



8950 Martin Luther King Jr. Street North, Suite 202  
St. Petersburg, FL 33702 USA  
Tel: (727) 563-9070  
Fax: (727) 563-0207  
Email: [mrag.americas@mragamericas.com](mailto:mrag.americas@mragamericas.com)

President: Andrew A. Rosenberg, Ph.D.

## **AAFA and WFOA North Pacific Albacore Tuna**

### **MSC 2<sup>nd</sup> Re-Assessment**

### **Public Certification Report**

Prepared for American Albacore Fishing Association (AAFA)  
and Western Fishboat Owners Association (WFOA)

Certificate No: MRAG-F-0052

**MRAG Americas, Inc.**

June 14<sup>th</sup>, 2018

Authors: Amanda Stern-Pirlot, Max Stocker and Erin Wilson

# Table of Contents

List of Tables.....	3
List of Figures .....	4
1 Executive Summary.....	5
2 Authorship and Peer Reviewers .....	7
3 Description of the Fishery .....	10
3.1 Unit(s) of Assessment (UoA) and Scope of Certification Sought.....	10
3.1.1 UoA and Proposed Unit of Certification (UoC) .....	10
3.1.2 Final UoC(s) .....	10
3.1.3 Total Allowable Catch (TAC) and Catch Data .....	10
3.1.4 Scope of Assessment in Relation to Enhanced Fisheries.....	11
3.1.5 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF) .....	11
3.2 Overview of the fishery .....	11
3.3 Principle One: Target Species Background.....	11
3.3.4 2017 North Pacific Albacore Stock Status.....	20
3.3.5 Conservation information .....	27
3.3.6 Harvest strategy and harvest control rules.....	29
3.4 Principle Two: Ecosystem Background .....	32
3.4.1 Background .....	32
3.5 Principle Three: Management System Background .....	40
4 Evaluation Procedure .....	51
4.1 Harmonised Fishery Assessment.....	51
4.2 Previous assessments.....	51
4.3 Assessment Methodologies.....	53
4.4 Evaluation Processes and Techniques .....	53
4.4.1 Site Visits.....	53
4.4.2 Consultations.....	56
4.4.3 Evaluation Techniques .....	56
5 Traceability .....	58
5.1 Eligibility Date .....	58
5.2 Traceability within the Fishery .....	58
5.3 Eligibility to Enter Further Chains of Custody .....	59
5.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody .....	60
6 Evaluation Results .....	60
6.1 Principle Level Scores .....	60
6.2 Summary of PI Level Scores .....	61
6.3 Summary of Conditions .....	62
6.4 Recommendations.....	62

6.5	Determination, Formal Conclusion and Agreement.....	62
6.6	Changes in the fishery prior to and since Pre-Assessment.....	62
	References.....	63
	Appendices.....	68
	Appendix 1 Scoring and Rationales.....	68
	Appendix 1.1 Performance Indicator Scores and Rationale.....	68
	Appendix 1.2 Risk Based Framework (RBF) Outputs.....	143
	Appendix 1.3 Conditions.....	144
	Appendix 2 Peer Review Reports.....	147
	Appendix 3 Stakeholder submissions.....	165
	Appendix 4 Surveillance Frequency.....	174
	Appendix 5 Objections Process.....	175

## List of Tables

Table 1.	TAC and Catch Data.....	10
Table 2.	U.S. commercial landings (t) of North Pacific albacore for 2007-2016, by HMS-permitted vessels landing albacore (ISC 2017d). .....	16
Table 3.	Percentage average annual catch by country from 2003-2012 (ISC 2014). .....	16
Table 4.	Estimates of maximum sustainable yield (MSY), female spawning biomass (SSB) quantities, and fishing intensity (F) based reference point ratios for north Pacific albacore tuna for the base case assessment and important sensitivity analyses (ISC 2017a). .....	24
Table 5.	Number of vessels and commercial landings (round mt) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990-2016, Canadian vessels included (PFMC 2016a) .....	34
Table 6.	Catch limits for Pacific Fisheries Management Council monitored northern anchovy stocks (PFMC 2011c). .....	36
Table 7.	West coast landings (t) of northern anchovy, 1981 – 2010 (PFMC 2011d). .....	36
Table 8.	Bait usage by the AAFA fleet as estimated by experienced AAFA fishing captains (from Blythe-Skyrme et. al. 2012). .....	37
Table 9.	Harmonized Principle 1 scores across certified North Pacific albacore fisheries....	51
Table 10.	Summary of Previous Assessment Conditions. ....	52
Table 11.	AAFA and WFOA surveillance audit and reassessment participants and affiliations. ....	54
Table 12.	Consultation Meetings during the Surveillance and Rassessment of the AAFA and WFOA Fishery. ....	54
Table 13.	Scoring elements .....	57
Table 14.	Traceability Factors within the Fishery.....	58
Table 15.	Final Principle Scores .....	60
Table 16.	Summary of Performance Indicator Scores.....	61
Table 17.	Summary of Conditions.....	62

## List of Figures

Figure 1. Distribution and spawning area of albacore in the North Pacific Ocean. ....	13
Figure 2. Spatial distribution of reported logbook fishing catch by the 2015 U.S. albacore troll and pole-and-line fishery in number of fish (ISC 2017e).....	15
Figure 3. Size distribution of albacore catch by the U.S.A. North Pacific albacore ( <i>Thunnus alalunga</i> ) troll and pole-and-line fishery in 2016 (ISC 2017e).....	17
Figure 4. Trends and coefficients of variation (CVs; input + additional CVs) of the primary adult index used in the base-case model (ISC 2017a). ....	20
Figure 5. Estimated catches of north Pacific albacore ( <i>Thunnus alalunga</i> ) by major gear types (1993-2015) The other gear category includes catches with purse seine, recreational gear, hand lines, and harpoons (ISC 2017a). ....	21
Figure 6. Maximum likelihood estimates of total age-1+ biomass of north Pacific albacore tuna ( <i>Thunnus alalunga</i> ) (ISC 2017a).....	22
Figure 7. Maximum likelihood estimates of female spawning biomass (SSB) (solid blue line) of north Pacific albacore tuna ( <i>Thunnus alalunga</i> ). (ISC 2017a). ....	22
Figure 8. Kobe plot showing the status of the north Pacific albacore ( <i>Thunnus alalunga</i> ) stock relative to the 20%SSB <sub>current</sub> ,F=0 limit reference point and equivalent fishing intensity (F20%; calculated as 1-SPR20%) over the base case modelling period (1993-2015). (ISC 2017a).....	23
Figure 9. Fishery impact analysis on north Pacific albacore ( <i>Thunnus alalunga</i> ) showing female spawning biomass (SSB) (red) estimated by the 2017 base case model as a percentage of dynamic unfished female SSB (SSB <sub>0</sub> ) (ISC 2017a). ....	25
Figure 10. Maximum likelihood estimates of age-0 recruitment (open circles) of north Pacific albacore tuna ( <i>Thunnus alalunga</i> ). Vertical bars indicate 95% confidence intervals of recruitment estimates (ISC 2017a). ....	26
Figure 11. Kobe plot showing stock status and 95% confidence intervals in the terminal year (2015) of the base case model (black; closed circle) and important sensitivity runs with $M = 0.3 \text{ y}^{-1}$ for both sexes (blue; open square), and $CV = 0.06$ for $L_{inf}$ in the growth model (white; open triangle). (ISC 2017a).....	26
Figure 12. Historical and future trajectory of north Pacific albacore ( <i>Thunnus alalunga</i> ) female spawning biomass (SSB) under a constant fishing intensity (F harvest scenario. (ISC 2017a).....	28
Figure 13. Historical and future trajectory of north Pacific albacore ( <i>Thunnus alalunga</i> ) female spawning biomass (SSB) under a constant catch (average 2010-2014 = 82,432 t) harvest scenario. (ISC 2017a). ....	28
Figure 14. Schematic representation of the major fronts in the temperate zone of the North Pacific based upon numerous individual observations (dots). The transition zone lies between the fronts (Laurs & Lynn 1991). ....	33
Figure 15. WCPFC and IATTC Convention Areas (Fisheries and Oceans Canada).....	41

# 1 Executive Summary

This Public Certification Report sets out the results of the Marine Stewardship Council (MSC) re-assessment of the AAFA and WFOA North Pacific albacore (*Thunnus alalunga*) fisheries against the MSC Principles and Criteria for Sustainable Fishing.

MRAG Americas was contracted in 2017 by the American Albacore Fishing Association (AAFA) and Western Fishboat Owners Association (WFOA) to undertake the MSC reassessment of the North Pacific albacore pole and line and troll and jig fisheries, which were originally certified in August 2007, and recertified in December 2012.

