**Project No. 3008**

**Client: IPNLF**

# Title: Pre-Assessment and MSC Assessment Progress Plan; Indonesian pole and line skipjack and yellowfin tuna fisheries

**Date: March 2013**

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| Author/Approval | A Hough |
| Version | 1.1 |

# Contents

# 1. Introduction

This report has been prepared based on information provided in a variety of reports (referenced in Section 4 below); no direct observations by the author have taken place. The actual situation at present may therefore be different than described here.

This report aims to update the previous MSC pre-assessment undertaken on the Indonesian tuna fishery, and to provide recommendations to address the priority areas of weakness within the fisheries in relation to MSC requirements.

Several recommendations on means of improving Indonesian fishery management have been set forth in WWF (2010) and MMAF/WCPFC (2012). These provide numerous recommendations which would all serve to improve management; those relevant to the issues identified here may provide potential solutions, but the full suite of recommendations made may go beyond that strictly necessary to achieve MSC certification.

**Unit(s) of certification**

Two species of tuna are considered for assessment (skipjack and yellowfin), each is fished in Indonesian waters within the Pacific and Indian Oceans. The stocks evaluated for Principle 1 will therefore be the Indian Ocean stock (assessed by the IOTC) and the Western Pacific (Assessed by WCPFC). For the sake of any MSC assessments, the boundary between the two management areas would apparently have to be considered as the boundary between the two stocks; archipelagic catches would need to be allocated to one or the other stocks based on catch locations.

The fisheries, or Units of Certification, under consideration are.

Species: Skipjack Tuna
Gear: Pole and Line
Management:

- Stocks: IOTC (Indian Ocean), WCPFC (Pacific Ocean)
- Indonesian authorities central: MMAF (>30 GT)
- Indonesian authorities Provincial: DKP Province (<30 GT)

Client: tbc
Other eligible fishers: tbc

Species: Yellowfin Tuna
Gear: Pole and Line
Management:

- Stocks: IOTC (Indian Ocean), WCPFC (Pacific Ocean)
- Indonesian authorities central: MMAF (>30 GT)
- Indonesian authorities Provincial: DKP Province (<30 GT)

Client: tbc
Other eligible fishers: tbc

Note that as there are two species in two separate stocks/areas, there will be a total of four (as a minimum) Units of Certification:

- Skipjack Indian Ocean

- Skipjack Pacific
- Yellowfin Indian Ocean
- Yellowfin Pacific

Note that the client has not been determined. This is an important consideration as the certificate(s) may be limited to a particular client group. Other eligible fishers may join the client group subject to agreement.

## 2. Scope of Fishery Assessment

There may be features of the fishery which affect the scope of the assessment; these are listed below with an indication of their applicability:

Stock enhancement: No
Introduced Species: No
Harmonisation with other overlapping fisheries certified or in assessment: Yes:-

- Skipjack has been certified in Indian Ocean (Maldives)
- Skipjack in Western Central Pacific (PNA; Japanese pole and line fishery has been withdrawn)
- Skipjack and yellowfin in Indian Ocean (Echebastar)
- [Yellowfin in East Pacific (Baja, Mexico) are likely not relevant]

For each overlapping fishery, the client would need to harmonise outcomes (pass, pass with condition, fail) and the nature of conditions for common features; normally this is most of Principle 1(common to the stock) but also some features of Principle 3 relevant to a common (RFMO) management system. These 'overlapping' features have been taken into account here.

## 3. Traceability (issues relevant to chain of custody certification)

As well as certifying the fisheries, a successful MSC outcome would be one which enabled immediate flow of MSC certified product into the supply chain (a problem encountered by the PNA skipjack fishery). As the certified fishery would initially be pole and line only, separation of pole and line caught tuna from tuna caught by other methods would be required, together with traceability systems demonstrating such separation. Recommendations are made in Section 6 below in this regard.

## 4. References

Intertek Moody Marine (2012). MSC Surveillance Report, PNA skipjack tuna.
Intertek Moody Marine (2012). MSC Public Certification Report: Pole and line skipjack fishery in the Maldives.
IOTC (2011). Executive Summary: Status of the Indian Ocean Tellowfin Tuna Resoiurce.
IOTC (2012). Report of the 15th session of the IOTC Scientific Committee.

Leadbitter, D. (2012). Pole and line fishing for tunas in eastern Indonesia – some updated information relevant to fishery improvement planning, MSC pre-assessment and market development. Report for IPNLF.
Moody Marine (2010). Pre-assessment report for Indonesian Pacific and Indian Ocean tuna fisheries.
Moody Marine (2011). ). MSC Public Certification Report: PNA skipjack tuna
WCPFC Annual report to the Commission Part 1. WCPFC-SC8-AR/CNM-33 Rev 1.
WCPFC (2008). Conservation and management measure for bigeye and yellowfin tuna in the western and central Pacific Ocean. CMM 2008-01.
WCPFC (2011). Stock assessment of yellowfin tuna in the western and central Pacific Ocean. WCPFC-SC7-2011/SA-WP-03.
WWF (2010). Tuna Fishery Management Plan Indonesia.
MMAF/WCPFC (2012). National Tuna Management Plan Indonesia.

# 5. Provisional evaluation of the fishery against the Performance Indicators

**Principle 1**

| Component | Outcome | | |
|---|---|---|---|
| **PI 1.1.1- Stock status** | **The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Stock status** | It is **likely** that the stock is above the point where recruitment would be impaired. | It is **highly likely** that the stock is above the point where recruitment would be impaired. | There is a **high degree of certainty** that the stock is above the point where recruitment would be impaired. |
| **b. Stock status in relation to target reference point** | | The stock is at or fluctuating around its target reference point. | There is a **high degree of certainty** that the stock has been fluctuating around its target reference point, or has been above its target reference point, **over recent years**. |

**Justification/Rationale**

Indian Ocean Skipjack: The aggregate IO SKJ stock appears to be moderately depleted, with a low probability that MSY reference points are currently being exceeded. The 2011 IO SKJ assessment indicates that there is a high degree of certainty that the stock is above the point where recruitment would be impaired. A precautionary target reference point $C_{MSY}$ as a proxy for $F_{MSY}$ is taken from the IO SKJ assessment. The observation that the catch $C_t$ has fluctuated around the MSY target of 564,000 from 2001 to 20010 confirms that the stock is fluctuating around $C_{MSY}$. In 2001 the reported catch was 456,281 t. The catch then increased to 625,074 t in 2006 and then gradually declined to 428,719 t in 2010. Thus straddling the target level of 564,000 t. Over recent years the stock has been estimated to be above the $B_{MSY}$ target reference point of 587,261 t.
Score: 80+

Indian Ocean Yellowfin: The most recent stock assessment (2011) suggests the stock is not overfished and that overfishing is not occurring.
Score 80+

Pacific Skipjack: The most recent available stock assessment (2011) shows fishing mortality rates to be well below Fmsy and total biomass to be approximately 82% of the unexploited biomass B0; the stock is therefore not overfished nor is overfishing currently occurring.
Score 80+

Pacific Yellowfin: The 2011 WCPFC assessment suggests that current spawning biomass is above Bmsy and fishing mortality is below Fmsy. Whilst it is considered that the stock is at a level unlikely to impair recruitment, it is important to note that recent levels of estimated recruitment are below the long-term average level of recruitment used to calculate the estimates of MSY. If recruitment remains at recent levels, then the overall yield from the fishery will be lower than the MSY estimates.

It is noted that in Region 3 (including most Indonesian waters) depletion of the stock from the original biomass is much higher than elsewhere (a 70% depletion); this is considered to be fully exploited (with the other regions under exploited).
Score: 80+

| RBF Required? (✓/×) | No | Likely Scoring Level (pass/pass with condition/fail) | Pass |
|---|---|---|---|

| Component | Outcome | | |
|---|---|---|---|
| **PI 1.1.2 Reference points** | **Limit and target reference points are appropriate for the stock** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Appropriate-ness of reference points** | **Generic** limit and target reference points are based on justifiable and reasonable practice appropriate for the species category. | Reference points are appropriate for the stock and can be estimated. | |
| **b. Level of limit reference point** | | The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity. | The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant **precautionary issues.** |
| **c. Level of target reference point** | | The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome. | The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome, **or a higher level**, and takes into account relevant precautionary issues such as the ecological role of the stock **with a high degree of certainty**. |
| **d. Low trophic level species target reference point** | | For key low trophic level species, the target reference point takes into account the ecological role of the stock. | |

**Justification/Rationale**

Neither skipjack nor yellowfin tuna are key Low Trophic Level species.

