**Ocean Outcomes** conducted eleven rapid assessments of strategically important Japanese fishery species to better articulate the Japanese fisheries landscape and to clearly map out the potential for fishery improvement and third party certification of fisheries targeting these species.

We chose ten Japanese fishery species to evaluate from an initial list of the top 20 species by production volume, selecting those that are important to the global market or that appeared to have good potential for implementing improvements. We also assessed a specific Pacific bluefin tuna fishery for FIP scoping purposes given the importance of this species in Japan. First, we developed a rapid assessment protocol based on a select group of 19 performance indicators within the three Marine Stewardship Council (MSC) principles.

MSC previously determined that these specific indicators are especially predictive of scores at the principle level. We gathered fishery information and conducted the assessments, in which we summarized information within each MSC principle and assigned a scoring range (0-40, 40-60, 60-80, 80-100) to each performance indicator. Many of these species are harvested by multiple gear types, so we conducted the assessments at a more general level rather than focusing on specific gear types. Based on the information summaries, we identified key sustainability issues for each species as well as those shared across species. We also made an initial determination as to whether the fisheries for each species appeared suitable for MSC certification within the near term (roughly the next 5 years).

**These assessments** will help inform policy, management, funding, and the direction of sustainable seafood work in Japan.

**MSC Fisheries Standard:**

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**Principle 1:** Sustainable fish stocks - The fishing activity must be at a level which ensures it can continue indefinitely

**Principle 2:** Minimizing environmental impact - Fishing operations must be managed to maintain the structure, productivity, function, and diversity of the ecosystem

**Principle 3:** Effective management - The fishery must comply with relevant laws and have a management system that is responsive to changing circumstances
To conduct the assessments we used information from stock assessments conducted by scientists at the Fisheries Research Agency of Japan (FRA) and from policy documents posted by the Japan Fisheries Agency (JFA). In the summaries below, we refer to FRA stock status determinations (low, medium, or high). The status may not be linked to actual fish abundance because it is often determined by dividing the range of past catches into thirds, and then seeing whether the most recent catch falls within the lower third (low), middle third (medium), or higher third (high). This FRA evaluation method is straightforward but fails to consider whether stock abundance is being maintained at an ecologically sustainable level. For tuna species we used reports from the International Seafood Sustainability Foundation and the Regional Fisheries Management Organizations (RFMOs) that manage the respective tuna stocks.

Across all of the eleven species assessed, scoring ranges for performance indicators were lowest for MSC Principle 1 (Fig. 1). The lowest scores were for species that appear to have low population abundances based on stock assessments. For Principle 2, most performance indicators scored in the 60-80 range, largely due to uncertainty about the identity and status of non-target species as well as fishery impacts on these species. Scores were highest within Principle 3, but a substantial proportion of performance indicators did score below the 80 level. Any score below 60, that is orange or red, would cause the fishery to automatically fail the MSC assessment process.

Figure 1. Percentages of performance indicators in different scoring ranges, within the three MSC principles, across all eleven species assessed. Scores are especially low in Principle 1, which focuses on stock status.
Japanese amberjack

**Stock status:** High status according to the FRA, but actual abundance uncertain.

**Gear types:** large and small purse seines, set nets, gillnets, and longlines

**Japan catch volume:** 118,234 metric tons in 2013, ranked 13th by catch volume

**Region:** throughout Japan’s coastal waters except east of Hokkaido

**Markets:** Japan; imported into the USA, Canada, and Hong Kong

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**Key Sustainability Issues:**

Aquaculture produces over 50% of total amberjack supply, with wild capture fisheries supplying the remainder. The FRA assessment rates stock status as high due to large catches in recent years, but actual wild abundance is unknown because catch volumes are not directly tied to population sizes, and the JFA does not monitor catch-independent indices of abundance for this species group. There are also concerns about high exploitation rates of juveniles, which are removed from wild populations for use in aquaculture. Information on retained and bycatch species is needed.