There is one unit of assessment identified, and assessed during the recertification process:

Species	Albacore tuna ( <i>Thunnus alalunga</i> )
Stock Name	North Pacific Albacore tuna
Geographical Area	North Pacific Ocean
Fishing Method/s	Pole & line and troll/jig
Management System/s	Internationally through the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC), with USA national measures as developed and proposed through the Pacific Fishery Management Council (PFMC) and Department of Commerce processes and applied through US NOAA Fisheries and National Marine Fisheries Service (NMFS).
Client Group	AAFA and WFOA members and affiliated fishers.
Other Eligible Fishers	Other US pole & line and troll/jig fishers catching North Pacific albacore tuna.

The assessment was undertaken in accordance with the MSC Fisheries Certification Requirements v2.0 and using the MSC Guidance to MSC Fisheries Certification Requirements v2.0 which sets out the assessment and certification process. As a result, to date, the following steps have been undertaken:

- Announcement of the assessment
- Appointment of the recertification assessment team
- Notification on the use of the assessment tree
- Notification and undertaking of the site visit
- Production of the client draft report that describes the background to the fishery, the fishery management operation and the evaluation procedure and results
- Production of the Peer Review Report
- Response to Peer Review comments, and report revisions where necessary
- Production of the Public Comment Draft Report
- Response to stakeholder comments on the Public Comment Draft Report
- Review by MRAG Americas' qualified nominated Reviewer and Decision Maker
- Consultation on the Final Report and Determination
- Production of the Public Certification Report

The assessment of the fishery was performed by Max Stocker, Amanda Stern-Pirlot, and Erin Wilson, covering primarily Principle 1 (target stock), Principle 2 (ecosystem) and Principle 3 (management) components of the MSC standard respectively. Amanda Stern-Pirlot was also the Team Leader.

A recertification site visit was conducted in La Jolla, California, August 9-11, 2017 with other meetings held remotely during the prior week. During that time the assessment team met with scientists, fishery managers and stakeholders as well as client representatives. The site visit for this recertification assessment was conducted in conjunction with the fourth annual surveillance audit for the fishery. There were no meetings requested from additional stakeholders (ENGOs) and one written submission was received from a stakeholder asking to be kept informed of the assessment process and besides some minor technical comments from MSC, one substantive stakeholder submission was received during the Public Comment Period. Stakeholder comments received on the PCDR are addressed in Appendix 3.

In summary, all three Principles scored an average of more than 80, with each Performance Indicator scoring at least 60. On the basis of this assessment, the Assessment Team recommends that the fishery be certified. Following this recommendation of the assessment team, review by stakeholders and peer-reviewers, and the completion of the objections period, a final decision is hereby made by MRAG Americas to recertify this fishery.

The following strengths and weakness were identified with respect to each Principle:

### **Principle 1**

#### Strengths:

The scientific basis for the sustainable target fish stock is very strong. There is an active ongoing research program in place for addressing areas of uncertainty, and an international effort to provide scientifically sound stock assessment advice through adaptive modelling techniques.

#### Weaknesses:

Weaknesses of the management of the north Pacific albacore tuna fishery relate to the RFMOs lack of progress on developing harvest control rules and an associated target reference point.

### **Principle 2**

#### Strengths:

The highly selective nature of the fishing gear used, and its pelagic nature (never contacting the seabed) ensure that there is negligible bycatch, habitat or ecosystem impacts.

#### Weaknesses:

There is a lack of systematic data collection from the fishery as the fishery is not regularly observed, nor an obligation for logbook records of any non-target species to be kept. This is likely appropriate for a fishery with such an inherently low impact, however improvements in this regard would help increase confidence with regard to understanding of potential impacts particularly to ETP species.

### **Principle 3**

#### Strengths:

The management policies in place both at the domestic and international level have explicit short and long term objectives where the roles and responsibilities of the governing body are clear and well defined.

#### Weakness:

Because of the overall lack of resources reported both at the domestic and international level for HMS fisheries, it is difficult to assess with a high degree of confidence that sanctions and control mechanisms demonstrably provide effective means of compliance. It is also unclear if

decision-making processes respond to issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner.

Based on the information available to date, the AAFA and WFOA North Pacific Albacore Fishery achieved overall scores of 85.0 for Principle 1, 97.7 for Principle 2, and 88.1 for Principle 3. As such, the fishery is recommended for recertification against the MSC Standard, as no indicator scored less than 60, and all average principle scores were above 80.

One condition remains open from the previous certification (PI 1.2.2), as has been allowed by the MSC for tuna fisheries entering reassessment using version 2.0 of the Fisheries Standard.

All comments and information presented by the peer reviewers and stakeholders were considered and the report revised as necessary prior to the publication of the Final Report and Determination in May, 2018.

## 2 Authorship and Peer Reviewers

The assessment of North and South Pacific albacore tuna pole & line and troll/jig fisheries was undertaken by Ms. Amanda Stern-Pirlot, Dr. Max Stocker and Ms. Erin Wilson. Amanda Stern-Pirlot was the Assessment Team Leader.

**Ms. Amanda Stern-Pirlot** is an M.Sc. graduate of the University of Bremen, Center for Marine Tropical Ecology (ZMT) in marine ecology and fisheries biology. Ms. Stern-Pirlot joined MRAG Americas in mid-June, 2014 as Director of Fisheries Certification, and is currently serving on the assessment team for New Zealand Orange Roughy and leading on assessment teams for Washington and California pink shrimp, Danish plaice, fishmeal, and herring, and North and South Pacific albacore tuna. She has worked together with other scientists, conservationists, fisheries managers and producer groups on international fisheries sustainability issues for the past 10 years. With the Institute for Marine Research (IFM-GEOMAR) in Kiel, Germany, she led a work package on simple indicators for sustainable within the EU-funded international cooperation project INCOFISH, followed by five years within the Standards Department at the Marine Stewardship Council (MSC) in London, developing standards, policies and assessment methods informed by best practices in fisheries management around the globe. Most recently she has worked with the Alaska pollock industry as a resources analyst, within the North Pacific Fisheries Management Council process, focusing on bycatch and ecosystem-based management issues, and managing the day-to-day operations of the offshore pollock cooperative. She has co-authored a dozen publications on fisheries sustainability in the developing world and the functioning of the MSC as an instrument for transforming fisheries to a sustainable basis.

**Max Stocker.** Dr. Stocker is a scientist with over 38 years of extensive experience in fisheries science. He is currently proprietor of Stocker & Associates Consultants conducting Marine Stewardship Council (MSC) certification projects. Since 2009 he has worked as a team member for both principles 1 and 3 on a number of tuna and groundfish MSC assessments in the Pacific and Indian Oceans. Dr. Stocker has conducted many surveillance audits, several MSC peer reviews, and has also been involved in the development and evaluation of new MSC P1 assessment methodology. He is an MSC certified Fishery Team Member. Dr. Stocker acted as marine fisheries consultant under contract with Fisheries and Oceans Canada (DFO) to provide scientific advice on highly migratory species in the Pacific Ocean. He was the lead Canadian scientist for highly migratory species for the Western and Central Pacific Fisheries Commission (WCPFC) and

the Inter-American Tropical Tuna Commission (IATTC). He served as co-chair of the Stock Assessment Working Group of the Scientific Committee of the WCPFC and chaired the ISC Albacore Working Group. From 1978-2006 Dr. Stocker held the position of research scientist with DFO at the Pacific biological Station conducting population dynamic studies, conducting peer reviewed stock assessments of many marine species, and communicating results to fisheries managers and stakeholders. He authored and co-authored over 90 scientific papers and reports, and made over 50 presentations in national and international scientific meetings. Dr. Stocker chaired the Pacific Scientific Advice Review Committee (PSARC) for many years and edited and published over 30 advisory documents on the stock status of marine species and the implications of harvest management on these stocks. Additionally, Dr. Stocker served as in-house stock assessment consultant to the New Zealand Fishing Industry Board in the early 1990s conducting peer reviewed stock assessments, participating in the peer review process, and advising the Board on inshore and Deepwater fisheries.

**Ms. Erin Wilson.** Erin Wilson joined MRAG Americas, Inc. as a Fisheries Consultant in February 2015. She has collaborated on several MSC assessments and conducts routine audits for the International Seafood Sustainability Foundation. Prior to joining MRAG Americas, she worked at the Oregon Department of Fish and Wildlife (ODFW) as a Natural Resource Specialist and Biological Technician for the Oregon Marine Reserves. Relevant skills and experience include research with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) at Oregon State University, Dive Operations at Mote Marine Laboratory in Sarasota Florida, aquarist/biologist at the Texas State Aquarium, and conducting socioeconomic profiles on coastal communities. She received a M.Sc. in Marine Resource Management from Oregon State University and a B.S. in Zoology from Colorado State University, along with a Spanish minor. Her primary research areas involve sustainability for coastal communities and the commercial fishing industry.

