文書の概要

MSC 漁業認証規格は 3 つの原則により構成され、標準の規格の他に漁業の種類に応じて適用される 4 種類の部分的改変が加えられた規格がある（SB、SC、SD 及び SE）。

ガイダンス

審査機関の MSC 漁業認証規格に対する理解を深めるために、MSC 漁業認証規格のガイダンスが策定された。MSC 漁業認証規格のガイダンスは独立した文書となっている。

ガイダンスが記載されている条項については、MSC 漁業認証規格の条項の見出しと番号と一致させ、その前にガイダンスであることを示す「G」の頭文字を付した。

MSC では、MSC 漁業認証規格と MSC 漁業認証規格のガイダンス（GFCR）を併せて熟読することを審査機関に推奨している。MSC 漁業認証規格の文章はガイダンスには引用されていない。

主な見出し内容、もしくは特定の条項に対してガイダンスが示されている場合には、見出しもしくは条項の終わりに◙のアイコンが表示されている。それぞれのアイコンには関連ガイダンスのハイパーリンクが設定されている（日本語版のガイダンスは準備中）。

ガイダンス内の▲のアイコンには対応する MSC 漁業認証規格のセクションもしくは条項へのハイパーリンクが設定されている。

審査におけるガイダンスの効力

審査において MSC 漁業認証規格のガイダンスそのものに効力は無い。

特例

特例は、MSC の要求事項を異なる方法で適用したり、無視したりすることを可能にする一時的な規範的措置のことである。特例は以下の場合に発行される。

- 編集上の誤りに対応するため。
- 意図が目的に適わなくなり、MSC の信頼性を脅かすような不可抗力に対応するため。
- 規範文書の改訂版を発行する際に、方針変更の検査もしくは実施期限の修正を行うための規定として。

特例は公開ログに掲示される。MSC は審査機関に対し、関連する特例への準拠を求めている。

内容

1 適用範囲

1.1 MSC 漁業認証規格適用資格

1.1.1 審査単位（UoA）は、以下の分類群の種を、原則 1 の適用範囲にしてはならない。

a. 両生類

b. は虫類

c. 鳥類

d. 哺乳類

1.1.2 UoA は毒物もしくは爆発物を使用してはならない。

増殖漁業

1.1.3 増殖が行われている場合、UoA は表 1 のすべての基準に適合しなければならない。 ◙

表 1：適格な増殖漁業の適用範囲基準

A	天然資源との関連とその維持
i	生産過程のある時点において、**自然環境**からの魚介類の捕獲を行っている。捕獲は卵、幼生、稚魚あるいは成魚等、どの成長段階で行われていても構わない。ここでいう自然環境とは、海、淡水等、あらゆる水生生態系を含む。
ii	増殖が行われている種は当該漁業の地理的範囲と、漁獲が行われる水域における**在来種**である。
iii	漁獲される資源に**自然繁殖の要素**があり、毎年放流しなくとも個体数を維持することできる。
iv	Hatch-and-catch（HAC）システムにおいて放流が行われている場合、放流が、枯渇してしまった資源の再建計画の主要部を占めていないこと。
v	UoA は、天然個体群の漁獲を何らかの要素で取り入れるものとする。
vi	UoA は、長期的な持続可能性への影響において、天然個体群の自然生産力と遺伝的多様性が損なわれないように管理されなければならない。
B	**給餌および飼育**
i	生産システムは、**餌の供給を大幅に増やすことなく**成り立っている。 HAC システムでは、いかなる給餌も動物を放流前の小さなサイズ（平均的な成魚の最大体重の 10%以下）に成長させるためにのみ用いられ、成長の大部分（90%以上）は野生下で成される。 Catch-and-grow（CAG）システムでは、飼育段階での給餌は自然な方法（例：イガイの濾過摂食）、または成長ではなく状態の維持のみを目的としたレベルや期間（例：飼育タンクの甲殻類）に限られる。
ii	CAG システムにおける飼育段階での生産は、疾病予防のための化学物質や医薬品化合物を日常的に必要としない。

C	生息域及び生態系への影響
i	資源の生息域に対するいかなる改変も可逆的であり、自然生態系の構造と機能に深刻または不可逆的な被害を与えていない。生息域の改変には、集魚装置（FAD）が含まれる。 注：可逆的でなく、既に設置されており、漁業のために特別に作られたものでない生息域の改変は、適用範囲内とする。これには以下が含まれる。 • 大規模な人工漁礁。 • 河川システムに隣接するサケ類の採卵場・孵化場など、資源が生息する自然生態系に不可逆的な被害を与えない増殖事業関連の構造物。

移入種漁業

1.1.4 原則 1 の対象種が移入種の場合、UoA は表 2 の全ての基準に適合しなければならない。

a. 移入種を対象とする漁業の場合、適合性審査機関（CAB）は MSC 漁業認証規格のセクション SD を適用しなければならない。

表 2：移入種漁業の適用範囲基準

A	進出した水域における移入の不可逆性
i	移入種の個体数は、移入された水域において同様の生態的地位にある在来種の個体数と同等もしくはそれ以上である。
ii	移入種の分布は、最初に移入された水域よりも広範囲に広がっている。
iii	生態学的、経済的および／もしくは、社会的に深刻な影響を及ぼすことなく、既知のメカニズムを使って移入種を根絶することができないことを示す証拠がある。
B	**移入の歴史**
i	移入種に関する規定を含む生物多様性条約（CBD）が批准された 1993 年より前に移入された種である。
ii	CBD の批准後に移入された種を対象とする漁業が適用範囲内にある可能性は、移入が意図的でなく、MSC 漁業認証規格に対する審査申請日の少なくとも 20 年前に行われていた場合のみである。
C	**継続的な移入がない**
i	認証に検討されている移入種が同じ水域に継続的に移入されていない。

重大な犯罪の有罪判決

1.1.5 クライアントもしくはクライアントグループには、漁業操業中に表 3 に記載された重大な罪に関与したとして過去 2 年間に有罪判決を受けた船舶を含めてはならない。 ◙

a. 「重大な犯罪」とは、少なくとも 4 年間の自由の剥奪によって処罰される犯罪を意味する。

1.1.5.1 船舶が漁業操業中に表 3 の重大犯罪に関与したとして有罪判決を受けた場合、クライアントもしくはクライアントグループは、その船舶 を UoA、UoC 及び漁業認証から 2 年間除外しなければならない。 ◙

a. クライアントもしくはクライアントグループは、船舶が除外された場合、直ちに審査機関にその旨を通知しなければならない。

b. クライアントもしくはクライアントグループは、船舶が除外されたことを実証するために、すべての関連情報を審査機関に提供しなければならない。 ◙

表 3：犯罪の一覧

分類	違反内容	法規
違法漁業	• 持続可能な漁業のための規制のコンプライアンス違反	関連する法的および/もしくは慣習的な枠組み
国際的組織犯罪	• 犯罪組織への参加 • 犯罪収益のマネーロンダリング • 汚職 • 司法妨害 • 移民の密航	国際組織犯罪防止国連条約 陸海空路による移民の密航を禁止する議定書
人身取引	• 人身売買 • 売春および性的人身売買	強制労働条約 海上労働条約 国連国際組織犯罪防止条約
不正品取引	• 違法薬物取引 • 保護種またはその部位の取引	1988 年の麻薬及び向精神薬の不正取引の防止に関する国際連合条約 絶滅のおそれのある野生動植物の種の国際取引に関する条約
海賊行為	• 海賊行為への関与 • 海賊行為のほう助	国連海洋法条約 国際慣習法

サメのヒレ切りの有罪判決

1.1.6 クライアントもしくはクライアントグループには、過去 2 年間にサメのヒレ切りの有罪判決を受けた船舶を含めてはならない。 ◙

1.1.6.1 船舶がサメのヒレ切りに関与したとして有罪判決を受けた場合、クライアントもしくはクライアントグループは、その船舶 を UoA、認証単位（UoC）及び漁業認証から 2 年間除外しなければならない。 ◙

a. クライアントもしくはクライアントグループは、船舶が除外された場合、直ちに審査機関にその旨を通知しなければならない。

b. クライアントもしくはクライアントグループは、船舶が除外されたことを実証するために、すべての関連情報を審査機関に提供しなければならない。 ◙

強制労働または児童労働による有罪判決

1.1.7 審査機関は、MSC 労働適格性要求事項の該当セクションを用いて、MSC の労働方針に関する漁業申請者及び認証取得者の適格性を判断しなければならない。

規範文書

以下の文書には、本文書で引用されることによって、MSC 漁業認証規格に含まれる規定が盛り込まれている。

以下の文書に関しては、発行されている最新版が適用される。

MSC 漁業認証規格のガイダンス

MSC 漁業認証プロセス（英語）

MSC 漁業認証プロセスのガイダンス（英語）

MSC-MSCI 用語集（英語）

MSC 漁業認証規格ツールボックス（英語）

用語と定義

用語及び定義はすべて、MSC-MSCI 用語集（英語）に明記されている。

MSC 漁業認証規格で使用される概念、用語、語句のうち、複数の定義を持つものについては、かかる用語や語句が使用されている本文内で定義されている。

SA: 通常審査ツリー

SA1　　全般

SA1.1　全般的な要求事項 ■

SA1.1.1　審査機関は MSC 漁業基準への漁業の適合を審査するにあたり、以下のことに焦点を当てなければならない。

a.　漁業管理プロセスの結果状況

b.　そうした結果を達成するために実施されている管理戦略。

SA1.1.2　審査機関は、リスクに基づいた審査枠組み（RBF）を使用する際には、MSC 漁業認証規格ツールボックスの Tool A（英語）の要求事項を適用しなければならない。

SA1.1.3　通常審査ツリーの修正が必要な魚種の審査に関しては当該魚種に関するセクションに従わなければならない。

SA2　原則 1

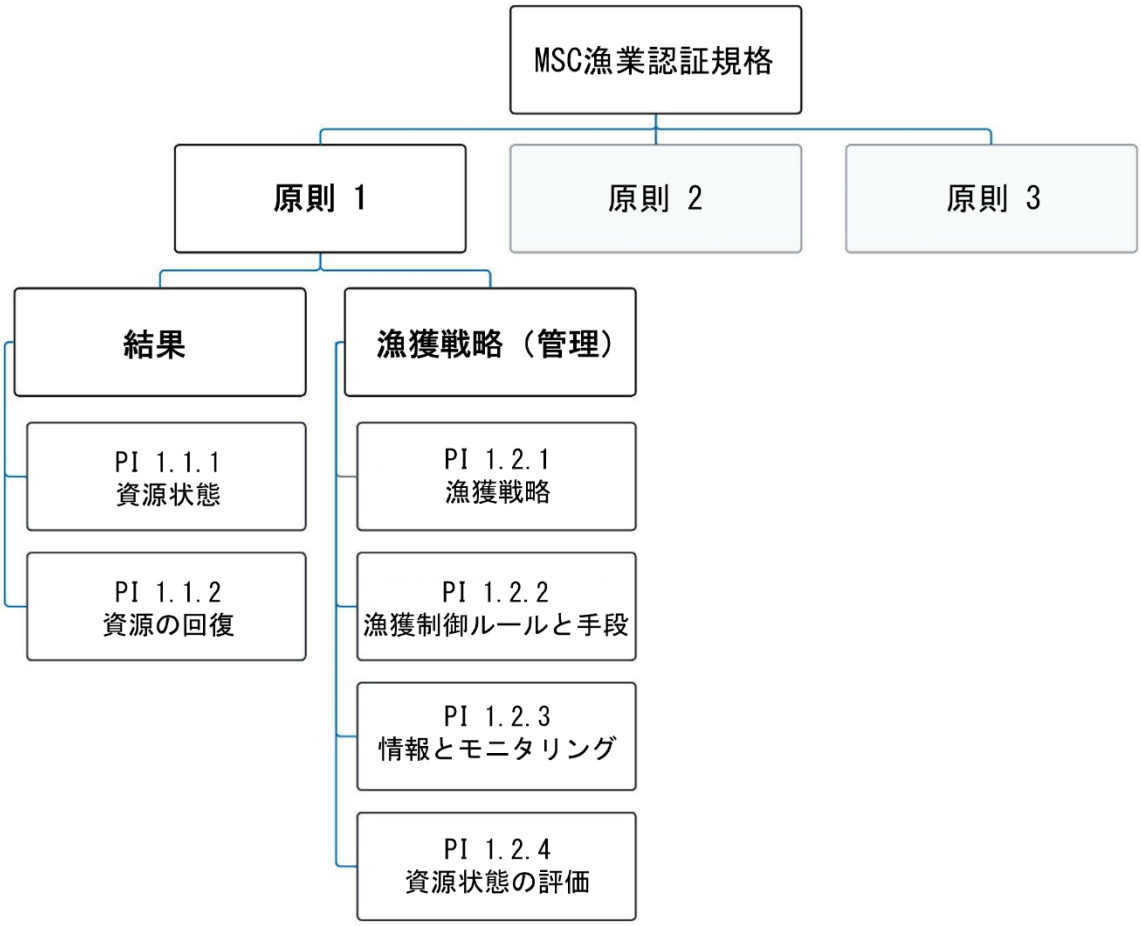


図 SA1: 原則 1 の通常審査ツリー構造

SA2.1　原則 1 に関する全般的な要求事項■

SA2.1.1　審査チームは、図 SA3 の決定ツリーと補足要求事項（SA3.2）を適用して、原則 1 の資源を決定しなければならない。 ■

SA2.1.2　審査単位（UoA）に含まれるすべての対象種について採点しなければならない。

SA2.1.3　P1 では定性的及び定量的評価をするために「可能性が高い」、「可能性がかなり高い」、「確実性が高い」という表現が使われていることに、審査チームは留意しなければならない。

SA2.1.3.1　確率的文脈及び評価項目(a)との関連においては：

a.　「可能性が高い」は、確率分布のパーセンタイル値が 70 以上という意味である。（すなわち、実際の資源状態が、明らかに加入が損なわれるリスクレベルよりも高い可能性が少なくとも 70%である。）

b.　「可能性がかなり高い」のパーセンタイル値は少なくとも 80 である。

c.　「確実性が高い」のパーセンタイル値は 95 以上である。

SA2.2　資源状態 業績評価指標（PI）（PI 1.1.1）■

表 SA1: PI 1.1.1 資源状態 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
結果	資源状態 1.1.1 資源は高い繁殖性を維持し、加入乱獲の可能性が低い	(a) 加入の損害に比較した資源状態	資源は、加入が損なわれるレベルより上の**可能性が高い**。	資源は、加入が損なわれるレベルより上にある**可能性がかなり高い。**	資源は、加入が損なわれるレベルより上にある**確実性が高い。**
		(b) MSY レベルの達成度に関する資源状態		資源は MSY レベル、あるいはそれに近いレベルで変動している。	資源は近年、MSY レベル周辺を変動、あるいはそれを上回っている**確実性が高い。**

資源状態の採点

SA2.2.1　業績評価指標（PI）1.2.4 評価項目(b)で確認されたように、すべての管理システムは管理基準値を設定しなければならない。

SA2.2.1.1　明示されていない場合は、意思決定ルールまたは管理方式（MP）の中に潜在的に示されていなければならない。 ◙

SA2.2.2　PI 1.1.1 の評価項目（b）を採点する場合、審査チームは以下を検討しなければならない。 ◙

a.　近年の魚種の生態及び資源状態。

b.　UoA 及び管理システムの規模と複雑さ。

c.　資源状態の変動を見るための対象期間を決める際のその他の関連事項。

SA2.2.2.1　根拠には、審査の対象期間についての詳細を含めなければならない。

SA2.2.3　PRI あるいは MSY レベルに対して資源がどのような状態にあるかに関する情報が得られない場合、審査チームは代替指標と管理基準値を用いて、業績評価指標（PI）1.1.1 を採点しなければならない。 ◙

SA2.2.3.1　PI1.1.1 の採点に代替指標と管理基準値を使用した場合、審査チームは、PRI および／または MSY の生物量評価にその指標を使用した根拠を示さなければならない。

SA2.2.3.2　審査チームが代替の管理基準値を用いて資源の生物量評価をし、代替の情報によって高い確信が得られる場合には、より高い得点を付けるべきである。 ◙

SA2.2.4　最近の漁獲死亡傾向を用いて資源状態を評価する場合、審査チームは漁獲死亡係数（F）が十分な期間に及んで低く、要求されている資源量のレベルを満たす可能性が高いことを実証しなければならない。 ◙

複合的資源◙

SA2.2.5　複数の魚種もしくは資源からなる複合的資源を対象とする漁業の場合、審査チームは以下のいずれかの方法を取らなければならない。

a. それぞれを別の UoA として扱う、もしくは、

b. PI 2.1.1 で検討される複数の認証適用範囲内の混獲種がある場合と同じように、一つの UoA 内で別々の採点要素として扱う。

SA2.2.5.1　いずれにせよ、審査チームは、どの SG においても、各資源の結果の「可能性」のレベルが SA2.1.2 で示されている「可能性」のレベルに到達しているという証拠を求めなければならない。

SA2.2.6　複合的資源として漁獲される魚種又は資源については、総体的な目標管理基準値（TRP）が以下の条件を満たすよう設定されていなければならない：

a. PI の意図と一貫しており、

b. 複合的資源の高い生産性を維持している

環境の変化の検討

SA2.2.7　審査チームは管理基準値が生態系の生産性と一貫していることを検証しなければならない。

SA2.2.7.1　PI 1.1.1 の採点に際して、漁業の生産性の変化が環境の自然変動によるものであれば、審査チームはそういった自然変動と連動した管理基準値の調整を認めるべきである。

主な低位栄養段階種（LTL）の確認

SA2.2.8　審査チームは、生態系における役割を保証するための予防策として、対象魚種、特に食物連鎖の下方にある魚種の栄養段階を考慮するべきである。

SA2.2.9　原則 1 の審査対象となっている魚種が以下の a もしくは b を満たしている場合、審査チームはそれを主な LTL 種として扱わなければならない。

a. ボックス SA1 に記載されている魚種の一つであり、成魚のライフサイクルにおいて、以下の副基準 i, ii, および iii の少なくとも２つを満たしており、生態系における重要な役割を担っている。

i. 多くの生態系における栄養段階の関係がこの資源を介しており、そのため捕食者はこの資源にかなり依存している。

ii. 低栄養段階から高栄養段階への大量のエネルギー移転がこの資源を介して行われる。

iii. 低栄養段階から高栄養段階へのエネルギー移転において、この資源と同じ栄養段階にある他の資源が少ないため、低栄養段階から高栄養段階への総エネルギー移転量の多くがこの資源を介している。（すなわち、「蜂腰」型の生態系である。）

b. ボックス SA1 に記載されている魚種ではないものの、SA2.2.9a.i-iii の副基準の少なくとも２つを満たしているだけでなく、次の基準をも満たしている。

i. この資源は主にプランクトンを餌としており、

ii. 小型で、成熟が早く、繁殖力が強く、寿命が短いことが特徴：既定値：成魚で体長 30cm、成熟期の平均年齢<= 2、一回の産卵数> 10,000、最大寿命< 10 年であり、

iii. 密集した群を形成する。

SA2.2.10　この資源が審査対象の生態系における主要な LTL 種ではないと判断した場合、審査チームは SA2.2.9 の副基準のいずれも満たしていないという証拠を提示し、判断の正当性を実証しなければならない。

SA2.2.10.1　SA2.2.9 の副基準に関する情報がない場合、この資源は副基準を満たしているものと仮定しなければならない。

SA2.2.10.2　主要な LTL 副基準（SA2.2.9a.i-iii）の根拠を明確に示すために、審査チームは以下を行わなければならない：

a. 空間的規模をどのように設定したかを文書化。

b. 設定した規模の妥当な根拠を示す。

SA2.2.11　主要な LTL 種であるかどうかの判断は、審査及び監査の度にその時の状態に基づいて行わなければならない。

ボックス SA1 ： MSC 認証審査にあたり、主要な LTL 種として特定される魚種。

含まれる科・目については ASFIS 漁業統計用種目リスト（FAO 2022 年）[1]を参照。

- イカナゴ科（イカナゴ）
- ニシン科（ニシン、メンヘーデン、ピルチャード、マイワシ、サッパ、スプラット）
- カタクチイワシ科（カタクチイワシ）
- オキアミ科（オキアミ）
- カラヌス属（カイアシ類）
- ハダカイワシ科（ハダカイワシ）
- キュウリウオ科（キュウリウオ、カラフトシシャモ）
- サバ属（サバ類）
- トウゴロウイワシ目（トウゴロウイワシ、サンドスメルト）
- ノルウェー・ビブ（*Trisopterus esmarkii*）

[1] FAO 2022. ASFIS List of Species for Fishery Statistics Purposes. Fisheries and Aquaculture Division. Rome. https://www.fao.org/fishery/en/collection/asfis/en [accessed on 12 August 2022].

主な低栄養段階種の採点

表 SA2: PI 1.1.1A 主な低栄養段階種の資源状態の PISG

構成要素	PI	評価項目	SG60	SG80	SG100
結果	資源状態 **1.1.1A** 資源状態は、生態系へ深刻な影響を与える確率が低いレベルにある。	(a) 生態系が維持できる資源状態。	資源は、生態系へ深刻な影響を与えるレベルよりも高い状態にある**可能性が高い**。	資源は、生態系へ深刻な影響を与えるレベルよりも高い状態にある**可能性がかなり高い**。	資源は、生態系へ深刻な影響を与えるレベルよりも高い状態にある**確実性が高い**。
		(b) 生態系のニーズを満たす資源状態。		資源は、生態系のニーズと合致したレベルにある、もしくはその周辺を変動している。	資源は近年、生態系のニーズと合致したレベルの周辺を変動、もしくはそれを上回っている**確実性が高い**。

SA2.2.12 審査チームは、主要な LTL 種として特定された資源を、PI 1.1.1 ではなく、 PI 1.1.1A に対して採点しなければならない。◙

a. 審査チームは、表 SA2 及び以下の関連要求事項 SA2.2.13 ～ SA2.2.17 を適用しなければならない。

SA2.2.13 PI 1.1.1A の評価項目(a)を採点する場合、「生態系へ深刻な影響を与えるレベル」を、加入が損なわれる（PRI）レベルよりもかなり高い、と解釈しなければならない。 ◙

a. そのような基準値は、漁業が行われていない場合に予想される総資源量(B_0)もしくは産卵親魚量(SSB_0)の 20%未満であってはならない。

SA2.2.14 審査チームは、PI 1.1.1A の評価項目（b）の採点にあたり、主要 LTL 種に対して以下を求めなければならない。 ◙

a. 生態系のニーズと合致した資源量レベルは、デフォルトとして漁業が行われていない場合の産卵資源の 75%に設定しなければならない。

b. しかし、漁業が行われていない場合に予想される B_0 または SSB_0 の最低 40%でも、審査対象の UoA/生態系について信頼できる生態系モデルまたは頑健な経験的データを用いて、以下のことが実証できる場合には、80 レベルのスコアを達成することができる。

i. 当該 LTL 種を対象とする漁業が行われていない場合に比べて、他種については 15%、他の栄養段階グループについては 40%を上回る生物量に影響を及ぼさない。

ii. どの生態系グループ（種または栄養段階グループ）に対しても、対象 LTL 種の漁獲が行われていない場合の生物量と比べて 70%以上の減少につながらない

SA2.2.15 審査チームは、評価項目（b）の SG100 において、資源に対する UoA の生態学的影響を考慮する際、より高い確実性を求めなければならない。

SA2.2.15.1 主要 LTL 種に 100 点を付ける場合、審査チームは生物量が SG80 の「生態系ニーズと合致するレベル」を「上回る」資源量の周辺で変動していることを実証しなければならない。

SA2.2.16 PI 1.1.1A の主要 LTL 種の採点において代替指標及び管理基準値が使用される場合、審査チームは、生態系に深刻な影響を与えるレベルではないこと及び生態系ニーズに合致するレベルであることを示すためにその代替指標及び基準点を使用する妥当性を示さなければならない。 ◙

SA2.2.16.1 資源状態について審査する際に漁獲死亡率が使われる場合、資源が生態系のニーズと合致したレベルの周辺を変動し続けられるために要求される漁獲死亡率は、デフォルトで以下の値をとる。

a. その種の自然死亡率を M とした場合の 0.5M、もしくは

b. 最大漁獲死亡係数（F_{MSY}）が単一種で決定されている場合の $0.5F_{MSY}$。

SA2.2.16.2 漁獲死亡率の代替を使って生態系に深刻な影響を与えるレベルを上回る資源状態を維持できているかを求める場合、加入が損なわれるレベルよりも高い資源量を保持できるように通常より低い漁獲死亡率を検討しなければならない。

SA2.2.16.3 これらのデフォルトのレベルからの逸脱は、SA2.2.14.b に合致していることが実証できれば正当とされる。

SA2.2.17 審査チームは、当該管理基準値に対する機能を評価する際、その生態系における対象種特有の加入変動を前提として行わなければならない。 ◙

SA2.3 資源の回復 PI（PI 1.1.2）■

表 SA3: PI 1.1.2 資源の回復に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
結果	資源の回復 1.1.2 資源状態が悪化している場合、ある一定期間内に資源が回復した証拠がある。	(a) 資源回復の時間枠	資源回復の時間枠は、**20 年以内、もしくは 2 世代分の期間内**のいずれか短い方と定められている。2 世代分の期間が５年未満である場合、回復期間は５年までとする。◙		資源の **1 世代**を超えない、最も期間が短い実現可能な回復策の時間枠が定められている。
		(b) 回復の評価	指定された時間枠内での資源回復に有効な計画かを判断するためのモニタリングが実施されている。	資源回復計画により、資源が回復していることを示す**証拠**がある、もしくはシミュレーション・モデリング、漁獲率、	資源回復計画により、資源が回復していることを示す**確固たる証拠**がある、もしくはシミュレーション・モデリング、漁

構成要素	PI	評価項目	SG60	SG80	SG100
				過去の実績から、**指定された時間枠内**に資源を回復させられる**可能性が高い**。	獲率、過去の実績から、**指定された時間枠内**に資源を回復させられる**可能性がかなり高い**。

SA2.3.1 PI 1.1.1/PI 1.1.A の得点が SG80 未満の場合、審査チームは PI 1.1.2 を採点しなければならない。

SA2.3.2 認証有効期間内に PI1.1.1/PI1.1.1A の得点が変化した場合、審査チームは PI1.1.2 を次のように更新しなければならない。

a. 得点が SG80 未満から SG80 以上に上がった場合、審査チームは PI 1.1.2 を PI の採点から外し、その条件はクリアされたと見なさなければならない。

b. 得点が SG80 未満に下がった場合、審査チームは資源状態の悪化を認識してから 12 カ月以内に PI 1.1.2 を採点しなければならない。

SA2.3.3 SG60 と SG80 の間の得点が付けられ、条件が設定された場合、審査チームは 1 認証有効期間内に条件を達成することを漁業に求めなければならない。 ◙

SA2.3.4 評価項目(b)において、資源が再建しているという明確な証拠がない限り、UoA の漁獲死亡率が入手できる場合の採点は以下の通りである。 ◙

a. SG80 を付けるためには、現在の漁獲死亡率(F)が MSY を達成するための漁獲死亡率(F_{MSY})以下である「可能性が高く」なければならない。

b. SG100 を付けるためには、現在の漁獲死亡率(F)が MSY を達成するための漁獲死亡率(F_{MSY})以下である「可能性がかなり高く」なければならない。

SA2.3.5 F_{MSY} および／もしくは B_{MSY} の代用となる資源評価および管理基準値を使用している UoA の場合、審査チームは代用基準のレベルと MSY レベルとの違いを念頭におきながら採点を行わなければならない。

SA2.4 漁獲戦略に関する PI (PI 1.2.1)

表 SA4: PI1.2.1 漁獲戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略（管理）	漁獲戦略 1.2.1 信頼性の高い、予防的な漁獲戦略が講じられている	(a) 漁獲戦略の立案 ◙	漁獲戦略により、PI 1.1.1/PI 1.1.1A SG80 を満たす資源管理目標を達成することが**期待できる**。	漁獲戦略は、資源状態と連動しており、その各要素は、PI 1.1.1/PI 1.1.1A SG80 を満たす管理目標の達成に向け、**相乗的に働く**。	漁獲戦略は、資源状態と連動しており、PI 1.1.1/PI 1.1.1A SG80 を満たす管理目標を達成するために**設計されたもの**である。

構成要素	PI	評価項目	SG60	SG80	SG100
		(b) 漁獲戦略の評価	実績や妥当な論拠に基づき、漁獲戦略が成功する**可能性が高い**。	漁獲戦略は**テスト**され、PI 1.1.1/ PI 1.1.1A SG80 を満たす目標を達成することが期待されている、 もしくは PI 1.1.1/ PI 1.1.1A SG80 を満たす目標を達成しつつあるという証拠がある。	漁獲戦略の業績は**徹底的に評価**され、明らかに目標管理基準値付近の資源状態を維持できることを含む、PI 1.1.1/ PI 1.1.1A SG80 を満たす目標を達成しつつある証拠がある。
		(c) 漁獲戦略のモニタリング	漁獲戦略が効果的かどうかを判断するためのモニタリングが導入されている。		
		(d) 漁獲戦略のレビュー			漁獲戦略は定期的に見直され、必要に応じて改善されている。
		(e) シャーク・フィニング	サメのヒレ切りが行われていない**確実性が高い**。		

構成要素	PI	評価項目	SG60	SG80	SG100
		(f) 代替措置の検討	UoA による、対象資源の**不要漁獲物**の死亡を、最小限に抑えるための**代替措置**の検討が行われている。	UoA による、対象資源の**不要漁獲物**の死亡を、最小限に抑えるための**代替措置の検討**が 5 年毎に行われ、当該措置が適切に実施されている。	UoA による、対象資源の**不要漁獲物**の死亡を、最小限に抑えるための**代替措置の検討**が 2 年毎に行われ、当該措置が適切に実施されている。

SA2.4.1 審査チームは以下の解釈を用いなければならない。

a. SG80 及び SG100 の評価項目(a)における「連動している」という文言は、管理システムが漁獲戦略の様々な要素の開発と実施に適応し、必要に応じてその管理システムに基づくアクションが取られることを意味する。

b. SG100 の評価項目(a)における「設計」という文言は、管理戦略評価（MSE）を通じて開発された管理方式（MP）を含む漁獲戦略を意味する。

c. SG80 評価項目(b)における「テストされている」という文言は、漁獲戦略の選定を裏付ける何らかの論理的に組み立てられた議論及び分析があること」を意味する。

d. SG100 評価項目(b)における「評価されている」という文言は、「UoA の規模と複雑さに適した不確実要素に対する堅牢性がテストされた」という意味である。

SA2.4.2 条件を付与する際、新しい漁獲制御ルール及び資源評価方法が他に追加で情報を必要とする場合、審査チームは以下のいずかを確認しなければならない

a. 情報はすでにある、もしくは、

b. 情報は付与された条件に含まれている。

サメのヒレ切り（シャーク・フィニング）

SA2.4.3 対象種がサメの場合、審査チームは評価項目（e）について採点しなければならない。

SA2.4.3.1 審査チームは、「サメ」という用語を、分類群 Selachimorpha 及び Rhinopristiformes に属するすべての種を指すものと解釈しなければならない。

SA2.4.4 評価項目(e)の SG60 において、審査チームは以下のことを行わなければならない。

a. 採捕されたすべてのサメについてサメのヒレ切り防止（FNA）の方針が適用されていることを確認する。

i. UoA がサメを採捕しない場合、採捕しない方針があることを確認する。

b. 「MSC 漁業認証規格ツールボックス」の Tool B「情報の正確性と信頼性の枠組み（ERF）」を適用し、FNA もしくは採捕防止の方針が講じられていること確認するために使用されている情報が、極めて正確であることを立証する。

不要漁獲物

SA2.4.5 P1 の対象資源に「不要な漁獲」があった場合、審査チームは評価項目(f)を採点しなければならない。

SA2.4.5.1　評価項目(f)を P1 の対象資源に適用する場合、審査チームは SA3.1.1.e（GSA3.1.1.e を含む）、SA3.3.4 及び SA3.7.2 に留意しなければならない。

SA2.4.5.2　評価項目(f)を P1 の対象資源に適用する場合、審査チームは流出漁具による「不要な漁獲」の死亡率を最小限に抑えるための「代替措置」の検討を含めなければならない。

SA2.5　漁獲制御ルールと手段 PI　（PI 1.2.2）　■

表 SA5: PI1.2.2 漁獲制御ルールと手段 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略	漁獲制御ルール及び手段 1.2.2 明確に定義された、効果的な漁獲制御ルール（HCR）が存在する。	(a) 漁獲制御ルールの立案及び適用◙	**一般的に理解されている**漁獲制御ルールが講じられており、加入が損なわれる基準（PRI）に近づいたときに漁獲率を下げることが**期待されている**。	**明確な**漁獲制御ルールが存在し、PRI に近づいたときに漁獲率を確実に下げ、資源状態を MSY に相当するレベル（もしくはそれ以上のレベル）または主要 LTL 種の場合、生態系のニーズに相当するレベルで変動させる働きがある。	漁獲制御ルールは、資源状態を MSY、あるいは資源の生態的役割を考慮にいれた、より適切なレベルと同等、もしくそれ以上のレベルで変動させる働きが**殆ど常に**ある。
		(b) 漁獲制御ルールの堅牢性◙		漁獲制御ルールは、主な不確実要素に対して堅牢である**可能性が高い**。	漁獲制御ルールは、資源の生態学的役割を含む**多様**な不確実要素を考慮に入れており、漁獲制御ルールが主な不確実要素に対して堅牢であることを示す**証拠**がある。
		(c) 漁獲制御ルールの評価 ◙	漁獲制御ルールで利用されるもしくは**利用可能**な手段は漁獲規制に適切で効果的	漁獲制御ルールで求められている漁獲レベルを達成するため、適切で効果的な手	漁獲制御ルールで求められている漁獲レベルを達成するため、適切で効果的な手

構成要素	PI	評価項目	SG60	SG80	SG100
			であるという**証拠がいくつかある。**	段が実施されていることが**入手可能な証拠によって示されている。**	段が実施されているという**明確な証拠がある。**

SA2.5.1 審査チームは、SG100 では、限界管理基準値（LRP）をはるかに上回る資源状態を維持できるよう、追加で予防的アプローチを盛り込んだ漁獲制御ルールを要件にするべきである。

SA2.5.2 審査チームは HCR について以下の解釈をしなければならない。◙

a. SG60 における「一般的に理解されている」とは、過去に何らの形で適用されていたことが示せるが、明確に定義もしくは合意されていないことを意味する。

b. SG80 における「明確に定義されている」とは、（理想的にはステークホルダーとの協議をもとに）管理機関によって合意された HCR が何らかの文書で存在し、具体的にどの TRP レベルでどのような行動を取るかが示されていることを意味する。

c. SG60 及び SG80 において「講じられている」とは、HCR が管理機関によって採択されている、及び／もしくは必要に応じて管理のための行動が取られたことを示す証拠もしくは文書が存在することを意味する。

SA2.5.3 評価項目(a)の SG100 を採点する際に、定量的シミュレーション試験が「ほとんどの場合」利用可能である場合、審査チームは、資源が少なくとも 70%の確率で B_{MSY} または生態学的により関連性の高い目標管理基準値以上に維持されていると解釈しなければならない。

漁獲制御ルールの有効性評価 ◙

SA2.5.4 評価項目(c)における「証拠」について採点する際、審査チームは入手可能な場合には、漁獲係数や漁獲割合などによって測定できる UoA の現漁獲率をも検討しなければならない。

SA2.5.4.1 評価項目（c）における漁獲制御ルールの有効性を評価する際に、長期的に MSY を達成するための漁獲率に関する情報が得られない場合には、代替指標および管理基準値を使用してもよい。審査チームは、利用可能な代替指標と管理基準値が使用されている場合、漁獲率の合理的な代替措置としての正当性を示さなければならない。

SA2.6 情報とモニタリングに関する PI（PI 1.2.3）

表 SA6： PI1.2.3 情報とモニタリング PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略	情報／モニタリング 1.2.3	(a) 情報の範囲	漁獲戦略を裏付けるため、資源構造や生産性、船団構成などの関連情報が**い**	漁獲戦略を裏付けるため、資源構成、生産性、船団構成及びその他の**関連情報**が**十分**収集されている。	現行の漁獲戦略に直接関連のない情報をも含む（資源構成や生産性、船団構成、資源の豊かさ、UoA の捕獲

構成要素	PI	評価項目	SG60	SG80	SG100
	漁獲戦略を裏付ける関連情報が収集されている。		**くらか**収集されている。		量や環境に関する情報などについての）**包括的な情報**を入手することができる。
		(b) モニタリング ▫	資源の豊かさや UoA による漁獲量がモニタリングされ、漁獲制御ルールを裏付けるために**少なくとも一つの指標**が適切な頻度でモニタリングされている。	漁獲制御ルールで定められている精度及び範囲で、資源の豊かさや UoA による漁獲量が**定期的にモニタリングされ、漁獲制御ルールを裏付けるために少なくとも一つ以上の指標**が適切な頻度でモニタリングされている。	漁獲制御ルールを実施するために必要な**すべての情報**が頻繁に、確実性が高い方法でモニタリングされ、情報に潜在的な**不確実性**があることがよく理解されており、そうした不確実性に対する堅牢性の高い評価と管理が行われている。
		(c) 情報の包括性 ◙		同資源の対象漁業以外の漁獲に関しても充実した情報がある。	

SA2.6.1　原則 1 における資源状態を検討するにあたり、審査チームは観測されている死亡率と観測されていない死亡率に関する情報を考慮しなければならない。

SA2.6.2　審査チームは、SA2.6.3 の情報カテゴリーのどの情報が漁獲戦略の作成や実施段階において適切かを見極めなければならない。

SA2.6.2.1　審査チームは、この情報に基づいて評価を行うべきである。

SA2.6.3　審査チームは、この PI に関しては、入手可能なデータの質、及び漁獲戦略、漁獲制御ルール及び管理手段への関連性といった情報カテゴリーの重み付けを組み合わせた評価を行わなければならない。情報のカテゴリーは以下の通りである。 ▫

a. 資源構成

b. 資源の生産性

c. 船団構成

d. 資源の豊かさ

e. UoA による漁獲量

f. その他のデータ

SA2.6.4　SG80 レベルにおいて「情報が十分」というのは、PI1.1.1 の SG80 を満たしていることを実証するために必要なすべての情報が質的にも量的にも提供されている、と解釈しなければならない。

SA2.6.5　SG100 レベルにおいて「包括的な情報」および「すべての情報」というのは、包括的な研究計画によって得られた情報を含むものとして解釈しなければならない。

SA2.6.5.1　当該情報は、短期間の管理ニーズだけでなく、UoA の長期管理システムに係る研究体制のために使用されなければならない。

SA2.6.6　審査チームは情報の正確性をも検討しなければならない。

SA2.7　資源状態の評価 PI　(PI 1.2.4) ■

表 SA7:　PI 1.2.4 資源状態の評価　PISG

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略	資源状態の評価 1.2.4 資源状態について十分な評価が行われている	(a) 資源評価の適切さ		資源評価は、資源及び漁獲戦略にとって適切である。	資源評価は、魚種の生態学的特性や UoA の特徴に関連する主要な要素を考慮に入れている。
		(b) 資源評価のアプローチ	資源評価は、魚種の分類群に適した一般的な管理基準値と関連した資源状態を推定している。	資源評価は、資源に適した、推定可能な管理基準値と関連した資源状態を推定している。	
		(c) 資源評価の不確実性	資源評価は、**主な不確実性の原因を明らかにしている。**	資源評価は、**不確実性を考慮に入れている。**	資源評価は、不確実性を考慮にいれ、**確率的な方法**で管理基準値と比較した資源状態を査定している。
		(d) 資源評価の査定			資源評価は分析され、堅牢であることが示されている。代替的な仮説や資源評価のアプロー

構成要素	PI	評価項目	SG60	SG80	SG100
					チの検討も徹底的に行われている。
		(e) 資源評価のピアレビュー		資源評価はピアレビューされる。	資源評価は**内外**のピアレビューを受けている。

SA2.7.1 SG80 において、単一魚種の複数の亜系群や、複数魚種の複合（SA2.2.5 を参照）を含む資源評価について審査する場合、審査チームは、資源複合における個々の資源に求められる資源評価のレベルは、それらの魚種の生態学的な重要性を反映していなければならないことを考慮するべきである。

SA3　原則 2 ■

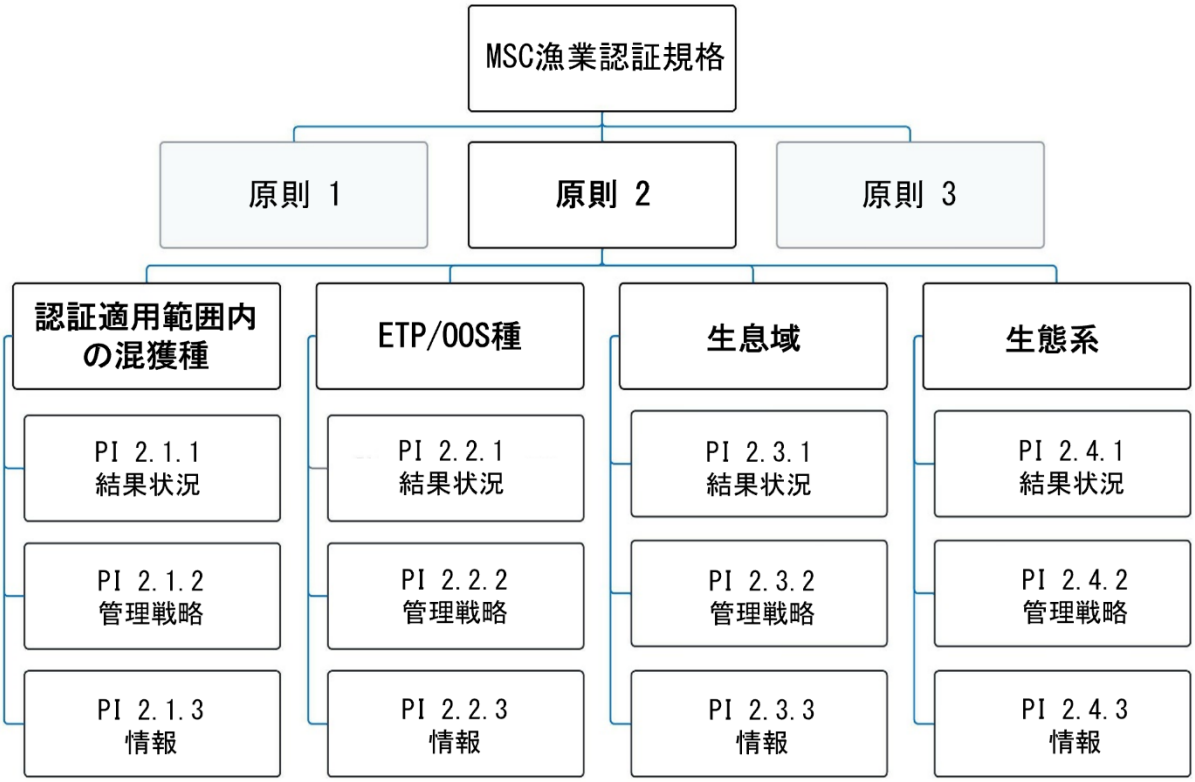


図 SA2：原則 2 通常審査ツリー

SA3.1　原則 2 に対する全般的な要求事項 ■

SA3.1.1　審査チームは、原則 2 で使用される用語を以下のように解釈しなければならない。

a. 「回復を妨げない」とは、その UoA の影響が十分に低いため、資源が改善できる状態にある場合には、UoA は改善を妨げないという意味である。

b. 「講じられている」とは、措置、部分的な戦略、戦略、包括的戦略が、その UoA において完全に実施されていることを意味する。

c. 「最小限に抑える」とは、達成可能な最低レベルまで削減することである。

i. 達成可能な最低レベルについて判断する際、も審査チームは各構成要素の要求事項を考慮しなければならない。

d. 「審査対象に含めなくてもよい」は、種の分類群によって 2 つの定義がある。◙

i. 両生類、鳥類、哺乳類、爬虫類（認証適用範囲外の混獲種）の場合、審査対象に含めなくてもよいとは、UoA による総死亡率の平均推定値が年間 10 個体未満であり、繁殖個体数の推定値の下限が 5,000 個体以上であること。

ii. 魚類または無脊椎動物種の場合、審査対象に含めなくてもよいとは、UoA の総漁獲量が極めて大きい場合を除き、UoA による死亡率が UoA の総漁獲量の 2%未満であること。◙

e. 「不要な漁獲」とは、漁獲物のうち、漁獲するつもりはなかったが、避けることができず、不必要、もしくは利用する意図のない漁獲物のことである。◙

SA3.2　原則 2 の種の指定と分類

SA3.2.1　審査チームは、UoA との遭遇が文書化された全ての種を識別しリスト化しなければならない。◙

ステップ 1 - 生息域の分類

SA3.2.2　審査チームは、絶滅危惧種・保護種(ETP 種)か否かを問わず、漁獲割合に関わらず、底生生息域を構成する無脊椎動物種を生息域の得点要素に分類しなければならない。

ステップ 2 -審査対象に含めなくてもよい相互作用の識別

SA3.2.3　審査チームは SA3.2.1 に従って特定、リスト化された種と UoA との相互作用が SA3.1.1.d の「審査対象に含めなくてもよい」の定義を満たすか判断しなければならない。◙

SA3.2.3.1　SA3.1.1.d に従い、UoA との相互作用が「審査対象に含めなくてもよい」かどうかを判断する情報が不十分な場合、審査チームはその相互作用を「審査対象に含めなくてもよい」に分類してはならない。

SA3.2.3.2　UoA との相互作用を「審査対象に含めなくてもよい」種に分類した場合審査チームは以下のいずれかに該当しない限りその種を採点要素として評価してはならない：

a. その種が海洋哺乳類であり、その種の意図的なハラスメント又は殺生が、SA3.9.3 に基づいた漁業操業の不可欠な部分である、又は

b. UoA との相互作用が「審査対象に含めなくてもよい」全ての種を、ある構成要素に対して採点することを決定している場合。◙

SA3.2.3.3　審査チームは、「MSC 審査報告書用テンプレート」及び「MSC 監査報告書用テンプレート」において、UoA との相互作用が「審査対象に含めなくてもよい」と分類されている全ての種をリスト化しなければならない。

ステップ 3 - 分類

SA3.2.4　審査チームは、SA3.2.5～SA3.2.10 及び図 SA3 の決定ツリーに従い、残りの全ての種（SA3.2.3 により UoA との相互作用が審査対象に含めなくてよいと分類されなかった種）を、以下の原則 2 の構成要素のいずれかに該当する得点要素として分類しなければならない：◙

a. 認証適用範囲内の混獲種

b. ETP/（OOS）種

c. 生息域

SA3.2.4.2　複数の UoA を評価するにあたり、審査チームは他の UoA の P1 種を原則 2 の採点要素に分類してはならない。

ステップ 4 –ETP/OOS の分類チェック 1

SA3.2.5　以下の種の場合、審査チームはその種を ETP/OOS の採点要素に分類しなければならない：

a. 両生類、爬虫類、鳥類、哺乳類（OOS 種）に分類されている、または、

b. 魚類または無脊椎動物に分類され、以下のいずれかに記載されている種：

i. 移動性野生動物種の保全に関する条約（CMS）附属文書 1

ii. 絶滅のおそれのある野生動植物の種の国際取引に関する条約（CITES）の附属文書 1

iii. CITES 付属文書 2、当該種が関連管理当局により輸出および取引が許可されていない場合

iv. 国際自然保護連合の絶滅危惧種（IUCN レッドリスト）で、「深刻な危機」(Cr) に分類されている種（ただし、IUCN が定義する「要更新」と判断された場合を除く）。

v. IUCN レッドリストに掲載され、「危機（En）」または「深刻な危機(Cr)」に分類されている軟骨魚類（「要更新」であるかどうかを問わず）。

SA3.2.6 審査チームは、SA3.2.5 に記載された基準により、ETP/OOS 種構成要素の採点要素とされた種の分類を変更してはならない。

ステップ 5 - ETP/OOS 種の分類　チェック 2

SA3.2.7 審査チームは、種が以下のいずれかに記載されている場合、その種を ETP/OOS 種の採点要素に分類しなければならない：

a. CMS 附属文書 2

b. CITES 附属文書 2(当該種が関連管理当局によって輸出及び取引が許可されている場合)

c. IUCN レッドリストで世界的に「En」に分類されている。

d. IUCN レッドリストに記載され、「Cr」に分類され、IUCN が定義する「要更新」と判断される種。

e. 国内絶滅危惧種関連法規（ただし、漁業管理がその種を対象とすることを法律で認められている場合を除く）◙

SA3.2.8 審査チームは、SA3.2.7 に従った ETP/OOS の採点要素としての種の分類が、SA3.2.9 に従った修正の対象となるかどうかを判断しなければならない。

ステップ 6 -変更基準

SA3.2.9 審査チームは、以下の変更基準のうち少なくとも 2 つが満たされる場合、（SA3.2.7 に従って決定された）ETP/OOS 種の採点要素としての種の分類を、認証適用範囲内の種の採点要素に変更することができる：

a. 生活史特性：その種は、繁殖力が高い属性であることが実証されており、本来漁獲に対して復元力がある。

i. 「MSC 漁業認証規格ツールボックス」の表 A8 を適用し、資源／種の総合平均生産性スコアが 2 未満であれば、この基準を満たしたと審査チームは判断するものとする。

b. 管理状態：資源は LRP または TRP（または同等）に反映された資源管理目標の達成を意図した措置もしく管理手段の対象となっている。

c. 資源状態：資源は高い生産性を維持する水準にある。

i. 審査チームは、資源が PI1.1.1 の評価項目(b)の SG80 の達成に合致し、資源量が MSY に合致した水準にあるか、その前後で変動している場合、この基準を満たしているものとする。

ii. 審査チームは、ピアレビューされた資源評価からの情報を用いて、PI 1.2.4 の評価項目(e)の SG80 に合致しているかどうかを判断するものとする。

SA3.2.9.1 審査チームは、修正基準を裏付ける情報が IUCN の評価よりも新しい場合にのみ、SA3.2.7d に基づく分類の修正を実施するものとする。

ステップ 7 - 「認証適用範囲内の混獲種」の分類

SA3.2.10 以下の場合、審査チームはその種を認証適用範囲内の混獲種の採点要素として分類するものとする：

a. 原則 1 で評価されていない種である。

b. ETP/OOS 種の採点要素に分類されていない種である。

c. SA3.2.9 に従って分類が修正された種である

d. UoA によって漁獲されたものであれ、他から購入されたものであれ、UoA で餌として使用される種である◙

ステップ 8 -分類の確認

SA3.2.11 審査チームは、MSC 審査報告書用テンプレートに原則 2 の全ての採点要素のリストを記載しなければならない。

SA3.2.11.1 リストには以下を含めなければならない：

a. それぞれの種の学名。

b. 別々の採点要素として評価する場合、それぞれの資源の詳細。

c. 採点要素の構成要素。

d. 分類の根拠。

e. ETP/OOS 種から認証適用範囲内の種への構成要素の採点要素に分類を修正した根拠。

SA3.2.12 審査チームは、原則 2 の構成要素に分類された各種の採点要素を評価しなければならない。

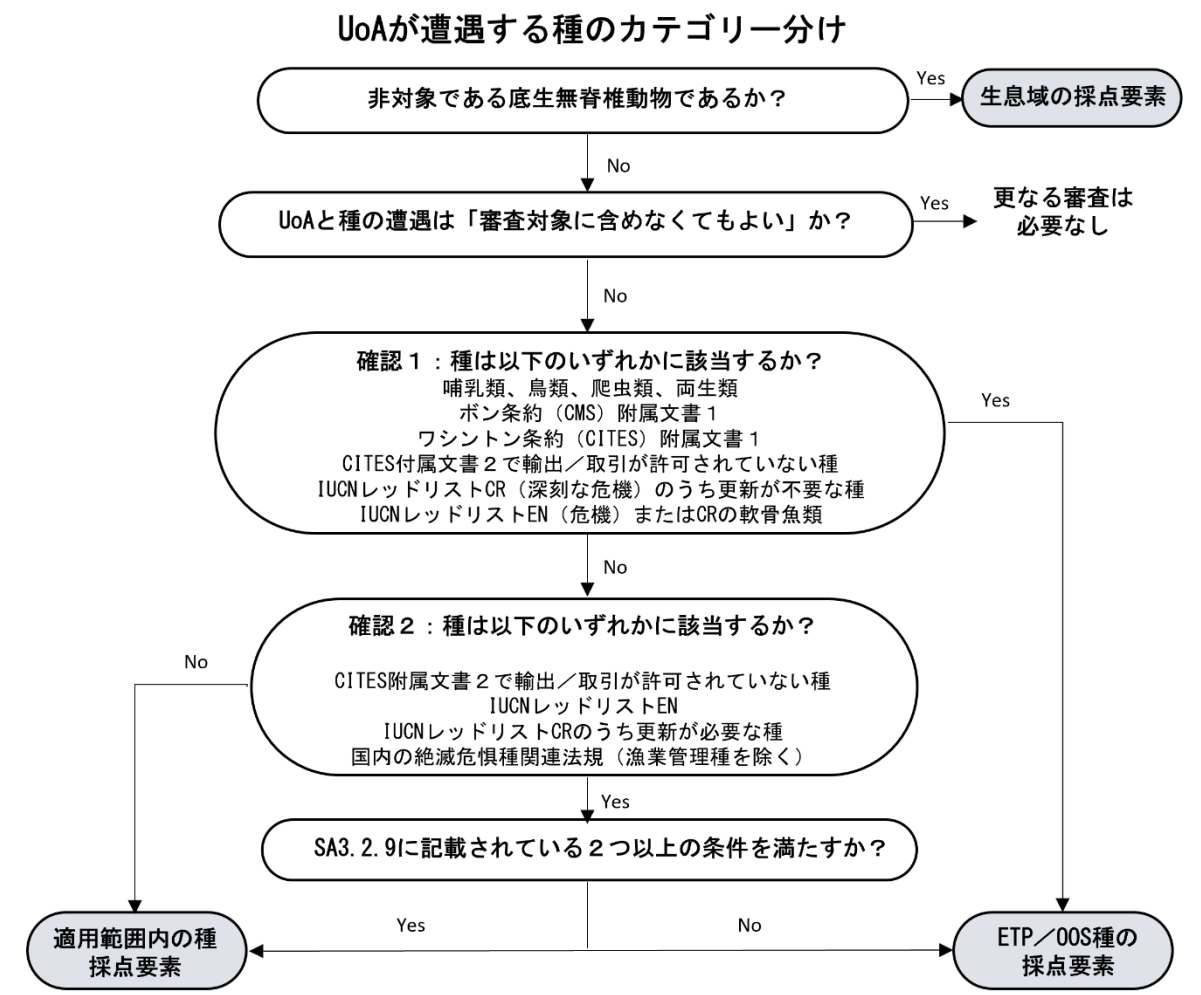


図 SA3: 種の分類のための決定ツリー

SA3.3 結果の PI に対する全般的な要求事項 ■

SA3.3.1 審査チームは、原則 2 における得点基準で要求される確率の定義を表 SA8 に従って解釈しなければならない。◙

表 SA8：異なる採点基準で要求される確率

業績評価指標	SG60 で要求される確率	SG80 で要求される確率	SG100 で要求される確率
PI 2.1.1	「可能性が高い」パーセンタイル値は 70 以上	「可能性がかなり高い」パーセンタイル値は 80 以上	「確実性が高い」パーセンタイル値は 90 以上
PI 2.2.1	「可能性は低い」パーセンタイル値は 70 以上	「可能性は極めて低い」パーセンタイル値は 80 以上	「確実性が高い」パーセンタイル値は 95 以上
PI 2.3.1 及び PI 2.4.1	パーセンタイル値は 40 以下	「可能性は極めて低い」パーセンタイル値は 30 以下	「可能性は極めて低いという証拠がある」パーセンタイル値は 20 以下

業績評価指標	SG60 で要求される確率	SG80 で要求される確率	SG100 で要求される確率
PI 2.1.2d 及び PI 2.2.2d	「確実性が高い」パーセンタイル値は 95 以上		

SA3.3.2 特定の構成要素の採点要素がない場合、審査チームは結果 PI の得点を 100 としなければならない。

SA3.3.3 審査チームは、管理及び情報の PI についても採点を行わなければならない。

SA3.3.4 原則 2 の結果の PI を採点する際、審査チームは、漁具流出の影響も含め、実際に観測された死亡率と観測されていない死亡率を評価しなければならない。◙

SA3.3.4.1 審査チームは、実際に観測された死亡率と観測されていない死亡率の評価を採点の根拠として文書化しなければならない。

SA3.4 管理の PI に対する全般的な要求事項 ◙

SA3.4.1 審査チームは使用されている用語を以下のように解釈しなければならない。

a. 「措置」とは、業績評価指標の上位にくる構成要素への影響を明確に管理するもの。もしくは、別の構成要素への影響を管理するために発案されたものの、当該構成要素の管理に間接的に役立っている行動または手段を意味する。

b. 「部分的な戦略」とは、ある結果を得るために講じられた、1 つ以上の措置からなるまとまった取り決めのことであり、結果を達成するためにそれらの措置がどのように機能するかを理解し、効果が得られなくなった時点で措置を変更する必要性を認識していなければならない。 「部分的な戦略」は、その構成要素への影響を直接的に管理することを目的として立案されたものでない場合がある。

c. 「戦略」とは、ある結果を得るために講じられた、1 つ以上の措置からなるまとまった戦略的な取り決めのことであり、結果を達成するためにそれらの措置がどのように機能するかを理解していなければならない。「戦略」は、当該構成要素への影響を直接管理するために立案されたものでなければならず、漁業の規模、複雑さ、文化的背景に応じたものである必要があり、容認できない影響が発覚した場合には漁業慣行を修正するための方法が組み込まれていなければならない。

d. 「包括的戦略」とは、モニタリング、分析、管理措置及び対応を網羅し、テストされた 戦略を意味する。この用語は、ETP/OOS 種の構成要素にのみ適用される。

SA3.5 情報の PI に対する全般的な要求事項 ■

SA3.5.1 審査チームは、SG100 レベルにおける「戦略をサポートするのに十分な情報」を、管理に必要な情報（収集）に対応するための戦略的な研究計画によって提供される情報を含むものであり、当面の短期的な管理に必要なものにとどまらず、長期的な漁業管理システムに関連する戦略的な調査体制を構築する情報と解釈しなければならない。

SA3.6 認証適用範囲内の混獲種に関する結果 PI（PI 2.1.1）

表 SA9: PI 2.1.1 認証適用範囲内の混獲種に関する結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
認証適用範囲内の混獲種	結果状況 2.1.1 UoA は適用範囲内の混獲種を 加入が損なわれるレベル(PRI)より上を維持することを目標とし、PRI に満たない場合には適用範囲内の混獲種の回復を妨げていない。	(a) **主な**適用範囲内の混獲種の資源状態	**主な**適用範囲内の混獲種の資源状態は、PRI レベルより上にある**可能性が高い**。 または、 その種が PRI に満たない場合、UoA は資源の回復と再建を妨げていない**可能性が高い**。	**主な**適用範囲内の混獲種の資源状態は、PRI レベルより上にある**可能性がかなり高い**。 または、 その種が PRI に満たない場合、回復の証拠がある、または UoA が資源の回復と再建を妨げていない**可能性がかなり高い**。	**主な**適用範囲内の混獲種は MSY レベル付近で変動している**確実性が高い。**
		(b) **その他の**適用範囲内の混獲種の資源状態			**その他の**適用範囲内の混獲種は資源状態が PRI レベル以上である**可能性がかなり高い** または PRI に満たないその他の適用範囲内の混獲種の場合、がその資源の回復と再建を妨げていない証拠がある。

SA3.6.1 PRI もしくは MSY レベルに対する資源状態の情報が入手できない場合、審査チームは SA2.2.3 に従って代替指標及び管理基準値を使用しなければならない。 ◙

SA3.6.2 審査チームは認証適用範囲内の混獲種のうち、「主な」ものと「その他」に分類しなければならい。◙

SA3.6.2.1 審査チームはその分類の根拠を示さなければならない。

SA3.6.3 以下の採点要素については、「主な」適用範囲内の混獲種と見なさなければならない。

a. UoA による全ての種の総漁獲重量の 5%以上を占める種である、もしくは

b. 「繁殖力が低い」種に分類され、UoA による全ての魚種の総漁獲重量の 2%以上を占める種である、もしくは ◙

i. 以下の場合、審査チームはその種を「繁殖力が低い」種として特定しなければならない：

A. 本質的に繁殖力が低い種であることがその種の繁殖力から伺える。

B. 本質的な繁殖力は高いものの、人為的もしくは自然発生的な生活史の変化により、繁殖力が低下してしまっていることが既存の知識から伺える。

c. サメ類にあたる種で、漁業クライアントはサメのヒレを取引している。 ◙

SA3.6.3.1 採点要素が SA3.6.3a および b に満たない場合でも、UoA の総漁獲量が極めて多い場合には、審査チームは当該採点要素を「主な」適用範囲内の混獲種に分類しなければならない。◙

SA3.6.4 審査チームは、「主な」適用範囲内の混獲種に分類されない全ての採点要素を「その他の」種に分類しなければならない。

SA3.6.5 「主な」適用範囲内の混獲種の採点要素がない場合、審査チームは評価項目（a）に 100 点を付けなければならない。

SA3.6.6 「その他の」適用範囲内の混獲種の採点要素がない場合、審査チームは評価項目（b）に 100 点を付けなければならない.