Indian Ocean Skipjack and yellowfin: The reference points are estimated based on MSY and are appropriate for tuna stocks. MSY is estimated within the stock assessment and reported to the management system. The relation of the stock relative to MSY is reported as part of the determination of stock status. Although the IOTC has yet to adopt a specific limit reference point, management advice is provided relative to MSY as a target. The default 50% $B_{MSY}$ is assumed here for purposes of defining stock status. The precautionary TRP CMSY proxy for FMSY is taken from the assessment and is consistent with maintaining the skipjack yield at the MSY level.
Score 60+

Pacific Skipjack and yellowfin: The current assessment provides estimates of a range of indicators that can be used appropriately as LRPs and TRPs, although management advice is provided solely with respect to MSY-based TRPs. Generic MSY-related reference points are used by the WPCFC Scientific Committee to assess stock status, consistent with the WCPFC Convention, UNFSA and current practice in other tuna RFMOs However, explicitly determined limit and target Reference Points for skipjack tuna have not yet been adopted by WCPFC. In practice, the stock is managed with Bmsy or above as a default TRP. The general observed strategy of the WCPFC is to reduce the exploitation rate when F exceeds FMSY, which should ensure that the exploitation rate is reduced as the level associated with an appreciable risk of recruitment being impaired is approached –there is

| | | | |
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| an implied LRP above the level at which there is an appreciable risk of impairing reproductive capacity.<br>Score 60+ | | | |
| **RBF Required? (✓/×/)** | | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with condition** |

| **Component** | **Outcome** | | |
|---|---|---|---|
| **PI 1.1.3 Stock Rebuilding** | **Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Rebuilding strategy design** | Where stocks are depleted rebuilding strategies, which have a **reasonable expectation of success** are in place. | Where stocks are depleted rebuilding strategies are in place. | Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete **within the specified timeframe**. |
| **b. Rebuilding timeframes** | A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or **3 times its generation time**. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years. | A rebuilding timeframe is specified for the depleted stock that is the shorter of 20 years or **2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years. | The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the depleted stock. |
| **c. Rebuilding evaluation** | Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe. | There is evidence that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling or previous performance that they will be able to rebuild the stock within the **specified timeframe**. | |
| **Justification/Rationale** | | | |
| Indian Ocean Skipjack: Not required<br><br>Indian Ocean Yellowfin: Not required<br><br>Pacific Skipjack: Not required<br><br>Pacific Yellowfin: Not required | | | |
| **RBF Required? (✓/×/)** | | **Likely Scoring Level (pass/pass with condition/fail)** | **n/a** |

| Component | Harvest strategy (management) | | |
|---|---|---|---|
| **PI 1.2.1 Harvest strategy** | **There is a robust and precautionary harvest strategy in place** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Harvest strategy design** | The harvest strategy is **expected** to achieve stock management objectives reflected in the target and limit reference points. | The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving management objectives reflected in the target and limit reference points. | The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in the target and limit reference points. |
| **b. Harvest strategy evaluation** | The harvest strategy is **likely** to work based on prior experience or plausible argument. | The harvest strategy may not have been fully tested but **evidence** exists that it is achieving its objectives. | The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels. |
| **c. Harvest strategy monitoring** | Monitoring is in place that is expected to determine whether the harvest strategy is working. | | |
| **d. Harvest strategy review** | | | The harvest strategy is periodically reviewed and improved as necessary. |
| **Justification/Rationale** | | | |

Indian Ocean Skipjack: The IOTC harvest strategy for skipjack is to monitor the regional SKJ fisheries on an annual basis. When required, this will trigger a formal stock assessment. A formal assessment was carried out in 2011. The results in turn will provide harvest control rules and the basis for management action, if required. Generally, the objective in IOTC is to maintain stocks at or above the biomass levels that would provide maximum sustainable yield.
Score 80+

Indian Ocean Yellowfin: As for skipjack, the overall strategy is to monitor the regional fisheries, implementing, as required, a formal stock assessment and harvest control rules and the basis for management action, if required. Previous reductions in the stock led to a number of conservation measures being applied to yellowfin, particularly Resolution 09/02 applies a limitation on fishing capacity of contracting parties and cooperating non-contracting parties. While recent reductions in catches may be due to problems of piracy in the western Indian Ocean, overall catches have declined, particularly for purse-seine and longline.
Score 80+

Pacific Skipjack: The WCPFC harvest strategy for skipjack is to monitor the regional skipjack fisheries on an annual basis which informs the periodic stock assessment. This in turn will provide harvest control rules and the basis for management action, if required. Generally, the objective in WCPFC is to maintain stocks at or above the biomass levels that would provide maximum sustainable yield. The harvest strategy is responsive to the state of the skipjack stock in that it has previously been largely aimed at optimizing the value of the purse seine fishery based on the assessment results indicating that the stock was only moderately exploited and limiting the major skipjack fisheries to lower levels of skipjack fishing mortality than indicated by MSY-based skipjack stock reference points in order to meet objectives related to bigeye and yellowfin conservation. However, at WCPFC7, the Commission responded to the change in the results of the skipjack assessment and the more cautionary tone of the scientific advice in 2010 by deciding to address the management of skipjack explicitly in the preparation of a CMM to replace CMM 2008-01 beyond 2011.
With the skipjack stock assessed until 2010 as remaining in a healthy state relative to all indicators, the strategy has not been fully tested. The changes in the 2010 assessment will provide the first real test of the strategy. However, even using this assessment, there is evidence from stock projections that with the current management actions, the skipjack stock will be maintained well above MSY-based reference point measures. These results and the robust state of the skipjack stock provide evidence that the strategy is achieving its objectives. There is no formal harvest strategy in place in Indonesia and no current limitation of catches in WCPFC region. WCPFC has introduced limits on purse seine fishing effort (via the VDS).
Score 80+

Pacific Yellowfin: In 2008, WCPFC introduced CMM 2008-01, a conservation and management measure intended to limit effort directed at bigeye and yellowfin tuna. Objectives of the measure are to maintain stocks of bigeye and yellowfin tuna at Bmsy, to reduce mortality on bigeye tuna, to limit any increases in mortality of yellowfin and to keep the measure under annual review.
Score 80+

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass (but @ 80 only)** |
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| **Component** | **Harvest strategy** | | |
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| **PI 1.2.2 Harvest control rules and tools** | **There are well defined and effective harvest control rules in place** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |

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|---|---|---|---|
| **a. Harvest control rules design and application** | **Generally understood** harvest control rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached. | **Well defined** harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. | **Well defined** harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. |
| **b. Harvest control rules account for uncertainty** | | The **selection** of the harvest control rules takes into account the **main** uncertainties. | The **design** of the harvest control rules take into account a **wide** range of uncertainties. |
| **c. Harvest control rules evaluation** | There is **some evidence** that tools used to implement harvest control rules are appropriate and effective in controlling exploitation. | **Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules. | **Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the harvest control rules. |
| **Justification/Rationale** | | | |
| For all of the stocks and management areas, there is a general understanding that actions can and will be taken if required. Examples in the WCP and IO for skipjack exist which show the intent to limit catches when required and implementation of measures which show some success. For example, in WCP, the measures introduced include a 3 month ban on FADs, effort limitation (VDS) and closed high sea areas. National management measures are also applied by PNG and the Philippines, which include restricting the number of FADs/vessel and restricted entry licensing. In the IO, Resolution 09/02 applies a limitation on fishing capacity of contracting parties and cooperating non-contracting parties.<br>Score: Around 60 | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with condition** |

| **Component** | **Harvest strategy** | | |
|---|---|---|---|
| **PI 1.2.3 Information / monitoring** | **Relevant information is collected to support the harvest strategy** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Range of information** | **Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy. | **Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy. | A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available. |

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| **b. Monitoring** | Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule. | Stock abundance and fishery removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. | **All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty. |
| **C. Comprehe-nsiveness of information** | | There is good information on all other fishery removals from the stock. | |

**Justification/Rationale**

IOTC: A comprehensive range of information on stock structure (age, size, and sex), stock productivity, growth curves, and fleet composition is available to monitor and assess stock status of skipjack and yellowfin. Comprehensive data on retained catches from the industrial fisheries are reported to the IOTC. While it is recognized that retained catch data from some artisanal fisheries in the IO are uncertain, this uncertainty is taken into account in the stock assessment. Catch-and-effort series are available from various industrial and artisanal fisheries. However, these data are not available or considered to be of poor quality for some important fisheries in the IO.

Score: 60+

WCPFC: A comprehensive range of information (on stock structure, stock productivity, fleet composition), is available to WCPFC to monitor and assess stock status including; tagging data for stock identification, catch reporting and size-frequency sampling by each fleet and catch-per-unit-effort data from these fleets Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with likely HCRs, and indicators of catch and effort are available and monitored with sufficient frequency to support catch or effort-related HCRs. There is good information on all fishery removals from the stock, except for Indonesia. Indonesian catch and effort information may be insufficient, esp. for fishing effort. Some improvement is occurring through initiatives to improve data collection and reporting to RFMOs and with introduction of logbooks.

Score: 60+

It is therefore understood that there are overall reasonable levels of data collected throughout the WCPFC and IOTC areas, and adequate data from Indonesia on fleet composition (which appears well known for pole and line vessels) and fishery removals (from logbook data; IPNLF Report).