## **PEER REVIEWERS**

**Jo Akroyd.** Jo is a fisheries management and marine ecosystem consultant with extensive international and Pacific experience. She has worked at senior levels in both the public and private sector as a fisheries manager and marine policy expert. Jo was with the Ministry of Agriculture and Fisheries in New Zealand for 20 years. Starting as a fisheries scientist, she was promoted to senior chief fisheries scientist, then Fisheries Management Officer, and the Assistant Director, Marine Research. She was awarded a Commemoration Medal in 1990 in recognition of her pioneering work in establishing New Zealand's fisheries quota management system. Among her current contracted activities, she is involved internationally in fishery certification of offshore, inshore and shellfish fisheries as Fisheries Management Specialist and Lead Assessor for the Intertek Fisheries Certification audit team. She has carried out the Marine Stewardship Councils' (MSC) certification assessment for sustainable fisheries. Examples include NZ (hoki, southern blue whiting, albacore, hake, scallops), Fiji (longline albacore) Japan (pole and line tuna, flatfish, snowcrab, scallops), China (scallops), Antarctica (Ross Sea toothfish fishery).

**Dr. Joseph E. Powers** has been involved in fisheries issues for more than 40 years, conducting stock assessments, coordinating international stock assessment research, communicating scientific advice to fishery management councils and commissions and also serving as the senior marine fisheries manager in the southeast US. His background includes: professor of marine resource assessment at Louisiana State University; Senior Stock Assessment Scientist of the US's National Marine Fisheries Service (NMFS) southeast region, Laboratory Director of a NMFS facility; lead US scientist for Atlantic tuna, swordfish and billfish species for the International Commission for the conservation of Atlantic Tunas (ICCAT); Chair of the Scientific Committee of ICCAT; Chair of the Stock Assessment Committee for Southern Bluefin Tuna; Chair of the Scientific Committee of the

Gulf of Mexico Fisheries Management Council and he has worked on numerous Marine Stewardship Council assessments of tunas, swordfish, hake and other fisheries resources in the Atlantic, Pacific and Indian Oceans.

### 3 Description of the Fishery

#### 3.1 Unit(s) of Assessment (UoA) and Scope of Certification Sought

##### 3.1.1 UoA and Proposed Unit of Certification (UoC)

MRAG Americas confirms that this fishery is within scope for MSC assessment.

Species	Albacore tuna ( <i>Thunnus alalunga</i> )
Stock Name	North Pacific Albacore tuna
Geographical Area	North Pacific Ocean
Fishing Method/s	Pole & line and troll/jig
Management System/s	Internationally through the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC), with USA national measures as applied through the Pacific Fishery Management Council (PFMC) and US National Marine Fisheries Service (NMFS).
Client Group	AAFA and WFOA members and affiliated fishers.
Other Eligible Fishers	Other US pole & line and troll/jig fishers catching North Pacific albacore tuna.

AAFA and WFOA members are eligible. Other albacore pole and troll vessels having an HMS permit and approved by either WFOA or AAFA and listed as such are eligible.

This UoA was chosen because it reflects the activity of the US-based albacore pole and line/troll and jig fishing fleet while fishing on the North Pacific albacore stock.

##### 3.1.2 Final UoC(s)

The final UoC is identical to the above-described UoA, including the description of other eligible fishers. The reason for choosing this UoC is the same as the reason give above for choosing the UoA.

##### 3.1.3 Total Allowable Catch (TAC) and Catch Data

**Table 1. TAC and Catch Data**

Total North Pacific albacore tuna catch (Note – no TAC is applied)	Year	2015	Amount	64,239 t
Total UoA catch of North Pacific albacore tuna (Note – no TAC)	Year	2015	Amount	11,571 t
Total UoC catch of North Pacific albacore tuna (Note – no TAC)	Year	2016	Amount	9,500 t (estimated by client)
Total green weight catch by UoC	Year (most recent)	2016	Amount	9,500 (estimated)

				by client)
	Year (second most recent)	2015	Amount	9,810 t (data from client)

### 3.1.4 Scope of Assessment in Relation to Enhanced Fisheries

This fishery is not an enhanced fishery.

### 3.1.5 Scope of Assessment in Relation to Introduced Species Based Fisheries (ISBF)

These are not fisheries based on introduced species.

## 3.2 Overview of the fishery

The U.S. surface troll fishery for albacore in the North Pacific began in the early 1900's, when fishers commenced targeting seasonally migrating albacore in near shore ocean waters off southern California. The troll fishery gradually spread northwards, extending to waters off the states of Oregon and Washington from the 1930's, and eventually to British Columbia, Canada. Until the late 1970's, the troll fishery usually began operating in early July, when migrating albacore approached the west coast of North America, and was primarily conducted in near shore oceanic waters. Subsequently, U.S. albacore fishers with larger vessels begin troll fishing in the early spring months on the high seas. The estimated number of vessels landing albacore peaked at more than 2,000 in the mid-1970's. However, in the mid 2000's, the number of U.S. troll vessels that landed albacore ranged from 652 and 870, with vessels smaller than about 17 m making up approximately two thirds of the fleet. The pole and line fishery for albacore was linked to the U.S. tropical tuna fishery for yellowfin, bigeye, and skipjack tunas. This fishery also began in the early 1900's with vessels operating within a one-day run from port to supply a cannery. A poor catch of albacore in 1918 forced pole-and-line boats to shift to fishing for tropical yellowfin and skipjack to fill the cannery's demand for tuna. In subsequent years, even though the availability of albacore may have been high, the amount of pole-and-line effort expended for albacore was thereafter greatly influenced by events in the tropical tuna fishery. Today, there are fewer than about 200 U.S. vessels using this fishing method for catching North Pacific albacore.

Albacore in the North Pacific is a highly migratory species that ranges across much of that oceanic area of the North Pacific between approximately 10° and 25° North. The Canadian Highly Migratory Species Foundation (CHMSF) prosecute MSC certified albacore fisheries in the same or similar waters as AAFA & WFOA. The Japanese pole and line skipjack and albacore fishery also prosecute MSC certified albacore in the western and central Pacific Ocean. Chinese Taipei and Korea also prosecute the adult stock on the high seas, mainly using long-lines. The U.S. Hawaiian long line fishery takes some albacore, while the species is also targeted recreationally wherever it occurs in nearshore waters. Large mesh drift gillnet vessels targeting swordfish and some shark species operating off California and Oregon, and longline vessels targeting swordfish, beyond the West Coast EEZ also harvest negligible amounts of albacore.

## 3.3 Principle One: Target Species Background

### 3.3.1 Biology of the target species

There are numerous articles in the primary literature, grey literature and books documenting details of the life-history and ontogeny of north Pacific albacore. The best historical source of this information is summarized by Foreman (1980), whereas the best recent information can be found in the 2014 and 2017 stock assessments (ISC 2014; ISC 2017a).

Albacore tuna, *Thunnus alalunga*, is a highly migratory species (HMS) caught in commercial fisheries throughout the world's oceans and the Mediterranean Sea. Albacore have unique biological characteristics that enable them to swim continuously at very high speeds and cover vast areas during annual migrations. Albacore are metallic dark blue along the back, with dusky to silvery white coloration along the sides and on the belly. Albacore are negatively buoyant fish that lack a swim bladder and have lost many structures needed to pump water over their gills to obtain oxygen, which collectively, translates to a life history strategy that requires constant swimming.