SA3.6.7 SG80 レベルにおいて、評価項目（a）を採点する場合、種の資源状態が、加入が損なわれるレベルよりも低い可能性がある場合、審査チームは以下のうち少なくとも一つを根拠として、「回復している証拠」を認識しなければならない。 ◙

a. 資源状態の時系列推定値による直接的証拠。

b. 資源全体の状態を示す時系列の資源指標もしくは代替指標を用いた間接的な証拠。

c. 漁獲死亡率はこの資源の F_{MSY} より低いことを示す指標、代替指標、もしくは漁獲率の絶対的推定値。

d. 当該資源の総漁獲量における UoA の漁獲割合が、回復を妨げるものでないという直接的な証拠。

SA3.7　認証適用範囲内の混獲種の管理戦略 PI(PI 2.1.2)

表 SA10：PI2.1.2 認証適用範囲内の混獲種の管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
認証適用範囲内の混獲種	管理戦略 2.1.2 適用範囲内の混獲種を維持、もしくは回復を妨げないための戦略が講じられている。	(a) 管理戦略が講じられている。◙	「適用範囲内の混獲種の結果 PI」が SG60 を満たすレベルで、**主な**適用範囲内の混獲種を維持、もしくはその回復を妨げないことが期待できる措置が、**必要に応じて** UoA で講じられている。	「適用範囲内の混獲種の結果 PI」が SG80 を満たすレベルで、**主な**適用範囲内の混獲種の**部分的な管理戦略**が UoA で講じられている。または、「適用範囲内の混獲種の結果 PI」が SG80 に満たない場合、この種を主な適用範囲内の混獲種に分類する全ての MSC UoA の累積的影響が確実に回復を妨げない、明らかに効果的な戦略が講じられている。	「適用範囲内の混獲種の結果 PI」が SG80 を満たすレベルで、**主な**適用範囲内の混獲種および**その他**の適用範囲内の混獲種の**管理戦略**が UoA で講じられている。
		(b) 管理戦略の効果 ◙	その措置は、必要に応じて、妥当な論拠に基づき、**主な**適用範囲内の混獲種に対して効果を上げる**可能性が高い**と考えられる。	UoA 及び／あるいは、関係する種に関する直接的な情報から判断して、措置・部分的な戦略が**必要に応じて**、評価項目(a)で示された**主な**適用範囲内の混獲種の目標を達成していることを示す何らかの**証拠**がある。	UoA 及び／あるいは、関係する種に関する直接的な情報から判断して、部分的な戦略／戦略が評価項目(a)で示された目標を達成している**証拠がある**。

構成要素	PI	評価項目	SG60	SG80	SG100
		(c) 代替措置の検討	UoA が関連する**主な**適用範囲内の混獲種の**不要漁獲**による死亡を最小限に抑えるための**代替措置が検討**されている。	UoA が関連する**主な**適用範囲内の混獲種の**不要漁獲**による死亡を最小限に抑えるための**代替措置の検討**が、少なくとも 5 年毎に行われ、**適切に実施されている**。	UoA が関連する全ての適用範囲内の混獲種の**不要漁獲**による死亡を最小限に抑えるための**代替措置の見直し**が、2 年毎に行われ、**適切に実施されている**。
		(d) サメのヒレ切り（シャークフィニング）	サメのヒレ切りが行われていない**確実性が高い**。		
		(e) 流出漁具（ゴーストギア）の管理戦略	UoA は、**必要に応じて**、流出漁具とそのすべての適用範囲内の混獲種への影響を最小限に抑えることが期待される措置を講じている。	UoA は、**必要に応じて**、流出漁具とそのすべての適用範囲内の混獲種への影響を最小限に抑えることが期待される部分的戦略を講じている。	UoA は、**必要に応じて**、流出漁具とそのすべての適用範囲内の混獲種への影響を最小限に抑えることが期待される戦略を講じている。

SA3.7.1　評価項目(a)および(b)において、「主な種」の採点要素がない場合、審査チームは 「必要に応じて」という用語を適用しなければならない。

SA3.7.1.1　評価項目(a)および(b)に対し審査チームは SG80 の得点を付けなければならない。

SA3.7.1.2　評価項目(a)および(b)についても、SG100 に対する評価をしなければならない。

「不要漁獲物」を削減する 「代替措置」の検討

SA3.7.2 SA3.1.1.e で定義されている「不要漁獲」 がある場合、審査チームは評価項目(c)を採点しなければならない。

SA3.7.2.1 審査チームは、「代替措置」を、その種又は同類の観測されたおよび／もしくは観測されていない偶発的な死亡を達成可能な最小限のレベルに抑えることが示されている代替漁具及び／もしくは慣行（すなわち、検討前までは UoA で用いられていないもの）と解釈しなければならない。 ◙

a. 審査チームは、評価項目(e)においてのみ、流出漁具による 「不要捕獲」の死亡数を最小限に抑えるための 「代替措置」 を検討しなければならない。

SA3.7.2.2 審査チームは、「検討」が 「代替措置」の潜在的な有効性と実用性の検討を含んでいることを検証しなければならない。 ◙

SA3.7.2.3 審査チームは、「適切に実施する」を、検討された潜在的な「代替措置」 が以下のような状況である場合として解釈しなければならない。◙

a. 現在の漁具や慣行よりも、「不要漁獲」の死亡数を最小限に抑えるのに有効であると判断された場合。

b. 対象種の漁獲効率、及び船舶と乗組員の安全への影響の点で、既存の対策と同等であると判断される。

c. 他の種や生息域に悪影響を与えないと判断される。

d. 実施のために極端なコストがかからない。

サメのヒレ切り（シャークフィニング）

SA3.7.3 認証適用範囲内の混獲種の種がサメの場合、審査チームは SA2.4.3-SA2.4.4 に従い、評価項目(d)を採点しなければならない。

SA3.7.4 UoA とサメとの相互作用が、SA3.2.3 による「審査対象に含めなくてもよい」割合でしかない場合、審査チームはこれらのサメの ETP 種のステータスに関係なく、SA2.4.3～SA2.4.4 に従って評価項目(d)を採点しなければならない。

漁具流出（ゴーストギア）の管理戦略 ◙

SA3.7.5 審査チームは、対応する流出漁具管理に関する PI 2.2.2 の評価項目（e）が採点されない場合（すなわち ETP/OOS に関する採点要素がない場合）、評価項目（e）のみを採点することとする。

SA3.7.6 ゴーストフィッシングのリスクもしくは流出漁具による影響が、明らかに存在しない場合に対応するため、全ての採点基準において「必要に応じて」という表現が使用されている。◙

SA3.7.6.1 流出漁具による影響が、明らかに存在しない場合、審査チームは評価項目（e）に対し SG100 の得点を付けなければならない。

SA3.7.7 審査チームは、対策／部分的戦略／戦略が、ゴーストギアとその影響をどのように「最小化」すると期待されているかを明示しなければならない。

SA3.7.8 審査チームは、「最小限に抑えることが期待される」を、ゴーストギアとその影響を最小限に抑える「措置」／「部分的戦略」／「戦略」と解釈しなければならない。◙

SA3.8　認証適用範囲内の混獲種の情報 PI（PI 2.1.3）

表 SA11: PI 2.1.3 認証適用範囲内の混獲種の情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
認証適用範囲内の混獲種	情報 2.1.3 UoA が適用範囲内の混獲種に与える影響、及び講じられている管理措置もしくは戦略の有効性を判断するための情報は十分である	(a) **主な**適用範囲内の混獲種への影響評価のための情報の十分さ	UoA が**主な**適用範囲内の混獲種の資源状態に及ぼす影響を**広義に理解**するための情報は十分にある。	UoA が**主な**適用範囲内の混獲種の資源状態に及ぼす影響を**高い精度**で**推定する**ための情報は十分にある。	UoA が**主な**適用範囲内の混獲種の資源状態に与える影響を**非常に高い精度**で**推定する**ための情報は十分にある。
		(b) その他の適用範囲内の混獲種への影響評価のための情報の十分さ			UoA が**その他の**適用範囲内の混獲種の資源状態に与える影響を**高い精度**で**推定する**ための情報は十分にある。
		(c) 管理戦略を評価するための情報の十分さ	**主な**適用範囲内の混獲種の**管理措置**をサポートする情報は十分である。	**主な**適用範囲内の混獲種を管理するための**部分的な戦略**をサポートする情報は十分である。	**すべての**適用範囲内の混獲種を管理するための**戦略をサポートし**、戦略が目的を達成しているかどうかを**高い確実性**で評価するための**情報は十分**である。

SA3.8.1　審査チームは、すべての「主な」適用範囲内の混獲種の採点要素における、UoA の漁獲量と関連する死亡数を報告しなければならない。

SA3.8.1.1　「不要な漁獲」がある場合、審査チームはこれらの採点要素についてそれぞれの不要な漁獲の割合を示さなければならない。

SA3.8.2　評価項目（a）及び（b）の採点において、審査チームは「MSC 漁業認証規格ツールボックス」の Tool B にある ERF を適用し、どの採点基準を満たしているかを決定しなければならない。

SA3.8.3　評価項目(c)の採点において、審査チームは専門的判断を用いて、管理措置、部分的戦略、もしくは戦略をサポートするための情報の十分さを評価しなければならない。それには認証適用範囲内の混獲種に対するリスクレベルの変化を検知する情報が十分にあるかどうかも含む。 ◙

SA3.9　ETP/OOS 種結果 PI（PI2.2.1）

表 SA12: PI2.2.1 ETP/OOS 種結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	結果状況 **2.2.1** UoA の直接的な影響は ETP/OOS 種が良好な保全状態までの回復を妨げない。	(a) 直接的な影響 ◙	UoA の直接的な影響は、ETP/OOS が良好な保全状態まで回復することを妨げる**可能性は低い**。	UoA の直接的な影響は、ETP/OOS が良好な保全状態まで回復することを妨げる**可能性は極めて低い**。	UoA の直接的な影響は、ETP/OOS が良好な保全状態まで回復することを妨げない**確実性が高い**。

SA3.9.1　審査チームは ETP/OOS 種を識別しなければならない。◙

SA3.9.1.1　審査チームは、以下のいずれかに基づいて ETP/OOS を識別しなければならない。

a. 生物学的特徴（遺伝、生活史、行動学、または形態学的特性によって定義される）、または

b. 保全と管理の目的（地理的な境界線に基づき生物学的情報をもとに定義される）。

SA3.9.1.2　確定するにあたり、審査チームは SA3.9.1.1 に従い、UoA の規模及び複雑さに対する ETP/OOS の生物学的特徴及び分布を考慮しなければならない。

SA3.9.1.3　種の状態評価に責任を持つ組織が、UoA または SA3.9.1.1 及び SA3.9.1.2 の要求事項を満たす、より広範な船団 の影響を評価するために特定の ETP/OOS を識別した場合、審査チームはこれらの種を ETP/OOS として選定しなければならない。

SA3.9.1.4　種の状態評価に責任を持つ組織が、UoA もしくはより広範な船団の影響を評価するために、 ETP/OOS ユニットを識別していない場合、もしくはそれらの種が SA3.9.1.1 及び SA3.9.1.2 の要求事項を満たさない場合は、審査チームは SA3.9.1.1 及び SA3.9.1.2 に従って UoA による個体群への影響を評価するために最も関連性のある種を選定しなければならない。

SA3.9.1.5　審査チームは、特定された各 ETP/OOS 種をリストアップしなければならない。

SA3.9.1.6　審査チームは、選定された各 ETP/OOS 種を個別の採点要素として採点しなければならない。

SA3.9.1.7　審査チームは、各 ETP/OOS を選定した根拠の正当性を示さなければならない。

SA3.9.2　審査チームは、良好な保全状態に関する UoA の影響を決定する定量的調査を検討することにより、UoA が ETP/OOS 種の良好な保全状態への回復を妨げない可能性を評価するものとする。◙

SA3.9.2.1　審査チームは、ETP/OOS の生活史の特性に基づき、より高いレベルを定義しない限り、良好な保全状態とは少なくとも環境収容力の 50%に相当するレベルであると考えなければない。

SA3.9.2.2　以下の管理基準値が規定され、少なくとも 50%の環境収容力のレベルで設定されている場合、審査チームはその基準値を良好な保全状態に相当するものと見なさなければならない。

a. 最適持続可能個体数

b. 最大純生産性レベル

c. 最大持続可能漁獲死亡率

d. 漁獲死亡率またはバイオマスに基づく管理基準値

SA3.9.2.3 審査チームは、ETP/OOS 種の 3 世代もしくは 100 年のいずれか短い方の時間枠内で UoA が ETP/OOS 種の良好な保全状態への回復（SA3.1.1 で定義）を妨げないかどうかを評価しなければならない。

海洋哺乳類への意図的なハラスメント

SA3.9.3 評価項目(a)の SG80 レベルにおいて、ETP/OOS 種が海洋哺乳類で、それに対し意図的なハラスメントまたは殺傷することが漁業活動の一部において不可欠である場合、審査チームは当該 ETP/OOS 種が「高い確実性」（表 SA8）で良好な保全状態以上にあると推定されていることを検証しなければならない。◙

SA3.9.3.1 審査チームは、過去 5 年以内に行われた以下の解析による定量的推定値を用いて、ETP/OOS の状態を検証しなければならない：

a. 独立した研究機関が実施、または独立第三者によって検証された結果であり、

b. 公開されているもの。

SA3.9.3.2 審査チームは、「意図的」とは漁業活動において「偶発的」とはみなされない行為という意味に解釈しなければならない。 ◙

a. 審査チームは「偶発的」を、意図も予測もされなかった影響もしくは結果という意味に解釈しなければならない。

SA3.9.3.3 審査チームは「ハラスメント」を、以下の可能性のある追跡、苦痛、または不快を与える行為という意味に解釈しなければならない。

a. 海生哺乳類を傷つける、または

b. 移動、呼吸、授乳、繁殖、摂食、避難などを含む行動パターンを乱し、海生哺乳類に支障をきたすこと。

SA3.9.3.4 審査チームは「漁業活動の一部において不可欠である」を UoA 内のあらゆる船舶の漁業活動において戦術的または必然的という意味に解釈しなければならない。

a. 審査チームは、「戦術的」という用語を、漁業活動（例：漁具の設置や引き上げなど）を行う際に、UoA が海洋哺乳類を利用 （例：対象種の漁獲を容易にするために使用）もしくは対象としている（例：追跡又は包囲）行為を示すものとして解釈しなければならない。

b. 審査チームは、「必然的」という用語を、漁獲高又はその効率を最大にするために必要な、又は期待される行為という意味に解釈しなければならない。

SA3.9.3.5 審査チームが ETP/OOS 種に対して SA3.9.3 を適用した場合、その種に対する審査チームの採点は最大 80 点としなければならない。

SA3.9.3.6 審査チームは、以下に関係なく SA3.9.3 を適用しなければならない。

a. SA3.1.1.d により ETP/OOS 種への UoA の 影響が審査対象に含めなくてよいと判断されたかどうか。

b. 関連する ETP/OOS 種に対して RBF を適用する必要があるかどうか。

c. クライアント、またはクライアントグループ内の事業体が、意図的な海洋哺乳類の殺傷やハラスメントを許可（例：許可書や他の種類の許可を通じて）されているかどうか。

SA3.9.4 ETP／OOS 種の採点要素が無い場合、審査チームは採点項目（a）に SG100 の得点を付けなければならない。

SA3.10 ETP/OOS 種の管理戦略 PI (PI 2.2.2)■

表 SA13: PI2.2.2 ETP/OOS 種管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	管理戦略 2.2.2 UoA には以下を目的とする予防的な管理**戦略**が講じられている。 - ETP/OOS 種の偶発的な捕獲が**最小限**に抑えられ、可能であれば皆無である。 - UoA が良好な保全状態への回復を確実に妨げないようにする。	(a) 管理戦略が講じられている▪	ETP/OOS 種の UoA 関連死亡数を**最小限**に抑え、ETP/OOS 種の結果 PI が SG80 レベルとなることが期待される**措置**が**必要に応じて**講じられている。	ETP/OOS 種の UoA 関連死亡数を最小限に抑え、ETP/OOS 種の結果 PI が SG80 レベルとなることが期待される**戦略**が、**必要に応じて**講じられている。	ETP/OOS 種の UoA 関連死亡数を**最小限**に抑え、ETP/OOS 種の結果 PI が SG80 レベルとなることが期待される**包括的な戦略**が、必要に応じて講じられている。
		(b) 管理戦略の有効性▪		措置、戦略、もしくは**包括的戦略**により、ETP/OOS 種の死亡数を減少または**最小限**に抑えていることを示す証拠がある。	
		(c) ETP/OOS 種の死亡数を最小限に抑えるための代替措置の検討▪		ETP/OOS 種の UoA 関連死亡数を**最小限**に抑えるための**代替措置の検討**が、少なくとも 5 年に 1 回行われ、ETP/OOS 種に対して適切に実施されている。	ETP/OOS 種の UoA 関連死亡数を**最小限**に抑えるための**代替措置の検討**が 2 年ごとに行われ、ETP/OOS 種に対して適切に実施されている。
		(d) サメのヒレ切り	サメのヒレ切りが行われていない**確実性が高い**。		

構成要素	PI	評価項目	SG60	SG80	SG100
		(e) 漁具流出の管理戦略	UoA は、漁具流出及び流出漁具による ETP/OOS 種への影響を**最小限に**抑えることが期待される**措置**を、必要に応じて講じている。	UoA は、漁具流出及び流出漁具による ETP/OOS 種への影響を**最小限に**抑えることが期待される**部分的な戦略**を、必要に応じて講じている。	UoA は、漁具流出及び流出漁具による ETP/OOS 種への影響を**最小限に**抑えることが期待される**戦略**を、必要に応じて講じている。

SA3.10.1 評価項目（a）の採点において、ETP/OOS 種の採点要素がない場合、審査チームは「必要に応じて」という用語を適用しなければならない。

SA3.10.1.1 審査チームは評価項目(a)に SG80 の得点を付けなければならない。

SA3.10.1.2 審査チームは評価項目(a)の SG100 レベルに対する評価をしなければならない。

SA3.10.2 評価項目（a）の採点において、審査チームは、死亡数を最小限に抑えることが期待されるとして講じられている「措置」／「戦略」／「包括的戦略」は、以下を通じて死亡数を最小限に抑えることが確認されている「措置」を含むものとして解釈しなければならない：

a. 空間的及び／もしくは時間的な漁具の制限又は使用中止、もしくは、

b. 漁具や慣行の変更、もしくは、

c. 乗組員の安全を確保しながら、最大限個体を生きたままリリースする。

SA3.10.2.1 審査チームは、これらの措置により、どのように UoA 関連死亡数を最小限に抑えられることが期待されるのか、その証明を以下の少なくとも 1 つに基づいて示さなければならない。

a. 特定の漁具タイプにより種の死亡を最小化することが実証されている最優良事例の緩和 「措置」の適用。

b. 類似する漁業や種との比較（類似の漁具、操業地域、ETP/OOS との相互作用）。

c. UoA 内での試験または適用によって。

SA3.10.3 評価項目（b）の採点において、審査チームは、

a. 証拠を検討し、

b. ETP／OOS 種の死亡数を減少もしくは最小限に抑えるという目的達成のための「措置」、「戦略」、もしくは「包括的戦略」の有効性について根拠を示さなければならない。

SA3.10.3.1 審査チームは、以下のいずれをも満たした場合にのみ ETP/OOS 種の死亡数が「最小限に抑えられた」と解釈しなければならない。

a. ETP/OOS 種の得点が、 ETP の 結果 PI 2.2.1 の評価項目（a）の少なくとも SG80 レベルを満たすか、「MSC 漁業認証規格ツールボックス」の RBF を適用した場合に 80 点以上となる。

b. ETP/OOS 種の得点が PI 2.2.2 の評価項目(a)の SG100 レベルを満たしている。

SA3.10.3.2 審査チームは、以下のいずれをも満たした場合にのみ ETP／OOS 種の死亡数が「減少した」と解釈しなければならない。

a. SA3.10.2 に記載された「措置」の導入により、死亡数の明確な減少傾向が見られる。

b. ETP/OOS 種の個体数に対する死亡率の減少。

ETP/OOS 種に対する「代替措置」の検討

SA3.10.4 審査機関は、ETP/OOS 種の採点要素がない場合を除き、評価項目(c)の採点をしなければならない。

SA3.10.4.1 「代替措置」は、SA3.10.2.1 の通り、死亡数を最小限に抑えることが期待される「措置 」の基準に合致する代替的な漁具及び慣行（その検討前には UoA で使用されていないもの）と解釈しなければならない。

SA3.10.4.2 「ETP/OOS 種に対して適切に実施される」とは、検討されている潜在的な「代替措置 」によって以下の状況になっている場合と解釈しなければならない。

a. ETP/OOS 種の死亡数を最小限に抑える上で、現在の漁具と慣行より効果的であると判断される。

b. 対象種の漁獲への影響、及び船舶と乗組員の安全への影響において、既存の措置と同等 であると判断される。

c. 他の種や生息域に悪影響を与えないと判断される。

サメのヒレ切り（シャークフィニング）

SA3.10.5 ETP 種がサメの場合、審査チームは SA2.4.3～SA2.4.4 に従って評価項目（d）を採点しなければならない。

漁具流出の管理戦略

SA3.10.6 評価項目(e)の採点をする際、審査チームは SA3.7.6～SA3.7.8 を適用しなければならない。

SA3.10.6.1 審査チームは、ETP/OOS 種 の採点要素がある場合にのみ、評価項目(e)を評価しなければならない。

SA3.11 ETP/OOS 種に関する情報 PI (PI 2.2.3)

表 SA14：PI 2.2.3 ETP/OOS 種に関する情報の PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	情報 **2.2.3** UoA が ETP/OOS に与える影響と、講じられている管理措置も	(a) 影響評価のための情報の十分さ	UoA が ETP/OOS に与える影響を**広義に理解する**のに十分な情報がある。	UoA が ETP/OOS に与える影響を**推定**し、UoA がその回復を脅かす可能性があるかどうかを**高い精度で**	UoA が ETP/OOS に与える影響を**推定**し、UoA がその回復を脅かす可能性があるかどうかを、**非常に高**

構成要素	PI	評価項目	SG60	SG80	SG100
	しくは戦略の有効性を判断するための情報は十分である。			**推定する**ために十分な情報がある。	**い精度で推定する**ための情報が十分にある。
		(b) 管理戦略のための情報の十分さ	ETP/OOS への影響を管理するための**措置**をサポートするのに十分な情報である。	ETP/OOS への影響を管理するための**戦略**をサポートし、また、死亡数を最小限に抑えるための**措置**の有効性評価にあたり、傾向を測定するために十分な情報である。	ETP/OOS への影響を管理するための**包括的戦略**をサポートし、また、死亡数を最小限に抑えるための**措置**の有効性を高い確実性で評価するための情報は十分である。

SA3.11.1　評価項目(a)を採点する際、審査チームは「MSC 漁業認証規格ツールボックス」の Tool B にある ERF を適用し、どの採点基準を満たしているかを判断しなければならない。

SA3.11.2　評価項目(b)を採点する際、審査チームは専門家としての判断を用いて、管理「措置」、「戦略」、「包括的戦略」を裏付ける情報の十分さを検討しなければならない。

SA3.12　生息域に関する結果 PI (PI 2.3.1)■

表 SA15: PI 2.3.1 生息域結果 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	結果状況 **2.3.1** 漁業管理機関の管轄内における生息域において、UoA は生息域の構造および機能に深刻、あるいは不可逆的な被害を及ぼしていない。	(a) 感受性がより低い生息域	UoA が、感受性がより低い生息域の構造および機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は低い**。	UoA が、感受性がより低い生息域の構造および機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は極めて低い**。	UoA が、感受性がより低い生息域の構造および機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる可能性は極めて低い、という**証拠**がある。

構成要素	PI	評価項目	SG60	SG80	SG100
		(b) 感受性がより高い生息域	UoA が、感受性がより高い生息域を、深刻、あるいは、不可逆的な被害を及ぼすレベルにまで VME 生息域の構造や機能を低下させる**可能性は低い**。	UoA が、感受性がより高い生息域を、深刻、あるいは、不可逆的な被害を及ぼすレベルにまで VME 生息域の構造や機能を低下させる**可能性は極めて低い**。	UoA が、感受性がより高い生息域を、深刻、あるいは、不可逆的な被害を及ぼすレベルにまで VME 生息域の構造や機能を低下させる可能性が極めて低いという**証拠**がある。

SA3.12.1 審査チームは、生息域に関する構成要素では、生息域の構造及び機能に対して、UoA が及ぼす影響を審査しなければならない。◙

a. 審査チームは異なる生息域をそれぞれ別の採点要素として採点しなければならない。

b. PI 2.3.1 を評価するために十分な情報がない場合、審査チームは RBF Consequence Spatial Analysis（CSA）（「MSC 漁業認証規格ツールボックス」の A2.1.2 で定義）を適用しなければならない。

c. PI 2.3.1 を評価するために十分な情報がある場合でも、審査チームは RBF CSA を適用することができ る。

SA3.12.2 海底の生息域を評価する際、審査チームは以下の生息域特性を基に生息域を分類しなければならない。◙

a. 底質-堆積物の種類（例：硬い底質）

b. 地形-海底地形（例：平坦で岩の多い段丘）

c. 生物相-特徴的な植物および／あるいは動物相（例：昆布が主の海草藻場および複数の表性動物）

SA3.12.3 審査チームは、UoA によって影響を受ける生息域が、感受性がより低いか高いかを以下のように判断し、その正当性を示さなければならない。 ◙

a. 審査チームは、感受性の低い生息域を、漁業が全く行われなくなれば、その構造と機能が 20 年以内に、影響を受ける前の少なくとも 80%までに回復することができる生息域と解釈しなければならない。

b. 審査チームは、より感受性の高い生息域を、漁業が全く行われなくなれば、その構造と機能が 20 年以内に、影響を受ける前の少なくとも 80%までに回復することができない生息域と解釈しなければならない。

SA3.12.3.1 審査チームは、FAO が指定する脆弱な海洋生態系（VMEs）を、感受性が「高い」生息域として認識しなければならない。 ◙

SA3.12.3.2 審査チームは、生息域が保護区であるかどうかに関係なく、感受性が「低い」か「高い」かを判断しなければならない。

SA3.12.4 感受性が「低い」生息域の場合、審査チームは、「深刻、あるいは不可逆的な被害」を、漁業が全く行われなくなったとしても、20 年以内に、影響を受けていない状態の少なくとも 80%までに回復できないほど生息域の構造及び機能が減退してしまっている状態、と解釈しなければならない。 ◙

SA3.12.5 感受性が「高い」生息域の場合、審査チームは「深刻、あるいは不可逆的な被害」を、生息域の構造 及び機能が、漁業による影響を受けていない状態の 80%以下に減退している状態と解釈しなければならない。▪

SA3.12.6 生息域の状態と漁業の影響を評価する場合、審査チームは、UoA が操業する海域での漁業管理に責任を持つ地元、地域、国又は国際機関によって管理されている全領域（別称「管理区域」）について検討しなければならない。 ▪

SA3.12.6.1 審査チームは、入手可能なすべての情報（例：生態地域情報）を使って審査対象の生息域の範囲及び分布を確定しなければならない。

SA3.12.6.2 審査チームは入手可能なすべての情報を用いて、この分布が完全に「管理区域」内にあるか、「管理区域」を超えて広がっているのかの判断をしなければならない。

SA3.12.6.3 生息域の範囲が完全に「管理区域」内にある場合、審査チームは「管理区域」内の生息域の範囲について検討しなければならない。

SA3.12.6.4 生息域の範囲が「管理区域」を超えている場合、審査チームは「管理区域」内外の生息域の範囲について検討しなければならない。 ▪

SA3.13 生息域の管理戦略 PI（PI 2.3.2） ■

表 SA16: PI 2.3.2 生息域の管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	管理戦略 2.3.2 UoA が生息域に深刻、あるいは不可逆的な被害を与えるリスクがないことを確実にするための**戦略**が講じられている。	(a) 講じられている管理戦略	生息域の結果状況の PI で SG80 以上を達成することが期待される**措置**が、必要に応じて講じられている。	生息域の結果状況の PI で SG80 以上を達成することが期待される**部分的戦略**が、必要に応じて講じられている。	MSC、非 MSC を問わず、すべての漁業による生息域への影響を管理する**戦略**が講じられている。

構成要素	PI	評価項目	SG60	SG80	SG100
		(b) 管理戦略の効果	措置は、妥当な論拠から判断して、効果をあげる**可能性が高いと考えられる**。	**UoA および／あるいは、UoA が関わる生息域に関する直接的な情報**から判断して、措置／部分的戦略が SI(a)で設定されている目標を達成しているという**証拠**がある程度ある。	**UoA および／あるいは、UoA が関わる生息域に関する直接的な情報**から判断して、部分的な戦略／戦略が、SI（a）で設定された目的を達成しているという証拠がある。
		(c) 管理に関する要求事項およびその他の MSC UoA/非 MSC 漁業による感受性がより高い生息域保護措置の遵守。	感受性が**より高い**生息域を保護するための管理に要求される事項を UoA が遵守していることを**広義に理解**するのに適切な情報がある。	感受性がより高い生息域に対して他の MSC UoA／ 非 MSC 漁業が講じている管理に関する要求事項及び、保護措置の両方（該当する場合）を UoA 漁業が準拠していることを、高い精度で確認するための情報が適切である。	感受性性がより高い生息域に対して他の MSC UoA／ 非 MSC 漁業が講じているの管理に関する要求事項及び、保護措置の両方（該当する場合）を UoA 漁業が準拠していることを、非常に高い精度で確認するための情報が適切である。
		(d) 漁具流出の管理戦略	UoA は、**必要に応じて**、漁具流出及びすべての生息域に対する流出漁具の影響を**最小限**に抑えることが期待される**措置**を講じている。	UoA は、**必要に応じて**、漁具流出及びすべての生息域に対する流出漁具の影響を**最小限**に抑えることが期待される**部分的戦略**を講じている。	UoA は、**必要に応じて**、漁具流出及びそのすべての生息地に対する影響を**最小限**に抑えることが期待される、**戦略**を講じている。

SA3.13.1　評価項目（a）及び（b）の採点において、生息域の採点要素がない場合、審査チームは「必要に応じて」という用語を適用しなければならない。

SA3.13.1.1　審査チームは評価項目(a)及び（b）に SG80 の得点を付けなければならない。

SA3.13.1.2 審査チームは評価項目(a)及び（b）の SG100 レベルに対する評価をしなければならない。

SA3.13.2 審査チームは生息域の管理を審査する際、措置、部分的戦略、戦略の違いを検討しなくてはならない。 ◙

SA3.13.2.1 SG60 及び SG80 レベルで評価項目（a）の採点をする際、「感受性がより高い」生息域に遭遇する UoA については、「措置」もしくは「部分的戦略」は少なくとも以下を含むものでなければならない。◙

a. 「感受性がより高い」生息域のための管理措置を遵守する要求事項。

b. UoA による、「感受性がより高い」生息域との接触と深刻または不可逆的な影響を回避するための予防的措置の実施。

SA3.13.2.2 SG100 レベルで評価項目(a)の採点をする場合は： ◙

a. 感受性がより高い生息域に遭遇する UoA の「戦略」は、全ての漁業活動が感受性の高い生息域への深刻あるいは不可逆的な被害を及ぼさないための包括的な影響評価によって支持される包括的な管理計画を含むものでなければならない。

b. 漁具流出や予期せぬ底生生息域への影響の可能性があるため、底生生息域に定期的に接触しないものを含むすべての UoA について、管理「戦略」が講じられていなければならない。

SA3.13.3 以下の場合にのみ、審査チームは評価項目（c）の採点をしなければならない。

a. UoA が、感受性がより高い生息域に影響を及ぼしている。及び／もしくは、

b. 別の MSC UoA または非 MSC 漁業が、SA3.12.6 で定義されている UoA の「管理区域」内にある感受性がより高い生息域に影響を及ぼしている。

SA3.13.3.1 審査チームは評価項目(c)を採点する際に、UoA が以下の点をどの程度遵守しているかを理解（SG60）、決定（SG80 及び SG100）するのに適切な情報があるかどうかを評価しなければならない。

a. UoA に直接適用される管理に関する要求事項、及び

b. 「関連している」場合、ほかの MSC UoA 及び非 MSC 漁業が実施している予防的保護措置

SA3.13.3.2 審査チームは、評価項目（c）を採点する際、遵守レベルではなく、これを決定するために利用可能な情報を検討しなければならない。

SA3.13.3.3 「関連している」かどうかを決定する際、審査チームは以下を含む点について検討し、文書化しなければならない。◙

a. 科学的根拠と最優良事例に基づき、感受性がより高い生息域の予防的保護を目的としていることが明らかな禁漁区のみを考慮する。審査チームは、他の目的のために定められた禁漁区を含めてはならない。

b. 回避ルール（操業中に遭遇したら別の場所に移る）によって設定された禁漁区を避けていること、および全 MSC UoA が実施しているその他の措置への考慮。

c. 非 MSC 漁業によって回避すべきエリアの情報が入手可能な場合は、当該非 MSC 漁業が実施しているそれらのエリアを避けていること。

SA3.13.4 評価項目(c)を採点する際、審査チームは「MSC 漁業認証規格ツールボックス」の Tool B の ERF を適用し、どの評価項目を満たしているかを判断しなければならない。

漁具流出（ゴーストギア）の管理戦略

SA3.13.5　評価項目(d)の採点において、審査チームは SA3.7.6～SA3.7.8 を適用しなければならない。

SA3.14　生息域の情報 PI（PI 2.3.3）■

表 SA17 ： PI 2.3.3 生息域の情報

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	情報 2.3.3 UoA が及ぼすリスクの経時的変化を含め、UoA が生息域に与える影響を判断するための情報は十分にある。	(a) 情報の質	主な生息域の形態と分布は、**広義に理解されている**。	UoA の操業域内の主な生息域の特徴、分布および**脆弱性**が、UoA の規模と複雑さに見合うレベルの詳しさで把握されている。	操業域内のすべての生息域の分布が知られており、特に**脆弱な**生息域がどこにあるかが把握されている。
		(b) 影響を評価する為に必要な情報の適切性。	生息域と漁具の空間的な重複など、漁具の使用による主な生息域への影響に対する**広義の理解**に必要な情報が十分にある。	生息域への UoA の主な影響を**高い精度で推定**するための情報は十分である。	UoA が生息地に与える影響を**非常に高い精度**で**推定**するための情報は十分である。
		(c) モニタリング ◙		生息域へのリスクの上昇を検知するために必要な情報が継続的に収集されている。	時間の経過による生息域の分布変化が、観測されている。

SA3.14.1　審査チームは、SG80 や SG100 における「脆弱性」の意味を次の２つの要素に照らし合わせて解釈しなければならない。

a.　漁具が生息域に接触する可能性及び

b.　漁具が生息域に接触することにより、生息域が改変される可能性。

SA3.14.2　評価項目(b)を採点する際、審査チームは「MSC 漁業認証規格ツールボックス」の Tool B の ERF を適用し、どの採点基準を満たしているかを判断しなければならない。

SA3.15　生態系の結果 PI（PI 2.4.1）

表 SA18: PI 2.4.1 生態系結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	結果状況 2.4.1 UoA は、生態系構造と機能の基盤となる**主要な**要素に深刻、あるいは不可逆的な被害を及ぼさない。	(a) 生態系の状態	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどの影響を与える**可能性は低い**。	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどの影響を与える**可能性は極めて低い**。	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどの影響を与える可能性は極めて低い、という**証拠**がある。

SA3.15.1　このPIは、より広範な生態系の構造と機能を検討するものである。審査チームは、このPIとは別に、他の構成要素（すなわち、P1の対象種、認証適用範囲内の混獲種、ETP/OOS種、及び生息域）へのUoAの直接的な影響を採点しなければならない。

SA3.15.2　審査チームは、UoAの空間的・時間的スケールとその複雑さとの関連で、評価する生態系を特定し、記述しなければならない。

SA3.15.3　審査チームは、UoAが影響を及ぼす全ての主要な生態系要素を識別し、評価しなければならない。

SA3.15.4　審査チームは、「主要な」生態系要素を以下のように解釈しなければならない。 ◙

a. その生態系の特性とダイナミクスにとって最も重要であると考えられる生態系の特徴。

b. 生態系の構造と機能を維持するために最も重要で、生態系の復元力と生産性の決め手となる重要な要素。

SA3.15.5　審査チームは、主な生態系要素に対するUoAの影響に、ETP/OOS種への間接的な影響が含まれているかどうかを確認しなければならない。 ◙

SA3.15.5.1　審査チームは、特定された間接的影響により、ETP/OOS種の回復が妨げられる「可能性が高い」か評価しなければならない。

SA3.15.5.2　間接的影響によってETP/OOS種の回復が妨げられる「可能性が高い」と判断された場合、審査チームはこれを、UoAが深刻、あるいは不可逆的な被害を及ぼすほどに生態系の構造と機能を支える主要な要素を混乱させる 「可能性が高い 」証拠と見なさなければならない。

SA3.15.6　審査チームは、SG60及びSG80レベルでUoAを採点する際に用いられる定性分析及び／もしくは専門家の判断が、SA3.3.1及び表SA8における定量な確率の解釈とほぼ同等であることを確認しなければならない。

SA3.15.6.1　審査チームは、同等であるという根拠を示さなければならない。

SA3.15.6.2　審査チームは、SGの確率の解釈に関する定性的判断を行うために、様々な情報に基づいた見解もしくは代わりとなる仮説を使用しなければならない。

SA3.16　生態系管理戦略 PI(PI 2.4.2)

表 SA19: PI2.4.2　生態系管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	管理戦略 2.4.2 生態系の構造や機能に深刻な、あるいは不可逆的な被害を与えるリスクが確実にないようにするための措置が講じられている。	(a) 講じられている管理戦略◙	生態系の構造と機能の基盤となる主要な要素に対する UoA の**潜在的な影響**を考慮した**措置**が、必要に応じて講じられている。	生態系結果の PI で SG80 レベルを達成することが期待される**部分的戦略**が、必要に応じて講じられている。	生態系の構造と機能の基盤となる**主な**要素に対する UoA の影響を管理するための**戦略**が講じられている。
		(b) 管理戦略の有効性	必要に応じた**措置**は、妥当な論拠から判断して、効果を上げる可能性が高いと考えられる。	UoA および／もしくは対象の生態系に関する直接的な情報に基づき、必要に応じた措置／部分的戦略が、評価項目(a)で示された目標を達成していることを示す証拠がある程度ある。	UoA 及び／もしくは生態系に関する直接的な情報に基づき、**部分的戦略／戦略**が、評価項目(a)で示された目標を達成していることを示す**証拠**がある。

SA3.16.1　評価項目(a)を採点する際、審査チームは、環境変化への適応が可能な管理かどうかを検討しなければならない。

SA3.16.2　評価項目（a）を採点する際、審査チームは「戦略」が、UoA と生態系の「主な」要素においてよく理解されている機能的関係をも考慮したものであると解釈しなければならない。 ◙

SA3.17　生態系情報 PI （PI 2.4.3）

表 SA20: PI2.4.3 生態系情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	情報	(a) 情報の質	生態系の**主な**要素を**識別**するのに**十分な情報**がある。	生態系の**主な**要素を**広く理解する**に**十分な情報**がある	

構成要素	PI	評価項目	SG60	SG80	SG100
	2.4.3 生態系及び UoA が主な生態系要素に及ぼす主な影響についての知識が十分にある。	(b) UoA の影響調査	生態系の**主となる**要素に対する UoA の主な影響については、既存の情報から**推測する**ことができる。	生態系の**主となる**要素に対する UoA の主な影響については、**詳細な調査が行われている**。	UoA と生態系要素との**主な**相互作用については、**詳細な調査が行われている**。
		(c) 構成要素（すなわち、P1 対象種、適用範囲内の混獲種及び ETP/OOS 種、生息域）の機能理解		生態系の構成要素の主な機能は**知られている**。	構成要素に対する UoA の影響は特定され、生態系におけるこれらの構成要素の主な機能が**理解されている**。
		(d) モニタリング		リスクの上昇を検知するため、十分なデータが継続的に収集されている。	生態系への影響を管理するための戦略の開発を支えるだけの**十分な情報**がある。

SA3.17.1　評価項目（d）を採点する際、審査チームは「十分な情報がある」に、気候変動が UoA の自然生産性に及ぼす理解も含めて解釈しなければならない。 ◙

SA4　原則 3

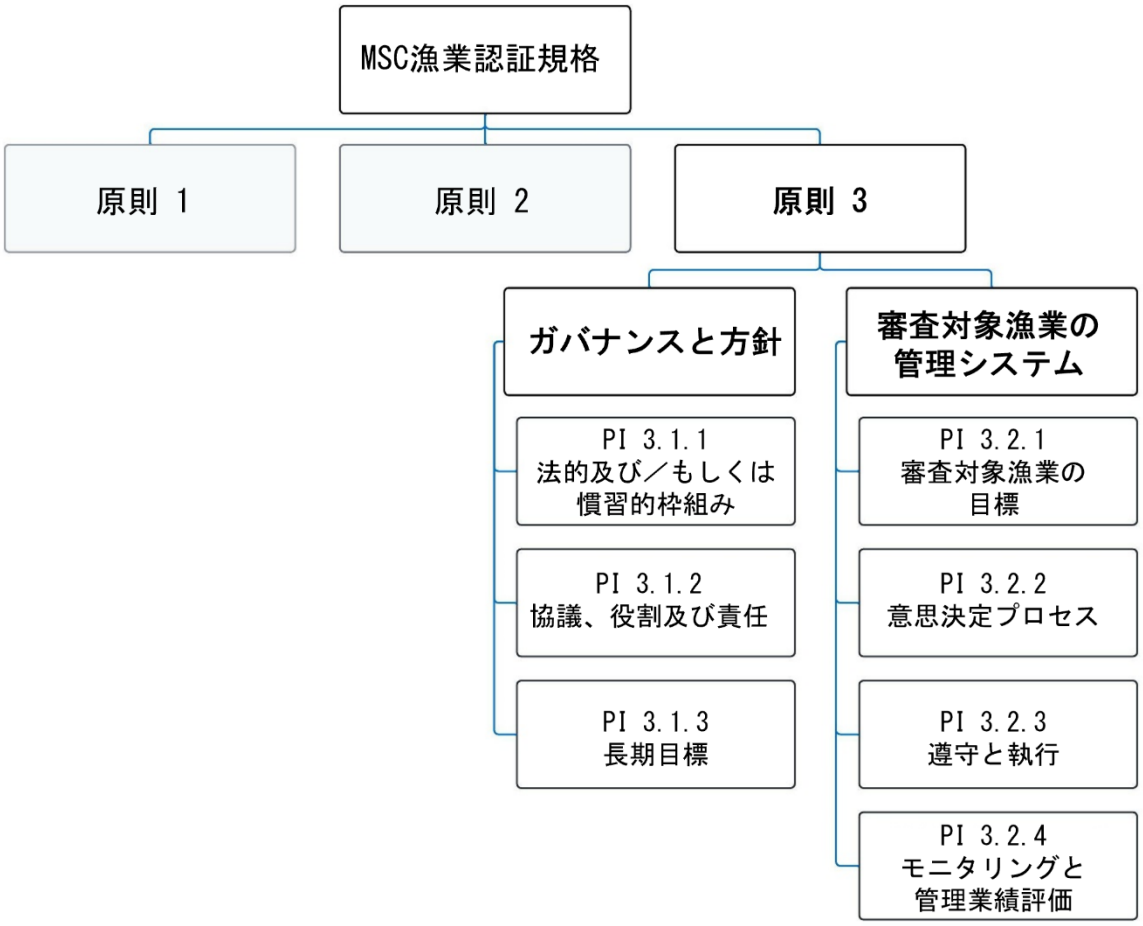


表 SA4: 原則 3 通常審査ツリー

SA4.1　原則 3 に関する全般的要求事項 ■

SA4.1.1　審査チームは、UoA の管理システムが、以下のどの管轄区分、あるいは複数の管轄区分に属するのかを明確にし、文書化しなければならない。 ◙

a. 単独機関による管轄

b. 住民および単独機関による管轄

c. 共有資源

d. 跨界性魚類資源

e. 高度回遊性魚種（HMS）

f. 個別の公海における非 HMS 資源

SA4.1.1.1　審査チームは、原則 3 に関する UoA の業績を評価する際、公式、非公式、及び／もしくは慣習的な管理システムについての検討も行わなければならない。

SA4.1.2　審査チームは、国際協力による資源管理の対象かどうかにかかわらず、すべての UoA を、P3 PIs に対して評価しなければならない。

SA4.1.3　P1 および P2 の結果、および／もしくは P3 の実施に直接影響がない限り、国際協力による資源管理の対象となっている他の漁業の管理機関の業績を評価してはならない。 ◙

SA4.1.4　審査チームは、非公式もしくは慣習的な管理システムに対する採点結果の正当性と信頼性を示す証拠を、提示する根拠の中に盛り込まなければならない。

SA4.1.4.1　審査チームは以下の方法で証拠を収集しなければならない： ▪

a. 様々な方法を使用し情報を収集する。

b. 様々な立場のステークホルダーの意見や見解を相互検討する。

SA4.1.5　審査チームは、管理システムの適格性を判断するにあたり、UoA の規模と複雑さを検討しなければならない。

SA4.2　原則 3 用語

SA4.2.1　P3 の評価項目で用いられる「明確な」という用語は以下に対して適用しなければならない。

a. 成文化もしくは文書化された管理「措置」及びメカニズム、及び／もしくは、

b. しっかりと構築された効果的な非公式の管理「措置」及びメカニズム。

SA4.2.1.1　曖昧なものから明確なものまで、管理業績を採点するにあたり、チームは以下のことを検討しなければならない。

a. 公式、非公式に関わらず、そうした管理措置がどの程度 UoA に根付いているかということ。

b. UoA においてその管理措置を使用する者に、どれだけ理解され、適用されているかということ。

c. そうした措置がどれだけ永続的で明白であるかということ。

SA4.3　法的及び／もしくは慣習的枠組みに関する PI（PI 3.1.1）　▪

表 SA21:PI 3.1.1 法的及び／もしくは慣習的枠組み PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ガバナンスと方針	法的及び、もしくは慣習的枠組み 3.1.1 管理システムは、適切かつ有効な法的及び／もしくは慣習的枠組みの中にあり、 －UoA において持続可能な漁業管理を行うことが可能で、 －食料あるいは生計のために漁業に依存	(a) 法や規範と有効な管理との適合性 ▪	MSC の原則１及び２に則った漁業管理を実現するために**有効な国内法体系**があり、必要に応じて他の関係者と協力する**枠組み**がある。	MSC の原則１及び２に則った漁業管理を実現するために**有効な国内法体系**があり、必要に応じて**組織的かつ有効的な他者との協力が**行われている。	MSC の原則１及び２に則った漁業管理を実現するために**有効な国内法体系**があり、**他の関係者との協力を規定する拘束力のある手続き**が存在する。
		(b) 論争の解決 ▪	法的な論争を解決する**メカニズム**が管理システムの中にある、もしくは、管理シ	法的な論争を解決するための**透明なメカニズム**が管理システムの中にある、もし	法的な論争を解決するための**透明なメカニズム**が管理システムの中にある、もし

構成要素	PI	評価項目	SG60	SG80	SG100
	している人々の法的権利を守るための明確な法や慣習を尊重し、 －論争解決のための適切なメカニズムがある。		ステムはそのようなメカニズムの法的対象である。	くは、管理システムはそのようなメカニズムの法的対象であり、それは殆どの問題に**有効であると考えられ**、UoA の内容に適している。	くは、管理システムはそのようなメカニズムの法的対象であり、漁業の内容にも適していて、**有効性も既に実証されている**。
		(c) 権利の尊重 ◙	管理システムは、食料あるいは生計のために漁業に依存している人々の、明示的に設定または習慣によって確立された法的権利を**一般的に尊重**する仕組みを有し、それは MSC の原則１及び２の原則の目標に整合するものである。	管理システムは、食料あるいは生計のために漁業に依存している人々の、明示的に設定または習慣によって確立された法的権利を**遵守**する仕組みを有し、それは MSC の原則１及び２の原則の目標に整合するものである。	管理システムは、食料あるいは生計のために漁業に依存している人々の、明示的に設定または習慣によって確立された法的権利に対して**公式な誓約**を掲げる仕組みを有し、それは MSC の原則１及び２の原則の目標に整合するものである。

SA4.3.1　評価項目（a）の SG60 を採点するにあたり、審査チームは「法や規範と有効な管理との適合性」を次のように解釈しなければならない：

a. 国際協力による資源管理の対象となっていない UoA の場合、以下のことを意味する。

　i. UoA の管理に携わるすべての当局や関係者の行動を規制する国内法や合意、政策が存在し、

　ii. これらの法や合意及び／もしくは政策により、国内の漁業管理の課題に対して、UoA の背景や規模、分布、複雑さに適した国内団体間の協力の枠組みが構築されている。

b. 国際協力による資源管理の対象となっている UoA の場合（例えば共有資源、跨界性魚類資源、HMS（高度回遊性魚類）、公海における非 HMS 資源）は以下のことを意味する：

i. 漁業は「国際的な合意」に対し、「論争的」で「一方的」な「免責」のもとで行われておらず、 ◙

ii. UoA の管理に携わる当局や関係者の行動を規制する国内法や国際法、協定、合意、政策が存在し、

iii. 他の地域や亜区漁業管理団体、管区漁業管理団体との協力枠組、もしくは、

iv. その他の二国間／多国間協定が存在し、それにより UNCLOS 海洋法に関する国連条約の第 63(2), 64, 118, 119 条および 1985 年の UNFSA 国連公海漁業協定第 8 条に則った持続可能な漁業管理に必要な協力体制が構築されている。

SA4.3.1.1 協力により、少なくとも次の活動に関する UNFSA 第 10 条の目的が果たされなければならない。 ◙

a. 科学データの収集及び共有

b. 資源状態の科学的評価、および

c. 科学的助言の開発。

SA4.3.1.2 認証単位に含まれる UoA の旗国は、関連の亜区漁業管理団体や管区漁業管理団体もしくはその他の二国間／多国間協定が存在する場合、少なくとも非加盟国として協力関係になければならない。

SA4.3.2 評価項目（a）の SG80 を採点するにあたり、審査チームは、「法や規範と有効な管理との適合性」を以下のように解釈しなければならない。

a. 国際協力による資源管理の対象となっていない UoA は以下の要件を満たしている。

i. UoA の管理に携わるすべての当局や関係者の行動を規制する国内法や合意、政策が存在し、

ii. これらの国内法や合意及び／もしくは政策により、国内の漁業管理の課題に対して、例えば地域と国、州と連邦、先住民、その他のグループの間など、国内団体間の組織的な協力が確立されている。

b. 国際協力による資源管理の対象となっている UoA の場合は以下の要件を満たしている。◙

i. UoA の管理に携わる当局や関係者の行動を規制する国内法や国際法、合意、政策が存在する。

ii. UNCLOS 海洋法に関する国連条約の第 63(2), 64, 118, 119 条および UNFSA 国連公海漁業協定第８条に則った包括的な協力体制を構築する有効な地域間及び／もしくは国際協力が行われている。

iii. 協力により、少なくとも以下の活動に関する UNFSA 第 10 条の目的が果たされていなければならない。すなわち、科学データの収集、共有及び普及、資源状態の科学的評価、及び科学的助言の開発、当該持続可能な管理に関する助言と調和する管理行動の合意と実施、及びモニタリングと制御。

iv. 認証単位に含まれる UoA の旗国は、協定を結んだ組織もしくは参加グループに加盟しているか、そうした組織もしくは協定が存在する場合には、それらによって確立された保護管理措置の適用に合意していなければならない。

SA4.3.3 評価項目（a）の SG100 を採点するにあたり、審査チームは「法や規範と有効な管理との適合性」を次のように解釈しなければならない。◙

a. 国際協力による資源管理の対象となっていない UoA は以下の要件を満たしている。

i. UoA の管理に携わるすべての当局や関係者の行動を規制する国内法や合意、政策が存在。

ii. これらの国内法や合意及び／もしくは政策により、国内の漁業管理の課題に対して、例えば地域と国、州と連邦、先住民、その他のグループの間など、国内の団体間の組織的な協力が確立されている。

b. 国際協力による資源管理の対象となっているUoAの場合は、以下の要件を満たしている。

i. UoAの管理に携わる当局や関係者の行動を規制する国内法や合意及び政策が存在し、

ii. UNCLOS海洋法に関する国連条約の第63(2), 64, 118, 119条およびUNFSA国連公海漁業協定第８条及び第10条に則った包括的国際協力を管理する拘束力のある法律が存在する。

iii. 地域漁業管理機関（RFMO）／取り決めの下での協力及びRFMOの行動は、UNFSA第10条を確実にかつ有効的に実現するものであること

SA4.3.3.1 SG60, 80, 100に共通して使われている「有効な国内法体系」という表現は、持続可能な漁業を行うために不可欠な特性や要素が以下の形態で存在する、という客観的な証拠をクライアントが提示できる、という意味で解釈すべきである。

a. 首尾一貫した、合理的な慣行や手段の中に組み込まれている、もしくは、

b. 首尾一貫した、合理的な「規則制定構造」に組み込まれている。

SA4.3.4 評価項目(b)のSG60を採点するにあたり、審査チームは、UoA が MSC原則1と原則2の目標を満たすことを妨げるほどに漁業が論争の対象となっていないことを求めなければならない。 ◙

SA4.3.5 評価項目（C）を採点するにあたって、原住民や先住民に関する慣例条約や国家条約により、特定のグループや個人に権利が付与されているかどうかの判断を、審査チームが独断で、あるいは一方的にしてはならない。

SA4.3.5.1 「条約」という用語は、国際条約や国家間条約を含めてはならず、原住民や先住民に特化した国家条約のみがこれに相当する。 ◙

SA4.3.6 評価項目（C）のSG60における「一般的に尊重している」は、食料あるいは生計のために漁業に依存している人々の、法律で明確に定められている、あるいは慣習によって認められている権利や長期的な利益が、漁業管理の法的及び／または慣習的な枠組みの中で考慮されているというある程度の証拠がある、という意味で解釈すべきある。

SA4.3.7 評価項目（C）のSG80における「遵守する」は、以下の意味であると解釈すべきである：

a. 食料あるいは生計のために漁業に依存している人々の、法律あるいは慣習によって認められている権利や長期的な利益が、条例や規則などの、より公的な取り決めによって考慮されている。

b. そうした人々の長期的な利益に対する配慮が、漁業管理の法的及び／または慣習的な枠組みの中にある。

SA4.3.8 評価項目（C）のSG100における「公式な誓約」は、漁業管理システム及び／または方針や手段といった法的な管理枠組みの中で、原住民や先住民などの権利を法律的に義務づけることが成文化されていることをクライントが実証できる、と解釈されるべきである。

SA4.4　協議、役割および責任に関するPI（PI 3.1.2）■

表 SA22: PI3.1.2　協議、役割及び責任に関するPISG

構成要素	PI	評価項目	SG60	SG80	SG100
ガバナンスと方針	協議、役割及び責任 3.1.2 管理システムの中に、関心があり、影響を受けるグループに公開されている有効な協議プロセスがある。 管理プロセスに関わっている組織や個人の役割や責任が明瞭で、すべての関係当事者が理解している。	(a) 役割及び責任	管理プロセスに関わっている組織や個人が確認されており、その機能、役割、責任が**おおよそ理解されている**。	管理プロセスに関わっている組織や個人が確認されており、機能、役割、責任が**明確に定義され、**責任と相互作用における主要分野について**よく理解されている**。	管理プロセスに関わっている組織や個人が確認されており、機能、役割、責任が**明確に定義され、**責任と相互作用におけるすべての分野について**よく理解されている**。
		(b) 協議プロセス ■	管理システムには、主な当事者から**地元の知識**など、**関連のある情報**を入手し、管理システムに役立てる協議プロセスがある。	管理システムには、**地元の知識**を含む関連情報を**常時求め、受け入れる**協議プロセスがある。 管理システムは入手した情報について検討する用意がある。	管理システムには、**地元の知識**を含む関連情報を**常時求め、受け入れる**協議プロセスがある。 管理システムは入手した情報について検討する用意を示し、**利用の有無について説明を行っている**。
		(c) 参加		協議プロセスでは、関心があり影響を受ける関係当事者全員に参加の**機会が与えられている。**	協議プロセスでは、関心があり影響を受ける関係当事者全員に**参加の機会を与え、参加を促す**ことにより、有効な関わりが**推進**されている。

SA4.4.1 チームは、地元情報などの情報を、漁業管理当局が各方面から入手し、それを広範囲な決定や方策、手段に反映させるために行っている協議プロセスの効果及び透明性に採点の焦点を絞らなければならない。 ◙

SA4.4.2 この業績評価指標の採点では、入手した情報の種類や、その利用目的や利用方法を義務付けることに焦点を当ててはならない。

SA4.4.3 管理システム内の協議プロセスには管理システムレベルの協議プロセスと、その中で発生する審査対象漁業の管理システムへの考慮が含まれていることを、審査チームは検証しなければならない。

SA4.4.4 SA4.1.3 に則り、多国間および全国レベルでの協議プロセスも含めて検討しなければならない。

SA4.4.5 チームは、「地元の知識」を、以下のように解釈しなければならない。◙

a. 定性的情報及び／または 、

b. 事例、及び／または、

c. 定量的な情報、及び／または 、

d. 管理システムによって管理されている UoA の地元の個人や団体から入手したデータ。

SA4.5 長期目標 PI（PI 3.1.3） ■

表 SA23：PI 3.1.3 長期目標に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ガバナンスと方針	長期目標 **3.1.3** **管理方針**の中に、意志決定の指針となる明確な長期目標があり、その目標は MSC の原則と基準に則っており、**予防的アプローチ**が組み込まれている。	(a) 目標◙	MSC の漁業認証規格及び**予防的アプローチ**に合致した、意思決定の際の指針となる長期目標が、**管理方針**の中に**潜在的**に存在している。	MSC の漁業認証規格及び**予防的アプローチ**に合致した、意思決定の際の指針となる明確な長期目標が、管理方針の中で**明示**されている。	MSC の漁業認証規格及び予防的アプローチに合致した、意思決定の際の指針となる明確な長期目標が、管理方針の中で**明示され、管理方針により定められている。**

SA4.5.1 ここでいう管理方針は、審査中の特定の UoA ではなく、審査対象漁業を含むより広義な意味での管理システムの方針を指すものとして解釈しなければならない。

SA4.5.2 審査チームは、この PI の採点における「予防的アプローチ」の意味を以下のように解釈しなければならない。

a. 情報が不確実な場合や、信頼性がなく、不十分な場合には注意を払う。

b. 適切な科学的情報がないことを理由に保護管理措置の実施を延期したり、止めたりしないこと。

SA4.6 審査対象漁業の管理システムに関する PI

SA4.6.1 審査チームは、審査対象漁業の管理システムが全てにおいて、対象漁業の規模や複雑さ、文化的背景に適したものであることを検証しなければならない。

SA4.7 審査対象漁業の目標に関する PI（PI 3.2.1）

表 SA24: PI3.2.1 審査対象漁業の目標に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	審査対象漁業の目標 3.2.1 審査対象漁業の管理システムは、MSC の原則１及び２で示された結果を達成するために明確で具体的な目標を掲げている。	(a) 目標 ◙	MSC の原則１及び２で示されたのとほぼ同じような結果を達成するための**目標**が、審査対象漁業の管理システムの中に**潜在的**に存在している。	MSC の原則１及び２で示された結果を達成するための**短期及び長期目標**が、審査対象漁業の管理システムの中に**明確に**打ち出されている。	MSC の原則１及び２で示された結果を明らかに達成するために、**十分に定義され、測定可能な短期及び長期目標**が、審査対象漁業の管理システムの中に**明確に**打ち出されている。

SA4.7.1 審査チームは、原則 1 及び 2 の PI で採点される個々の漁獲戦略や管理戦略が、原則 3 の「審査対象漁業の目標」と一致していることを検証しなければならない。

SA4.7.1.1 審査チームは、本 PI において、目標を審査しなければならない。

SA4.7.1.2 審査チームは、原則 1 および 2 に関連する PI の目標を実施するための戦略を審査しなければならない。

SA4.7.2 SG100 における「測定可能な」は、大まかな目標を掲げるだけでなく、目標達成に向けてどれだけの成果があげられたかが分かるよう、測定可能な目標設定を行うという意味で解釈しなければならない。 ◙

SA4.8　意思決定プロセスに関するPI（PI 3.2.2）

表 SA25: PI3.2.2　意思決定プロセスに関するPISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	意思決定プロセス 3.2.2 審査対象漁業の管理システムの中に、目標を達成するための**措置**や**戦略**に結び付く有効な意思決定プロセスがあり、漁業における実際の論争解決のための適切なアプローチが取られている。	(a) 意思決定プロセス▪	審査対象漁業の管理システムの中に、目標を達成するための**措置**や**戦略**に結び付く意思決定プロセスが**ある程度**ある。	審査対象漁業の管理システムの中に、目標を達成するための**措置**や**戦略**に結び付く**確立された**意思決定プロセスがある。	
		(b) 意思決定プロセスの対応性▪	意思決定プロセスは、関連する調査、モニタリング、評価、協議の中で特定された**深刻な問題に対し**、透明性のある、タイムリーで順応性のある方法で対応し、意思決定がもたらす広範な影響についてもある程度考慮されている。	意思決定プロセスは、関連する調査、モニタリング、評価、協議の中で特定された**深刻および重要な問題に対し**、透明性のある、タイムリーで順応性のある方法で対応し、意思決定がもたらす広範な影響についても考慮されている。	意思決定プロセスは、関連する調査、モニタリング、評価、協議の中で特定された**あらゆる問題に対し**、透明性のある、タイムリーで順応性のある方法で対応し、意思決定がもたらす広範な影響についても考慮されている。
		(c) 予防的アプローチの適用		意思決定プロセスでは、最善の利用可能な情報に基づいた**予防的アプローチ**がとられている。	
		(d) 管理システムおよび意思決	業績及び管理活動に関するある程度の情	**要請に応じて、業績及び管理活動に関**	調査、モニタリング、評価やレビューを

構成要素	PI	評価項目	SG60	SG80	SG100
		定プロセスにおける責任と透明性 ◙	報は、要請に応じてステークホルダーに提供される。	**する情報が提供され**、調査、モニタリング、評価、レビューを通して得られた知見や関連する勧告に関し、どういうことが行われ、あるいは行われなかったかについての説明がなされている。	通して得られた知見や関連する勧告に関し、管理システムがどういう対応を取ったかについての、**業績及び管理活動に関する包括的情報**の公式な報告が、関心のあるすべてのステークホルダーに対して行われている。
		(e) 論争に対するアプローチ◙	管理当局もしくは漁業は、継続的に提訴の対象になっていたとしても、漁業の持続可能性のために法律や規定に繰り返し背くといった法を軽視、あるいは無視する姿勢をとっていない。	管理当局もしくは漁業は、提訴に対する判決に対し、タイムリーに従う姿勢を示している。	管理当局もしくは漁業は、訴訟を避けるための行動を積極的にとっており、提訴に対する判決に迅速に対応している。

SA4.8.1 審査チームは、適切な科学的情報の不足を理由に、保護管理措置の実施を延期したり、止めたりしていないことを検証しなければならない。

SA4.8.2 この PI の SG80 と SG100 における「予防的アプローチ」とは、意思決定プロセスにおいて情報が不確実な場合や、信頼性がなく不十分な場合には注意をする、という意味で解釈しなければならない。

SA4.8.3 SG100 では、合意形成プロセスの結果生じた措置や戦略について、単独や単一のものというよりは、包括的で総合的な措置または全体的な戦略を有することを審査チームは検証しなければならない。

SA4.8.4 評価項目(d)を採点するにあたり、審査チームは以下の点を検討しなければならない。

a. 審査チームは、漁業の業績やデータの情報公開がどれほど行われているかについて検討すべきである。

b. 管理側により漁業資源の持続可能な利用に影響を及ぼすような行動が取られた際に、ステークホルダーがそれに関する情報をどれくらい入手可能なのか検討すべきである。

c. 意思決定が入手可能な証拠と法に基づく正当な手続きによって行われていることをすべてのステークホルダーが把握できるよう、審査チームは意思決定プロセスの透明性について検討すべきである。

SA4.8.4.1 SG60 レベルでは、補助金、割当、応諾、漁業管理の決定についての全般的な概要を、ステークホルダーの要請に応じて、提供しなければならない。

SA4.8.4.2 SG80 レベルでは、SG60 レベルで必要とされる情報に加えて、以下の情報をすべてのステークホルダーに対して利用可能にすべきである。

a. 意思決定に関する情報。

b. 意思決定に使用される漁業データ。

c. 意思決定の理由。

SA4.8.4.3 SG100 レベルでは、SG60 レベルと SG80 レベルにある包括的な情報が、全てのステークホルダーに公に、定期的に公開されていなければならない。

SA4.9 遵守及び執行に関する PI（PI 3.2.3）■

表 SA26: PI3.2.3 遵守及び執行に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	遵守と執行 3.2.3 漁業の管理措置がきちんと施行され、遵守されることを確実にするための監視・管理・取り締まり（MCS）メカニズムがある。	(a) MCS（監視・管理・取り締まり）システム■	MCS の**メカニズム**が存在する。	MCS **システム**が存在する。	**包括的**な MCS **システム**が確立されている。
		(b) 制裁措置 ■	不適合に対する制裁措置が設けられている。	不適合に対する制裁措置が設けられており、それは UoA にふさわしく、**適用**されている。	不適合に対する制裁措置が設けられており、UoA にふさわしく、一貫して適用されている。
		(c) 遵守（情報）	UoA における遵守を**大旨理解する**のに十分な情報がある。	UoA における遵守を**高い正確さで推定**するために十分な情報がある。	UoA における遵守を**非常に高い正確さ**で**推定**するために十分な情報がある。

構成要素	PI	評価項目	SG60	SG80	SG100
		(d) 遵守 （結果） ◙	水上での持続可能な漁業の実行に特化した規則に対して、**体系的違反**が明白ではない。	水上での持続可能な漁業の実行に特化した全ての規則を含め、ほとんどの規則は遵守されている**可能性が高い**。	水上での持続可能な漁業の実行に特化した全ての規則を含め、ほとんどの規則は一貫して遵守されている。

SA4.9.1 当該 PI に関する審査チームの判定は、可能なかぎり、関連する遵守及び施行機関や個人及び／またはステークホルダーによる独立した、確かな情報に基づいて行われるべきである。

SA4.9.2 評価項目(a)を SG100 で採点するにあたり、審査チームは MCS システムがその適用範囲、独立性、内部抑制と均衡に関して包括的であるかどうかを検討し、文書化しなければならない。

SA4.9.3 評価項目(c)の採点では、「MSC 漁業認証規格ツールボックス」のツール B にある情報の正確性と信頼性の枠組み（ERF）を適用し、どの評価基準が満たされているかを判断しなければならない。

SA4.9.4 評価項目(d)の採点にあたり、審査チームは「保護生息域」と「保護種」に関する規則への遵守も含めなければならない。

SA4.9.4.1 審査チームは、「保護生息域」を、管轄当局によって保護されている生息域として解釈しなければならない。

SA4.9.4.2 審査チームは、「保護種」を、国内の ETP 法に記載されている種、資源、もしくは個体群として解釈しなければならない。

SA4.9.5 審査チームは、評価項目(d)の採点にあたり、「体系的違反」を、水上での持続可能な漁業の実行に特化した規則に対して繰り返される違反と解釈しなければならない。

SA4.10 モニタリングと管理業績評価に関する PI（PI3.2.4） ■

表 SA27: PI 3.2.4 モニタリングと管理業績評価に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	モニタリングと管理業績評価 **3.2.4** 審査対象漁業の管理システムの業績と目標とを照らし	(a) 評価の範囲	管理システムの**一部**を評価するメカニズムが整っている。	管理システムの**主要な**部分を評価するメカニズムが整っている。	管理システムの**全て**を評価するメカニズムが整っている。
		(b)	漁業の管理システムに対し、**時折**内部	漁業の管理システムに対し、**定期的な**	漁業の管理システムに対し、**定期的な**

構成要素	PI	評価項目	SG60	SG80	SG100
	合わせてモニタリング、評価を行うシステムがある。 審査対象漁業と関連増殖プログラムの管理システムが効果的かつタイムリーにレビューされている。	内部及び／または**外部のレビュー**	レビューが行われている。	内部レビューに加え、**時折、外部のレビュー**が行われている。	内部及び外部のレビューが行われている。

SA4.10.1　SG80 や SG100 における「外部のレビュー」は、審査漁業の管理システム外、ということであって、必ずしも国際的ではない、と解釈すべきである。▣

SA4.10.2　「時折」と「定期的」は、UoA の複雑さに応じて解釈するべきである。

End of Section SA

セクション SB: 増殖二枚貝漁業審査時の変更点 ■

増殖二枚貝漁業の審査に使用する通常審査ツリー構造への変更

SB1 全般

SB1.1 全般的要求事項

SB1.1.1 審査チームは、すべての増殖二枚貝漁業の審査において、セクション SA の補足として セクション SB を適用しなければならない。

SB1.1.1.1 本セクションに含まれるのは、セクション SA の通常審査ツリー及び要求事項への追加もしくは変更のみである。

SB1.1.1.2 特に断りのない限り、セクション SA のその他すべての PI、SG 及び要求事項が適用される。

SB2 原則 1

SB2.1 原則 1 に関する全般的要求事項■

SB2.1.1 審査チームは、審査入り報告書案(FCP 7.8)で、審査される増殖二枚貝漁業の種類を明確に定義しなければならない。

SB2.1.2 審査チームは、事前評価を行い、増殖 catch-and-grow (CAG)漁業が、その親資源に悪影響を与えている証拠があるかどうかを調べなければならない。

SB2.1.3 審査チームは、移動が行われているかどうかを事前評価で確認しなければならない。 ◙

SB2.1.3.1 審査チームは、種苗の移動が親資源に悪影響を与えるかどうかを根拠に含めなければならない。

SB2.1.4 増殖 CAG 漁業が種苗の移動を行っておらず、またそれが親資源に悪影響を与えるという証拠がない場合、審査チームは原則 1 を採点しない判断をすることができる。

SB2.1.4.1 審査チームは、この判断の根拠を審査入りコメント用報告書案およびその後のすべての審査・監査報告書に含めなければならない。

SB2.1.4.2 原則 1 を採点しない場合、FCP の表 PC3 の 1 は適用しない。

SB2.1.5 増殖 CAG 漁業が、種苗の移動を含む場合、審査チームは RBF 要求事項 (「MSC 漁業認証規格ツールボックス」 の Tool A) に従い、原則 1 の PI を採点しなければならない。 ◙

SB2.1.5.1 審査チームは、漁業に使用されるすべての種苗採取源について審査しなければならない。

SB2.1.5.2 審査チームは、種苗の移動を含む増殖 CAG 二枚貝漁業の、PI 1.1.3 遺伝的結果について採点しなければならない。

SB2.1.6 審査チームは、孵化場における増殖を含む HAC 二枚貝漁業については、 附属文章 SA の通常審査ツリーもしくは 「MSC 漁業認証規格ツールボックス」 の Tool A の RBF 要求事項に従って、原則 1 の PI に対して採点しなければならない。

SB2.1.6.1 増殖 HAC 二枚貝漁業については、遺伝に関する PI1.1.3、1.2.5、1.2.6 に対して採点しなければならない。

SB2.2　遺伝的影響の結果 PI（PI 1.1.3）

表 SB1: PI 1.1.3 遺伝的影響の結果評価項目

構成要素	PI	評価項目	SG60	SG80	SG100
遺伝子	遺伝的結果 1.1.3 資源の遺伝的構造に対して認識できるような漁業の影響は無いに等しい	(a) 増殖活動による遺伝的影響	漁業が天然資源の遺伝構造に深刻、あるいは付加逆的な被害を与える**可能性は低い。**	漁業が天然資源の遺伝構造に深刻、あるいは付加逆的な被害を与える**可能性は極めて低い。**	増殖活動に付随する、天然資源の遺伝構造へのリスクがないことを、独立してピアレビューされた科学的評価によって、高い確実性をもって裏付けられている。

SB2.3　遺伝管理 PI（PI 1.2.5）

表 SB2: PI1.2.5 遺伝管理

構成要素	PI	評価項目	SG60	SG80	SG100
遺伝子	遺伝管理 1.2.5 深刻な、あるいは不可逆的な被害を天然資源の遺伝子に与える危険性を引き起こさないための、孵化場における増殖活動を管理する戦略がある。	(a) 遺伝管理戦略が講じられている	必要に応じて遺伝管理**措置**があり、遺伝結果(PI 1.1.3)の SG 80 と矛盾しないレベルの資源の遺伝構造を保つことができると考えられる。	必要に応じて**部分的**な遺伝管理戦略があり、遺伝結果(PI 1.1.3)の SG 80 と矛盾しないレベルの資源の遺伝構造を保つことができると考えられる。	遺伝管理戦略があり、遺伝結果(PI 1.1.3)の SG80 と矛盾しないレベルの資源の遺伝子構造を保つことができると考えられる。
		(b) 遺伝管理戦略評価	遺伝管理措置は、一般的な経験や理論または、他の類似の漁業/魚種との比較）といった妥当な論拠から判断して、効果を上げる**可能**	部分的な遺伝管理戦略が、当該資源において直接的に関係する情報に基づき、効果を上げるという**客観的根拠**がある程度ある。	遺伝管理戦略は、当該資源の遺伝子構造についての**徹底的な知識**に基づいており、この戦略が効果を上げる確実性が極めて高く、そ

構成要素	PI	評価項目	SG60	SG80	SG100
			性が高いと考えられる。		のことが**実験によって裏付けられている**。
		(c) 遺伝管理戦略の実施		**必要に応じて、部分的戦略**が効果的に実施されていることを示す**証拠がいくらか**ある。	この戦略が**効果的に実施されている**ことを示す**明確な証拠**がある この戦略が**全体的な目標を達成している**ことを示す証拠がいくらかある。

SB2.4　遺伝的情報 PI (PI 1.2.6)

表 SB3: PI 1.2.6 遺伝的情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
遺伝子	遺伝的情報 1.2.6 当該資源の遺伝的構造に関する情報は、増殖活動によってもたらされるリスクと遺伝的多様性の管理の有効性を測るのに十分である	(a) 情報の質	当該資源の遺伝的構造に関する**定性的、または推測**情報があり、孵化場における増殖の影響を大まかに理解するのに**妥当**である。	当該資源の遺伝的構造に関する**定性的、または推測**情報**といくらかの定量的**情報があり、それらは孵化場における増殖の影響を推定するために**十分**である。	当該資源の遺伝的構造について**詳細に**理解されている。 孵化場における増殖の影響を**高い信頼度**をもって推定できる情報が**十分**にある。
		(b)	必要に応じて、情報は、資源の増殖活	必要に応じて、情報は、資源の増殖活	資源の増殖活動の遺伝子的な影響を管理

構成要素	PI	評価項目	SG60	SG80	SG100
		遺伝的管理戦略についての情報の妥当性	動の**主要**な遺伝的な影響を管理するための**措置**を支持するのに妥当である。	動の**主要**な遺伝的な影響を管理するための**部分的戦略**を支持するのに妥当である。	するための**包括的な戦略**を支持し、またその戦略が目的を達成しつつあるかを**高い信頼度**をもって評価することができる情報がある。

SB3 原則 2

SB3.1 原則 2 における全般的要求事項

SB3.1.1 セクション SA の原則 2 のすべての PI は、増殖 HAC 二枚貝漁業に適用される。

SB3.1.2 審査チームは、種苗採集のみに基づいた増殖 CAG 二枚貝漁業については、認証適用範囲内の混獲種の PI を採点してはならない。 ◙

SB3.1.2.1 審査チームは、セクション SA に従い、けた網や浚渫にて種苗の採集を行う増殖 CAG 二枚貝漁業については、認証適用範囲内の混獲種の PI を採点しなければならない。

SB3.1.3 増殖 CAG 二枚貝漁業については、審査チームは、セクション SA の要求事項に従って ETP/OOS 種の PI を採点しなければならない。

SB3.1.4 増殖 CAG 二枚貝漁業については、審査チームは、セクション SA に従って、生息域と生態系に関する PI を採点しなければならない。

SB3.1.4.1 審査チームは、増殖 CAG 二枚貝漁業に特化した生息域及び生態系への影響を考慮しなければならない。

SB3.1.4.2 垂下式増殖に関する審査チームの採点は、生物起源の堆積物と底生有機物富栄養化による生息域への影響、および二枚貝のろ過摂食による局所的な植物プランクトンの減少による生態系と環境収容力への影響を考慮にいれなければならない。 ◙

SB3.1.5 増殖 CAG 二枚貝漁業に種苗または成体貝の移動が含まれる場合、審査チームは、移動に関する PI 2.5.1、2.5.2、2.5.3 について採点しなければならない。

SB3.1.6 審査チームは、SB 3.1.2 で規定されている場合を除き、移動を含む CAG 二枚貝漁業のすべての種苗源について、通常審査ツリーの原則 2 の PI を採点しなければならない。

SB3.2　移動に関する結果 PI（PI 2.5.1）

表 SB4: PI 2.5.1 移動に関する結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
移動	移動に関する結果 2.5.1 移動活動については、周囲の生態系に認識できるような影響は無いに等しい。	(a) 移動活動による影響 ▪	移動活動については、周囲の生態系に、病気、害虫、病原菌、非在来種を導入する**可能性は低い。**	移動活動については、周囲の生態系に、病気、害虫、病原菌、非在来種を導入する**可能性は極めて低い。**	移動活動が、周囲の生態系に、病気、害虫、病原菌、非在来種を導入する可能性が**極めて低い**ことを裏付ける**証拠**がある。