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| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |

| **Component** | **Harvest Strategy** | | |
|---|---|---|---|
| **PI 1.2.4 Assessment of stock status** | **There is an adequate assessment of the stock status.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Appropriateness of assessment to stock under consideration** | | The assessment is appropriate for the stock and for the harvest control rule. | The assessment takes into account the major features relevant to the biology of the species and the nature of the fishery. |

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| **b. Assessment approach** | The assessment estimates stock status relative to reference points. | | |
| **c. Uncertainty in the assessment** | The assessment **identifies major sources** of uncertainty. | The assessment **takes uncertainty into account**. | The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way. |
| **d. Evaluation of assessment** | | | The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored. |
| **e. Peer review of assessment** | | The assessment of stock status is subject to peer review. | The assessment has been **internally and externally** peer reviewed. |

**Justification/Rationale**

IOTC: The assessments takes into account the major features relevant to the biology of the species and the nature of the fishery. No harvest control rules have been formally adopted, but the assessment is appropriate for the generally understood HCRs that are being applied and the formal HCRs that might be adopted. SKJ and YFT in the IO are currently subject to a number of conservation and management measures adopted by the Commission. It is noted that the IOTC has endorsed the development of MSE. This will lead to the adoption of HCRs. Currently the IOTC is evaluating stock status relative to interim target and limit reference points. The assessments has been tested using a systematic exploration of the interactions among different sets of assumptions. The stock assessments have been internally reviewed by the WPTT. The assessment has been externally reviewed by the IOTC Scientific Committee during the Fourteenth Session, although this is not a formal approach.
Score: 80+

Pacific Skipjack: There is a robust and internationally acknowledged stock assessment programme in place and the assessments are appropriate for the stocks. The assessments takes into account the major features relevant to the biology of the species and the nature of the fishery; takes into account uncertainty and is evaluating stock status relative to MSY-based reference points in a probabilistic way and has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored; the assessment is subject to internal peer review through the WCPFC SC and the WCPFC also applies an external peer review process.
Score: 80+

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| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |

**Principle 2**

| Component | Retained Species | | |
|---|---|---|---|
| **PI 2.1.1 Outcome Status** | **The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Retained species stock status** | Main retained species are **likely** to be within biologically based limits.<br><br>If not, go to scoring issue c below. | Main retained species are **highly likely** to be within biologically based limits.<br><br>If not, go to scoring issue c below. | There is a **high degree of certainty** that retained species are within biologically based limits a**nd** fluctuating around their target reference points. |
| **b. Target reference points** | | | Target reference points are defined for retained species. |
| **c. Recovery and rebuilding** | If main retained species are outside the limits there are **measures** in place that are **expected** to ensure that the fishery does not hinder recovery and rebuilding of the depleted species. | If main retained species are outside the limits there is a **partial strategy** of **demonstrably effective** management measures in place such that the fishery does not hinder recovery and rebuilding. | |
| **d. Measures if poorly understood** | If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery. | | |
| **Justification/Rationale** | | | |

Retained species will include both retained by-catch and baitfish.

Main (>5% of catch) retained species are best described in IPNLR Report and Ingles et al 2009 reported therein:
Longtail tuna
Albacore tuna
Bigeye tuna
mahi mahi
Albacore and bigeye are assessed and are above what would be limit reference points. The status of longtail and mahi mahi has not been formally assessed in Indonesian waters, but application of the RBF is likely to be positive.

Bait species are principally anchovy (*Stolephorus*) and scad (*Decapterus russelii* and *D macrostoma*); the species used are described in IPNLF Report and Ingles 2009 (therein). Stock assessments do not appear to be available for any of these species. It is noted that farmed milkfish are also used, but not consistently, so the range of main bait species (i.e. over 5% of total bait used) would need to be considered. However, as bait species are small, fast-growing and reproduce quickly, these should perform well using the RBF.

| **RBF required? (✓/×)** | **Yes** | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |
|---|---|---|---|

| **Component** | **Retained Species** | | |
|---|---|---|---|
| **PI 2.1.2 Management strategy** | **There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Management strategy in place** | There are **measures** in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding. | There is a **partial strategy** in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding. | There is a **strategy** in place for managing retained species. |
| **b. Management strategy evaluation** | The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species). | There is some **objective basis for confidence** that the partial strategy will work, based on some information directly about the fishery and/or species involved. | **Testing** supports **high confidence** that the strategy will work, based on information directly about the fishery and/or species involved. |
| **c. Management strategy implementation** | | There is **some evidence** that the partial strategy is being **implemented successfully**. | There is **clear evidence** that the strategy is being **implemented successfully**. |
| **d. Management strategy evidence of success** | | | There is some evidence that the strategy is **achieving its overall objective**. |
| **Justification/Rationale** | | | |

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| Neither bycatch species is formally managed; but bycatch levels are sufficiently low that they do not present a risk to any affected populations; therefore the current operation of the fishery would represent a suitable partial strategy.<br><br>There does not appear to be any significant management measures applied to stocks of bait species. The information presented suggests that localised depletion may be occurring, but it is assumed that not all bait stocks are fished in every location throughout the Indonesian archipelago. Therefore, it is feasible that, based on a good RBF score and the current operation of the fishery, the species concerned are suffering only localised depletion rather than stock-wide depletion, and a score of 60 may be attained. A condition would be required, however, for a strategy to address management of baitfish stocks. |

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |
|---|---|

| **Component** | **Retained Species** | | |
|---|---|---|---|
| **PI 2.1.3 Information/Monitoring** | **Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Information quality** | **Qualitative information** is available on the amount of main retained species taken by the fishery. | **Qualitative information and some quantitative information** are available on the amount of main retained species taken by the fishery. | **Accurate and verifiable information** is available on the catch of all retained species and the **consequences for the status** of affected populations. |
| **b. Information adequacy for assessment of stocks** | Information is **adequate** to **qualitatively** assess outcome status with respect to biologically based limits. | Information is **sufficient** to estimate outcome status with respect to biologically based limits. | Information is **sufficient** to **quantitatively** estimate outcome status with a **high degree of certainty**. |
| **c. Information adequacy for management strategy** | Information is adequate to support **measures** to manage **main** retained species. | Information is adequate to support a **partial strategy** to manage **main** retained species. | Information is adequate to support a **comprehensive strategy** to manage retained species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective. |
| **d. Monitoring** | | Sufficient data continue to be collected to detect any **increase in risk level** (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy) | Monitoring of retained species is conducted in sufficient detail to assess **ongoing mortalities to all retained species**. |
| **Justification/Rationale** | | | |

| | | |
|---|---|---|
| For retained species, landing records are reasonably comprehensive. As this fishery operates mostly in the Pacific, logbook data collection appears to be reasonably robust. The information available is considered adequate to qualitatively assess outcome status.<br><br>For bait species there is knowledge of fishing areas and the broad amount taken. There is some quantitative information on the amount of bait fish taken due to specific analyses completed by MRC. There is considerable information available on catch trends and utilisation rates. It is not clear, however, that information is sufficient to support a management strategy, nor that ongoing data collection is sufficient to determine any changes in risk to affected populations (e.g. increases in use, localised depletions). | | |
| NOTE: When RBF is used to score PI 2.1.1, scoring issue b. (text in brackets above) should not be scored. | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with condition** |

| **Component** | **Bycatch Species** | | |
|---|---|---|---|
| **PI 2.2.1 Outcome Status** | **The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Bycatch species stock status** | Main bycatch species are **likely** to be within biologically based limits.<br><br>If not, go to scoring issue b below | Main bycatch species are **highly likely** to be within biologically based limits<br><br>If not, go to scoring issue b below | There is a **high degree of certainty** that bycatch species are within biologically based limits. |
| **b. Recovery and rebuilding** | If main bycatch species are outside biologically based limits there are mitigation **measures** in place that are **expected** to ensure that the fishery does not hinder recovery and rebuilding. | If main bycatch species are outside biologically based limits there is a **partial strategy** of **demonstrably effective** mitigation measures in place such that the fishery does not hinder recovery and rebuilding. | |
| **c. Measures if poorly understood** | If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery. | | |
| **Justification/Rationale** | | | |
| The fishery has extremely low discards, with sharks apparently being the only significant discard, but at very low levels. The RBF (SICA) should be used. | | | |
| **RBF required? (✓/✗)** | **Yes** | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |

| Component | Bycatch Species | | |
|---|---|---|---|
| **PI 2.2.2 Management Strategy** | **There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Management strategy in place** | There are **measures** in place, if necessary, which are expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. | There is a **partial strategy** in place, if necessary, that is expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. | There is a **strategy** in place for managing and minimising bycatch. |
| **b. Management strategy evaluation** | The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species). | There is **some objective basis for confidence** that the partial strategy will work, based on some information directly about the fishery and/or the species involved. | **Testing** supports **high confidence** that the strategy will work, based on information directly about the fishery and/or species involved. |
| **c. Management strategy implementation** | | There is **some evidence** that the partial strategy is being **implemented successfully**. | There is **clear evidence** that the strategy is being **implemented successfully.** |
| **d. Management strategy evidence of success** | | | There is some **evidence** that the strategy is **achieving its objective.** |
| **Justification/Rationale** | | | |
| The partial strategy is to maintain the current fishing practises. On that basis it is considered highly likely that the bycatch will not increase and that the limited numbers of species taken will be within biologically based limits or in the case that the status of a species requires recovery the P&L fishery will not hinder that recovery. The information direct from the fishery indicates that bycatch levels are extremely low. This provides some objective basis for confidence that the partial strategy (maintaining the status quo) will work. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass** |

| Component | Bycatch Species | | |
|---|---|---|---|
| **PI 2.2.3 Information/monitoring** | **Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |

| | | | |
|---|---|---|---|
| **a. Information quality** | **Qualitative information** is available on the amount of main bycatch species affected by the fishery. | **Qualitative information and some quantitative information** are available on the amount of main bycatch species affected by the fishery. | **Accurate and verifiable information** is available on the amount of all bycatch and the consequences for the status of affected populations. |
| **b. Information adequacy for assessment of stocks** | Information is **adequate** to **broadly understand** outcome status with respect to biologically based limits. | Information is **sufficient** to **estimate** outcome status with respect to biologically based limits. | Information is **sufficient** to **quantitatively estimate** outcome status with respect to biologically based limits with a **high degree of certainty**. |
| **c. Information adequacy for management strategy** | Information is adequate to support **measures** to manage bycatch. | Information is adequate to support a **partial strategy** to manage main bycatch species. | Information is adequate to support a **comprehensive strategy** to manage bycatch, and **evaluate** with **a high degree of certainty** whether a strategy is **achieving its objective**. |
| **d. Monitoring** | | Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy). | Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species. |
| **Justification/Rationale** | | | |
| Qualitative information indicates no (or negligible) discarding.<br><br>Several studies have been carried out on the fishery by e.g. WWF. It is assumed that these would provide some quantitative support for there being no (or negligible) discarding. | | | |
| NOTE: When RBF is used to score PI 2.2.1, scoring issue b. (text in brackets above) need not be scored. | | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |

| **Component** | **ETP Species** | | |
|---|---|---|---|
| **PI 2.3.1 Outcome Status** | **The fishery meets national and international requirements for protection of ETP species.**<br><br>**The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Fishery effects within limits** | Known effects of the fishery are **likely** to be within limits of national and international requirements for protection of ETP species. | The effects of the fishery are known and are **highly likely** to be within limits of national and international requirements for protection of ETP species. | There is a **high degree of certainty** that the effects of the fishery are within limits of national and international requirements for protection of ETP species. |

| | | | |
|---|---|---|---|
| **b. Direct effects** | Known direct effects are **unlikely** to create **unacceptable impacts** to ETP species. | Direct effects are **highly unlikely** to create **unacceptable impacts** to ETP species. | There is a **high degree of confidence** that there are **no significant detrimental direct effects** of the fishery on ETP species. |
| **c. Indirect effects** | | Indirect effects have been considered and are thought to be **unlikely** to create unacceptable impacts. | There is a **high degree of confidence** that there are **no significant detrimental indirect effects** of the fishery on ETP species. |
| **Justification/Rationale** | | | |
| All available evidence suggests that there are, at most, extremely limited interaction between this fishery and ETP species, although detailed independent quantification is lacking (and so use of RBF would be recommended). ETP interactions are limited to seabirds (which are not taken during actual fishing operations) and turtles (extremely low incidence, with probably low mortality). Accordingly it is considered highly likely that any effects will be within the limits of national and international requirements for ETP species.<br><br>In order to achieve all of the SG80 requirements, a consideration (such as a desk review) of the amount of turtle and seabird catch and likely indirect effects of the fishery should be carried out. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with condition** |

| **Component** | **ETP Species** | | |
|---|---|---|---|
| **PI 2.3.2 Management strategy** | **The fishery has in place precautionary management strategies designed to:**<br>**- meet national and international requirements;**<br>**- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;**<br>**- ensure the fishery does not hinder recovery of ETP species; and**<br>**- minimise mortality of ETP species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Management strategy in place** | There are **measures** in place that minimise mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species. | There is a **strategy** in place for **managing the fishery's impac**t on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species. | There is a **comprehensive strategy** in place for managing the fishery's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species. |
| **b. Management strategy evaluation** | The measures are **considered likely** to work, based on **plausible argument** (e.g. general experience, theory or comparison with similar fisheries/species). | There is an **objective basis for confidence** that the strategy will work, based on **information** directly about the fishery and/or the species involved. | The strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high confidence** that the strategy will work.<br>There is **clear evidence** that the strategy is being implemented successfully. |
| **c. Management strategy implementation** | | There is **evidence** that the strategy is being implemented successfully. | There is **clear evidence** that the strategy is being implemented successfully. |

| Component | ETP Species | | |
|---|---|---|---|
| **PI 2.3.2 Management strategy** | **The fishery has in place precautionary management strategies designed to:<br>- meet national and international requirements;<br>- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;<br>- ensure the fishery does not hinder recovery of ETP species; and<br>- minimise mortality of ETP species.** | | |
| **d. Management strategy evidence of success** | | | There is evidence that the strategy is achieving its objective. |
| **Justification/Rationale** | | | |
| Due to the negligible levels of interaction or impact, there is no requirement for a fishery specific strategy to reduce the level of ETP interaction or mortality. The partial strategy of maintaining the status quo fishing operations, combined with existing national laws and IOTC regulations in place to protect the key endangered and threatened species, should be sufficient for a pass score here. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass** |

| Component | ETP Species | | |
|---|---|---|---|
| **PI 2.3.3 Information/monitoring** | **Relevant information is collected to support the management of fishery impacts on ETP species, including:<br>- information for the development of the management strategy;<br>- information to assess the effectiveness of the management strategy; and<br>- information to determine the outcome status of ETP species.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Information quality** | **Information** is sufficient to **qualitatively** estimate the fishery related mortality of ETP species. | **Sufficient information is** available to allow fishery related mortality and the impact of fishing to be **quantitatively** estimated for ETP species. | Information is **sufficient to quantitatively** estimate outcome status of ETP species with a high degree of certainty. |
| **b. Information adequacy for assessment of impacts** | Information is **adequate** to **broadly understand** the impact of the fishery on ETP species. | Information is **sufficient** to **determine whether the fishery may be a threat** to protection and recovery of the ETP species. | **Accurate and verifiable information** is available on the **magnitude of all impacts, mortalities and injuries** and the **consequences for the status** of ETP species. |
| **c. Information adequacy for management strategy** | Information is adequate to support **measures** to manage the impacts on ETP species | Information is sufficient to measure trends and support a full **strategy** to manage impacts on ETP species | Information is adequate to support a **comprehensive strategy** to manage impacts, minimize mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives. |
| **Justification/Rationale** | | | |

| Component | ETP Species |
|---|---|
| **PI 2.3.3 Information/monitoring** | **Relevant information is collected to support the management of fishery impacts on ETP species, including:**<br>**- information for the development of the management strategy;**<br>**- information to assess the effectiveness of the management strategy; and**<br>**- information to determine the outcome status of ETP species.** |
| The information on the type of fishing activity and its location together with data on the ETP species affected is adequate to broadly (qualitatively) understand the impact of the fishery on ETP species, and to support specific measures should these be required. | |
| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |

| Component | Habitats | | |
|---|---|---|---|
| **PI 2.4.1 Outcome Status** | **The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Habitat status** | The fishery is **unlikely** to reduce habitat structure and function to a point where there would be serious or irreversible harm. | The fishery is **highly unlikely** to reduce habitat structure and function to a point where there would be serious or irreversible harm. | 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. |
| **Justification/Rationale** | | | |
| There are no gear impacts from this surface pelagic fishery and gear loss is likely to be negligible. It is heavily dependent (around 70%) upon FADs, but given the depth involved (>500 m), habitat impacts are likely to be minor. Relevant evidence would be demonstration of the types of gear used.<br><br>Impacts from the bait fishery are expected to be the same, although anchoring in coral areas may need to be investigated. | | |
| **RBF required? (✓/×)** | **Yes** | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |

| Component | Habitats | | |
|---|---|---|---|
| **PI 2.4.2 Management strategy** | **There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |

| | | | |
|---|---|---|---|
| **a. Management strategy in place** | There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance. | There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above. | There is a **strategy** in place for managing the impact of the fishery on habitat types. |
| **b. Management strategy evaluation** | The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats). | There is some **objective basis for confidence** that the partial strategy will work, based on **information directly about the fishery and/or habitats** involved. | **Testing** supports **high confidence** that the strategy will work, based on **information directly about the fishery and/or habitats** involved. |
| **c. Management strategy implementation** | | There is **some evidence** that the partial strategy is being implemented successfully. | There is **clear evidence** that the strategy is being implemented successfully. |
| **d. Management strategy evidence of success** | | | There is some evidence that the strategy is achieving its objective. |
| **Justification/Rationale** | | | |
| The main tuna-directed and baitfish fisheries are pelagic and so will have little or no impact on habitat.<br><br>Anchoring of bait boats in areas of coral may be a concern, but unlikely to be significant.<br><br>Status quo fishing operations will therefore represent an appropriate partial strategy, which would be expected to avoid significant risk to habitats. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass** |

| **Component** | **Habitats** | | |
|---|---|---|---|
| **PI 2.4.3 Information / monitoring** | **Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Information quality** | There is a **basic understanding** of the types and distribution of main habitats in the area of the fishery. | The nature, distribution and **vulnerability** of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery. | The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types. |
| **b. Information adequacy for assessment of impacts** | Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear | Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear. | The physical impacts of the gear on the habitat types have been quantified fully. |

| Component | Habitats | | |
|---|---|---|---|
| **PI 2.4.3 Information / monitoring** | **Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.** | | |
| **c. Monitoring** | | Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures). | Changes in habitat distributions over time are measured. |
| **Justification/Rationale** | | | |
| The epipelagic habitat (surface to 100 m depth) of the Indian and Pacific Oceans is well known with studies though in situ and remote sensing. There is no physical impact of P&L gear on this habitat. The scale of intensity of FAD usage is such that knowledge of the main habitat types is sufficient to assess that the potential risk to habitats is minimal.<br><br>Little information is immediately available on habitats in areas of bait fishing, but again, this is a pelagic fishery and so requirements will be low. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass** |