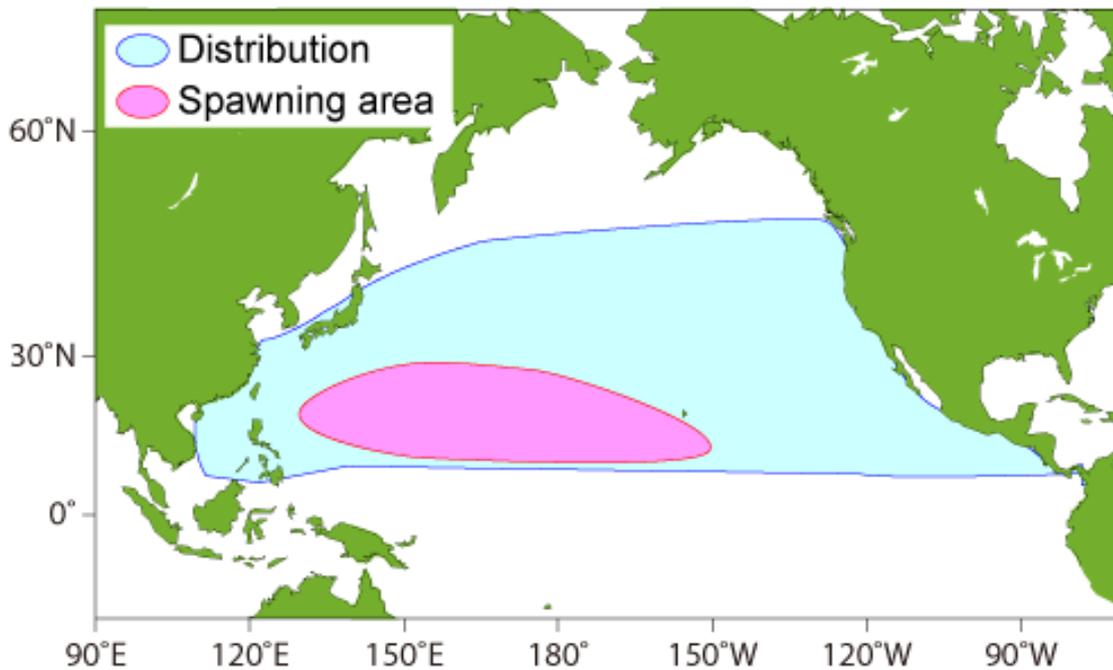
### **Stock structure**

Albacore tuna in the Pacific Ocean consists of two distinct stocks, the north Pacific stock (the subject of this evaluation) and the south Pacific stock. The equator is considered the north-south boundary between albacore stocks. Based on analysis of genetic data there is differentiation between north and south Pacific albacore (Takagi *et al.* 2001). Other relevant information supports the discreteness of the two stocks includes fishery data, tagging data and ecological data (ISC 2017a).

### **Distribution and Migration**

North Pacific albacore are highly migratory (Figure 1). Particularly the juvenile fish (2-5 year olds), typically undergo an expansive annual migration that begins in the spring and early summer in waters off Japan, continues throughout the late summer into inshore waters off the North American Pacific coast, and ends between fall and winter in the western north Pacific Ocean. It is generally believed that oceanic conditions strongly influence both the timing and geographical extent of the albacore's migration in a given year. Migrating albacore concentrate along thermal discontinuities (oceanic fronts) associated with waters of the Transition Zone in the North Pacific Ocean (Polovina *et al.* 2001, Zainuddin *et al.* 2006, 2008). The vast majority of albacore are caught in waters with sea-surface temperatures (SSTs) ranging from 15° to 19.5° C. The migrating fish are typically bounded by these thermal gradients as they conduct their round-trip travel across the Pacific Ocean. Although the bulk of the migrating stock is usually observed within this SST range, telemetry studies support that this species will spend brief periods of time in much colder water (9.5° C).

Upwelling is another important factor associated with oceanic fronts and ultimately, an event that highly influences the distribution of the migrating albacore. It is likely that the albacore are attracted to upwelling fronts, given these areas are very productive and contain much forage for predatory fish. Other oceanographic parameters such as salinity, and thermal density also influence the migratory behaviour of the stock. In general, catches from the commercial fisheries indicate the albacore are most abundant along the warm side of upwelling fronts in clear blue oceanic waters that are associated with salinity gradients between 33 and 35 parts per thousand and well-defined thermoclines.



**Figure 1.** Distribution and spawning area of albacore in the North Pacific Ocean.

### **Physiology and Morphology**

Albacore are literally 'built for speed' in an ocean environment, with torpedo-shaped (fusiform) bodies, smooth skin (tiny, cycloid scales), and streamlined fins, which enable the fish to reach speeds of over 80 kilometres  $\text{h}^{-1}$  for short periods of time. Their tail fin is deeply forked in shape, enabling the tremendous thrust needed to maintain high speeds. Albacore have highly specialized physiological functions that allow for rapid movement and sustained endurance. They have a highly evolved circulatory system that includes counter current exchangers that act to reduce the loss of heat generated by increased muscular activity. This circulatory system allows them to regulate their body temperature. They maintain their body temperatures at higher levels than the temperature of the water in which they swim (Graham and Laurs 1982).

### **Maturity and Reproduction**

North Pacific albacore mature at roughly 5-6 years of age (approximately 85 cm in length). Ueyanagy (1957) estimated that 50% of the albacore were mature at age 5 and that 100% of age 6 and older were mature. Based on histological assessment of gonadal status and maturity albacore are assumed to have one spawning and recruitment period per year (Chen *et al.* 2010).

The North Pacific albacore stock spawns from March through September in the western and central Pacific (Figure 2). Peak spawning (April-June) of albacore is generally believed to occur in tropical and subtropical waters between Hawaii (155°W) and the east coast of Taiwan and the Philippines (120°E) and between 10 and 25°N latitude at depths exceeding 90 m (ISC 2014).

Albacore are batch spawners, broadcasting hydrated oocytes, in open water, with fertilization being external. Estimates of female fecundity (number of eggs) range from 0.8 to 2.6 million eggs per spawning (Ueyagany 1957, 1969; Yoshida 1968; Chen *et al.* 2010). Eggs are approximately 1 mm in diameter and remain buoyant by an enclosed oil droplet. Eggs develop rapidly, with hatching occurring in 24 to 48 hours. The early life history of albacore is not clearly understood, but very young albacore (larvae and juveniles in their first

year of life) are believed to remain relatively close to the spawning grounds and eventually, congregate in waters south and east of Japan prior to beginning their first migration.

### **Mortality**

A single female albacore produces millions of eggs over her lifetime. However, the majority of these eggs do not survive to the adult stage. Larvae and juveniles also experience high mortality, given their vulnerability as prey for other marine animals, including adult albacore, which have been observed to be cannibalistic. Previously instantaneous rate of natural mortality ( $M$ ) was assumed to be  $0.3 \text{ yr}^{-1}$  (ISC 2014). For the 2017 stock assessment results from studies using meta-analytical methods on arrangement of empirical relationships between  $M$  and life history parameters were incorporated (ISC 2017a). Based on these studies sex-specific  $M$ -at-age vectors were developed, with a sex-combined  $M$  that scaled with size for ages 0-2, and sex-specific  $M$  fixed at  $0.48$  and  $0.39 \text{ yr}^{-1}$  for age 3+ females and males respectively (ISC 2017a). The oldest known age of albacore is 15 years (Wells *et al.* 2013).

### **Growth**

Growth is rapid in immature albacore followed by slowing growth rates in mature and adult albacore (ISC 2014). Albacore in the north Pacific may grow to 45-64 cm in their first year (Clemens 1961, Chen *et al.* 2012, Wells *et al.* 2013) and reach about 60 cm when they recruit into the surface fishery at age 2. Maximum recorded size of a north Pacific albacore has been 128 cm (ISC 2014).

Albacore growth usually modelled using the von Bertalanffy growth model. Xu *et al.* (2014) calculated the von Bertalanffy growth parameters ( $L_{\text{inf}}$ ,  $K$  and  $t_0$ ) using conditional age-at-length data derived from otolith samples. The otolith samples were collected by Chen *et al.* (2012) and Wells *et al.* (2013). The resulting growth models suggest differences in the growth of male and female albacore as well as between the different regions of the North Pacific. Male albacore growth is faster than females after age 7-8 and results in a larger  $L_{\text{inf}}$  of approximately 119 cm fork length (FL) (based on combined Chen/Wells dataset), compared to 106 cm for female albacore (Xu *et al.* 2014).

### **Behaviour**

Albacore tuna show a range of behavioural differences as determined by archival tagging data. In Baja California, the tuna make frequent dives to depths exceeding 200m (660ft) during the day and remain near the surface at night, while off the coast of Washington and Oregon the tuna remain near the surface the entire day (Childers *et al.* 2011).

Similar size albacore travel together in school 'groups' that contain small aggregations of fish, which collectively, can be up to 30 km wide. At the onset of the migration, during the spring and summer months in the western Pacific Ocean, the young albacore form relatively small, loose, and broadly scattered groups. As the seasons progress, the groups become more compact and contain greater numbers of schools. The more sedentary, older albacore typically form more compact schools (Foreman 1980). Although albacore spend much of their time in the surface waters of the ocean (epipelagic zone), they will also explore deeper waters of the thermocline (mesopelagic zone) in search of prey.