SB3.3　移動に関する管理 PI（PI 2.5.2）

表 SB5 : PI 2.5.2 移動に関する管理

構成要素	PI	評価項目	SG60	SG80	SG100
移動	移動の管理 2.5.2 深刻な、または、不可逆的な被害を周囲の生態系に与える危険を引き起こさないように、移動を管理する戦略がある。	(a) 移動を管理する戦略がある	移動に関する結果についての業績評価指標(PI 2.5.1)の SG80 レベルに準拠するレベルで、移動活動から周囲の生態系を保護すると**期待される措置**がある。	移動に関する結果についての業績評価指標(PI 2.5.1)の SG80 レベルに準拠するレベルで、周囲の生態系を保護すると期待される**部分的**戦略が、必要に応じてある。	周囲の生態系に対する影響を管理するための戦略がある。
		(b) 移動を管理するための戦略の評価 ▪	措置は、妥当な論拠に基づき、効果がある**可能性が高い**と思われる。	移動活動については、病気、害虫、病原体、非在来種を周囲の生態系に導入する**可能性が極めて低い**ことが有効なリスク評価文書や同等の環境影響評価によっ	移動活動に付随する周囲の生態系へのリスクがない**確実性が高い**ことを、独立してピアレビューを受けた科学的評価によって裏付けられている。

構成要素	PI	評価項目	SG60	SG80	SG100
				て示されている。	
		(c) 移動による不測事態への対策		移動により偶発的な病気、害虫、病原体、非在来種の導入が発生した際の、不測事態に対する合意された**措置**がある。	移動により偶発的な病気、害虫、病原体、非在来種の導入が発生した際の**不測事態に対する正式な計画**が文書化されており、利用できる。

SB3.4 移動に関する情報 PI (PI 2.5.3)

表 SB6: PI 2.5.3 移動に関する情報

構成要素	PI	評価項目	SG60	SG80	SG100
移動	移動に関する情報 **2.5.3** 移動活動の影響に関する情報は、漁業により引き起こされるリスクを評価するために妥当である。	(a) 情報の質	移動に係る管理戦略とリスク低減のために、移動される資源の元の生息場所及び移動先における病気、害虫、病原菌、非在来種の有無に関する情報がある。	移動の管理に関する業績評価指標 2.6.2 の SG80 レベルで要求されるリスクの適切な通達と影響を評価するための**十分**な情報がある。	頻繁に行われる**包括的なモニタリング**により、病気、害虫、非在来種の導入の影響が無いことが、**高い確実性**で示されている。

SB4 原則 3

SB4.1 原則 3 における全般的要求事項■

SB4.1.1 審査チームは、原則 1 が採点されない CAG 漁業を除く増殖二枚貝漁業については、セクション SA に従い、原則 3 の PI を採点しなければならない。

SB4.1.2 原則 1 が採点されない場合、審査チームは、適切かつ有効な法的及び／もしくは慣習的枠組が、原則 2 の PISG に合致する持続可能な漁業を実現することが可能かどうかを、原則 3 の採点において注視しなければならない。

End of Section SB

セクション SC:サケ類漁業審査時の変更点

サケ類漁業の審査に適用される、MSC の 3 原則の PISG を含む通常審査ツリー構造への変更点。

SC1　全般

SC1.1　全般的要求事項

SC1.1.1　チームは全てのサケ類漁業の審査にあたり、セクション SA の補足としてセクション SC を適用しなければならない。

SC1.1.1.1　本セクションは、通常審査ツリーに関する追記および変更のみに言及している。

SC1.1.2　サケ類漁業の審査にあたり、セクション SC で示されている全ての評価項目および PI の得点を出さなければならない。

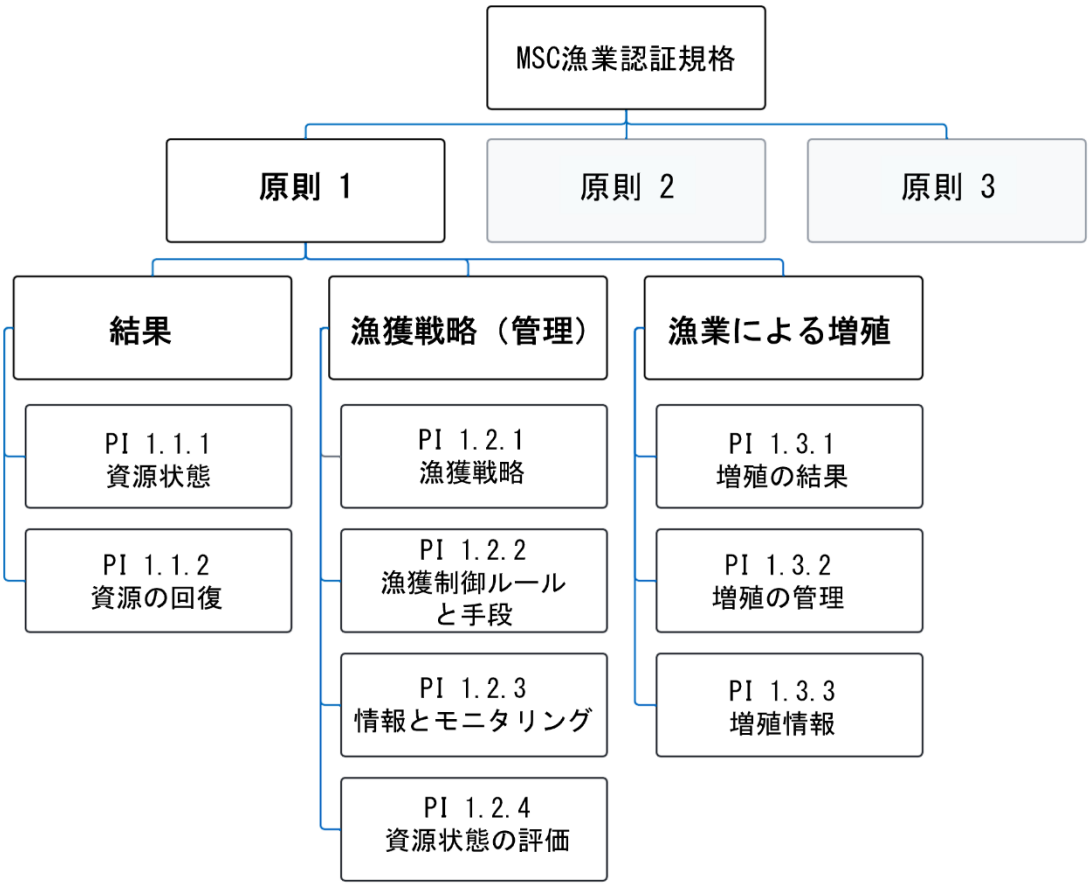
SC1.1.3　審査チームは、セクション SC で使われている重要単語および語句を、表 SC1 の定義に則って解釈しなければならない。

表 SC1:用語および定義

用語	定義及び検討すべき点
人工ふ化放流	人工的な授精の後、魚を自然環境に放つこと。人工ふ化放流は通常、漁獲量の増加、もしくは枯渇した個体群の再建のために行われる。孵化事業もこれに含まれる。
ふ化放流魚	上記の通り、親魚が孵化場もしくは人工産卵場で産卵して生まれた魚。
目標獲り残し量（BEG）	最大持続生産量をもたらす可能性が最も高い獲り残し量。
（サケの）多様性	サケ類の個体群の間に見られる遺伝的変異、および異なった環境への適応。
増殖	サケの自然のライフサイクルへの人為的介入。上記によって定義された人工ふ化放流の他、人工産卵用の河川、湖の施肥といった方法も含まれる。
個体群	資源管理単位（SMU）の構成要素。個体群（あるいは集団）とは、時間および地理的に異なって分布する天然の系群を指す。異種交配のグループになり得る比較的独立した個体群、すなわち、他の系群とは比較的隔離されている場所に生息し、その生息域に適応している可能性の高い個体群を指すこともある。
（サケ類の）生産	産卵親魚ごとの加入尾数×産卵親魚の総数、すなわち個体群の総生産量
（サケ類の）生産性	産卵親魚ごとの加入尾数。セクション SA における「生産性」は個体レベルではなく、資源の生産性を意味する。審査チームはこのことを念頭に入れながらサケ類漁業の審査を行うべきである。
（生態学的群集もしくは生	単位面積、一定期間当たりのバイオマス生産率

用語	定義及び検討すべき点
態系に関連した）生産性	
S_{MSY}	最大持続可能生産量における産卵親魚資源量
資源管理単位（SMU）	一つ以上のサケの個体群からなるグループ。漁業の管理当局は通常、複数系群をひとつのまとまりとして考え、管理目標を設定している。SMU は管理における広い概念で、全ての個体群が個々の SMU を必要とするわけではなく、SMU の一部の個体群に対して管理目標が設定されていることもある。但し、サケ類漁業の審査で適用するセクション SA における「資源」は、SMU のレベルを指すものとする。
野生魚	系群に関係なく、親が野生で産卵した F1 世代の魚。天然魚は自然ふ化魚とも呼ばれる。

SC2　原則 1



図表 1:原則 1 サケ類漁業の通常審査ツリーの修正

SC2.1　原則 1 の全般的要求事項

SC2.1.1　審査チームは原則 1 の審査において、サケ類資源特有の複数系群構造を念頭におかなければならない。 ◙

SC2.1.2　審査チームは、資源管理単位（SMU）を、セクション SA における単一資源と同等と見なさなければならない。

SC2.1.3　セクション SA の標準要求事項が適用される場合には、原則 1 の当該セクションに注記されている。

SC2.2　資源状態 PI (PI 1.1.1)■

表 SC2: PI 1.1.1 資源状態　PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
結果	資源状態 1.1.1 資源管理単位(SMU)は高い生産性を維持し、限界管理基準値（LRP）以下になる可能性が低い。	(a) 資源状態	SMU は、限界管理基準値（LRP）より上に**ある可能性が高い**。	SMU は、LRP より上にある**可能性がかなり高い**。	SMU は、LRP より上にある**確実性が高い**。
		(b) **目標管理基準値(TRP)**に対する資源状態。 ◙		SMU は TRP、あるいはその付近で変動している。	SMU はここ数年、TRP の付近で変動、あるいはそれを上回っている**確実性が高い**。
		(c) 構成個体群の状態			SMU を構成する大半の個体群は予測された変動性の範囲内にある。

資源状態の採点

SC2.2.1　サケ類漁業の PI 1.1.1 の採点をする際、限界管理基準値（LRP）および目標管理基準値(TRP)はセクション SA の PI 1.1.1 の意図するレベルと合致していなければならない。 ◙

SC2.2.1.1　LRP は、以下の可能性がかなり高いレベルに設定されなければならない。

a.　SMU 対象の漁獲が行われる場合に、資源の持続性が保たれる。

b.　SMU 対象の漁獲が行われない場合には、高い生産性にまで資源が回復する。

SC2.2.1.2　TRP は通常、目標獲り残し量、もしくは目標漁獲率として表され、目標獲り残し量や S_{MSY} など、SMU が高い生産性を維持できるレベルに設定されていなければならない。

SC2.2.2　増殖漁業の場合、SMU における天然のサケ資源のみを対象に資源状態の審査を行わなければならない。◙

SC2.2.2.1　審査チームは、産卵親魚の目標獲り残し量やその他の代替基準評価値を評価する際に、ふ化放流魚を含めてはならない。◙

SC2.2.2.2　産卵親魚の獲り残し量やその他の代用基準値において野生魚とふ化放流魚の推測数の区別がされていない場合、審査チームは資源状態について、野生魚のみが挙げられている場合よりも低く採点しなければならない。

SC2.2.3　サケ類の加入周期パターンを考慮に入れてサケ類漁業の PI 1.1.1 を採点する場合、審査チームは以下のことを検討しなければならない。 ◙

SC2.2.3.1　資源状態：サケ類資源特有の個体群動態を考慮すると、漁業が PI 1.1.1 の評価項目(a)の SG60 レベルを達成するためには、 SMU における産卵親魚の平均資源量が限界管理基準値（LRP）より上でなければならない。

SC2.2.3.2　定性的および定量的評価をするために「可能性が高い」、「可能性がかなり高い」、「確実性が高い」という表現が使われている。時系列データが入手できる場合には：

a. 「可能性が高い」は過去最近の 15 年間の 60%以上、すなわち 9 年間以上は LRP より上であると解釈しなければならない。

b. 「可能性がかなり高い」は過去最近の 15 年間の 80%以上、すなわち 12 年間以上は LRP より上であると解釈しなければならない。

c. 「確実性が高い」は過去最近の 15 年間の 90%以上については LRP より上であると解釈しなければならない。

SC2.2.3.3　目標管理基準値に対する資源状態: 時系列データがあり、PI 1.1.1 の評価項目(b)を採点する場合：審査チームは以下の解釈をしなければならない:

a. SG80 レベルの「付近で変動している」とは、過去最近の 15 年間の 50%以上（15 年間のうちの 8 年間以上）における SMU が目標管理基準値に達しているという意味である。

b. SG100 レベルである「確実性が高い」とは、過去最近の 15 年間の 80%以上（15 年間のうちの 12 年間以上）における SMU が目標管理基準値に達しているという意味である。

SC2.2.3.4　構成個体群の状態：評価項目（c）の「SMU を構成する大半の個体群」では定性的および／もしくは定量的分析が可能である。個体群ごとの基準値が設定されておらず、各個体群のモニタリングも行われていない場合、審査チームは専門的な判断および定性的情報に基づき、この評価項目の採点について妥当性のある議論を行うことができる。

a. 漁業は、いつの時点においても、漁業が行われていない場合に、生産性が低い個体群と高い個体群が存在する「可能性が高い」ことを認識し、構成個体群の持続性が保たれるようにするべきである。

SC2.2.4　SA2.2.2 ～SA2.2.7 も適用しなければならない。

SC2.3　資源の回復 PI（PI 1.1.2） ■

表 SC3: PI 1.1.2 資源の回復に関する PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
結果	資源の回復 1.1.2 SMU が悪化している場合、ある一定期間内に資源が回復している	(a) 資源回復の時間枠	SMU の回復の時間枠は、**20 年以内、もしくは 2 世代分の期間内**のいずれか短い方と定められている。		SMU の**1 世代交代を超えない**、最も期間が短い実現可能な回復策の時間枠が定められている。

構成要素	PI	評価項目	SG60	SG80	SG100
	証拠がある。	(b) 回復の評価	漁業の回復**方策**が、指定された期限内にSMUを回復させるのに有効かを判断するためのモニタリングが実施されている。	漁業の回復**方策**が効果的に実施されている**証拠**がある、もしくは、シミュレーション・モデリング、漁獲率もしくは過去の業績から考えて、**指定された期限内に**SMUを回復させられそうである。	漁業の回復**方策**が効果的に実施されている**確固たる証拠**がある、もしくは、シミュレーション・モデリングや漁獲率もしくは過去の業績から考えて、**指定された期限内に**SMUを回復させられる**可能性がかなり高い**。
		(c) 資源回復における増殖の利用▪	資源回復方策としての増殖は、**日常的に行われてはいない**ものの、人為的もしくは自然的影響によって脅かされた多様性を保全もしくは回復させるための措置として一時的に実施されることがある。	資源回復方策としての増殖は**殆ど実施されない**。	資源回復方策としての増殖は**実施されない**。

SC2.3.1 このPIの採点は、SMUが回復を必要とするレベルにまで資源減少し、PI 1.1.1のSG80レベルに満たない場合に限って行わなければならない。▪

SC2.3.2 審査チームは、SMU回復期間において、生物学的限界値を下回る個体群を対象とした漁業や、その他に過剰な漁獲をしている漁業がないことを確認、検証しなければならない。▪

SC2.3.3 SG60レベルで評価項目（a）を採点する際、2世代分の期間が5年未満の場合、回復の時間枠は5年までである。

SC2.3.4 評価項目（c）を採点する際、審査チームは以下の解釈をしなければならない。

a. 「日常的」とは、長期的な管理戦略に組み込まれている、もしくは天然サケ類の個体群管理の代りに行われている。

b. 「殆ど」は、短期における緊急事態の場合にのみ実施され、長期の管理戦略や回復方策の一環として行われていない。

SC2.3.5 SA2.3.2～SA2.3.5も適用しなければならない。

SC2.4　漁獲戦略に関する PI（PI 1.2.1）

表 SC4: PI 1.2.1 漁獲戦略 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略（管理）	漁獲戦略 1.2.1 信頼性の高い、予防的な漁獲**戦略**が講じられている	(a) 漁獲戦略の立案	漁獲戦略により、構成個体群の状態にかかわる問題への**措置**も含む、PI 1.1.1 の SG80 レベルの SMU 管理目標を達成することが**期待できる**。	漁獲戦略は、SMU の状態に**対応**しており、漁獲戦略の各要素は、構成個体群の状態にかかわる**問題**への措置も含む、PI 1.1.1 の SG80 レベルの管理目標の達成に向け、**相乗的に働く**。	漁獲戦略は、SMU の状態に**対応**しており、構成個体群の状態に関する問題への措置も含む、PI 1.1.1 の SG80 レベルの管理目標が達成できるように**立案**されている。
		(b) 漁獲戦略の評価	実績や妥当な論拠に基づき、漁獲戦略が成功する**可能性が高い**。	漁獲戦略は**検証され**、PI 1.1.1 SG80 に反映された目標を満たすことが予想される、もしくは漁獲戦略が PI 1.1.1 SG80 に反映された目標を達成している証拠がある。	漁獲戦略の業績が**評価され**、SMU を目標レベルで維持できることが明らかであるなど、PI 1.1.1 SG80 に反映された目標を達成していることを示す証拠がある。
		(c) 漁獲戦略のモニタリング	漁獲戦略が効果的かどうかを判断するためのモニタリングが行われている。		
		(d) 漁獲戦略の見直し			漁獲戦略は定期的に見直され、必要に応

構成要素	PI	評価項目	SG60	SG80	SG100
					じて改善されている。
		(e) 代替措置の検討	UoA による、対象資源の**不要漁獲**による死亡を最小限に抑えるための**代替措置**の潜在的な有効性、および実用性の検討が行われている。	UoA による、対象資源の**不要漁獲**による死亡を最小限に抑えるための**代替措置**の潜在的な有効性、および実用性の検討が、５年毎に行われ、当該措置が適切に実施されている。	UoA による、対象種の不要漁獲による死亡を最小限に抑えるための**代替措置**の潜在的な有効性、および実用性の検討が、2 年毎に行われ、当該措置が適切に実施されている。

SC2.4.1 評価項目(a)の採点をする際、審査チームは、漁業管理者が漁獲期間、場所、努力量などの漁獲方法を変えることで、SMU 内の微弱な系群の漁獲を最小限に抑える努力をしているかどうかを評価しなければならない。▪

SC2.4.2 評価項目(a)において、審査チームは、人工ふ化放流を行っているサケ類漁業の漁獲戦略が、天然資源の漁獲率を制御することで、自立した、生息地に適応した天然個体群の漁獲率を可能にするよう講じられているかどうかを考慮しなければならない。 ▪

SC2.4.3 SA2.4.1～SA2.4.5 も適用しなければならい。

SC2.5 漁獲制御ルールと手段 PI（PI 1.2.2）▪

表 SC5: PI 1.2.2 漁獲制御ルールと手段 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略（管理）	漁獲制御ルール及び手段 **1.2.2** 明確に定義された、効果的な漁獲制御ルール（HCR）が存在する。	(a) 漁獲制御ルール（HCR）の立案及び適用	**一般的に理解されている**漁獲制御ルールが存在し、SMU の限界管理基準値に近づいたときに漁獲率を下げる機能があると期待される。	**明確な漁獲制御ルール**が存在し、限界管理基準値に近づいたときに漁獲率を確実に下げ、SMU を MSY に相当するレベルで変動させる働きがある。	漁獲制御ルールは、資源の生態学的役割を考慮にいれながら、SMU を MSY のレベル、あるいはより適切な他の**レベルと一致する、目標レベルもしくはそれ以上**で変動させる働きが殆どの場

構成要素	PI	評価項目	SG60	SG80	SG100
					合において期待される。
		(b) 漁獲制御ルールの不確実性に対する頑健性		漁獲制御ルールは、主な不確実要素にも対応できる可能性が高い。	漁獲制御ルールは、SMU の生態学的役割を含む、**多様な**不確実要素を考慮にいれており、主な不確実要素に充分対応できる**証拠**がある。
		(c) 漁獲制御ルールの評価	漁獲制御ルールの実施に使用、もしくは**適用可能**な手段が、漁獲を規制するのに適切で効果的であるという**証拠がある程度ある**。	漁獲制御ルールで求められている漁獲レベルを達成するため、適切で効果的な手段が実施されていることが、**入手可能な証拠から示唆されている**。	漁獲制御ルールで求められている漁獲レベルを達成するため、適切で効果的な手段が実施されているという**明確な証拠がある**。
		(d) 天然個体群の維持	漁獲制御ルール及び手段は、天然個体群の多様性および生産性を維持させる**可能性が高い**。	漁獲制御ルール及び手段は、天然個体群の多様性および生産性を維持させる**可能性がかなり高い**。	漁獲制御ルール及び手段は、天然個体群の多様性および生産性を維持させる**確実性が高い**。

SC2.5.1　評価項目（a）において、審査チームは、漁獲制御ルール及び手段が、SMU を高い生産量に相当するレベルで維持できるかどうかを考慮しなければならない。

SC2.5.2 評価項目（d）において、審査チームは、確立された漁獲制御ルール及び手段が、多様性と生産性を維持するために構成個体群の豊さや空間的／時間的分布をもたらす可能性を裏付ける、野外の証拠及び／もしくは複数の個体群におけるシミュレーションなどによる実証証拠及び／もしくは分析的証拠を考慮しなければならない。◙

SC2.5.3 以下も適用しなければならない。

a. SA2.5.1～SA2.5.3

SC2.6 情報とモニタリングに関するPI（PI 1.2.3）■

表SC6: PI 1.2.3 情報とモニタリングPISGs

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略（管理）	情報とモニタリング 1.2.3 漁獲戦略を裏付ける関連情報が収集されている。	(a) 情報の範囲◙	漁獲戦略を裏付けるための、間接的あるいは直接的情報を含め、SMUの構造や生産性、船団構成に関連する情報が、一部の個体群について**いくらか**は入手できる。	漁獲戦略を裏付けるための、**代表的な天然個体群の漁獲率および産卵親魚の獲り残し量**など、SMUの構成や生産性、船団構成の十分な関連情報が収集されている。	現行の漁獲戦略に直接関連のない情報も含む包括的な情報を入手することができる。
		(b) モニタリング	SMUの天然資源の豊かさや漁業による捕獲量がモニタリングされ、漁獲戦略を裏付けるために**少なくとも一つ**の指標が利用可能で、十分な頻度でモニタリングされている。	漁獲戦略**で定められている精度及び範囲で**、SMUの天然資源の豊かさや漁業による捕獲量が**定期的**にモニタリングされ、漁獲戦略を裏付けるために少なくとも**一つ以上の指標**が利用可能で、十分な頻度でモニタリングされている。	漁獲戦略に必要とされる**すべての情報**が高い頻度で、確実性が高い方法でモニタリングされ、情報の潜在的な**不確実性と、この不確実性に対する**評価と管理の頑健性を十分に理解している。

構成要素	PI	評価項目	SG60	SG80	SG100
		(c) 情報の包括性		対象漁業以外の捕獲量に関しても充実した情報がある。	

SC2.6.1　評価項目（a）の SG80 レベルを採点する際、「十分な関連情報」には直接的証拠及び／もしくは分析、リスク評価を含めなければならない。 ◙

SC2.6.2　SA2.6.1～SA2.6.6 も適用しなければならない。

SC2.7　資源状態の評価 PI（PI 1.2.4） ■

表 SC1：資源状態の評価 PI（PI 1.2.4）

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略（管理）	資源状態の評価 1.2.4 資源状態について十分な評価が行われている	(a) 対象資源に対する資源評価の適切さ		資源評価は、SMU 及び漁獲戦略に対して適切である。	資源評価は、魚種の生物学的特性や UoA の特徴に関連する主要な要素を考慮に入れている。
		(b) 資源評価のアプローチ◙	資源評価は、サケ類に適した一般的な管理基準値と関連した資源状態を推定している。	資源評価は、SMU に適した、推定可能な管理基準値と関連した資源状態を推定している。	資源評価は、SMU およびその天然個体群に適した資源状態および管理基準値について、高い信頼度の推定をしている。
		(c) 資源評価の不確実性	資源評価は、**不確実性の主な原因を明らかに**している。	資源評価は、**不確実性を考慮に入れている。**	資源評価は、不確実性を考慮に入れ、**確率的な方法**で管理基準値と関連した資源

構成要素	PI	評価項目	SG60	SG80	SG100
					状態を査定している。
		(d) 資源評価の査定			資源評価は検証され、頑健であることが示されている。代替的な仮説や資源評価のアプローチの検討も徹底的に行われている。
		(e) 資源評価のピアレビュー		指標個体群の選択、および増殖漁業における天然サケ類の評価方法を含む SMU の状態に関する資源評価はピアレビューを受けている。	指標個体群を使用するための設計や、増殖漁業における天然サケ類の評価方法を含む資源評価は、**内外**のピアレビューを受けている。
		(f) 指標資源の代表性 ▪	SMU の管理に関する決断をする上での主な情報源が指標資源である場合、その指標資源を選択した**科学的根拠**が**ある程度**ある。	SMU の管理に関する決断をする上での主な情報源が指標資源である場合、 SMU の生産性が低い場合にはそれと同等の指標資源が選択されるなど、指標群の状態と管理単位において指標群が代表している他の個体群	SMU の管理に関する決断をする上での主な情報源が指標資源である場合、指標群の状態と、その指標群が代表している生産性が低い個体群を含め、管理単位の他の個体群の状態との間に**高い整合性**が認められる。

構成要素	PI	評価項目	SG60	SG80	SG100
				の状態との整合性が認められる証拠がある程度ある。	
		(g) 資源管理単位（SMU）の定義 ◙	ほとんどのSMUは保護、漁業管理、及び資源評価に関する要求事項に対して明確な根拠をもって定義がされている。	SMUははっきりと定義され、主な個体群の定義については、保護、漁業管理、資源評価に関する要求事項に対する明確な根拠がある。	各SMUには、構成個体群の地理的位置、遡上時期、回遊パターン及び／もしくは遺伝的特徴などを含む明確な記述があり、保護、漁業管理、資源評価に関する要求事項に対する明確な根拠がある。

SC2.7.1 評価項目（b）において、審査チームは、管理基準値が S_{MSY} もしくはそれに近い豊富なレベルを維持できるかどうかを審査しなければならない。 ◙

SC2.7.1.1 増殖サケ類漁業の場合、審査チームは、管理基準値が天然魚のみに基づいているかどうかを考慮しなければならない。 ◙

SC2.7.1.2 目標管理基準値は、SMUが目標獲り残し量や S_{MSY} のような高い生産量を維持するレベルとする。

SC2.7.2 評価項目(f)において、審査チームは、SMUに対する指標資源の個体数、地理的分布、移動時期といった要素を評価しなければならない。 ◙

SC2.7.3 評価項目（g）において、SMUの定義は、資源の構造に対する理解を反映したものでなければならず、構成個体群に関する情報が含まれていなければならない。 ◙

SC2.7.3.1 SMUを定義する際、審査チームは、SMUの定義において、野生魚とふ化放流魚との区別がはっきりと成されているかを審査しなければならない。◙

SC2.8　増殖に関する一般要求事項 PI

SC2.8.1　審査チームは、全てのサケ類漁業において、増殖に関する業績評価指標の採点をしなければならない。

SC2.8.1.1　UoA に関連した増殖活動が行われていない場合、増殖に関する業績評価指標の標準得点を 100 としなければならない。

SC2.8.2　セクション SC の増殖に関する業績評価指標で使用されている主な用語や語句については、表 SC8 に則って解釈しなければならない。

表 SC8:増殖に関する用語と定義 ■

用語	定義及び検討すべき点
生息域の改変による増殖	漁業生産を高める目的で行われる生息域へのあらゆる改変は人工生産と見なすべきである。生息域を正常な状態に戻すために行われる改変は回復と見なすことができる。審査チームはこれを増殖に関する業績評価指標の対象として考慮する必要はない。
人工ふ化放流事業	人工飼育後に湖に放流するなどのふ化事業。
「統合的」ふ化生産	ふ化個体群が天然個体群と関連しており、天然個体群からふ化個体群への遺伝子流動が無視できないような方法で、意図的または実際にふ化プログラムが管理されている場合。
pHOS	自然産卵個体群に占めるふ化場由来魚の割合。審査チームは評価の際、4 年間の単純算術平均を用いるべきである。
pNOB	ふ化場の親魚に占める天然由来（野生）魚の割合。審査チームは評価の際、4 年間の単純算術平均を用いるべきである。
「隔離された」ふ化生産	ふ化場個体群が隔離された再生産（繁殖）グループとして維持され、野生個体群に迷い込み産卵することがないか、あるいは非常に限定的な範囲にとどまる場合。
迷入率	正しく回帰せず、母川ではない川に回帰してしまう魚の割合。

SC2.9　増殖の結果 PI（PI 1.3.1）■

表 SC9：PI 1.3.1 増殖の結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
漁業による増殖	増殖の結果 1.3.1 増殖活動は天然資源に悪影響を与えない。	(a) 増殖の影響 ◙	増殖活動は、天然資源の現地適応や繁殖行動、生産性および多様性に重大な悪影響を与えて**いない可能性が高い**。	I 増殖活動は、天然資源の現地適応や繁殖行動、生産性および多様性に重大な悪影響を与えていない**可能性がかなり高い**。	増殖活動は、天然資源の現地適応や繁殖行動、生産性および多様性に重大な悪影響を与えていない**確実性が高い**。

SC2.9.1　審査チームは、入手可能な情報がどれくらいあるかによって、この PI の採点方法を決定しなければならない。

SC2.9.1.1　増殖の成果に関する研究結果が入手可能な場合には、それを使ってこの PI の採点を行わなければならない。 ◙

SC2.9.1.2　増殖の成果に関する研究結果は得られないものの、pHOS および pNOB の推定値が入手可能な場合には、審査チームはこれらを用いて、魚種および増殖の方法に適した標準値との関連で、この PI を採点しなければならない。◙

SC2.9.1.3　関連研究も pHOS や pNOB の推定値も入手可能でない場合、審査チームは専門的判断により、予防的アプローチを用いてこの PI を採点しなければならない。◙

SC2.10　増殖の管理 PI（PI 1.3.2）

表 SC10：PI 1.3.2 増殖の管理 PISG

評価項目	PI	評価項目	SG60	SG80	SG100
漁業による増殖	増殖の管理 1.3.2 天然資源への増殖活動の影響に対応するための効果的な増殖管理および漁業戦略が講じられている。	(a) 管理戦略が講じられている ◙	増殖活動による重大な悪影響から天然資源を保護する**方法およびプロトコル**が存在する。	増殖活動による重大な悪影響から天然資源を保護する**部分的**戦略が講じられている。	増殖活動による重大な悪影響から天然資源を保護する**包括的な**戦略が講じられている。
		(b) 管理戦略評価	存在する方法およびプロトコルは、妥当な論拠から判	最小限の悪影響を定義するのに使われている結果測定	包括的な戦略によって、増殖活動による著しい有害な影響から天然資源

評価項目	PI	評価項目	SG60	SG80	SG100
			断して、効果を上げる**可能性が高いと考えられる**。	基準を、達成しているという証拠に基づき、戦略が有効であるという**確信を得るための客観的根拠がある程度**ある。	を保護することに成功しているという**明確な証拠**がある。

SC2.10.1 審査チームは、管理者が自然産卵地域での孵化場由来魚と野生魚の交配を最小限に抑えようとしているかを審査しなければならない。 ◙

SC2.11 増殖情報 PI (PI 1.3.3) ■

SC11: PI 1.3.3 増殖情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
漁業による増殖	増殖情報 1.3.3 関連情報が収集されており、増殖活動が天然資源に及ぼす影響を計るための評価が十分に行われている。	(a) 情報の十分さ ◙	漁獲量、総獲り残し量（天然魚と増殖魚の合計獲り残し量）、及びふ孵化場の親魚への増殖漁業の寄与度に関する情報が**ある程度**ある。	漁獲量、総獲り残し量（天然魚と増殖魚の合計獲り残し量）、及びふ孵化場の親魚への増殖漁業の寄与度に関して、定性および定量的な情報が**十分**にある。	漁獲量、総獲り残し量（天然魚と増殖魚の合計獲り残し量）、及びふ孵化場の親魚への増殖漁業の寄与度に関して、**包括的な範囲**の定量的な情報がある。
		(b) 評価における情報の利用	増殖活動による天然資源の状態、生産性および多様性への定性的な影響が考慮されている。	増殖活動による天然資源の状態、生産性および多様性への影響を定量的に推定するため、意思決定者により関連情報の**中程度の分析**が行われ、適用されている。	増殖活動による天然資源の状態、生産性および多様性への定量的影な影響を**高い確実性**で判断するために、意思決定者により関連情報の**包括的な分析**が行われ、

構成要素	PI	評価項目	SG60	SG80	SG100
					日常的に適用されている。

SC2.11.1 評価項目（a）を採点する際、ふ化放流魚のマーキングおよびモニタリングも「情報」に含めなければならない。◙

SC2.11.2 審査にあたり、審査チームは人工ふ化放流の方法について考慮しなければならない。◙

SC3 原則 2

SC3.1 原則 2 に関する一般要求事項

SC3.1.1 セクション SA の原則 2 のすべての PI を適用しなければならない。

SC3.1.2 本セクションは、追加及び修正のみを含む。

SC3.1.3 審査チームは、漁業に関連する増殖活動を明確に検討しなければならない。

SC3.1.4 審査チームは、増殖活動が行われていない場合でも、全ての業績評価指標及び評価項目を採点しなければならない。

SC3.2-9 はセクション SA への変更なし

SC3.10 ETP/OOS 種の結果 PI (PI 2.2.1)

表 SC12: PI 2.2.1 ETP/OOS 種の結果 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	結果状況 2.2.1 ETP/OOS は、良好な保全状態にある。もしくは、UoA および関連の増殖活動はこのレベルへの回復を妨げていない。	(a) 直接的な影響	増殖活動を含む UoA による直接的影響が、ETP/OOS の良好な保全状態までの**回復を妨げる**可能性が低い。	増殖活動を含む UoA による直接的影響が、ETP/OOS の良好な保全状態までの**回復を妨げる**可能性がかなり低い。	増殖活動を含む UoA による直接的影響が、ETP/OOS の良好な保全状態までの**回復を妨げない確実性が高い。**

SC3.11 ETP／OOS 種の管理戦略 PI (PI 2.2.2)

表 SC13: PI 2.2.2 ETP／OOS 種の管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	管理戦略 2.2.2 UoA と、関連の増殖活動には以下のための予防的管理**戦略**がある： ETP/OOS の偶発的な捕獲を最小限に抑えることを確実にし、可能で	(a) 管理戦略が講じられている	UoA および増殖に関連する ETP/OOS の死亡数を最小限に抑え、ETP/OOS 種の結果 PI において SG80 レベルを達成することが期待される**措置**が、必要に応じて講じられている。	UoA および増殖に関連する ETP/OOS の死亡数を最小限に抑え、ETP/OOS 種の結果 PI において SG80 レベルを達成することが期待される**戦略**が、必要に応じて講じられている。	UoA および増殖に関連する ETP/OOS の死亡数を最小限に抑え、ETP/OOS 種の結果 PI において SG80 レベルを達成することが期待される**包括的戦略**が、必要に応じて講じられている。

構成要素	PI	評価項目	SG60	SG80	SG100
	あればゼロにする。 ETP/OOS が良好な保護状態にある、もしくは UoA と関連する増殖活動がこのレベルまで の回復を妨げないこととことが確実である。	(b) 管理**戦略**の効果		**措置、戦略、または包括的戦略**により、ETP/OOS の死亡数を削減または**最小限**に抑えられたことを示す証拠がある。	
		(c) ETP/OOS ユニットの死亡数を最小限に抑えるための**代替措置**の検討		UoA および増殖活動起因の ETP/OOS の死亡を最小限に抑えるための代替措置の検討**が、5 年毎**に行われ、ETP/OOS に対して適切に実施されている。	UoA および増殖活動起因の ETP/OOS の死亡を最小限に抑えるための代替措置の検討**が、2 年毎**に行われ、ETP/OOS に対して適切に実施されている。
		(d) サメのヒレ切り	サメのヒレ切りが行われていないという**確実性が高い**。		
		(e) 漁具流出の管理戦略	UoA と関連する増殖活動には、**必要に応じて**、漁具流出及び流出漁具による ETP/OOS への影響を最小限におさえることが期待される**措置**が講じられている。	UoA と関連する増殖活動には、**必要に応じて**、漁具流出及び流出漁具による ETP/OOS への影響を最小限におさえることが期待される**部分的戦略**が講じられている。	UoA と関連する増殖活動には、**必要に応じて**、漁具流出及び流出漁具による ETP/OOS への影響を最小限におさえることが期待される**戦略**が講じられている。

SC3.12 ETP/OOS 種の情報(PI 2.2.3)

表 SC14: PI 2.2.3 ETP/OOS 種の情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
ETP/OOS 種	情報 **2.2.3** UoA 及び増殖活動が ETP/OOS 種に与える影響と、講じられている**管理措置**や**戦略**の効果を判断するための情報は十分である。	(a)影響の評価に必要な情報の充分さ。	UoA と関連する増殖活動が ETP/OOS 種に与える影響を**おおむね理解する**のに十分な情報がある。	UoA と関連する増殖活動が ETP/OO 種に与える影響を**推定**し、UoA と関連する増殖活動がその回復を脅かす可能性があるかどうかを**高い精度で**推定するための情報は十分である。	UoA と関連する増殖活動が ETP/OO 種に与える影響を**推定**し、UoA と関連する増殖活動がその回復を脅かす可能性があるかどうかを**非常に高い精度で**推定するための情報は十分である。
		(b) 管理戦略に必要な情報の充分さ。	ETP/OOS 種への影響を管理する**措置**を支持するのに必要な充分な情報がある。	ETP／OOS 種への影響を管理するための**戦略**を支持し、死亡数を最小限に抑えるための措置の効果を評価するのに必要な動向を測るための情報は十分である。	ETP／OOS 種への影響を管理するための**包括的戦略**を支持し、死亡数を最小限に抑えるための**措置**の効果を**高い確実**で評価するための情報は十分である。

SC3.13　生息域の結果 PI（PI 2.3.1）

表 SC15: PI 2.4.1 生息域の結果 PI（PI 2.3.1）

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	結果状況 2.3.1 漁業管理機関の管轄内における生息域において、UoA および関連する増殖活動は生息域の構造および機能に深刻、あるいは不可逆的な被害を及ぼしていない。	(a) 感受性のより低い生息域	UoA 及び関連の増殖活動が感受性のより低い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は低い**。	UoA 及び関連の増殖活動が感受性のより低い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は極めて低い**。	UoA 及び関連の増殖活動が感受性のより低い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は極めて低いという証拠がある。**
		(b) 感受性のより高い生息域	UoA 及び関連の増殖活動が感受性のより高い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は低い**。	TUoA 及び関連の増殖活動が感受性のより高い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる**可能性は極めて低い**。	UoA 及び関連の増殖活動が感受性のより高い生息域の構造や機能を深刻、あるいは、不可逆的な被害を及ぼすレベルにまで低下させる可能性が極めて低いという**証拠**がある。
		(c) UoA 内の増殖活動による影響 ◙	増殖活動が、生息域に悪影響を与える**可能性は低い**。	増殖活動が、生息域に悪影響を与える可能性は**極めて低い**。	増殖活動が、生息域に悪影響を与えない**確実性が高い**。

SC3.13.1 審査チームは、この PI における「生息域」の意味を、以下を含むものの、それに限定されるものではないと解釈しなければならない。

a. 水質

b. 産卵場所への天然魚のアクセス、および

c. 河川生息域の質 ◙

SC3.13.2 審査チームは、増殖施設の物理的な運用から生じる影響を評価する必要があり、必ずしも広範な資源の影響という文脈で評価する必要はない。

SC3.13.2.1 増殖に関わる生息域の改変による周辺の生息域への悪影響は、最小限に抑えられなくてはならない。 ◙

SC3.14 生息域の管理戦略 PI (PI 2.3.2)■

表 SC16: PI 2.3.2 生息域の管理戦略 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	管理戦略 **2.3.2** UoA および関連の増殖活動が、生息域に深刻、あるいは不可逆的な被害を与えるリスクがないことを確実にするための**戦略**が講じられている。	(a) 講じられている管理戦略	**必要に応じて**、生息域結果の SG80 レベルを達成することが期待される**措置**が講じられている。	**必要に応じて**、生息域結果の SG80 レベル以上を達成することが期待される**部分的戦略**が講じられている。	すべての MSC UoA／非 MSC 漁業 UoA と関連する増殖活動が生息域に与える影響を管理するための**戦略**が講じられている。
		(b) 管理戦略の効果◙	措置は、妥当な論拠に基づき、効果がある**可能性が高い**と判断される。	UoA とその増殖活動、および/または関与する生息域に関する直接的な情報に基づき、**措置／部分的戦略**が SI（a）で定められた目的を達成していることを示す**何らかの証拠がある**。	UoA とその増殖活動、および/または関与する生息域に関する直接的な情報に基づき、**部分的戦略／戦略**が SI（a）で定められた目的を達成していることを示す**証拠がある**。

構成要素	PI	評価項目	SG60	SG80	SG100
		(c) 管理に関する要求事項およびその他の MSC UoA/非 MSC 漁業が感受性のより高い生息域を保護するために講じている措置の遵守	感受性がより高い生息域を保護するための管理要求事項に対する UoA の遵守状況を**おおむね理解する**情報は十分である。	UoA の管理要求事項の遵守と、他の MSC UoA/非 MSC 漁業が感受性のより高い生息域の保護措置を講じている**場合には**、それをも遵守していることを、**高い精度で推定するのに十分な情報がある**。	UoA の管理要求事項の遵守と、他の MSC UoA/非 MSC 漁業が感受性のより高い生息域の保護措置を講じている**場合には**、それをも遵守していることを、**非常に高い精度で推定するのに十分な情報がある**。
		(d) 流出漁具の管理戦略	UoA および関連する増殖活動には、漁具流出とすべての生息域に対する流出漁具による影響を最小限に抑えることが期待される**措置**が、**必要に応じて**、講じられている。	UoA および関連する増殖活動には、漁具流出とすべての生息域に対する流出漁具による影響を最小限に抑えることが期待される**部分的戦略**が、**必要に応じて**、講じられている。	UoA と関連する増殖活動には、漁具流出とすべての生息域に対する流出漁具による影響を最小限に抑えることが期待される戦略が、**必要に応じて**、講じられている。

SC3.14.1 審査チームは、増殖活動の管理戦略が、以下への影響を軽減するために講じられているかを検討しなければならない。

a. 水質、

b. 産卵場所への野生魚のアクセス、及び、

c. 河川生息域の質

SC3.15 生息域情報 PI (PI 2.3.3)

表 SC17: PI 2.3.3 生息域情報 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
生息域	情報とモニタリング 2.3.3 UoA および関連の増殖活動が生息域に及ぼしているリスク、生息域への影響に対する管理戦略の効果を確認するための情報が充分にある。	(a) 情報の質	生息域の形態と分布に関して、**広義の理解**がある。	UoA 操業域内の生息域の特徴、分布および脆弱性が、UoA の規模と複雑さに見合う詳しさで把握されている。	操業域内の生息域分布について知られており、特に脆弱な生息域がどこにあるかが把握されている。
		(b) 影響を評価する為に必要な情報の充分さ	漁具の使用および増殖活動による生息域への影響について**広義の理解**に必要な情報が充分にある。	生息域に対する増殖活動を含む UoA の影響を**高い精度で推定する**のに必要な情報が充分にある。	生息域に対する増殖活動を含む UoA の影響を**非常に高い精度で推定する**のに必要な情報が充分にある。
		(c) モニタリング		生息域へのリスクの上昇を検知するために必要な情報が継続的に収集されている。	時間の経過によるすべての生息域の分布変化が、観測されている。

SC3.15.1 審査チームは、PI 2.3.1 の結果を裏付けるために、増殖施設および活動に関する情報が収集されているかどうかを検討しなければならない。◙

SC3.15.2 評価項目(b)を SG60 レベルで採点する際、操業許可証によって収集することが法律で義務づけられている当該生息域関連の情報が、実際に収集されているかどうかを検証しなければならない。

SC3.16 生態系の結果 PI (PI 2.4.1)

表 SC18: PI 2.4.1 生態系の結果 PISGs

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	結果状況 2.4.1 UoA および関連の増殖活動は、生態系構造と機能の主要な要素に深刻、あるいは不可逆的な被害を及ぼさない。	(a) 生態系の状態	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は低い**。	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は極めて低い**。	UoA が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は極めて低い**、という**証拠**がある。
		(b) 増殖による影響◙	増殖活動が、生態系の構造や機能の基盤となる主要な要素に、深刻、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は低い**。	増殖活動が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は極めて低い**。	増殖活動が、生態系の構造や機能の基盤となる主要な要素に、深刻な、あるいは不可逆的な被害を及ぼすほどまでの影響を与える**可能性は極めて低い**、という**証拠**がある。

SC3.16.1 評価項目(b)における「生態系の構造と機能の基盤をなす主要な要素」を考慮する上で、審査チームは、捕食や資源をめぐる競争、感染症の伝播による海洋生態系の生産性および天然サケ類の豊富さその他水圏生態系の構成要素への影響なども含めなければならない。◙

SC3.16.2 審査チームは、増殖プログラムによる生態系での相互作用のリスクを以下の二つのカテゴリーに分けなければならない： ◙

a. 感染症の伝播

b. 捕食／競争

SC3.17 生態系の管理 PI (PI 2.4.2) ■

表 SC19: PI 2.4.2 生態系の管理 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	管理戦略 2.4.2 UoA および増殖活動が、生態系の構造や機能に深刻、あるいは不可逆的な被害を与るリスクが確実にないようにするための措置が講じられている。	(a) 講じられている管理戦略	生態系の構造及び機能の基盤となっている主要な要素に対する UoA の**潜在的な影響**を考慮した**措置**が、必要に応じて講じられている。	**入手可能な情報**を考慮した**部分的**戦略が、**必要に応じて**講じられており、生態系の結果 PI が SG80 レベルを満たすまでに UoA の生態系への影響を**軽減する効果が期待できる**。	**UoA による生態系への主な影響全て**に対する措置を含む**計画**に基づいた戦略あり、措置の少なくとも一部は講じられている。
		(b) 管理戦略評価◙	**措置**は、妥当な論拠から判断して、効果を上げる**可能性が高い**と考えられる。	UoA 及び／もしくは対象となる生態系に関するいくつかの直接的な情報から判断して、**措置／部分的戦略**が評価項目（a）の目標を達成している、という**証拠がある程度ある**。	UoA および／もしくは対象の生態系に関する直接的な情報から判断して、**部分的戦略／戦略**が評価項目（a）の目標を達成している、という**証拠がある**。
		(c) 管理戦略の実施		**措置／部分的戦略**が効果的に実施されている**証拠がいくつか**ある。	**戦略／包括的戦略**が効果的に実施されており、 評価項目(a)の目標を達成しているという**明確な証拠**がある。
		(d) 増殖活動の管理◙	生態系の結果 PI が SG60 レベルを満たす効果が期待される確立された人工ふ化魚	**試験評価済み**の人工ふ化魚生産戦略が講じられ、モニタリングも充分に行われて	**充分に評価された包括的な**人工ふ化魚生産戦略があり、生態系の結果 PI が

構成要素	PI	評価項目	SG60	SG80	SG100
			生産戦略が**講じられている**。	おり、また証拠から判断して、その戦略は、生態系の結果 PI が SG80 レベルを満たす効果をあげている確実性が高い。	SG100 レベルを確実に達成していることが検証できる。

SC3.17.1　評価項目（d）を採点する際、審査チームは、増殖活動の生態的リスクを軽減する管理措置が講じられているかどうかを検討しなければならない。◙

SC3.18　生態系情報 PI（PI 2.4.3）

表 SC20: PI 2.4.3 生態系情報 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
生態系	情報／モニタリング **2.4.3** UoA および増殖活動が、生態系に及ぼす影響についての知見が充分である。	(a) 情報の質	生態系の主要な要素を**識別**するのに充分な情報がある。	生態系の主要な要素を**広く理解する**のに充分な情報がある。	
		(b) UoA の影響調査	生態系の主要な要素に対する UoA および関連の増殖活動の主な影響については、既存の情報から推測することができる。	生態系の主要な要素に対する UoA および関連の増殖活動の主な影響については、**詳細な調査が行われている**。	UoA および関連の増殖活動と主要な生態系の要素との相互作用については、**詳細な調査が行われている**。
		(c) 構成要素の機能理解 （すなわち、P1 対象種、適用範囲内の混獲種及び		生態系のそれらの構成要素の主な機能は**知られている**。	それらの構成要素に対する UoA および関連の増殖活動の影響は確認され、生態系におけるこれらの構成要素

構成要素	PI	評価項目	SG60	SG80	SG100
		ETP/OOS 種、生息域）			の主な機能が**理解されている**。
		(d) 情報の関連性		これらの構成要素への UoA および関連の増殖活動の影響に関する十分な情報が入手可能で、生態系への主な影響のいくつかについては推測することができる。	これらの構成要素**および個別要素**への UoA および関連の増殖活動の影響に関する十分な情報が入手可能で、生態系への主な影響について推測することができる。
		(e) モニタリング		リスクの上昇を検知するため、十分なデータが継続的に収集されている。	生態系への影響の管理戦略開発を支えるだけの十分な情報がある。

SC3.18.1　チームは、対象となっている生態系への増殖活動の影響を理解するのに妥当な情報が収集されているかどうかを審査しなければならない。 ◙

SC4 原則 3

SC4.1 原則 3 に関する一般要求事項

SC4.1.1 セクション SA の 原則 3 を全て適用しなければならない。本セクションは追加・変更のみを含む。▪

SC4.1.2 審査チームは漁業と関連のある増殖活動について明確に検討しなければならない。▪

SC4.2-4.3 はセクション SA への変更はない

SC4.4 協議、役割及び責任に関する PI (PI 3.1.2)

SC4.4.1 この PI について採点する際、審査チームは、協議プロセスが漁業と増殖活動の両方を網羅しているかを検討しなければならない。▪

SC4.4.2 表 SA22 への変更はない。

SC4.5 長期目標に関する PI (PI 3.1.3)

表 SC21: PI 3.1.3 長期目標 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
運営と方針	長期目標 3.1.3 SMU と関連の増殖活動の管理戦略は予防的アプローチを取り入れており、MSC 漁業認証規格に合致した意思決定の指針となる明確な長期目標が打ち出されている。	(a) 目標	MSC の漁業認証規格及び予防的アプローチに合致した長期目標が管理方針の中に**潜在的**に存在し、意志決定の際の指針となっている。	MSC の漁業認証規格　及び予防的アプローチに合致した明確な長期目標が、管理方針の中に**はっきり**と打ち出されており、意志決定の際の指針となっている。	MSC の漁業認証規格及び予防的アプローチに合致した明確な長期目標の**設定と実行**が、管理方針の中に**はっきり**と打ち出されており、意志決定の際の指針となっている。

SC4.5.1 審査チームは、漁業の増殖活動が以下のような、明確な長期目標と指針となる政策があるかどうかを検討しなければならない。▪

a. 天然サケ類の持続可能な管理のための原則 1 及び 2 に適合している。

b. 短期的な目標と意思決定プロセスを形成している。

SC4.6 はセクション SA への変更はない。

SC4.7　審査対象漁業の目標 PI（PI 3.2.1）

表 SC22: PI 3.2.1 審査対象漁業の目標 PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	審査対象漁業の目標 **3.2.1** 審査対象漁業および関連の増殖活動の管理システムは、MSC の原則１及び２で示された結果を達成するために明確で具体的な目標を掲げている。	(a) 目標	MSC の原則１及び２で示された結果を達成することとほぼ一致する**目標**が、審査対象漁業および関連する増殖活動の管理システムの中に**潜在的**に存在している。	MSC の原則１及び２で示された結果を達成するための**短期及び長期目標**が、審査対象漁業および関連する増殖活動の管理システムの中に**明確に**打ち出されている。	MSC の原則１及び２で示された結果を明らかに達成するための**明瞭で測定可能な短期及び長期目標**が、審査対象漁業および関連の増殖活動の管理システムの中に**明確に**打ち出されている。

SC4.7.1　審査チームは、原則１及び２で示されている具体的かつ関連する結果を達成するために、漁業がその増殖活動について明確な目標を掲げているかどうかを評価しなければならない。 ◙

SC4.8　意思決定プロセスの PI（PI 3.2.2）

表 SC23: PI 3.2.2 意思決定プロセスの PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	意思決定プロセス **3.2.2** 審査対象漁業および関連の増殖活動の管理システムの中に、目標を達成するための措置や方策に結び付く有効な意思決定プロセスがあり、漁業における実際の論争解決のため	(a) 意思決定プロセス	審査対象漁業および関連の増殖活動の目標を達成するための措置や方策に結び付く**部分的**な意思決定プロセスがある。	審査対象漁業および関連の増殖活動の目標を達成するための措置や方策に結び付く**確立された**意思決定プロセスがある。	
		(b) 意思決定プロセスの対応性	関連する調査、モニタリング、評価や協議の中で特定された**深刻**	関連する調査、モニタリング、評価や協議の中で特定された**深刻**	関連する調査、モニタリング、評価や協議の中で特定された**あら**

構成要素	PI	評価項目	SG60	SG80	SG100
	の適切なアプローチが取られている。		**な問題に対し**、透明性のある、タイムリーで順応できる意思決定プロセスがあり、決定がもたらす広義の影響についてもある程度考慮されている。	**および重要な問題に対し**、透明性のある、タイムリーで順応できる意思決定プロセスがあり、決定がもたらす広義の影響についても考慮されている。	**ゆる問題に対し**、透明性のある、タイムリーで順応できる意思決定プロセスがあり、決定がもたらす広義の影響についても考慮されている。
		(c) 予防的アプローチの適用		意思決定プロセスでは、最善の利用可能な情報に基づいた予防的アプローチがとられている。	
		(d) 管理システム及び意思決定プロセスにおける責任と透明性	業績及び管理活動に関する情報は、要請があればステークホルダーに提供される。	**要請があれば、業績及び管理活動に関する情報が提供され**、調査、モニタリング、評価やレビューを通して得られた発見や有用な提言に関し、どういうことが行われ、あるいは行われなかったかについての説明がなされている。	調査、モニタリング、評価やレビューを通して得られた発見や有用な提言に関し、管理システムがどういう対応を取ったかについての、**業績及び管理活動に関する包括的情報**の公式発表が、関心のあるすべてのステークホルダーに対して行われている。
		(e) 論争に対するアプローチ	管理当局もしくは漁業は、再度、提訴の	管理当局もしくは漁業は、提訴に対する	管理当局もしくは漁業は、訴訟を避ける

構成要素	PI	評価項目	SG60	SG80	SG100
			対象になっていたとしても、持続可能な漁業のための法律や規定に繰り返し背くといった法を軽視あるいは無視する姿勢をとっていない。	判決に対し、タイムリーに従う姿勢を示している。	ための行動を積極的にとっており、提訴に対する判決に迅速に対応している。

SC4.8.1　評価項目(a)の採点をする際、審査チームは増殖活動を取り巻く意思決定のプロセスに、生産レベルや戦略の決定を含めなければならない。 ◙

SC4.9　遵守及び執行に関するPI（PI 3.2.3）■

表 SC24: PI 3.2.3 遵守及び執行に関するPISGs

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	遵守と施行 3.2.3 UoAおよび関連の増殖活動の管理措置がきちんと施行され、遵守されることを確実にするための監視・管理・取り締まり（MCS）メカニズムがある。	(a) MCSシステム	UoA及び関連する増殖活動に対するMCS**メカニズム**が存在する。	UoA及び関連する増殖活動に対するMCS**システム**が存在する。	UoA及び関連する増殖活動に対する**包括的な**MCSが存在する。
		(b) 制裁措置	UoA及び関連する増殖活動は、不履行に対処するための制裁措置を設けている。	不履行に対処するため、UoAと関連する増殖活動に適した制裁措置が設けられており、適用されている。	不履行に対処するため、UoAと関連する増殖活動に適した包括的な制裁措置が設けられており、一貫して適用されている。
		(c) 遵守 （情報）	UoAにおける遵守を大旨理解するのに十	UoAにおける遵守を高い精度で推定するため	UoAにおける遵守を非常に高い精度で推定する

構成要素	PI	評価項目	SG60	SG80	SG100
			分な情報がある。	に十分な情報がある。	ために十分な情報がある。
		(d) 遵守 （結果）	水上での持続可能な漁業慣行に特化した規則に対する組織的な不履行は、UoA と関連する増殖活動において明らかではない。	水上での持続可能な漁業慣行に特化した規則を含む大部分の規則は遵守されている可能性が高い。	水上での持続可能な漁業慣行に特化した規則を含む大部分の規則は一貫して遵守されている。

SC4.9.1　審査チームは、民間の孵化事業者が、人工生産活動において、法および管理システムの目的および要求事項を確実に遵守するための重要な情報を、管理当局と協力しながら収集、共有しているかどうかを検討しなければならない。

SC4.10　モニタリングと管理業績評価に関する PI（PI 3.2.4）

表 SC25: PI 3.2.4 モニタリングと管理業績評価に関する PISG

構成要素	PI	評価項目	SG60	SG80	SG100
審査対象漁業の管理システム	モニタリングと管理業績評価 **3.2.4** 審査対象漁業と増殖プログラムの管理システムの業績と目標とを照らし合わせてモニタリング、評価を行うシステムがある。 審査対象漁業と関連増殖プログラムの管理システムが効果的且つタイムリーにレビューされている。	(a) 評価の範囲	漁業及び関連する増殖プログラムの管理システムの**一部**を評価するメカニズムが講じられている。	漁業と及び関連する増殖プログラムの管理システムの**主要な**部分を評価するメカニズムが講じられている。	漁業及び関連する増殖プログラムの管理システムの**全て**を評価するメカニズムが講じられている。
		(b) 内部および／また外部のレビュー ▪	漁業と関連増殖プログラムの管理システムに対し、**時折内部**レビューが行われている。	漁業と関連増殖プログラムの管理システムに対し、**定期的な内部レビューに加え、時折、外部のレビュー**が行われている。	漁業と関連増殖プログラムの管理システムに対し、**定期的な内部及び外部**のレビューが行われている。

SC4.10.1　孵化事業の計画に、原則 1 および 2 の具体的かつ関連する結果や目的の達成に向けて、漁業の増殖活動のモニタリングを行うために周到な準備が組み込まれているかどうかを評価しなければならない。

SC4.10.1.1　審査チームは、増殖活動が自然生産の構成要素と生態系の機能に及ぼす影響を評価しなければならない。

SC5 サケ類漁業における分別不可能もしくは実務上分別不可能な水産物（IPI）の許容範囲

SC5.1 サケ類漁業の IPI 水産物

SC5.1.1 審査機関が、FCP 7.5.12 に従い、サケ類資源の漁獲を分別不可能又は実務上分別不可能（IPI）として扱うことができるのは、それらが別個に認証されておらず、以下のいずれかにあたる場合のみである。

a. 非対象種（原則 1 ではなく原則 2 で採点）、もしくは、

b. UoA 圏外の対象種、すなわち漁業によって捕獲される資源ではあるが、UoA 内で繁殖しないために通常は SMU の一部として見なされない。

SC5.1.1.1 IPI 資源の候補に挙がっているのが対象種とは異なるサケ類である場合（SC5.1.1a）、審査機関は：

a. IPI 種の総漁獲量が、UoA の対象種と IPI 種を合わせた UoA 全体の漁獲量の 5%未満である場合にのみ、商業的に分離することが不可能であると見なし、

b. FCP 附属文書 PA の要求事項に従い、候補の IPI 種を原則 2 で審査しなければならない。

SC5.1.1.2 IPI 資源の候補に挙がっているのが UoA の P1 対象種と同種で、圏外の種である場合（SC5.1.1.b）

a. IPI 資源の総漁獲量が、UoA の対象種と IPI 種を合わせた全体の漁獲重量の 5%未満でなくてはならず、

b. FCP 7.5.12.1.d は、これらの資源には適用してはならない。しかし、これらの資源が生物学的限界値を上回る場合には、審査機関は漁業について以下のことを実証しなければならない。

i. 総漁獲量の 30%以上を獲っていない。

ii. 資源の回復を著しく妨げる可能性は極めて低い(GSA3.7 と一貫している）。

iii. 資源への影響を軽減する実務的な措置を実施している。

SC5.1.2 IPI 種として候補に挙がっているものが総漁獲重量の 5%制限(SC5.1.1.1 及び SC5.1.1.2)を満たしているかどうかを検討する際、審査機関は候補にあがっている各魚種の繁殖年齢を考慮に入れるために、資格決定日の 2 年以上前の漁獲データを参照しなければならない。◙

SC5.1.3 IPI 種が確認され、SC5.1.1.1.a 及び SC5.1.1.2.a で規定されているように全体の 5%未満である場合、審査機関は FCP（7.5.13 及び付属文書 PA）の IPI の要求事項に従わなければならない。

SC5.1.3.1 審査機関は、IPI 資源の特定をステークホルダー及び MSC に通知するために、「MSC IPI 報告用テンプレート（英語）」 を用いて、MSC ウェブサイトに掲載できるよう MSC データベースに公表をアップロードしなければならない。

End of Section SC

セクション SD 移入種漁業

移入種漁業の審査で使用される通常審査ツリー構造への変更。

SD1　全般■

SD1.1　全般的要求事項

SD1.1.1　すべての移入種漁業の審査において、審査チームは セクション SA の補足として セクション SD を適用しなければならない。

SD1.1.1.1　「移入種」は表 2 のように定義される。

SD1.1.1.2　このセクションは、通常審査ツリー及び要求事項の関連セクションの追加及び変更のみを含む。

SD2　原則 1

SD2.1　原則 1 の全般的要求事項

SD2.1.1　審査チームは移入種の生態学的役割を検討しなければならない。

SD2.1.2　審査チームは原則 1 の標準審査ツリーPISG に基づいて移入種漁業を審査しなければならない。 ◙

SD2.1.2.1　審査チームは、MSY より低い可能性のある TRP を設定している漁業については、生物多様性への影響を軽減するために、必要に応じて、PI1.1.1 および PI1.2.2 の評価項目を修正しなければならない。

a.　審査チームは、繁殖能力が明らかに損なわれるレベル以下に設定されている LRP を認めてはならない。

SD3　原則 2

SD3.1　原則 2 の全般的要求事項

SD3.1.1　審査チームは、移入種が、認証審査対象の漁業の対象種ではなく、当該漁業の活動によって何らかの影響を受けている認証適用範囲内の混獲種かどうかを判断しなければならない。

SD3.1.1.1　適用範囲内の移入種が、他の管理されている漁業の対象種であり、それ故に高い生産性を維持できるように管理されている場合、審査チームは、他の漁業を評価し、適用範囲内の移入種に対するその影響が許容できるかどうかを判断しなければならない。

SD3.1.1.2　もし、適用範囲内の移入種が「有害」であると考えられ、公式又は非公式な撲滅政策の対象となっている場合、審査チームは、漁業がその移入種に与える影響を考慮に入れてはならない。

SD3.1.2　新しい水域への移入によって生じた可能性のある生態系への影響を抑える為に漁業が講じた措置について、審査チームは原則 2 の生態系に関する項目で審査しなければならない。 ◙

SD3.1.2.1　移入種による生態系への影響が拡大するのを抑制するために漁業が何らかの措置を講じている場合、審査チームはそれを評価するために生態系管理 PI 2.4.2 の、SG60、80、100 レベルに追加の評価項目を加えなければならない。

SD3.1.2.2　審査チームは、追加された評価項目を採点する際に、以下の措置を検討しなければならない。

a. 移入による影響を受ける種の回復を可能にするレベルで の TRP の設定。

b. さらなる拡大を防ぐために、資源分布の境界域で TRP を超える漁獲をするなどの封じ込め策。

c. 在来種の保護及び／もしくは避難地域の創設。

d. 他の外来種の更なる導入を禁止する法律の整備。

e. その他の関連メカニズム。

SD3.1.3 生態系への影響がある場合、審査チームは、生物多様性に対する移入種のさらなる影響の理解と拡大防止にとって重要な情報の収集に関する生態系情報の得点項目を追加しなければならない。

SD3.1.4 漁業が PI 2.4.2 に対する措置を講じておらず、PI 2.4.3 において対応する情報がない場合、審査チームは、その漁業において、なぜ生物多様性へのさらなる影響を防ぐための措置が必要ではないと考えられるのかの論拠を示さなければならない。

End of Section SD

セクション SE：地域漁業管理機関が管理する資源に対する原則 1

このセクションは、地域漁業管理機関（RFMO）によって管理される資源の審査に関する FCP と通常審査ツリー構造への修正を含んでいる。セクション SE は、PI 1.2.1 及び PI 1.2.2 の評価項目（a）及び（b）の採点と関連する条件に関するものである。

SE1　セクション SE の全般的要求事項

SE1.1　FCP 及び通常審査ツリーへの修正

SE1.1.1　審査対象資源が RFMO により管理されている場合、審査チームはセクション SE を適用しなければならない。 ◙

SE1.1.2　審査対象資源が RFMO によって管理されていない場合も、審査チームはセクション SE を適用してもよい。

SE1.1.2.1　UoA が重複している場合、審査機関はセクション SE の適用について確実に統一されたアプローチを取らなければならない。

SE1.1.2.2　審査チームは、重複する UoC（すなわち、同じ P1 対象資源を含む UoC）の過半数（半分以上）が同意した場合のみ、RFMO が管理していない対象資源を含む UoA にセクション SE を適用することができる。 ◙

a. 重複する UoC が存在しない場合、SE1.1.2.2 を UoA に適用することができる。

SE1.1.2.3　評価される対象資源が RFMO によって管理されていない場合に、セクション SE を適用する際、審査チームは、セクション SE の要求事項における「RFMO」を、関連する管理機関と解釈しなければならない。

SE1.1.3　審査チームは、RFMO が管理戦略評価（MSE）により検証された管理方式（MP）を含む漁獲戦略の開発に取り組んでいるという証拠がある場合にのみ、セクション SE を適用することができる。 ◙

SE1.1.3.1　以下のような証拠が考えられる：

a. 漁獲戦略の策定及び導入のための、RFMO による関連するタイムラインを伴う作業計画の採択。

b. 当該 RFMO のコミットメントが確認できる通信文、もしくは管理戦略評価実行のための枠組みが概説された管理措置及び／もしくは決議案。

SE1.1.3.2　審査チームは、RFMO のコミットメントを確認しなければならない。

a. 審査チームは、審査入り報告書（ACDR）にその証拠を記載しなければならない。

SE1.1.4　特に断りのない限り、審査チームは次の要求事項を適用しなければならない。

a. 他のすべての FCP 要求事項。

b. セクション SA の通常審査ツリーの 各業績評価指標（PI）とその中の評価項目（SG）の要求事項。

SE1.1.5　このセクションは、FCP の要求事項および セクション SA の通常審査ツリーに対する追加または修正のみを含む。

SE2　原則 1 に関する要求事項

SE2.1　PI 1.2.1 漁獲戦略 PI 1.2.1

SE2.1.1　審査チームは、採択された漁穫戦略に関する以下のいずれかの証拠のみを基に漁獲戦略が「評価」されたかどうかの判断をしなければならない。 ◙

a. 漁獲戦略の実行を通じて、もしくは、

b. 効果の確認が条件のマイルストーン（SE3.2.4 または SE3.3.5）が完了する前に行われていない場合には、漁獲戦略のモデル予測の結果によって

SE2.1.2　PI 1.2.2 で「HCR がある」と採点される場合（SE2.2）、PI 1.2.1 の評価項目（a）（表 SA4）は 自動的に SG60 レベルとしなければならない。

SE2.2　漁獲制御ルールと手段に関する PI（PI 1.2.2）■

表 SE1: PI 1.2.2 漁獲制御ルールと手段 PISGS

構成要素	PI	評価項目	SG60	SG80	SG100
漁獲戦略	HCRs と手段 1.2.2 **明確に定義された**、効果的 HCRs が**講じられている**。	(a) HCR の立案及び適用◙	加入が損なわれる基準（PRI）に近づいたときに**漁獲率を下げることが期待されていると一般的に理解されている** HCR が**講じられている、もしくは利用できる。**	**明確な HCR が講じられ、** PRI に近づいたときに漁獲率を**確実に**下げ、資源を MSY に相当するレベル（もしくはそれ以上のレベル）**あたりで変動させるか**、もしくは主要 LTL 種の場合、生態系のニーズに相当するレベルで変動させることが期待される。	HCR は、**大抵の場合**、資源のレベルを MSY、あるいは資源の生態的役割を考慮にいれた、より適切なレベル**と同じか、もしくそれ以上のレベルで変動させる**ことが期待されている。
		(b) HCR の不確実要素への頑健性 ◙		HCR は、主な不確実要素に対して頑健な可能性が高い。	HCR は、資源の生態学的役割を含む**多様**な不確実要素を考慮に入れており、HCR が主な不確実要素に対して頑健であることを示す**証拠**がある。

構成要素	PI	評価項目	SG60	SG80	SG100
		(c) HCR の評価 ◙	HCR で使用され、もしくは**利用可能な**手段は漁獲制御に適切で**効果的**であるという**証拠がいくつかある。**	HCR で求められている漁獲レベルを達成するため、適切で**効果的な**手段が実施されていることが**入手可能な証拠によって示されている。**	HCR で求められている漁獲レベルを達成するため、適切で**効果的**な手段が実施されているという**明確な証拠がある。**

SE2.2.1 審査チームは、SG100 では、LRP をはるかに上回る資源状態を維持できるよう、追加的な予備的アプローチを HCR に盛りこむことを求めるべきである。

SE2.2.2 審査チームは HCR について以下の解釈をしなければならない。

a. SG60 における「一般的に理解されている」とは、過去に何らかの形で適用されていたことが示せるが、明確に定義もしくは合意されていなことを意味する。

b. SG80 における「明確に定義されている」とは、管理機関、そして理想的にはステークホルダーとの協議によって合意された HCR が何らかの文書で存在し、具体的にどの TRP レベルで、どのような行動を取るかが示されていることを意味する。

c. SG60 と SG80 における「講じられている」は、HCR が管理機関によって採択され、及び／もしくは必要に応じて管理行動が実施されたことを示す証拠もしくは文書が存在することを意味する。