| Component | Ecosystem | | |
|---|---|---|---|
| **PI 2.5.1 Outcome Status** | **The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Ecosystem status** | The fishery is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. | The fishery is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. | There is **evidence** that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. |
| **Justification/Rationale** | | | |
| The role of tuna in the ecosystem is reasonably well understood. All tuna stocks are in healthy condition and so the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.<br><br>It is assumed that less is known about batfish role in the inshore ecosystem, but there are many small fish in the ecosystem and their reproductive potential is very high. The risk of compromising ecosystem function is low, but RBF should be sued to confirm. | | | |
| **RBF required? (✓/×)** | **Yes** | **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |

| Component | Ecosystem |
|---|---|

| PI 2.5.2 Management strategy | There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function. | | |
|---|---|---|---|
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Management strategy in place** | There are **measures** in place, if necessary. | There is a **partial strategy** in place, if necessary, | There is a **strategy** that consists of a **plan**, in place. |
| **b. Management strategy design** | The **measures** take into account the **potential impacts** of the fishery on key elements of the ecosystem. | The **partial strategy** takes into account **available information and is expected to restrain impacts** of the fishery on the ecosystem so as to **achieve** the Ecosystem Outcome 80 level of performance. | The **strategy**, which consists of a **plan**, contains measures to **address all main impacts of the fishery** on the ecosystem, and at least some of these measures are in place. The plan and measures are **based on well-understood** functional relationships between the fishery and the Components and elements of the ecosystem.<br><br>This plan provides for **development of a full strategy that restrains impacts** on the ecosystem to ensure the fishery does not cause serious or irreversible harm. |
| **c. Management strategy evaluation** | The **measures** are considered likely to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/ ecosystems). | The **partial strategy** is considered likely to work, based on **plausible argument** (e.g., general experience, theory or comparison with similar fisheries/ ecosystems). | The measures are considered likely to work based on **prior experience**, plausible argument or **information directly** from the fishery/ecosystems involved. |
| **d. Management strategy implementation** | | There is **some evidence** that the measures comprising the partial strategy are being **implemented successfully.** | There is **evidence** that the measures are being **implemented successfully.** |
| **Justification/Rationale** | | | |
| There are no major bycatch, ETP or habitat impacts. At present none of these potential impacts is considered to pose a risk of serious or irreversible harm to ecosystem structure and function. Therefore no measures or strategy are considered necessary for these.<br><br>The lack of management for the associated baitfish fishery has been discussed above (PI 2.1.2), and may well lower the score for this PI below 80. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with Condition** |

| Component | Ecosystem | | |
|---|---|---|---|
| **PI 2.5.3 Information / monitoring** | **There is adequate knowledge of the impacts of the fishery on the ecosystem.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Information quality** | Information is adequate to **identify** the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity). | Information is adequate to **broadly understand** the key elements of the ecosystem. | |
| **b. Investigation of fishery impacts** | Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but **have not been investigated in detail**. | Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**. | Main **interactions** between the fishery and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**. |
| **c. Understand-ing of component functions** | | The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are **known** | The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are **understood**. |
| **d. Information relevance** | | Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred. | Sufficient information is available on the impacts of the fishery on the Components **and elements** to allow the main consequences for the ecosystem to be inferred. |
| **e. Monitoring** | | Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures). | Information is sufficient to support the development of strategies to manage ecosystem impacts. |
| **Justification/Rationale** | | | |
| It is considered that there is adequate information to broadly understand the key elements of the pelagic (e.g. stock interactions and trophic structure) and inshore ecosystems (e.g. oceanography, physico-chemistry, habitats, community structures and relationships). The main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and some (especially related to trophic position of tunas) have been investigated in some detail. There is sufficient information is available on the impacts of the fishery on the fisheries' components to allow some of the main consequences for the ecosystem to be inferred (e.g. via ecosystem modelling from EcoPath).<br><br>Given the scale of the fishery and the impacts involved, the collection of catch data for the tuna-directed fisheries and baitfish fishery would be required to detect any increase in risk level. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with condition** |

## Principle 3

The reader should be aware that since the Moody Marine pre-assessment in 2010, the MSC have amended the Certification Requirements for Principle 3, particularly with regard to interactions of National and Regional/International management organisations over migratory or straddling stocks. These new requirements are included below.

| Component | Governance and Policy | | |
|---|---|---|---|
| **PI 3.1.1 Legal and/or customary framework** | **The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:<br>- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;<br>- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and<br>- Incorporates an appropriate dispute resolution framework.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Compatability of laws or standards with effective management** | There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2. | There is an effective national legal system and organised and effective cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2. | There is an effective national legal system and binding procedures governing cooperation with other parties which delivers management outcomes consistent with MSC Principles 1 and 2. |
| **b. Resolution of disputes** | The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system. | The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the fishery. | The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**. |
| **c. Respect for rights** | The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. | The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. | The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. |
| **Justification/Rationale** | | | |
| Regional IOTC: The formal dispute resolution procedure (Article XXIII of the Agreement covers "Interpretation and Settlement of Disputes") is transparent; given the lack of disputes it may be argued that the system is proactive in dealing with potential disputes. Consultation and voting mechanisms within IOTC are formalised in its Rules of Procedure, and are designed to be proactive in avoiding legal disputes to any proposed management-related Resolutions or and Recommendations by ensuring that issues of concern are addressed and considered before any formal decision taken. No legal challenges have been made to IOTC.<br><br>Regional WCPFC: The WCPFC Convention is consistent with the principles and provisions of UNCLOS, | | |

UNFSA etc. The WCPFC dispute settlement mechanism is set out in Article 31 of the Convention. The WCPFC Convention also provides for recognition of the interests of small scale and artisanal fishers within the overall framework for sustainability in the WCPFC Convention.

National: A legal framework is in place; Indonesian Law 31/2004 requires that fishing outside of the Fishery Management Zones be carried out in accordance with applicable laws.

Article 10 requires government to participate actively in the membership of any organisation at the regional or international level for international fishery management. It is noted that Indonesia is a member of IOTC and a cooperating non-member of WCPFC. While this may satisfy the SG80 level of performance, or a condition will be required that Indonesia becomes a member of WCPFC. However, membership of WCPFC may be required anyway in order to address issues of Harvest controls (see Principle 1 recommendations).

The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising. The system is perceived to be effective. A policy for dealing with legal disputes and Legal rights is in place. There is some question as to how effective the system has been.

It is understood that fishing rights are respected.

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |
|---|---|

| **Component** | **Governance and Policy** | | |
|---|---|---|---|
| **PI 3.1.2 Consultation, roles and responsibilities** | **The management system has effective consultation processes that are open to interested and affected parties.**<br><br>**The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Roles and responsibilities** | Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**. | Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction. | Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction. |
| **b. Consultation processes** | The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system. | The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained. | The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**. |
| **c. Participation** | | The consultation process **provides opportunity** for all interested and affected parties to be involved. | The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement. |
| **Justification/Rationale** | | | |

| Component | Governance and Policy |
|---|---|
| **PI 3.1.2 Consultation, roles and responsibilities** | **The management system has effective consultation processes that are open to interested and affected parties.**<br><br>**The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.** |

Regional IOTC: At the regional level, the IOTC Rules of Procedure ensure that all organisations and individuals involved in the management process have been identified, with functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.

Regional WCPFC: Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction at the WCPFC

National: Indonesia has a top down policy/implementation structure. Decisions made the Ministry of Marine Affairs and Fisheries are passed down to Province and then to District. Remoteness appears to restrict the ability to effectively disseminate information and facilitate feed-back.

The evidence is that organisations and individuals involved in the management process have been identified. There is a reasonably strong tuna association structure at national level. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction. The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained. While the IPNLF report notes that consultation arrangements are ad-hoc and reactive, there is reported evidence that the dialogue process works effectively at both National and Provincial level and the consultation process provides opportunity for all interested and affected parties to be involved.

The NTT Forum appears to provide a plausible process for consultation and dialogue between stakeholders. However, there would not appear to be any established link, as yet between DKP and the Forum. This is important as a means to ensure that bottom up/top down initiatives have the full support of all stakeholders involved in the fishery, especially in the context of managing access rights and providing support for local management initiatives.

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass** |
|---|---|

| Component | Governance and Policy | | |
|---|---|---|---|
| **PI 3.1.3 Long term objectives** | **The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Objectives** | Long term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are **implicit** within management policy. | **Clear** long term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are **explicit** within management policy. | **Clear** long term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are **explicit** within **and required by** management policy |

**Justification/Rationale**

Regional IOTC: The objectives of the IOTC are to promote the conservation and optimum utilisation of stocks and encouraging sustainable development of fisheries based on such stocks. A number of IOTC Resolutions make specific reference to the precautionary approach and to long-term sustainable utilisation of tuna. These demonstrate that regional management policy has clear and explicit long-term objectives to guide decision-

| Component | Governance and Policy |
|---|---|
| **PI 3.1.3 Long term objectives** | **The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.** |

making that are consistent with MSC Principles and Criteria and the precautionary approach, and that they are explicit.

Regional WCPFC: There are clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, and these are explicit within applicable WCPFC CMMs.

National: As detailed in WWF report, KKP has adopted an overall fishery management objective, to ensure the long-term livelihood of fishers by establishing sustainable resource management for the nation's fisheries and supporting the preservation of allied ecosystems on which these resources depend.