### **Trophic structure**

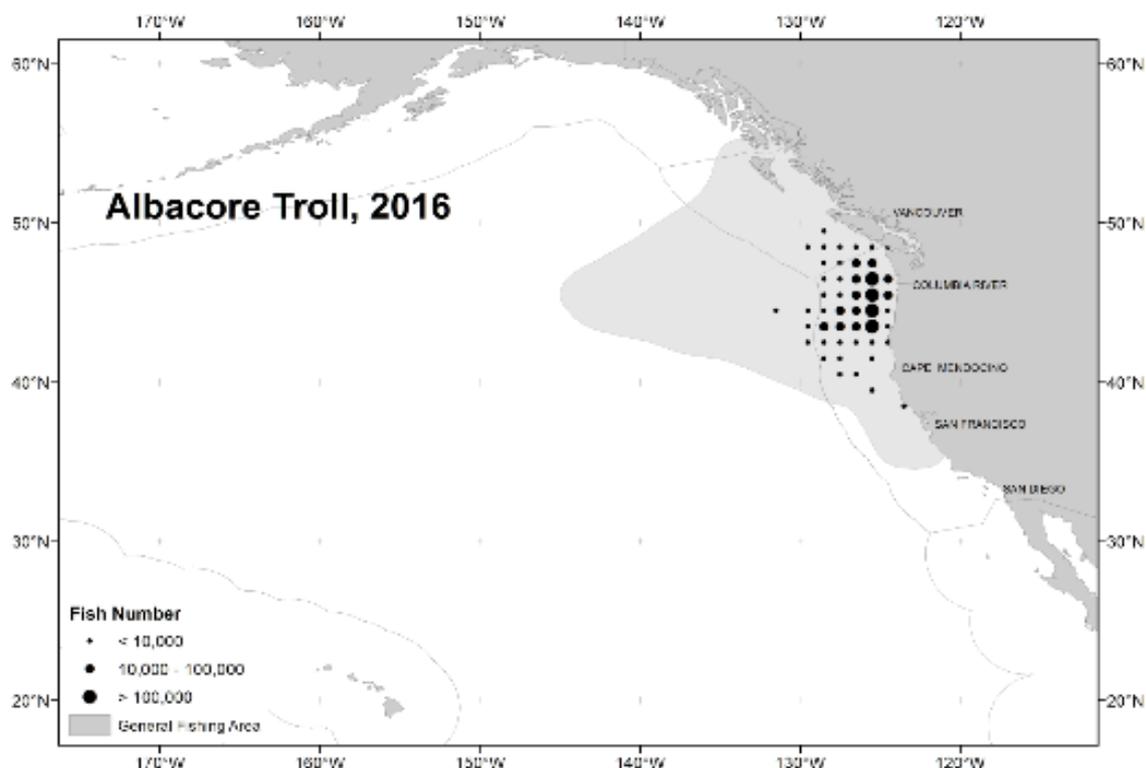
Albacore are top carnivores in the ocean ecosystem. They prey opportunistically on schooling species, such as sardine, anchovy, and squid. Albacore consume enormous amounts of food to fuel their high metabolism. Albacore are preyed upon by man, as well as the larger species of billfish, tuna, sharks, and marine mammals. Given albacore are routinely harvested by both surface-fishing gear (e.g., troll and pole-and-line) and subsurface-fishing gear (e.g., longline), it is likely that they feed in at least the upper 500 m of the ocean. Albacore feed primarily during the daylight hours. However, it has been shown that they will also feed at night (Foreman 1980).

### 3.3.2 History of fishing and management

**North Pacific albacore:** The US surface troll fishery for albacore in the North Pacific began in the early 1900's when fishers commenced targeting seasonally migrating albacore in near-shore oceanic waters off southern California to meet the needs of a tuna cannery established there. The troll fishery gradually spread northwards, but was restricted to waters off California until the late 1930's, when it extended to waters off the states of Oregon and Washington, and eventually to off British Columbia, Canada. Traditionally until the late 1970's, the troll fishery usually began operating in early July, when migrating albacore approach the west coast of North America, and was primarily conducted in near shore oceanic waters. From 1961 through 1979, approximately 99% of the reported US catches of North Pacific albacore were made within 200 miles of the North American coast, with 84% off the US coast and 9% and 7% in the jurisdictional waters of Mexico and Canada, respectively (Blyth-Skyrme *et al.* 2012).

Since the late 1970's, US albacore fishers with larger vessels may begin troll fishing in the early spring months on the high seas. Some of these vessels operate as far west as the International Dateline and beyond, to extend the fishing season by intercepting albacore migrating towards the coast of North America and locating high catch rate areas. The extent of the albacore migration is variable and a significant characteristic of the US surface fishery is the wide north-south variation in the geographical locations of the most productive fishing grounds. Uniquely, a large proportion of this variability is at the multi-decade rather than the inter-year time scale (Blythe-Skyrme *et al.* 2012).

The U.S.A. albacore troll and pole-and-line fishery in the North Pacific Ocean currently operates in waters between the U.S.A. West Coast and 160°W longitude (Figure 2). Fishing usually starts in May or June and ends in October or November (ISC 2017e).



**Figure 2.** Spatial distribution of reported logbook fishing catch by the 2016 U.S. albacore troll and pole-and-line fishery in number of fish (ISC 2017e).

The estimated number of US vessels landing albacore peaked at more than 2,000 in the mid-1970s. However, fewer vessels have been active in recent years. During the five year period 2011 to 2015 the number of US pole and troll vessels that landed albacore ranged from 587 and 841. In 2016, 571 vessels participated in the fishery, down from 625 in 2014 (ISC 2016c). The 10 year average (2006 to 2015) of US pole and troll vessels landing albacore was 656.

The total quantities of albacore landed by the US pole and troll fishery has varied over time, depending mainly on availability of the stock to fishermen and their vulnerability to capture, as well as on the market for albacore. The average annual landings for the last 10 years was 11,993 t (Table 2).

**Table 2. U.S. commercial landings (t) of North Pacific albacore for 2007-2016, by HMS-permitted vessels landing albacore (ISC 2017d).**

Year	Drift GN	Hand line	Long-line	Troll	Others	Purse seine	Sport	USA Total
2007	4	94	250	11,911	+	77	461	12,797
2008	1	28	354	11,762	+		418	12,563
2009	4	97	203	12,343	+	31	944	13,622
2010	5	53	421	11,691	0		862	13,032
2011	5	84	708	10,147	0		421	11,365
2012	8	253	660	14,152	2		1,212	16,287
2013	5	46	317	12,312	0		839	13,519
2014	0	49	208	13,369			1,045	14,671
2015	0.5	62	243	11,560	2		926	12,794
2016	0.8	31	250	10,687	7		675	11,650

In recent years as in the past a large proportion of the albacore catch has mostly been taken by Japanese longline and pole and line vessels (Table 3).

**Table 3. Percentage average annual catch by country from 2003-2012 (ISC 2014).**

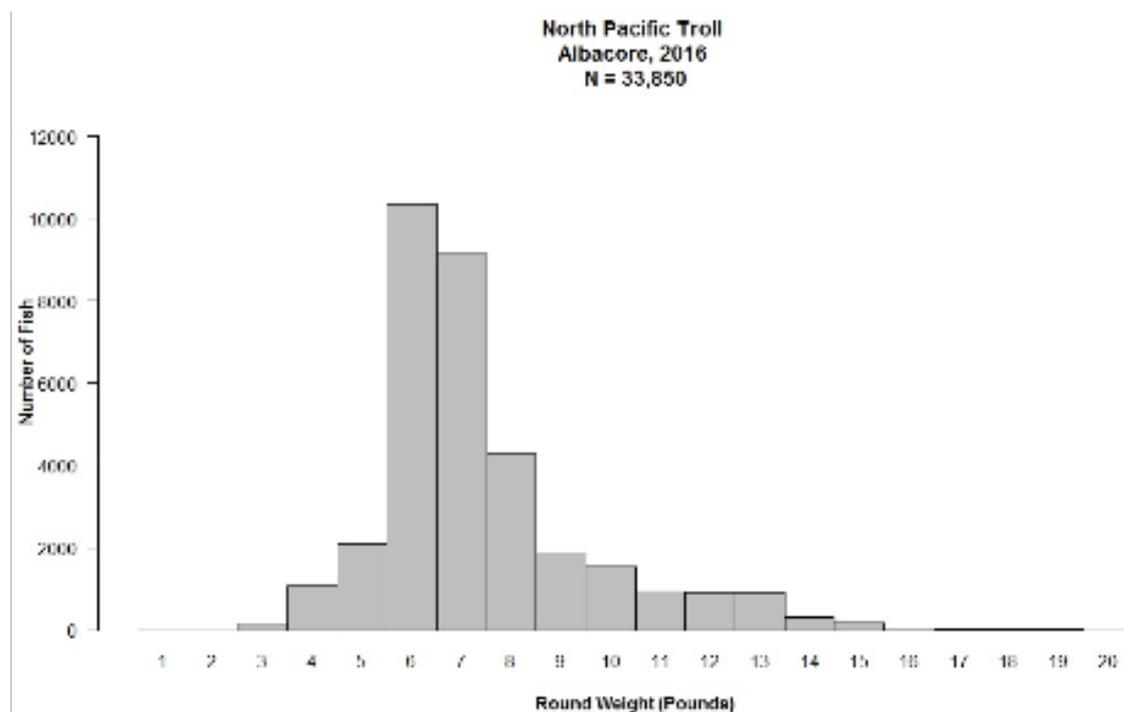
Country	Average Annual Catch (2003-2012)
Japan	63.5%
USA	17.7%
Canada	7.3%
Chinese Taipei	4.9%
China	1.6%
Korea, Mexico	0.27%
Tonga, Belize, Cook Islands, Vanuatu, Vietnam, Ecuador	4.6%