SE2.2.3 評価項目(a)における SG100 の採点において、定量的シミュレーションが「ほとんどの場合」利用可能な場合、審査チームは、資源が少なくとも 70%の確率で B_{MSY} または生態学的により関連性の高い目標値以上に維持されていると解釈しなければならない。

SG60 における、利用できる HCR の採点 ◙

SE2.2.4 SG60 レベルで評価項目(a)の採点をする際、審査チームは以下の場合、講じられている HCR ではなく、利用できる HCR を認めなければならない。

a. 資源量は MSY レベルより減少したことがなく、あるいは少なくとも２世代にわたって MSY レベルで維持されており、B_{MSY} 以下に落ちることが今後 5 年間予想されていない、あるいは、

b. 推定 B_{MSY} が得られない UoA の場合、講じられている措置により、これまで大幅な資源の減少が見られず、加入が損なわれている証拠もない。

SE2.2.5 審査チームは、「PRI に近づいた場合に適用することで、漁獲率の軽減が期待される」、「利用できる漁獲制御ルール」について、以下の場合のみ認めることができる。

a. 同じ管理組織の下にあり、類似の大きさと規模を有するその他の UoA において、「一般的に理解されている」もしくは「明確に定義されている」HCR が実施されている、または、

b. 資源量が B_{MSY} を下回る前に、管理組織が HCR を採用しなければならないという合意もしくは枠組みが講じられている。

SE2.2.6 評価項目(c)を SG60 レベルで採点する際に、利用できる HCR が認められる場合には、審査チームはその根拠として以下のことを含めなければならない。

a. 同じ管理組織の下にある他の UoA で「効果的に」利用されている証拠、及び「効果的」であるという見方の根拠、もしくは、

b. 管理組織が打ち出した正式合意もしくは法的な枠組み、および HCR の策定が求められる指標および発動されるレベルの概要。

HCR の有効性評価

SE2.2.7 評価項目(c)における「証拠」について採点する際、審査チームは、入手可能な場合、漁獲死亡率や漁獲率などによって測定できる UoA の現漁獲割合を検討しなければならない。

SE2.2.7.1 評価項目（c）における漁獲制御ルールの有効性を評価する際に、長期 MSY 達成のための漁獲率に関する情報が得られない場合、審査チームは利用可能な代替指標および管理基準値の使用の妥当性を示さなければならない。

SE3 セクション SE に関するプロセスへの要求事項

SE3.1 条件の設定

SE3.1.1 審査機関は、セクション SE の PI1.2.1 評価項目（a）と(b) 及び PI1.2.2 に対する条件を設定する場合、SE3.2～SE3.4 に準じなければならない。 ◙

SE3.1.1.1 審査機関は、PI 1.2.1 評価項目（a）と(b) 及び PI 1.2.2 に関する FCP の条件設定に関する要求事項に準じてはならない。

SE3.2 MSC 漁業認証規格第 3.1 版の発効日前に認証された UoA に含まれていなかった P1 対象資源に対する条件設定の要求事項

SE3.2.1 審査対象の UoA がすでに認証されている UoA の一部ではない対象資源を含む場合、審査機関は SE3.2.2 から SE3.2.9 に準じなければならない。

SE3.2.1.1 審査対象資源が、MSC 漁業認証規格の第 1.3 版、第 2.0 版 又は 第 2.01 版に対して既に認証されている UoA の一部である場合、審査機関 は SE3.3 に準じなければならない。

SE3.2.1.2 審査対象資源が、漁業認証規格第 3.0 版または第 3.1 版に対して既に認証されている UoA に含まれる場合、審査機関は、SE3.4 に準じなければならない。

SE3.2.2 UoA が PI 1.2.1 の評価項目(a)及び(b)の SG100 を満たさず、PI 1.2.2 の評価項目(a)、(b)、(c)の SG80 を満たさない場合、審査機関は、これらの SG を満たすのに十分な業績改善をもたらす条件を設定しなければならない。

SE3.2.3 審査機関は、以下を念頭に条件の原案を作成しなければならない：

a. PI 1.2.1 の評価項目(a)と(b)について SG100、PI 1.2.2 について SG80 まで業績が改善するように設定。

b. PI 1.2.1 の評価項目(a)と（b）の SG100 及び、PI 1.2.2 の SG80、並びに審査ツリーで使用する関連付属要求事項に沿った文章形式にする。

c. SE3.2.4 のマイルストーンの期限を以下のように明記する。

i. 段階 1 の期限を最大で 1 回の認証有効期間とする。

ii. 段階 2 の期限を最大で認証の有効期間とする。

SE3.2.4 審査機関は、次のマイルストーンを条件付与する際に明記しなければならない。 ◙

a. 段階 1

i. 管理目標、業績評価指標、及び必要なデータが明確である。

ii. オペレーティングモデル及び漁獲量又は漁獲努力の制御機能を含んだ管理方式の候補が、管理戦略評価のシミ ュレーションによって検証されている。

iii. ステークホルダーからのインプットと協議がある証拠。

iv. 合意された漁獲量もしくは漁獲努力の制御を含む管理方式に則った、推奨の漁穫戦略 （複数可）。

b. 段階 2

i. 漁獲量もしくは漁獲努力の制御方法が合意されている。

ii. 科学的助言に則った漁獲量もしくは漁獲努力の制御、又は資源の共有方法を含む管理方式に則った漁獲戦略が採用され、実施されている。

iii. 導入された漁獲戦略の効果を検討するスケジュールが決定される。

SE3.2.5 審査機関は、各段階のマイルストーンを達成する時間枠を規定しなければならない。 ◙

SE3.2.5.1 審査機関は、マイルストーンの時間枠が、UoA の関連管理機関が策定した計画と整合することを確認すべきである。

SE3.2.6 審査機関は、各年次監査において、マイルストーンとその時間枠に照らして、条件達成に向けた進捗状況を評価しなければならない。 ◙

SE3.2.7 審査機関は、初回認証有効期間内に条件の段階 1 を達成できなかった場合、認証更新審査を受ける資格がないことを、クライアントに通知しなければならない。

SE3.2.8 クライアントと審査機関が、条件、マイルストーン、時間枠、及び期限について合意できない場合、審査機関は、UoA を認証してはならない。

SE3.2.9 審査機関は、条件及びマイルストーンを、「クライアントおよびピアレビュー用報告書案」、 並びにその後の全ての報告書に記載しなければならない。

SE3.3 MSC 漁業認証規格第 1.3 版、第 2.0 版 又は 第 2.01 版 に対して既に認証された UoA の一部である P1 対象資源への条件設定に対する要求事項

SE3.3.1 UoA の対象資源が、既に MSC 漁業認証規格第 1.3 版、第 2.0 版、または第 2.01 版に対して既に認証された UoA（PI 1.2.1 及び PI 1.2.2 について付与された条件をまだ達成していない UoA を含む）の一部である場合、 審査機関は SE3.3.2 から SE3.3.9 を適用しなければならない。

SE3.3.1.1 対象資源が、既に漁業認証規格第 3.0 版 に対して認証されている UoA の一部である場合、審査機関は、 SE3.4 を適用しなければならない。

SE3.3.2 UoA が、PI 1.2.1 の評価項目 (a) 及び (b) の SG100、並びに PI 1.2.2 の評価項目 (a) 、 (b) 及び (c) の SG80 を満たさない場合、 審査機関はギャップ分析を行い、SE3.3.5 のマイルストーンに対する UoA の進捗状況を判断しなければならない。 ◙

SE3.3.2.1 審査機関は、審査入り報告書の準備段階で、ギャップ分析を完了しなければならない。

SE3.3.2.2 審査機関は、ギャップ分析を審査入り報告書の付属文書として添付しなければならない。

SE3.3.3 UoA が PI 1.2.1 の評価項目(a)及び(b)において SG100 を満たさず、PI 1.2.2 の評価項目 (a)、(b)、(c)において SG80 を満たさない場合、審査機関は、これらの SG を満たすのに十分な改善をもたらす条件を付与しなければならない。

SE3.3.4 審査機関は、条件達成期限を最大、認証有効期間一期分（5 年）としなければならない。

SE3.3.5 認証機関は、SE3.3.4 で示された期間内で、以下のマイルストーンを明記した条件の原案を作成しなければならない。◙

a. 管理目標、業績評価指標、及び必要なデータが明確である。

b. オペレーティングモデル及び漁獲量又は漁獲努力の制御機能を含んだ管理方式の候補が、管理戦略評価のシミ ュレーションによって検証されている。

c. ステークホルダーからのインプットと協議がある証拠。

d. 合意された漁獲量もしくは漁獲努力の制約を含む管理方式アプローチに則った、推奨の漁獲戦略（複数可）が特定されている。

e. 漁獲量もしくは漁獲努力の制御方法が合意されている。

f. 科学的助言に則った、漁獲量もしくは漁獲努力の制御又は資源の共有方法を含む管理方式に則った漁獲戦略が採用され、実施されている。

g. 導入された漁獲戦略の効果を検討するスケジュールが決定されている。

SE3.3.6 審査機関は、マイルストーン達成の時間枠を指定しなければならない。◙

SE3.3.6.1 審査機関は、マイルストーンの時間枠が、UoA の管理機関が策定した計画と整合することを確認すべきである。

SE3.3.7 審査機関は、年次監査の際に、マイルストーン及び関連の時間枠を基に、条件に対する進捗状況を評価しなければならない。◙

SE3.3.8 クライアントと審査機関が、条件、マイルストーン、時間枠、及び期限について合意できない場合、審査機関は、UoA を認証してはならない。

SE3.3.9 審査機関は、「クライアントおよびピアレビュー用報告書案」及びその後の全ての報告書に、条件とマイルストーンを記載しなければならない。

SE3.4 MSC 漁業認証規格第 3.0 版に対して認証された UoA に既に含まれている P1 対象資源に対して条件を設定する際の要求事項

SE3.4.1 UoA が、MSC 漁業認証規格第 3.0 版に対して既に認証されている対象資源からなる場合（MSC 漁業認証ツールボックスの Tool D に従い セクション SE を早期適用したものを含む）、審査機関は、既に認証されている UoA に対して設定された条件、マイルストーン、時間枠及び期限を採用しなければならない。

SE3.5 条件に対する進捗状況の評価に関する要求事項

SE3.5.1 審査機関は、セクション SE の PI 1.2.1 及び PI 1.2.2 の条件に対する進捗状況を評価する場合、SE3.5 を適用しなければならない。 ◙

SE3.5.1.1 審査機関は、進捗状況を評価する際には FCP の条件付与についての要求事項を適用してはならない。

SE3.5.2 審査チームは各監査時に、条件に対する進捗を評価しなければならない。

SE3.5.2.1 審査チームは、マイルストーン及び関連の時間枠を基に、条件に対する進捗状況を評価しなければならない。

SE3.5.3 審査チームは、進捗が「目標通り」、「目標より進んでいる」、「目標より遅れている」のいずれであるかを文書化しなければならない。◙

SE3.5.3.1 審査チームは、その決定の正当性を示さなければならない。

SE3.5.3.2 マイルストーンに対する進捗が目標より遅れている場合、審査チームは、期限までに条件を達成するために、12 カ月以内（及び次の年次監査まで）に進捗を目標

に戻すために必要な是正処置を指定し、マイルストーンの時間枠を修正することができる。

SE3.5.3.3 審査機関は、段階もしくは条件（SE3.5.5.2 及び SE3.6.2 参照）の最終期限を修正してはならない。

SE3.5.4 付与された条件に対する進捗が次回の年次監査までに「目標通り」になっていないと判断した場合、審査機関は以下を実施しなければならない。 ◙

a. 付与された条件に対する進捗が不十分であるとみなす。

b. GCR 7.4 項（認証の一時停止又は撤退）の要求事項を適用する。

c. 一時停止の原因に対処しない限り、同じ UoC、もしくは UoC 内のいかなる事業体も、 同じ名称又は別名称で本審査に入ることはできないことを漁業クライアントに通知する。

SE3.5.5 SE3.2 に該当する P1 対象資源に設定された条件について： ◙

SE3.5.5.1 審査機関は、段階 1 の終わりまでに、条件の段階 1 が完了しているかどうかを判断しなければならない。

a. 審査チームは、段階 1 のすべてのマイルストーンが達成されたことを確認しなければならない。

SE3.5.5.2 条件の段階 1 が設定された期限までに完了していない場合、審査機関は以下のことを行わなければならない。

a. 条件に対する進捗が不十分であるとみなす。

b. GCR 7.4（認証の一時停止又は取り消し）の要求事項を適用する。

c. 更新審査に入ることができないことをクライアントに伝える。

d. 一時停止の原因に対処しない限り、同じ UoC、又は UoC 内のいかなる事業体も、 同じ名称又は別名称で本審査に入ることができないことを漁業クライアントに通知する。

SE3.5.5.3 審査機関は、段階 2 の終わりまでに、条件の段階 2 が完了したかどうかを判断しなければならない。

a. 審査チームは、段階 2 のすべてのマイルストーンが完了したことを確認しなければならない。

b. 審査チームは、PI 1.2.1 の評価項目(a)と (b) 及び PI 1.2.2 の評価項目を再採点しなければならない。

c. 審査機関は、以下の場合にのみ、段階 2 を完了したと記録することができる。

i. UoC は、PI 1.2.1 の評価項目(a)及び(b)について SG100 を満たしている。

ii. UoC は、PI 1.2.2 の評価項目の SG80 を満たしている。

iii. UoC は、SE3.5.5.1 の段階 1 で完了したマイルストーンを引き続き満たしている。

SE3.5.5.4 条件の段階 2 が期限までに完了しない場合、審査機関は以下のことを行わなければならない。

a. 条件に対する進捗が不十分であるとみなす。

b. GCR 7.4（認証の一時停止もしくは取り消し）の要求事項を適用する。

c. 更新審査に入ることができないことをクライアントに通知する。

d. 漁業クライアントに、一時停止の原因に対処しない限り、同じ UoC、又は UoC 内のいかなる事業体も、 同じ名称又は別名称で、本審査に入ることができないことを通知する。

SE3.5.6 SE3.3 に該当する P1 対象資源に設定された条件について。 ◙

SE3.5.6.1 審査機関は、SE3.3.4 で規定された条件達成期限までに、付与された条件が完了したかどうかを以下に沿って判断しなければならない。

a. 審査チームは、SE3.3.5 のすべてのマイルストーンが完了したことを確認しなければならない。

b. 審査機関は、以下の場合にのみ、マイルストーンが完了したと記録することができる。

i. UoC は、PI 1.2.1 の評価項目(a)及び(b)について SG100 を満たしている。

ii. UoC は、PI 1.2.2 の評価項目の SG80 を満たしている。

SE3.5.6.2 SE3.3.5 の全てのマイルストーンが付与された条件の最終期限までに完了していない場合、審査機関は、以下のことを行わなければならない。

a. 付与された条件に対する進捗が不十分であるとみなす。

b. GCR 7.4（認証の一時停止又は取り消し）の要求事項を適用する

c. 更新審査に入ることができないことをクライアントに通知する。

d. 一時停止の原因に対処しない限り、同じ UoC 又は UoC 内のいかなる事業体も、 同じ名称又は別名称で本審査に入ることができないことを漁業クライアントに通知する。

SE3.5.7 審査機関は、全ての監査報告書及び認証更新審査の報告段階において、条件の進捗状況を明確に報告しなければならない。 ◙

SE3.6 条件完了に対する要求事項

SE3.6.1 審査機関は、以下の場合にのみ条件が完了したことを確認することができる：

a. SE3.2.4 もしくは SE3.3.5 で規定された条件のマイルストーンがすべて達成された。

b. UoC は、PI 1.2.1 の評価項目(a)及び(b)について SG100 を満たし、PI 1.2.2 の評価項目の SG80 を満たしている。

SE3.6.2 付与された条件がすべて最終期限までに完了していない場合、審査機関は以下のことを行わなければならない。

a. 進捗が不十分であるとみなす。

b. GCR 7.4（認証の一時停止又は取り消し）の要求事項を適用する。

c. クライアントに認証更新審査に入ることができないことを通知する。

d. 一時停止の原因に対処しない限り、同じ UoC 又は UoC 内のいかなる事業体も、同じ名称又は別名称で本審査に入ることができないことを漁業クライアントに通知する。 ◙

End of MSC Fisheries Standard

MSC Guidance to the Fisheries Standard

Version 3.1, 22 July 2024

Copyright information

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Responsibility for these requirements

The Marine Stewardship Council (MSC) is responsible for these requirements.

Readers should verify that they are using the latest copy of this and other documents. Updated documents, together with a master list of all available MSC documents, can be found on the MSC website (msc.org).

Versions published

Version no.	Date	Description of amendment
2.0	15 August 2011	New document issued as part of the MSC Fisheries Standard Review, which was completed in 2014.
2.01	31 August 2018	Version issued incorporating updated cross-references in alignment with revision to the MSC Fisheries Certification Process.
3.0	26 October 2022	Version issued incorporating changes to the MSC Fisheries Standard as a result of the MSC Fisheries Standard review.
3.1	22 July 2024	Version issued incorporating amendments to the Standard to address specific issues following feedback from the publication of v3.0 of the MSC Fisheries Standard.

Introduction to this document

The MSC Guidance to the Fisheries Standard is composed of Annexes GSA, GSB, GSC and GSD.

The MSC Guidance to the Fisheries Standard is provided to help Conformity Assessment Bodies (CABs) interpret the MSC Fisheries Standard. The MSC maintains the MSC Guidance to the Fisheries Standard as a separate document.

The headings and numbering in the MSC Guidance to the Fisheries Standard, when included, match those in the MSC Fisheries Standard. Numbers prefaced with the letter “G” indicate guidance.

The MSC recommends that CABs read the MSC Fisheries Standard in conjunction with the MSC Guidance to the Fisheries Standard. The MSC Guidance to the Fisheries Standard does not repeat text in the MSC Fisheries Standard.

In the MSC Fisheries Standard, this icon ◙ at the end of the section title or clause indicates that there is guidance that generally relates to the subject of that section or clause. These icons provide hyperlinks to the related guidance section in the MSC Guidance to the Fisheries Standard.

In this document, this icon ▲ provides a hyperlink to the corresponding section or clause in the MSC Fisheries Standard.

Auditability of the MSC Guidance to the Fisheries Standard

The guidance contained in the MSC Guidance to the Fisheries Standard is not directly auditable.

Table of contents

GS1 Scope

GS1.1 Scope requirements of the MSC Fisheries Standard

GS1.1.3 Enhanced fisheries ▲

Categories of enhanced fisheries

Table 1 in the MSC Fisheries Standard defines the criteria by which enhanced fisheries may be identified as being within the scope of the MSC Fisheries Standard. The categories of enhanced fisheries that may be in scope are as follows:

- **Hatch and catch (HAC)**.
  - This production system may be considered within scope in certain circumstances, reflecting the established case history and precedent set by hatchery-stocked salmon fisheries.
  - For these types of fishery, more-intensive culture activities may be allowed as long as they only apply to a brief period within the species' life cycle.
  - HAC operations that must not form the basis of a recovery and rebuilding plan. If rebuilding has been done by stocking in the past, it shall not result in an out-of-scope determination as long as other measures are now in place to manage wild stocks.
- **Catch and grow (CAG)**.
  - This production system's "grow-out" and holding systems may be considered within scope under certain conditions.
  - CAG has some features of intensive aquaculture, requiring routine inputs, such as feed, chemical, or medicinal treatments, that are out of scope.
  - CAG systems that only require limited enhancement, such as rope culture of bivalves, may be considered within scope for the entirety of their operation.
- **Habitat-modified**.
  - This production system involves modification to habitat, such as salmon fry farms located next to river systems.

A single fishery may display several of the features of CAG, HAC, or habitat-modified fisheries. In the application of MSC requirements, it is intended that any overlap between categories should not become complicating factors in determining whether a Unit of Assessment (UoA) is in or out of scope. In some cases, distinctions are drawn between applications of the criteria to these different categories.

For enhanced fisheries, only the part of the catch that is clearly landed during the catching operation, such as that permanently removed from the water by the fishery, would be eligible to enter into MSC certified chains of custody. The part of the catch that is clearly landed would be subject to the normal chain of custody and fishery traceability requirements. Operations in which no part of the catch is clearly landed are considered inseparable from any subsequent "grow-out" phase, and the scope criteria for enhanced fisheries apply to the operation in its entirety.

Scope criteria B: feeding and husbandry

The application of criterion Bii in Table 1 specifically to CAG operations recognises that some HAC fisheries may routinely use disease prevention and other measures to maximise survival. These practices are allowed because the short duration of the captive-growth phase will limit the potential environmental impacts. However, these impacts are included in the Principle 2 assessment.

Scope criteria C: habitat and ecosystem impacts

Habitat modifications in enhanced fisheries can include:

- Physical changes to the seabed or river course. The wide range of possible modifications include:
  - Construction of simple ponds in intertidal areas.
  - Watercourse management measures aimed at improving spawning habitats.
- The use of a range of man-made structures associated with the rearing or capture of fish that are not strictly fishing gear. For example:
  - Fish attracting and/or fish aggregating devices (FADs).
  - Lobster casitas.
  - Mussel culture ropes in CAG systems.

Such artificial habitat modifications either enhance the productivity of the fishery, or facilitate the capture or production of commercial marine species.

GS1.1.5 & GS1.1.6 Exclusion of vessels ▲

The MSC's intent is to prevent access to a certificate where there is evidence of serious crimes or shark-finning offences whilst undertaking fishing operations. This is achieved by preventing vessels implicated in these activities from being included on a fishery certificate.

The team should interpret implication of a vessel to mean that a person, or people, committed a serious crime or a shark-finning offence on board the vessel at some point in the "last 2 years".

In cases where fishing operations are not vessel-based, the requirement should be interpreted to mean the exclusion of the individual fishing operator who committed a serious crime or a shark-finning offence while undertaking fishing operations.

Two-year timeframe

The team should calculate the "last 2 years" from the date the CAB announces the fishery assessment on the MSC website.

Location of the activity

If a vessel has been implicated in the conviction of a serious crime or a shark-finning violation in the "last 2 years" in any jurisdiction or area, not only those included in the UoA, the vessel should not be included on a certificate.

GS1.1.5 Conviction for a serious crime ▲

The definition for serious crime provided is based on that used in the United Nations (UN) Convention against Transnational Organized Crime.

GS1.1.5.1 & GS1.1.6.1 Excluding vessels for 2 years ▲

The 2-year exclusion timeframe is calculated from the date the vessel was excluded. The date of exclusion is the date the updated certification documents were published on the MSC website.

If the vessel was excluded at the point of the initial certification, the date of its exclusion is the date the CAB announces the fishery assessment on the MSC website.

GS1.1.5.1.b & GS1.1.6.1.b Relevant information ▲

An updated vessel list is an example of relevant information.

GSA The default assessment tree

Background to GSA guidance ▲

Unless the team can show just cause for why a different tree should apply, the team should use the hierarchical structure and the prescribed default set of Performance Indicator Scoring Guideposts (PISGs) in all assessments.

Structure of the default assessment tree

The default assessment tree structure is divided into 4 main levels for the purposes of scoring, as summarised below:

- Principle: the Principles represent the overarching basis for the assessment tree.
- Component: a high-level sub-division of the Principle.
- Performance Indicator (PI): A PI is a further sub-division of the Principle.
- Scoring Issue (SI): a sub-division of the PI into related but different topics. Each PI has one or more SIs against which the fishery is assessed at the SG60, SG80, and SG100 levels.

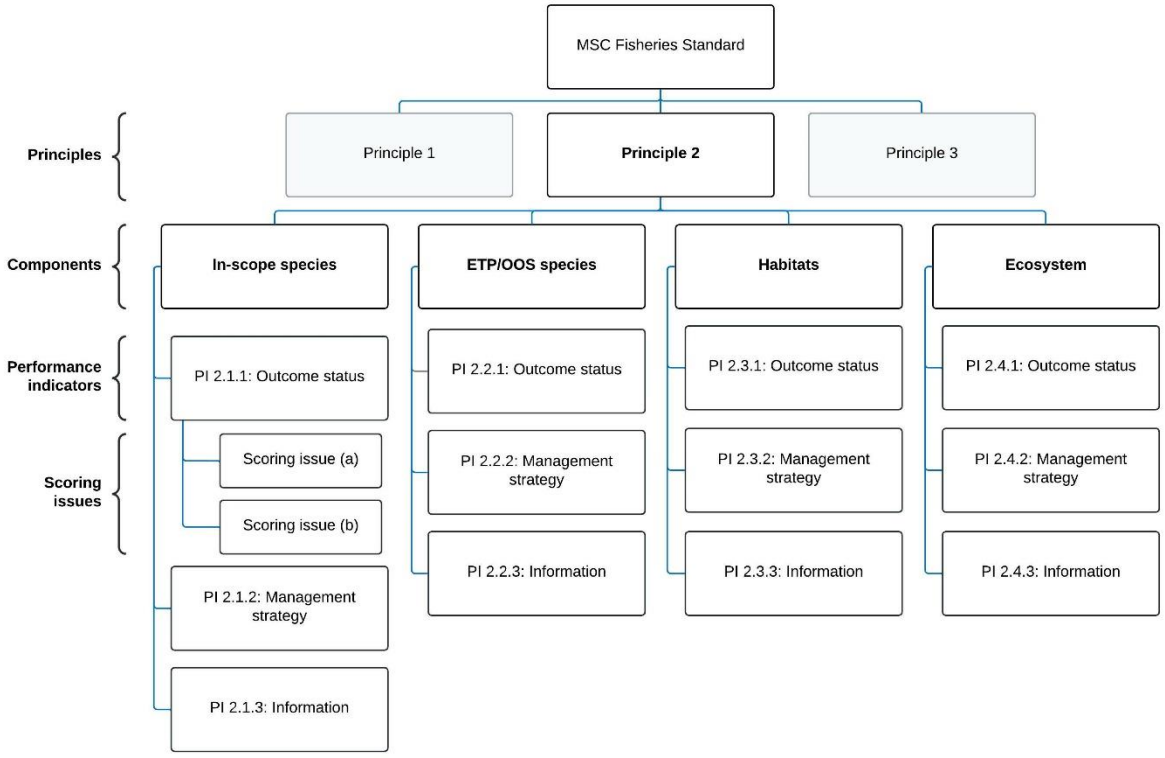

Figure GSA1: Default assessment tree levels relevant to scoring fisheries

For each SI, SGs are defined at 60, 80, and 100 levels. In scoring a fishery, the CAB identifies:

- The level achieved by the fishery for each SI.
- The overall level achieved as a result for the PI.

In order to pass, a fishery is required to achieve:

- At least a 60 score for each PI.
- At least an aggregate 80 score for each Principle. For a score of less than 80, a condition is assigned.

For specific details on scoring, see FCP 7.15 and related guidance.

Some scoring issues are contained within parenthesis in the PISG tables. This indicates that there may be situations where the team should not score the scoring issue. The team should follow all relevant SA clauses for those scoring issues.

Default assessment trees

Section SA is designed to be applicable to most fisheries. Section SB and Section SC are default assessment trees for bivalves and salmon respectively. The CAB may develop modified assessment trees for fishery types that cannot be adequately assessed against existing default assessment trees (see FCP 7.10.5).

GSA1 General

GSA1.1 General requirements ▲

Box GSA1: Precautionary approach

International and customary law requires the use of the precautionary approach in fisheries management. The MSC uses as its baseline definition for the precautionary approach the definitions included in the Food and Agriculture Organization of the UN (FAO) International Code of Conduct for Responsible Fisheries[2] and the UN Fish Stocks Agreement[3], Article 6 of which states:

The precautionary approach shall be interpreted to mean being cautious when information is uncertain, unreliable or inadequate and that the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.

In the 'MSC Fisheries Standard', the application of the precautionary approach in fisheries management systems is explicitly scored in PIs 3.1.3 and 3.2.2. However, the MSC's intent is that the precautionary approach be applied implicitly throughout the Standard. To capture this intent, the MSC system has been designed to give higher scores where there is more certainty about the outcome, or where management systems appropriately apply precaution under conditions of uncertainty. The team should, where limited information is available, be more precautionary in its assessment of information adequacy to support an outcome PI score.

Box GSA2: The MSC's intent and understanding of the standard in relation to illegal, unreported, and unregulated fishing

The FAO definition of illegal, unreported, and unregulated (IUU) fishing is as follows[4]:

Illegal fishing refers to fishing activities:

- Conducted by national or foreign vessels in waters under the jurisdiction of a state, without the permission of that state, or in contravention of its laws and regulations.

[2] FAO Code of Conduct for Responsible Fisheries. Rome: FAO.1995.
[3] The UN Fish Stocks Agreement, United Nations conference on straddling fish stocks and highly migratory fish stocks, Sixth session, New York, 24 July – 4 August, 1995.
[4] FAO (2002) Implementation of the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing. FAO Technical Guidelines for Responsible Fisheries 9. Rome: Food and Agriculture Organization, FAO. Available at: http://www.fao.org/3/y3536e/y3536e00.htm [accessed on 17 July 2022].

- Conducted by vessels flying the flag of states that are parties to a relevant regional fisheries management organisation (RFMO) but operate in contravention of the conservation and management measures (CMMs) adopted by that organisation and by which the states are bound, or relevant provisions of the applicable international law.
- In violation of national laws or international obligations, including those conducted by cooperating States to a relevant RFMO.

Unreported fishing refers to fishing activities:

- That have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations.
- Conducted in the area of competence of a relevant RFMO that have not been reported or have been misreported, in contravention of the reporting procedures of that organisation.

Unregulated fishing refers to fishing activities:

- In the area of application of a relevant RFMO that are conducted by vessels without nationality, or by those flying the flag of a state not party to that organisation, or by a fishing entity, in a manner that is not consistent with or contravenes the CMMs of that organisation.
- In areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with state responsibilities for the conservation of living marine resources under international law.

These definitions of IUU fishing have been adopted and incorporated into action plans to deter and eliminate IUU fishing at both the national level in the case of the United States, New Zealand, and Australia, and RFMOs, such as the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), as well as economic entities, such as the European Union. RFMOs publish lists of vessels engaged in IUU fishing in their areas of responsibility.

IUU fishing can also apply at a state level; for example, where coastal nations or their sub-jurisdictions, such as internal states or provinces, have inadequate regulation to prevent illegal, unreported, or unregulated catches.

In relation to IUU, the MSC's intent is that Units of Assessment (UoAs) be harvested legally and that IUU is non-existent; or where IUU does exist, it is at a minimum level such that management measures, including assessments, harvest control rules (HCRs), and the estimation of IUU impacts on harvested species and the ecosystem are capable of maintaining affected populations at sustainable levels.

Specifically:

- The team should consider unreported IUU fishing as "unobserved mortality".
- The UoA should be free from IUU catches of target (P1) species. The team should assess this in P1, and in P3: compliance with national and international laws and monitoring, control, and surveillance (MCS), such as in PIs 3.1.1, 3.2.2, 3.2.3.
- The stocks that are the source of P1 certified fish should have only minimal IUU fishing, which should be taken into account by management and should not have a material impact on the ability of the management system to deliver a sustainable fishery. The team should consider this in the PIs on HCRs, information, and assessment of stock status in P1, such as in PIs 1.2.2, 1.2.3, 1.2.4, including documentation of "unobserved mortality".
- The requirement for compliance with national and international laws combined with the requirement that the UoA should not be causing serious and irreversible harm in P2 means that the UoA should also be free from IUU fishing for P2 species. The team should document the impact of other IUU fishing on P2 components where known. However, unlike in P1, the team need not introduce it into the assessment of the specific impact of the UoA, or cumulative UoAs.

- The MSC Chain of Custody Standard requires that neither chain of custody certificate holders nor certified UoAs should use vessels that are listed on IUU blacklists to catch or transport fish.
- The MSC Chain of Custody Standard is designed to ensure that MSC labelled products cannot be mixed with products from a non-certified UoA, where there may be a risk of IUU fishing.

Specific guidance is provided in relation to local, national, and international laws as follows:

- PI 1.2.3: GSA2.6.3 on information categories to consider for fishery removals.
- P2 general guidance: GSA3.3.4 on considering observed and unobserved fishing mortality, including illegal fishing, and/or unregulated catches.
- PI 3.2.3: GSA4.1 on considering compliance and enforcement.

When evaluating the effectiveness of MCS in UoAs where a less formalised MCS system exists, the team may consider the role and effectiveness of a range of factors in deterring illegal activity, as described in GSA4.9 on assessing informal and traditional approaches in PI 3.2.3. GSA4.9 also includes additional guidance on P3 (PI 3.2.3).

GSA2 Principle 1

GSA2.1 General requirements for Principle 1 ▲

Outcome component

Background

The team should score stock status PI (1.1.1) to reflect management behaviour that:

- Increases the probability that exploited biomass fluctuates around the biomass at maximum sustainable yield (B_{MSY}) target, or a higher target if this is warranted from a consideration of the trophic inter-dependencies of the target species (see Box GSA3 below).
- Decreases the probability that exploited biomass will drop significantly towards the point where recruitment becomes impaired through recruitment “overfishing”, genetic effects, or imbalances in sex ratio.

Stocks with a status below the point of recruitment impairment (PRI) would not achieve the necessary pass level in PI 1.1.1, even if there were recovery plans or programmes in place that are effectively increasing the status of the stock, until such time as the stock status again meets SG60.

The following outcomes would attract scores of 80 or higher:

- A higher likelihood of fluctuation around the target biomass level.
- Biomass levels in excess of target levels, which imply a lower probability of being below target levels.
- A higher probability of being above the point at which recruitment could be impaired, often used as a biomass limit reference point (LRP).
- In PI 1.1.2, a more rapid demonstrated rebuilding of stocks from the point where they attract only a 60 score to levels able to deliver MSY.

An explanation of the MSC’s intent and understanding in relation to MSY is provided in Box GSA3.

Box GSA3: The MSC’s intent on the achievement of MSY in P1

The MSC’s intent is that fisheries be harvested no more than is consistent with MSY, as required by the United Nations Convention on the Law of the Sea (UNCLOS), and that this is achieved through use of appropriate target reference points (TRPs) and limit reference points (LRPs), and of harvest strategies, as required by the 1995 United Nations Fish Stocks Agreement (UNFSA) and

the UN Food and Agriculture Organization (FAO) 1995 Code of Conduct for Responsible Fisheries (CCRF), where:

- A TRP reflects a management objective to be achieved; for example, performance consistent with MSY.
- An LRP reflects an undesirable state to be avoided with high probability; for example, impaired recruitment.

The most basic definition of MSY is the largest long-term average annual catch that can be sustained over time. The FAO Glossary defines MSY as:

The largest average catch or yield that can continuously be taken from a stock under existing environmental conditions. For species with fluctuating recruitment, the maximum might be obtained by taking fewer fish in some years than in others.

The constant fishing mortality that gives this MSY is F_{MSY}, where F is the fishing mortality rate. The average population size while MSY is provided is B_{MSY}.

MSY was originally defined in terms of simple production models. However, the concept is now equally applicable to any model of the stock and fishery; for example, more complex production models, dynamic pool models, "per-recruit" models, multi-stock/mixed stock models, ecosystem models, and meta-population models.

There are many ways to estimate MSY and related reference points. Many of them, particularly the older methods common at the time UNCLOS and UNFSA were agreed, make substantial assumptions. Therefore, there can be considerable uncertainty about the accuracy of the estimates of MSY and related reference points.

Because the productivity, or recruitment, of many fish stocks is naturally highly variable through time, the biomass can vary greatly around B_{MSY}, in some cases even with an appreciable chance of the stock being below the biomass LRP, when fished at the constant F_{MSY}. This variability in stock biomass can be mitigated by using an HCR that reduces the fishing mortality when stock biomass is low or an LRP is approached, as recommended by UNFSA and CCRF. For some HCRs, including the constant escapement policies common in salmon and some low small pelagic fisheries, the fishing mortality is reduced to zero at a threshold stock biomass[5].

Reflecting the uncertainty usual in the estimation of MSY reference points and the variability of productivity usual in fish stocks, the UNFSA guidelines and others[6] recommend that F_{MSY} should be treated as a precautionary LRP, rather than a TRP. This is appropriate in "common practice" application of MSY concepts, in which there is little explicit consideration of uncertainty and/or use of approximate methods for determining MSY reference points and/or use of surrogates for fishing mortality or stock biomass.

The "best practice" current view of MSY is that it is the largest long-term average catch that results from a constant F or variable F HCR, while simultaneously giving a high chance of avoiding the biomass LRP. MSY is determined by simulation testing, such as via management strategy evaluation methods[7], that includes realistic representation of the major likely uncertainties; for example, observation uncertainty, estimation uncertainty, recruitment variability, model structure uncertainty, and implementation uncertainty. F_{MSY} determined this way could be an appropriate TRP, because its method of calculation internalises uncertainty, variability, and the biomass LRP.

[5] Mace, P.M. (2001) A new role for MSY in single-species and ecosystem approaches to fisheries stock assessment and management. Fish and Fisheries 2: 2–32.
[6] Mace, P.M. (2001) A new role for MSY in single-species and ecosystem approaches to fisheries stock assessment and management. Fish and Fisheries 2: 2–32.
[7] Sainsbury, K.J., Punt, A.E., and Smith, A.D.M. (2000) Design of operational management strategies for achieving fishery ecosystem objectives. ICES Journal of Marine Science 57: 731–741.
For example: Butterworth, D.S., and Punt, A.E. (1999) Experiences in the evaluation and implementation of management procedures. ICES Journal of Marine Science 56: 985–998.

MSY stock status

The stock status consistent with MSY is fundamentally defined in the terms F_{MSY} and B_{MSY}. Hence, the 'MSC Fisheries Standard' provides default TRPs and LRPs for these. The team can use approximations for F_{MSY} and B_{MSY} where they are expected to achieve performance consistent with MSY[8].

The team can use directly measurable, empirical proxies or surrogates for fishing mortality or biomass, for example average length or length distribution, catch rate, recruitment, and escapement, and associated empirical harvest strategies, where they are expected to achieve performance consistent with MSY or a similar "highly productive" level[9] (i.e. multispecies fisheries).

Subsidies in fishing

The MSC does not name individual subsidy types as harmful or not harmful to fishing. However, some subsidies may contribute to overcapacity, which may compromise the ability of a management system to effectively control fishing effort. When considering the effectiveness of a management strategy and its ability to meet P1 outcomes, the team should take into account any impacts of fishing overcapacity and other issues resulting from subsidies.

If overcapacity exists as a result of subsidies, the team should consider whether the management system is robust enough to deal with this issue and still deliver a sustainable fishery as per Principle 1 and Principle 2.

GSA 2.1.1 ▲

It is the MSC's intent that any stock determined to be an endangered, threatened or protected (ETP) species cannot be assessed under Principle 1.

GSA2.2 Stock status Performance Indicator (PI 1.1.1) ▲

The terms "likely", and "highly likely" are used to allow scoring by either qualitative or quantitative approaches:

- Examples of qualitative interpretation include:
  - Analogy with similar situations.
  - Plausible argument.
  - Empirical observation of sustainability.
  - Qualitative risk assessment.
- Examples of quantitative interpretation include:
  - The use of measured data from the relevant fishery.
  - Statistical analysis.

[8] Witherall, D., Pautzke, C., and Fluharty, D. (2000) An ecosystem-based approach for Alaska groundfish fisheries. ICES Journal of Marine Science 57: 771–7.
Clark, W.G. (2002) $F_{35\%}$ revisited ten years later. North American Journal of Fisheries Management 22(1): 251–257.
Zhou, S., Shaowu, Y., Thorson, J.T., Smith, A.D.M., and Fuller, M. (2012) Linking fishing mortality reference points to life history traits: an empirical study. Canadian Journal of Fisheries and Aquatic Science 69: 1292–1301.
[9] Starr, P.J., Breen, P.A., Hilborn, R., and Kendrick, T.H. (1997) Evaluation of a management decision rule for a New Zealand rock lobster substock. Marine and Freshwater Research 48: 1093–1101.
Prince, J.D., Dowling, N.A., Davies, C.R., Campbell, R.A., and Kolody, D.S. (2011) A simple cost-effective and scale-less empirical approach to harvest strategies. ICES Journal of Marine Science 68: 947–960.

- Quantitative risk assessment.
- Quantitative modelling.

GSA2.2.1.1 Determination of status with respect to PRI and B_{MSY} ▲

The team should score PI 1.1.1 against the conceptual levels PRI and MSY. Such levels may or may not be used as explicit reference points in a fishery.

When well-managed stocks do not have TRPs or LRPs, or their values are not consistent with the conceptual levels of PRI or MSY, the team will still need to assess the stock in terms of the overall outcome objectives. For example, for SG80 the stock status is “highly likely” to be above the point at which there is an appreciable risk that recruitment is impaired and will be at or around a level consistent with B_{MSY}.

The team should interpret the PRI as the point below which there is an increased risk that recruitment may be substantially impaired. Fisheries should be managed such that the risk of stocks falling below this level is very low. The MSC default proxies for the PRI and MSY are given in GSA2.2.3.

GSA2.2.2 Scoring fluctuations around the target MSY level – scoring issue (b) ▲

Fluctuation in this context refers to the variability over time around a point, acknowledging that the magnitude of fluctuation will be influenced by the biology of the species, and that short-term trends may be apparent in such fluctuations.

Examples of situations that may be regarded as “fluctuating around a level consistent with MSY” and thus able to achieve at least an 80 score for PI 1.1.1 scoring issue (b) are given below.

The team should note that the $90\%B_{MSY}$ figure in the example below is given as a hypothetical level that may be appropriate for species types with average levels of fluctuations. Other values may be appropriate for other species types.

Examples: 80 score

Examples of situations that may be regarded as “fluctuating around a level consistent with MSY” and thus able to achieve an **80 score** for PI 1.1.1 scoring issues (b):

- An instantaneous estimate of current stock status that is not less than $90\%B_{MSY}$.
- A recent series of estimates of stock size that has:
  - A median or mean value over the last one generation time that is not less than $90\%B_{MSY}$. (For a definition of generation time, see GSA2.2.4, Box GSA4)
  - A trend that is consistent with an expectation that the future biomass will continue to fluctuate around B_{MSY}. A consistent downward trend over recent years to levels below B_{MSY} would not be consistent with this expectation, unless accompanied by projections or other information suggesting that the trend will soon be reversed; for example, due to incoming strong recruitment or recent reductions in exploitation level. The time series may include estimates that are less than $90\%B_{MSY}$, as long as these are shown to be part of a long-term fluctuation around B_{MSY}.
- A series of estimates showing a steady increase in stock size that has recently returned to a level not less than $90\%B_{MSY}$, and is expected to continue building to above B_{MSY}, and thereafter to fluctuate around B_{MSY}.

Examples: 100 score

Examples of situations that may achieve the higher **100 score** on PI 1.1.1 scoring issue (b):

- A recent series of estimates of stock size that has a mean or median over the last 2 generation times that is not less than $90\%B_{MSY}$.

- A series of estimates of stock size that have been above B_{MSY} in all years of the last one generation time.

The team should note that, in reviewing fluctuations in stock size, a model-derived estimate of stock size from the most recent year will often be more uncertain than a model-derived estimate from earlier years. To avoid rapid changes in status of MSC certified stocks and consequent changes in certification status, as specified in FCP 7.30, the team should consider that model-derived estimates may not be indicative of actual material change in stock status. The team should note that a single estimate of stock status unsupported by an estimate of certainty, either derived from a time-series trend or from a statistical model, should only be used to justify a material change in the score.

The MSC has chosen not to define its requirements in relation to the terms “overfishing” and “overfished”. Nevertheless, these terms are commonly used, and are referred to in some guidance as follows:

- “Overfishing” is fishing mortality higher than F_{MSY}.
  - The fishing mortality level that results, in the long term, in the stock being at MSY.
- “Overfished”: biomass stock size is lower than a limit defined in relation to MSY.
  - The FAO Ecolabelling Guidelines define “overfished” as below a biomass LRP. The limit is often taken to be $50\%B_{MSY}$, which is the default assumption for the point below the PRI as defined by the MSC.
  - The term is not commonly used internationally to relate to the PRI, and hence its use in MSC program documents is limited.

GSA2.2.3 Use of proxy indicators and reference points for PRI and BMSY ▲

In this section the term “reference point” is used in relation to determination of status.

Writing the PISGs in terms of biomass and fishing rate metrics would suggest that the ‘MSC Fisheries Standard’ is not well suited for fisheries that do not commonly have stock assessments conducted in which biological reference points for biomass and/or fishing mortality are estimated. This is not the intent.

Default values for the levels of the PRI and B_{MSY}, as used in scoring the stock status PI 1.1.1, are given below. They are often related to B_0, the estimated “unfished biomass” that would be present in the absence of fishing. Stock status is typically expressed as population biomass relative to B_{MSY}, a proxy for B_{MSY}, or a specified management target, but in some cases may instead be expressed relative to B_0.

- In the case where neither B_{MSY} nor the PRI are analytically determined, the following default reference points may be appropriate for measuring stock status depending on the species:

  $B_{MSY} = 40\%B_0$.

  $PRI = 20\%B_0 = ½B_{MSY}$.

- If either B_{MSY} or the PRI are analytically determined, the team should preferentially use those values as the reference points for measuring stock status unless additional precaution is sought.
- In the case where B_{MSY} is analytically determined to be greater than $40\%B_0$, and there is no analytical determination of the PRI, the default PRI should be $½B_{MSY}$. This case covers situations of low productivity stocks, where higher default PRIs may be justified.
- In the case where B_{MSY} is analytically determined to be lower than $40\%B_0$, as in some “highly productive” stocks, and there is no analytical determination of the PRI, the default PRI should be $20\%B_0$ unless $B_{MSY} < 27\%B_0$, in which case the default PRI should be $75\%B_{MSY}$.
- For stocks with average productivity, where B_{MSY} is not analytically determined but assumed to be $40\%B_0$ and a management TRP is set greater than $40\%B_0$ for precautionary reasons, the default PRI should still be set at $20\%B_0 = ½B_{MSY}$ unless it is analytically determined. This covers

situations where the management authority has deliberately chosen a conservative TRP, but where the default PRI is still appropriate.

- In cases where the PRI is set at 20%B_0, the team may assume the default value for the B_{MSY} to be 2 x PRI.
- In cases where the PRI is set at the lowest historical biomass, the team cannot assume that B_{MSY} = 2PRI. The team is expected to justify any "reference point" used as a proxy of B_{MSY} in terms of its consistency with B_{MSY}.
- Where historical estimates of stock size and resulting recruitment are available, the PRI may be identifiable as the stock size below which reduced recruitment has been observed, and above which recruitment appears to be more related to environmental factors than to stock size.
- Where a biomass escapement strategy is used, the team should ensure it allows for optimised catches while ensuring that enough spawning biomass remains to avoid recruitment impairment. Typically, an annual escapement of around 40% is considered a pragmatic proxy for MSY.

The default PRI values given above, ½B_{MSY} or 20%B_0, apply to stocks with average productivity. Such points are generally consistent with being above the point at which there is an appreciable risk that recruitment is impaired. For some "highly productive" stocks, the actual point at which there is an appreciable risk that recruitment is impaired may be lower than 20%B_0. For some long-lived species, it may be higher than 20%B_0.

If management has defined a target range for B_{MSY} rather than a single value, the team should score the stock status PI 1.1.1 against this range. The application of TRP ranges rather than a single value may be seen in fisheries targeting "highly productive" stocks as a way of dealing with the inherent variability in biomass. A range provides some intrinsic flexibility for determining whether the stock is fluctuating at or around B_{MSY}. The team should:

- Provide sufficient rationale to demonstrate how the stock is indeed fluctuating at or around B_{MSY}.
- Consider whether different "reference points" are required for different components of the stock in its assessment.

If proxies are used that are not expressed as percentages of B_0, the team should generally ensure that:

- Any "reference point" used as a proxy for scoring the PRI is set above the point where there is an appreciable risk of recruitment failure.
- Any "reference point" used as a proxy for the MSY level maintains the stock well above the PRI and at levels of production and stock sizes consistent with B_{MSY} or a similar "highly productive" level.

If proxy "reference points" are defined in this way, the team should take account of the difference between the "reference point" and the required PRI or MSY levels in its scoring.

The team should be cautious regarding "per-recruit" stock assessment approaches that do not include any form of stock-recruit relationship. Levels of $F_{0.1}$ or $F_{40\%SPR}$ (where SPR is spawning potential ration) will usually, for example, provide more reliable proxies of F_{MSY} than F_{max} when a "per-recruit" approach is used.

The team should not assume "reference points" such as precautionary "reference points" for spawning stock biomass (B_{PA}), that are used as a buffer to reduce the chance of declining to a limit level such as the PRI, to be consistent with B_{MSY}. For example, the team should regard the $B_{MSYtrigger}$ approach (where $B_{MSYtrigger}$ is a biomass "reference point" that triggers a cautious response when stocks fall below a trigger level) used in ICES as setting a lower limit to the likely range of values that B_{MSY} may take, and not as an estimated value for B_{MSY}.

In ICES assessments, the team may regard fisheries with biomass (B) > $B_{MSYtrigger}$ as "fluctuating around B_{MSY}", thereby achieving an 80 score.

The team may also use proxy indicators and "reference points" for measuring stock status where the exact relationship with the PRI, B_{MSY}, and F_{MSY} levels are not known.

Examples: proxies and necessary consideration

- If empirical values of catch per unit effort (CPUE), not based on an explicit stock assessment, are used as reference points for monitoring biomass, the team could provide rationales that the values adopted are consistent with MSY or a similar “highly productive” level. The team may need to check to ensure, in this case, that spatial changes in fishing, or changes in the catchability of gear do not reduce the reliability of the proxy indicators.
- If reference points for measuring stock status are based on some historical state, the team should:
  - Consider the position of the stock at that time relative to the unexploited level.
  - Consider the likely proximity to B_{MSY}.
  - Provide evidence that the stock was not over-exploited at the historical reference time.
  - Provide evidence that the catch was sustainable and “highly productive”.
- If mean fish sizes are used as reference points for the exploitation level, the team should provide rationales that the values adopted are consistent with F_{MSY} or similar levels.
- In crustacean fisheries that seek to protect from harvest the complete female reproductive capacity in the population (single sex harvest), reference points could relate to metrics such as percent fertilised eggs and/or other female population indicators that are used in evaluating the management system’s effectiveness at achieving its goal.
- Biomass escapement strategies are used for a variety of fisheries including those that target stocks that are short-lived, semelparous, exhibit high natural mortality, and/or a weak stock-recruit relationship (e.g. salmon or squid). A target amount or percentage of individuals needed to survive (“escape”) is determined that ensures there is sufficient spawning biomass. Escapement can be expressed in absolute or relative terms. Provided the stock can be shown to be fluctuating around a “highly productive” level and is above any point where recruitment could be impaired, these proxies may be seen as being at a level consistent with MSY. The level of escapement can be kept constant, based on average conditions, or be variable to account for differences in year classes (e.g. real-time management).
- For fisheries targeting semelparous species (e.g. cephalopods), some stocks have almost full replacement of the population during each generational cycle. Investigating the spawner-recruitment relationship may help estimate stock size from prior data, and from that, a level of harvest that can maintain productivity consistent with MSY.

Examples: using proxy reference points

Examples of how the team may justify SG60, SG80, and SG100 levels in these situations:

- **SG60** if no decline has been observed in **1 proxy** of biomass for at least one generation time of the species and the proxy indicates that the stock is “**likely” above the PRI**.
- **SG80** if no decline has been observed in **2 proxies** of biomass for one generation time and at least one proxy indicates that the stock is at a “**highly productive” level**.
- **SG100** if no decline has been observed in **3 proxies** of biomass for one generation time and at least 2 proxies indicate that the stock is at a “highly productive” level.

In these cases, where higher scores are justified by the use of more than one proxy indicator, such proxies should be independent of each other and also reasonably be expected to be proxies of the quantity of interest, such as CPUE in the case of stock biomass.

In some cases, the team may argue that 1 good proxy is better than 2 or more weak proxies.

GSA2.2.3.2 ▲

For example, as with a “traffic lights” approach to management.

GSA2.2.4 Scoring stock status using fishing mortality rate ▲

The team should examine the history of F to determine whether the stock biomass could be assumed to be at the required level for each SG. This will depend on the starting status for stock biomass, the trajectory of fishing mortality, and the length of time that fishing mortality has been at a certain level.

If the starting biomass is unknown, the team should apply the following expectations:

- At least SG60 score is justified if F is “likely” to have been at or below F_{MSY} for at least 1 generation time of the species, or for at least 2 years, if greater. This level of F is generally expected to be able to recover, or maintain, a population likely to be above its PRI.
- At least SG80 is justified where B is “highly likely” to be above the PRI and at or “fluctuating around B_{MSY}”, if F is likely to have been at or below F_{MSY} for at least 2 generation times, or for at least 4 years, if greater.
- SG100 score is justified if F is “highly likely” to have been below F_{MSY} for at least 2 generation times, or for at least 4 years, if greater.

These guidelines are based on the assumption that fishing mortality will in these cases be at or very closely below F_{MSY}. The lower the fishing mortality has been, the shorter the time interval required for recovery. For instance, while most species require about 2 generation times to recover from the PRI to B_{MSY} when fishing is at FM_{SY}, when F is reduced to 80%F_{MSY} or 60%F_{MSY}, the time for recovery may be halved. The team should take these issues into account when scoring.

Box GSA4: Generation time

The MSC defines a generation time (GT) as the average age of a reproductive individual in an unexploited stock[10]:

$$G = \frac{\sum_{a-1}^{A} aE_a N_a}{\sum_{a-1}^{A} E_a N_a}$$

where a is age, A is the oldest age in an unfished state, E_a is the maturity at age a, and N_a is the number per recruit alive at age a in the absence of fishing.

$N_a = N_0 e^{-Ma}$ where M is natural mortality and N_o =1 (per recruit).

The equation provided above computes GT with the parameter E_a being “maturity at age a”. The original Goodyear formula computes GT with the parameter E_a being “mean fecundity of females at age a”, which is estimated based on the product of the fraction of mature females and the average fecundity of mature females. The equation provided above is consistent with the original Goodyear formula but is more accessible because the information required is less onerous. The underlying assumption in the equation above is that fecundity is constant for all ages in the population, so that GT can be computed using the fraction of mature females only, referred to as “maturity”. Information about female fecundity, which requires specific equipment and expertise and thus is more expensive than maturity information, is not necessary to compute GT.

[10] Goodyear, C.P. (1995) Red snapper in U.S. waters of the Gulf of Mexico: 1992 assessment update, National Marine Fisheries Service, Southeast Fisheries Science Center, Miami Laboratory. Gulf of Mexico. NMFS/SEFSC. Cited by Restrepo, V.R., Thompson, G.G., Mace, P.M., Gabriel, W.L., Low, L.L., MacCall, A.D., Methot, R.D., Powers, J.E, Taylor, B.L., Wade. P.R., and Witzig, J.F. (1998) in Technical Guidance on the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS–F/SPO–31, 17 July 1998.

Another reasonable approximation for GT, when $0.1 \leq M \leq 2$ is:

$$1/M + A_{m50}$$

where A_{m50} is the age at 50% maturity.

The team should use an appropriate formula considering the data available, or peer-reviewed/published material for the target stock.

When several methods can be applied and it is not clear which should be chosen, the team should apply weight of evidence and precautionary approaches for the computation of GT.

Box GSA5: Consideration of fishing mortality rate in MSC assessments

The guidance in this section covers a specific situation: where F is being used as an indicator of the status of the stock when actual biomass estimates are not available.

The use of fishing mortality information is usually an indicator of the level of exploitation in a fishery. This is particularly relevant in the scoring of the rebuilding PI, 1.1.2, and the HCR PI, 1.2.2. The general expectations in these cases are summarised below:

- **PI 1.1.2** (rebuilding) – when B is below a level at which it could be regarded as "fluctuating around B_{MSY}", then F should normally be less than F_{MSY}, in order to achieve recovery to such a level.
- **PI 1.2.2** (HCRs) – to be regarded as working effectively, HCRs will normally maintain F equal to or less than F_{MSY}.

Only a few exceptions to these general "rules" are allowed. The team should support exceptions with clear justifications, such as the special nature of a stock assessment approach or the availability of other specific information.

For further details, see GSA2.3.4 and GSA2.5.3.

The team should note that F should be maintained at lower than MSY levels in key low trophic level (LTL) fisheries.

GSA2.2.5–2.2.6 Stock complexes ▲

See comments on multi-stock and mixed stock fisheries and stock complexes in Box GSA3.

GSA2.2.7 Consideration of environmental variability, including climate change, and human-induced impacts ▲

Ecosystem productivity may change naturally over time, for example under conditions of regime shift. Where changes to stock productivity are the result of natural fluctuations in environmental conditions, the values of reference points may also change, as reflected in stock assessments. These changes are acceptable when scoring the status of the stock in PI 1.1.1.

In situations where the productivity of the stock is affected through human-induced impacts, either directly from the UoA (e.g. excessive fishing) or from other sources such as pollution or habitat degradation (e.g. the clearance of mangrove swamps affecting fish nursery areas), reduction of reference points is not justified. The fishery should receive a lower score in PI 1.1.1 until effective management is in place and the stock returns to healthy levels.

The MSC recognises the multipurpose nature of use patterns, particularly in inland waters. Example uses include:

- Dam construction for water supply and power.
- Channelisation for navigation and flood control.
- Land drainage.
- Wetland reclamation for agricultural uses.

Such uses are generally fundamental to the functioning of modern society and outside the management control of the fishing sector. Where users from other, non-fishery sectors have impacts on the fishery, management should consider these impacts when devising a strategy for achieving management objectives.

Example

If water is withdrawn for agriculture and urban supply and this has an adverse impact on fish stocks, the management of the fishery is expected to address this fact, perhaps by reducing fishing or with time/area closures.

Climate change is a human-induced impact on fishery productivity. However, the impact of climate change is not easily resolved. Such changes are thus regarded as more similar to those arising from regularly occurring cycles or regime shifts, as covered under SA2.2.7.1. The team should note the further guidance on scoring of climate change in:

- PI 1.1.2 (stock rebuilding, see GSA2.3).
- PI 1.2.2 (harvest control rules, and the scoring of uncertainty).
- PI 2.4.3 (ecosystem information, see SA3.17.1.

If there is evidence that productivity changes are related to the impacts of long-term climate change, the team should note that appropriate adjustments need to be made to reference points. In such instances, the team should use indicators to determine stock status.

GSA2.2.8 Treatment of key LTL stocks ▲

LTL species, also referred to as forage fish, play a crucial role in marine food webs in many ecosystems. For this reason, the MSC has defined specific management and outcome requirements for key LTL stocks. The intent of the MSC's requirements on the treatment of LTL stocks is focused on limiting the ecosystem impacts caused by the commercial harvest of these important species.

Box GSA6: Special management requirements for key LTL stocks

The ecological importance of LTL species such as sardines, anchovy, and krill and the control they can exert on the rest of the food web is well established[11].

Because of their significant ecological importance, unsustainable exploitation of forage fish populations can impact the marine food web by causing declines in top marine predator, seabird and marine mammal populations, or even threaten food security in some countries by diverting forage fish from human consumption.

A principal distinction within the MSC requirements is the recognition of key LTL stocks as separate from non-key LTL stocks. The intent is that the team should assess all forage fish stocks against their potential ecosystem importance when applying for certification against the MSC Standard, but the specific higher management requirements only apply to those stocks recognised as "key LTL".

A species that feeds predominately on plankton and is found in the diets of many predators will likely be a key LTL stock. The MSC guidance on this topic (GSA2.2.9) provides examples of how these criteria can be met. Following a precautionary approach, if it is not possible to provide a justified argument that at least 2 of the criteria are NOT met, the team should treat the stock as key LTL.

[11] Cury, P., Bakun, A., Crawford, R.J.M., Jarre, A., Quiñones, R.A., Shannon, L.J., and Verheye, H.M. (2000) Small pelagics in upwelling systems: patterns of interaction and structural changes in ''wasp-waist'' ecosystems. ICES Journal of Marine Science 57: 603–618.

The first 2 criteria[12] and the thresholds used relate directly to the levels of ecosystem impact that the depletion of the LTL species would have. If the team determines a species to be key LTL, the removal of this species beyond defined precautionary reference points would likely cause a cascade effect in the wider ecosystem.

The MSC defines the default precautionary reference points for management of key LTL species as:

- A biomass that is 75% of the unexploited level in the system, or
- A target exploitation rate of $0.5F_{MSY}$ or 0.5M, the natural mortality of the species.

In fisheries where there is sufficient understanding of the system, the team can use credible ecosystem models (as defined in SA2.2.14) to adjust these default reference points to specific levels appropriate to the fishery, where these levels are shown not to have adverse ecosystem effects.

The MSC's intent is that the team should evaluate key LTL target stocks scored under PI 1.2.1 scoring issue (a), PI 1.2.2 scoring issue (a), and PI 1.2.4 scoring issue (b) against management objectives in PI 1.1.1A at the SG 80 level and not PI 1.1.1.

If an LTL stock is not key, it is assumed that the impacts of removing it are not of particular importance to the wider ecosystem. The team should assess the stock in PI 1.1.1, using the default requirements.

GSA2.2.9 Identification of key LTL stocks ▲

The team should use the following to demonstrate whether a stock under assessment should be treated as a key LTL stock:

- The use of qualitative information on the ecosystem.
- Diet matrices to construct food webs.
- Ecosystem models that demonstrate the connection between species and trophic groups in the ecosystem.

If the team uses ecosystem models, they must be "credible". The team should interpret "credible" as:

- Publicly available and well documented, such as peer-reviewed scientific papers.
- Fitted to time-series data.
- Comprehensive, dealing with the whole ecosystem, including all trophic levels[13].

[12] Smith, A.D.M., Brown, C.J., Bulman, C.M., Fulton, E.A., Johnson, P., Kaplan, I.C, Lozano-Montes, H., Mackinson, S., Marzloff, M., Shannon, L.J., Yunne-Jai, S., and Tam, J. (2011) Impacts of fishing low-trophic level species on marine ecosystems. *Science* 333, 1147–1150.
Essington, T., and Pláganyi, E. (2013) Model and data adequacy for Marine Stewardship Council key low trophic level species designation and criteria and a proposed new assessment index. Marine Stewardship Council Science Series. Available at: https://www.msc.org/docs/default-source/default-document-library/what-we-are-doing/research-and-science-series/model-and-data-adequacy-for-msc-key-ltl-species-designation-and-criteria-and-a-proposed-new-assessment-index.pdf

[13] Essington, T., and Pláganyi, E. (2013) Model and data adequacy for Marine Stewardship Council key low trophic level species designation and criteria and a proposed new assessment index. Marine Stewardship Council Science Series. Available at: https://www.msc.org/docs/default-source/default-document-library/what-we-are-doing/research-and-science-series/model-and-data-adequacy-for-msc-key-ltl-species-designation-and-criteria-and-a-proposed-new-assessment-index.pdf

Where species are aggregated into trophic groups in ecosystem models, the degree of aggregation should adhere to guidance[14] that:

- Aggregations do not include serially linked groups: predators and prey.
- Aggregations are not across species, age classes, or functional groups with rate constants that differ by more than 2–3-fold. If possible, the team should base information about trophic connection on empirical evidence of trophic dependence.

The team may also use **diet matrices,** which characterise the proportion of prey eaten by each predator, in addition to the simple linkages between predators. If diet matrices are used, the team must construct them in adherence with the guidance[15].

Example

If key LTL stocks are identified by using total catch as a proxy for total biomass of the stock, the team should scale this up to the spatial extent of the stock and its predators. For example, the CAB should interpret a low-volume fishery in a major coastal upwelling system differently to one in a small embayment with several locally dependent predators.

In determining key LTL status, the team should consider the **spatial scale** of the ecosystem that could be affected, and from which information should be derived. This should generally correspond to the spatial distribution of the stock being fished and could be broader in some instances; for example, if the stock occurs within a well-defined spatial entity such as a gulf or regional sea. It will not necessarily correspond to the jurisdictional scale of the fishery. If the spatial scale of the ecosystem is considerably larger than the stock distribution, the team should consider potential impacts of localised depletion on predators.

Considering temporal scale, seasonality is not relevant to determining key LTL status. If the stock meets two or more of the sub-criteria in SA2.2.9 during only part of the year (e.g. during spawning of feeding aggregations but not during the rest of the year when the stock is dispersed or mixed with other stocks) the team should consider the criteria met and designate the stock as key LTL.
If the target stock or stock component under assessment is widely distributed and is present in more than one ecosystem, the team should focus on the ecosystem containing the largest abundance of the species when assessing sub-criteria i, ii and iii in SA2.2.9.a.

GSA2.2.9.a.i Key LTL criterion i – connectivity ▲

This sub-criterion requires that the LTL stock is eaten by the majority of predators.

In quantitative terms, food webs can be used to investigate connectance, which can be expressed as unweighted **“proportional connectance”** or the weighted **SURF index, where SURF is** SUpportive Role to Fishery ecosystems. SURF has the advantage that it is less sensitive to the grouping of predator and prey species than connectance[16].

Proportional connectance (PC) is calculated from a diet matrix that has *n* components, and only requires a knowledge of the interaction between groups, not the proportional diet fraction of each group, as follows:

[14] Fulton, E.A., Smith, A.D.M., and Johnson, C.R. (2003) Effect of complexity on marine ecosystem models. Marine Ecology Progress Series 253: 1–16.
[15] Fulton, E.A., Smith, A.D.M., and Johnson, C.R. (2003) Effect of complexity on marine ecosystem models. Marine Ecology Progress Series 253: 1–16.
[16] Plaganyi, E.E. and Essington, T.E. (2014) When the SURFs up, forage fish are key. Fisheries Research 159: 68–84.

- The total connectance (T) in a diet matrix is the number of all positive, non-zero, diet interactions between components (i.e. predator-prey).
- The connectance (C) of a component is the total number of prey interactions plus the total number of predator interactions of that component calculated from the diet matrix.
- Then the proportional connectance of prey *i* is $PC_i = \frac{C_i}{T}$.

SURF is calculated as follows:

- $SURF_i = \frac{\sum_{j=1}^{n} (p_{j,i})^2}{T}$.
- Where p_{ij} is the diet fraction of predator *j* on prey *i*: the proportion of the diet of predator *j* that is made up of prey *i*.

Figure GSA2 shows the results, for key and non-key LTL species classified according to the MSC definition: if, when fishing at $B/B_0 = 40\%$, no single ecosystem group is reduced by more than 70% of its B_0, and no more than 15% of ecosystem groups are perturbed by more than 40% from their B_0 using the data in Smith et al. (2011)[17], of calculating connectance and SURF.

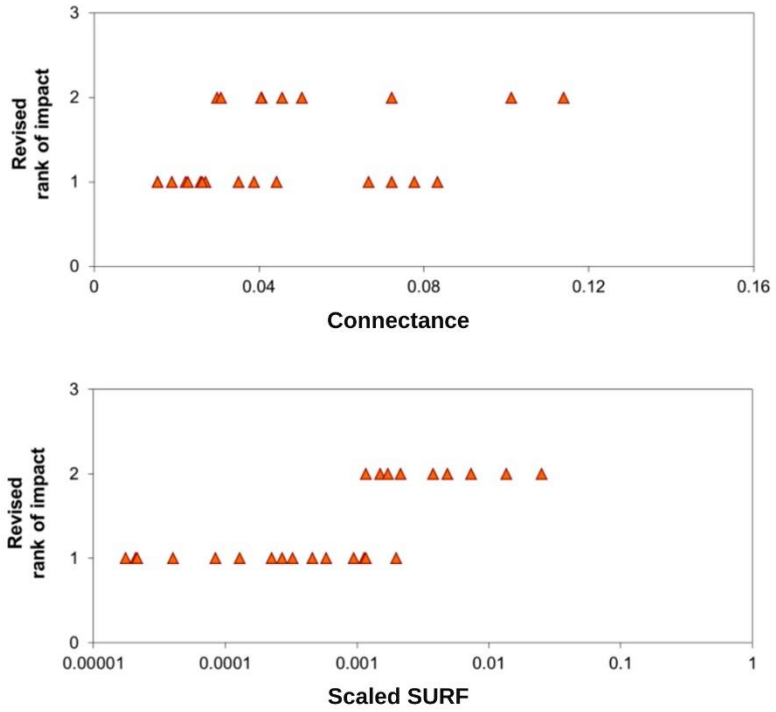

Figure GSA2: PC and SURF scores calculated from Ecopath with Ecosim (EwE) ecosystem models presented in Smith et al. (2011)[18], plotted against their impact on the ecosystem: category 1 satisfies SA2.2.14a at $B/B_0 = 40\%$ and is classified as non-key LTL; category 2 fails SA2.2.14a and is classified as key LTL

The team should assume that based on the analyses illustrated in Figure GSA2:

[17] Smith, A.D.M., Brown, C.J., Bulman, C.M., Fulton, E.A., Johnson, P., Kaplan, I.C, Lozano-Montes, H., Mackinson, S., Marzloff, M., Shannon, L.J., Yunne-Jai, S., and Tam, J. (2011) Impacts of fishing low-trophic level species on marine ecosystems (2011) Science *333*: 1147–1150.
[18] Smith, A.D.M., Brown, C.J., Bulman, C.M., et al. (2011) Impacts of fishing low-trophic level species on marine ecosystems. Science 333, 1147–1150.

- Connectance values of less than 4% will normally indicate a non-key LTL stock.
- Connectance values of greater than 8% will indicate a key LTL stock.
- SURF values of less than 0.001 will normally indicate a non-key LTL stock.
- SURF values of greater than 0.001 will normally indicate a key LTL stock.