**Certification Ready?**

Without significant improvement the fishery is unlikely to achieve MSC certification due to the uncertainty about wild stock status.
**Arabesque greenling**

**Stock status:** The Dohoku, Donan, and Nemuro Strait-Doto-Hidaka-Iburi stocks have low status according to the FRA.

**Gear types:** purse seines, set nets, stick held dip nets, scoop dip nets, vertical longlines

**Japan catch volume:** 51,700 metric tons for all stocks in 2013, ranked 11th by catch volume

**Region:** around Hokkaido

**Markets:** Japan

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**Key Sustainability Issues:**

Arabesque greenling are a commercially valuable species often caught in fisheries that also target Pacific cod, walleye pollock, or Pacific salmon. Limited biological information makes it difficult to estimate and predict abundance, but rapidly declining catches-- despite little reduction in fishing effort-- indicate that stocks are in decline. Habitat impacts of fishing gear, especially bottom otter trawls, may be substantial and require investigation.

**Certification Ready?**

Without significant improvement the fishery is unlikely to achieve MSC certification due to indications of declining stock abundances.

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**Rapid assessment scoring**

<table>
<thead>
<tr>
<th>Principle</th>
<th>Principle 1</th>
<th>Principle 2</th>
<th>Principle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>0-40</td>
<td>40-60</td>
<td>60-100</td>
</tr>
<tr>
<td>Number of performance indicators</td>
<td>0</td>
<td>2.5</td>
<td>5</td>
</tr>
</tbody>
</table>

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**Japan Rapid Assessments 2015**

Arabesque greenling
Bigeye tuna
メバチ
*Thunnus obesus*

**Stock status:** Western and Central Pacific Ocean bigeye tuna are considered overfished and are listed as vulnerable on the IUCN Red List.

**Gear types:** longlines, purse seines (sometimes used in conjunction with Fish Aggregating Devices (FADs)), pole and line, handline

**Japan catch volume:** averaged 46,000 metric tons from 2009 to 2013, ranked 16th by catch volume

**Region:** worldwide in tropical and subtropical waters of the Pacific, Indian, and Atlantic oceans

**Markets:** Japan; imported into Thailand, Guam, and Hong Kong

**Key Sustainability Issues:**

The Western Central Pacific Fisheries Commission (WCPFC) manages Western and Central Pacific Ocean (WCPO) bigeye tuna, the primary stock harvested by Japanese fisheries. The stock is considered overfished, but there are still no official harvest control rules and no clear plan for rebuilding the stock. Bycatch of protected species can occur, particularly for longline gear and purse seines set near FADs.

**Certification Ready?**

Without significant improvement the fishery is unlikely to achieve MSC certification due to the overfished status of the WCPO stock.
Chub and blue mackerel
マサバ、ゴマサバ
*Scomber japonicus* and *Scomber australasicus*

**Stock status:** According to the FRA, the Pacific Ocean and Tsushima Current chub mackerel stocks have low status, Pacific Ocean blue mackerel have high status, and East China Sea blue mackerel have medium status.

**Gear types:** purse seines, set nets, stick held dip nets, scoop dip nets, vertical longlines

**Japan catch volume:** 429,000 metric tons for all stocks in 2013 (284,000 mt of chub mackerel and 145,000 mt of blue mackerel), ranked 1st by catch volume

**Region:** Sea of Japan and East China Sea south of Akita, Pacific Ocean south of Nemuro

**Markets:** Japan; imported into Egypt, China, and Thailand

**Key Sustainability Issues:**

Catch information suggests that chub mackerel stocks are depleted while blue mackerel stocks are more abundant. However, these two species are managed together under a single Total Allowable Catch (TAC) due to their similar physical appearance and overlapping geographic distributions, which will not aid recovery of the depleted stocks. There is a need for standardized monitoring of retained and bycatch species, and data on habitat impacts of fishing gear are lacking.

**Certification Ready?**

Without significant improvement the fishery is unlikely to achieve MSC certification due to the low stock status of chub mackerel stocks and lack of a harvest strategy that allows for stock rebuilding.