The U.S. troll and pole-and-line fishery catches almost exclusively albacore with minor incidental catches of skipjack (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*), and Pacific bluefin (*Thunnus orientalis*) tunas, eastern Pacific bonito (*Sarda chiliensis lineolata*), yellowtail (*Seriola lalandi*), and mahi (*Coryphaena hippurus*). Since 1985, the albacore catch has ranged from a low of 1,845 t in 1991 to a high of 16,962 t in 1996. In 2015 and 2016, 11,558 t and 10,686 t of albacore were caught, respectively by the U.S. fleet (ISC 2017e).

Starting in 2005, all U.S. vessels have been required to submit logbooks under a provision of the Highly Migratory Species Fishery Management Plan (HMS FMP). NOAA Fisheries and various state fisheries agencies monitor 100% of the fleet's landings through sales receipts

(fish tickets). A port sampling program has been in place for collecting size data from albacore landings along the U.S.A. Pacific coast since 1961 (ISC 2017e).

Generally sizes of albacore caught in the U.S. albacore troll and pole-and-line fishery range between 55 cm fork length (8.5 pounds) and 90 cm (32 pounds). A single dominant size mode is evident in samples collected in 2016, centred at 7 pounds (68 cm). The weight distribution of the catch for 2016 is shown in Figure 3. State fishery personnel collect the size data according to sampling instructions provided by NOAA Fisheries, who maintain the database. In recent years, cooperative fishermen have also collected size data on selected fishing trips to augment data collected through the port sampling program (ISC 2017e).



**Figure 3.** Size distribution of albacore catch by the U.S.A. North Pacific albacore (*Thunnus alalunga*) troll and pole-and-line fishery in 2016 (ISC 2017e).

In total 64,239 t of North Pacific albacore were caught in 2015. Of the 64,239 t caught 11,262 t of albacore were landed in ports in California, Oregon and Washington (UoA), and 9,810 t were caught by 224 vessels that are members of the client group. In 2016 a total of 10,443 t of albacore were landed in ports in California, Oregon and Washington (UoA). 9,500 t were caught by members of the client group. Table 1 details the total catch, and the UoA and UoC shares of the catch as well as total catch by the UoC (i.e., the total certified catch in 2016).

The National Marine Fisheries Service (NMFS) partially approved the fishery management plan (FMP) for West Coast highly migratory species fisheries on February 4, 2004. The FMP was developed by the Pacific Fishery Management Council in response to the need to coordinate state, Federal, and international management. The FMP (PFMC 2011) allows the Council to provide advice to NMFS and the Department of State, so that West Coast interests are represented in international negotiations and decision-making. It increases public awareness about West Coast HMS fishery issues, and facilitates greater public involvement in managing HMS fisheries. The FMP also helps garner congressional support to the Council and NMFS for the study and management of HMS fisheries. The FMP is a

“framework” plan, which means it includes some fixed elements as well as a process for creating or changing regulations without amending the plan (PFMC 2015).

Any commercial vessel landing Highly Migratory Species (HMS) on the West Coast of the United States must obtain a Federal permit from the National Marine Fisheries Service (NMFS). Both commercial and recreational charter boat harvesters of HMS species must keep logbooks documenting their catch. Some, such as large-mesh gillnetters, are required to carry fishery observers. These measures are intended to improve data about HMS catches (PFMC 2017a).

Each year, the Pacific Fisheries Management Council’s (PFMC) Highly Migratory Species Management Team prepares a Stock Assessment and Fishery Evaluation Report that provides information on the status of HMS stocks including albacore and fisheries (<http://tinyurl.com/yck9hdnh>) (PFMC 2017a).

Since HMS stocks move throughout large areas of the Pacific and are fished by many nations and gear types, domestic management by the U.S. alone is not enough to ensure that harvests are sustainable.

The U.S. is a member of the Inter-American Tropical Tuna Commission (IATTC), which is responsible for the conservation and management of fisheries for tunas and other species taken by tuna-fishing vessels in the eastern Pacific Ocean. The U.S. is also a member of the Western and Central Pacific Fisheries Commission, which plays a parallel role in the western and central Pacific (generally, west of 150° W. longitude).

The fishery management plan provides a mechanism to meet U.S. responsibilities under the United Nations Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. The U.S. is also a member of the Food and Agriculture Organization of the United Nations, which has developed a Code of Conduct for Responsible Fisheries. As such, the U.S. is required to comply with international measures to reduce incidental catch of seabirds in longline fisheries, to conserve and manage sharks, to manage fishing capacity, and to prevent, deter, and eliminate illegal, unreported, and unregulated fishing. In turn, the U.S. has developed national plans of action to meet these requirements (PFMC 2017a).

### **3.3.3 Stock assessment and information**

North Pacific albacore stock assessments are regularly conducted by the Albacore Working Group (ALBWG) of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC). Prior to 2005 this work was done by the North Pacific Albacore Workshop established in 1974 (Stocker 2005). The ALBWG consists of members from coastal states and fishing entities in the North Pacific Ocean (Canada, Chinese-Taipei, Japan, Korea, Mexico and USA) and representatives of the IATTC and the Secretariat of Pacific Community (SPC) (ISC 2014).

In 2017 the Albacore Working Group (ALBWG) of the ISC published a new stock assessment for albacore (ISC 2017a). The 2017 albacore stock assessment was carried out at the Southwest Fisheries Science Center in La Jolla, California from April 11-19, 2017 (ISC 2017a,b). The previous stock assessment was conducted in 2014 (ISC 2014). The ALBWG held a stock assessment preparatory workshop in November 2016 in Nanaimo, BC, Canada (ISC 2017c).

The 2017 albacore stock assessment was carried out using fishery data through 2015 and using the Stock Synthesis (SS3) modelling platform (Methot 2000, Methot and Wetzel 2013). The ALBWG developed a sex-specific, length-based, age-structured, forward simulating,

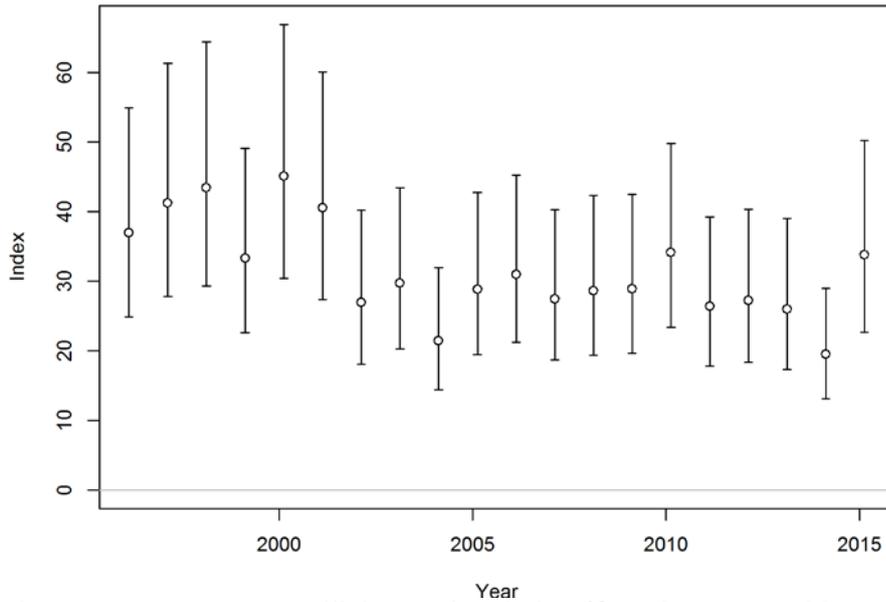
fully-integrated, statistical model. The assessment assumes a single well-mixed stock of albacore in the North Pacific Ocean (ISC 2017a). It is important to note that for the 2017 assessment SS could model sex-specific growth but fit to non-sex-specific observations (ISC 2017a).