This is consistent with legislation (Law No 31) but it is not clear that the precautionary principle is explicit within Indonesian management policy; this may require a score below 80.

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with condition** |
|---|---|

| Component | Governance and Policy | | |
|---|---|---|---|
| **PI 3.1.4 Incentives for sustainable fishing** | **The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Incentives** | The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2. | The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that **perverse incentives** do not arise. | The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and **explicitly considers** incentives in a **regular review** of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices. |

**Justification/Rationale**

It is understood that fishing takes place under Government controlled licences, and regulation of the industry (in relation to, among other issues, conservation of fish resources) can result in sanctions. This may loosely be interpreted to represent an incentive for sustainable fishing, which may meet the SG60 level of performance. This is, however, an issue to be considered by the assessment team.

Otherwise, it is not clear what incentives which would support the outcomes of principles 1 and 2 are present; although this is a common problem for fisheries.

Fuel subsidies do not in themselves present a problem to MSC certification; also a common issue with fisheries. It is noted that Provincial level support is made available for fishing equipment (outboard engines, fish boxes, gear, FADs and GPS) as well as fuel subsidies, and the potential for these to lead to unsustainable fishing would need to be investigated.

| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |
|---|---|

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.1 Fishery-specific objectives** | **The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Objectives** | **Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery's management system. | **Short and long term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery's management system. | **Well defined and measurable short and long term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery's management system. |
| **Justification/Rationale** | | | |
| Regional: Objectives relating to P1 and P2 Outcomes are set out in various WCPFC and IOTC CMs.<br><br>National: WWF detail objectives specific to the tuna fisheries, including skipjack and yellowfin. These are:<br><br>1. To ensure that Indonesia's tuna fisheries are managed in a sustainable manner<br>2. To ensure optimal utilisation and equitable distribution amongst fishing companies with established historic rights to the fishery<br>3. To promote the ecosystem-based approach to fisheries management<br>4. To optimise employment and income for the Nation's tuna fishermen<br>5. To improve fisheries management capacity<br>6. To strengthen fisheries compliance<br>7. To sustain strong international relationships beneficial to Indonesia<br><br>These represent appropriate long-term objectives but not short-term objectives which would ideally provide some means of measuring whether or not objectives are being met (e.g. measurement of catches or effort against targets (RFMO or national) and/or specific ecosystem-based objectives e.g. for baitfish).<br><br>As reported in WCPOFC (2013), Indonesia has integrated various conservation and management measures of WCPFC, IOTC and CCSBT into national legislation. | | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with Condition** |

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.2 Decision-making processes** | **The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Decision-making processes** | There are informal decision-making processes in place that result in measures and strategies to achieve the fishery- | There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. | |

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.2 Decision-making processes** | **The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.** | | |
| | specific objectives. | | |
| **b. Responsive-ness of decision-making processes** | Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions. | Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. | Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions. |
| **c. Use of precautionary approach** | | Decision-making processes use the precautionary approach and are based on best available information. | |
| **d. Accountability and transparency of management system and decision-making process** | Some information on fishery performance and management actions is generally available on request to stakeholders | **Information on fishery performance and management actions is available on request, and explanations** are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. | **Formal reporting** to all interested stakeholders provides comprehensive information on fishery performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. |
| **e. Approach to disputes** | Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery. | The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges. | The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges. |

**Justification/Rationale**

Regional: IOTC and WCPFC have established decision-making processes. Those decision-making processes provide for the development of CMs and strategies to achieve specific objectives. RFMO decision-making processes are open, use the precautionary approach and best available information and are well documented.

National: As fishery management institutions are present within government, long-term objectives have been developed and RFMO conservation and management measures are being transcribed into National Law, there must be a level of decision making within the management system. The structure and processes followed, and the information base used to inform decision-making is, however, not clear.

The decision making process is apparently responsive (in a transparent process) to issues raised by RFMO's, but it is not clear that similar monitoring to identify significant issues, with a clear process to respond to such issues,

| Component | Fishery- specific management system |
|---|---|
| **PI 3.2.2 Decision-making processes** | **The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.** |
| is available within Indonesia.<br><br>Some information is made available to stakeholders. There is no indication of disrespect or defiance of national law.<br><br>On this basis, it is possible that the fishery may fail this PI; however, it is assumed that national processes exist which are appropriate to meet the minimum SG60 requirements. | |
| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.3 Compliance and enforcement** | **Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. MCS implementa-tion** | Monitoring, control and surveillance **mechanisms** exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective. | A monitoring, control and surveillance **system** has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. | A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules. |
| **b. Sanctions** | Sanctions to deal with non-compliance exist and there is some evidence that they are applied. | Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence. | Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence. |
| **c. Compliance** | Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery. | **Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery. | There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery. |
| **d. Systematic non-compliance** | | There is no evidence of systematic non-compliance. | |
| **Justification/Rationale** | | | |

| Component | Fishery- specific management system |
|---|---|
| **PI 3.2.3 Compliance and enforcement** | **Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.** |
| MMAF appears to have the correct MCS structures in place, and there appears to be some level of compliance for larger vessel segments. Because of weaknesses in the Provincial resourcing, DG Capture fisheries and PSPKP appear to have undertaken some of the core monitoring (catch reporting) and compliance roles. However, their ability to implement regulations may be constrained by a lack of financial resourcing. It is also not clear how any of the existing reporting measures (Log-book data and VMS) are integrated to risk analysis directed by MMAF. It should be noted that MMAF increased the scale of penalties applied to the sector, which according to the 10 GT plus industry represents a strong deterrent.<br><br>It is probably fair to assume, given low levels of regulation applied, that fishermen are generally compliant. | |
| **Likely Scoring Level (pass/pass with condition/fail)** | **Pass with Condition** |

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.4 Research plan** | **The fishery has a research plan that addresses the information needs of management.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Research plan** | **Research** is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2. | A **research plan** provides the management system with a strategic approach to research and **reliable and timely information** sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. | A **comprehensive research plan** provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and **reliable and timely information** sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. |
| **b. Research results** | Research results are **available** to interested parties. | Research results are **disseminated** to all interested parties in a **timely** fashion. | Research **plan** and results are **disseminated** to all interested parties in a **timely** fashion and are **widely and publicly available**. |
| **Justification/Rationale** | | | |
| Regional IOTC: IOTC Working Parties provide the Scientific Committee with analyses of the situation of the stocks as well as an assessment of possible management actions. The SC reviews the research activities carried out at a regional and national level and measures progress in the various areas including issues and data collection related to MSC P1 and P2.<br><br>Regional WCPFC: The WCPFC Strategic Research Plan addresses four overall research and data collection priorities - collection and validation of data from the fishery, monitoring and assessment of stocks, monitoring and assessment of the ecosystem, and evaluation of management options. The WCPFC and SPC Plans and results are widely and publicly available.<br><br>National: There is no evidence of a coherent, strategic, research plan covering the requirements of MSC Principles 1 and 2.<br><br>Information is gathered on catches and RFCMC and Directorate General of Capture Fisheries carry out a scientific observer programme (in association with CSIRO). This covers some issues of catches of target stock and by-catch species. It is assumed that results are available to interested parties. | | |

| Component | Fishery- specific management system | |
|---|---|---|
| **PI 3.2.4 Research plan** | **The fishery has a research plan that addresses the information needs of management.** | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | **Pass with Condition** |

| Component | Fishery- specific management system | | |
|---|---|---|---|
| **PI 3.2.5 Monitoring and management performance evaluation** | **There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives.**<br><br>**There is effective and timely review of the fishery-specific management system.** | | |
| **Scoring issues** | **SG60** | **SG80** | **SG100** |
| **a. Evaluation coverage** | The fishery has in place mechanisms to evaluate **some** parts of the management system. | The fishery has in place mechanisms to evaluate **key** parts of the management system. | The fishery has in place mechanisms to evaluate **all** parts of the management system. |
| **b. Internal and/or external review** | The fishery-specific management system is subject to **occasional internal** review. | The fishery-specific management system is subject to **regular internal** and **occasional external** review. | The fishery-specific management system is subject to **regular internal** and **external** review. |
| **Justification/Rationale** | | | |
| Regional IOTC: At IOTC there is permanent internal review and a recent external review of IOTC.<br><br>Regional WCPFC: WCPFC has regular internal reviews and has committed and agreed to an independent performance review, consistent with the Kobe Course of Actions.<br><br>National: MMAF has a strong internal and external peer review process in place. There are regular meetings between DKP Province and DKP district. However, the lack of coherent management processes means that such reviews may not be addressing significant requirements within the system. | | |
| **Likely Scoring Level (pass/pass with condition/fail)** | | | **Pass with Condition** |

# 6. Recommendations

The section below reviews the likely scoring of the fishery and makes recommendations on how to proceed prior to an MSC assessment. The Gantt chart at the end of this section sets out the recommended programming of work;

- immediate priority work to begin the information gathering needed to inform future management actions, including an independent and comprehensive (and MSC informed/focussed) external review of the management system
- the minimum management actions required prior to beginning MSC assessment
- actions which may most appropriately be completed post-certification - in response to expected Conditions of Certification; to avoid delays in progressing to MSc assessment and to spread costs. Note that other Conditions may be raised by an Assessment Team following their in-depth analysis of the fisheries.

As the performance of all fisheries appears essentially the same, the recommendations may be applied to all or any combination of the fisheries considered here (except as indicated).