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*Graphs and charts showing catch trends and rapid assessment scoring.*
Japanese flying squid
スルメイカ
Todarodes pacificus

**Stock status:** The fall and winter stocks have high and medium status, respectively, according to the FRA.

**Gear types:** squid jigging, set nets, otter trawls, purse seines, gillnets

**Japan catch volume:** 251,500 metric tons in 2013, ranked 7th by catch volume

**Region:** all around Japan for winter stock, fall stock in the Sea of Japan

**Markets:** Japan, imported into Korea, China, and Russia

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**Key Sustainability Issues:**

Japanese flying squid are not being harvested to the the point of impairing population productivity, but management should consider assessing stock status against reference points based on achieving maximum sustainable yield (MSY). This would help ensure that stocks are being harvested at a sustainable level. Better monitoring information is needed for catches of non-target species, although jigging and handline gear are selective and have low bycatch rates.

**Certification Ready?**

Japanese flying squid fisheries could be good candidates for MSC certification because stocks are not overfished. This is particularly true for handline or jigging fisheries because catches of non-target species are limited for these gear types.
**Japanese jack mackerel**

*Trachurus japonicus*

**Stock status:** The Pacific Ocean and Tsushima Current stocks both have medium status according to the FRA, but actual abundances are unclear.

**Gear types:** purse seines and set nets

**Japan catch volume:** 148,000 metric tons in 2013, ranked 10th by catch volume

**Region:** Pacific Ocean, Sea of Japan, and East China Sea from Akita and Iwate prefectures and southward

**Markets:** Japan

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**Key Sustainability Issues:**

There is substantial aquaculture production of this species, so aquaculture impacts may need to be considered. The FRA rates stock status as medium, but it is uncertain if stock abundances are stable because maximum sustainable yield (MSY)-based reference points are not used. Additionally, the JFA manages both stocks under a single total allowable catch (TAC), which is not a precautionary strategy. If one of the stocks becomes depleted, the single TAC will not effectively limit catches on the depleted stock unless the TAC is significantly reduced. The fishery lacks catch monitoring information and management objectives for non-target species.

**Certification Ready?**

Without significant improvement the fishery is unlikely to achieve MSC certification because the harvest strategy is not precautionary, and there is some uncertainty about stock status.
Pacific bluefin tuna
クロマグロ
*Thunnus orientalis*

**Stock status:** Pacific bluefin stock is depleted and listed as vulnerable on the IUCN Red List.

**Gear types:** purse seines, longlines, set nets, gillnets, pole and line

**Japan catch volume:** averaged 14,600 metric tons from 2002-2013

**Region:** throughout the North Pacific Ocean with a limited distribution in the Southern Hemisphere

**Markets:** Japan

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**Key Sustainability Issues:**

The Pacific bluefin tuna stock status is depleted, with the 2014 stock assessment estimating the spawning stock biomass to be at a historic low. The Western Central Pacific Fisheries Commission has recommended reducing catches of juveniles but has not implemented an effective, precautionary harvest strategy that will allow for stock rebuilding. Official stock reference points are lacking, and catch information for non-target species will need to be collected for smaller domestic fisheries.

**Certification Ready?**

Without significant improvement, the fishery is unlikely to achieve MSC certification due to depleted stock status.

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**Rapid assessment scoring**

- **Principle 1:**
  - 80-100
  - 80-60
  - 40-60
  - 0-40

- **Principle 2:**
  - 10
  - 7.0
  - 5.0
  - 2.5

- **Principle 3:**
  - 10
  - 7.0
  - 5.0
  - 2.5
**Pacific saury**

*Cololabis saira*

**Stock status:** Stock status is high according to the FRA, but actual abundance is uncertain.

**Gear types:** stick held dip nets, and to a much smaller extent, gillnets and set nets

**Japan catch volume:** 404,148 metric tons in 2013, ranked 5th by catch volume

**Region:** Pacific Ocean north of Chiba Prefecture, and Hokkaido coastal areas in the Okhotsk Sea

**Markets:** Japan, imported into Russia, Korea, and Thailand

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**Key Sustainability Issues:**

The FRA evaluates the stock status of Pacific saury on the basis of catch per unit effort data and does not use maximum sustainable yield (MSY)-based benchmarks, resulting in uncertainty about population abundance. Additionally, effective management will require international coordination because the stock is harvested by other countries. Catch of non-target species appears minimal for stick-held dipnet fisheries, the primary gear type used to fish Pacific saury.