The team may take further qualitative evidence of predator dependency in the intermediate zone into consideration, where the classification of the stock is uncertain. For example:

- If the stock is important in the diets of many higher predators for much of the year, where "importance" here might be shown by:
  - The species being the preferred diet of a predator, compared to other prey species that also occur in the diet depending on availability, or
  - The species having higher calorific value or other specific fitness; for example, for the development of juveniles.
- If land-based colonies of predators, including seals, fur seals, sea lions, penguins, and other birds, are considered particularly dependent on this LTL stock.
- If large aggregations of other species are known to gather to feed on this LTL stock.

If there is no credible quantitative model, the team will require ecosystem-specific understanding of the food web connections in the whole ecosystem in order to assess the percentage of connections. The team should base this understanding on a comprehensive species list that identifies links for major prey and predators, particularly dependent predators of the LTL stock in question, supported by the considerations presented above.

GSA2.2.9.a.ii Key LTL criterion ii – energy transfer ▲

- The team may determine whether this criterion is triggered based on:
  - Empirical data.
  - Credible quantitative models.
  - Information about the relative abundance of the LTL stock in the ecosystem.
- Consumer biomass ratio is calculated as the biomass of the candidate key LTL stock, divided by the biomass of all consumers in the ecosystem: all ecosystem components that are not primary producers or detritus: consumer biomass ratio = $B_{LTL}/B_{consumers}$.
- Model-based results suggest that the team should regard any LTL stock that constitutes more than 5% of the consumer biomass in the ecosystem as a key LTL stock.
- The importance of the size of a key LTL stock in determining whether there is a large volume of energy transfer through it will depend upon the size of the total energy in the ecosystem, and in the consumer biomass, as defined above.
- The size of the catch of a key LTL stock is not directly indicative of its likely importance in energy transfer. However, in approximate terms, catch size can be assumed to relate to ecosystem importance. The team may use catch size to support a plausible argument that an LTL species meets, or does not meet criterion SA2.2.14, as follows:
  - LTL stocks that are subject to small catches by small-scale fisheries, where small catches are < 50,000t average total catch from the stock over the last 5 years, will not normally be key LTL stocks. Catches beneath this threshold may still indicate key LTL stocks in cases where they are taken from unusually small ecosystems.
  - It is less easy to predict the status of LTL stocks subject to large catches, where large catches are > 100,000t total catches from the stock over the last 5 years. The CAB should not assume that these fisheries are accessing non-key LTL stocks.

GSA2.2.9.a.iii Key LTL criterion iii – "wasp-waistedness" ▲

This sub-criterion requires that there are few other species at this trophic level through which energy can be transmitted from lower to higher trophic levels, such that a high proportion of the total energy passing between lower and higher trophic levels passes through this stock.

- Simple food webs will be sufficient to determine whether there are significant other functionally similar species at a similar trophic level to the candidate LTL stock.
    - Although for the candidate LTL species, the focus is on the adult component of the stock (SA2.2.9.a, SA2.2.9.b), the team should consider all life stages (including juveniles) of other species at the same trophic level.
- The team may examine catch statistics of other species of the types listed in Box SA1 or SA2.2.9.b within the same ecosystem to determine whether there are few significant catches of other species at this trophic level.
    - In ecosystems where the catches of the candidate LTL stock are less than those of all other species at the same trophic level, the team may regard the ecosystem as not "wasp-waisted" and the candidate stock will not normally be a key LTL stock.

Example

Sardine would be considered a key LTL species in the southern Benguela current system but not in the northern Humboldt system in its current state, as of 2010. If the Humboldt system were to shift to a sardine-based rather than an anchovy-based system, sardine would once again become a key LTL species in that ecosystem.

As with other MSC guidance on ecosystem change, for instance relating to climate change and multi-decadal environmental cycles, the CAB needs to:

- Be aware of changes in ecosystem structure and productivity.
- Assess in surveillance reports, or in assessment/reassessment, the extent to which the fishery has taken these into account. For instance:
    - In the case of productivity, by adjusting TRPs and LRPs.
    - In the case of ecosystem regime shifts such as above, by reconsidering the species against the key LTL species definition.

GSA2.2.12–GSA2.2.15 Scoring stock status for key LTL stocks ▲

Estimates for B_0 referred to in SA2.2.13 and SA2.2.14 can be determined using credible single species or ecosystem models or robust empirical data (such as fishery independent surveys).

See Smith et al.[19] for the justification of impact levels required in SA2.2.14.b and the use of a default 75%B_0 target level for their achievement.

[19] Smith, A.D.M., Brown, C.J., Bulman, C.M., Fulton, E.A., Johnson, P., Kaplan, I.C, Lozano-Montes, H., Mackinson, S., Marzloff, M., Shannon, L.J., Yunne-Jai, S., and Tam, J. (2011) Impacts of fishing low-trophic level species on marine ecosystems. Science 333, 1147–1150.

GSA2.2.16 Scoring key LTL stocks based on fishing mortality rate ▲

In the absence of robust estimates for B_0, target F values that would achieve the appropriate target biomass levels can be adopted. Studies[20] have found that exploitation rates of about half MSY rates were required to limit the ecosystem impacts to the same levels obtained at the default 75%B_0.

For key LTL species, the team should modify default expectations provided in GSA2.2.4 for non-key LTL species to reflect the higher biomass levels expected and the lower F needed.

At least SG60 is justified if F is "likely" to have been somewhat below F_{MSY} but not as low as 50%F_{MSY} for at least one generation time of the species, or for at least 2 years, if greater.

At least SG80 is justified if F is "likely" to have been at 0.5F_{MSY} or 0.5M for at least 2 generation times, or for at least 4 years, if greater.

SG100 is justified if F is "highly likely" to have been below 0.5F_{MSY} or 0.5M for at least 2 generation times, or for at least 4 years, if greater.

GSA2.2.17 Allowing for recruitment variability ▲

Environmental variability is generally high for fisheries based on key LTL species compared to non-LTL fisheries. In some cases, this makes biomass-based reference points meaningless and better justifies the use of F-based management approaches.

GSA2.3 Stock rebuilding PI (PI 1.1.2) ▲

Background

The MSC Fisheries Standard does not refer to "formal recovery plans". This is because, in some jurisdictions, this terminology carries specific legislative or regulatory meaning. Fisheries are instead expected to have "recovery strategies", which may or may not be binding in a statutory context. This PI is only scored when PI 1.1.1/PI 1.1.1.A does not meet the SG80.

Scoring issue (a) – rebuilding timeframes ▲

If quantitative stock assessment information is used in scoring this PI, the team should note that stock rebuilding timeframes required in scoring issue (a) relate to the time required for the stock to recover from the current level to B_{MSY}, or a level regarded as "consistent with MSY" where proxies are used.

On this basis, it may be impossible for some stocks to meet recovery targets in a 5-year timeframe because of the life-history parameters of the species under assessment. Such parameters include:

- Growth rate.
- Size or age at maturity or recruitment to the fishery.
- Stock size or age composition.
- Longevity.
- Natural mortality.

However, some very-fast-growing stocks may recover in less than 1 certification period (5 years). An extension to 5 years is allowed for these stocks.

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[20] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012) Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

As allowed in the scoring of other PIs, the CAB should apply the definition of generation time given in Box GSA4.

GSA2.3.2–GSA2.3.3 Timeframes for achieving conditions ▲

The team should note that stocks that trigger rebuilding may be allowed 1 year to put rebuilding strategies and monitoring in place. This would likely be relevant if the stock status dropped below SG80 for PI 1.1.1/PI .1.1A after certification. If one year is needed in this instance, the team should put a condition on PI 1.1.1 to allow PI 1.1.2 to be scored at the next surveillance. After one year, the team can then rescore PI 1.1.2 and assign conditions as appropriate. Given that the SG60 level would not be met for PI 1.1.2 when the one-year condition is put in place, the team should submit a variation request against FCP v3.1 7.15.7.2.a, 7.15.13, 7.15.14, and 7.16.3.

The team may consider allowances of more than 1 year in fisheries where stock assessments and the development of management advice are not an annual event.

If PI 1.1.2 scores less than SG80, due to a lack of evidence for rebuilding, the condition applied to develop such evidence should still be achieved within the normal maximum 5-year duration of the certificate (as required in SA2.3.3). While the MSC's allowance for "exceptional circumstances" in FCP 7.16.6 may still apply to rebuilding of the stock, which may be constrained by the species biology, it should not apply here to the necessary reduction in exploitation rate, which is regarded as being under the control of management and not constrained by the species biology.

The MSC wishes to avoid the situation in which fisheries appear in the upper left corner of a "Kobe plot", with high exploitation rates even when stock size is reduced. The team should thus consider whether any condition on rebuilding could reasonably be achieved in less than the maximum 5-year period; for example, on an "accelerated" 2-year timescale. The team should expect fisheries in this situation to begin effective rebuilding, and thereby meet SG80 for this PI, as fast as reasonably possible.

GSA2.3.4 Scoring fishing mortality rate as evidence of rebuilding ▲

The MSC's expectation of rebuilding is that, for most stocks, scores of SG80 or SG100 will require F to be lower than F_{MSY}, as described in SA2.3.4.a and 2.3.4.b. The alternative allowance in SA2.3.5 would apply only in exceptional circumstances where there is real demonstrated recovery in the stock even though F is not less than F_{MSY}. This may still occur in some years; for example, in HCRs where F is specifically used as a target rather than a limit, as described in the examples in Box GSA5.

The alternative allowance in SA2.3.5 may also be temporarily acceptable following a series of recent high levels of recruitment due to good environmental conditions. In such cases, the "alternative clear evidence that the stocks are rebuilding" should include that the stock has increased in at least the "last 2 years", or other period as used in the assessment of the fishery. In these cases, the team should not accept evidence of only 1 year/period of growth as sufficient. In its scoring rationale in these cases, the team should include some understanding of why the stock is rebuilding even though F is higher than F_{MSY}.

The team should consider the level of fishing mortality in cases where environmental variability appears to be affecting the ability of the stock to recover.

In situations where climatic cycles, for example decadal cycles, are shown to be reducing the potential of the stock to achieve good recruitment, SG80 or SG100 may still be justified when F is "likely" or "highly likely" below F_{MSY} and the expectation is that good recruitment will be restored when climatic conditions permit. The team should also consider the target levels that are expected for rebuilding, consistent with GSA2.2.7.

GSA2.4 Harvest strategy PI (PI 1.2.1)

Scoring issue (a) – harvest strategy design ▲

Key elements of harvest strategies include:

- The control rules and tools in place, including the ability of the management system to control effort, taking into account issues such as overcapacity and its causes.
- The information base and monitoring stock status.
- The responsiveness of the management system and fleet to stock status.

The CAB should also consider whether there are issues that might compromise the effectiveness of the harvest strategy, such as fishing overcapacity caused by subsidies. If overcapacity exists because of subsidies, the management system should be robust enough to deal with this issue and still deliver a sustainable fishery in accordance with MSC Principles 1 and 2.

The elements of the harvest strategy need to work together. The team should therefore consider:

- The overall performance of the harvest strategy.
- How its elements contribute to allowing the management system to be responsive to the state of the stock.

In terms of being responsive to the state of the stock, the team should provide evidence that the harvest strategy allows an adaptive management system. This could include demonstrating that the harvest strategy allows or has allowed the management authority to respond to issues in a clear, transparent, and consistent manner. This may include prior evidence of action that management has taken when shortcomings in the elements of the harvest strategy have been identified. A responsive harvest strategy should demonstrate that the management agency has acted, when required.

A responsive harvest strategy does not need a “well-defined” HCR for it to be responsive.

For highly fluctuating or dynamic stocks that can have their stock status driven by environmental factors, a responsive harvest strategy should allow management to reduce exploitation to levels that are consistent with the natural environmental fluctuations. In such cases, the harvest strategy should allow management to alter exploitation in an adaptive manner, to levels that are appropriate for the stock to meet the objectives reflected in PI 1.1.1/PI 1.1.1A SG80 under fluctuating environmental conditions.

Additionally, for “highly productive” species such as small pelagic fishes and invertebrates with short generation times (e.g. < 1 year), there can be trade-offs between catch rates, fishery stability, and management and conservation objectives[21]. Because life history can affect such trade-offs[22], the design of the harvest strategy should be appropriate for the species, and scoring should reflect this.

To achieve this, a robust management system may include:

- Use of in-season monitoring and adjustments.
- Consideration of long-term climactic changes such as regime shifts in the harvest strategy[23].
- Maintenance of buffers to account for uncertainty[24].

[21] Cochrane, K.L., Butterworth, D.S., De Oliveira, J.A.A., Roel, B.A. (1998) Management procedures in a fishery based on highly variable stocks and with conflicting objectives: experiences in the South African pelagic fishery. Reviews in Fish Biology and Fisheries 8: 177–214.
[22] Siple, M., Essington, T, & Plaganyi, E. (2018) Forage fish fisheries management requires a tailored approach to balance trade-offs. Fish and Fisheries. 20.
[23] King, J.R. & McFarlane, G.A.. (2006) A framework for incorporating climate regime shifts into the management of marine resources. Fisheries Management and Ecology.13. 93–102.
[24] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012) Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

Assessing informal approaches against PI 1.2.1

- The team should factor in to the assessment the likelihood of changes within the fishery that could lead to an increase in the risk of impact from fishing activity over time.
- The team should consider how elements of the strategy are combining to ensure that the fishery is moving in the desired direction or operating at a low risk level.
- The team should consider how qualitative or semi-quantitative objectives are being achieved.
- The team should provide evidence that the expected objectives are being met. The team may demonstrate this evidence through local knowledge or research.
- The team should determine the extent to which there is a feedback and learning mechanism to inform the harvest strategy on an ongoing basis. Depending on the scale of the fishery, this could be through:
    - Informal stakeholder processes that are based on local knowledge of the fishery, or
    - Any other less subjective review process.

GSA2.4.1 Interpretation of terms ▲

As used in SI 1.2.1b at the 100 level, an “evaluation” may range from a subjective stakeholder process in small-scale/data-deficient (SS/DD) fishery to quantitative management strategy evaluation as appropriate to the fishery.

For “tested” at the SG80 level in SI 1.2.1b, the team can include:

- The use of experience from analogous fisheries.
- Empirical testing, for example practical experience of performance.
- Evidence of past performance.
- Simulation testing, for instance using computer-intensive modelling such as management strategy evaluation.

Teams should only assess that the harvest strategy is ‘tested and expected to achieve its objectives’, if there hasn’t been an update to stock status following the implementation of the harvest strategy. Once there is an update to stock status after the direct implementation of the HS used to score PI 1.2.1, the team should assess if the HS is achieving the objectives of PI 1.1.1/1.1.1A.

For tested and evaluation in scoring issue (b) at the harvest-strategy level, the team should consider the full interactions between different components of the harvest strategy, including:

- The HCRs.
- Use of information.
- Assessment of stock status.

SG100 for SI 1.2.1b requires a broader evaluation than that considered in the evaluation of the robustness of HCRs in SI 1.2.2b.

GSA2.4.2 Setting conditions ▲

If conditions are set, changes to the HCRs or assessment method may be needed to make these conditions operational.

GSA2.4.3–GSA2.4.4 Shark finning ▲

Background

At its December 2011 meeting, the MSC Board of Trustees resolved that shark finning shall not be undertaken within MSC certified fisheries.

The intent of scoring shark finning in PIs 1.2.1, 2.1.2, and 2.2.2 is to enable scoring the fishery on the CAB's level of certainty that shark finning is not taking place. These scoring issues are designed as a combination of policies and information thresholds determined by the evidence requirements, to assess the arrangements that are in place to ensure shark finning is not taking place.

Fins naturally attached

A fins naturally attached (FNA) policy, as defined in the MSC-MSCI Vocabulary, needs to be in place for all retained sharks. Where reference is made to the requirement for FNA, in order to facilitate freezing and storage, the fishery could partially cut the fins, including for the purposes of draining blood to avoid ammoniation, and fold them around the carcasses. However, fins should be attached to a substantial part of the shark, not just some vertebrae, allowing the shark to be easily identified to the species level. If fins are removed and then artificially attached to the carcass via ropes or wire or placed into a bag that contains that carcass and fins, this would not constitute FNA.

Non-retention policies

A non-retention policy, including species specific policies, is one where any captured individuals must be released and cannot be landed or retained in whole or in part. If a UoA operates under a non-retention policy, the same level of information accuracy determined through the evidence requirements applies to the implementation of an FNA policy.

FNA policies

FNA policies can be included in regulations governing the management of sharks, including but not limited to prohibiting shark finning, such as:

- Ratified RFMO conservation measures.
- National or international memoranda of understanding or agreements.
- National plans of action on sharks.
- Legislation regulating the management and catch of sharks.
- UoA/company level codes of conduct.

If a management agency has a requirement for FNA but it includes exemptions, the UoA should demonstrate that it is adhering to the FNA component. This may be from documented evidence that the UoA has put in place a code of conduct or policy that mandates its vessels operate with FNA.

Evidence of shark finning

The team is required as per SA2.4.5 to apply the Evidence Requirements Framework in Tool B of the MSC Fisheries Standard Toolbox to evaluate the accuracy of information used to score the shark-finning scoring issue(s). This is to provide confidence in the team's determination that an FNA policy is in place. As part of this process, the team is required to:

- Consider any documentation that supports the implementation of an FNA policy in practice.
- Assess the appropriateness of enforcement in the UoA with respect to monitoring compliance with the FNA policy.

If there is objective verifiable evidence that indicates shark finning is taking place in the UoA, the CAB should not certify the UoA unless the client or client group excludes the vessel(s) involved from the UoA for 2 years, following procedures in FCP 7.4.

Objective verifiable evidence could be any documented statement of fact based on observations or measurements, or tests that can be verified.

If there is objective verifiable evidence that indicates shark finning is taking or has taken place on board a vessel that operates in a UoA/Unit of Certification (UoC) within the last two years:

- The fishery client(s) should exclude the vessel from the UoA(s)/UoC(s).
- The vessel should not operate in the UoA(s)/UoC(s).

- The vessel will not be eligible to access any fishery certificate for two years from the date of exclusion.

FCP G7.4.7 provides information on this process.

The date of exclusion is the date an updated vessel list was published on the Track a Fishery website. If fishery clients do not exclude vessels that are involved in shark finning practices, the CAB should not certify or maintain the certification of the fishery.

It does not matter where the vessel was operating, who was operating the vessel or who owned the vessel when the shark-finning incident took place, the MSC's intent is that any vessel involved in the practice of shark finning in the last two years is not eligible to access any MSC fishery certificate, cannot operate within any UoC, and cannot be an "eligible fisher" in any UoA irrespective of ownership or name change.

Fishery clients and CABs should refer to the process for excluding an entity in FCP 7.4.5–7 for details on excluding vessels from the UoA(s)/UoC(s).

Note: the UoA is included in the text above (as well as the UoC). This is because UoAs can include "other eligible fishers" that were considered in the full assessment but are not part of the UoC because they have not entered into a certificate-sharing mechanism. Please refer to FCP 7.5.11 and G7.5 for more information on "other eligible fishers". It is the MSC's intent that vessels identified as "other eligible fishers" that have engaged in shark finning are excluded from accessing the certificate via the certificate-sharing mechanism. In order to implement this intent, the CAB and client should not list these vessels as "other eligible fishers".

Scenario 1: Evidence of shark finning is identified during a full assessment

If, during a fishery assessment, the team identifies objective verifiable evidence that indicates shark finning is taking place on board vessels that operate in the UoA, the vessel(s) engaged in the shark finning should be excluded from the UoA.

Scenario 2: Evidence of shark finning is identified during a surveillance audit

At each surveillance audit the team should review observer data, and other sources of information, in order to detect whether shark finning has taken place on board vessels that operate in the UoA(s)/UoC(s) in the last two years or since the last surveillance audit. If the CAB identifies objective verifiable evidence that shark finning is taking place on board vessels that operate in the UoA(s)/UoC(s), they should immediately inform the fishery client. The fishery client should exclude those vessels from those UoA(s)/UoC(s) and ensure the vessels do not have access to the certificate.

Scenario 3: Evidence of shark finning is identified between surveillance audits

Fishery clients may regularly review observer data, and other sources of information, between surveillance audits in order to detect whether shark finning is taking place on board vessels that operate in their UoA(s)/UoC(s). Fishery clients may receive information from other fishery clients or stakeholders that indicates shark finning is taking place on board vessels that operate in their UoA(s)/UoC(s). As soon as fishery clients become aware that shark finning is taking place on board vessels that operate in their UoA(s)/UoC(s), they should:

- Exclude those vessels from those UoA(s)/UoC(s).
- Ensure the vessels do not have access to the fishery certificate.
- Inform their CAB immediately.

The MSC's intent is that if fishery clients are aware that shark finning is taking place on board vessels that operate in their UoA(s)/UoC(s), they should not wait until a surveillance audit before taking action and informing their CAB. This would contravene the MSC's position that shark finning is not to be undertaken within MSC certified fisheries. If a fishery client has not excluded vessels involved in shark finning from their UoA(s)/UoC(s), the MSC's intent is clearly stated in the MSC Fisheries Standard 1.1.6.

GSA2.5 Harvest control rules and tools PI (PI 1.2.2) ▲

For LTL species, for the fishery to score 60 or above under PI 1.1.1A, the TRPs and LRPs need to take into account the ecological role of the stock for the fishery. The harvest strategy, control rules, information requirements, and assessment need to be consistent with this distinction. When PI 1.1.1A

is scored, the team should interpret references to PI 1.1.1 in the guidance below as PI 1.1.1A and the objectives required therein.

There may be conceptual differences in the reference points when scoring PI 1.1.1 and PI 1.2.2. This is because fisheries may use different reference points for measuring stock status and as triggers in the HCRs[25]. For example, a fishery that uses an explicit B_{MSY} reference point as a target for the fishery biomass may have TRPs for adjusting F at values of biomass either at B_{MSY}, or above or below B_{MSY}. The focus in this PI is thus on the reference points used in a fishery to trigger changes in management actions, and how they work in combination to achieve the outcomes required in PI 1.1.1.

Scoring issue (a) – HCR design and application ▲

The team should consider the basis for plausibility and practicality of design in relation to the scale and intensity of the fishery; for example, using:

- Empirical information.
- Relevant science.
- Model-based approaches, such as management procedures and management strategy evaluation.

The team should score HCRs against their ability to deliver the levels expressed in scoring issue (a).

- At SG**60**, HCRs should be "likely" to ensure that stocks will be maintained above the PRI.
- At SG**80**, HCRs should also ensure that the stock is "likely" to fluctuate around a B_{MSY} level. Testing may show that this is achieved by the inclusion of a B_{MSY} consistent reference point as a trigger in the HCRs, such as an inflection in a "hockey stick" form, at a point that would deliver B_{MSY} in the long term.
- At SG**100**, greater certainty is required. The team should regard fisheries with HCRs that target stock levels above B_{MSY}, for example a biomass that maximises net economic returns (B_{MEY}), as at least meeting the 80 level. Projections in the fishery may show that the HCR would "likely" achieve the higher SG100 score by fluctuating more above than around B_{MSY}.

HCRs will usually include some form of dynamic rule, requiring that a change of some sort will be made in response to a fishery indicator moving above or below one of the TRPs. In lightly exploited fisheries, it may be that some reference points are set to trigger changes in data collection or assessment approaches, as certain thresholds are reached[26].

HCRs are often applied on a frequent basis, such as with the annual setting of total allowable catch (TAC) or effort restrictions.

- Such HCRs respond dynamically to the monitoring data from the fishery with regular adjustments to input/output-type management measures.
- In data-poor fisheries that are managed without such input/output controls, management may comprise only technical measures, such as size limits, gear restrictions, closed seasons, and closed areas.
    - In these cases, the specific terms of the technical measures are usually set and fixed for a relatively long period of time, several years, based on occasional strategic stock assessments that are shown to deliver defined TRPs or LRPs.

[25] Dowling, N.A., Dichmont, C.M, Haddon, M., Smith, D.C., Smith, A.D.M., Sainsbury, K. (2015) Guidelines for developing harvest strategies for data-poor species and fisheries. Fisheries Research 171 pp 130–140. Dowling, N.A., Haddon, M., Smith, D.C., Dichmont, C.M., and Smith, A.D.M. Harvest Strategies for Data-Poor Fisheries: A Brief Review of the Literature. CSIRO.

[26] Dowling, N.A., Dichmont, C.M, Smith, A.D.M. Smith, D.C., and Haddon, M. *Guidelines on developing harvest strategies for data-poor fisheries.* CSIRO.

- The team may regard such an arrangement as equivalent to a dynamic HCR operating over a longer time scale in cases where some indicators are monitored to confirm that the HCRs are delivering the intended targets for the stock.

- For “highly productive” species, the design of the HCR should consider life history, as this can affect performance of the control rule. Given the propensity for changes in productivity with these species, adaptive and responsive control rules are key to assist with detecting and responding to changes in biomass[27].

At SG80 in scoring issue (a), the team should expect “well-defined” HCRs to explicitly include the conditions under which the technical measures in the fishery would be expected to be revised in the future.

Example

Relatively sedentary bivalves often have fishery management trigger points based on population densities collected through systematic surveys, where these index densities are established based on the species population dynamics and the inherent productivity of the habitat and environmental conditions.

There may be no formal stock assessment, but yield is calculated on a proportion of the observed biomass, and the harvested fraction determined on empirical evidence from historical catches and their consequences.

The team should note that, while such arrangements can work, HCRs based on taking a constant percentage of the year’s estimated biomass should not be regarded as meeting the requirement of avoiding the PRI, unless some lower threshold is defined.

The CAB should not always interpret the requirement that an HCR reduces exploitation rates as the LRP is approached as requiring the control rule to deliver an exploitation rate that is a monotonically decreasing function of stock size:

- Any exploitation rate function may be acceptable if it acts to keep the stock above an LRP that avoids possible recruitment failure and attempts to maintain the stock at a TRP that is consistent with B_{MSY} or a similar “highly productive” level.
- This outcome includes the requirement that the HCR should act to cause stocks to rebuild to the TRP when they are below it; maintenance of a stock at a level just above the LRP would not be acceptable.
- A reduction of exploitation rate may not always mean that the control rule requires a reduction in “total” exploitation rate, but instead could involve reducing exploitation rate on parts of the stock; for example, by age or sex.
- The team should assume that reductions in exploitation rate refer primarily to reductions in catches and effort, and not to gear modifications, unless these have the effect of reducing catches/effort.

As noted in the guidance on PI 1.1.1, HCRs may include both explicit and implicit reference points.

[27] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012). *Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs*. Lenfest Ocean Program. Washington, DC. 108 pp.

Example

If a management strategy is based solely around a TRP, the HCR, when combined with TRP, should ensure that the stock remains well above the PRI. This should ensure that the exploitation rate is reduced as this point is approached. This is an implied LRP.

Equally, a management strategy based solely around an LRP should imply that there is a TRP close to or at B_{MSY}, or some other measure or surrogate that maintains the stock at high productivity, and at a level that is well above the LRP.

GSA2.5.2 "Generally understood" HCRs at SG60 vs "well-defined" HCRs at SG80 ▲

For "generally understood" and in-place HCRs, there should be at least some implicit agreement supported by past management actions that demonstrates that "generally understood" rules exist. There should be the expectation that management will continue to follow such "generally understood" rules in future and act when changes in explicit or implicit reference points are identified.

When determining whether a "generally understood" HCR is in place in the fishery under assessment, the team needs to determine whether the fishery will take appropriate management action in line with what they perceive as the "generally understood" rule. The team should consider evidence of positive action being taken in the past as evidence that there is a "generally understood" rule in place. The team should provide clear reference to documents or other evidence that actions were taken on specific dates.

The team should provide evidence and examples of the positive actions taken in response to generally understood HCRs for the target stock when they are in place.

The team should apply a precautionary approach to scoring when there is uncertainty over whether an HCR meets the requirements of "generally understood", and whether there is sufficient evidence to support this. Note, the full definition for HCRs in the MSC-MSCI Vocabulary should only apply at the SG80 level, given the term 'well-defined' is used in this definition.

The team should not consider the following as evidence that an HCR is in place:

- A poorly defined commitment such as "we agree to implement an HCR sometime in the future".
- General regulations, such as convention texts or references to the Fish Stocks Agreement.
    - However, binding commitments such as those in national law may be used as evidence, if supported by evidence of management action.
- Scientific recommendations on HCRs or reference points that have not yet been adopted by the actual management agency.

The team should not expect that "in place" arrangements require formal indefinite binding agreement. For example, CMMs approved by RFMO Commissions are regarded as "active" resolutions and may thus be accepted as in place even though they may be overturned in the future.

Scoring issue (b) – scoring uncertainty in the HCRs ▲

The SGs reflect the degree of confidence there is in the HCR performance in relation to risks caused by known and unknown factors.

Known factors include:

- Observation and process errors that are often accounted for in stock assessments.

Unknown factors include:

- Unpredictable effects from climate.
- Environmental or anthropogenic non-fishery related factors, which could, for example, lead to periods of low recruitment or growth.

- High natural mortality.
- Migration.

These and other changes to the population dynamics may not have been fully accounted for in the stock assessment or projections. Another important reason for limited confidence in an HCR is that it has not been fully agreed by stakeholders, and it is uncertain whether the fishing community will comply with the HCR. This last issue is important to ensure HCRs are not only theoretical rules on paper but are applied in practice.

The team can use testing to support the requirement that the control rules and/or management actions are designed to take into account uncertainty. Testing can include:

- The use of experience from analogous fisheries.
- Empirical testing; for example, practical experience of performance or evidence of past performance.
- Simulation testing, for instance using computer-intensive modelling such as management strategy evaluation.

It may generally be the case that LRPs are set at the point that reproductive capacity starts to be appreciably impaired for some fisheries, especially those for small pelagic species and annual species where the stock recruit relationship is very steep. However, management may choose to set an LRP above this level. Maintaining a buffer can allow for adaptability to changes in production[28]. Where this results in more precautionary management, it may assist the fishery in meeting SG80 or SG100 for scoring issue (b).

HCRs in small-scale fisheries may still achieve high scores if uncertainties are well considered. The team may thus score simple HCRs linked to reliable indices of stock status highly on this issue without management strategy evaluations.

GSA2.5.4 Evaluating the effectiveness of HCRs – PI1.2.2 scoring issue (c) ▲

In this scoring issue, the team is required review the ability of the tools associated with the HCRs to achieve the exploitation levels. Such tools include:

- Management measures like TACs and fishing limits.
- Arrangements for sharing TACs between participants in the fishery, including between states in shared stock fisheries.

For this examination, the team may consider the overall history of effectiveness of the tools used in the fishery, in terms of their ability to achieve the desired exploitation rates and biomass levels, and the current status.

SA2.5.4 requires that the team examine the current exploitation levels in the fishery, as part of the evidence that the HCRs are working, for example through evidence that current F is equal to or less than F_{MSY}. The team may also accept current F levels greater than F_{MSY} in cases where:

- Stock biomass is currently higher than $B_{MSY,}$ or
- Stock assessment information is comprehensive and it is appropriate to treat F_{MSY} as a TRP (see Box GSA5).

However, the team should not use $F < F_{MSY}$ as the sole evidence for the existence of an effective HCR. F could, for example, be lower than F_{MSY} just because effort is currently low, even though there has been no management commitment or attempts to actually control effort at a level that would

[28] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012) Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

constrain F to F_{MSY} by the HCR. However, if F has been constrained at F < F_{MSY} by the tools, the team could accept this as part of the evidence that the HCRs are being effective. Evidence for the effectiveness of an HCR should in fact require the consistent achievement of the target exploitation level, which may be well below F_{MSY} if stocks are currently below B_{MSY}. The team should take particular care when assessing the effectiveness of capacity limitation measures in fisheries, for example in comparison to well-monitored effort controls and catch limits, in terms of their likely ability to meet management goals and target exploitation levels.

To avoid severe socio-economic impacts in a fishery, the team may also make allowance for the gradual adjustment of F down to appropriate levels in cases where the pace of change is limited. In these cases, projections of stock status should confirm that the expected future adjustments in F will still lead to fluctuations around MSY levels within a reasonable timescale.

If proxy indicators and reference points are used in the fishery instead of explicit estimates of F and F_{MSY} (as allowed in SA2.2.3), the team should assign higher scores where greater confidence is provided by the proxy information, similar to the scoring of PI 1.1.1. Where higher scores are justified by the use of 2 or more proxy indicators, they should be independent of each other and be expected to be proxies of the quantity of interest, such as mean fish size in the case of exploitation rates. The team should present a rationale for how the proxies conform to these principles.

As with the case of using proxies for scoring stock biomass in PI 1.1.1, it may sometimes be argued that 1 good proxy is better than 2 or more weak proxies.

Examples: SG60, SG80, and SG100 levels

Examples of how the team may justify SG60, SG80, and SG100 in these situations:

- At least SG60 is justified if 1 proxy indicates that “overfishing” is not occurring.
- At least SG80 is justified if 1 or more proxies indicate that it is “likely” that “overfishing” is not occurring. In this case, the extra confidence may be due to the availability of a second proxy indicator, or may arise because a minimum 70% probability level can be assigned to the single indicator used, as compared to the SG60 level where this probability level may not be demonstrated.
- SG100 is justified if 2 or more proxies indicate it is “highly likely” that “overfishing” is not occurring.

Assessing informal approaches to HCRs

In informally managed fisheries, the CAB should assess the extent to which there are management tools and measures in place that are consistent with ensuring that susceptibility of the target species to removal is no higher than that which would cause the risk to the target species to be above an acceptable risk range. Measures could be spatial, temporal, or changes to gear overlap.

The team should also consider measures in place to respond to changes in the fishery, for example by reducing the susceptibility of target species when the fishery is not heading in the direction of its objectives.

Metapopulations

The team should address uncertainties relating to the metapopulation structure. The team should note the descriptions of different types of metapopulation in FCP G7.5.

GSA2.6 Information monitoring PI (PI 1.2.3)

GSA2.6.3 Information categories ▲

Stock structure could incorporate information describing:

- The distribution and geographical range of the stock.
- The relationship of the geographical range to the harvest control.

- The age, size, sex, and genetic structure of the stock.

Stock productivity could incorporate:

- Maturity.
- Growth.
- Natural mortality.
- Density-dependent processes.
- The stock-recruit relationship.
- Fecundity.

Fleet composition could incorporate information on associated effort by gear type/method of capture, including fleet characteristics in both targeted and non-targeted fisheries taking the species. Information is required for the whole stock, but better information would usually be expected from the fishery unit under assessment.

Stock abundance could incorporate information relating to absolute or relative abundance indices including:

- Recruitment.
- Age.
- Size.
- Sex.
- Genetic structure of the stock.
    - Reflecting the guidance on surrogate measures under PI 1.1.1, the team may meet the requirement for “stock abundance” information at SG60 and SG80 by using surrogate indicators that provide an adequate proxy for stock abundance.

Fishery removals could incorporate information describing:

- The level, size, age, sex, and genetic structure of landings.
- Discards.
- Illegal, unreported, unregulated, recreational, customary, and incidental mortality of the target stock by location and method of capture.

Information is required for the whole stock, but better information would usually be expected from the fishery being assessed.

Other data may include environmental information such as temperature, weather, and other factors that may influence fish populations and fishing.

Scoring issues (b) and (c) – scoring fishery removals ▲

The distinction between scoring issues (b) and (c) for PI 1.2.3 at SG80 relates to the relative amount or quality of information required on fishery removals.

Scoring issue (b) relates to fishery removals specifically by those vessels covered under the UoA, which need to be regularly monitored and have a level of accuracy and coverage consistent with the HCR. For example, where depletion methods are used, they should be tested against catch and effort data at a determined frequency consistent with the HCR; for example, weekly, or monthly.

The reference to “other” fishery removals in scoring issue (c) relates to vessels outside or not covered by the UoA. These require good information but not necessarily to the same level of accuracy or coverage as that covered by scoring issue (b).

Metapopulations

Understanding dispersal pathways and population connectivity is important for devising effective harvest strategies. The team should specifically address information related to the metapopulation structure.

Information that could be relevant to the assessment includes:

- The life cycle of the species, including its spatial distribution and temporal distribution.
- Identification of local populations and the extent to which they are connected and function as either sinks or sources, reflecting the dispersal of both larvae and adult.
- The role of oceanographic features or any other mechanisms in controlling larval dispersal and connectivity.
- Genetic studies comparing local populations.
- Variations in population structure.
- Variations in demographic parameters between sources and sinks.

GSA2.7 Assessment of stock status PI (PI 1.2.4) ▲

Background

This PI refers to stock assessments, but in some circumstances, particularly under SG100, the team may find it useful to consider whether management procedure / management strategy evaluation approaches were used to test the robustness of the stock assessment to uncertainty and alternative hypotheses.

For some harvest strategies, stock assessment methods may not be model-based but based on stock status relative to empirical reference points; for example, catch rate and density. Survey abundance, and decision rules may comprise rules using these indices rather than stock status estimates from analytical assessments. Other harvest strategies may use complex analytical models.

The “default” reference points described in GSA2.2.4 are equivalent to the “generic” reference points referred to in PI 1.2.4.

For example, when scoring PI 1.2.4b at SG60, an assessment might use the B_{MSY} = 40%B_0 and/or PRI = 20%B_0 values. While at SG80, the fishery may have estimated its own B_{MSY} for the stock (e.g. 35%B_0). Note the expectation that these levels may be adjusted for different types of stock (mainly whether they are long-lived/slow-growing, or short-lived/fast growing).

Short-lived species

Assessment of cephalopods can prove challenging because of aspects of their life history and because there are fewer analytical stock assessments available than for finfish. As such, application of assessment methods may be successful for some stocks but not others. For example, some species may experience complete replacement of the population at every generational cycle, causing there to be few or no other cohorts. For these stocks, sequential analysis of cohorts may then not be a suitable form of assessment. The team needs to consider:

- The nature of the stock.
- Whether the assessment method is appropriate and able to model any rapid changes.

Metapopulations

Where several or many local populations exist within a metapopulation, it is unlikely that full stock assessments would be completed annually for each local population. The degree of self-recruitment and demographic connectivity among sub-populations should dictate the specific assessment required to allow for responsible and sustainable harvest.

The team should consider the appropriateness of the stock assessment in relation to the metapopulation structure.

The team should also assess whether the stock assessment identifies and considers major sources of uncertainty related to the metapopulation structure.

GSA3 Principle 2 ▲

Background

The Principle 2 assessment is divided into four components, which are considered to cover the range of potential impacts of the UoA on the ecosystem.

Table GSA1: Components of Principle 2

Component	Description
In-scope species	Species within scope of the MSC program (fish and invertebrates) that are not covered under Principle 1 and are not ETP/OOS species.
ETP/OOS species	Endangered, threatened, or protected (ETP) species and species out of scope (OOS) of the MSC program (birds, mammals, amphibians, and reptiles).
Habitats	The chemical and bio-physical environment, including biogenic structures, where fishing takes place.
Ecosystem	Broader ecosystem elements such as trophic structure and function, community composition, and biological diversity.

GSA3.1 General requirements for Principle 2 ▲

In Principle 2, the MSC uses the term “species” in scoring issues and requirements. The term could mean an entire species, or a stock or population of a species, as appropriate to the species and the context of the UoA.

GSA3.1.1.d Negligible interactions ▲

The “negligible” criteria are provided for out-of-scope species using the number of individuals rather than weight. However, recognising that for many fish and invertebrate species the catch is reported by weight, a threshold of < 2% of UoA catch is applied.

Where the team is aware of a significant risk of recruitment impairment or stock collapse from catches below 2%, the team should take a precautionary approach and should not consider interactions with these species negligible.

GSA3.1.1.d.ii “Exceptionally large” ▲

The team should interpret “exceptionally large” as being when the UoA catch is equal to or greater than 400,000mt. If the catch is “exceptionally large”, even small catch proportions of a Principle 2 species could significantly impact populations, and therefore the team should not exclude these species from further assessment.

GSA3.1.1.e Unwanted catch ▲

Where a UoA has a management plan, some species and sizes may be considered and designated to be ‘unwanted catch’ (including through using terms such as ‘non-target’, ‘bycatch’ or ‘discards’ in the plan). If not designated, unwanted catch of species are those that are not covered under the plan. Unwanted catches of species may also be designated as catch that is prohibited in that fishery.

Unwanted catch may also include the part of the catch that has been thrown away or slipped where the components of that catch may not survive after release.

GSA3.2.1 Identification of Principle 2 species and documented interactions ▲

To identify Principle 2 species the team should use information on UoA interactions covering the latest five years. The team should provide a rationale for the time series used if it is shorter than five years.

Documented interactions could include information from, *inter alia*:

- Fisher logbooks.
- Reports from observers or electronic monitoring.
- Research projects where the fishery operates related to similar gear or species.
- Assessments or other types of evaluation by the relevant management body.

The team should use their expert judgement to consider additional species to those with which the UoA has a documented interaction, for example in situations where there is a high risk of interactions with an ETP/OOS species that may not be recorded or reflected in the above information.

GSA3.2.3 "Negligible" interactions▲

Where the team is aware of a significant risk of recruitment impairment or stock collapse from catches below 2%, the team should take a precautionary approach and should not treat these scoring elements as negligible.

GSA3.2.3.2.b Opting to score species with which the UoA has "negligible interactions" ▲

The team may, in consultation with the fishery client, score species with which the UoA has negligible interactions. This may be of interest to fishery clients where they have made progress towards improving selectivity of catch, reducing the amount of catch of species in a component to the point where they are now caught in negligible quantities.

In order to score species with which the UoA has a "negligible" interaction, the team should categorise and score all species under the relevant component (i.e. in-scope species or ETP/OOS species component). The team may choose to only score one component.

GSA3.2.4 Categorisation of Principle 2 species ▲

Principle 2 species are species impacted by the UoA and not under assessment in Principle 1. Figure GSA3 provides an overview of the MSC's intent of the separation of in-scope and ETP/OOS species components. The team should use Figure GSA3 in conjunction with the decision tree in Figure SA3 to categorise species under the in-scope and ETP/OOS species components.

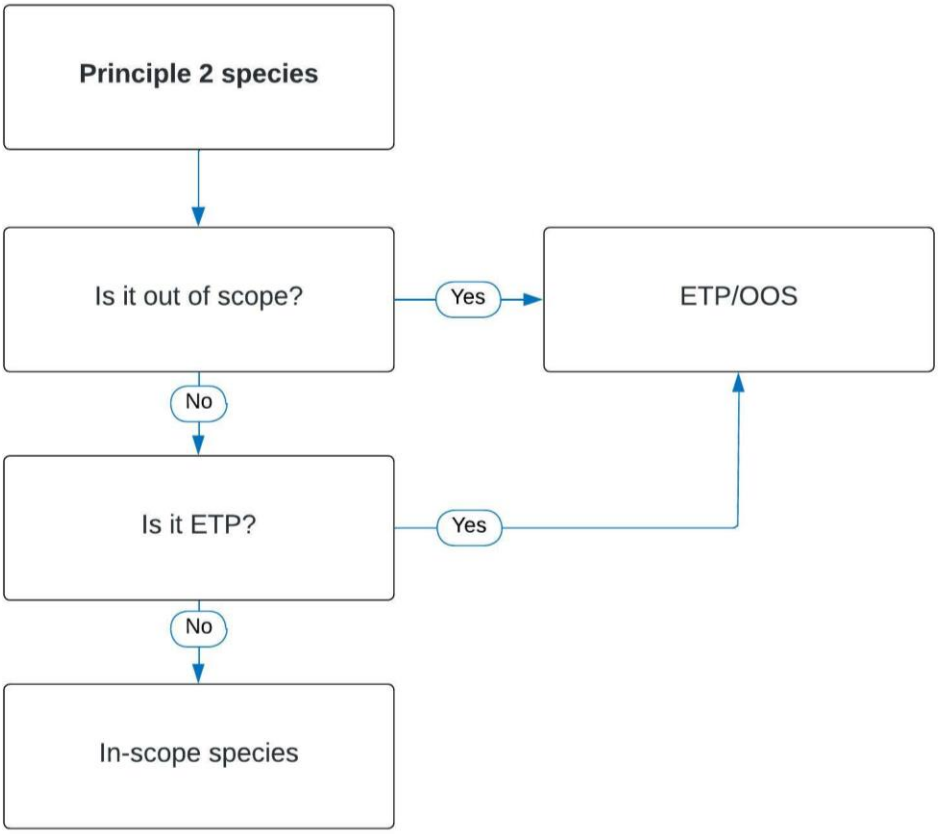

Figure GSA3: High level overview of Principle 2 species designations

GSA3.2.7.e National ETP legislation ▲

The MSC's intent in specifying National ETP legislation as a categorisation criterion is that species listed in relevant national legislative frameworks are done so in response to their ETP status. National ETP legislation may take many forms but examples include:

- Primary legislation[29] – this legislation usually outlines general principles and provides powers for further regulation. The term describes the main laws passed by the legislative bodies of a country. Examples can include an "Act" or "Bill".
- Secondary legislation[30] – this legislation usually consists of more detailed provisions covering a particular subject. The term describes laws created under powers granted through primary legislation. An example can include a "Statutory Instrument".

Legislation that allows for managed (for example has target or limit reference points, stock management objectives, management plan with abundance objectives or quotas) fisheries targeting a species should not be considered as "national ETP legislation" for the purpose of categorising the species. Examples of legislation that allows managed fisheries to target species listed in National ETP legislation include:

- Fish or invertebrates listed in the "conservation-dependent" category of the threatened species list under the Environment Protection and Biodiversity Conservation Act 1999[31] in Australia.

[29] https://www.parliament.uk/site-information/glossary/
[30] https://www.parliament.uk/site-information/glossary/
[31] https://www.dcceew.gov.au/environment/epbc

- Fish or invertebrates listed on Species At Risk Act Schedule 1[32] in Canada, where the management plan sets out management goals with specific measures for fisheries.

If there is legislation that allows managed fisheries to target a species listed in National ETP legislation, the team should categorise the species as a scoring element under the in-scope species component unless it is listed on any of the other lists in SA3.2.7.

If the team is unsure whether a species is listed in "National ETP legislation" as per SA3.2.7.b, the team should apply the precautionary principle and categorise the species as ETP/OOS.

GSA3.2.10.d Bait species ▲

Bait is always assessed as a scoring element within the in-scope species component since use of ETP/OOS species is not consistent with the MSC's intent. Wild-caught bait, whether caught within the fishery or purchased from elsewhere, needs to be considered in an assessment because all aspects of the fishery need to be sustainable, including those relating to the stocks of the bait species. Therefore, the team should present rationale that even purchased bait comes from well-managed and healthy stocks.

Bait from sources other than wild-capture fisheries, such as terrestrial origin products or aquaculture by-products are beyond the MSC's bait requirements. The team should not consider such products as scoring elements under the in-scope species component. However, when scoring the ecosystem PIs, the team may consider the impact on the ecosystem of using these products.

GSA3.3 General requirements for outcome PIs ▲

The outcome PIs assess the status of each component and whether the UoA is posing a risk of serious or irreversible harm to the component or hindering its recovery.

GSA3.3.1 Interpretation of likelihood levels ▲

The team may interpret the terms in Table SA8 either:

- Qualitatively, for example, through analogy with similar situations, plausible argument, empirical observation of sustainability and qualitative risk assessment, or
- Quantitatively, for example, through measured data from the relevant fishery, statistical analysis, quantitative risk assessment and quantitative modelling.

Table GSA2 shows the MSC's intent for the maintenance of each P2 component in relation to sustainability levels.

Table GSA2: MSC outcome expectations for each P2 component

Term	Definition and discussion
In-scope (2.1.1)	The intent of the SGs is that a fishery is managed such that the stock biomass is maintained above the PRI. This reflects the language used for PI 1.1.1. Where the PRI is not defined by management, other biologically based limits (BBL) or proxies can be used to score this PI (see GSA2.2.3 on proxies).

[32] https://laws.justice.gc.ca/eng/acts/s-15.3/

Term	Definition and discussion
ETP/OOS (2.2.1)	The intent is that the UoA does not hinder the recovery of ETP/OOS populations to favourable conservation status.
Habitats (2.3.1)	The SGs refer to the changes caused by the UoA that fundamentally alter the capacity of the habitat to maintain its ecological structure and function or recover from the impact.
Ecosystem (2.4.1)	Changes caused by the fishery that fundamentally alter the capacity of the ecosystem to maintain its key structure and function or recover from the impact. The team may interpret this to mean changes that seriously reduce the ecosystem services provided by the component to the fishery, to other fisheries, and human uses.

The components of Principle 2 may be subject to human impact from sources other than the UoA. For example, in-scope species may be target species in other fisheries, while habitats and ecosystem processes may be impacted by coastal-zone or other developments or introduced species.

If the component status is low, for whatever reason, the operative issue for the majority of the SGs in Principle 2 assessments is whether the UoA is hindering recovery. In these cases, the team should base the assessment on the contribution that the UoA makes to the status or recovery of the component under consideration. If the UoA is not the root cause of human impacts on the component, actions of the UoA cannot redress the situation.

GSA3.3.4 Observed and unobserved mortality ▲

Observed mortality includes:

- Catches.
- Catches that are thrown away, including slippage.

Unobserved mortality includes, but is not limited to:

- Illegal fishing and/or unregulated catches.
- Animals that are injured and subsequently die as result of coming in contact with fishing gear.
- Animals that are stressed and die as a result of attempting to avoid being caught by fishing gear.
- Ghost gear impacts (GSA3.7.7-8).

GSA3.4 General requirements for management PIs ▲

Management arrangements

The intent of the management PIs is to assess the arrangements in place to manage the impact that the UoA has on the P2 scoring elements to ensure that it does not pose a risk of serious or irreversible harm to the components of the ecosystem. The SGs contain a mixture of requirements for either measures or strategies to be in place. In addition to the definitions provided in SA3.4.1, the team should use Table GSA3, which provides a summary of requirements at each SG, when assessing management arrangements.

Table GSA3: Guidance to interpreting management arrangements required at each scoring guidepost

	Measures	Partial Strategy	Strategy

Scope	UoA or wider		UoA *and* wider
Objective	Limiting impact / not hindering recovery SG60 outcome status	Limiting impact / not hindering recovery SG80 outcome status	Defined management target
Design	Either designed for component, or incidental (having been designed to manage impacts elsewhere)		Designed for component
Linkages	Unlinked	Some cohesive links	Strategically linked
Responsiveness	Non-responsive	Response where sho wn to be ineffective	Fully responsive
Direct indirect impacts	Direct only		Direct and Indirect
Monitoring		Some	Full

Measures could include the closure of an area that was primarily put in place to avoid the catch of juvenile target species and enhance target species sustainability, but also has a beneficial effect on other species caught by the UoA, such as other juvenile finfish.

A partial strategy may not have been designed to manage the impact on that component specifically. However, if such measures are effective in assisting the UoA to achieve the SG80 level for the outcome PI, this could be considered as sufficient in meeting the criteria for partial strategy.

A **strategy** could include voluntary or customary arrangements, agreements, or practices, and/or codes of practice where they can be demonstrated to be working by achieving the corresponding outcome PI at SG80 or higher.

A **comprehensive strategy**, only used in the ETP/OOS management PIs, requires that the management ensures and continues to confirm that the UoA achieves the corresponding outcome requirements.

"Alternative measures"

The Management PIs also assess "alternative measures" to minimise the impact of the UoA on species and habitats. Fishery clients need to review "alternative measures" that are shown to minimise mortality of the species or species group in question as well as "alternative measures" to reduce impacts on habitats.

Box GSA7: The MSC's intent on reducing the impact of fisheries on unwanted catch and on habitats

The FAO states that:

Selective and environmentally safe fishing gear and practices should be further developed and applied, to the extent practicable, to maintain biodiversity and to conserve the population structure and aquatic ecosystems and protect fish quality. Where proper selective and environmentally safe

fishing gear and practices exist, they should be recognized and accorded a priority in establishing conservation and management measures for fisheries[33].

- Fisheries should take account of the potential for both positive and negative impacts of "alternative measures" on species and habitats (refer to GSA3.7.2.1) when considering whether such measures should be implemented.

"Alternative measures" should avoid capture of the species in the first place or increase its survivability if released. Alternatively, in the case of in-scope species, measures could use the unwanted catch in some way so that it would no longer be "unwanted". If there are no "unwanted" species, the team does not need to score the issue on reviewing "alternative measures" in that PI.

The language used in the scoring issue is based on that used by the FAO[34]. The FAO also provides management planning guidelines for all significant sources of fishing mortality in a fishery and requirements for management actions pertaining to bycatch and discards[35], including:

- Reviewing effectiveness of existing initiatives to address bycatch and discard problems.
- Reviewing potential effectiveness of alternative methods to address the bycatch/discard problem.

The MSC's intent is that the team should, in the outcome and information PIs, consider the efforts of the UoA to minimise the mortality of this "unwanted" catch. The team should score information on the effectiveness of the measures, including any reduction of unwanted catch, for example, lower catch rate, in the information PI. This information on the reduced catch rate of the species may improve certainty that a species is above the PRI/biologically based limits or, if below PRI/biologically based limits, form part of a strategy to ensure that the MSC UoAs do not collectively hinder recovery of this species. The team should also consider this when scoring the outcome PI.

The arrangements in place to manage impacts on the species may include measures to address both wanted and unwanted catch (see Box GSA7). With respect to unwanted catch, measures may include:

- Input and/or output controls.
- Improvements of the design and use of fishing gear and unwanted catch-mitigation devices.
- Spatial and temporal measures.
- Limits and/or quotas on unwanted catch.
- Bans on throwing away or slipping catch that create an incentive to reduce unwanted catch, provided that the unwanted catch cannot be released alive.
- Measures to increase survivorship of unwanted catch that is thrown away or slipped.
- Incentives for fishers to comply with measures to manage and/or reduce mortality of unwanted catch.

In these PIs, the team should also consider incentives that might compromise the effectiveness of the management strategy meeting P2 outcomes, such as fishing overcapacity caused by subsidies. If overcapacity exists due to subsidies, the management system should be robust enough to deal with this issue and still deliver a sustainable fishery in accordance with MSC Principle 2.

[33] FAO (1995) Code of Conduct for Responsible Fisheries. Rome: FAO.
[34] FAO (1995) Code of Conduct for Responsible Fisheries. Rome: FAO.
[35] FAO (2011) International Guidelines on bycatch management and reduction of discards. Rome: FAO.

GSA3.5 General requirements for information PIs ▲

The requirements in the information PIs are framed in terms of information adequacy. The team may use many forms of information in order to score the UoA; for example, written, verbal, photographs, and first-hand accounts. This information may come from different, potentially competing sources; for example, the client, fishers, community members, non-governmental organisations, and government agencies.

For some forms of information, support can be derived from published scientific literature that refers directly or indirectly to the subject of interest, from the client or stakeholders, or from first-hand observations. The team will need to be satisfied that information:

- Is objective.
- Has been generated through acceptable scientific methods.
- Can be independently verified.

When presented with information that may not be verifiable, the team may find it useful to “triangulate opinions”. The team can do this by cross-checking statements made by people against other opinions and perspectives held by other stakeholders. A range of triangulated opinions will:

- Offer different perspectives, highlight diverse views, or potentially reveal vested interests.
- Help verify or authenticate information.
- Challenge the assumptions or biases of others.

Triangulation may not reveal the one true answer; it may simply yield a fuller, more complete understanding when all the information is brought together. Ultimately, the team will need to use its expert judgement and make decisions based on the best available information, independent of its source.

GSA3.6 In-scope species outcome PI (PI 2.1.1)

GSA3.6.1 Determining the point of recruitment impairment and the use of proxies ▲

For additional help on the interpretation of this term, including the use of proxy reference points, the team should refer to the Principle 1 guidance in GSA2.2.3.

GSA3.6.2 Designation of “main” and “minor” species ▲

When considering species for designation as “main”, the team should use a precautionary approach. The overall intent when designating “main” species is that the team should have a good understanding of the long-term average catch composition of P2 species of the UoA before it publishes the Public Comment Draft Report. In addition, the team should be confident that the species compositions, as well as their respective catch volumes, are unlikely to change over the lifetime of the certificate.

Considering the variability of the catch composition over the last 5 years or fishing seasons, the team should recognise that some species might be “main” in some years but not in others. Depending on data availability, the team may choose a different length of the time series. However, the team should provide a rationale for the duration chosen.

If catch percentages are unknown or too uncertain to enable determination of which species are “main”, the team should use and document a qualitative information-gathering process to determine whether the catch of the species by the UoA comprises more than 2% or 5% of all species caught by the UoA. The team should be precautionary in its classification of “main” and “minor species”. This implies that more species might be considered “main” unless the team provides rationale to justify otherwise. This might be the case for fisheries that need to use the Risk-Based Framework (RBF) methodology (Tool A of the MSC Fisheries Standard Toolbox) and/or have very low sample sizes so that the standard deviation is very high.

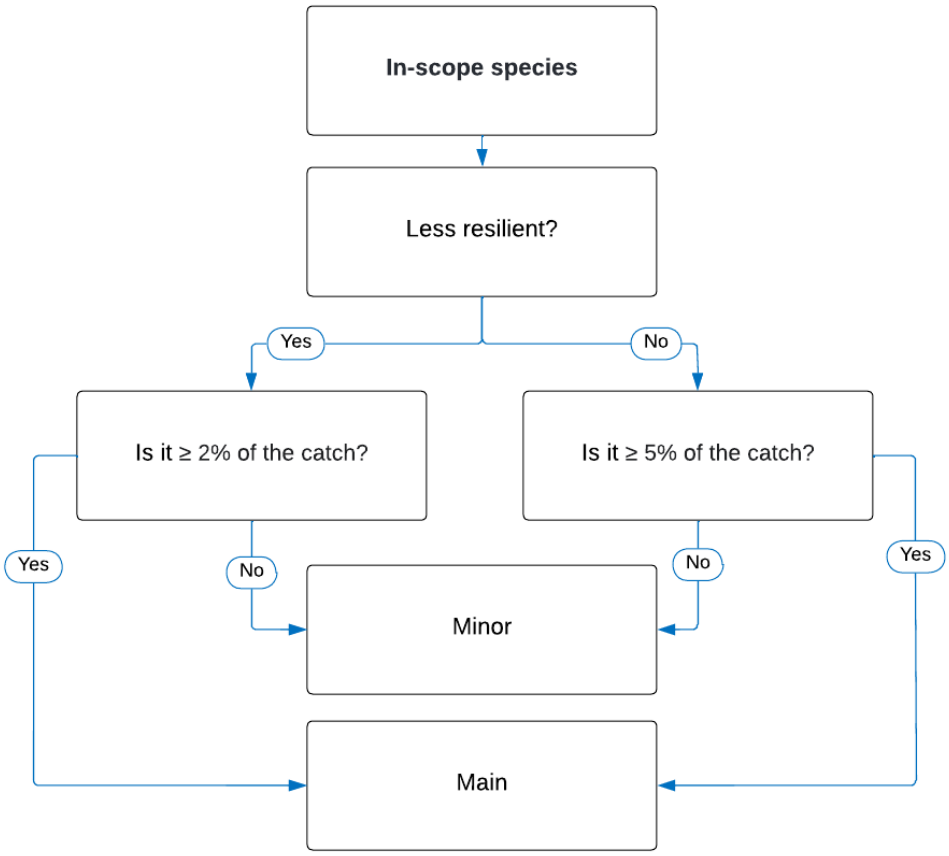

Figure GSA4: Decision tree for determining "main" and "minor" species in the in-scope species component

GSA3.6.3.b Designating less-resilient species as "main" at 2% ▲

Resilience here is based on the species life-history characteristics and the risk to the stock from anthropogenic activities, not the actual impact of the UoA on the stock. The team should assess the actual impact of the UoA on the stock under the outcome PI.

The team may use the productivity part of the Productivity Susceptibility Analysis (PSA) as a precautionary and robust method of quickly determining the intrinsic resilience of a species, in cases where it scores either low or medium productivity (SA3.6.3.b.i.A). The team may take an overall average productivity score of ≥ 2 to indicate that the species has a life-history equivalent to medium or lower productivity. Using this threshold would be a precautionary way of designating a species as "less resilient". See of the Tool A of the MSC Fisheries Standard Toolbox for full details on the PSA analysis.

However, the team should note that the productivity score is not the only method available to help designate species as "less resilient". A wide variety of other sources of information can also be used, either apart from or in combination with the productivity score. For example, Fishbase provides designations for some species as being either of low, medium or high resilience/productivity.

If the intrinsic resilience is high but the species is still at risk for other reasons, the team could consider investigating species declines, population size, and extrinsic threats. For example, the current abundance of the population may affect natural resilience if depensation effects are apparent and impair natural reproductive ability.

The team may also consider the spatial distribution of the species and the degree of spatial overlap with commercial fishing operations to determine 1 of the following:

- Whether the species is at risk of being locally depleted in the assessment area.
- Whether the species has only a limited distribution, so is likely to be more severely affected by fishing pressure.

Whether the species is part of a widely distributed and highly migratory population, in which case the cumulative impacts on the population may be greater and more difficult to account for.

GSA3.6.3.c Sharks ▲

Shark fins are considered to have high commercial value. Thus, when a fishery trades shark fins, the team should consider shark to be a main species, even when sharks comprise less than 5% of the catch.

GSA3.6.3.1 Exceptionally large catch ▲

The team should interpret “exceptionally large” as when the UoA catch is equal to or greater than 400,000mt. If the catch is exceptionally large, even small catch proportions of a Principle 2 species could significantly impact populations, and therefore the team may still designate a species as “main” if it falls under the designated weight thresholds of 5%.

Where the team is aware of a significant risk of recruitment impairment or stock collapse, the team should take a precautionary approach and may still designate a species as “main” if it falls under the designated weight thresholds of 5%.

GSA3.6.7 Species below the PRI ▲

The team should note, at SG80, that the recovery of a species in P2 that is below the PRI (or other limit with similar intent and outcome) is only required to levels above the PRI or biologically based limit, and not to the MSY or equivalent target levels required in P1, as specifically referred to in PI 1.1.2 on stock rebuilding. P1 and P2 set critically different bars in this regard.

The team may find it useful to first evaluate whether recovery of a species below the PRI is happening on a stock level, as evidenced by a demonstrably increasing trend in biomass. If direct evidence from time-series estimates of stock status is not available, the team may use proxy approaches, including reference to fishing mortality levels and the use of simulation studies.

Generally, if fishing mortality for the entire stock, not just the marginal fishing mortality of the UoA, is less than F_{MSY}, the team can reasonably expect that recovery of the stock is not hindered. This determination will hold true in most cases. However, in some cases, to ensure that rebuilding objectives are likely to be met, the team may need to consider the extent to which total F is below F_{MSY}.

If there is no evidence of recovery as outlined above, by either evaluating stock biomass or total fishing mortality, SA3.6.7.d allows an SG80 score in cases where the proportion of catch by the UoA is effectively not hindering recovery. In other words, if total fishing mortality is not below F_{MSY}, the team needs to evaluate whether the marginal fishing mortality caused by the UoA is material to the stock’s ability to recover. The team should determine this in a practical way by examining likely population trajectories if all the other fisheries reduced their catches to zero, in which case the only catches are being taken by the fishery under assessment. Since this will often be difficult to determine, the MSC allows that the team may use the UoA’s catch in proportion to the total catch of a stock as a reasonable proxy of whether that UoA, on its own, could be hindering recovery.

The team’s judgement on whether the UoA is hindering recovery will depend on the proportion of catch and the overall level of F that is causing the problem. In some cases, the team might find it more useful simply to assess the marginal F by the UoA in terms of the weight of catch removed in relation to the overall abundance of the stock, rather than in relation to the total catch. In this case, the team may need to investigate whether the UoA has greater impact on certain size classes of the stock, such as juveniles, as the actual impact of the UoA on the population biomass could be different if only mature adults are targeted. In evaluating whether the UoA’s stock removals are hindering

recovery, the team may also find it useful to evaluate the overall resilience of the species and/or the spatial distribution of the species and evaluate, for example, whether the species is at risk of being locally depleted.

The team should note that:

- The impact of a UoA should here be assessed in terms of stock removals and the marginal F of the UoA.
- The percentages listed here should therefore not be confused with the percentages used to designate “main” species, which are based on the proportion of a species as part of the total catch of the UoA.

In a multi-species fishery context, the target levels of biomass or fishing mortality for some species that would be acceptable at SG100 may be different from those usually applied to a single species. However, in all cases, target levels of biomass or fishing mortality should result in low risk of serious or irreversible harm to in-scope species.

The team should refer to FCP Annex GPB1.5.1.b–c for additional guidance on the harmonisation of scores and conditions when evaluating the cumulative impacts of MSC UoAs.

GSA3.7 In-scope species management strategy PI (PI 2.1.2)

Scoring issue (a) MSC UoAs collectively not hindering recovery ▲

To determine whether a strategy is “demonstrably effective”, the team may use:

PG2 Direct evidence that the proportion of combined catch by all MSC UoAs relative to the total catch of the stock does not hinder recovery, or

PG3 Simulation studies that combine information on recent and expected F levels, stock size, and recruitment, etc. to confirm that the stock is expected to recover.

Even if the total catch of a species is clearly hindering recovery (e.g. total fishing mortality is not below F_{MSY}), the team may still determine a strategy is demonstrably effective between all MSC UoAs if the proportion of combined catch by the UoAs is effectively not hindering recovery. The team should evaluate whether the fishing mortality caused by the UoAs is material to the stock’s ability to recover. For example,

- Combined catches of all MSC UoAs of less than 30% of the total catch of a species may not be influential in hindering a recovery in a marginal sense and nothing the UoA does would be likely to change the situation.
- UoA catches of more than 30% might be influential, such that if the UoA took action to reduce its catches, the stock might well start to recover.

If a species below the PRI has an overarching recovery strategy in place, with effort controls set on total fishing mortality that are adhered to, the team may score SG80 if evidence exists that the fishing mortality caused by all MSC UoAs is within the limits set by the recovery strategy in place for the species.

Recovery strategies differing between UoA jurisdictions

There may be instances where stocks below the PRI have a distribution across multi-jurisdictional boundaries, such as shared, straddling, highly migratory species (HMS), and high seas non-HMS stocks, but there are no comprehensive management efforts in place set to manage and recover most of the stock complex across all boundaries. Instead, separate parts of the stocks may only be governed through regional management measures. Separate UoAs impacting the same stock may thus have to comply with separate strategies for their respective jurisdiction.

In these cases, and other applicable situations, where a demonstrably effective strategy between the MSC UoAs needs to be in place, the different jurisdictional strategies do not have to be aligned and harmonised between UoAs in order to meet this requirement at SG80 The intent is instead to evaluate

whether the separate strategies together achieve the outcome that recovery of the species is not hindered by those MSC UoAs. If not, the team should require some alignment of mitigation processes between UoAs.

Examples: UoAs in different jurisdictions

When separate jurisdictions have set different landing limits on the same depleted species, one UoA would have to comply with a requirement to release all catches alive and another might have an allowance to land only a small amount each year. In such cases, the team would have to:

- Evaluate the validity of each separate strategy.
- Calculate the combined mortality caused by each UoA.
- Determine whether these 2 strategies combined constitute a demonstrably effective strategy to "not hinder recovery".

Scoring issue (b) - Management strategy effectiveness ▲

The team should score scoring issue (b) at the UoA level i.e. collectively for all in-scope scoring elements in the UoA, rather than for each individual scoring element.

GSA3.7.2 Scoring issue (c) - Reviewing measures for reducing unwanted catch ▲

Example 1

In a North Sea groundfish UoA, a percentage of the catch includes gurnard, all of which are thrown back dead. In this case, the gurnard would be unwanted. The team should score this scoring issue for this catch.

However, if all or almost all of the gurnards were to be kept for crew consumption or, for example, landed and sold, the catch would no longer be considered unwanted. In this case, the team should not score scoring issue (c).

Example 2

In a longline UoA where a percentage of the catch includes a skate species, the skate species is immediately cut from the line rather than being landed. In this case, the team should consider the skate to be unwanted catch. The team's review of "alternative measures" should reflect the need to minimise the mortality of the species, with the expectation that released skate will have high survivability or avoid capture in the first place.

Example 3

In a mixed-species UoA, all species are landed and consumed or sold, so there is no unwanted catch. In this case, the team should not score scoring issue (c).

Example: review of "alternative measures"
The management body for a fishery has investigated several measures that could be used to minimise the catch of species A, a species that is discarded with poor survivability.

The management body selected 4 potential measures that have been used in similar gear in other fisheries or to minimise mortality of this species. The management body does not have quantitative estimates of the levels by which the potential measures might reduce the catch of species A through their own field testing, but they have considered other studies indicating that implementing 3 of these measures would have no or little effect on reducing the catch of this species.

However, the 4th measure is estimated to reduce catch of this species by 80%. The measure:

- Is not expensive to implement.
- Will not require replacing of current gear.

- Will not affect crew safety or significantly add time to vessel operations.
- Slightly reduces the catch of the target species, but not significantly.
- Does not cause increased catches of other P2 “unwanted” or ETP/OOS species.
- Does not have a negative impact on habitat.

The management body recommends use of measure 4 but has not yet required it in legislation, nor has the fishery chosen to adopt it. This fishery has clearly reviewed “alternative measures” but has not yet implemented them.

This fishery would meet SG60 if it:

- Has clearly reviewed “alternative measures” but has not yet implemented them.
- Were to adopt the use of this measure and it was being used at the time of the site visit.
- Has no plans to conduct another review of measures.

This fishery would meet SG80 if:

- It were to adopt the use of this measure.
- The measure was being used at the time of the site visit.
- Another review was scheduled to take place in 3 years’ time.

This fishery would meet SG100 if:

- It were to adopt the use of this measure.
- The measure was being used at the time of the site visit.
- It planned to review “alternative measures” every 2 years.

GSA3.7.2.1 “Alternative measures” ▲

The team should consider:

- How the “alternative measures” for review have been selected.
- Whether appropriate gear and practices have been considered as part of the review.

The review may consider “best practice” measures in a gear/species/region that have been established as achieving the lowest achievable levels, and therefore meet the FAO’s description of “proper selective and environmentally safe fishing gear” (see Box GSA7).