The MSC scoring guideposts for each Performance Indicator, and associated guidance, should be consulted when following these recommendations.

### 6.1 Units of Certification

Attention should be focussed within the industry on which fishers/areas are to be within each Unit of Certification – based on which areas they fish, and how this splits into (expected) Indian Ocean or Pacific stocks of the two species and potentially their membership of any client groups.

### 6.2 Principle 1

The focus of Principle 1 is on the target stocks, and the management of the stock as a whole. In this respect, the focus of an assessment would be on the RFMOs – IOTC and WCPFC. Both RFMOs have been (and are) involved in MSC assessments, and the outcomes of these have been similar, with all fisheries being recommended for certification – notably NZ albacore, Maldives skipjack tuna and PNA skipjack tuna. It should also be noted that all of these fisheries have also been subject to an objection (from ISSF and/or WWF).

All four Indonesian fisheries could potentially pass Principle 1, but the score will be extremely close to 80 and if there is an objection to a recommended 'pass' then there are likely to be aspects of Principle 1 which would be targeted, potentially with some success.

The scores for Principle 1 are expected to be as follows:

| Principle | Component | PI number | Performance Indicator | Likely scoring level |
|---|---|---|---|---|
| **1** | Outcome | 1.1.1 | Stock status | **≥80** |
| | | 1.1.2 | Reference points | **60-79** |
| | | 1.1.3 | Stock rebuilding | n/a |
| | Management | 1.2.1 | Harvest Strategy | **≥80** |
| | | 1.2.2 | Harvest control rules and tools | **60-79** |
| | | 1.2.3 | Information and monitoring | **60-79** |
| | | 1.2.4 | Assessment of stock status | **≥80** |

The range of actual scores achieved (for all units of certification) in Principle 1 might be as below:

| Principle | Component | PI No. | Performance Indicator (PI) | Score |
|---|---|---|---|---|
| | | | | |
| One | Outcome | 1.1.1 | Stock status | 100* |
| | | 1.1.2 | Reference points | 70 |
| | | 1.1.3 | Stock rebuilding | n/a |
| | Management | 1.2.1 | Harvest strategy | 80 |
| | | 1.2.2 | Harvest control rules & tools | 60 |
| | | 1.2.3 | Information & monitoring | 70 |
| | | 1.2.4 | Assessment of stock status | 95 |

This would give a score of 80.6 only, and so leave little or no room for lowering of any scores. * Note that yellowfin tuna in waters surrounding Indonesia may not perform as well as skipjack and may score below 100 here – this could lead to the yellowfin fisheries failing an assessment at present.

The two critical areas of weakness are over **Reference Points (PI 1.1.2)** and **Harvest Controls (PI 1.2.2).** Both of these will require action by the RFMO's (IOTC and WCPFC); conditions of certification will require the Indonesian Government to promote initiatives to address these, or support existing initiatives; the latter is more likely to be the actual situation as both PNA (skipjack) and Maldives (skipjack) already have conditions of certification to address these issues (As do NZ for albacore tuna within WCPFC).

However, while Indonesia is a member of IOTC, it is currently only a cooperating non-member of WCPFC; to exert maximum influence in achieving objectives, it is recommended that Indonesia consider full membership of both RFMOs.

The other potential area of weakness is over **Information and Monitoring (PI 1.2.3).** For the stocks overall, there has been judged to be sufficient information within both the IOTC (Maldives skipjack score 75) and WCPFC (PNA skipjack score 85) to achieve reasonable scores. Both RFMO scores were lowered, however, because information from some nations was considered to be of variable or poorer quality.

Indonesia has been identified as a nation for which information on fleet composition and catches apparently requires improvement. Indeed, as mentioned above, stakeholders such as ISSF and WWF would expect Indonesia, as a management authority undergoing MSC certification, to be an exemplar of good practice in the region.

Information would therefore be required on catches (amount, locations) and fleet composition. While there would be expectation of sufficient information from Indonesia to provide confidence in the stock assessment process, that information from the pole and line sector should be a particular focus. As yellowfin may not perform as well as skipjack, maximising scores for this PI should be a particular concern.

### 6.3 Principle 2

Principle 2 would need to address the effects of both the tuna-directed fishery (skipjack and yellowfin fisheries in the IO and WCP would be expected to score equally) and the baitfish fisheries.

Scores for Principle 2 would be expected to be as follows:

| Principle | Component | PI number | Performance Indicator | Likely scoring level |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **2** | Retained species | 2.1.1 | Outcome | **≥80** |
| | | 2.1.2 | Management | **60-79** |
| | | 2.1.3 | Information | **60-79** |
| | Bycatch species | 2.2.1 | Outcome | **≥80** |
| | | 2.2.2 | Management | **≥80** |
| | | 2.2.3 | Information | **≥80** |
| | ETP species | 2.3.1 | Outcome | **≥80** |
| | | 2.3.2 | Management | **≥80** |
| | | 2.3.3 | Information | **60-79** |
| | Habitats | 2.4.1 | Outcome | **≥80** |
| | | 2.4.2 | Management | **≥80** |
| | | 2.4.3 | Information | **≥80** |
| | Ecosystem | 2.5.1 | Outcome | **≥80** |
| | | 2.5.2 | Management | **60-79** |
| | | 2.5.3 | Information | **60-79** |

The range of actual scores achieved (for all units of certification) in Principle 2 might be as below:

| Principle | Component | PI No. | Performance Indicator (PI) | Score |
|---|---|---|---|---|
| Two | Retained species | 2.1.1 | Outcome | 100 |
| | | 2.1.2 | Management | 60 |
| | | 2.1.3 | Information | 70 |
| | Bycatch species | 2.2.1 | Outcome | 100 |
| | | 2.2.2 | Management | 90 |
| | | 2.2.3 | Information | 80 |
| | ETP species | 2.3.1 | Outcome | 80 |
| | | 2.3.2 | Management | 80 |
| | | 2.3.3 | Information | 60 |
| | Habitats | 2.4.1 | Outcome | 100 |
| | | 2.4.2 | Management | 80 |
| | | 2.4.3 | Information | 80 |
| | Ecosystem | 2.5.1 | Outcome | 80 |
| | | 2.5.2 | Management | 75 |
| | | 2.5.3 | Information | 75 |

This would give a score of 80.3 only; allowing scope for only 2 PI scores to be lowered by the minimum of 5 points. Accordingly, any potential for improving scores should be maximised.

For **Retained Species**, there will be an issue over management of baitfish species. As this is effectively a fishery separate from the main tuna fishery, a specific strategy will be required. The strategy will need to be underpinned by information on which populations (species and areas) of baitfish are being utilised (which will also lead to a higher score for PI 2.1.3).

The management approach adopted would, of course, depend on the local situation and ideally would involve integration with baitfish requirements by the fleet. Harvest controls could involve either limits on effort (nights fished, spatial limits, seasons etc) or catches. The MSC RBF is recommended for use on baitfish stocks; this may also provide a suitable means of determining appropriate management measures, e.g. maximum extent of areal overlap of fishing with stock distribution.

Quantitative information on interactions of the fishery with **ETP species** would raise the score for PI 2.3.3. This is not expected to a significant issue and so addressing this before an MSC assessment, rather than allowing a condition to be raised during an assessment may require less resource and so be

more cost-effective (e.g. through a specific study on interactions and/or randomised observer sampling of trips).

### 6.4 Principle 3

Principle 3 would need to address the management system within Indonesia and, as these are highly migratory species managed under RFMO jurisdiction, management interactions with IOTC and WCPFC.

Scores for Principle 2 would be expected to be as follows:

| Principle | Component | PI number | Performance Indicator | Likely scoring level |
|---|---|---|---|---|
| 3 | Governance and Policy | 3.1.1 | Legal and customary framework | ≥80 |
| | | 3.1.2 | Consultation, roles and responsibilities | ≥80 |
| | | 3.1.3 | Long term objectives | 60-79 |
| | | 3.1.4 | Incentives for sustainable fishing | 60-79 |
| | Fishery specific management system | 3.2.1 | Fishery specific objectives | 60-79 |
| | | 3.2.2 | Decision making processes | 60-79 |
| | | 3.2.3 | Compliance and enforcement | 60-79 |
| | | 3.2.4 | Research plan | 60-79 |
| | | 3.2.5 | Management performance evaluation | 60-79 |

The range of actual scores achieved (for all units of certification) might be as below:

| Principle | Component | PI No. | Performance Indicator (PI) | Score |
|---|---|---|---|---|
| Three | Governance and policy | 3.1.1 | Legal & customary framework | 90 |
| | | 3.1.2 | Consultation, roles & responsibilities | 85 |
| | | 3.1.3 | Long term objectives | 75 |
| | | 3.1.4 | Incentives for sustainable fishing | 60 |
| | Fishery specific management system | 3.2.1 | Fishery specific objectives | 70 |
| | | 3.2.2 | Decision making processes | 60 |
| | | 3.2.3 | Compliance & enforcement | 60 |
| | | 3.2.4 | Research plan | 75 |
| | | 3.2.5 | Management performance evaluation | 75 |

This would give an overall Principle 3 score of 72, and so cause the fishery to fail an MSC assessment. Accordingly, most work is required in this area, as detailed below.