The ALBWG made three major changes to the base case model compared to the 2014 assessment: 1) Most importantly, a new procedure was used to standardize the Japanese longline abundance index (1996 – 2015) used to indicate trends in adult albacore abundance and the results represent a substantial improvement relative to 2014 and earlier assessments. This new index had good contrast and, based on Age-Structured Production Model (ASPM) diagnostic analyses (Minte-Vera and Maunder 2016), informative on both population trend and scale; 2) the start year of the base case model was changed from 1966 (in 2014) to 1993 (in 2017). This change eliminated the influence of poorly fit size composition data from the Japanese longline fleets in 1975 – 1992, and eliminated the conflict between these size composition data and the primary adult albacore indices; and 3) previous assessments, assumed the instantaneous rate of natural mortality ( $M$ ) to be  $0.3 \text{ y}^{-1}$  for both sexes at all ages. The basis for this assumption was reviewed and found to be poorly supported. Sex-specific  $M$ -at-age vectors were developed from a meta-analysis, with a sex-combined  $M$  that scaled with size for ages 0-2, and sex-specific  $M$  fixed at 0.39 and  $0.48 \text{ y}^{-1}$  for age-3+ males and females, respectively (ISC 2017a).

Relevant input into the SS model included three types of data: fishery-specific catches, size composition, and abundance indices. These data were originally compiled from 1966 - 2015, but ALBWG decided only to use data from 1993-2015. The geographic area of this assessment is the Pacific Ocean north of the equator ( $0^\circ$ ) to  $55^\circ\text{N}$  and from  $120^\circ\text{E}$  to  $100^\circ\text{W}$ . The base case model is not spatially explicit. Catch and size composition data were compiled into quarters (Jan-Mar, Apr-June, Jul-Sept, Oct-Dec) and a quarterly time step was used in the base case model (ISC 2017a).

The ALBWG used model diagnostics to assess issues with model convergence, model structure, parameter mis-specification and data conflicts. Diagnostic tools included model conversion tests, profiles of estimated recruitment at unfishable equilibrium ( $R_0$ ), model fit of size composition data, model fit of abundance indices, age-structured production model (ASPM) diagnostic, and retrospective analysis (ISC 2017a).

The ALBWG reviewed 13 abundance indices, including Japanese longline (Ochi *et al.* 2017). Based on this review, the ALBWG decided to use the abundance index from the Japanese longline fishery in Area 2 and Quarter 1 (S1; 1996 - 2015) as the index of adult albacore abundance (Figure 4).

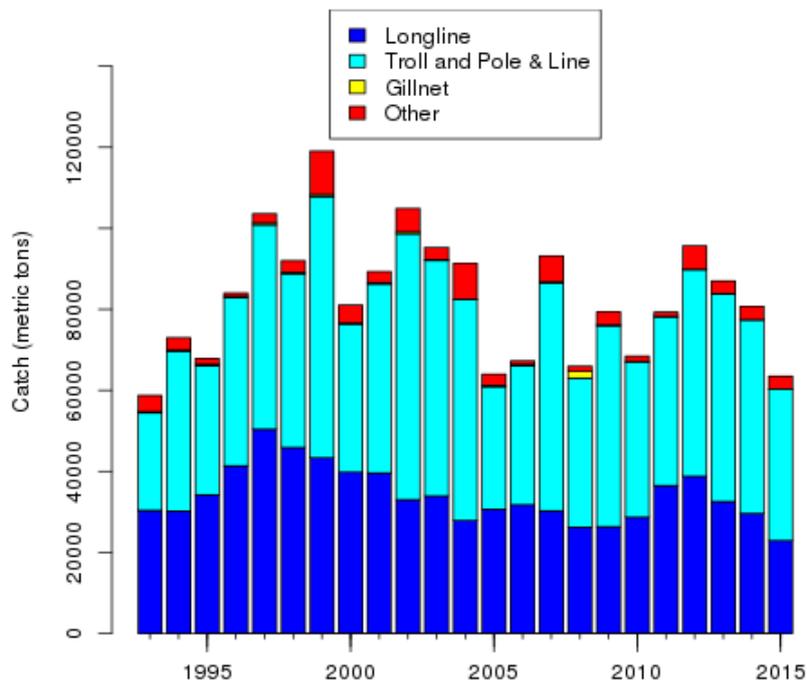


**Figure 4. Trends and coefficients of variation (CVs; input + additional CVs) of the primary adult index used in the base-case model (ISC 2017a).**

### 3.3.4 2017 North Pacific Albacore Stock Status

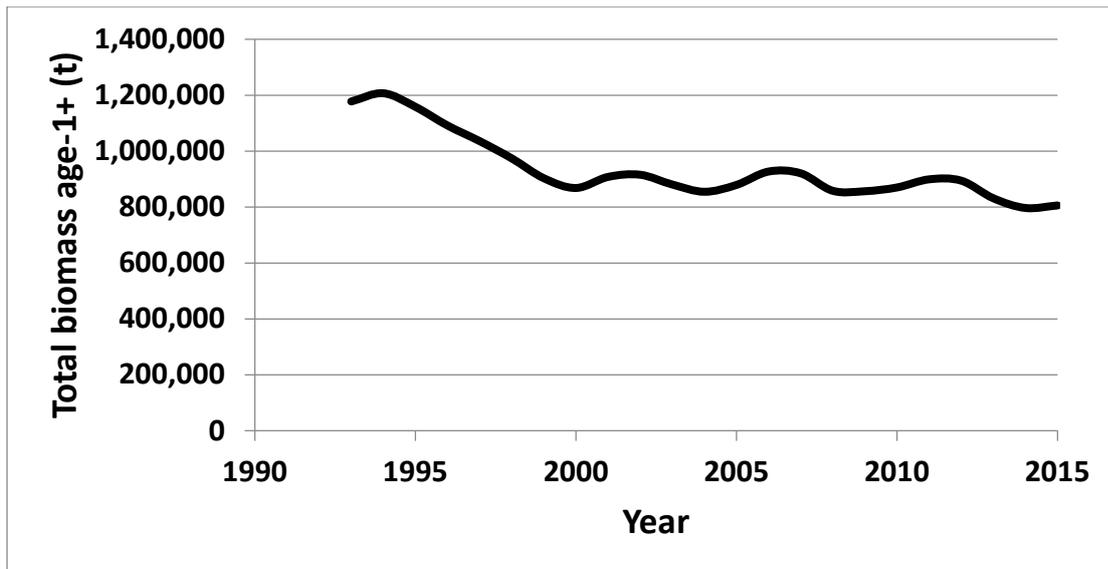
The following stock status summary was adopted from the 2017 stock assessment of north Pacific albacore prepared by the ALBWG (ISC 2017a).

During the modelling period (1993-2015), the total reported catch of north Pacific albacore reached a peak of 119,300 t in 1999 and then declined in the early 2000s, followed by a recovery in later years with catches fluctuating between 68,900 and 93,100 t in recent years (2010-2015) (Figure 5). Surface gears (troll, pole-and-line), which primarily harvest juvenile albacore, have accounted for approximately twice as much albacore catch as longline gear (ISC 2017a).



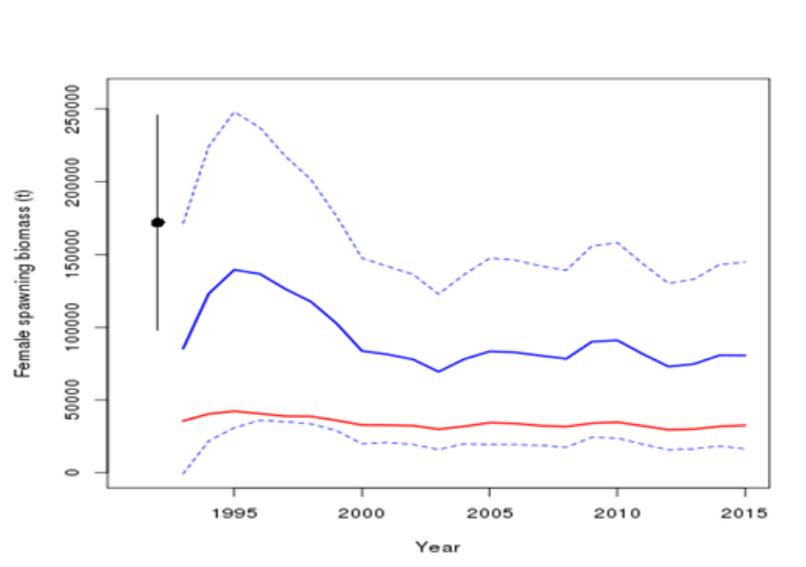
**Figure 5. Estimated catches of north Pacific albacore (*Thunnus alalunga*) by major gear types (1993-2015) The other gear category includes catches with purse seine, recreational gear, hand lines, and harpoons (ISC 2017a).**

Estimated total stock biomass (males and female at age-1+) shows a decline at the beginning of the time series until 2000. From 2000 - 2015 biomass has been relatively stable (Figure 6). The total biomass estimates in the first quarter, which includes all age-1+ male and female albacore, have also fluctuated during the assessment period (1993-2015), ranging from a low of 796,877 t in 2014 to a high of 1,207,150 t in 1994 (ISC 2017a).