If “best practice” has not been established, or it is not clear which measures reduce catch to the lowest achievable levels, the team should assess whether the review considers measures that are expected or known to minimise mortality of the unwanted species.

The gear and practices selected for review may be from a number of sources, including those that have been shown to be effective in similar fisheries or regions, or those presented as “best practice” in international fora.

The list below highlights some repositories of expertise for mitigation methods but is not an exhaustive list. International fora with information and/or expertise on reducing unwanted catches include:

- Bycatch Reduction Techniques Database, Consortium for Wildlife Bycatch Reduction[36].
- Agreement on the Conservation of Albatrosses and Petrels (ACAP)[37].

[36] http://www.bycatch.org
[37] http://www.acap.aq

- Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS)[38].
- Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC-Sea Turtles)[39].
- International Union for Conservation of Nature (IUCN)[40].
- UNEP-CMS (United Nations Environment Programme – Convention on Migratory Species)[41].

In addition, many national bodies and RFMOs have developed policies and procedures to reduce unwanted catch, for example:

- The US NOAA Bycatch Reduction Engineering Program (BREP).
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).
- The Western and Central Pacific Fisheries Commission, which also maintains a bycatch mitigation information system[42] for that region.

Where the P2 components are required to be harmonised with other MSC certified fisheries, the team should consider whether the UoA under assessment has considered the gear and practices used in these fisheries as part of their list of “alternative measures”, if they have been shown to minimise unwanted catch.

In situations where the proposed alternative mitigation measures are cost prohibitive or impractical for the fishery to implement, other lower cost “alternative measures” may be considered, for example, improved education for fisheries regarding “best practice” approaches. This is not meant to be a means to avoid the costs associated with implementation of gear modifications or other measures but is an alternative to achieve minimisation when other measures would render the fishery economically unviable.

GSA3.7.2.2 Review of “alternative measures” ▲

Some fishery clients may need to review “alternative measures” more frequently, depending on the extent and nature of the unwanted catch; for example, as a result of changes in stock size. The team may determine that a review should occur more frequently if information becomes available indicating that the existing measures are ineffective and do not lead to any reductions in mortalities of unwanted species; for example, as determined during a surveillance audit.

GSA3.7.2.3 Implemented as appropriate ▲

At SG80, the “alternative measures” may be implemented either within the UoA or in the wider fishery as part of a sub-strategy or code of conduct, etc. on unwanted catch. This could be species-specific or cover all unwanted catch.

Evidence of implementation may include:

- The development and use of codes of conduct.
- A description of appropriate ways of handling gear and catch on board vessels and in crew training records.
- Evidence from the fleet or observers that measures are being implemented by fishers.

[38] http://www.ascobans.org
[39] http://www.iacseaturtle.org
[40] https://www.iucn.org
[41] http://www.cms.int
[42] https://www.wcpfc.int/bycatch-mitigation-information-system-bmis

- A summary document listing information and measures reviewed along with an analysis of the measures and their appropriateness for the UoA.
- The minutes of a meeting that has considered “alternative measures”.

If the measures reviewed are shown to be more effective at minimising unwanted catch, but the measures are not implemented, the team should review the reasons for this, which can be:

- Evidence that the practicality would be adversely affected by implementing the measures reviewed. Examples of such practicalities include crew safety, target catch, and vessel operations.
- Evidence that the UoA has assessed the economic costs and benefits of implementing the measure and determined that the potential costs would have an adverse impact on the economic viability of the fishery.
- Evidence that the UoA has considered the implications of relevant solutions on other species and habitats and found that there are negative consequences for:
- Species, causing them to fall below the PRI or outside biologically based limits, or hindering their recovery from such a state.
- Habitats, causing serious or irreversible harm to the habitat, such that the measures should not be implemented.

The FAO (2011)[43] recognises that there are costs and benefits to implementing measures that include direct and indirect costs, such as:

- Cost of the gear.
- Impact on revenue from catch volumes or quality.
- Operational efficiency.
- Access or restriction to fishing opportunities.

Costs can be mitigated through the application of grants/loans and preferential treatment on duties and taxes for investment in new technologies. The team’s judgement of whether costs are prohibitive should take these issues into account together with the size and scale of a fishery.

Example: prohibitive costs ▲

The management body of a small-scale UoA in a developing country reviews potential mitigation measures on a regular basis. One reviewed measure has been shown to reduce mortality of unwanted catch in similar fisheries but does not affect target catch efficiency or crew safety. However, the UoA vessels decide not to implement the measure because they determine that there would be a 10% increase in costs arising from greater length of time for setting gear. This cost increase would significantly impact their economic viability, even when offset by potential benefits.

In this case, the team would review evidence that the costs would be projected to increase by 10%, based on projected cost of purchasing measure and loss/gain in target species catches/quality, and that this increase would have a significant impact on the economic viability of the UoA; for example, based on comparison to profit and loss, or turnover.

The UoA could still meet SG80 for this scoring issue (c) if the team concludes that:

- Implementing this measure would be cost prohibitive for the UoA.
- The measure review was not implemented on this basis.

[43] FAO (2011) International Guidelines on Bycatch Management and Reduction of Discards. Rome/Roma, FAO. 2011. 73 pp.

The UoA could meet SG80 or higher if:

- The cost of implementation in this UoA was partially covered by a donation for the purpose from a funding body and a non-governmental organisation (NGO), so that the increased cost to the UoA was not prohibitive.
- All other criteria have been met.

The MSC has purposely not been prescriptive about determining what is cost effective or safe, recognising that what could be unsafe or economically unviable in one fishery might be safe and economically viable in another. The team will need to use its expert judgement to assess this. GSA3.7.2.3 indicates that there should be evidence that the fishery assessed the costs and benefits of “alternative measures”. It does not stipulate whether this needs to be a fully quantitative cost/benefit analysis or whether a qualitative indication considering costs of implementing measures versus fishery profits would be enough. The MSC does not want to unduly burden the fishery clients, so size and scale of the fishery could be a factor in determining the extent to which they assess costs and benefits of “alternative measures”. Thus, an industrial fishery with large profit margins indicating they did not implement a measure because it was too expensive would need to provide a more detailed indication that the costs would impact their viability than would a small-scale fishery with slim profit margins, which might be able to simply indicate the cost of any measures compared with profit. In both cases there should be some evidence that the fishery or management body investigated the costs of implementing the gear; for example, by contacting a supplier for a quote or referring to a catalogue.

To determine the point at which a measure becomes cost prohibitive, the team should consider:

- The point at which the potential costs would adversely impact the economic viability of the fishery (this may constitute the point at which the measure becomes cost prohibitive).
- That size and scale of the fishery.
- Opportunities to mitigate costs (e.g. through grants/funding).

GSA3.7.7–8 Ghost gear management strategy scoring issue ▲

The team should use the following definitions (adapted from FAO Voluntary Guidelines on the Marking of Fishing Gear[44]) when considering ghost gear and its impacts:

- **Ghost gear:** fishing gear or parts thereof (including fish aggregating devices) that are abandoned, lost, or discarded at sea. This is more formally referred to as “Abandoned, Lost, or Discarded Fishing Gear” (ALDFG).
- **Ghost gear impact**: environmental impacts resulting from ghost gear, including ghost fishing and/or its physical impact on habitats.
- **Fishing gear:** a tool with which living aquatic resources are captured. This refers to any physical device, or part thereof, or combination of items, that may be placed on or in the water or on the seabed, with the intended purpose of capturing or facilitating the capture, or harvesting of marine organisms, in accordance with MARPOL Annex V[45;46].
- **Ghost fishing**: the capture and/or entanglement of target, non-target, and ETP/OOS species by ghost gear.
- **Ghost fishing mortality**: the mortality of organisms arising from the entrapment, entanglement, or other physical interactions with ghost gear.
- **Abandoned fishing gear:** fishing gear over which that operator/owner has control and that could be retrieved by the owner/operator but that is deliberately left at sea due to force majeure or other unforeseen reasons.
- **Discarded fishing gear**: fishing gear that is deliberately released at sea without any attempt for further control or recovery by the owner/operator.
- **Lost fishing gear:** fishing gear over which the owner/operator has accidentally lost control and that cannot be located and/or retrieved by the owner/operator.
- **Fish aggregating device (FAD):** a permanent, semi-permanent or temporary object, structure, or device of any material, man-made or natural, that is deployed, and/or tracked, and used to aggregate fish for subsequent capture. A FAD can be either an anchored FAD (aFAD) or a drifting FAD (dFAD). In MSC assessments, FADs are not considered a gear type as such because they do not capture fish, but merely facilitate subsequent capture. FADs therefore may be included as a functional part of certain fishing gear types (e.g. purse seine, handline) as they are sometimes used to facilitate the capture efficiency of these gears.

Whilst it is recognised that it is challenging to completely eliminate some ghost gear (e.g. gear loss from severe storms), it is the MSC’s intent that fishery clients aim to minimise ghost gear and its impact on marine ecosystems as much as possible by having effective management strategies that aim to avoid gear loss or mitigate ghost gear impacts.

GSA3.7.6 Demonstrably absent ▲

The team should use its expert judgement to determine whether the risk of ghost gear impact is demonstrably absent. Examples could include:

- Situations characterised by an absence of fishing gear or where there is no risk of gear loss in routine operation. For example, hand-raked, hand-dived or hand-dredged fisheries.

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[44] FAO (2019) Voluntary Guidelines on the Marking of Fishing Gear. Directives volontaires sur le marquage des engins de pêche. Directrices voluntarias sobre el marcado de las artes de pesca. Rome/Roma. 88 pp. Licence/Licencia: CC BY-NC-SA 3.0 IGO.
[45] IMO (1973) International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL).
[46] IMO (2006) Guidelines on Annex V of MARPOL Regulation for the Prevention of Pollution by Garbage from Ships.

- Situations where there are no scoring elements at risk of interacting with the type of ghost gear under consideration.

GSA3.7.8 Assessing ghost gear management measures ▲

At the SG60 level, measures may not in isolation significantly reduce ghost gear, however the team should consider SG60 as met if there are measures in place that over time could contribute to a partial strategy or strategy that would be expected to “minimise” ghost gear impacts.

Various approaches can be taken to manage ghost gear and its impacts. It is widely accepted that prevention is better than mitigation or remediation of ghost gear impacts.

As proposed by McFadyen et al. (2009)[47], interventions can be broadly divided between measures that:

- Prevent (by avoiding the occurrence of ghost gear in the environment).
- Mitigate (by reducing the impact of ghost gear in the environment).
- Remediate (by removing ghost gear from the environment).

These interventions include but are not limited to those listed in Table GSA4.

An example of a preventative measure is a system in place for gear marking. Gear marking can prevent gear loss in several ways. In fisheries that use passive gear, marking can improve visibility to avoid accidental gear conflict and entanglement of gear in propeller shafts, a major cause of gear loss. Alternatively, where gear marking allows for identification of ownership of lost gear, it can disincentivise abandonment and encourage innovation to prevent gear loss. This becomes even more effective when combined with additional incentives for avoiding or remedying gear loss, or when combined with enforcement action or penalties.

Table GSA4 Examples of ghost gear management measures

Type of measure	Example of measures
Prevention	• A system for gear marking is in place that reduces gear conflict or allows identification of ownership to facilitate gear loss monitoring. • Spatial and/or temporal measures to reduce gear conflict. • Fishing input controls to limit gear use (e.g. limits on soak time for passive gear types). • Gear design to reduce whole or partial loss of the fishing gear (including technology to track gear position). • Vessel design to reduce discarding of gear and other aquatic litter. • Use of end-of-life fishing gear disposal facilities. • Evidenced fisher education programmes raising awareness on preventing gear loss.
Mitigation	1. Gear design to reduce the incidence and duration of ghost fishing where gear is lost.
Remediation	2. Lost gear reporting, locating, and recovery initiatives.

Useful resources on 'best practice' approaches to managing ghost gear and its impacts for assessment teams include:

- FAO (2009) for basic principles[48].
- FAO (2019) 'Voluntary Guidelines on the Marking of Fishing Gear'[49].
- The revised 2021 Global Ghost Gear Initiative (GGGI) 'Best Practice Framework for the Management of Fishing Gear'[50].
- 2019 International Seafood Sustainability Foundation (ISSF) 'Recommended Best Practices for FAD Management in Tropical Tuna purse seine fisheries'[51], for examples of "best practices" with respect to mitigating ghost gear impacts from lost or discarded FADs.

Note that this list is not exhaustive.

GSA3.8 In-scope species information PI (PI 2.1.3)

GSA3.8.3 Information adequacy for management strategy ▲

The team should use information that is adequate to support understanding of the effectiveness and practicality of measures used by the UoA and potential "alternative measures", if:

- There is unwanted catch, and
- Scoring issue (c) on the "review" of "alternative measures" is scored in the management PI 2.1.2.

GSA3.9 ETP/OOS species outcome PI (PI 2.2.1)

Scoring issue (a) – assessment of direct UoA effects on ETP/OOS unit(s) ▲

The MSC's intent is that the UoA does not hinder the recovery of the ETP/OOS unit to a level consistent with achieving favourable conservation status. In the MSC context, direct effects of the UoA on the ETP/OOS unit covers injuries and mortalities due to interaction with the fishing gear or vessels, including unobserved or cryptic mortality that may result from ghost fishing. Direct effects may also include sub-lethal effects, such as injuries that do not immediately result in death and loss of fitness due to disturbance. The indirect effects of the UoA on the ETP/OOS unit are those that result from fishery impacting the ecosystem in a way that consequently effects the ETP/OOS unit. These indirect effects are assessed as part of the Ecosystem Outcome PI 2.4.1.

If an ETP unit is already at a level consistent with favourable conservation status, this may be used as evidence that the UoA does not hinder recovery of the ETP unit to this level. However, the team should consider whether there are other factors that would mean that the UoA may be hindering recovery; for example, if the impact assessment evaluating status relative to favourable conservation status was undertaken more than 5 years ago, or the ETP/OOS unit has shown steady declines likely attributable to UoA mortalities.

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[48] McFadyen, G., Huntington, T., and Cappell, R. (2009) Abandoned, lost, or otherwise discarded fishing gear. UNEP Regional Seas Reports and Studies, No. 185; FAO Fisheries and Aquaculture Technical Paper, No. 523. Rome, UNEP/FAO. 2009. 115pp.
[49] FAO (2019) Voluntary Guidelines on the Marking of Fishing Gear. Directives volontaires sur le marquage des engins de pêche. Directrices voluntarias sobre el marcado de las artes de pesca. Rome/Roma. 88 pp. Licence/Licencia: CC BY-NC-SA 3.0 IGO.
[50] Global Ghost Gear Initiative (2021) Best Practice Framework for the Management of Fishing Gear: June 2021 Update. Prepared by Huntington, T. of Poseidon Aquatic Resources Management Ltd. 94 pp plus appendices.
[51] Restrepo, V., Koehler, H., Moreno, G., and Murua, H. (2019) Recommended Best Practices for FAD. management in Tropical Tuna Purse Seine Fisheries. ISSF Technical Report: 2019–11. International Seafood Sustainability Foundation, Washington, D.C., USA.

GSA3.9.1 Defining ETP/OOS unit ▲

The identification of the appropriate ETP/OOS unit(s) is essential for assessing the impact of the UoA (or MSC UoAs) on ETP and OOS species. The MSC recognises that there are a variety of ways that this has been approached across taxa and in different management contexts.

The MSC's intent is that the team indicates which ETP/OOS unit(s) has been selected, and that the ETP/OOS unit(s) is appropriate to the species and the context of the fishery in assessment. The selection should also be precautionary. The ETP/OOS unit(s) may be a species, a population, a stock, or another category.

Organisations responsible for assessing the status of species may have already identified an ETP/OOS unit based on:

- Biological attributes.
- Impacts of the UoA on that unit, in terms of scale and intensity.
- Geopolitical boundaries.

In such cases, these units would normally be used by the team. However, if the organisation responsible for assessing status has not selected the most appropriate and precautionary unit based on the criteria above, the team will need to select a different ETP/OOS unit.

Organisations responsible for assessing the status of species may include relevant management authorities associated with the UoA but also international organisations, such as the International Whaling Commission (IWC), and Instruments associated with the Convention on Migratory Species; for example, ASCOBANS and ACAP.

The team will need to determine the appropriate ETP/OOS unit(s) and provide a justification for this choice, if:

- An ETP/OOS unit(s) has not already been identified by the organisations responsible for assessing status of species, or
- A unit appropriate for assessing impact of the UoA has not been identified by the organisations responsible, or
- The organisations responsible differ in how they identify a unit.

The selection of the unit(s) may be a compromise between using the ETP/OOS unit(s) that best reflects the subset of individuals that are impacted by the UoA, whilst also ensuring that mortalities can still be attributed to the ETP/OOS unit(s) in question. However, the team should also be precautionary when determining the unit(s).

For example, where multiple populations of the same species overlap so that it is not possible to determine from which population an individual mortality came from, the team should select a higher taxonomic level (e.g. species) as the ETP/OOS unit(s), provided the individual populations are likely to have the same status. However, in the situation described above, if the individual populations have different status, the team should be more precautionary and select the more vulnerable population as the ETP/OOS unit(s). Where there is evidence that the fishery overlaps geographically with only (or mainly) one population, the team should consider the impact of fishing mortalities on that population as the ETP/OOS unit(s).

The team should note that uncertainty in population structure (i.e. whether the fishery is impacting single or multiple units) can make defining an ETP/OOS unit(s) particularly challenging. Ideally, the degree of connectivity and self-recruitment will determine the most appropriate ETP/OOS unit(s). For example, where a single population is completely isolated and there is no or little connectivity or geographic overlap with other populations, this single population is likely to be the most appropriate ETP/OOS unit. However, where there is high level of connectivity between metapopulations, the wider metapopulation is likely to be the most appropriate ETP/OOS unit. Where little is known about connectivity, approaches that consider the ability to identify impacts and implement management measures may be more appropriate. In this case, selecting the ETP/OOS unit at the smallest scale that is practical makes it harder to falsely conclude that the population is at a higher level than it really is.

To help illustrate the intent of these requirements, examples of how identifying ETP/OOS units of assessment in different contexts are provided below.

Example 1: Cetacean species in the UK

The UK Joint Nature Conservation Committee (JNCC) defines cetacean populations as "a collection of individuals all of the same species with a tendency to be found in the same area. Populations contain genetic variation within the population itself, and between other populations. Populations can exist in isolation, or can co-exist at least during a part of the year with other conspecific populations (i.e. other populations of the same species) in the same area". The JNCC notes that most cetaceans in UK waters are part of larger biological populations, with ranges extending into waters of other countries or the High Seas. However, to obtain the best conservation outcomes for species, it divides the populations into smaller management units, which provide an indication of the spatial scales at which impact assessments, cumulatively or in combination, need to be assessed for key cetacean species in UK waters. The management units are based on best understanding of biological population structure and any ecological differentiation between populations, but the boundaries are determined either by political boundaries (e.g. UK vs Irish waters) or the management of human activities (e.g. ICES divisions for fisheries management)[52]. For example, for bottlenose dolphin (*Tursiops truncatus*) the JNCC identifies seven management units in the UK, some of which fall into UK waters and others are shared with other countries, e.g. Greater North Sea[53]. These seven management units could be considered ETP/OOS units for the purposes of fishery assessments. Where a fishery overlaps with multiple ETP/OOS units, each would be considered a separate scoring element.

Example 2: Global marine turtles

For marine turtles, regional management units (RMUs) were developed through the IUCN Marine Turtle Specialist Group to evaluate the relative impacts of fisheries on appropriate population units for widely distributed species[54;55]. RMUs are biologically and geographically explicit population segments. They use spatially integrated information, including information on individual nesting sites, genetic stocks, and geographic distributions of different life-history stages to account for complexities in marine turtle population structures.[56] RMUs are equivalent to IUCN sub-populations, so they are used as the appropriate demographic unit for IUCN Red List assessments. The use of spatial information allows overlap of individual RMUs with specific fisheries to be evaluated. The RMU would also be the most relevant ETP/OOS unit for most fishery assessments. However, there are some areas (e.g. Australia) where genetic sub-structuring exists, and specific genetically defined management units have been identified. For UoAs in those areas, these management units may be the more relevant ETP/OOS unit.

Example 3: Oceanic whitetip shark in Western Pacific

The oceanic whitetip shark (*Carcharhinus longimanus*) is distributed globally in tropical and sub-temperate waters. Oceanic whitetips were evaluated as Critically Endangered as a species on the

[52] IAMMWG (2015) Management Units for cetaceans in UK waters (January 2015), JNCC Report No. 547, JNCC, Peterborough, ISSN 0963-8091.
[53] IAMMWG (2015) Management Units for cetaceans in UK waters (January 2015), JNCC Report No. 547, JNCC, Peterborough, ISSN 0963-8091.
[54] Wallace, B.P., DiMatteo, A.D., Hurley, B.J., Finkbeiner, E.M., Bolten, A.B., et al. (2010) Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales. PLoS ONE 5(12): e15465. Available at: https://doi.org/10.1371/journal.pone.0015465.
[55] Wallace, B.P., Kot, C.Y., DiMatteo, A.D., Lee, T., Crowder, L.B., and Lewison, R.L. 2013. Impacts of fisheries bycatch on marine turtle populations worldwide: toward conservation and research priorities. Ecosphere 4(3):40. http://dx.doi.org/10.1890/ES12-00388.1
[56] Wallace, B.P., DiMatteo, A.D., Hurley, B.J., Finkbeiner, E.M., Bolten, A.B. et al. (2010) Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales. PLoS ONE 5(12): e15465. Available at: doi:10.1371/journal.pone.0015465

IUCN Red List in the 2018 assessment[57]. The IUCN assessment indicates that there are no data available on the global population size of the oceanic whitetip shark, but that preliminary results from genetic studies suggest there may be some differences between individuals in the Western Atlantic and Indo-Pacific[58].

The Western and Central Pacific Fisheries Commission (WCPFC) undertook a stock assessment for the oceanic whitetip shark stock in the Western and Central Pacific Ocean (WCPO) in 2019 2019[59]. This stock assessment indicated that there is no evidence for more than one population within the WCPO but that there is limited horizontal movement inferred from satellite tagging, suggesting that there is a potential for regional residency in the Pacific Ocean. Defining the stock at this scale also allows for the WCPFC, as the relevant management body, to assess the impact of fisheries in the region on this stock and to apply management measures. Given that the stock is based on some biological information and is managed at stock level by the relevant management body, the WCPO stock of oceanic whitetip is a relevant ETP/OOS unit.

Example 4: Black-browed albatross populations in the South Atlantic

There are several possible taxonomic units below species that CABs could consider in this case – for example, seabirds can be grouped by “colony”, “sub-colony” or “breeding site”, “island group”, “population” or, in the case of coastal breeding birds, by administrative unit such as county or country. Considering different political responsibilities, legislation, threats, population trends and dynamics, at-sea distributions, and migration patterns, “island group” may be the most relevant ETP/OOS unit, where practical, or country for continental land masses. For example, the Agreement on Conservation of Albatrosses and Petrels (ACAP) assigns priorities for research and monitoring at the island group level, and this is also the level at which ACAP identifies Priority Populations (as flagships); i.e. those populations declining at more than 3% per year, hold more than 10% of global breeding numbers, and are at risk from fisheries requiring international action to improve their conservation.

An example supporting selection of island group as the ETP/OOS unit is the case of black-browed albatross (*Thalassarche melanophris*) in the South Atlantic. The 2018 IUCN status assessment of black-browed albatross determined that as a species they are Least Concern[60]. There are no sub-population assessments for this species group at this time in IUCN. However, black-browed albatross from different island groups would likely qualify as IUCN sub-populations, i.e. they can be defined as geographically or otherwise distinct groups in the population between which there is little demographic or genetic exchange. Black-browed albatrosses in the Falkland Islands are genetically distinct from those elsewhere, and the status trend is increasing, whereas on South Georgia the population is declining[61]. The South Georgia population cannot be genetically distinguished from birds breeding on islands in Chile; however, in most seabird species, including albatrosses, banding studies indicate that individuals show very high micro-philopatry, often recruiting into the same sub-colony or, in species where nests are loosely aggregated, into the

[57] Rigby, C.L., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Marshall, A., Pacoureau, N., Romanov, E., Sherley, R.B., and Winker, H. (2019) *Carcharhinus longimanus*. The IUCN Red List of Threatened Species 2019: e.T39374A2911619. Available at: http://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T39374A2911619.en

[58] Rigby, C.L., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Marshall, A., Pacoureau, N., Romanov, E., Sherley, R.B., and Winker, H. (2019) *Carcharhinus longimanus*. The IUCN Red List of Threatened Species (2019). e.T39374A2911619 Available at: http://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T39374A2911619.en

[59] Tremblay-Boyer, L., Carvalho, F., Neubauer, P., and Pilling, G. (2019) Stock assessment for oceanic whitetip shark in the Western and Central Pacific Ocean (2018) WCPFC-SC15-2019/SA-WP06. Report to the WCPFC Scientific Committee. Fifteenth Regular Session, 12–20 August 2018, Pohnpei, Federated States of Micronesia. 98 pp

[60] BirdLife International (2018) *Thalassarche melanophris*. The IUCN Red List of Threatened Species 2018. Available at: https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22698375A132643647.en

[61] Burg, T.M., Catry, P., Ryan, P.G., and Phillips, R.A. (2017) Genetic population structure of black-browed and Campbell albatrosses, and implications for assigning provenance of birds killed in fisheries. Aquatic Conservation: Marine and Freshwater Ecosystems DOI: 10.1002/aqc.2765

same sub-area from which they fledged[62]. Most of the remainder recruit onto the same island or stretch of coast ("colony"), relatively few into adjacent colonies and very small numbers (or none) into colonies in other island groups.

Given that there is also an understanding of at-sea distribution for the populations from different island groups, and generally good separation between individuals from island groups at sea, the island group (e.g. South Georgia, Falkland Islands) level would be the most relevant ETP/OOS unit for fisheries interacting with this species.

Example 5: Minke whale populations in North Pacific

The situation with common minke whales (*Balaenoptera acutorostrata*) in the North Pacific around Japan is a good example of when the team may need to be more precautionary when selecting an ETP/OOS unit. The IUCN status of common minke whales is Least Concern[63]. There is uncertainty about the exact population structure of minke whales in the North Pacific, but the International Whaling Commission (IWC) recognises at least two populations of minke whales in this region: the 'O' type are relatively abundant whereas the 'J' type have been heavily depleted[64]. The two populations have different overall distributions but mix in some areas where they are subject to bycatch and directed takes. Where the UoA overlaps with the area in which the species mix in distribution or the distribution is uncertain, the choice of ETP/OOS unit should be precautionary. This is because it is not always possible to distinguish the population from which the individual mortalities came from. Thus, unless there is evidence to the contrary from the UoA, the 'J' type minke whales would be the most relevant ETP/OOS unit.

Where the UoA overlaps with the area where reliable spatial information indicates that only the 'O' type of whale is distributed, it would be more appropriate to select only the 'O' type as the ETP/OOS unit.

GSA3.9.2 Determining the likelihood of hindering recovery to favourable conservation status ▲

The favourable conservation status reference point is set as a minimum of 50% of carrying capacity but may be higher depending on the life-history characteristics of the species. Different terms may be used to characterise the TRPs consistent with the MSC definition of favourable conservation status including optimum sustainable population (OSP), maximum net productivity level (MNPL) and maximum sustained fishing mortality (MSM). Fishing mortality or biomass-based reference points, such as MSY, may be used if they are set to ensure recovery to at least 50% of carrying capacity.

Where ETP/OOS units are not "likely" to be at favourable conservation status, the UoA needs to demonstrate that any mortalities from the ETP/OOS unit are "unlikely" to hinder recovery. That is, the level of mortalities is low enough that they would not prevent recovery to favourable conservation status, if the species is capable of recovering to this level, within 100 years or 3 generations, whichever is shorter.

It is not the MSC's intent that the team undertake an assessment of the status of the ETP/OOS unit or estimate the impact of fishing mortalities. It is for the UoA(s), or organisations responsible for assessing status of species, to undertake these analyses and provide them to the team to consider. When applying the MSC scoring guidepost probability levels, the team should then assess this

[62] Gauthier, G., Milot, E., and Weimerskirch, H. (2010) Smallscale dispersal and survival in a long-lived seabird, the wandering albatross. Journal of Animal Ecology 79: 879–887.
[63] Cooke, J.G. (2018) *Balaenoptera acutorostrata*. The IUCN Red List of Threatened Species 2018: Available at: https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T2474A50348265.en.
[64] IWC (2021) Scientific Committee Report (SC68C). International Whaling Commission. 200pp.

information, including considering the quality and recency of the assessment and the UoA-specific information used.

Example: Assessment of 2.2.1a where potential biological removal is used to evaluate UoA impact

For marine mammals, the US defines populations in relation to Optimum Sustainable Population. Populations that are not at Optimum Sustainable Population are those below their MNPL, or below 50–70% of a historical population size representing carrying capacity[65]. To evaluate this, mortality limits for marine mammals are represented using potential biological removal (PBR), which is linked mathematically to the MNPL, specifically to achieve the conservation objective that 95% of simulated populations met two criteria:

- That populations starting at MNPL stayed there or above for 20 years.
- That populations starting at 30% of carrying capacity recovered to at least MNPL over 100 years[66].

Thus, PBR as applied in this case is an appropriate method to determine whether the UoA hinders recovery to favourable conservation status.

In this example, a management agency calculated a PBR of 100 individuals for dolphin A in 2020. To assess SG60, the team would evaluate the likelihood that the UoA-related mortality presented for dolphin A was below this level. The PBR uses a precautionary value for a recovery factor and the assessment was undertaken recently, so the probability that the PBR is consistent with achieving the population objective has a high degree of certainty. However, the team also needs to consider the quality of the UoA-related mortality information. If the average estimate of UoA mortalities of dolphin A is 90 individuals (i.e. close to the PBR limit) over the period 2015–2020, but this estimate is based on very limited fishery-independent information that was then scaled to the UoA level, the team may decide that it is only "likely" (SG60) that the UoA is not hindering recovery. However, if higher-quality estimates of UoA mortalities were provided, despite the number of mortalities being close to the PBR limit, the team may decide that a score of 80 is appropriate.

Methods for assessing status of the ETP/OOS unit or impact of the UoA

Several methods are available to estimate the status of the ETP/OOS unit, or whether the impact of the UoA(s) would hinder recovery to favourable conservation status. Possible methods include stock assessments or population viability analyses. Examples of other commonly used methods are presented in Table GSA5. The MSC does not advocate the use of one method over another, because each may have pros and cons in a given situation. With all of these methods, the team should consider the appropriateness of the assessment for estimating whether the fishery hinders recovery of the ETP/OOS unit to a level consistent with favourable conservation status, as well as the uncertainty associated with the outcomes.

Table GSA5: Examples of application of methods to estimate impact and associated population objectives

Method /application	Description	Population objective & recovery timeframe (if defined)	References
PBR as used in the US Marine Mammal Protection Act	The PBR level is defined as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. Equation: $PBR = N_{MIN}0.5R_{MAX}F_R$ Where:	PBR is linked mathematically to the achieving above the MNPL (the lower bound of OSP, equivalent to at least 50% carrying capacity). Specifically, it is set to achieve the conservation objective that 95% of simulated populations met two	Gerrodette and DeMaster, 1990[67]; Wade, 1998[68]; NMFS, 2016[69] MMC, 2022[70]

Method /application	Description	Population objective & recovery timeframe (if defined)	References
	• N_{MIN}= minimum population estimate of the stock • $0.5R_{MAX}$ = one-half the maximum theoretical or estimated net productivity rate of the stock at a small population size • F_R= recovery factor specified between 0.1 and 1. Current marine mammal stock assessment guidelines set the default recovery factor for endangered species at 0.1 and for depleted and/or threatened or stocks of unknown status at 0.5	criteria: 1) that populations starting at MNPL stayed there or above for 20 years or 2) that populations starting at 30% of carrying capacity recovered to at least MNPL over 100 years. The US Marine Mammal Protection Act (MMPA) also requires preparation of take reduction plans in specified cases. The goals of the take reduction plan are to reduce serious injury and mortality below PBR within 6 months and reduce serious injury and mortality to insignificant levels within 5 years. This insignificance threshold is defined as less than 10% of PBR, known as the zero-mortality rate goal (ZMRG).	
PBR for albatrosses and petrels	PBR level defined as above, but equation differs:	Maintain population at or above its MNPL (depending on	Dillingham and Fletcher, 2011[71]

[65] Gerrodette, T., and DeMaster, D.P (1990) Quantitative determination of optimum sustainable population level. Marine Mammal Science 6: 1–16.
[66] Wade, P.R. (1998) Calculating limits to the allowable human-caused mortality of cetaceans and pinnepeds. Marine Mammal Science 14(1): 1–37.
[67] Gerrodette, T. and DeMaster, D.P. (1990) Quantitative determination of optimum sustainable population level. Marine Mammal Science 6: 1–16.
[68] Wade, P.R. (1998). Calculating limits to the allowable human-caused mortality of cetaceans and pinnepeds. Marine Mammal Science 14(1): 1–37.
[69] NMFS (2016) National Marine Fisheries Service Procedure 02-204-01: Guidelines for preparing stock assessment reports pursuant to the 1994 amendments to the Marine Mammal Protection Act. 23 p. Available at: https://media.fisheries.noaa.gov/dam-migration/guidelines_for_preparing_stock_assessment_reports_2016_revision_gamms_iii_opr2.pdf
[70] MMC (2022) MMPA provisions for Managing Fisheries Interactions with Marine Mammals. Available at: https://www.mmc.gov/priority-topics/fisheries-interactions-with-marine-mammals/mmpa-provisions-for-managing-fisheries-interactions-with-marine-mammals.
[71] Dillingham, P. W., and Fletcher, D. (2011) Potential biological removal of albatrosses and petrels with minimal demographic information. Biological Conservation, 144(6): 1885–1894.

Method /application	Description	Population objective & recovery timeframe (if defined)	References
with minimal demographic information	$PBR = \tau f \widehat{B}$ τ is the coefficient that incorporates species maximum growth rate and species-appropriate multiplier and includes uncertainty in the estimate of the number of breeding pairs. $\widehat{B}$ is the estimated number of breeding Pairs. f = recovery factor between 0.1 and 1. Recommended f = 0.1 for threatened and above species, f = 0.3 for near threatened and f = 0.5 for all other species.	recovery factor value selected – more precautionary values would lead to maintenance of population at levels closer to carrying capacity).	
Reproductive value loss limit (RVLL) as used for marine turtles	$RVLL = b\left(\hat{\lambda}_m - 1\right)\hat{N}'_{\min} f_u,$ $\hat{\lambda}_m - 1$ is estimated maximum annual net population growth rate (the hat notation denotes an estimate) that corresponds to MNPL. $\hat{N}'_{\min}$ is the minimum abundance estimate of the population rescaled by reproductive value. f_u is uncertainty factor selected to address management considerations or potential bias in the other parameters.	Adapted from PBR for life-history characteristics for marine turtles, so used MNPL (at least 0.5K). *K* is carrying capacity	Curtis and Moore, 2013[72]

[72] Curtis, K.A, and Moore, J. (2013) Calculating reference points for anthropogenic mortality of marine turtles. Aquatic Conservation: Marine and Freshwater Ecosystems 23. 10.1002/aqc.2308.

Method /application	Description	Population objective & recovery timeframe (if defined)	References
Fixed % total abundance as used by ASCOBANS for harbour porpoise in the Baltic Sea	Using a basic population model for harbour porpoises and assuming no uncertainty in any parameter, the maximum anthropogenic removals that achieves the ASCOBANS interim objective over an infinite time horizon is 1.7% of the population size in that year. To reach the objective, the intermediate precautionary aim is to reduce bycatch to less than 1% of the best available population estimate.	ASCOBANS interim objective is 80% of K. The overall objective is to minimise (i.e. ultimately reduce to zero) anthropogenic mortality.	UNEP/ASCOBANS, 2020[73]
Removals limit algorithm (RLA), as used for small cetaceans in the North Sea (similar to the catch limit algorithm used by the International Whaling Commission's Revised Management Procedure)	The RLA comprises a simple population model that is fitted to a time series of estimates of abundance to estimate population growth rate and depletion, which are then used in removals calculation. The RLA is tuned through computer simulation to set limits to anthropogenic mortality that allow the specified conservation objectives to be met. The robustness of the RLA is determined by assessing its performance in a range of computer simulation tests describing uncertainty in our knowledge of population dynamics, the data and the wider environment.	The ASCOBANS interim conservation objective is used as a basis (i.e. to allow populations to recover to and/or maintain 80% of carrying capacity in the long term). Converting this into a quantitative objective for this study, they used: a population should recover to or be maintained at 80% of carrying capacity, on average, within a 100-year period. In simulation tests, this equates to the median population level being at 80% of carrying capacity.	Hammond et al., 2019[74]
Population sustainability	PST is the maximum number of fisheries deaths that a population	Default objective is that Risk = 1	Richard et al., 2020[75]; Fisheries

[73] UNEP/ASCOBANS (2020) Resolution 8.5. Monitoring and Mitigation of Small Cetacean Bycatch. ASCOBANS 9th Meeting of the Parties, 7–11 September 2020. UNEP/ASCOBANS/Res8.5 (Rev.MOP9).
[74] Hammond, P.S., Paradinas, I., and Smout, S.C. (2019) Development of a Removals Limit Algorithm (RLA) to set limits to anthropogenic mortality of small cetaceans to meet specified conservation objectives, with an example implementation for bycatch of harbour porpoise in the North Sea. JNCC Report No. 628, JNCC, Peterborough, ISSN 0963-8091.
[75] Richard, Y., Abraham, E., and Berkenbusch, K. (2020) Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006-07 to 2016-17. New Zealand Aquatic Environment and Biodiversity Report 237. Available at: https://www.mpi.govt.nz/dmsdocument/39407-aebr-237-assessment-of-the-risk-of-commercial-fisheries-to-new-zealand-seabirds-200607-to-201617

Method /application	Description	Population objective & recovery timeframe (if defined)	References
threshold (PST) in the New Zealand spatially explicit risk assessment (SEFRA) for seabirds	can sustain while still achieving the defined population objective and has been adapted from the PBR approach. In the SEFRA approach, this value is compared to a modelled estimate of total fishery-related deaths (D). A risk ratio (D/PST) is calculated to give the overall risk ranking. The risk score is expressed as a Bayesian distribution including uncertainty, so a level of confidence that the objective will be achieved can be specified. Equation: PST = 0.5 Φ*rmax*N Where Φ is an adjustment factor estimated by simulation and defined to ensure that impacts equal to PST (R = 1) correspond to a defined population stabilisation objective.	corresponds to a median population-stabilisation outcome of 75% of the unimpacted level.	New Zealand, 2020[76]; Sharp, 2017[77]
Sustainability assessment for fishing effects (SAFE) as used for elasmobranch bycatch in an Australian prawn trawl fishery	The proportion of each species' population that is vulnerable to capture, after accounting for various selectivity effects, is assessed against biological reference points (BRPs) developed from empirical equations that relate life-history traits to natural mortality (M) (e.g. comparisons with maximum sustainable fishing mortality). Not designed to estimate recovery timeframes.	Depends on reference point selected. Can use MSM, which is equivalent to MSY.	Zhou and Griffiths, 2008[78]

[76] Fisheries New Zealand (2020) National Plan of Action – Seabirds 2020. Supporting Document. Available at: https://www.mpi.govt.nz/dmsdocument/40658-National-Plan-Of-Action-Seabirds-2020-supporting-document
[77] Sharp, B.R. (2017) Spatially Explicit Fisheries Risk Assessment (SEFRA): A framework for quantifying and managing incidental commercial fisheries impacts on non-target species. Chapter 3 in: Aquatic Environment and Biodiversity Annual Review (AEBAR) 2017: A summary of environmental interactions between the seafood sector and the aquatic environment. Ministry for Primary Industries, New Zealand, 724 pp.
[78] Zhou, S., and Griffiths, S.P. (2008) Sustainability assessment for fishing effects (SAFE): a new quantitative ecological risk assessment method and its application to elasmobranch bycatch in an Australian trawl fishery. Fish. Res., 91: 56–68.

Method /application	Description	Population objective & recovery timeframe (if defined)	References
Ecological assessment of the sustainable impacts of fisheries (EASI-Fish) in eastern Pacific Ocean tuna fisheries (examples with elasmobranch, turtle, and dolphin species).	EASI-Fish first estimates the instantaneous fishing mortality rate from the volumetric overlap of multiple fisheries on a species' 3-dimensional spatial distribution, in this case developed using a relative environmental suitability (RES) model based on presence-only data coupled with environmental data for the assessment region. The estimated fishing mortality is then used in length-structured "per-recruit" models to determine the vulnerability status of each species using conventional and precautionary fishing-mortality and spawning-stock-biomass-based BRPs commonly used in stock assessment.	Depends on reference point selected, e.g. F value at MSY (F_{msy})	Griffiths et al., 2019[79]

Note on the use of IUCN Red List and Favourable Conservation Status

The IUCN Red List provides threat statuses for species or populations. The team should not use these threat statuses as an automatic evaluation of whether an ETP/OOS unit is currently at a level consistent with favourable conservation status. The IUCN Red List was developed to identify risk of extinction, so it is possible that an ETP/OOS unit listed as Least Concern may not be at favourable conservation status but has not yet depleted to a level or at a rate that would trigger a higher threat categorisation on the IUCN Red List. In addition, the IUCN Red List may not provide a threat evaluation at the same level as the ETP/OOS unit; for example, if it provides a threat status for a species but not the specific population impacted by the UoA.

The IUCN Red List assessment may provide useful information on the current population size and trends for species, where these have been updated regularly, as well as links to relevant risk assessments. However, the intent of the MSC requirements is that there is a specific quantitative analysis on the status of the ETP unit with respect to favourable conservation status or the potential for any mortalities from the UoA(s) to hinder recovery to this level.

GSA3.9.3 Intentional harassment or intentional killing of marine mammals ▲

The targeted exploitation of marine mammals is not within scope of the MSC Fisheries Standard. However, its understood that some fisheries intentionally kill or harass marine mammals whilst targeting species in the scope of the MSC Fisheries Standard. The intent of SA3.9.3 is to ensure that for any UoAs in which intentional harassment or intentional killing of marine mammals is an integral

[79] Griffiths, S.P., Kesner-Reyes, K., Garilao, C., Duffy, L.M. and Roman, M.H. (2019) Ecological Assessment of the Sustainable Impacts of Fisheries (EASI-Fish): a flexible vulnerability assessment approach to quantify the cumulative impacts of fishing in data-limited settings. Marine Ecology Progress Series, 625, 89–113.

part of the fishing operation (activity or practice), such activity has not hindered recovery to favourable conservation status.

The MSC recognises that there are challenges in clearly demonstrating that a UoA has not hindered recovery when considering all potential sources of impact associated with intentional harassment or intentional killing of marine mammals (including observed mortality, unobserved/cryptic mortality, sub-lethal population-level impacts, or any other impact that may affect population status).

Consequently, this requirement focuses on evaluating outcome status in a more precautionary manner by requiring a high degree of certainty that recovery is not necessary or has already occurred.

The team should interpret “high degree of certainty” as a probability level that is equal to or greater than the 95th percentile, consistent with the SG100 level in Table SA8.

GSA3.9.3.2–3.9.3.4 ▲

An example of the intentional harassment or intentional killing of marine mammals as an integral part of the fishing operation is the intentional pursuit and encirclement of marine mammals with fishing gear (e.g. purse seine nets) or vessels.

The team should not consider the following examples of intentional harassment or intentional killing of marine mammals as being an integral part of the fishing operation:

- The use of non-lethal deterrent devices or actions aimed at deterring marine mammals from damaging catch or gear, or otherwise deployed to reduce entanglement risk, except where:

SE4 It is demonstrated that their continued deployment/use causes serious injury or directly compromises marine mammal survival.

SE5 Firearms are used to deter or kill marine mammals. These are lethal devices and if used as an integral part of the UoA fishing operation, should trigger the application of SA3.9.3.

- The unwanted catch of marine mammals, as this outcome is normally considered to be unintentional.

Example: Application of SA3.9.3 for 2.2.1 scoring issue (a)

Fishery A is a purse seine fishery that targets a species of tuna. The fishery comprises 18 vessels, with 2 UoAs. UoA1 targets free school (unassociated) sets, and UoA2 targets FAD sets. The fishery interacts with 10 ETP/OOS units, 2 of which are marine mammals (a species of baleen whale and a species of dolphin).

The team considered whether there is evidence that the fisheries interactions with the 2 marine mammal ETP/OOS units involved the intentional harassment or intentional killing of that unit as an integral part of the fishing operation, as per the definitions set out in SA3.9.3.2–SA3.9.3.4.

The team found that the dolphin interactions were incidental bycatch recorded in unassociated sets. Therefore, the team did not trigger the application of SA3.9.3 to score the direct effects of the dolphin ETP/OOS unit.

The baleen whale interactions had occurred where the fishery had set on (encircled) the whale. Available observer data highlighted that these whale sets were an intended part of the fishery’s operations, comprising 3% of sets in UoA2. This part of the fishery operation was determined to be a form of intentional harassment and determined to be an integral part of the fishing operation. As such, the team triggered the application of SA3.9.3 for UoA2 to score the impacted baleen whale ETP/OOS unit at the SG80 level.

The team assessed the available information about the proportion of whales released alive, the scale and intensity of the fishery and findings from several studies on the post-capture survival rates of the species. In combination with studies on the status of the species, the team used this information to determine that UoA2 is unlikely to hinder recovery of the ETP/OOS unit to favourable conservation status. The fishery therefore met SG60 for scoring issue a. However, there was insufficient information available to enable the team to determine the population status of the

baleen whale ETP/OOS unit was at a level consistent with favourable conservation status with a high degree of certainty as required by SA3.9.3 to meet SG80 for this unit. Therefore, for UoA2, the baleen whale ETP/OOS unit did not meet SG80 for scoring issue a.

The team assessed the other 9 ETP/OOS units that did not trigger SA3.9.3. These all met SG60 and met or exceeded SG80 for the direct effects scoring issue (PI 2.2.1 (a)). In the scoring rationale, the team included explanations for each unit.

The team applied the scoring element approach set out in FCP v3.1 7.15. As only one of 10 scoring elements failed to achieve SG80, the score for 2.2.1 (a) was 75.

The team set a condition against PI 2.2.1 for the fishery to verify the status of the ETP/OOS unit using a quantitative estimate of the population size. Within the Client Action Plan, the client set out that they will contract a university to undertake a study of the population of the baleen whale ETP/OOS unit with results to be made publicly available.

GSA3.10 ETP/OOS unit management strategy PI (PI 2.2.2) ▲

The MSC's intent for this PI is that management measures or strategies are implemented that deliver the ETP/OOS outcome SG80 level and minimise mortalities of the ETP/OOS unit.

Management measures or strategies should be designed to achieve both of these objectives and should have been implemented "on the water".

Scoring issue (a) – Management strategy ▲

Measures expected to minimise mortality

Measures that are expected to minimise mortality are defined in this requirement. The assessment team should consider:

- How the measures have been selected.
- Whether they represent "best practice" when it comes to minimising mortality or have been shown to be effective at minimising mortality in the UoA or similar fisheries, i.e. to the extent practicable.

Where "best practice" has been established as achieving the lowest UoA mortality possible whilst not negatively affecting the mortality of other non-target species or unduly affecting targeting catch rates (a small decrease in target catch may be expected, e.g. 10%), the expectation is that these measures are implemented in the fishery in order to meet at least the SG60 level.

Where "best practice" is established

"Best practice" may already be established by national management agencies or in international fora. The MSC's intent is that where "best practice" measures exist and at least one "best practice" measure is implemented in the fishery, the measures expected to minimise mortality part of PI 2.2.2 scoring issue (a) would be met at the SG60 level. To achieve SG80 or higher for this part of PI 2.2.2 scoring issue (a), two or more "best practice" measures should be applied (unless only one "best practice" measure exists). In this context it is also the MSC's intent that any relevant legally mandated best-practice measures for the UoA should be complied with. This compliance aspect is considered in PI 3.2.3 scoring issue (d) as per SA4.9.4.

The FAO produces Best Practice Technical Guidelines for bycatch of birds, turtles, and mammals, although these are not updated regularly[80]. Also, the ACAP reviews and identifies “best practice” mitigation measures for seabird bycatch in a number of gear types. In order to be considered “best practice”, a number of criteria are required to be met including:

- Individual fishing technologies and techniques should be selected from those shown by experimental research to significantly reduce the rate of seabird incidental mortality to the lowest achievable levels.
- Fishing technologies and techniques, or a combination thereof, should have clear and proven specifications and minimum performance standards for their deployment and use.
- Fishing technologies and techniques should be demonstrated to be practical, cost effective and widely available.
- Fishing technologies and techniques should, to the extent practicable, maintain catch rates of target species.
- Fishing technologies and techniques should, to the extent practicable, not increase the bycatch of other taxa.
- Minimum performance standards and methods of ensuring compliance should be provided for fishing technologies and techniques and should be clearly specified in fishery regulations[81].

Where “best practice” is not clearly established

For some species/gear interactions, there are no established “best practice” measures. In these cases, the measures applied in the fishery should be selected from those that are shown to reduce mortality rates to the lowest practicable levels in the UoA or similar fisheries.

For example, when pingers are used correctly (i.e. applied across the entire UoA and adequately monitored for placement and functioning), they may be considered to minimise harbour porpoise bycatch in gillnets. However, pingers could not be considered to minimise common dolphin bycatch in gillnets because there is no clear evidence for their consistent effectiveness. For common dolphins, the UoA would need to have implemented other measures that are expected minimise mortality, e.g. based on measures that have been shown to be successful elsewhere or through development of new measures tested in the UoA itself in order to meet the SG60 requirement.

Scoring issue (b) – management strategy effectiveness ▲

The MSC’s intent is that the UoA needs to provide evidence that it is progressing towards achieving the objectives of minimising mortality of the ETP/OOS unit. There are four possible ways of demonstrating this:

- There is evidence that the UoA has zero mortalities (including unobserved) of the ETP/OOS unit.
- There is evidence of reductions in the mortality of the ETP/OOS unit over time.
- The UoA may not have evidence of reduction but it:
  - Is “highly unlikely” to be hindering recovery of the ETP/OOS unit to favourable conservation status (demonstrated through meeting SG80 in PI 2.2.1 (a) or scoring 80 or above when the PSA is applied.

[80] FAO (2009) Fishing operations. 2. Best practices to reduce incidental catch of seabirds in capture fisheries. FAO Technical Guidelines for Responsible Fisheries: No. 1, Suppl. 2. Rome: FAO. 49pp.
[81] https://www.acap.aq/bycatch-mitigation/mitigation-advice

- Has a “comprehensive strategy” and has applied all existing “best practice” measures expected to minimise mortality (demonstrated through meeting SG100 in PI 2.2.2 (a).

Where none of these four criteria apply, the MSC’s intent is that the UoA does not meet SG80 for this scoring issue.

. A specific magnitude of reduction is not specified, however, the MSC’s intent is that real, on-the-water progress towards reducing the mortality rate needs to be demonstrated by the UoA in order to meet SG80. Overall declining trends in ETP/OOS unit mortalities over a five-year period, for example, could be taken as evidence of demonstrable reductions, even if there may be some stochasticity in ETP/OOS unit mortalities over this time. However, the team should also consider the reasons for any reductions, including whether the reductions may be due to a decline in the abundance of the ETP/OOS unit rather than the implementation of management measures to minimise mortality. The MSC’s intent is that if the reductions are likely to be caused by declines in abundance rather than the measures implemented by the fishery, this would not be considered evidence of reductions and SG80 would not be met.

Example

Reductions in UoA-related mortality are demonstrated in longline fishery 1, which interacts with 3 seabird units: A, B, and C. Bird-scaring (tori) lines and offal-discharge practices were introduced as “best practice” mitigation measures in the year 2000. In 2005, the bycatch rate for all 3 seabirds had reduced from 0.2 birds/1,000 hooks to < 0.05 birds/1,000 hooks. The population sizes for seabird units A, B, and C had remained relatively stable during this period and the number of birds following the vessels remained consistent. However, the number of mortalities had demonstrably declined. Fishery 1 would meet at least SG80 for PI 2.2.2 scoring issue (b).

Scoring issue (c) – “Review” of “alternative measures” ▲

Where there are mortalities of ETP/OOS scoring elements, a review of “alternative measures” by the UoA or related management agency is required. The MSC’s intent is that even when implementing “best practice”, regular (at least 5-yearly) reviews of “alternative measures” are needed to ensure measures continue to contribute to reductions in mortalities. There is no SG60 because it is assumed that at least one such review took place in order for the current measures to minimise mortality to be implemented. At SG80, if the additional “alternative measures” are shown to be more effective than current measures, these should be implemented unless they:

- Negatively affect crew safety, or
- Unduly affect target species catch (i.e. more than 10%), or
- Negatively impact on other species or habitats.

For example, in the longline fishery 1 example above, bird-scaring lines have led to a demonstrable reduction in bird mortalities between the years 2000 and 2005. However, from 2005 to 2020 the level of mortality has remained around 0.05 birds/1,000 hooks. In real terms, this represents hundreds of individual mortalities of seabird units A, B, and C annually. The UoA would need to demonstrate whether any other “alternative measures” had been considered and whether they had been implemented. If not implemented, justification for not doing so, in relation to the scoring requirement, would be required in order to meet SG80.

In the longline fishery 1 example, night-setting was reviewed in 2018 as an “alternative measure”. It was demonstrated to reduce the mortality of seabird units A and B but increase the mortality of non-target fish species and seabird unit C. This measure was therefore not implemented. This would demonstrate that SG80 was met. However, if this review did not also consider “best practice” measures for seabirds and longlines, such as forms of line weighting, it would not meet SG80.

GSA3.12 Habitats outcome PI (PI 2.3.1) ▲

Treatment of impact not caused by the UoA

Only the impact of the UoA itself is used to determine the status of the habitat. However, if activities unrelated to the UoA (including other anthropogenic activities or natural events) have had an impact on the habitat, the team should assess the UoA's relative impact as per GSA3.3.

Treatment of "more sensitive" habitats

An individual UoA may achieve an SG80 score in the outcome PI 2.3.1 when fishing on a "more sensitive" habitat because its individual impact is unlikely to cause the "more sensitive" habitat serious and irreversible harm. However, the MSC recognises the unique value of "more sensitive" habitats and the possibility that all fishing, where all fishing includes all MSC UoAs plus other fisheries, may nevertheless be causing "more sensitive" habitats to fall below 80% of their unimpacted state. Therefore, unless there is a comprehensive management plan covering all fishing impacts on the "more sensitive" habitat, under the management PI 2.3.2 (see SA3.13.2.1), the MSC requires that UoAs avoid "more sensitive" habitats even if they score higher than 80 on the outcome PI 2.3.1.

GSA3.12.1 Habitat structure and function ▲

The team's assessment should take into account both the impact on the habitat and on the habitat's delivery of ecosystem services. For example, if only a part of the habitat is affected by fishing but this part delivers the greatest ecosystem services, the team should take this into account in the assessment.

GSA3.12.2 Habitat characteristics ▲

Usually, habitats impacted by the UoA are benthic habitats (i.e. are associated with, or occur on, the bottom) rather than pelagic habitats, which are near the surface or in the open water column. However, the team may consider impacts on:

- The biotic aspects of pelagic habitats.
- Habitats that the gear may accidentally come into contact with if gear loss or malfunction were to occur. This is required to meet SG100 under the management PI 2.3.2 (SA3.13.2.2.b)

The team may use Box GSA8 to categorise the habitats encountered by the UoA, according to their SGB status.

Box GSA8: SGB habitat nomenclature[82]

Substratum

Fine (mud, sand)

- Mud
  (< 0.1mm particle diameter)
- Fine sediments
  (0.1–1mm)

[82] Modified from Williams, A., Dowdney, J., Smith, A.D.M., Hobday, A.J., and Fuller, M. (2011) Evaluating impacts of fishing on benthic habitats: A risk assessment framework applied to Australian fisheries. Fisheries Research 112(3):154–167.

- Coarse sediments (1–4mm)

Medium

- Gravel/pebble (4–60mm)

Large

- Cobble/boulders (60mm–3m)
- Igneous, metamorphic, or sedimentary rock (> 3m)

Solid reef of biogenic origin

- Biogenic (substratum of biogenic calcium carbonate)
- Depositions of skeletal material forming coral reef base

Geomorphology

Flat

- Simple surface structure
- Unrippled/flat
- Current rippled/directed scour
- Wave rippled

Low relief

- Irregular topography with mounds and depressions
- Rough surface structure
- Debris flow/rubble banks

Outcrop

- Subcrop (rock protrusions from surrounding sediment (<1m))
- Low-relief outcrop (<1m)

High relief

- High outcrop (protrusion of consolidated substrate (>1m))
- Rugged surface structure

Biota

Large erect, dominated by:

- Large and/or erect sponges
- Solitary large sponges
- Solitary sedentary/sessile epifauna (e.g. ascidians/bryozoans)
- Crinoids
- Corals
- Mixed large or erect communities

Small erect/encrusting/burrowing, dominated by:

- Small, low-encrusting sponges
- Small, low-standing sponges
- Consolidated bivalve beds (e.g. mussels)
- Unconsolidated bivalve beds (e.g. scallops)

- Mixed small/low-encrusting invertebrate communities
- Infaunal bioturbators

No fauna or flora

- No apparent epifauna, infauna, or flora

Flora, dominated by:

- Seagrass species

GSA3.12.3 ▲

The team should use a precautionary approach when determining whether a habitat impacted by a UoA is “less sensitive” or “more sensitive”.

Unimpacted habitat structure and function

Unimpacted habitat structure and function (i.e. unimpacted habitat state) is used in determining whether habitats are “less” or “more sensitive”. The team should therefore consider the following:

For habitats that have been afforded protection by a competent authority:

- If the habitat was already impacted by any fishery at the time it was afforded protection, and all the impact occurred after 2006, the unimpacted state is the idealised expected recovery state.
- If the habitat was already impacted by any fishery at the time it was afforded protection, and some or all the impact occurred before 2006, the unimpacted state is the current state of the habitat at the time it was afforded protection.
- If the habitat was not impacted at the time it was afforded protection, the unimpacted state is the current state of the habitat at the time it was afforded protection.

The idealised expected recovery state is the unimpacted state as defined in a recovery plan, or assumed from modelling predictions, or comparisons with historical data and/or adjacent habitats.

For habitats that have not been afforded protection by a competent authority, the unimpacted state is that which is:

- Defined in a recovery plan, or
- As assumed from:
  - Modelling predictions, or
  - Comparisons with historical data, or
  - Adjacent or comparable habitats.

If the unimpacted state has not been defined, and cannot be assumed from available information or data, it should be considered as the state of the habitat in year 2006. The year 2006 is the date of the UNGA Resolution 61/105[83]. In this instance, there is an acceptance that the UoA should not be penalised for historical damage (i.e. damage prior to 2006).

[83] United Nations General Assembly (2006) Resolution 61/105: Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (8 December 2006). A/UNGA/RES/61/105.

Habitat recovery

Habitat recovery relates to the whole habitat, not just some species within the habitat. Likelihood of recovery should take into account the likely speed of recovery, as well as the certainty of recovery of a habitat.

The MSC has nominated the 80% level as a reasonable point at which to expect most of the habitat's structure and function (including abundance and biological diversity) to have been restored, taking into consideration the likely logistic population growth of habitat-forming organisms.

The team may consider using the Benthic Impacts Tool (Tool C of the MSC Fisheries Standard Toolbox) to help determine recovery rates of habitats and inform scoring of PI 2.3.1 (a).

GSA3.12.3.1 FAO Vulnerable Marine Ecosystems ▲

FAO Vulnerable Marine Ecosystems (VMEs) are habitats that have been designated as such by a competent authority, based on the VME criteria as defined in the International Guidelines for the Management of Deep-sea Fisheries in the High Seas[84].

GSA3.12.4 "Serious or irreversible harm" to "less sensitive" habitats ▲

The hypothetical climax state is the state to which a habitat would eventually recover to in the absence of all fishing, when considering existing environmental and anthropogenic conditions. Climax states are generally considered to be stable, and towards the end of ecological succession.

"Less sensitive" habitats should not be retrospectively classified as "more sensitive" habitats if unable to recover to at least 80% of their hypothetical climax state within 20 years if fishing were to cease entirely.

For "less sensitive" habitats, in a situation where the area fished by a UoA is no more than 20% of the overall range of that habitat and the habitat structure and function is understood to be broadly consistent across fished and unfished areas, the team should consider that the habitat would be able to recover to at least 80% of its hypothetical climax state within 20 years if fishing were to cease entirely as required at SG100.

GSA3.12.5 "Serious or irreversible harm" to "more sensitive" habitats ▲

In the case of "more sensitive" habitats, "serious or irreversible harm" is a reduction in habitat structure and function below 80% of the unimpacted state. The unimpacted state is as defined in GSA3.12.3.

The MSC's intent is to not hold UoAs responsible for historical damage to "more sensitive" habitats unless they were responsible for such impact after the date the habitat was recognised as requiring protection. This date could either be the date the habitat was afforded protection by a competent authority, or 2006, whichever is earlier.

If a habitat is currently below 80% of its unimpacted state but the impact was clearly caused by other MSC UoAs, non-MSC fisheries, or prior to the date the habitat Was recognised as requiring protection, then the team should consider that UoA meets at least SG60, as long as the UoA avoids the habitat until:

[84] Food and Agriculture Organization of the United Nations (2009) International guidelines for the management of deep-sea fisheries in the high seas. FAO, Rome.

- The habitat has recovered to at least 80% of its unimpacted state, and
- There is a comprehensive plan showing that all fishing will allow the habitat to be maintained to at least 80% of its unimpacted state.

If the UoA was responsible for the impact after the date the habitat was recognised as requiring protection, the team should consider that the UoA does not meet SG60 unless the UoA undertook immediate action to avoid the habitat.

The team should not consider minimal damage that occurs to an FAO-designated VME when a move-on rule is triggered as "serious or irreversible harm", even when the habitat is below 80% of its unimpacted level.

The team may consider the pre-existing historical extent of "more sensitive" habitats if:

- The historical extent is known.
- Recovery in those areas of historical extent would be possible.

Example

Off the north coast of Australia, several shelf-break VME areas have been damaged but are still there in reduced form and would recover if left undisturbed for several years. Therefore, the team should consider these areas within the scope of the habitat's recovery.

Examples of recovery rates and resulting habitat

FigureGSA5 and TableGSA6 provide some examples of recovery rates and resulting habitat status in some hypothetical situations. For each of these examples, it is assumed that the UoA is the only one impacting the habitat; therefore, all fishing impacts on the habitat are covered by 1 UoA. If multiple UoAs were impacting the habitat, the impact of individual UoAs would be less.

Example A

The dotted line represents the current status, in relation to unimpacted status, of the habitat impacted by a moderate-impacting UoA; for example, demersal longline. This UoA:

- Has an impact on 60% of the entire distribution of this habitat type.
- Fully protects 40% of the habitat type inside a closed area, which is not shown in figure.

Because the gear has a moderate impact, the habitat status in the fished parts of the habitat is 50% of the unimpacted level. The recovery rate for this habitat type is fast, and it is likely that the overall status of the habitat would rise above 80% of the unimpacted level in around 5 years. Combined with the unimpacted status of the habitat in the closed area, this means that the habitat would recover to 80% of the unimpacted level in 5 years, achieving at least an 80 score and potentially a higher score if there is greater confidence supported by evidence for this expected recovery.

Example B

The dotted and dashed line represents the status of the habitat impacted by a UoA with a high impact, such as demersal trawl. This UoA:

- Protects 40% of the habitat type.
- Fishes the other 60%.

The status of the impacted habitat area is shown in the figure but the status of the habitat within the protected area is not shown.

Since this is a high-impacting gear, the habitat has been degraded in the fished areas to 10% of the unimpacted level. This habitat is not very resilient, barely reaching the 80% level in 20 years and not reaching it in 5 years. Across both the closed area and the impacted areas, the UoA would be unlikely to be causing "serious or irreversible harm" but with less confidence than in example A, possibly achieving an SG60 score.

Example C

The solid line represents the same high-impacting UoA that:

- Protects 40% of a slow-growing habitat.
- Fishes the other 60% of that habitat.

The fished habitat has been degraded to 10% of the unimpacted level. This habitat has a very slow recovery rate and will take more than 20 years to reach the 80% unimpacted level. This UoA is, therefore, causing serious or irreversible harm to this habitat and would be unlikely to score a 60.

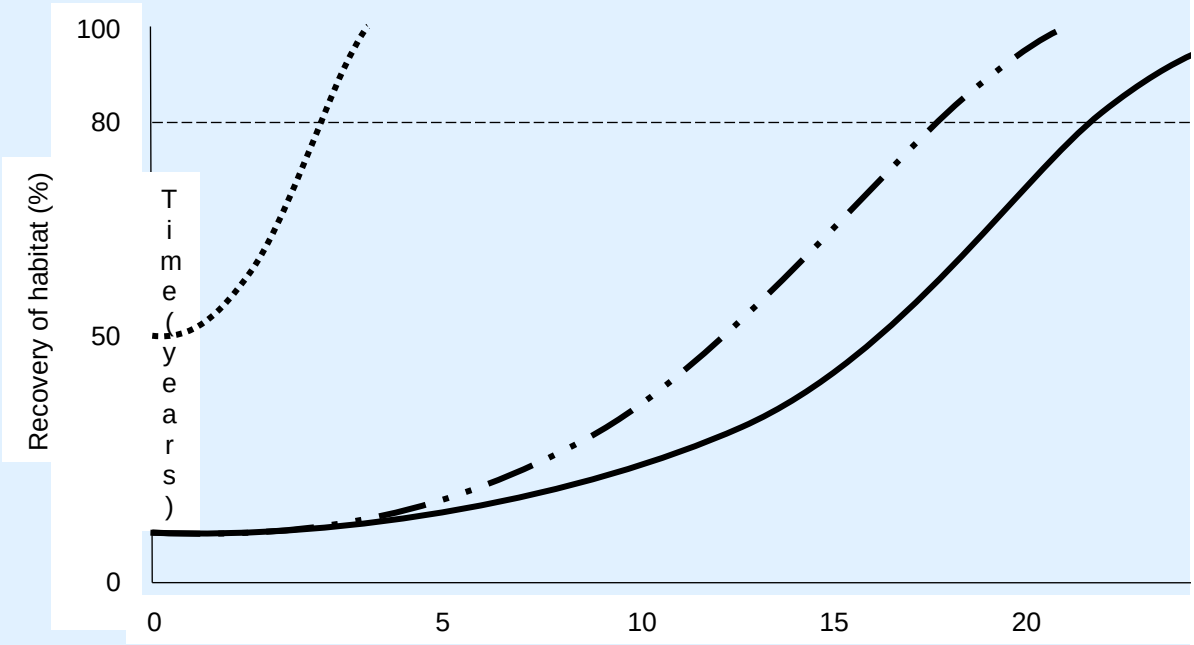

Figure GSA5: Example recovery rates for habitats over time under different fishing conditions where fishing is removed at year 0

Table GSA6 provides additional details on the UoAs and habitats to accompany the examples provided in Figure GSA5.

Rows A-H illustrate in a qualitative sense how the overall habitat status could be estimated, both at the current time and in the future depending on:

- The extent of habitat protection in a closed area.
- The level of habitat degradation outside the closed area.
- The habitat recovery rate.

Any current scenario that results in the status of the overall habitat being less than 80% of the unimpacted level is considered “serious or irreversible harm”. Row I gives the likelihood of the UoAs causing “serious or irreversible” harm (see Table SA8), and Row J gives the corresponding MSC scores.

Table GSA6: UoA and habitat characteristics for the examples in Figure

UoA and habitat characteristics	Example A (dotted line)	Example B (dotted and dashed line)	Example C (solid line)

A. Proportion of habitat fully protected in closed area	40%	40%	40%
B. Area of habitat subject to fishing	60%	60%	60%
C. Level of gear impact	Moderate	High	High
D. Current status of habitats in fished areas (% of unimpacted state)	50%	10%	10%
E. Current overall status of habitat, compared to unimpacted state (A + [B x D])	70%	46%	46%
F. Habitat recovery rate	Fast	Medium	Slow
G. Expected future status of habitats in fished areas in 20 years if fishing ceases (% of unimpacted state)	100%	80%	50%
H. Expected future overall status of habitat in 20 years, compared to unimpacted state (A + [B x G])	100%	88%	70%
I. Likelihood that the UoA is causing **serious or irreversible harm**	**Highly unlikely**	**Unlikely**	**Not unlikely**
J. MSC score	80 or higher, depending on confidence and evidence (unconditional pass)	60 (pass with condition)	< 60 (fail)

GSA3.12.6 Area of consideration ▲

The “managed area” is the UoA's overall fishery management area, which will usually be wider than the area in which the UoA actually operates (i.e. the UoA area). This is to ensure by default the consideration of habitat impacts within the areas controlled by the management regimes under which the UoA operates. The management regime may be:

- A single exclusive economic zone (EEZ).
- A combination of EEZs, in the case of a UoA that fishes on a shared stock.
- A combination of an EEZ and an RFMO.
- Entirely an RFMO.

For many UoAs, the managed area may be only part of an EEZ; for example, the jurisdictional area for the UoA or the area covered by a management plan under which the UoA operates.

There are 2 types of exceptional case:

1. Situations where the range of the habitat(s) is much smaller than the area of the governance body’s control, for example:
    - Where the RFMO covers an entire ocean but the habitat is restricted in distribution.

- Where it is not sensible to consider the entire area because areas under that governance body's control are not contiguous or have quite different bio-physical and habitat characteristics.

2. Situations where the managed area is extremely restricted, such as cases where an EEZ has only a very narrow extent because of encroaching baselines of adjoining EEZs, and it does not make sense to consider such a narrow habitat within the assessment.