1. **Internal and External Review (PI 3.2.5)**

The MSC standard SG80 requires regular internal and occasional external reviews. It is noted that several 'reviews' of various sorts have been undertaken to assist in the development of a tuna management plan for Indonesia. It does not appear, however, that these constitute a systematic review of the Indonesian management system.

It is recommended that an external review be undertaken in collaboration with relevant Ministries to provide specific recommendations on improving fishery management within the Indonesian context, but informed by MSC standard requirements. This should focus on the fishery management decision making process; collecting essential information in the most appropriate and cost-effective manner and utilising this information in a responsive and transparent manner.

A review should be informed by the areas of weakness identified here and focus attention on these areas – particularly long and short-term objectives, research planning, information gathering and the decision-making process. Once a review is completed and recommendations actioned, this process could usefully be demonstrated in the development of a baitfish management plan.

It is recommended that a review be carried out by a consultant familiar with the MSC standard and with conducting such reviews. Suitable candidates could be recommended.

[MMAF/WCPFC Recommendation E applies]

**2. Objective Setting (PIs 3.1.3, 3.2.1)**

The MSC standard looks for objectives for the overall management system and for the management of the fisheries undergoing assessment. These objectives should be consistent with MSC Principles 1 and 2 – maintaining the target stocks and the ecosystem supporting these.

Objectives are largely present, but some elements of the MSC standard are not fully addressed. Overall fishery objectives need to make reference to the precautionary principle and management policy should require that such objectives be in place. Short-term objectives should include specific targets for the target stocks and the ecosystem. Targets for stocks may be linked to RFMO measures [Recommendation 3, 4, 5 apply]; targets for the ecosystem may include baitfish management measures, bycatch management etc. [MMAF/WCPFC Recommendation 7].

**3. Decision-making process (PI 3.2.2)**

As for recommendation 1 above; the process of collecting and analysing information, subsequent decision-making and release of information showing the basis of the decisions taken should be reviewed. This is expected to be a lengthy and complex process and so it is not expected that the SG80 requirements would be fully met prior to beginning MSC assessment; this would be an ongoing process.

**4. Incentives and subsidies (PI 3.1.4)**

Although the ongoing requirement for this PI may be reviewed by the MSC in 2013, it remains a part of the standard at present. Some incentive should be identified (by industry or government) promoting responsible fishing practice. This may be through an industry-sponsored scheme (e.g. the UK responsible fishing scheme) or priority licensing or quota allocation should this be developed.

Any subsidies which may directly contribute to unsustainable fishing (not including fuel subsidies which are common in MSC-certified fisheries) should be identified and removed.

**5. Compliance and enforcement (PI 3.2.3)**

An external review should include a review of existing Monitoring Control and Surveillance (MCS) processes and sanctions applied. It appears that currently some weaknesses in the implementation of the system exist.

**6. Research Plan (PI 3.2.4)**

This represents a relatively 'easy-win' in terms of improving MSC scores. A review of existing RFMO and National research should be undertaken, any obvious remaining gaps identified and actions prioritised to close these gaps. A single, integrated Research Plan document should result.

Addressing these recommendations should enable the four Indonesian fisheries to proceed to MSC assessment. The final scoring of a fishery is, of course, partly dependent upon the perspectives of the assessment team carrying out the assessment. The recommendations are therefore also intended to provide more resilience in the scoring as any lowering of scores could currently lead to a fail of P1 or P2.

It is anticipated that implementation of these recommendations would lead to the following scoring and Principle level scores. Scores remain only slightly above the MSC minimum requirement, so any opportunities to further improve management in response to MSC requirements should be taken.

| Prin-ciple | Component | PI No. | Performance Indicator (PI) | Score |
|---|---|---|---|---|
| | | | | |
| One | Outcome | 1.1.1 | Stock status | 100 |
| | | 1.1.2 | Reference points | 70 |
| | | 1.1.3 | Stock rebuilding | |
| | Management | 1.2.1 | Harvest strategy | 80 |
| | | 1.2.2 | Harvest control rules & tools | 60 |
| | | 1.2.3 | Information & monitoring | 75 |
| | | 1.2.4 | Assessment of stock status | 95 |
| Two | Retained species | 2.1.1 | Outcome | 100 |
| | | 2.1.2 | Management | 70 |
| | | 2.1.3 | Information | 75 |
| | Bycatch species | 2.2.1 | Outcome | 100 |
| | | 2.2.2 | Management | 90 |
| | | 2.2.3 | Information | 80 |
| | ETP species | 2.3.1 | Outcome | 80 |
| | | 2.3.2 | Management | 80 |
| | | 2.3.3 | Information | 80 |
| | Habitats | 2.4.1 | Outcome | 100 |
| | | 2.4.2 | Management | 80 |
| | | 2.4.3 | Information | 80 |
| | Ecosystem | 2.5.1 | Outcome | 80 |
| | | 2.5.2 | Management | 80 |
| | | 2.5.3 | Information | 80 |
| Three | Governance and policy | 3.1.1 | Legal & customary framework | 90 |
| | | 3.1.2 | Consultation, roles & responsibilities | 85 |
| | | 3.1.3 | Long term objectives | 80 |
| | | 3.1.4 | Incentives for sustainable | 80 |

| | | | | |
|---|---|---|---|---|
| | | | fishing | |
| | Fishery specific management system | 3.2.1 | Fishery specific objectives | 85 |
| | | 3.2.2 | Decision making processes | 65 |
| | | 3.2.3 | Compliance & enforcement | 70 |
| | | 3.2.4 | Research plan | 95 |
| | | 3.2.5 | Management performance evaluation | 90 |

| **Overall Principle-level scores** | |
|---|---|
| Principle 1 - Target species | 81.3 |
| Principle 2 - Ecosystem | 83.7 |
| Principle 3 - Management | 82.4 |

### 6.5 Chain of Custody

As mentioned above, Chain of Custody should also be secure to enable product to be sold as MSC-certified.

Fishing logbooks should include identification of gear used; this should be pole and line only. The fishing area (and so Unit of Certification) should also be recorded. This may be a voluntary addition to regulatory requirements.

The information in the logbook should be transferred to buyers/processors from the catcher vessel (potentially as a development of a catch documentation scheme).

Any transhipment should be closely controlled [MMAF/WCPFC Recommendation 6e provides a suitable way forward]. Similarly any at-sea processing would need to include full traceability back to the point of capture of the fish involved.

## Summary and phasing of recommendations

| PI | | Priority Actions | Actions prior to commencing MSC Assessment | Commence MSC assessment | Complete MSC assessment | Likely MSC Conditions |
|---|---|---|---|---|---|---|
| | **Principle 1** | | | | | |
| 1.1.2 | Reference Points | | This is an RFMO action. Membership of WCPFC may enhance prospects of influencing actions; full membership should be considered. | | | Implement RPs through RFMOs for all stocks |
| 1.2.2 | Harvest Control Rules and Tools | | As above | | | Implement appropriate harvest control rules through RFMOs for all stocks |
| 1.2.3 | Target improved data collection from Indonesian fleet | Review information requirements of RFMOs and Indonesian data provision in response. Initiate review of information collection. | Implement plan to improve data collection: catches, fleet composition, effort, fishing locations. | | | Data provision to be demonstrated. Actions through RFMOs to improve wider data collection in region. |

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| | **Principle 2** | | | | | |
| 2.1.2 | Baitfish management | Initiate review of information on baitfish use and resources. Initiate project to develop baitfish management plan. | Develop initial baitfish management plan; initially this may utilise the RBF PSA categories to determine appropriate levels of exploitation (areal overlap, vertical overlap etc). Consider habitats and ecosystem effects. | | | Develop baitfish management to SG80 level (if required). |
| 2.3.1 | ETP species Outcome | | Commission desk review of likely indirect (trophic) effects of fishery, including baitfish. Include review of likely seabird and turtle catches and their effect on populations. | | | |
| 2.3.3 | ETP species information | Integrate data gathering on ETP species interactions within observer programme and/or commission specific study on interactions | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Principle 3** | | | | | |
| 3.2.5 | Management Performance Evaluation | Commission external review of National management system, targeting aspects of weakness identified here. | | | | |
| 3.1.3 | Long-term Objectives | | Include specific reference to the precautionary approach in long-term objectives; illustrate how this would be applied. Link with Decision-making process. Ensure policy requires that long-term objectives to be set. | | | |
| 3.2.1 | Fishery-specific Objectives | | Develop fishery-specific objectives linked to any future development of catch quotas by IOTC/WCPFC. Develop similar objectives for baitfish. | | | |
| 3.2.2 | Decision making Processes | | **CRITICAL**. An external review should prioritise the information gathering and decision-making process within Government. Decision-making processes should be developed in line with increased information; reporting on decision making should be included. | | | Further development of decision-making process, in part reflecting increased information. |

| | | | | | |
|---|---|---|---|---|---|
| 3.1.4 | Incentives and subsidies | Government or Industry should develop incentives promoting responsible exploitation of target, bycatch and baitfish stocks. Situation re subsidies should be reviewed and any subsidies contributing to unsustainable fishing (not fuel) removed. | | | |
| 3.2.3 | Compliance and Enforcement | Review existing MCS process and sanctions. Review levels of compliance. Plan MCS capacity development in line with planned development of management system. | | | Complete development of MCS systems to SG80 level - including demonstration of effectiveness |
| 3.2.4 | Research Plan | Produce research plan integrating national, IOTC and WCPFC initiatives; review data gaps and prioritise action. | | | |