**Certification Ready?**

Uncertainty about stock status makes achieving MSC certification unlikely. If that issue can be resolved, however, stick held dip net fisheries appear well suited for MSC certification.

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**Rapid assessment scoring**

- Principle 1: 2.5
- Principle 2: 5
- Principle 3: 7.5

![Graph showing catch data and rapid assessment scoring](image-url)
Skipjack tuna
カツオ
Katsuwonus pelamis

**Stock status:** The Western and Central Pacific Ocean and Indian Ocean skipjack tuna stocks appear healthy, at a level that can produce maximum sustainable yield (MSY).

**Gear types:** purse seines (sometimes used in conjunction with Fish Aggregating Devices (FADs)), pole-and-line, troll, and set nets

**Japan catch volume:** averaged 268,000 metric tons from 2009 to 2013, ranked 3rd by catch volume

**Region:** throughout tropical and warm-temperate waters except the Black Sea

**Markets:** Japan; imported into Thailand for processing; canned product exported to the USA, EU, Middle East, Australia, and Canada

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**Key Sustainability Issues:**

Skipjack tuna stocks are above the level at which productivity will be impaired, but scientists have concerns about the ongoing high exploitation rates. Tuna Regional Fisheries Management Organizations have not implemented a precautionary harvest strategy or adopted official stock reference points. Purse seine fisheries have substantial catches of non-target species, some of which are depleted.

**Certification Ready?**

Skipjack tuna fisheries using more selective gear, such as pole-and-line, are reasonable candidates for MSC certification. The Meiho pole-and-line skipjack and albacore tuna fishery entered MSC assessment on March 31, 2015. Purse seine fisheries are less suitable for certification due to bycatch issues.

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**Rapid assessment scoring**

- **0-40**
- **40-60**
- **60-90**
- **90-100**

Number of principles: 10
Walleye pollock
スケットウダラ
Theragra chalcogramma

Stock status: According to the FRA, the Pacific Ocean and and Southern Okhotsk Sea stocks have medium status, while the Northern Japan Sea and Nemuro Strait stocks have low status.

Gear types: gillnets set nets, bottom otter trawls, traditional seine (かけまわし), and longlines

Japan catch volume: 210,000 metric tons in 2013, ranked 8th by catch volume

Region: mainly around Hokkaido, with some fish distributions extending to northern Honshu

Markets: Japan, imported into Korea, China, and Russia

Key Sustainability Issues:
Current stock abundances are substantially lower than they were before the 1990s, and a recovery plan has been implemented for the Pacific walleye pollock stock. Despite the FRA determining that two stocks have low status, the JFA sets allowable catches substantially higher than biologically recommended levels. There is little information on catches of non-target species, and one of the gear types (bottom otter trawl) likely has detrimental impacts on habit.

Certification Ready?
Without significant improvement the fishery is unlikely to achieve MSC certification because two stocks have low status, and the harvest strategy is not precautionary.
Yellowfin tuna
キハダ
Thunnus albacares

**Stock status:** The Western and Central Pacific Ocean and Indian Ocean yellowfin tuna stocks appear healthy, at a level that can produce maximum sustainable yield (MSY).

**Gear types:** purse seines (sometimes used in conjunction with Fish Aggregating Devices (FADs)), longlines, pole and line, handline

**Japan catch volume:** averaged 62,000 metric tons from 2009 to 2013, ranked 14th by catch volume

**Region:** throughout tropical and warm-temperate seas except the Mediterranean Sea

**Markets:** Japan; canned product exported to the USA, European Union, Middle East, Australia, and Canada

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**Key Sustainability Issues:**

Yellowfin tuna stocks generally appear healthy, but Regional Fisheries Management Organizations have not implemented a precautionary harvest strategy or adopted official stock reference points. Some gear types incidentally catch depleted species (sharks and birds for longlines, bigeye tuna for purse seine fisheries on FADs). Pole-and-line and handline are more selective gear types that have less bycatch.

**Certification Ready?**

Pole-and-line fisheries are reasonable candidates for MSC certification, while longline and purse seine fisheries may be better candidates for improvement projects since these gear types have greater impacts on Endangered, Threatened, or Protected (ETP) or depleted species.