Examples of these exceptional cases

- CCAMLR manages fishing throughout the Southern Ocean. Clearly, it would not be appropriate or feasible to include the entire area covered by CCAMLR when considering the range of the habitat(s) affected by vessels fishing only in the Ross Sea.
- A fishery that operates mainly in the Norwegian Trench overlaps with the North Sea and the Norwegian EEZ. These latter 2 areas cover more than 3 million km^2 in total. It is likely that the UoA is fishing a relatively small portion of this total area and therefore impacting a small portion of the habitat(s). Again, it would not be reasonable to consider the entire range of the habitat(s) across the total area.
- The Gambia coastline is only 800km long and the EEZ is only 19,500km^2. Several habitats extend along much of the western coast of Africa, extending into other EEZs. Given the small area controlled by the Gambian government, it would be appropriate to consider the entire range of the habitat(s) beyond the Gambian EEZ.

In such exceptional cases, it would be reasonable for the team to scale up or scale down the "managed area" when determining the appropriate habitat range to consider. The team should apply expert judgement and provide rationale for such scaling.

In a nested management situation, the team should consider the widest management range. However, the examples given above for management regimes may apply.

GSA3.12.6.4 Habitat outside the "managed area" ▲

Since different habitat types are scored as separate elements, there may be situations when a particular habitat (or element) extends beyond the "managed area". In such situations, if the habitat extends significantly beyond the "managed area", and as such, the "managed area" is a relatively small portion of the habitat's overall range, then the team should take into consideration habitat outside the "managed area". However, if the "managed area" covers a large part of the habitat's range, the "managed area" itself will be sufficient for scoring.

GSA3.13 Habitats management strategy PI (PI 2.3.2) ▲

When scoring the habitat PIs, the team should consider any habitat-specific management that exists for the "managed area".

The MSC's approach to management of "more sensitive" habitats

The MSC's approach to the assessment of sustainability with regard to "more sensitive" habitats is based on United Nations General Assembly (UNGA) resolutions (especially 61/105[85] and 64/72[86]) and the FAO Guidelines for deep-sea fisheries[87]. The central requirements of the FAO Guidelines for designated VMEs are as follows:

- A set of criteria for identifying VMEs.
- Impact assessments to determine whether fishing activities are likely to produce significant adverse impacts on VMEs.
- Acquisition of data to determine the fishing footprint and the interaction of fisheries with VMEs.
- Development of a "functioning regulatory framework" that includes regulations to protect VMEs.
- In the absence of a "functioning regulatory framework", establishment of an interim precautionary approach that allows for the development of appropriate CMMs to prevent significant adverse impacts on VMEs while preventing such impacts from taking place inadvertently and that consists of:
    - Closing of areas where VMEs are known or likely to occur.
    - Refraining from expanding the level or spatial extent of effort of vessels involved in deep-sea fisheries.

These elements are incorporated into the MSC requirements by requiring either a comprehensive management plan that determines that all fishing will not cause serious and irreversible harm to "more sensitive" habitats (which includes designated FAO VMEs), or that MSC UoAs should avoid "more sensitive" habitats individually and cumulatively. Given the complexity of undertaking an impact assessment on "more sensitive" habitats, the MSC considers that most UoAs should choose to apply the simpler approach of avoiding "more sensitive" habitats altogether.

For scoring issue (b) at the SG60 level, some examples of "plausible argument" are general experience, theory, or comparison with similar UoAs or habitats.

The team should also take this approach as the desired outcome of the management measures/strategies for "less sensitive" habitats.

GSA3.13.2 ▲

If there is a "more sensitive" habitat in the UoA's "managed area", the team should score the management PI 2.3.2 in relation to both "less sensitive" and "more sensitive" habitats.

Table GSA3 provides generic guidance on the differences between "measures", "partial strategy", and "strategy". Table GSA7 provides examples of "measures", "partial strategies", and "strategies" in terms of benthic habitats. These are only examples of such management levels and do not necessarily meet the whole of the scoring rationale requirements. The team should always use its expert judgement to determine how well, or otherwise, management measures, partial strategies, or

[85] United Nations General Assembly (2006) Resolution 61/105: Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (8 December 2006). A/UNGA/RES/61/105.
[86] United Nations General Assembly (2009) Resolution 64/72: Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (4 December 2009). A/UNGA/RES/64/72.
[87] Food and Agriculture Organization of the United Nations (2009) International guidelines for the management of deep-sea fisheries in the high seas. FAO, Rome.

strategies are designed to ensure the UoA does not pose a risk of “serious or irreversible harm” to relevant habitats.

A strategy should include regular review of “alternative measures” to reduce the impact of the UoA on the habitat. The team should also consider appropriate “alternative measures” determined in this review during the review of measures to minimise unwanted catch (PIs 2.1.2 and 2.2.2), particularly when making a decision on which measures to implement.

UoAs are expected to take appropriate action, within measures/strategies, to avoid impacting “more sensitive” habitats. Precautionary measures/strategies to avoid encounters with “more sensitive” habitats are also required, and these may include closed areas, move-on rules, frozen footprints, gear modifications (or restrictions), authorisation to undertake new fishing activities, and/or consideration of dFADs, taking into consideration their design, monitoring and retrieval strategies.

GSA3.13.2.1 ▲

A partial strategy for a UoA using a pelagic gear or a low-impacting bottom gear, such as a gear with a footprint score of 1 in Table A28 in the MSC Fisheries Standard Toolbox, may not need to include requirements and implementations. The team should provide rationale in those cases. The team may find it useful to refer to the pelagic examples in Table GSA7.

GSA3.13.2.2 ▲

A comprehensive management plan could also include avoidance measures to ensure that serious or irreversible harm to “more sensitive” habitats does not occur.

Some damage to “more sensitive” habitats is acceptable as long as overall “serious or irreversible harm” to structure and function is avoided. If a strategy does not afford complete protection to all “more sensitive” habitats in an area, this should be supported by an impact assessment to demonstrate that:

- “Serious or irreversible harm” is avoided.
- “More sensitive” habitats are not impacted by more than 20% of their unimpacted state

In cases where a comprehensive management plan is in place but the “more sensitive” habitat is below the 80% recovery criterion, the plan should first allow the “more sensitive” habitat to recover to at least 80% of its unimpacted state before fishing continues. In other words, the only allowance for continued fishing by MSC UoAs on a “more sensitive” habitat is when:

- There is a comprehensive plan that shows that all fishing will keep the “more sensitive” habitat at 80% or recover it to 80%.
- The “more sensitive” habitat has recovered to, or is above, 80%.

A formal comprehensive impact assessment may not be necessary in all cases; for example, when benthic gear is prohibited but pelagic gear is permitted because there is insignificant risk to benthic habitats. See Table GSA7 for an example of a strategy for a pelagic UoA.

Table GSA7: Potential measures, partial strategies, and strategies in relation to habitat impacts

Examples of potential measures, partial strategies, and strategies in relation to habitat impacts[88]

General UoA description	Measures	Partial strategy	Strategy	Rationale
Cod UoA using fixed gear (e.g. gillnets) in inshore zones and mobile gear (e.g. otter trawl) in offshore zones There are some closed areas and closed seasons for specific gear in either or both the inshore and offshore zones, though these are primarily stock and bycatch management measures. Some habitat protection is afforded by these management arrangements. Monitoring and information gathering efforts are directed at species management arrangements.	✓			The management arrangements in place are designed to manage impacts on other components under the assessment tree; for example, P1 and P2 species. They contribute indirectly to management of habitats because of inshore areas closed to mobile gear and seasonal closures in the offshore environment, and distribution of relevant habitats extends well beyond known fishing areas. The arrangements might be considered cohesive, but there is no evidence of efforts to investigate them through the lens of habitat management in order to understand how they work to meet desirable habitat outcomes and avoid posing risk of **serious or irreversible harm** to relevant habitats.
Multi-species trawl UoA in inshore tropical waters Trawling is banned in inshore waters during the seasonal monsoon to protect juvenile and spawning habitat for fish and invertebrate species.	✓			The seasonal closure can be considered an individual tool or action that seeks to explicitly protect juvenile and spawning habitat despite being designed to enhance the sustainability of species of interest. However, there is little evidence to suggest that impacts of the arrangement are investigated to determine whether or not habitat protection is occurring or to understand how the measure works to achieve habitat protection; nor are there any other measures, plans, or statutes that would determine how managers would change the seasonal closure if it

[88] Modified from: Grieve, C., Brady, D.C., and Polet, H. (2011) Best practices for managing, measuring, and mitigating the benthic impacts of fishing: final report to the Marine Stewardship Council. Unpublished work.

				ceased to be effective from a habitat perspective.
Groundfish trawl UoA in offshore zones with explicit links to other species/multi-gear management plans Some closed areas within the groundfish UoA prohibit use of any bottom-contacting fishing gear. Non-UoA, environmental protection-led regulations designate 2 habitat areas of concern, which are also closed to bottom-contacting fishing gear. Vessel monitoring systems and other enforcement efforts aim to ensure no violation of closed or protected areas. Information gathering seeks to monitor the protected zones, and fishing impacts are considered in subsequent analyses. Arrangements about the use or otherwise of bottom-contacting gear have changed according to shifting distributions of benthic species of interest to the other UoAs.		✓		There is a clear multi-species management approach with the linking of species/gear management plans. The closed areas contribute indirectly to the management of habitats for the groundfish UoA, though they were established to protect the stocks of other sessile target species (e.g. scallops). The habitat-protection zones, though designed for broader conservation purposes, serve to protect habitats of concern. The arrangements could be considered cohesive, particularly as there is evidence of strict enforcement of the protection zones and closed areas, coupled with high sanctions imposed for violators. Similarly, there are some efforts to understand how bottom-contacting gear might impact other benthic biota, but these are aimed at interests other than those in the UoA. The closed areas and protection zones were not designed specifically to manage habitats in relation to the groundfish UoA, nor are there specific mechanisms described that would enable managers to appropriately modify fishing practices were unacceptable impacts to habitats identified.
Co-managed and community-based managed tropical UoAs using multiple gear on a diverse range of habitats Under a broad marine management area, which was not specifically designed to manage fishing but general community uses of the marine environment, protection is afforded to a mosaic or patchwork of seagrass, mangrove, and coral reef habitats where bottom-contacting gear use is restricted or banned. The cultural context and scale of the various UoAs lend themselves to the community-based management approach.		✓		There is science-based rationale for protecting the habitats as spawning, larval, or juvenile areas for the sustainability of fish species. The arrangements are cohesive, comprising several measures that indirectly protect habitats for biodiversity purposes. There is some understanding of how this works to protect habitats and a demonstrable awareness of the need to change measures if they stop being effective from a habitats perspective. While the management approach is not designed explicitly to manage fishing impacts on habitats, there is a functioning management framework, although not strictly speaking “regulatory”, that suggests UoAs in the area do not cause

				serious or irreversible harm to habitats. There are some efforts aimed at understanding how specific strategies might work in relation to the various habitats impacted by the community's fishing. Despite the cultural context and relatively small scale of individual UoAs, the total approach does not add up to a **strategy** within a functioning regulatory framework that is directed specifically at management of habitat impacts of the UoA or other MSC UoAs.
Midwater trawl UoA on continental slope where some seamounts are encountered and rare bottom contact is made In acknowledgement that these features can be considered FAO-designated VMEs (or **more** sensitive habitats), some seamounts are afforded strict protection from any bottom-contacting gear, including midwater trawl gear, and there is a complete ban on the use of bottom/otter trawl gear on all seamounts. This gear restriction constitutes the key part of the UoA management strategy.		✓		The strategy is cohesive by virtue of permitting only midwater trawling on any seamount in the region. The functioning regulatory framework is explicit with the ban on bottom-contacting gear on all seamounts and as such represents a precautionary approach. Other MSC UoAs are also required to comply with these rules. Managers have implemented a mechanism to avoid contact with VMEs (seamounts) by mandating the use of only non-bottom-contact gear. However, while the strategy is designed to avoid **serious or irreversible harm** to these habitats, it can only be considered a **partial strategy**. This is because it relies upon the generally accepted rarity of bottom contact by midwater trawls and other gear rather than an explicit means of understanding the effectiveness of the management approach in ensuring that **serious and irreversible harm** is not happening to seamounts or the mechanism that might need to be in place if it ceases to be effective.
Demersal trawl UoA in inshore and offshore areas Overarching management framework takes an ecosystem-based fisheries management approach involving impact assessments for management plans (including impacts on habitats), spatial controls like closures to protect essential fish			✓	Management is cohesive and strategically aimed at managing the impacts of the UoA, other MSC UoAs, and non-MSC fisheries on relevant habitats within a comprehensive ecosystem-based management plan. There are a suite of measures and tools available and evidence of their use. Ecological risk and impact assessments have been carried out

habitat, effort reduction rules, and buyout/lease-back arrangements incentivising the use of less bottom-contacting gear to catch fish quotas.				and have determined that all fishing activity will not cause **serious or irreversible harm** to habitats, including **more** sensitive habitats. There is active management seeking to reduce the impact of the UoA on both essential fish habitat and other habitats that were rated higher risk from an ecosystem-management perspective, including **more** sensitive habitats. The management plan has clearly articulated objectives relating to the habitats component and sets out how management will be modified if undesirable impacts are detected. Monitoring and evaluation are enshrined within the management plan and are directed at understanding fishing impacts on habitats, as well as the usual species-related monitoring and evaluation. Explicit strategies aim to manage the cumulative impacts of fishing, by the UoA, other MSC UoAs, and non-MSC fisheries, on habitats in order to avoid **serious or irreversible harm**.
Multiple UoAs targeting mixed-species complexes using multiple gear (bottom- and non-bottom-contacting gear, including hand rakes, dredges, trawl gear, gillnets, and trap and line methods) in inshore and offshore environments ranging from cool temperate waters to warm tropical seas A bioregional marine planning framework uses an ecosystem-based fisheries management approach involving ecological risk assessments and risk-management planning for fish. Precautionary management approach to risks identified for habitats includes closed areas for a variety of gear (that may change from year to year) and a system of marine protected areas (MPAs), offering more permanent protection from any bottom-contacting gear. Habitat mapping and strategic research planning and execution are progressively closing the information gaps on the impacts of			✓	Management is cohesive and strategic, aimed specifically at managing fishing impacts on species, habitats, and other ecosystem components within a comprehensive management plan. Several measures are in place, and research, monitoring, and evaluation are aimed at understanding the impacts of the UoA on habitats. Management strategies (e.g. plans) contain explicit mechanisms for modifying fishing practices based on unacceptable impacts coming to light through research, monitoring, or evaluation. There is evidence these have been implemented to modify fishing impacts on relevant habitats. As this is one of the most comprehensive and cohesive management approaches, both **less** sensitive and **more** sensitive habitats, as well as cumulative impacts are explicitly considered by managers in the risk assessment and management process, the research **strategy**, and the

fishing on habitats, as well as the relative health of relevant habitats. Results are routinely used to inform fishery-management decisions.				management decision-making processes.
Pelagic longline UoA targeting migratory pelagic species There is little or no known bottom contact by the gear, except perhaps in cases of gear loss. The species targeted cannot be caught using trawl or other bottom-contacting gear.			✓	The use of the gear, the understanding that comes from years of peer-reviewed research about its impacts, and the specific management **strategy** that mandates only its use could be construed as a cohesive and strategic arrangement. This is supported by demonstrable understanding of how the use of pelagic longlines work to avoid impacting benthic habitats specifically, and some understanding about the impacts of lost gear on habitat, and the relative effects of such impacts are deemed to be low risk for overall habitat health. Periodic assessments (i.e. directed research and risk assessments) are conducted to inform management decision makers about lost-gear impacts to ensure that management strategies are working and are demonstrably avoiding **serious or irreversible harm** to habitats and to determine whether changes need to be made to mitigate unacceptable impacts.

GSA3.13.3.3 ▲

An MSC UoA needs to have some way of assessing whether the actions of all MSC UoAs and other non-MSC fisheries, where relevant, are applicable to the avoidance of impacts on more sensitive habitats. An area may be closed to fishing by the management entity, or by a client fishery or non-MSC fishery (prior to the management entity doing so). The team should consider all of these closed area scenarios when scoring the UoA. For instance, a “precautionary VME closure” might be declared by a trawl UoA on triggering a move-on rule, and MSC UoAs impacting in that closed area would be required to respect this closure under the requirements of the management PI 2.3.2. However, other measures, such as changing to a semi-pelagic gear, may not be relevant or appropriate for other MSC UoAs.

GSA3.14 Habitats information PI (PI 2.3.3) ▲

Assessing informal approaches against PI 2.3.3

The team should consider whether information is available to understand:

- The distribution of habitat.
- The impact of the UoA on habitat.

The team should factor in the likelihood of changes within the UoA that could lead to an increase in the risk of impact from fishing activity over time.

The team should consider whether information is collected to detect these changes to ensure that the UoA is moving in the desired direction or operating at a low-risk level.

Examples of information type include:

- Local knowledge or research from fishers or community members.
- Place-based information that is local to a particular geographical area.
- Information with social, economic, or ecological dimensions.

The information will reflect the knowledge and opinions about issues held by individuals and groups local to the UoA. Local knowledge can be valuable first-hand experience that might provide information on a wide range of topics, including:

- Habitat distribution and range.
- Gear impacts on local habitats.
- Gear and UoA spatial overlap with habitats.
- Scale and intensity of the UoA.
- Depending on the scale of the UoA, this information could be collected through informal stakeholder processes or a less subjective review process.

Scoring issue (c) – monitoring ▲

When scoring issue (c) at the SG80 level, the team should consider all potential increases in risk, such as changes in:

- The scoring of the outcome PI.
- The operation of the UoA.
- The effectiveness of the measures.

GSA3.15 Ecosystem outcome PI (PI 2.4.1)

GSA3.15.4 “Key” ecosystem elements ▲

“Key” ecosystem elements may include:

- “Key” prey, predators, and competitor species.
- Predator-prey interaction.
- Food web interactions.
- Community composition.
- Carrying capacity.
- Species biodiversity.
- Genetic diversity.
- Migratory behaviour.

GSA3.15.5 Indirect impacts on ETP/OOS species ▲

Indirect effects of the UoA on ETP/OOS species are those that result in changes to the “key” ecosystem elements as identified above.

The team is required to evaluate whether any of the impacts of the UoA on “key” ecosystem elements indirectly impact ETP/OOS units and hinder their recovery. Indirect effects of fishing may have

positive or negative effects on ETP/OOS units. The MSC's intent is that any ecological effects of the UoA/OOS do not hinder the long-term viability of the ETP/OOS unit, and thereby also cause "serious and irreversible harm" to the ecosystem. Types of indirect effects may include:

- Changes to trophic structure or function.
- Removal of biomass as food source for the ETP/OOS unit (including localised depletions) or its prey (trophic interactions).
- Addition of biomass due to discards or offal discharge.
- Changes to essential habitat for the species.

The team should provide rationale on which indirect effects, if any, it has considered in relation to the ETP/OOS unit. The team should provide detail of methods used to evaluate these effects.

The following case studies illustrate how indirect effects have explicitly been considered and managed within different fisheries. They provide examples of where the team should consider indirect impacts on ETP/OOS units, and how these relate to key ecosystem elements.

Case study 1: CCAMLR krill fisheries

CCAMLR has an objective to conserve marine living resources. This includes preventing changes or minimising risk of changes in the marine ecosystem that are potentially not reversible over two to three decades[89].

An example of how this objective is operationalised is that CCAMLR considers the needs of dependent predators such as marine mammals and seabirds when setting quotas for krill harvesting. Krill is an important prey species for seals, cetaceans, and penguins in the Southern Ocean. Indirect impacts of the krill fisheries include removal of krill as prey species, with localised depletion being a key concern given the patchiness of the krill resource[90] and references therein). CCAMLR sets a precautionary catch limit that ensures at least 75% of pristine krill biomass is maintained, and to prevent localised depletion an additional cap is set which cannot be exceeded until the catch is sub-divided into small spatial units[91]. In addition, the Government of South Georgia and the South Sandwich Islands, in whose waters a proportion of the krill fishery takes place, include a number of additional protection measures including a closed season during the times when key predators are breeding, coastal protection zones to reduce competition with land-based predators[92]. Indirect impacts from the UoA on ETP/OOS units should be considered as part of whether the UoA is likely to cause serious and irreversible harm to the predator-prey ecosystem element.

Case study 2: Burry Inlet cockle fishery

The Burry Inlet hand-raked cockle fishery is managed by Natural Resources Body for Wales (NRW), whose overall aim in managing the fishery is to develop a thriving cockle fishery that supports, protects, and enhances the needs of the community and the environment on which it

[89] CCAMLR (1980) Convention on the Conservation of Antarctic Marine Living Resources. Hobart: CCAMLR. Available at: https://www.ccamlr.org/en/organisation/camlr-convention-text
[90] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012) Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.
[91] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012) Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.
[92] Bamford, C.C.G., Warwick-Evans, V., Staniland, I.J., Jackson, J.A., and Trathan, P.N. (2021) Wintertime overlaps between female Antarctic fur seals (*Arctocephalus gazella*) and the krill fishery at South Georgia, South Atlantic. PLoS ONE 16(3): e0248071. Available at: https://doi.org/10.1371/journal.pone.0248071.

depends [93]. The Burry inlet is a Special Protection Area under the European Commission Directive 79/409 on the conservation of wild birds and is also a Ramsar site[94]. The large estuarine complex supports internationally or nationally important wintering populations of wildfowl including (amongst many others) pintail, shelduck, shoveler, oystercatcher, knot, and redshank[95].

Cockles are a key prey source for many overwintering birds in the Burry Inlet, so the indirect impact of the fishery relates to removal of biomass as a food source for bird species. To ensure that the fishery does not adversely impact the bird species whilst also maintaining a cockle resource for continued exploitation, a TAC is established each year for the fishery based on the results of twice-annual stock assessment surveys and the food requirements of the overwintering birds of the Burry Inlet[96]. A Bird Food Model is used to calculate the food requirements of birds, modelled based on the mean of peak counts of oystercatchers over recent years and information from the literature on energy requirements of the birds and energy content of shellfish[97]. The catch returns from the licensed fishers are monitored to see how much cockle is being removed each month in relation to the set TAC. This enables the TAC or daily quota to be amended if necessary to ensure enough food is left for the birds, as well as to ensure sustainable resource use[98].

The team should consider indirect impacts from the UoA on ETP/OOS units as part of whether the UoA is likely to cause “serious and irreversible harm” to the predator-prey ecosystem element.

GSA3.16 Ecosystem management strategy PI (PI 2.4.2)

Scoring issue (a) – management “strategy” in place ▲

See SA3.4.1 for more details on “measures”, “partial strategy” and “strategy”.

GSA3.16.2 Interpreting “strategy” ▲

At SG80 and SG100, partial strategies and strategies, respectively, may contain measures designed and implemented to address impacts on components that have been evaluated elsewhere in this framework.

If the measures address specific ecosystem impacts effectively enough to meet the appropriate standard, it is unnecessary to have special “ecosystem measures” to address the same impacts.

UoAs should be capable of adapting management to environmental changes as well as managing the effect of the UoA on the ecosystem.

[93] NRW (2013) Burry Inlet Cockle Fishery Order 1965: Management Plan 2013. Available at: http://naturalresources.wales/media/679996/burry-inlet-cockle-fishery-order-1965-mp.pdf [accessed on 19 July 2022].
[94] NRW (2013) Burry Inlet Cockle Fishery Order 1965: Management Plan 2013. Available at: https://naturalresources.wales/about-us/strategies-and-plans/burry-inlet-management-plan-cockle-fishery-order-1965/?lang=en
[95] NRW (2013) Burry Inlet Cockle Fishery Order 1965: Management Plan 2013. Available at: https://naturalresources.wales/about-us/strategies-and-plans/burry-inlet-management-plan-cockle-fishery-order-1965/?lang=en
[96] NRW (2013) Burry Inlet Cockle Fishery Order 1965: Management Plan 2013. Available at: http://naturalresources.wales/media/679996/burry-inlet-cockle-fishery-order-1965-mp.pdf.
[97] Stillman, R. & Wood, K. (2013) Predicting oystercatcher food requirements on the Dee Estuary. A report to Natural Resources Wales. Bournemouth University, Bournemouth University.
[98] NRW (2013) Burry Inlet Cockle Fishery Order 1965: Management Plan *2013*. Available at: http://naturalresources.wales/media/679996/burry-inlet-cockle-fishery-order-1965-mp.pdf.

GSA3.17 Ecosystem information/monitoring PI (PI 2.4.3)

GSA3.17.1 Climate change ▲

The team should consider monitoring the effects of environmental change on the natural productivity of the UoAs as “best practice”. The team should include recognition of the increasing importance of climate change.

GSA4 Principle 3

GSA4.1 General requirements for Principle 3 ▲

An MSC UoA might include only a sub-set of fishers, such as vessels, fleet operators, and individual fishermen within a wider fleet of fishers fishing for the same biologically distinct stock, using the same method, and under the same or similar management system or arrangements. However, the team should note that:

- The management of the wider fleet that denotes the specific “fishery” is the subject of assessment under the fishery-specific management system PIs.
- The team may consider special or additional management arrangements or features unique to the vessels in the UoA. The team may reflect this in the scores under the fishery-specific management system PIs.

Example

In some RFMOs, compliance can be the responsibility of a compliance committee, and sanctions can be brought by:

- The RFMO itself in instances of loss of access to resources, such as when a Member’s vessel is identified as IUU, or when there is loss of access by the Member itself.
- The flag state of the vessel in violation.

For violations not in any way under the control of the national management authority of the fishery:

- The fishery consisting of vessels from flag state X should not be held responsible for the non-compliance of flag state Y vessels.
- If the fishery consists of vessels registered with flag state X, and the non-compliance is by vessels registered with flag state Y, its internal compliance should not be part of the assessment.

However, the team should consider the effectiveness of the following actions:

- At the national level: the compliance of flag state X vessels.
- At the RFMO level: the overall effectiveness of compliance to deliver sustainable outcomes.

GSA4.1.1 Assessment of multi-level management systems ▲

Table GSA8: Examples of types of jurisdiction for different management systems

Type of jurisdiction	Management system
Purely domestic fishery	The fishery management framework may exist at a local, regional, or national scale within the jurisdiction of a single state. Additionally, a purely domestic UoA may exist in multiple jurisdictions within a state, for example under a federal system of government.
Trans-boundary fish stocks, straddling fish stocks, stocks of highly migratory fish species, and discrete high seas fish stocks	When fish stocks are exploited by 2 or more states, international law becomes relevant. These multi-level management systems may have a variety of jurisdictional arrangements that might apply to that UoA. The team is required to consider these jurisdictional arrangements.

GSA4.1.3 Fisheries management bodies that are subject to international cooperation ▲

Under international law, as set out in the UN Convention on the Law of the Sea (UNCLOS) and related instruments, the states concerned, including the relevant coastal states in the case of shared stocks, straddling stocks, and highly migratory species, are required to cooperate to ensure effective conservation and management of the resources.

The relevant instruments that set out these requirements are:

- United Nations Convention on the Law of the Sea (UNCLOS, 1982).
- United Nations Agreement for the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995
- FAO Code of Conduct for Responsible Fisheries, 1995 (including the FAO Compliance Agreement of 1993).

The MSC considers UNFSA Article 10 and the UNCLOS requirements as a basis for MSC requirements relating to cooperation for UoAs that are subject to international cooperation for management of the stock. These requirements to cooperate should apply to:

- UoA participants, even if cooperation is not formally required by the relevant RFMO/regional fisheries management arrangement (RFMA) or if an RFMO/RFMA does not exist.
- UoAs in the high seas, even if the target species are not HMS, shared, or straddling stocks and are not formally covered by the UNFSA requirements.

The requirements are further elaborated in SA4.3.1–4.

GSA4.1.4.1 Informal or traditionally managed systems ▲

A key characteristic of management mechanisms and measures in traditionally managed or self-governing UoAs is that they may be undocumented or may not be formally ratified.

The CAB could use:

- Semi-structured interviews with a range of stakeholders or other participatory tools to collect information. The information in the sample should be representative of the reality of the UoA.

- Multiple stakeholder participatory approaches to cross-check opinions and views from different segments of the stakeholder community.
- Both of the above to support the rationale and validate the conclusions provided for the scores as required in SA4.3.

GSA4.3 Legal and/or customary framework PI (PI 3.1.1) ▲

Background

A fishery management system's local, regional, national, or international legal and/or customary framework is:

- The underlying formal or informal supporting structure that incorporates all formal and informal practices.
- Procedures and instruments that control or have an impact on a UoA. This includes policies and practices of both government and private sectors, and is not limited to:
  - Implementing agencies; for example, fisheries agencies and conservation agencies.
  - Fishery business groups; for example, catch sector cooperatives and industry associations.
  - Fishing vessel owners.
  - Indigenous groups.
  - Local civil society or community groups.
- The government sector, including all applicable government systems, the courts, and the relevant parliamentary and regulatory bodies. The management system is the complex interaction of government legislation, industry, or customary practice. However, it may also include controls and practices in a UoA that result in "hard" law or "soft" law, which are accepted practice controls over actual on-water catching practices.

The team may consider governance structures and mechanisms introduced in a UoA to achieve certification to an ISEAL Code compliant international voluntary sustainability standard to be part of a customary framework. Nevertheless, this certification itself does not automatically qualify a fishery to meet MSC scoring requirements. The team should:

- Review the legal and/or customary frameworks in place.
- Reach a scoring determination based on its judgement.

Assessing informal and traditional approaches

In all scoring issues in this PI, for management systems that are less clearly articulated, such as informal and traditional management systems, the team may determine the extent to which this scoring issue is met through:

- Accepted norms.
- Commonly held values.
- Beliefs.
- Agreed rules across the fishing communities of which the UoA is part.

Scoring issue (a) – Compatibility of laws or standards with effective management ▲

The team may determine this by examining:

- The presence or absence of the essential features of an appropriate and effective structure within which management takes place.
- Whether those features are hard or soft.
- Whether the framework has a focus on long-term management rather than short term.

- How management manages risk and uncertainty.
- Whether the framework is transparent and open to scrutiny, review, and adaptation as new information becomes available.

The essential features needed to deliver sustainable fisheries are defined by their relevance to achieving sustainable fisheries in accordance with P1 and P2 appropriate to the size and scale of the UoA, and may include:

- Establishing when and where people can fish.
- Who can fish.
- How they may fish.
- How much they can catch.
- What they can catch.
- Who they talk to about the “rules” for fishing.
- How they might gather relevant information and decide what to do with it.
- How they know that people are abiding by whatever rules are made.
- How they catch, sanction, or penalise wrongdoers.

With these features, the operational framework could be said to be compatible with local, national, or international laws or standards.

For a UoA not subject to international cooperation for management of the stock, national entities expected to cooperate on national management issues include regional and national management, state and federal management, indigenous groups, and other groups, as appropriate to the UoA under assessment.

Scoring issue (b) – Resolution of disputes ▲

Issues and disputes involving allocation of quota and access to marine resources are outside the scope of an assessment against the MSC Fisheries Standard.

When there are no immediately obvious structures for dispute resolution, the team could use participatory techniques to:

- Identify and evaluate the presence of dispute resolution mechanisms used in the UoA.
- Obtain information on these dispute mechanisms.
- Assess the effectiveness of such mechanisms.

To minimise the likelihood of subjectivity, the team should include participants and/or interviewees from a wide variety of stakeholder types and from stakeholders operating outside the UoA. Fishers may be able to draw up charts or use other visual or non-textual means to help explain or demonstrate the process for resolving conflicts in the UoA.

The team can determine the level of transparency and effectiveness of the systems by:

- Using information on the proportion of stakeholders aware of the existence of any dispute resolution arrangements.
- Examining history and stories of how disputes have been dealt with in the past.
- Ascertaining whether the presence or absence of unresolved disputes can be considered significant indicators of the existence and/or effectiveness of dispute-resolution mechanisms.

The team can determine evidence of consistency with this requirement using field observations and structured interviews with fishers and fishing community leaders to ascertain the following:

- The extent to which fishery participants are aware of established rights.
- Responses in the past within the UoA to disputes over established rights.

- Accepted norms and practice across the UoA that are supportive of such established rights.

Scoring issue (c) – Respect for rights ▲

This scoring issue encompasses groups of individuals with customary rights, as well as indigenous or aboriginal groups with established rights, who are dependent on artisanal or subsistence fishing for either food or livelihood.

GSA4.3.1.b.i Controversial unilateral exemptions to an international agreement ▲

When assessing whether the fishery is conducted under a controversial unilateral exemption to an international agreement, the team should consider:

- The relationship between international and coastal state jurisdictions recognised by relevant international agreements.
- Whether exemptions result in the implementation of a higher or lower level of conservation than are currently agreed by an international management body.
- Whether the sustainable management of the fishery is undermined.

The team should interpret these terms as follows:

- Controversial" means creating a controversy in the wider international community rather than simply between 2 states.
- "Unilateral" means arising from the action of a single state.
- "Exemption" means a refusal to join or abide by the rules of an international management body, or the taking of a reservation or exception to a measure adopted by such body, where in either case the effect is to undermine the sustainable management of the fishery.
- "International agreements" are those with a direct mandate for sustainable management of the resources affected by the fishery according to the outcomes in Principles 1 and 2.

GSA4.3.1.1 Cooperation ▲

With respect to UNFSA Article 10, the requirement under SG60 (SA4.3.1) applies to the generation of scientific advice, not its implementation (UNFSA Article 10 paragraphs d, e, f, and g). A framework for cooperation with other parties could include the ability for parties to coordinate scientific advice to respective management agencies.

GSA4.3.2.b Organised and effective cooperation ▲

At SG80, "organised and effective cooperation" with other parties extends to UNFSA Article 10 paragraphs a, h, and j, and could include the establishment of appropriate cooperative mechanisms for effective monitoring, control, surveillance, and enforcement.

Further, at SG80 and SG100, the flag state(s) of vessels from the UoA should be participating either:

- In a relevant RFMO or other arrangement as members, or
- If membership is prohibited for political reasons, as a cooperating non-contracting party or cooperating non-member.

GSA4.3.3 Binding procedures ▲

At SG100, binding procedures governing cooperation with other parties could include agreement and compliance with CMMs to ensure the long-term sustainability of straddling fish stocks and highly migratory fish stocks.

GSA4.3.4 Disputes that overwhelm the fishery ▲

The team should consider whether any outstanding disputes are of substantial magnitude and involve a significant number of interests such that the UoA is unlikely to meet the objectives of MSC Principles 1 and 2. However, the existence of disputes are of themselves not enough to stop a fishery from being eligible for certification. The existence of lawsuits is not considered a barrier to certification, as otherwise parties opposed to certification could lodge lawsuits to prevent an outcome they did not support. The team should use its best judgement to determine whether a dispute compromises the ability of the management system to provide sustainable management, either at the time of assessment or within the subsequent certification period.

GSA4.3.5.1 Formal and informal practices and procedures ▲

These practices or procedures could be formalised under rule of law or be informal but known through traditional or customary means.

GSA4.4 Consultation, roles, and responsibilities PI (PI 3.1.2) ▲

Background

In scoring the PI, the team may consider the roles and responsibilities of the fishers in relation to their cooperation with the collection of relevant information and data, where relevant and/or necessary. Examples of relevant information and data include catch, discard, and other information of importance to the effective management of the resources and the UoA.

Effectiveness of consultation processes

When evaluating the effectiveness of consultation processes, the team might consider the general absence of discrimination against any individuals and/or organisations from any known consultations. However, the team needs to support any such conclusions with valid information collected by rigorous and robust means.

Effective consultation processes within the management system should be appropriate to the scale, intensity, and cultural context of the UoA. This could include, but is not limited to, consultation at the level of broad policy development and at the level of research planning.

In multinational arrangements, there should be adequate consultation at the UoA's national and international level. Thus, for consultation requirements the team should assess:

- The management authority, such as the coastal state or the flag state, dealing with the UoA directly.
- The international organisation, where such exists.

The team is not required to score elements against this PI for:

- Other non-UoA states that are members of the international organisation.
- Members of a bilateral/multilateral arrangement.

Assessing informal and traditional approaches

In some traditionally managed UoAs or in UoAs under self-governance, specific roles and responsibilities may not always be clearly articulated or immediately apparent. A range of entities, ad hoc committees, and other groups with a variety of labels, including NGOs, may have responsibility for different fishery management roles. The arrangements may not be formally codified but may be widely understood across the UoA.

The team may need to work with stakeholders to prepare simple governance, institutional, or system maps to verify the extent to which roles and responsibilities are defined across the management system.

In the absence of a documented consultation procedure, the team could demonstrate evidence to verify the extent and transparency of consultation processes by alternative means including:

- Identifying the existence, content, and relative frequency of invitation letters to meetings.
- Consideration of activities of the UoA's extension officers.
- The use of local announcements.
- The use of posters.
- The extent of awareness of fishers about meeting agendas, meeting content and outcomes.

The CAB may need to interview fishers about selected case studies to determine how information collected from stakeholders has been used in the past.

If the team demonstrates that valid and rigorous methods were used, the team may consider information from such interviews as representative of how the information collected from stakeholders is generally used. Conducting interviews with different stakeholders and cross-checking the information is one way of validating the results.

Scoring issue (b) – Consultation processes ▲

The intent of scoring issue (b) is that:

- The management system is open to stakeholders.
- Information viewed as important by those parties can be fed into and considered by the process in a way that is transparent to the interested stakeholders.

When determining that a process "regularly" seeks and accepts information, the team should use its expert judgement to determine what frequency of review is appropriate. It is not necessary that the definition of the term "regularly" is the same in all contexts throughout the MSC Fisheries Standard, as different frequencies of review may be appropriate in different contexts.

GSA4.4.1 Transparency ▲

Meeting SG100 may not necessarily require additional reporting beyond what may already occur in a fishery management system. Examples include:

- Regular newsletters, broadcasts, or reports that go out to stakeholders.
- Information pages published and distributed.
- A public record of the minutes of meetings, including use of email or other e-technologies.
- Report-back meetings or other such means of reporting when stakeholders do not have access or ability to read reports, do not watch broadcasts, or do not use computers.

The team should verify that the evidence offered:

- Meets the standard of demonstrating consideration of the information, hence is transparent.
- Explains how the information was or was not used.

A UoA cannot meet SG100 without being transparent on how provided information is or is not used.

GSA4.4.5 Local knowledge ▲

"Local knowledge":

- May be long-term knowledge held by many fishers or the community.
- May be location-based, so local to a particular geographical area.
- May have social, economic, or ecological dimensions.
- Will reflect the knowledge and opinions about issues held by individuals and groups local to relevant UoAs.

"Local knowledge" can be valuable first-hand experience that might inform any fisheries management process, including:

- Fisheries research.
- Data collection.
- Resource assessment.
- Monitoring, control, and surveillance operations.
- Policies and processes.
- Fisheries management policies, practices, and/or decisions.

Evaluation of the relative value and robustness of local knowledge in the management process may form part of the process of being transparent about how information is considered and used or not used under SG80 and SG100.

Individuals or groups as referred to in SA4.4.5 could include, but not be limited to:

- Fishers.
- Indigenous people.
- Local community representatives or groups.
- Local civil society groups, such as local NGOs.
- Local fishing businesses and/or their representatives.
- Local-government representatives.
- Politicians.

GSA4.5 Long-term objectives PI (PI 3.1.3) ▲

Background

Where UoAs fall under dual control, the objectives of the management agency controlling those UoAs are the subject of PI 3.1.3. Examples of UoAs under dual control include:

- Internationally managed UoAs where management falls to both a national agency and a bilateral/multilateral agreement or organisation.
- Federally managed UoAs that have some provincial or state management component.

This PI deals only with the broader management policy context, which could exist within overarching legislation, or policy or custom that applies to many or all UoAs within a broader management system. Consideration should focus on whether laws, policies, practices, or customs at that higher level imply and/or require long-term objectives that are consistent with the precautionary approach.

Scoring issue (a) – Objectives assessing informal approaches in PI 3.1.3 ▲

The CAB could infer consistency with scoring issue (a) by the practices operating within the UoAs covered by the management system.

The CAB could use the following to evaluate the UoA's performance against this scoring issue:

- A review of the factors that have influenced recent decisions in the UoA.
- Knowledge of the extent to which such factors are consistent with achieving sustainability.
- The application of the precautionary approach.

The team should consider whether decisions have been taken:

- On the basis of the ecological health of the UoA and associated ecosystems, or
- For other reasons that are not compatible with achieving sustainability over the long term.

When scoring this PI, the team should focus on the consistency of any long-term objectives within overarching management policy. The team should expect the UoA to be cautious when information is uncertain, and to take action even when information is inadequate.

This PI is important to the overall understanding of the use or otherwise of a precautionary approach in the UoA. However, it is not concerned with the operational implementation of the precautionary approach within the "day-to-day" management of the UoA itself.

This PI is not:

- A second opportunity to score UoAs on the use of target and LRPs, which are scored under P1 of the default tree.
- A second opportunity to refer the team to Article 6, Annex II of the Fish Stocks Agreement for a prescriptive list of what is required to appear in management policy in relation to the precautionary approach.
- A direction to rescore management strategies or outcomes covered both in P1 and P2, or decision-making processes covered in a separate PI under P3, where precaution and the precautionary approach are also mentioned.

GSA4.7 Fishery-specific objectives PI (PI 3.2.1)

Scoring issue (a) – objectives assessing informal and traditional approaches ▲

In some traditionally managed fisheries, or fisheries under self-governance, objectives may not always be stated quantitatively or be expressed in a way that is specific to the particular species or fishery. Objectives may specify social and/or economic objectives. In some fisheries, objectives may be defined in terms of addressing further declines, rather than specifically maintaining optimum yields or biomass levels.

The team can determine compliance of the fishery with MSC requirements by considering how well these variously formulated objectives align with achieving sustainability as per Principles 1 and 2. Objectives that are defined to meet social needs may in some cases be consistent with achieving sustainability as articulated in Principles 1 and 2. However, to be consistent with achieving sustainability, such objectives should not be designed to meet social needs at the expense of ecological considerations. The team should determine whether the fishery is subject to considerations that may lead the emphasis on social or economic objectives to pose potential risks to achieving the outcomes required by Principles 1 and 2.

GSA4.7.2 Measurable objectives ▲

Example

An example of an explicit “measurable” objective is “the impact on dependent predators will be reduced by x% over y years”.

GSA4.8 Decision-making processes PI (PI 3.2.2)

Scoring issue (a) – decision making processes ▲

The CAB should interpret “established” decision-making processes to mean that:

- There is a process that can be immediately triggered for fisheries-related issues.
- The process has been triggered in the past and has led to decisions about sustainability in the fishery.

These processes may or may not be formally documented or codified under an official statute.

Key considerations for assessing whether the system is well established or not include:

- The extent to which the system is recognised by stakeholders in the fishery.
- The durability or permanency of the decision-making process.

The team may need to use semi-structured interviews with a range of stakeholders to obtain information about how any decision-making process works. The team may need to select a case study event and determine from interviews whether and how decisions were made in response to the event. Appropriate case study events include:

- A stock decline in the past.
- A specific observation across the fishery.
- Other ecological change.

As with general requirements relating to the use of semi-structured interviews, the team should provide evidence of a means of cross-checking views and validating conclusions and scores.

Scoring issue (b) – responsiveness of decision-making processes ▲

The team should consider all constituents and operational levels of the fishery-specific management system when assessing the responsiveness of decision-making. Where relevant, the team should ensure that the assessment of this scoring issue:

- Recognises decision-making at the level most relevant to the UoA.
- Is not unduly determined by decision-making in other constituents or levels of the fishery-specific management system.

For example, the nature and severity of issues arising at different levels of a management system may vary, as might the responsiveness of decision-makers to those issues. In a co-management situation, decision-makers may need to respond to issues not directly relevant to the management of the UoA.

Similarly, in a network of local management bodies, decision-making processes in one part of the network may be materially different to those in the UoA, despite both bodies being part of the same fishery-specific management system.

Scoring issue (d) – accountability and transparency ▲

The CAB should interpret “accountability” to mean that:

- Management is answerable to stakeholders on management of the fisheries.
- The answerability of management is demonstrated by the provision of information on the fishery to stakeholders.

The data that are required to be available to stakeholders exclude data or information that are subject to national privacy and data protection regulation and laws associated with the fishery.

When considering public access to information on fisheries' performance and data, the team could consider:

- The extent to which accurate and up-to-date data available to management are reported to the public or at least accessible on request to stakeholders.
- The resolution of the available data.
- Whether the data and information available are appropriate to the type and nature and of the fishery.
- Whether the data and information available are of sufficient clarity to ensure meaningful engagement of stakeholders in the decision-making process.

The availability of information to stakeholders on actions taken by management that have implications for sustainable use of fisheries resource could include:

- Availability of information, or at least non-confidentiality of information, on subsidies that may be considered to have implications for sustainability.
- Availability of information, or at least non-confidentiality of information, on who, for example licence holders, has access to the resource.
- Availability of information on infractions against fishery regulation and consequent penalties and/or fines.
- Availability of information on outcomes and impact of management decision where such information is available.

Scoring issue (e) – Approach to disputes ▲

When assessing the importance of any evidence relating to this issue, the team should consider whether any violations of the same law or regulations compromise the ability of the management system to deliver sustainable fisheries as per the outcomes in P1 and P2.

When assessing fisheries against this issue, the team may consider the extent to which there may be other or higher authorities to whom fishers or other stakeholders may appeal if they are dissatisfied with fishery rules or their implementation in the fishery by local managers.

If any such appeals have been made, the team should consider and score the responsiveness or otherwise of local managers or leaders.

The team may use semi-structured interviews to determine the extent to which stakeholders believe that local managers or leaders respect any judgements or decisions made by any higher or other authority.

The team can use the interviews to determine the extent to which:

- Managers implement their own rules.
- Stakeholders believe the management system is sufficiently proactive to avoid disputes.

The team may consider collective, participative, and publicly accountable involvement in management of the fishery by a broad spectrum of local stakeholders of the fishery as potential evidence of the presence of proactive avoidance of legal disputes. The team may use supporting evidence from multiple and cross-checked, semi-structured interviews with a range of stakeholders representing different interests within the community.

GSA4.9 Compliance and enforcement PI (PI 3.2.3) ▲

Background

This requirement extends to compliance with management measures associated with MPAs and habitats, as well as other spatial management approaches. The team should judge compliance on the formal requirements of an MPA's management system relating to fishing activity, including any requirements for research and impact assessment, rather than with an MPA's objectives, which are unsupported by specific PIs (see GSA3.13 for discussion of habitat management strategies).

Box GSA9: MPAs and other spatial management approaches

MPAs and other spatial management approaches are potentially valuable management tools. In this context, the term "MPAs" refers to the full range of MPA categories defined by the IUCN, from strict nature reserves to protected areas with sustainable use of natural resources, and "other spatial management" including requirements that are part of fishery management arrangements or plans.

An MPA may or may not contribute to the delivery of a sustainable fishery and there is no explicit requirement to have MPAs or other spatial management approaches in place for fisheries to meet the MSC standard. However, the MSC does require that the effectiveness of the management system, to which an MPA or other approach may contribute, is sufficient to achieve:

- The sustainability of fish and other species.
- Ecosystem impacts.

Assessing informal and traditional approaches

When evaluating the effectiveness of MCS in fisheries where a less-formalised MCS system exists, the team may consider the role and effectiveness of a range of factors in deterring illegal activity. These factors may include the following:

- Social disapproval, such as public "naming and shaming", for violating fishery customs, rules, or regulations important for sustainability.
- Fines and penalties imposed by community institutions or other local bodies.
- Prevailing norms.
- Self-monitoring.
- Presence of community fish watchers or wardens.
- Accessibility to the resource.
- Ability to smuggle catches onshore without detection.
- Mobility and homogeneity of the members of the fishery.
- Exclusivity of access and market-related factors such as value, demand, or preferences (for example, regarding size).

Scoring issue (a) – Monitoring, Control, and Surveillance system ▲

An MCS system (SG80) is a suite of well-integrated mechanisms and tools that work together to improve compliance with regulations. An MCS system should cover all 3 dimensions of routine fishing operations[99] (as listed below), and include reporting requirements and physical inspections:

- Prior to fishing (e.g. valid documentation, training and vessel set-up).
- During fishing.
- During landing of catch.

At SG100, a comprehensive MCS system is as described for SG80 and SA4.9.3, but should also be risk-based, adaptable, and able to respond to issues in a timely and transparent manner. It should include a process for compliance data acquisition and analysis and, where appropriate to the fishery, should include physical inspections both onshore and at-sea.

Scoring issue (b) – sanctions ▲

At SG80 and SG100, the severity of sanctions and their likelihood to deter non-compliance should be appropriate and adequate to the UoA, such that they provide deterrence.

At SG100, comprehensive sanctions are those that can respond to a wide range of infringements, in various ways, in order to ensure effective deterrence. For example, the sanctions may be graduated (i.e. consist of a series of structured incremental sanctions of increasing severity) or multifaceted.

Scoring issue (d) – compliance outcome ▲

If a UoA has few non-compliance issues and infringements, it may be difficult to demonstrate effective enforcement of management measures. This scenario may not indicate highly effective MCS. Instead, it may imply that MCS is ineffective, and infringements are not being detected or recorded. In contrast, a high number of infringements within a UoA may imply an effective and transparent MCS system. The team should therefore use expert judgement when evaluating information from management authorities.

The team should consider regulations specific to governing sustainable fishing practices on the water as those associated with the ‘how, what, where, and when’ of fishing activities. They may include:

- Regulations associated with gear restrictions.
- Catch reporting, quota limits.
- Landing obligations.
- By-catch.
- Spatial and temporal restrictions.

These regulations are important in achieving and maintaining sustainable fisheries and should therefore be considered at all jurisdictional levels.

The team should not consider regulations that are in place for purposes other than governing sustainable fishing practices; for example labour, maritime safety or pollution regulations.

The team should interpret “systematic non-compliance” as recurring infringement of regulations in a coherent and coordinated manner. For example, if large number of fishers in the UoA are not complying with regulation(s) on a regular basis, the team should regard this as systematic non-

[99] FAO (2002) Chapter 8: Fishery monitoring, control and surveillance (Bergh, P.E. and Davies, S.). In A Fishery Manager’s Guidebook – Management Measures and their Application (ed. Cochrane, K.L.). Fisheries Technical paper 424. Rome, Italy. 231pp.

compliance. Ad hoc infringements by individual fishers should not constitute systematic non-compliance. Systematic non-compliance demonstrates that the MCS enforcement mechanisms and sanctions in place are not effective in preventing frequent re-offence by the UoA. When assessing scoring issue (d), systematic non-compliance is specific to those regulations governing sustainable fishing practices on the water.

At SG80 and SG100, “majority of regulations” is not restricted to regulations specifically governing sustainable fishing practices on the water (i.e. as defined at SG60). Instead, it should include regulations associated with the 3 dimensions of routine fishing operations outlined in ‘Scoring issue (a) – Monitoring, Control, and Surveillance system’ above. In considering whether the “majority of regulations” are complied with for SG80 and SG100, assessors are not expected to perform quantitative analyses of the number of regulations that exist and are (or are not) complied with. Instead, assessors should consider whether there is a general culture of compliance with regulations.

GSA4.10 Monitoring and management performance evaluation PI (PI 3.2.4) ▲

Fishery-specific management system

In both scoring issues and in each SG under this PI, relevant parts of the fishery-specific management system may include:

- A decision-making process that responds to both wider management issues of stock-wide and/or specific local stakeholder concerns.
- Data collection.
- Scientific research.
- MCS: Compliance and enforcement PI 3.2.3.
- Collaborating in and initiating a fishery-specific or national research plan.
- Responding to feedback and response.
- Monitoring systems as required by the management strategy and information PIs in P1 and P2.

Assessing informal and traditional approaches

When assessing this PI, the team should consider:

- Whether there are opportunities and/or forums for decision-makers to receive feedback on the management system.
- Other practices such as exchange of information between the community and the management institution.
- The regularity of such opportunities.

Where community organisations are operational, these monitoring systems can be self-determined. However, they require the support of an external evaluation from a higher authority, and evidence that specific checks may be made. The external authority might include provincial or national government agency, university, NGO, or donor.

To verify activities, the team should ensure compliance with the following indicators:

- An effective organisational structure to implement decisions and corrective actions.
- Evidence that policies are formulated, initiated, and monitored.
- Where relevant, activities take account of community and scientific advice, which may include consideration of supporting risk assessments conducted by a scientific organisation or university.
- Evidence of an effective system of custodial management and self-determined fisheries control systems.

The team should not limit the review process to a sub-management or community organisation. It may be that national or provincial government departments delegate specific duties to sub-management organisations, where key parts of the management system require stock-wide management, beyond community level. In such cases, the team review should take into account:

- Higher authorities and their performance in ensuring management against national and international measures.
- Whether the correct tools are in place to ensure that appropriate decisions at the national level are passed down to the sub-management and community organisations.

GSA4.10.1 External review ▲

Depending on the scale and intensity of the fishery, external review could be by:

- Another department within an agency.
- Another agency or organisation within the country.
- A government audit that is external to the fisheries management agency.
- A peer organisation, nationally or internationally.
- External expert reviewers.

End of Section SA Guidance

GSB Modifications to the default tree for enhanced bivalves – guidance ▲

Foreword to Section GSB

Section GSB is intended to provide supplemental guidance and interpretation when applying:

- The default assessment tree (Sections SA, GSA).
- The modifications to the default assessment tree (Section SB) for assessing enhanced bivalve fisheries.

The numbering of sections in this Section corresponds to the equivalent sections in Section SB.

GSB2 Principle 1

GSB2.1 General requirements for Principle 1 ▲

Because bivalve culture cannot lead to exploitation rates that approach LRPs, it is not managed as such. Scoring enhanced CAG bivalve fisheries for P1 stock status is therefore not usually appropriate. However, the team should still determine that there is no threat to the target species. Once this has been determined, the team should confirm there is no need to:

- Score P1.
- Have a P1 expert on the team.

GSB2.1.3 Translocation ▲

Translocations of marine shellfish have the potential to affect the genetic integrity of wild populations, depending on the scale of the translocation. The team should:

- Examine each situation.
- Provide rationale and evidence explaining the level of risk if it exists.

The team can achieve this by scoring the genetic outcome PI.

GSB2.1.5 Scoring Principle 1 PIs ▲

To ensure that the exploitation of the source seed resource is properly managed, the team should score enhanced CAG bivalve fisheries involving translocations that remove seed stock from source locations against the following PIs:

- Stock status.
- Harvest strategy/control rules, and tools PIs.

Because it is problematic to assess stock size in relation to biomass or fishing mortality, the team may use the RBF (Tool A of the MSC Fisheries Standard Toolbox).

In addition to genetic impacts, moving shellfish from one geographic area to another can introduce disease and/or pests, which affect the parent stock and other species within the ecosystem. For CAG fisheries that involve translocation, the assessment team should examine each situation and provide rationale and evidence explaining the level of risk if it exists. The team can achieve this by scoring the translocation PIs within Principle 2.

Note that management bodies may define shellfish translocations based on movement of shellfish between/among areas where harvest is permittable or not (e.g. between areas with differences in water quality, or risk of pest or disease). As such, when determining risk from translocations in scoring, the team should consider any management measures in place, including efforts to address potential disease and/or pest concerns to the species and geographic region where the individuals

are out-planted. Examples of practices for managing disease and/or pest impacts from CAG enhancement include:

- Guidance on identification of pest and disease species.
- Detailed information on the current location and extent of pest and disease species.
- Quarantine and control measures.
- Licensing and permitting, whether that be for facilities, location(s), and/or translocation activities.

GSB2.3 Genetic management PI (PI 1.2.5)

Scoring issue (b) – plausible argument ▲

Examples of plausible argument used in scoring issue (b) may include general experience, theory, or comparisons with similar fisheries or species.

GSB3 Principle 2

GSB3.1 General requirements for Principle 2

GSB3.1.2 ▲

There are normally no in-scope species captured in enhanced CAG bivalve fisheries based solely on spat collection. Therefore, the team does not need to score PIs for in-scope species. However, for fisheries where dredging may involve the capture of in-scope species, the team is required to score the in-scope PIs as per Section SA.

There is a potential for enhanced CAG bivalve fisheries to interact with ETP/OOS species.

GSB3.1.4.2 ▲

For suspended culture systems, when scoring Principle 2 habitat PIs, the team should focus on the benthic impacts of bio-deposition and organic enrichment.

When scoring ecosystem PIs, the team should focus on issues relating to:

- Carrying capacity.
- The trophic effects of bivalve filtration/feeding.

Shellfish farming may occur where the natural benthic environment is already heavily enriched with organic matter prior to the initiation of any culture activities. In such cases, the team can compare measurements taken underneath farms to measurements taken in control sites outside the farm to show that the culture activity is not directly responsible for the anoxic conditions.

The team could apply the sulphide (S^{2-}) methodology in justifying its scores for habitat status:

- For **SG60**, the team is required to justify that the fishery is "**unlikely"** to reduce habitat structure and function to a point where there would be serious or irreversible harm. This could correspond to levels of total S^{2-} in surficial sediment beneath farms of ≤ 3,000µM.
- For **SG80**, the team is required to justify that the fishery is "**highly unlikely"** to reduce habitat structure and function to a point where there would be serious or irreversible harm. This could correspond to levels of total S^{2-} in surficial sediment beneath farms of ≤ 1,500µM.
- For **SG100**, the team is required to justify that there is evidence that the fishery is "**highly unlikely"** to reduce habitat structure and function to a point where there would be serious or irreversible harm. This could correspond to negligible levels of total S^{2-} in surficial sediment beneath farms, such as would be found at background levels for that environment.

Phytoplankton depletion/ecological carrying capacity

Methods for determining the impact of suspended bivalve farming operations on phytoplankton depletion range from simple clearance- and retention-time calculations to expensive and complex computer modelling of ecological carrying capacity of affected water bodies. While it can be difficult to account for all the variables involved in coastal ecological processes, the team can use simple calculations to determine whether or not production is “likely” to be sustainable.

The main threat associated with the translocation of shellfish is the introduction of diseases, pests, or invasive species. It is important that the team assesses these risks through established protocol that is validated through independent scientific review. For general guidance on translocation, see FCP G7.7.1.2.b.

The removal of seed from an area either through dredging or spat collection may have P2 impacts.

GSB3.2 Translocation outcome PI (PI 2.5.1)

Scoring issue (a) – non-native species ▲

In scoring issue (a), the team should interpret “non-native species” to mean a species not already established in the ecosystem.

GSB3.3 Translocation management PI (PI 2.5.2)

Scoring issue (b) – plausible argument ▲

Examples of plausible argument used in scoring issue (b) may include general experience, theory, or comparison with similar fisheries or species.

GSB4 Principle 3

GSB4.1 General requirements for Principle 3 ▲

In cases where P1 is not scored, when scoring P3, the team should focus only on the relevant management systems applicable to maintaining P2 outcomes.

Table GSB1: Summary of scoring required for different types of enhanced bivalve fisheries

Fishery type				Scoring required for:				
	Enhancement type	Spat/Seed collection type	Translocation occurring	Principle 1	Genetic outcome (P1)	Genetic management & information (P1)	Translocation PIs (P2 impacts)	In-scope species (P2)
1	HAC	Hatchery produced		✓	✓	✓		✓
2	CAG	On ropes/ collectors						
3	CAG	On ropes/ collectors	✓	✓ (RBF)	✓		✓	
4	CAG	By dredging						✓
5	CAG	By dredging	✓	✓ (RBF)	✓		✓	✓

End of Section SB Guidance

GSC Modifications to the default assessment tree for salmon fisheries

Foreword to Section GSC ▲

Section GSC provides guidance and interpretation in applying:

- The default assessment tree (Section SA).
- The modifications for salmon fisheries (Section SC), based on the above considerations.

The team should not deviate from this guidance without justification.

Salmon fisheries with an enhancement component are required to conform to the scope criteria in Table 1 of the Standard.

The CAB should interpret “enhancement” as any activity aimed at:

- Supplementing the survival and growth of 1 or more aquatic organisms, or
- Raising the total production or the production of selected elements of the salmon populations beyond a level that is sustainable by natural processes.

GSC1 General requirements

GSC1.1.1 ▲

For the purposes of salmon assessments, the team should consider Section GSC guidance as taking precedence over Section GSA. Where no guidance is provided, the team should use Section GSA.

GSC1.1.3 ▲

Examples of stock management units (SMUs) and populations are shown in Table GSC1.

Table GSC1: Terms and definitions

Term	Guidance to definitions in Annex SC
Population	Examples of populations, 1 or more of which would normally comprise a single SMU, include: ● Conservation Units (CUs) under Canada’s Policy for the Conservation of Wild Salmon Policy (WSP). ● Evolutionarily Significant Units (ESUs) under the National Oceanic and Atmospheric Administration (NOAA)’s application of the US Endangered Species Act for salmon.
Stock Management Unit	In practice, an SMU may: ● Comprise an array of wild production components, such as populations of Prince William Sound pink salmon (Figure GSC1 scenario A). ● Represent a collection of populations such as early summer, summer, or late Fraser River sockeye. In some situations, a population may be larger and more widely distributed than the localised management units, such as terminal chum fisheries in British Columbia (Figure GSC1 scenario B). In this situation, the team may treat these component SMUs as 1 SMU for assessment purposes as long as the impacts of fishing on the population and the component SMUs are similar.

Term	Guidance to definitions in Annex SC
	Reference points are set for and evaluated at the SMU level, taking into account specific thresholds or other constraints that apply to 1 or more component populations of that SMU.

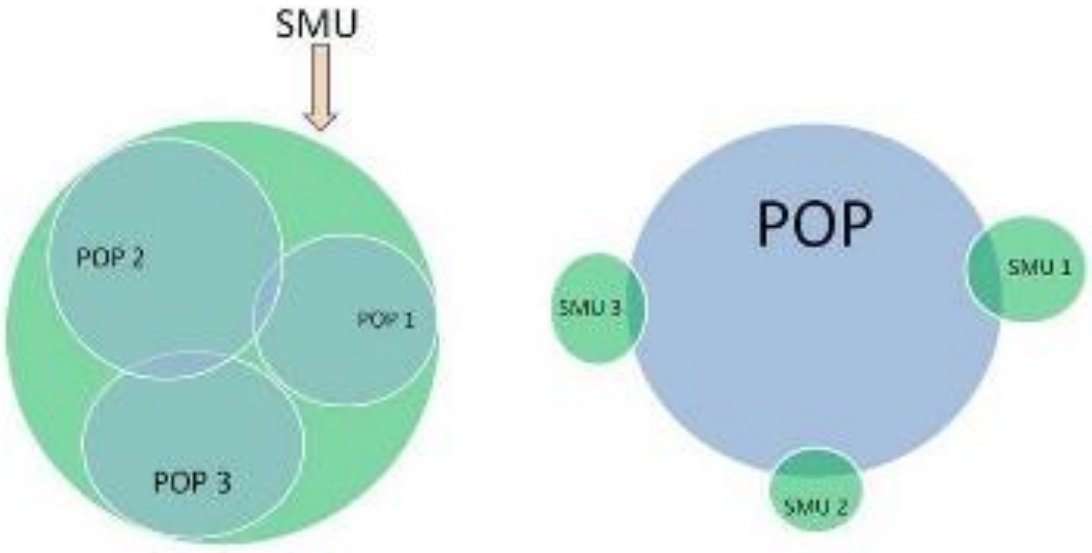

Figure GSC1: 2 potential scenarios illustrating the relationship between populations and SMUs

GSC2 Principle 1

GSC2.1 General requirements for Principle 1

GSC2.1.1 ▲

In P1, the complexity of salmon population dynamics requires that the team should consider the sustainable management of salmon at 2 levels[100]:

- **Level 1: the level of the SMU**. The objective of management should be to:
  - Ensure that spawner abundance in the SMU is maintained at a level consistent with high production; for example, for a target such as spawner abundance at maximum sustainable yield (S_{MSY}), or a proxy that reflects equal or lower risks to 1 or more populations.
- **Level 2: the level of the populations within an SMU**. The objective of management should be to:
  - Ensure that the diversity and productivity of these populations are maintained at levels that ensure a high probability of persistence over time.

[100] Portley, N., and Geiger, H.J. (2014) Stock management units and limit reference points in salmon fisheries: Best practice review and recommendations to the MSC. Marine Stewardship Council Science Series 2: 89–115.

- Enable them to rebuild to high production in time in the absence of fishing.

GSC2.2 Stock status PI (PI 1.1.1) ▲

In PI 1.1.1, the team should assess the status of an SMU in relation to reference points.

The definition of the SMU, establishment of its reference points, and design of its related management strategy should:

- Take into consideration the need to manage populations within the SMU to reflect the different productivities and other features of those populations.
- Follow the guidance for PIs 1.2.1 to 1.2.4 as appropriate.

Scoring issue (b) – TRPs ▲

Examples of TRPs include target escapement goals and target harvest rates.

GSC2.2.1 ▲

Escapement-based reference points generally refer to spawner abundance only in assessments of current status relative to LRPs and TRPs. The team may, where other reference points are used, refer to GSA2.2.3. Example of other reference points include:

- Target harvest rate.
- Fishing mortality.
- Other proxies.

GSC2.2.2 ▲

The team should evaluate whether achievement of spawning goals is solely for wild, natural-origin salmon, after excluding:

- Hatchery fish.
- The contribution from spawning channels.
- Removal of fish for hatchery broodstock.

GSC2.2.2.1–2 ▲

The team should consider the following factors in estimating escapement of only wild fish:

- Relative abundance of artificially produced versus wild salmon.
- Presence and enumeration of artificially produced fish in the salmon fishery and on the wild spawning grounds.
- The management system's intent as to how artificially produced fish are accounted for in meeting reference points.

GSC2.2.3 ▲

Scoring PI 1.1.1 for salmon fisheries can be complex. Where the following situations arise, the following guidance applies:

- If there are no LRPs defined by management, as is often the case with salmon fisheries, the team should refer to GSC2.7.
- If 15 years of data are not available, the team should apply equivalent percentages to the timeframe that is available.
- If the TRP is expressed as a range, with an upper and a lower bound:
  - The SMU should have met or exceeded the mid-point of the escapement goal range, and/or
  - The team should look for evidence that directed fishing is lowered as the lower bound is approached.
- The threshold levels in SC2.2.3.1 and SC2.2.3.3 assume an approximately random distribution of performance over the 15-year period. Where this is not the case, and there is instead a consistent trend downwards such that most of the failures to reach the escapement goals were in the most recent years, then SG80 is not met.
- The team may consider each cycle line separately in the case of:
  - Species or stocks that display cyclic dominance, such as pink salmon where separate stock dynamics pertain to alternate years, or
  - Fraser sockeye where each cycle line spawns only every 4th year.

For example, the team may assess pink salmon even-year and odd-year populations separately.

Consideration of environmental variability and its impact on stock status is covered in SA2.2.7.

GSC2.3 Stock rebuilding PI (PI 1.1.2) ▲

The requirements for rebuilding salmon SMUs differ from those for other species in the following ways:

- The complex structure of salmon stocks requires rebuilding strategies to account for specific populations that may have lower productivities than the SMU average. One example is effective differential harvest protection through proven time and area strategies to minimise harvest impacts on low-abundance or less-productive populations.
- Reduced stock status may be caused by:
  - The fishery, in which case the rebuilding strategy is the responsibility of the fishery management agency.
  - Other human intervention such as habitat degradation or environmental change.
- If reduced stock status is caused by human intervention and the impact is out of the management control of the fishery, the fishery response should take into account the multipurpose nature of the use patterns in those waterways. For example, the fishery management agency should adjust management goals either up or down to be appropriate to the new productivity of the system.

Scoring issue (c) – use of enhancement in stock rebuilding ▲

In scoring issue (c), use of enhancement in stock rebuilding, the team should consider the following:

- **Routine use** of artificial production to meet escapement goals as a rebuilding strategy, and therefore mitigate “overfishing” and maintain harvest rates that are not sustainable, would generally not meet SG60.
- **Habitat modification** may be used occasionally to assist rebuilding.

Given that the focus of the MSC assessment is on wild stocks, there should be only limited and temporary use of such methods to rebuild wild stocks, consistent with MSC guidance on scope criteria for enhanced fisheries.

Under exceptional circumstances, use of hatchery production as a rebuilding strategy could be targeted at a specific population within an SMU that is severely depleted and has not responded to other significant management action. In the extreme case, this would include recovery hatchery programs (see GSC2.9) designed to prevent the extirpation of severely depleted populations. It is important that any population where artificial production is used as part of the rebuilding strategy is neither targeted by the fishery nor exposed to non-targeted harvesting that substantially hinders rebuilding attempts.

When an artificial production strategy is used, the team should consider it an interim strategy of short, finite duration in order to address immediate demographic risks to the population.

In such a case the team should:

- Assess the circumstances driving the program.
- Verify that the program has been carefully designed to contribute to the long-term viability of the depleted wild population.

Under these types of program, addressing demographic risks often results in unintentional interactions between cultured and wild fish that will exceed any routine interaction benchmarks.

The rebuilding plan should:

- Justify the need for enhancement tools, if used.
- Evaluate the potential risk involved.
- Define the time-bound duration for supplementation.
- Include monitoring and evaluation of the supplementation effort to assess the natural population response in productivity, abundance, life history, and genetic diversity.

This is in compliance with the scope criteria for HAC fisheries as defined in SA1.

GSC2.3.1 ▲

In the default tree, PI 1.1.2 is triggered for any score below 80 in PI 1.1.1. However, salmon fisheries may score below 80 in PI 1.1.1 due to:

- Reduced abundance,
- A failure to enumerate hatchery origin fish in spawning escapements, or
- A combination of the above.

PI 1.1.2 is only triggered when PI 1.1.1 scores below 80 due to a reduced stock status.

PI 1.1.2 is not triggered if the sub-80 score is due solely to a failure to enumerate artificially produced fish on the spawning grounds. In this case, the team should add a condition in PI 1.3.3.

GSC2.3.2 ▲

The team should have a clear expectation of component population rebuilding except under well-documented exceptional circumstances. None should remain chronically depressed relative to their biologically based limits or population-specific reference points, if estimated.

Evidence to verify that no fisheries are targeting or otherwise excessively harvesting populations that are below their LRP during the rebuilding period would include the use of specific and effective management strategies, to differentially avoid interception of those SMUs and depleted populations during fishing. The rebuilding timeframes for individual populations may exceed those for the SMU.

GSC2.4 Harvest Strategy PI (PI 1.1.1)

GSC2.4.1 ▲

Activities that demonstrate fisheries managers' attempts to minimise harvest on weak populations include:

- Fisheries are managed to meet objectives at the SMU scale, but population-level units are also defined for conservation and research purposes.
- Population-specific reference points are established, and stock status against those benchmarks is monitored when stock status problems are perceptible at the SMU level.
- When faced with stock-status problems, provisions linking population status with management of SMUs are enacted. Generally, population-specific reference points have not replaced SMU reference points; however, the team can adapt HCRs to account for component population status.
- Differential harvest; for example, altering the time, location, or effort of the fishery.

GSC2.4.2 ▲

Proven management strategies designed to control exploitation rates on wild stocks include:

- Differential harvest of artificially produced fish at higher rates than wild fish.
- Ensuring wild harvest rates are consistent with meeting SMU TRPs (escapement goals) for wild fish. This would include fish produced from spawning channels, which even if not marked, could be subject to time and area management strategies to achieve differential harvest rates.

GSC2.5 HCRs and tools PI (PI 1.2.2) ▲

As a result of the stock structure of salmon, there will likely be a distribution of impacts across populations.

The team should consider this in terms of:

- The population's natural productivity.
- The differential harvesting from each population.

This may vary over time as a result of changes in natural processes, fishery activities, or fishery management.

GSC2.5.2 ▲

It may not be possible to distinguish component populations while the fishery is operating or to regulate catches of specific populations. If so, the team should evaluate whether fishery managers attempt to use differential harvest and selection pressure on fish with different life-history traits, such as return timing and size/age at return, which may vary among component populations, in order to minimise impact on any one life history.

Further considerations may include:

- Demonstrated understanding that underlying component population structure exists and needs to be conserved within the SMU.
- The range in productivity levels of different component populations.
- Expected variability in environmental conditions that could differentially affect population capacity and productivity.
- Expected variability in meeting SMU goals because of natural variation in catchability of fish, non-compliance with regulations by fishing vessels, and management error.

GSC2.6 Information and monitoring PI (PI 1.2.3) ▲

In this PI, the team should consider whether the information collected supports the harvest strategy at the SMU level while also maintaining individual component populations.

Scoring issue (a) – comprehensive range of information ▲

"Comprehensive range" of information in SG100 can include information on:

- SMU structure.
- SMU production.
- Fleet composition.
- SMU abundance.
- UoA removals.
- Estimates of the impacts of fishery harvest on the SMU and the majority of wild component populations.
- The environment.

GSC2.6.1 ▲

Examples of "sufficient relevant information" (SG80) include:

- Evidence that the abundance of wild component populations has been maintained at levels and spatial distributions that show persistence of the populations, as described from aerial and other index survey counts of spawners.
- Evidence that the management strategy has incorporated approaches that minimise fishery impacts on weak wild populations, for example:
    - Time/area closures to minimise harvests of weak populations, and/or
    - Targeting and achieving the upper end of the TRP escapement range for the SMU as a means to maintain populations with lower productivity.
- Explicit trade-off and risk analyses, such as that conducted for the Skeena River Independent Science Review[101], which considers how the current definition of SMU reference points and management strategies, combined with possible variability in status and productivity of individual stock components, affects the status of individual populations.

A "comprehensive range" (SG100) of information would include more rigorous analyses, for instance in addition to the above, stochastic simulations/risk analyses that also explicitly take into account observation error and uncertainty reflected by deviations between management targets and final end-of-season outcomes. An example of such analyses is the HCR recently developed for Fraser River, British Columbia sockeye salmon[102]. The study explores alternative HCR/guidelines that can respond to decreases in productivity.

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[101] Walters, C.J., Lichatowich, J.A., Peterman, R.M. and Reynolds, J.D. (2008) Report of the Skeena Independent Science Review Panel. A report to the Canadian Department of Fisheries and Oceans and the British Columbia Ministry of the Environment.

[102] Pestal, G., Huang, A-M., Cass, A., and the Fraser River Sockeye Spawning Initiative *(*FRSSI*)* Working Group. (2012) Updated methods for assessing harvest rules for Fraser River Sockeye salmon (*Oncorhynchus nerka*). Research Document 2011/133, Pacific Region, Canadian Science Advisory Secretariat.

GSC2.7 Assessment of stock status PI (PI 1.2.4) ▲

When assessing stock status, the team should consider reference points. Reference points in salmon fisheries often differ from those of wholly marine species.

While these reference points may not be expressed in terms of MSY or PRI, the intent should be consistent with Box GSA3 in guidance for the default tree.

Scoring issue (b) – assessment approach ▲

In this scoring issue, reference points in salmon fisheries may take several forms.

TRPs are required to be consistent with MSY, or a proxy that reflects equal or lower risks to one or more component populations.

Examples of these are biological escapement goals (BEGs) or spawner abundance required to achieve MSY (S_{MSY}). Where such quantitative reference points cannot be defined, the following guidance allows for proxies provided they are consistent with maintaining high production:

- TRPs may be expressed as escapement goals, target harvest rates, or fishing mortality targets:
    - The goals may take the form of BEGs, management escapement goals (MEGs), and sustainable escapement goals (SEGs), along with conservation unit benchmarks, etc.
    - The goals can be calculated using a variety of methods; for example, Ricker spawner recruit analysis, yield analysis, spawning habitat capacity, or sustained yield analysis.
    - TRPs may be single points or ranges.
    - Any method of analysis is acceptable as long as the goal is maintaining high production or achieving a high probability of maintaining a substantial population over the long term; for example, a population that is > B_{MSY} over the long term. See examples in Table GSC2.
- LRPs are only sometimes explicitly defined in salmon fisheries and may take the form of minimum stock size threshold, S_{gen}, or others as defined by management. See examples in Table GSC2.

Where an LRP is not defined, a default LRP should be an escapement of at least 50% of the S_{MSY} escapement goal, or some other proxy of high abundance as described in above[103].

For escapement goals expressed as **ranges**, the team should consider:

- Whether the range is quantitatively derived.
- The logic by which the range was established.

The team should determine whether:

- The range will maintain the population around S_{MSY}.
- The default LRP is more appropriately defined as:
    - 50% of the lower bound of the range.
    - 50% of the midpoint of the range.

Table GSC2 shows example target and LRPs for salmon fisheries in selected jurisdictions. This list is not all-inclusive. The team may use other reference points if they are consistent with an annual percent harvest rate that achieves MSY or S_{MSY}.

[103] Portley, N, and Geiger, H.J. (2014) Limit Reference Points for Pacific Salmon Fisheries, North American Journal of Fisheries Management. 34:2, 401–410, DOI: 10.1080/02755947.2014.882453.

Table GSC2: Example TRPs and LRPs for salmon fisheries in selected jurisdictions

Management region	Existing TRPs	Existing LRPs	Suggested proxy limit reference points when LRPs are not established by management
Alaska	Any of these 3 types of escapement goal, expressed in numbers of fish, can potentially be used based on the data available and the method: ● Biological escapement goals. ● Sustainable escapement goals. ● Optimal escapement goals.	**Minimum stock size thresholds** for stocks harvested by the Southeast Alaska troll fishery: 50% of the escapement goal's lower bound with the exception of those Chinook salmon escapement goals that have been reviewed by the Pacific Salmon Commission's Chinook Technical Committee. For these stocks, the minimum threshold amounts to 50% of the midpoint between the escapement goal upper and lower bounds.	50% of the escapement goal S_{MSY} point estimate.
British Columbia	Various escapement goals, expressed in numbers of fish, and specific to particular fisheries: • Management escapement goals. • Interim escapement goals. • Minimum escapement goals. • Escapement goals. • S_{lim}: 85% of the escapement that produces MSY – for Chinook.	• S_{gen}, currently integrated into the HCRs for the Barkley Sound, B.C. fishery, and foreseen in other fisheries. • Total allowable mortality rule cut-offs for Fraser River, B.C. sockeye. • Tyee test fishery escapement cut-off for Skeena River, B.C. sockeye.	• S_{gen}, if a benchmarking result is available. • 50% of the escapement goal S_{MSY} point estimate.
Russia	Escapement goals, generally expressed in terms of habitat capacity: 70–100% filled habitat capacity.	None defined.	35–50% filled habitat capacity.

Management region	Existing TRPs	Existing LRPs	Suggested proxy limit reference points when LRPs are not established by management
Pacific Northwest	Various escapement goals expressed in numbers of fish and specific to particular fisheries, including: • Escapement goals. • Upper management. • Thresholds.	Minimum stock size thresholds, generally 50% of escapement goals, but with some exceptions described in Amendment 16 of the West Coast Salmon Management Plan.	50% of the escapement goal S_{MSY} point estimate.

Scoring issue (f) – stocks with lower productivity ▲

At SG80 and SG100, stocks with lower productivity are those with a higher conservation risk.

Scoring issue (g) – definition of stock management units ▲

In this scoring issue, the team should consider the following at **SG60**:

- Knowledge of the physical habitat, such as lakes and rivers, and the wild populations that inhabit them.
- A rationale for choosing those populations as the basis for an SMU, taking into account the objective of maintaining diversity and productivity of component populations.

Additional information is expected at **SG80,** including:

- Identification and description of wild populations.
- Description of which wild populations have management goals.
- Description of which wild populations are monitored.
- Rationale for the choice of wild populations having goals and monitoring, based on their representativeness of the complete range of productivity and diversity amongst populations in the SMU.

GSC2.7.1 ▲

The team should assess the adequacy of SMU reference points for SMUs with higher numbers of populations, which are characterised by substantial population diversity and varying productivities, as compared to simpler and more homogeneous SMUs.

- If the SMU is composed of a single population, the concepts of single-stock management apply, and the reference points of the SMU should apply to the population.
- If the SMU is composed of multiple populations, the team may define establishment of reference points as an aggregate for the components. However, the team should verify that aggregate reference points and management strategies for the SMU ensure that the wild production components are maintained at a level that ensures a high probability of their persistence over time.

GSC2.7.1.1 ▲

For salmon fisheries that are influenced by artificial production, the team should:

- Base reference points only on natural-origin, wild fish.
- When evaluating reference points, consider the potential for artificially produced fish to confound evaluation.
- Consider the relative abundance of artificially produced versus wild salmon (both presence and abundance of artificially produced fish in the fishery and on the spawning grounds).

The intent of management should be to maintain high production of the wild SMU and productivity of component populations to the extent that the natural environment will allow.

GSC2.7.2 ▲

Within a watershed, geographic proximity and habitat type are predictors of correlations in abundance of component populations[104].

Therefore, indicator populations should:

- Be distributed geographically throughout the SMU.
- Contain representative numbers of various spawning habitat types found within the watershed.

In assessing coherence and correlation, the CAB should interpret:

- "**Some evidence of coherence**" at the **SG80** level to be a mean pairwise correlation of at least 0.4.
- "**Well correlated**" at the **SG100** level to be a mean pairwise correlation of at least 0.6 or by similar means that determine the same level of certainty.

GSC2.7.3 ▲

A well-defined SMU is one that managers can influence directly through management actions and harvest controls, which implies an understanding of how changes to harvest patterns impact escapement.

As an SMU is typically defined to aggregate populations for the purpose of defining a management objective for practical fishery decision-making, inclusion of populations within an SMU should be based on sharing, to some extent, similar characteristics such as:

- Run timing.
- Common region of origin.
- Genetic characteristics.
- Coastal migration patterns (exposure to interception fisheries).
- Population productivities.
- Exposure to environmental conditions that affect annual survival rates.

[104] Stewart, I. J., Hilborn, R., and Quinn, T. P. (2003) Coherence of observed adult sockeye salmon abundance within and among spawning habitats in the Kvichak River watershed. Alaska Fishery Research Bulletin 10:28–41.

GSC2.7.3.1 ▲

Enhancement increases the chance of overharvesting the less-abundant and/or less-productive salmon stocks that migrate through fishing areas at the same time as the artificially produced fish.

The team should assess whether wild and artificially influenced components are clearly distinguished:

- In defining SMUs.
- When evaluating their adequacy to support establishment of reference points and management strategies.

In the special case of side-channel enhancement facilities, in order to estimate SMU status, it is important to identify the overall channel and wild stock contributions to catch and escapement. The team can assess these contributions in a number of ways:

- Using run-reconstruction techniques; for example, back calculating relative contributions of component populations at various prior times and areas based on relative spawning escapement abundances.
- By periodic evaluation of juveniles produced from the channels in relation to the number of adults spawning.
- In some cases, depending on the population differences within a river system, by estimating the contribution of spawning channel fish by use of genetic stock-identification techniques.
- By considering how similar the channel environmental conditions are relative to the natural environmental conditions; for example, by looking at flow, temperature, complexity, competitors, and predators.

GSC2.8 General requirements for enhancement PIs ▲

Table GSC3: Enhancement terms and definitions

Term	Definition
Habitat enhancement	May take the form of spawning channels, lake fertilisation, predator removal, artificial gravel beds, etc.
“Integrated” hatchery production	This is typically used for supplementation and recovery-type programs.
Hatchery-origin fish contributing to the natural spawning population (pHOS)	These fish may be strays or may be the result of returns of hatchery fish that were intended.
“Segregated” hatchery production	This type is typically used for harvest augmentation hatcheries.

GSC2.9 Enhancement outcomes PI (PI 1.3.1) ▲

Potential negative impacts may include:

- 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.
- Excessive impact on wild fish for hatchery broodstock.
- Reduced natural juvenile survival due to predation, competition, and other ecological interactions.

- Increased natural adult pre-spawn mortality due to handling and migration delays resulting from effects of weirs.
- Changes in spawning distribution due to weir effects resulting in reduced reproductive success.
- Increased prevalence and impacts of disease.
- Reduction in smolts per spawner due to increased density-dependent effects.

The risks of these impacts, including probabilities as well as magnitudes of various negative effects, are a function of:

- Adult broodstock collection sources and their level of influence from natural populations.
- Hatchery mating, incubation, and rearing practices.
- Juvenile release numbers, life stage at release, size, acclimation, and geographical distribution.
- Straying of returning adults: hatchery fish to natural spawning grounds and natural-origin fish used for hatchery broodstock.

Scoring issue (a) – enhancement impacts ▲

In scoring issue (a), the CAB may consider the following situations:

- In systems subject to **low levels of artificial production,** the comprehensiveness of the studies required for the team to judge that outcomes are likely being met can be considerably less than in cases with substantial artificial production programmes. Low-level systems of artificial production will be characterised by the following, although this not an exhaustive list:
    - The proportion of hatchery releases or production of juveniles from artificial habitat compared to total artificially produced and wild production in a unit of certification is relatively small, < 10%.
    - The management system has implemented measures and strategies that are known to be effective at limiting the level and spatial extent of straying.
    - Unique wild populations are unlikely to interact with hatchery fish spawning naturally.
- **Recovery hatchery programs** are artificial production programs designed for the specific conservation purpose of preventing the extirpation of severely depressed populations. These are generally subject to more stringent design characteristics and performance benchmarks than other hatchery programs. The goal of a recovery hatchery is typically to increase the number of naturally spawning adults in the population. Consequently, the standard default assumptions (Box GSC1 below) do not apply. Recovery hatchery programs:
    - Are implemented only after targeted commercial fishing on the population has been eliminated or severely restricted.
    - Are temporary.
    - Are intended to supplement depressed natural populations or provide fish for artificial recolonisation of streams that have experienced local or brood-year extinctions, to maintain genetic diversity within and among stocks, and to conserve valuable or rare genes and genotypes.
    - May, or may not, rely on captive broodstock to accomplish these goals.
    - Attempt to minimise or eliminate negative effects common to fish culture, resulting in as close to wild fish as possible. Primary success criteria are:

        1. Increased abundance of spawners and/or outmigrants.

        a. Increased abundance of natural origin spawners.

        b. Maintained or increased long-term fitness: productivity and life history.

        c. Lowered chance of extinction.

d. Recolonisation of a self-sustaining population.

e. Brood-year reconstruction, while avoiding negative hatchery impacts as much as possible.

- **Spawning channels** differ from hatchery programs but the team should score them in a similar way.

In these systems, the entire natural reproduction life cycle occurs in a natural habitat, with the main artificial production interventions being enhanced spawning gravel habitat and controlled channel flows. Once fish enter the spawning channel, all reproduction processes, such as mate selection, redd building, incubation, and any rearing, occur without human intervention.

Because the consequences of straying of adult returns would typically not present the same concerns as hatcheries, the team should not assess the potential impacts of spawning channels according to Box GSC1 if the channel:

- Is isolated from other spawning populations genetically dissimilar to the population being enhanced in the spawning channel, or
- Exactly or very closely mimics the natural environment.

However, when assessing the likelihood that the spawning channel operation could be having a significant impact on genetic and life-history diversity of wild populations, the team should consider the size of the programme and similarity with nearby populations, based on expected straying distances.

GSC2.9.1.1 ▲

"Relevant studies" may include, but are not limited to:

- Studies on the same species as the UoA.
- Studies in the same or similar geographic area.
- Studies in the same or similar habitat.

GSC2.9.1.2 ▲

Box GSC1 presents default acceptable impact guidelines for artificial production.

The guidance in Box GSC1 establishes default criteria for evaluating whether the proportions of pHOS and of wild populations/spawning areas being affected by artificial production are "likely" to have significant negative impacts on wild stocks. If other system-specific benchmarks have been adopted by the fishery management system, the team should evaluate their appropriateness in delivering similar levels of performance to those in Box GSC1.

Box GSC1 was developed from specific "best practice" considerations and science developed from fitness modelling and empirical studies of yearling smolts released from riverine species such as Chinook, coho, and steelhead hatcheries[105].

[105] Ford, M.J. (2002) Selection in captivity during supportive breeding may reduce fitness in the wild. Conservation Biology 16:815–825.
Grant, S.W. (ed). (1997) Genetic effects of straying of non-native fish hatchery fish into natural populations: proceedings of the workshop. U.S. Dep. Commer., NOAA Tech Memo. NMFS-NWFSC-30. (In particular, see 'Conclusions of Panel*', 140–157*.

Specific studies on chum and pink salmon are rare, but the Recovery Implementation Science Team[106] concluded that hatchery strategies that involve release of fish at earlier life stages probably lead to smaller genetic changes than strategies that involve release of fish at later life stages. It may therefore be reasonable to modify pHOS criteria for pink and chum salmon because their hatchery rearing is the shortest. While the magnitude of relaxation will be situation-specific, the team should provide rationale to support its decisions.

If the CAB considers additional evidence from species-specific studies to be more relevant to a specific situation, it should provide justification for having adjusted the default impact guidelines.

Box GSC1: Default acceptable impact guidelines for artificial production

The intent of this guidance is to help ensure that the majority of genetic diversity and productive capacity of the SMU is protected from the risks of enhancement activities in freshwater production areas. The guidelines below are primarily derived from studies on Chinook, coho, sockeye, and steelhead. The team may relax impact guidelines from these levels for pink and chum with sufficient justification (see above).

For SG60

- Regardless of hatchery production strategy, pHOS at the level of the population should be negligible (< 1%) in more than 50% of populations, and these populations should be representative of the productivity and genetic diversity of populations within an SMU.
- pHOS at the level of the SMU should be:
    - No more than 10% for segregated hatchery programs. Individual population pHOS values above 10% would be expected to occur only in areas in closer proximity to hatchery facilities, where values might be affected by smaller wild spawning populations that are not important potential contributors to the wild diversity or productive capacity of the SMU.
    - No more than 33% for integrated hatchery programs.
    - The level of enhancement in the remaining populations is unspecified at SG60.

For SG80

Further **pHOS at the level of the SMU** should be:

- For segregated hatchery programs:
    - No more than 5%.
- For integrated hatchery programs:
    - Where the proportion of natural-origin, wild fish contributing to the hatchery broodstock (pNOB) is no more than 5%.
    - Equal or less than pNOB, where 10% > pNOB > 5%.
    - No more than 10% for programs where pNOB is < 20%.
    - No more than 0.5 x pNOB for programs operating between 20% and 40% pNOB.
    - No more than 20% for programs operating at pNOB > 40%.

The limits for integrated hatchery programs are presented graphically in Figure GSC2.

Paquet, P.J., Flagg, T., Appleby, A., Barr, J., Blankenship, L., Campton, D., Delarm, M., Evelyn, T., Fast, D., Gislason, J., Kline, P., Maynard, D., Mobrand, L., Nandor, G., Seidel P., and Smith, S. (2011) Hatcheries, conservation, and sustainable fisheries—achieving multiple goals: results of the Hatchery Scientific Review Group's Columbia River basin review. Fisheries 36:11, 547–561.

[106] RIST (2009) Hatchery reform science: a review of some applications of science to hatchery reform issues.

Figure GSC2 depicts the maximum allowable average pHOS within an SMU at SG80, in relation to the pNOB. These guidelines are based primarily on studies of riverine species such as Chinook, coho, and steelhead. The team may modify these guidelines for pink and chum salmon, and for other species, with sufficient reasoned justification.

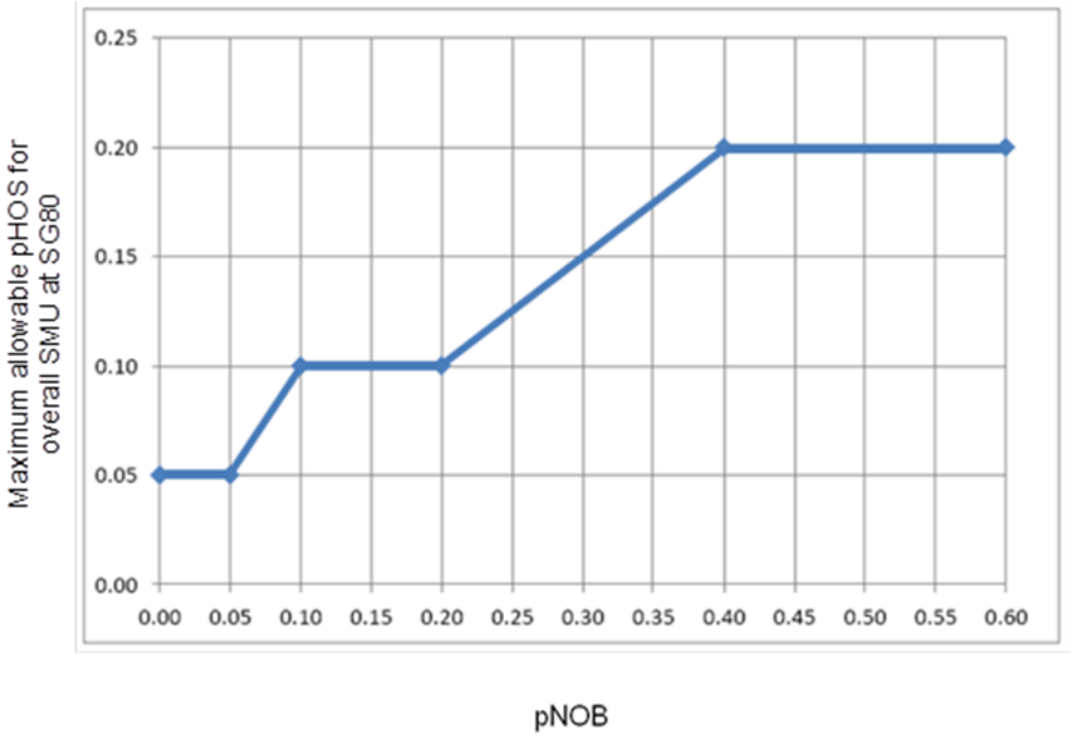

Figure GSC2: Maximum allowable pHOS for overall SMU at SG80

At the SG100 level

pHOS should be < 1% in all populations in an SMU.

Further guidance in application of Box GSC1:

- If there are both segregated and integrated hatchery fish spawning naturally within the SMU, the team should consider the limits above in its assessment.
- If there are hatchery-origin spawners on the spawning grounds of the SMU under assessment that originate from outside this SMU, the team should assess them using the segregated criteria limits above. Strays from outside the SMU present a greater genetic risk than those originating within the SMU and are therefore only permitted at lower limits.

GSC2.9.1.3 ▲

If there are no scientific studies available and no information or estimates of pHOS or pNOB, the team should carefully consider the potential impact based on:

- The magnitude of hatchery origin fish released, or
- The percentage of hatchery fish in the harvest of the SMU.

Scoring should be precautionary. The team should provide sufficient justification as to why the magnitude or percentage of hatchery fish is “likely” to have a small impact with minimal hatchery origin fish reaching the spawning grounds (i.e. a small pHOS). The team might consider:

- Whether the hatchery type is an integrated or segregated hatchery program.
- Whether there is differential harvesting to avoid hatchery fish appearing on the spawning grounds.

- The location of the hatchery.
- The release site.
- Where the fish are eventually harvested.
- Whether the management agency removes hatchery fish prior to accessing the spawning grounds.

GSC2.10 Enhancement management PI (PI 1.3.2)

Scoring issue (a) – management strategy in place ▲

To achieve the **SG80** outcome, the team should reasonably expect the management system to design and manage its hatchery-program outcomes with an understanding of:

- The wild population structure.
- Characteristics that its hatchery programs could be expected to affect.

The management system should also develop basic hatchery management objectives with respect to limits on impacts within this context. The team should consider:

- Identification and description of populations within the SMU.
- The level and spatial distribution of genetic and life-history diversity; for example, run timing, spawning timing, age structure, juvenile life-history forms, and other unique phenotypic traits.
- Populations with unique characteristics.
- The relative abundance of wild populations: magnitude and spatial distribution.
- Expected spatial distribution and magnitude of natural spawning of hatchery returns in relation to wild population abundance and diversity.
- Objectives/Intent for limiting the magnitude and spatial distribution of pHOS consistent with protecting the diversity and productive capacity of the SMU and its component wild populations.

GSC2.10.1 ▲

The team should expect the use and evaluation of proven artificial production and harvest management strategies to help minimise the numbers and proportions of hatchery fish interbreeding with wild fish in natural spawning areas. Common examples typically include:

- Siting of hatchery facilities in areas that are isolated from areas of high wild salmon abundance and diversity for the species being produced.
- Ensuring release at sites and with strategies that are likely to maximise imprinting and homing.
- Identifying high-value watersheds where hatcheries are not used.
- Fishing strategies that result in differential harvest rates between hatchery and wild fish to limit straying and ensure sustainable wild harvest rates.
- Marking hatchery fish releases so that the distribution and composition of hatchery and wild fish can be monitored in fisheries, spawning grounds, and in hatchery broodstock.
- Active exclusion of marked hatchery fish from spawning in the wild through management of passage through weirs.
- Scaling hatchery release numbers to a level that is consistent with not exceeding hatchery stray benchmarks in concert with other strategies.

GSC2.11 Enhancement information PI (PI 1.3.3) ▲

Marking and monitoring programs will be particularly relevant to evaluations of sufficiency for this indicator. The team should expect that important information, such as the amount of fry emigrating from these habitats, is monitored annually to help gauge the potential impact on wild populations.

Scoring issue (a) – information adequacy ▲

- For **SG60, the team should interpret "some relevant information"** to mean that some artificially produced fish carry recognisable marks, such as fin clips, coded-wire tags, otolith marks, parent-based tagging (PBT), or thermal marks. These should enable the team to make approximate estimates of contributions of hatchery salmon to harvests, hatchery broodstocks, and spawning populations.
    - It is reasonable to expect these contribution estimates are being made or can be reasonably inferred from an understanding of the dynamics of the fishery and enhancement programs, including from an existing understanding of size, location, and general release-to-adult contribution rates.
- For **SG80, the team should interpret "sufficient relevant qualitative and quantitative information"** to mean a large representative fraction of artificially produced fish-carry recognisable marks, such as fin clips, coded-wire tags, otolith marks, PBT, or thermal marks, to accurately estimate contributions of hatchery salmon to harvests, hatchery broodstocks, spawning populations, and escapes. For large hatchery programs this may be up to 100%.
    - It is reasonable to expect that these estimates are currently being made via data collected through associated harvest, hatchery, and escapement monitoring programs at a level of precision and accuracy necessary to support the harvest management strategy. As the levels of hatchery-origin spawners approach the limits stated in Box GSC1, the necessary sampling frequency increases to achieve the required accuracy of estimates of pHOS. The team should supplement direct estimates with other analytical methods.
- For **SG100, the team should interpret "comprehensive range of relevant quantitative information"** to mean that all artificially produced fish, regardless of program size, carry marks, such as fin clips, coded-wire tags, otolith marks, PBT, or thermal marks, allowing highly accurate and precise estimates of hatchery salmon to harvests, hatchery broodstocks, spawning populations, and escapes.
    - It is reasonable to expect that these estimates of hatchery and wild contributions are currently made through associated harvest, hatchery, and escapement monitoring programs, at a scale and intensity of temporal and spatial coverage that provides comprehensive information and understanding.
- "Total escapement" in SG60, SG80, and SG100 should be interpreted to mean both wild and enhanced.

GSC2.11.1 ▲

The team should expect artificially produced fish to be marked and monitored in catch and escapement, in sufficient quantities to enable the fishery to define TRPs for wild salmon populations and SMUs, implement harvest strategies, and evaluate levels of interaction between hatchery and wild fish on spawning grounds. Requirement of this information is implicit within the evaluation of stock status and reference points, which do not include artificially produced salmon.

Only enhancement information should be explicitly scored in this PI.

GSC2.11.2 ▲

The marking requirements described above do not routinely apply to fish produced from artificial spawning channels, because:

- The monitoring and information tools available for hatcheries are not available for spawning channels.
- The absence of confined hatchery methods for incubation and rearing within a spawning channel limits the practical marking tools available.

However, where there is an increased likelihood of interactions between spawning channel strays and dissimilar wild populations in areas of potential interaction, the team should expect that the management system would assess those risks via:

- Visual marking of juveniles at emigration from the weir, or
- Genetic marking techniques.

The need for such information and monitoring would be greater where:

- The conditions of spawning channels differ greatly from the natural environment, or
- The magnitude of adult production originating from the spawning channel exceeds the natural production of wild populations with which the spawning channel fish might interact.

GSC3 Principle 2

GSC3.13 Habitats outcome PI (PI 2.3.1)

Scoring issue (c) – impacts due to enhancement activities within the UoA ▲

In this scoring issue, the team should consider the following as examples to demonstrate that hatchery facilities are "**highly unlikely"** to have adverse impacts at the **SG80 level**:

- Facility design, construction, and operations limit effects on the riparian corridor and are consistent with fluvial geomorphology principles; for example, they avoid bank erosion or undesired channel modification.
- Water withdrawals and in-stream water diversion structures for artificial production facility operation do not:

SA5 Prevent access to natural spawning areas.

SA6 Affect spawning behaviour of natural populations.

SA7 Impact the juvenile-rearing environment.

For example, in-stream flows between diversion and discharge return points, as well as further flow impacts downstream, are not significantly diminished.

- Effluents from artificial production facilities conform with accepted or required levels that do not detrimentally affect natural populations.
- Weir/trap operations used to collect hatchery broodstock do not:
- Prevent access to natural spawning areas.
- Affect spawning behaviour or success of wild fish.
- Result in significant stress, injury, or mortality in natural spawners.
- A record of compliance with applicable environmental laws that are designed to protect natural populations and habitats from potential adverse impacts of artificial production program operation.

GSC3.13.1.c ▲

For example, physical features, spawning and rearing flows, and water temperatures.

GSC3.13.2.1 ▲

Habitat modifications due to salmon enhancement activities can include:

- Physical changes to the river course, such as spawning channels.
- Changes to water quality due to hatchery discharge.
- The use of a range of man-made structures associated with the rearing habitat.

Examples of adverse impacts include:

- Delay in reaching spawning grounds that reduces spawning success.
- Blockage of access to spawning habitat from weirs used for hatchery broodstock collection.
- Dewatering of downstream water channels used for spawning and rearing.
- Increased water temperature from human activities that increases fish mortality rate.
- Improper screening of water-intake systems that cause mortality or entrainment of wild fish.
- Discharge of effluents or pollutants contrary to water quality standards.

GSC3.14 Habitats management strategy PI (PI 2.3.2) ▲

Enhancement facilities typically operate under a wide set of environmental regulations and review requirements with respect to their potential impacts on aquatic habitat, such as:

- Use of drugs.
- Fish-passage requirements.
- Water-discharge permits.
- Water-withdrawal authorisation.

The team should examine evidence to determine whether these requirements are in place and are being met as part of the overall strategy for meeting the habitat status outcome.

Scoring issue (b) – management strategy effectiveness ▲

For scoring issue (b) at the SG60 level, some examples of “plausible argument” are general experience, theory, or comparison with similar UoAs or habitats.

GSC3.14.1 ▲

Physical features, spawning and rearing flows, and water temperatures can be affected by enhancement activities.

The team should expect to see management strategies that seek to meet the typical outcomes in GSC3.13.

Examples of such strategies could include:

- Facility design or maintenance plans and construction permit applications that specifically consider and avoid known impacts.
- Routine, regular inspections; maintenance and assessment activities of physical parameters such as flows, screen, and weir operations; and a record of taking actions in response to these activities.
- Implementation of withdrawal permit operating requirements. Or, if the system does not operate under a formal permitting system, similar operating criteria are being applied.

- Implementation of regular fish-passage procedures based on explicit hatchery objectives, which pass naturally spawning fish above any hatchery weir and sustain natural production consistent with available habitat capacity.
- Implementation of fish-handling protocol, and staff provided with associated training/guidelines; for example, to ensure that captured adult wild fish are not injured and that upstream migration delays are minimised.
- Active implementation and maintenance of water quality management strategies to meet effluent discharge requirements.

Annual or periodic reports that demonstrate review and mitigation actions for any such impacts can be used to confirm that these strategies are being utilised.

Enhanced salmon fishery interventions may also include:

- Lake fertilisation to enhance natural food production.
- Removal of predators or competitors to maximise early-stage salmon survival.

The team should evaluate these impacts as per PI 2.4.1.

GSC3.15 Habitats information PI (PI 2.3.3)

GSC3.15.1 ▲

The team may expect information on enhancement activities to include:

- The proportion of diversion of total stream flow between intake and outfall water.
- Withdrawals compared to applicable passage criteria and to juvenile-screening criteria.
- Discharge water quality monitoring data required by, or equivalent to, any environmental permit provisions.
- Water flow and temperature data above the hatchery intake and below the discharge.
- Logs of periodic inspection above any hatchery weirs to ensure the passage of fish upstream is not being impeded.
- The number of adult fish aggregating and/or spawning immediately below water-intake points, compared to the number of adult fish passing water intake points.
- Records of any fish mortalities or injuries of fish or other aquatic resources in the hatchery weir/traps, and in the natural habitat near or within a zone of influence of the hatchery.

GSC3.16 Ecosystem outcome PI (PI 2.4.1)

Scoring issue (b) – impacts due to enhancement ▲

In this scoring issue, the team should consider:

- The scale and size of the programs being assessed as part of creating a general risk framework.
- Objective evidence for negative interactions, or lack of negative interactions.

In this context, the team may consider the magnitude of releases and returns of artificially produced fish in the area being assessed, compared to the wild production from the same area.

If artificially produced fish constitute a significant proportion of either juveniles or returning adults to an area, the team should require a higher level of evidence to make a judgment about likelihood, taking into account:

- The likelihood that hatchery releases coincide in space and time with the presence of juvenile wild salmon.

- The level of total species production in the UoA compared to historic levels.
- Potential changes in current habitat conditions and natural reproduction capacity compared to historic levels.
- Indicators of any density-dependent processes that could potentially be related to the enhancement program, because they are known to overlap in space and time with species or stocks that are exhibiting demonstrated changes in population dynamics.

GSC3.16.1 ▲

The team should consider interactions at any life stage in both freshwater and marine habitats.

The team should consider the ecosystem impacts of enhancement activities across the entire geographic range of the salmon populations.

GSC3.16.2 ▲

Disease transmission and predation/competition are issues requiring very different levels of active management and information, monitoring and compliance requirements, and capacities.

The team should assess the degree of likelihood that enhancement activities have minimal negative effect on the productive capacity of wild salmon and other aquatic populations as a result of predation and competition for resources, such as prey or spawning habitat.

GSC3.17 Ecosystem management PI (PI 2.4.2) ▲

Current “best practice” for disease management in enhancement facilities involves a very rigorous monitoring and adaptive management system using well-established policies, guidelines, performance indicators, benchmarks, and procedures, which are designed to carefully protect hatchery and natural fish populations from the importation, dissemination, and amplification of fish pathogens and disease conditions.

The team should assess and verify the degree to which the hatchery management system is implementing an approved, proven protocol in a manner that ensures the likelihood of meeting these objectives and related outcome for PI 2.4.1.

Scoring issue (b) – “plausible argument” ▲

Examples of “plausible argument” used in scoring issue (b) may include general experience, theory, or comparison with similar UoAs/ecosystems.

Scoring issue (d) – management of enhancement activities ▲

In this scoring issue, the team should focus on management of potential impacts of the release of fish from large-scale artificial production operation; in particular, the strategies for avoiding adverse competition and predation effects on the receiving ecosystems, including:

- Inter-species and intra-species competition, both inshore and offshore.
- Issues of carrying capacity.

GSC3.17.1 ▲

Management measures could include practices that minimise overlap in time and space between hatchery releases and the wild component.

Examples

Examples of strategies for minimising ecological risk include:

- Methods to minimise disease transmission.
- Hatchery programs scaled to fit carrying capacity of the watershed or basin.
- Coordination with other hatcheries to limit releases at a regional scale; for example, the North Pacific, Columbia Basin, or major sub-basins.
- Releasing only smolts that will promptly out-migrate, unless the release of other life stages is part of a specific biological objective.
- The use of acclimation ponds and volitional releases as a means to minimise residual fish and straying of returning adults.
- Careful timing of releases; for example, release of predatory hatchery fish after wild salmon reaches large enough sizes to avoid being consumed.
- Careful consideration of both the timing and magnitude of releases because high concentration of hatchery fish in time and space may attract predators and may have an offsetting effect to some unknown extent by “swamping” the predators with so much prey that the percent mortality on wild fish is also reduced.
- Rigorous marking and monitoring of hatchery fish and adaptive management.

GSC3.18 Ecosystem information PI (PI 2.4.3)

GSC3.18.1 ▲

For hatchery operations, the team may use the following to enable its understanding of the impacts on the receiving ecosystem:

- Information on environmental health conditions.
- Culture and general health histories.
- Information on pathogen detection collected at a relevant level of accuracy.
- Information covering the complete artificial production cycle consistent with requirements of implementing the disease management strategy.
- Information on the distribution and size of artificially produced and wild fish at various life-cycle stages in freshwater and marine areas, to identify the times and areas where artificially produced fish could compete with or prey upon wild fish of the same species or with other aquatic species. These potential interactions need to be understood at a level of detail relevant to the scale and size of the enhancement programs.

GSC4 Principle 3

GSC4.1 General requirements for Principle 3

GSC4.1.1 ▲

In Principle 3, the following Performance Indicators have modifications to the requirements: PI 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, and 3.2.4. PI 3.1.1 should still be scored in accordance with Section SA.

The CAB should apply:

- All Section SA requirements.
- All Section GSA guidance.
- Modifications in Section SC.
- Supplemental guidance in Section GSC.

GSC4.1.2 ▲

This requirement is to ensure there is an institutional and operational framework for these activities, appropriate to their size and scale, for implementing the related provisions of Principles 1 and 2 capable of delivering sustainable outcomes. When undertaking this additional assessment, the team should:

- Examine specific relevant evidence.
- Document its consideration of this evidence relative to the scoring process.

The team may assess the size and scale of enhancement activities by considering a rough comparison of the magnitude of releases and returns of artificially produced fish in the area being assessed, compared to the wild production.

GSC4.4 Consultation, roles, and responsibilities PI (PI 3.1.2)

GSC4.4.1 ▲

The team should assess whether the management system has effective consultation processes that are open to stakeholders and related to aspects of both the fishery and the enhancement activities.

GSC4.5 Long-term objectives PI (PI 3.1.3)

GSC4.5.1 ▲

It is necessary for the salmon management agency to demonstrate that its key ecological objective for its enhancement activities is managing sustainable wild salmon populations while minimising potentially adverse effects of enhancement activities. The high-level or broad management policy context should incorporate a **precautionary approach** that places the burden on the enhancement programs to demonstrate that:

- They are minimising adverse impacts identified in Principle 1 and 2 indicators.
- This burden increases as the size of the enhancement activities, individually and cumulatively, increases.

That burden of proof will also be higher for hatcheries than for other forms of artificial production that generally have lower impacts.

GSC4.7 Fishery-specific objectives PI (PI 3.2.1)

GSC4.7.1 ▲

The CAB should interpret “clear objectives” to mean that a management system with any significant level of enhancement has documented enhancement objectives and operational requirements, which are designed to minimise various impacts on natural population components and ecosystem function. These are to be contained in a clear operational plan.

GSC4.8 Decision-making processes PI (PI 3.2.2)

GSC4.8.1 ▲

If enhancement programs are significant, and uncertainties exist about the level of program impacts, the team should consider whether the management system is making decisions about production, measures, and strategies in a precautionary manner.

For example, the team may consider:

- Decisions about increasing or decreasing release levels.
- Whether measures are being implemented and evaluated that could be expected to reduce the scale and magnitude of potential interactions between wild and enhanced populations.
- Whether monitoring and evaluation programs are being initiated and/or maintained to collect essential information to inform future decisions.

In marine fisheries, it is widely recognised internationally that an ideal way to increase the chance of meeting management objectives, improving future decision making, and increasing fairness is to conduct thorough evaluations of a wide range of management options, data collection procedures, and in some cases methods of data analysis[107]. These are done through probabilistic simulation models/risk assessments. Some such analyses, variously called management strategy evaluations[108] and closed-loop simulations[109], have been done for Pacific salmon 2012[110].

The most comprehensive examples of management strategy evaluations take into account:

- Time dynamics of fish populations.
- Dynamics of the fishery.
- Observation error.
- Implementation uncertainty, reflecting when regulations are followed imperfectly.
- Other sources of uncertainty.

The outcome of such evaluations is the identification of state-dependent decision-making rules that will best meet complex management objectives in the presence of these uncertainties. For a given fishery, the state-dependent rules are identified prior to the fishing and/or enhancement-activity season and are the agreed-upon method for altering regulations based on in-season updates to the

[107] Walters, C.J., and Martell, S.D. (2004) Fisheries Ecology and Management. Princeton University Press, Princeton, N.J., 399 pp.
[108] Sainsbury K.J., Punt, A.E., and Smith, A.D.M. (2000) Design of operational management strategies for achieving fishery ecosystem objectives. ICES Journal of Marine Science 57:731–741.
[109] Walters, C.J. (1986) Adaptive Management of Renewable Resources. MacMillan, New York, 374pp.
[110] Collie, J.S., Peterman, R.M. and Zuehlke, B.M. (2012) A fisheries risk-assessment framework to evaluate trade-offs among management options in the presence of time-varying productivity. Canadian Journal of Fisheries and Aquatic Sciences. 69(2):209–223, plus supplement.

states of the system. Those rules are not subject to in-season change based on lobbying by special interest groups.

Most decisions in salmon management involve trade-offs between long-term conservation objectives and short-term fish-harvesting objectives, and trade-offs between user groups. Learning which decisions work best for meeting such complex objectives can be facilitated by decision-makers publicly documenting the reasons for various decisions on fishing regulations and enhancement activities, and comparing the expectations against outcomes.

The team should, in its scoring, consider whether such public documentation is provided.

GSC4.9 Compliance and enforcement PI (PI 3.2.3) ▲

No modifications to Section GSA.

GSC4.10 Monitoring and management performance evaluation PI (PI 3.2.4)

Scoring issue (b) – Internal and/or external review ▲

At SG60, information should be available internally for hatchery program performance review.

At SG80, information should be available externally and publicly to enable external scrutiny of hatchery performance.

GSC5 Allowances for inseparable or practicably inseparable catches in salmon fisheries

GSC5.1.2 ▲

For pink salmon, which have a 2-year life history, the team should calculate the average catch across the most recent years of each cycle line.

For longer-lived salmon species, the team should calculate average recent catches across periods appropriate to their life history in the region of the fishery.

Where different salmon species are in consideration as target and inseparable or practicably inseparable (IPI) species, the team should first calculate average catches based on data from the number of years appropriate to each species and then determine the percentage catches.

End of Section SC Guidance

GSD Introduced species-based fisheries ▲

Background

The assessment of introduced species under Principle 1 is potentially complicated because of the varying, but valid ecological objectives that can exist for fisheries that are based on introduced species.

In most introduced species-based fisheries, objectives are set to ensure optimum productivity of the target introduced species. In other fisheries, objectives may be set to keep populations of the introduced species at a level that ensures wider ecosystem objectives are met. These wider ecosystem objectives may include keeping the target stock at sub-MSY levels in order to allow for some level of restoration of biodiversity.

GSD1 General ▲

The team should not follow FCP 7.10.5 when adding an additional scoring issue and corresponding guideposts, as per SD3.1.3 and/or SD3.1.4.

GSD2 Principle 1

GSD2.1 General requirements for Principle 1

GSD2.1.2 ▲

A fishery may choose to set its TRPs for the introduced species either at levels consistent with MSY, or at lower levels aimed at mitigating the impact on other species. SD2.1.2.1 requires that where TRPs are adjusted in this way, it may be appropriate to make a modification to the default tree to reflect that modification (in PI 1.1.1 scoring issue (b) and PI 1.2.2). SD2.1.2.1.a further requires that the levels should not be set below the “PRI”, because in this case, the fishery would not be able to maintain sustainable catches.

GSD3 Principle 2

GSD3.1 General requirements for Principle 2

GSD3.1.2–4 ▲

SD3.1.2 requires that CABs revise PI 2.4.2 (ecosystem management) in order to be able to evaluate the efforts of the fishery to minimise the impacts of the introduced species. Additionally, SD3.1.3 requires CABs to address the collection of information important to understanding and preventing further impact of the introduced species on biodiversity. In cases where no actual measures are in place and there is no corresponding ecosystem information being collected, SD3.1.4 allows CABs to provide a rationale as to why this is the case and the additional scoring issues are not required. The team should provide a robust rationale in this situation. The team should support this rationale with scientific evidence or logical argument that no more impacts are occurring and that further impact is unlikely. The rationale should justify why measures are not necessary.

Ecosystem stability

For introduced species that have been in place for long enough that the ecosystem has stabilised, but the new system is dramatically different from the original, SD3.1.2-4 are still relevant. The spread of the species to new areas is still a possibility, even if the ecosystem of the current area has stabilised.

End of Section SD Guidance

GSE Principle 1 for stocks managed by Regional Fisheries Management Organisations

GSE1 General requirements for section SE

GSE1.1.1 ▲

Section SE applies to stocks managed by the following RFMOs[111]:

- CCAMLR: Commission for the Conservation of Antarctic Marine Living Resources.
- CCSBT: Commission for the Conservation of Southern Bluefin Tuna.
- GFCM: General Fisheries Commission for the Mediterranean.
- IATTC: Inter-American Tropical Tuna Commission.
- ICCAT: International Commission for the Conservation of Atlantic Tunas.
- IOTC: Indian Ocean Tuna Commission.
- IPHC: International Pacific Halibut Commission.
- NAFO: Northwest Atlantic Fisheries Organization.
- NEAFC: North-East Atlantic Fisheries Commission.
- NPFC: North Pacific Fisheries Commission.
- SEAFO: South East Atlantic Fisheries Organization.
- SIOFA: South Indian Ocean Fisheries Agreement.
- SPRFMO: South Pacific Regional Fisheries Management Organization.
- WCPFC: Western and Central Pacific Fisheries Commission.

The list of RFMOs above has been modified from Løbach et al. (2020)[112] and represents the relevant RFMOs recognised by the FAO at the time Section SE was developed (i.e. 2022). RFMOs that manage salmon stocks are not included in this list because salmon fisheries are scored within Section SC.

The assessment team can use Section SE on a voluntary basis to score UoAs that include P1 stocks not managed by the above RFMOs. Applying Section SE voluntarily would be particularly relevant to:

- Multi-jurisdictional or shared stocks, or
- Stocks managed by RFMOs that become established after the release of these requirements.

GSE1.1.2.2 ▲

The MSC's intent is that whilst the decision would apply to UoAs and UoCs, only UoCs are responsible for deciding if to apply Section SE. Voting rights are equal regardless of proportion of catch.

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[111] Løbach, T., Petersson, M., Haberkon, E. and Mannini, P. (2020) Regional fisheries management organizations and advisory bodies. Activities and developments, 2000–2017. FAO Fisheries and Aquaculture Technical Paper No. 651. FAO. https://doi.org/10.4060/ca7843en

[112] Løbach, T., Petersson, M., Haberkon, E. and Mannini, P. (2020) Regional fisheries management organizations and advisory bodies. Activities and developments, 2000–2017. FAO Fisheries and Aquaculture Technical Paper No. 65*1*. FAO. https://doi.org/10.4060/ca7843en

GSE1.1.3 ▲

If the target stock(s) is not managed by an RFMO but undertakes the scoring of Section SE voluntarily (SE1.1.2), evidence should come from the management agency responsible for the target stock. Evidence that the RFMO/management agency is committed to the development and adoption of a harvest strategy that includes an MP tested within an MSE framework, is a key piece of information to demonstrate the milestones within Section SE are achievable.

GSE2 Principle 1 requirements

GSE2.1.1 Harvest Strategy PI 1.2.1 ▲

As used in PI 1.2.1 scoring issue (b) (Table SA4) at the 100 level, “evaluated” means quantitative management strategy evaluation as appropriate to the fishery.

For evaluating scoring issue (b) at the harvest-strategy level, the team should consider the full interactions between different components of the harvest strategy, including:

- The HCRs.
- Use of information.
- Assessment of stock status.

GSE2.2 HCRs and tools PI (PI 1.2.2) ▲

For LTL species, the TRPs and LRPs need to take into account the ecological role of the stock for the fishery to score 60 or above under PI 1.1.1A. The harvest strategy, HCRs, information requirements, and assessment need to be consistent with this distinction. When PI 1.1.1A is scored, references to PI 1.1.1 in the guidance below should interpreted as PI 1.1.1A and the objectives required therein.

There may be conceptual differences in the reference points when scoring PI 1.1.1 and PI 1.2.2. This is because fisheries may use different reference points for measuring stock status and as triggers in the HCRs[113]. For example, a fishery that uses an explicit B_{MSY} reference point as a target for the fishery biomass may have TRPs for adjusting F at values of biomass either at B_{MSY}, or above or below B_{MSY}. The focus in this PI is thus on the reference points used in a fishery to trigger changes in management actions, and how they work in combination to achieve the outcomes required in PI 1.1.1.

Scoring issue (a) – HCR design and application ▲

The team should consider the basis for plausibility and practicality of design in relation to the scale and intensity of the fishery; for example, using:

- Empirical information.
- Relevant science.
- Model-based approaches, such as management procedures and management strategy evaluation.

The team should score HCRs against their ability to deliver the levels expressed in scoring issue (a).

[113] Dowling, N.A., Dichmont, C.M, Haddon, M., Smith, D.C., Smith, A.D.M., Sainsbury, K. (2015) Guidelines for developing harvest strategies for data-poor species and fisheries. Fisheries Research 171 pp 130-140. Dowling, N.A., Haddon, M., Smith, D.C., Dichmont, C.M., and Smith, A.D.M. Harvest Strategies for Data-Poor Fisheries: A Brief Review of the Literature. CSIRO.

- At SG**60**, HCRs should be "likely" to ensure that stocks will be maintained above the PRI.
- At SG**80**, HCRs should also ensure that the stock is "likely" to fluctuate around a B_{MSY} level. Testing may show that this is achieved by the inclusion of a B_{MSY} consistent reference point as a trigger in the HCRs, such as an inflection in a "hockey stick" form, at a point that would deliver B_{MSY} in the long term.
- At SG**100**, greater certainty is required. The team should regard fisheries with HCRs that target stock levels above B_{MSY}, for example B_{MEY}, as at least meeting the 80 level. Projections in the fishery may show that the HCR would "likely" achieve the higher SG100 score by fluctuating more above than around B_{MSY}.

HCRs will usually include some form of dynamic rule, requiring that a change of some sort will be made in response to a fishery indicator moving above or below one of the TRPs. In lightly exploited fisheries, it may be that some reference points are set to trigger changes in data collection or assessment approaches, as certain thresholds are reached[114].

HCRs are often applied on a frequent basis, such as with the annual setting of TAC or effort restrictions.

- Such HCRs respond dynamically to the monitoring data from the fishery with regular adjustments to input/output type management measures.
- In data-poor fisheries that are managed without such input/output controls, management may comprise only technical measures such as size limits, gear restrictions, closed seasons, and closed areas.

1. In these cases, the specific terms of the technical measures are usually set and fixed for a relatively long period of time (several years), based on occasional strategic stock assessments that are shown to deliver defined TRPs or LRPs.
2. The team may regard such an arrangement as equivalent to a dynamic HCR operating over a longer time scale in cases where some indicators are monitored to confirm that the HCRs are delivering the intended targets for the stock.

- For "highly productive" species, the design of the HCR should consider life history, as this can affect performance of the control rule[115]. Given the propensity for changes in productivity with these species, adaptive and responsive control rules are key to assist with detecting and responding to changes in biomass[116].

At SG80 in scoring issue (a), the team should expect "well-defined" HCRs to explicitly include the conditions under which the technical measures in the fishery would be expected to be revised in the future.

[114] Dowling, N.A., Dichmont, C.M, Haddon, M., Smith, D.C., Smith, A.D.M., Sainsbury, K. (2015) Guidelines for developing harvest strategies for data-poor species and fisheries. Fisheries Research 171 pp 130-140
[115] Siple, M., Essington, T, & Plaganyi, E. (2018). Forage fish fisheries management requires a tailored approach to balance trade-offs. Fish and Fisheries. 20.
[116] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012). Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp..

Example

Relatively sedentary bivalves often have fishery management trigger points based on population densities collected through systematic surveys, where these index densities are established based on the species population dynamics and the inherent productivity of the habitat and environmental conditions.

There may be no formal stock assessment, but yield is calculated on a proportion of the observed biomass, and the harvested fraction determined on empirical evidence from historical catches and their consequences.

The team should note that, while such arrangements can work, HCRs based on taking a constant percentage of the year's estimated biomass should not be regarded as meeting the requirement of avoiding the PRI unless some lower threshold is defined.

The CAB should not always interpret the requirement that an HCR reduces exploitation rates as the LRP is approached as requiring the control rule to deliver an exploitation rate that is a monotonically decreasing function of stock size:

- Any exploitation rate function may be acceptable if it acts to keep the stock above an LRP that avoids possible recruitment failure and attempts to maintain the stock at a TRP that is consistent with B_{MSY} or a similar "highly productive" level.
- This outcome includes the requirement that the HCR should act to cause stocks to rebuild to the TRP when they are below it. Maintenance of a stock at a level just above the LRP would not be acceptable.
- A reduction of exploitation rate may not always mean that the control rule requires a reduction in "total" exploitation rate, but instead could involve reducing exploitation rate on parts of the stock; for example, by age or sex.
- The team should assume that reductions in exploitation rate refer primarily to reductions in catches and effort, and not to gear modifications unless these have the effect of reducing catches/effort.

As noted in the guidance on PI 1.1.1, HCRs may include both explicit and implicit reference points.

Example

If a management strategy is based solely around a TRP, the HCR, when combined with TRP, should ensure that the stock remains well above the PRI. This should ensure that the exploitation rate is reduced as this point is approached. This is an implied LRP.

Equally, a management strategy based solely around an LRP should imply that there is a TRP close to or at B_{MSY}, or some other measure or surrogate that maintains the stock at high productivity, and at a level that is well above the LRP.

GSE2.2.2 "Generally understood" HCRs at SG60 vs "well-defined" HCRs at SG80 ▲

For "generally understood" and in-place HCRs, there should be at least some implicit agreement supported by past management actions that demonstrates that "generally understood" rules exist. There should be the expectation that management will continue to follow such "generally understood" rules in future and act when changes in explicit or implicit reference points are identified.

When determining whether a "generally understood" HCR is in place in the fishery under assessment, the team needs to determine whether the fishery will in future take appropriate management action in line with what they perceive as the "generally understood" rule. The team should consider evidence of positive action being taken in the past as evidence that there is a "generally understood" rule in place. The team should provide clear reference to documents or other evidence that actions were taken on specific dates.

The team should provide evidence and examples of the positive actions taken in response to “generally understood” HCRs for the target stock, in the case that “generally understood” HCRs are “in place” or for other stocks in the case that they are “available”.

The team should apply a precautionary approach to scoring when there is uncertainty over whether an HCR meets the requirements of “generally understood” and whether there is sufficient evidence to support this. Note, the full definition for HCRs in the MSC-MSCI Vocabulary should only apply at the SG80 level, given the term ‘well-defined’ is used in this definition.

The team should not consider the following as evidence that an HCR is in place:

- A poorly defined commitment such as “we agree to implement an HCR sometime in the future”.
- General regulations, such as convention texts or references to the Fish Stocks Agreement.
- However, binding commitments such as those in national law may be used as evidence, if supported by evidence of management action.

1. Scientific recommendations on HCRs or reference points that have not yet been adopted by the actual management agency.

The team should not expect that “in place” arrangements require formal indefinite binding agreement. For example, CMMs approved by RFMO Commissions are regarded as “active” resolutions and may thus be accepted as in place even though they may be overturned in the future.

Scoring issue (b) – scoring uncertainty in the HCRs ▲

The SGs reflect the degree of confidence there is in the HCR performance in relation to risks caused by known and unknown factors.

Known factors include:

- Observation and process errors that are often accounted for in stock assessments.

Unknown factors include:

- Unpredictable effects from climate.
- Environmental or anthropogenic non-fishery related factors, which could, for example, lead to periods of low recruitment or growth.
- High natural mortality.
- Migration.

These and other changes to the population dynamics may not have been fully accounted for in the stock assessment or projections. Another important reason for limited confidence in an HCR is that it has not been fully agreed by stakeholders, and it is uncertain whether the fishing community will comply with the HCR. This last issue is important to ensure HCRs are not only theoretical rules on paper but are applied in practice.

The team can use testing to support the requirement that the control rules and/or management actions are designed to take into account uncertainty. Testing can include:

- The use of experience from analogous fisheries.
- Empirical testing; for example, practical experience of performance or evidence of past performance.
- Simulation testing; for instance, using computer-intensive modelling such as management strategy evaluation.

It may generally be the case that limit reference points are set at the point that reproductive capacity starts to be appreciably impaired, for some fisheries, especially those for small pelagic species and annual species where the stock recruit relationship is very steep. However, management may choose to set a limit reference point above this level. Maintaining a buffer can allow for adaptability to

changes in production[117]. Where this results in more precautionary management, it may assist the fishery in meeting SG80 or SG100 for scoring issue (b).

HCRs in small-scale fisheries may still achieve high scores if uncertainties are well considered. The team may thus score simple HCRs linked to reliable indices of stock status highly on this issue without management strategy evaluations.

PI 1.2.2 scoring issue (c) – Evaluating the effectiveness of HCRs ▲

For Section SE, scoring can consider the overall history of effectiveness of the tools used in the fishery prior to the implementation of the harvest strategy that was “designed”. At SG80, the team should also assess the effectiveness of the implemented HCR within the “designed” harvest strategy (see SE3), in terms of:

- The likelihood of achieving the desired exploitation rates and biomass levels.
- The current status.

If under scoring issue (a) the “available” language is used, effectiveness should be assessed in terms of the HCR applied to the other U

oA. If $F < F_{MSY}$ is demonstrated in the other fishery, this is not sufficient evidence on its own that HCRs and tools are effective in that other fishery. Additional explanation is needed of how $F < F_{MSY}$ has been achieved.

In this scoring issue, the team is required review the ability of the tools associated with the HCRs to achieve the exploitation levels. Such tools include:

- Management measures like TACs and fishing limits.
- Arrangements for sharing TACs between participants in the fishery, including between states in shared stock fisheries.

For this examination, the team may consider the overall history of effectiveness of the tools used in the fishery, in terms of their ability to achieve the desired exploitation rates and biomass levels, and the current status.

SE2.2.7 requires that the team examine the current exploitation levels in the fishery, as part of the evidence that the HCRs are working; for example, through evidence that current F is equal to or less than F_{MSY}. The team may also accept current F levels greater than F_{MSY} in cases where:

- Stock biomass is currently higher than $B_{MSY,}$ or
- Stock assessment information is comprehensive, and it is appropriate to treat F_{MSY} as a TRP (see Box GSA5.

However, the team should not use $F < F_{MSY}$ as the sole evidence for the existence of an effective HCR. F could, for example, be lower than F_{MSY} just because effort is currently low, even though there has been no management commitment or attempts to actually control effort at a level that would constrain F to F_{MSY} by the HCR. However, if F has been constrained at $F < F_{MSY}$ by the tools, the team could accept this as part of the evidence that the HCRs are being effective. Evidence for the effectiveness of an HCR should in fact require the consistent achievement of the target exploitation level, which may be well below F_{MSY} if stocks are currently below B_{MSY}. The team should take particular care when assessing the effectiveness of capacity limitation measures in fisheries, for example, in comparison to well-monitored effort controls and catch limits, in terms of their likely ability to meet management goals and target exploitation levels.

[117] Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. (2012). Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

To avoid severe socio-economic impacts in a fishery, the team may also make allowance for the gradual adjustment of F down to appropriate levels in cases where the pace of change is limited. In these cases, projections of stock status should confirm that the expected future adjustments in F will still lead to fluctuations around MSY levels within a reasonable timescale.

If proxy indicators and reference points are used in the fishery instead of explicit estimates of F and F_{MSY} (as allowed in SA2.2.3), the team should assign higher scores where greater confidence is provided by the proxy information, similar to the scoring of PI 1.1.1. Where higher scores are justified by the use of 2 or more proxy indicators, they should be independent of each other and expected to be proxies of the quantity of interest, such as mean fish size in the case of exploitation rates. The team should present a rationale for how the proxies conform to these principles.

As with the case of using proxies for scoring stock biomass in PI 1.1.1, it may sometimes be argued that 1 good proxy is better than 2 or more weak proxies.

Examples: SG60, SG80, and SG100 levels

Examples of how the team may justify SG60, SG80, and SG100 in these situations:

- At least SG60 is justified if 1 proxy indicates that “overfishing” is not occurring.
- At least SG80 is justified if 1 or more proxies indicate that it is “likely” that “overfishing” is not occurring. In this case, the extra confidence may be due to the availability of a second proxy indicator, or when a minimum 70% probability level can be assigned to the single indicator used, as compared to the SG60 level where this probability level may not be demonstrated.
- SG100 is justified if 2 or more proxies indicate it is “highly likely” that “overfishing” is not occurring.

Scoring “available” HCRs at SG60 ▲

The team may provide a rationale under SE2.2.5.a that this could reasonably be “expected” for the target species in cases where HCRs are currently being “effectively” used by the same management agency on at least 1 other species of similar importance, at similar average catch levels and value.

Alternatively, the team may provide a rationale under SE2.2.5.b in cases where there is some sort of arrangement in place that clearly requires that management will put HCRs in place as and when the fishery reaches some pre-defined trigger level within the vicinity of B_{MSY}. Such arrangements:

- Would normally relate to lightly exploited fisheries that are still in the development stage.
- Should be explicit in requiring action at some defined point.

Although potentially driven by information and triggers, the arrangements are different to the actual HCRs as they relate to the development of the HCRs themselves, while the HCRs define how management measures will be adjusted in response to changes in fishery status.

Any commitment that will clearly deliver an HCR before the stock declines below B_{MSY} is sufficient. However, lack of evidence is not acceptable (for example, “there is no evidence that the stock will be below BMSY at this point”). Positive evidence is required, otherwise the precautionary approach applies.

In cases where the stock has not yet been reduced and “available” HCRs are scored as meeting SG60, the condition assigned to this PI may allow longer than the normal 5-year time period for delivery. While there will be advantages in designing and putting into place a “well-defined” HCR during the certification period, it may also be acceptable to do this over a longer time period; for example, if other conditions are being delivered first. The scoring of “available” HCRs is made on the basis that the stock remains abundant and the criteria given in SE2.4.4 are still met. As soon as these criteria are no longer met, the fishery will need to have at least “generally understood” HCRs in place to meet SG60.

Similar to the situation with the rebuilding PI (see GSA2.3), the team should allow fisheries 1 year to put HCRs in place. The team should not fail the fishery immediately if SG60 is not met in this 1st year. If such fisheries fail to put in place either “generally understood” or “well defined” HCRs within 1 year, the CAB should score the fishery as not meeting the SG60 level.

“Available” HCRs must be at least “generally understood” in nature. If the HCRs are “well-defined” in the other stock, there would be more confidence that they are ‘available’ to the fishery in assessment.

CABs should note that the references to “other UoAs” in SE2.2.5.a and “other named UoAs” in SE2.2.6.a is not meant to imply that such UoAs are necessarily in assessment or certified as MSC fisheries. Although this may be the case, they may also just be other species or stocks that are also managed by the same management body and considered in the assessment.

If HCRs are only regarded as “available” in scoring issue (a), it is not possible to score more than 60 for issue (c) because the SG80 refers to the tools “in use” in the fishery in assessment, not the tools “in use or available”.

Assessing informal approaches to HCRs

Within Section SE, informal approaches to HCRs are only appropriate at SG60 for scoring issue (a) and (c).

Metapopulations

The team should address uncertainties relating to the metapopulation structure. The team should note the descriptions of different types of metapopulation in FCP G7.5.

GSE3 Process requirements for Section SE

GSE3.1.1 Setting conditions ▲

The condition-setting requirements in Section SE are specific to setting conditions for PI 1.2.1 and PI 1.2.2 when Section SE is applied and therefore may differ from the condition setting requirements in the FCP. Differences between Section SE and the FCP are intentional. The intent of SE 3.1.1 and SE3.1.1.1 is to ensure the CAB follows the condition-setting requirements under Section SE rather than the condition-setting requirements in the FCP.

GSE3.2.4 & GSE3.3.5 Milestones ▲

The following guidance relates to the milestones that are outlined in both SE3.2.4 and SE3.3.5, noting that SE3.3.5 does not have the milestones occurring across two phases.

Within the first milestone , the management objectives should:

- Outline what the harvest strategy is aiming to achieve.
- Reflect the achievement of SG80 in PI 1.1.1.

The performance indicators should reflect these management objectives and include the desired level of risk and timelines for meeting those performance indicators. Ultimately, the performance indicators, trade-offs, and reference points etc. are determined by the stakeholders involved in the management strategy evaluation process.

The data needs should outline:

- The type of data required.
- The assessment model that is to be used to inform the MP.

A pre-agreed cut-off date should be considered for the data that will be used to inform the MSE process, including the operating models and the candidate(s) and adopted MP.

The completion of the fourth milestone involves the identification of a preferred harvest strategy(ies) adhering to an MP approach. The evidence for this identification includes endorsement from the

management agency or relevant body, such as a Commission. The preferred harvest strategy(ies) that is identified at the completion of the fourth milestone does not necessarily need to be the same one that is adopted and implemented. However, if it does change, the final adopted and implemented harvest strategy needs to meet the required scoring criteria.

With respect to developing and implementing a catch or effort resource-sharing agreement, this could exist in numerous forms. These include a pre-defined stock-wide reduction or individual fleet or country-based allocation schemes. The key objective is that the harvest strategy has a mechanism to reduce catches, when necessary.

GSE3.2.5, GSE3.2.6, GSE3.3.6 & GSE3.3.7 Milestone timeframes ▲

Where possible, the milestones for the condition pathway should be completed sequentially. For a target stock(s) not previously certified, where SE3.2.5 and 3.2.6 applies, the CAB should assess the milestones throughout each phase and not wait until the end of each phase to assess progress. The CAB should do the same for the milestones set for a target stock(s) that has been previously certified, where SE3.3.6 and 3.3.7 applies.

Where the timeframes of plans developed by the relevant management agency of the UoA(s) is unclear, the CAB should specify a maximum timeframe of 10 years for target stocks not previously certified and five years for target stocks that have been previously certified.

GSE3.3.2 & GSE3.3.4 Condition deadline and milestone timeframes ▲

The CAB should use the results of the gap analysis to set a condition deadline and milestone timeframes that are commensurate with the time it would take to achieve the milestones, within the time appropriate for the target stock(s). The CAB may deviate from the gap analysis where new information becomes available at or before the site visit that was not available or included in the gap analysis.

It is not the MSC's intent that the maximum time is given as a default for the condition to be closed, regardless of the milestones that need to be achieved.

GSE3.5.1 Evaluating progress against the condition ▲

The requirements for evaluating progress against the condition in Section SE are specific to the condition set for PI 1.2.1 and PI 1.2.2 when Section SE is applied. Refer to GSE3.1.1.

GSE3.5.3 "Behind target" ▲

"Behind target" means actions, outcomes, or milestones have fallen behind the timeframes specified in a condition. Remedial action can include the CAB setting new milestones, provided these are still expected to achieve the condition within the timeframes identified at the time of setting the condition.

GSE3.5.3, GSE3.5.5, GSE3.5.6 & GSE3.6.2 Full assessment after suspension related to conditions ▲

The MSC's intent is that if a UoC has failed to achieve a condition by its deadline, the fishery client is not allowed to enter the same UoCs, or entities in the UoC(s), into (re)assessment under either the same or an alternative name or alias where the intention is to extend the duration of the condition into a new certification period.

GSE3.5.4 Back "on target" ▲

Back "on target" means meeting the original milestones within 12 months of falling behind.

GSE3.5.7 Reporting condition progress ▲

Such reports include the Surveillance Reports, Announcement Comment Draft Report, Client and Peer Review Draft Report, Public Comment Draft Report, Final Draft Report, and the Public Certification Report.

End of Section SE Guidance

End of Guidance to the Fisheries Standard