**Figure 6. Maximum likelihood estimates of total age-1+ biomass of north Pacific albacore tuna (*Thunnus alalunga*) (ISC 2017a)**

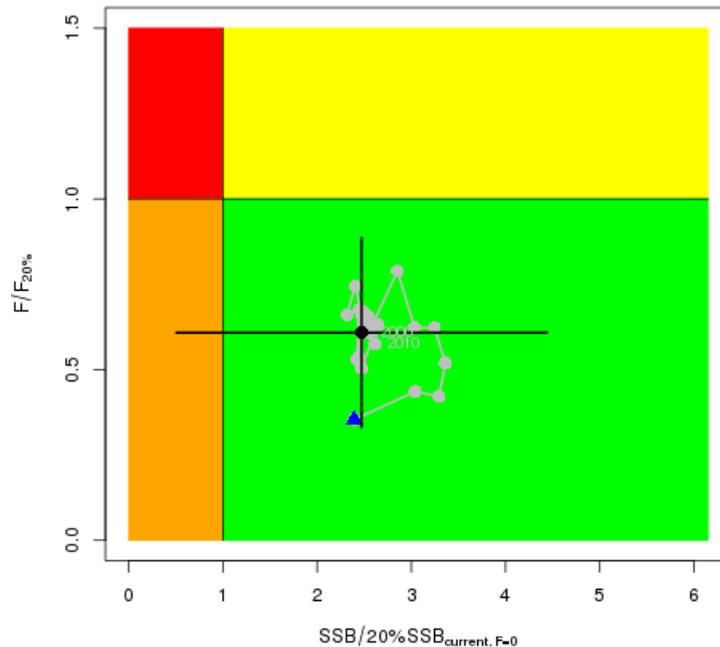
The estimated female SSB fluctuated between 1993 and 2015, with a high of  $139,481 \pm 55,373$  t ( $\pm$ SD) in 1995 and a low of  $69,428 \pm 27,236$  t in 2003 (Figure 7). Estimated female SSB was relatively high prior to 2000 but has fluctuated without an obvious trend since 2000. In the terminal year of the assessment (2015), female SSB was estimated to be  $80,618 \pm 32,275$  t.



**Figure 7. Maximum likelihood estimates of female spawning biomass (SSB) (solid blue line) of north Pacific albacore tuna (*Thunnus alalunga*). Dashed lines indicate 95% confidence intervals of the female SSB. Red line indicates the 20%SSB<sub>current, F=0</sub> limit reference point, which is based on dynamic SSB. Closed black circle and error bars are the maximum likelihood estimate and 95% confidence intervals of unfished female spawning biomass, SSB<sub>0</sub> (ISC 2017a).**

Stock status is depicted in relation to the limit reference point (LRP;  $20\%SSB_{\text{current},F=0}$ ) adopted by the Northern Committee of the WCPFC for the stock and the equivalent fishing intensity ( $F_{20\%}$ ; calculated as  $1-SPR_{20\%}$ ) (Figure 8). The estimated SPR (spawner per recruit relative to the unfished population) in 2015 is 0.53, which corresponds to a moderate exploitation intensity (i.e.,  $1-SPR = 0.47$ ).

The Kobe plot shows that the estimated female SSB has never fallen below the LRP since 1993, albeit with large uncertainty in the terminal year (2015) estimates.



**Figure 8. Kobe plot showing the status of the north Pacific albacore (*Thunnus alalunga*) stock relative to the  $20\%SSB_{\text{current},F=0}$  limit reference point and equivalent fishing intensity ( $F_{20\%}$ ; calculated as  $1-SPR_{20\%}$ ) over the base case modelling period (1993-2015). Blue triangle is the starting year (1993) and the black dot with 95% confidence intervals is terminal year 2015 (ISC 2017a)**

The SSB was estimated to be 80,618 t and was 2.47 times greater than the LRP threshold of 34,374 t (Table 4). Current fishing intensity,  $F_{2012-2014}$  (calculated as  $1-SPR_{2012-2014}$ ), was lower than potential F-based reference points identified for the north Pacific albacore stock, except  $F_{50\%}$  (calculated as  $1-SPR_{50\%}$ ) (ISC 2017a).

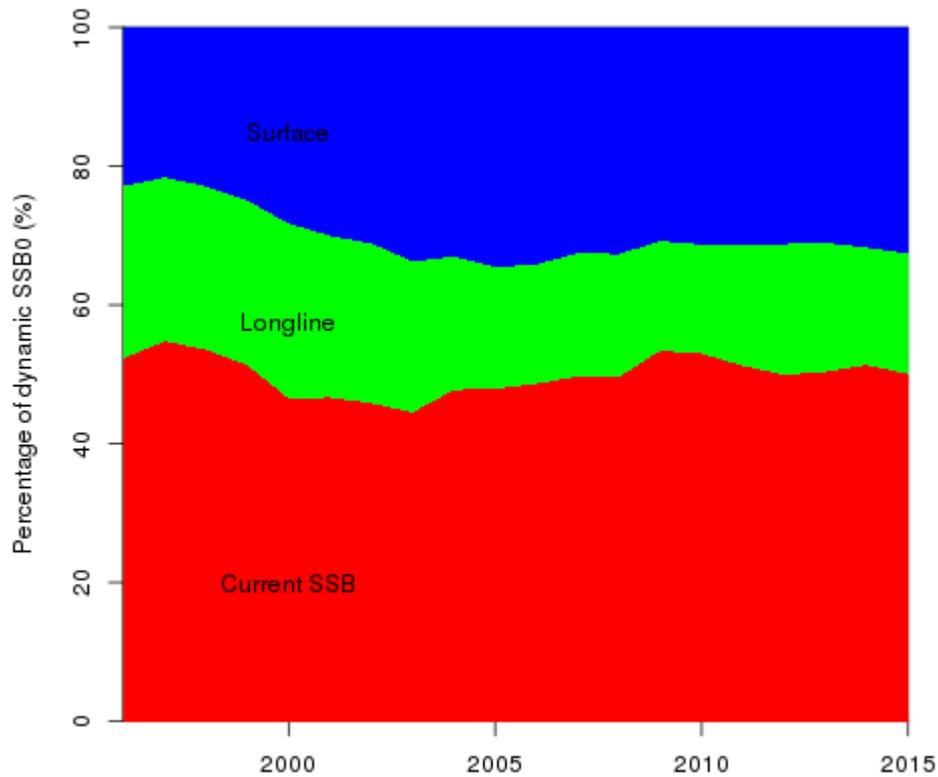
**Table 4. Estimates of maximum sustainable yield (MSY), female spawning biomass (SSB) quantities, and fishing intensity (F) based reference point ratios for north Pacific albacore tuna for the base case assessment and important sensitivity analyses.** SSB<sub>0</sub> and SSB<sub>MSY</sub> are the unfished biomass of mature female fish and at MSY, respectively. The Fs in this table are not based on instantaneous fishing mortality. Instead, the Fs are indicators of fishing intensity based on SPR and calculated as 1-SPR so that the Fs reflect changes in fishing mortality. SPR is the equilibrium SSB per recruit that would result from the current year's pattern and intensity of fishing mortality. Current fishing intensity is based on average fishing intensity during 2012-2014 (F<sub>2012-2014</sub>) (ISC 2017a).

Quantity	Base Case	M = 0.3 y <sup>-1</sup>	Growth CV = 0.06 for L <sub>inf</sub>
MSY (t) <sup>A</sup>	132,072	92,027	118,836
SSB <sub>MSY</sub> (t) <sup>B</sup>	24,770	42,098	22,351
SSB <sub>0</sub> (t) <sup>B</sup>	171,869	270,879	156,336
SSB <sub>2015</sub> (t) <sup>B</sup>	80,618	68,169	63,719
SSB <sub>2015</sub> /20%SSB <sub>current, F=0</sub> <sup>B</sup>	2.47	1.31	2.15
F <sub>2012-2014</sub>	0.51	0.74	0.57
F <sub>2012-2014</sub> /F <sub>MSY</sub>	0.61	0.89	0.68
F <sub>2012-2014</sub> /F <sub>0.1</sub>	0.58	0.90	0.65
F <sub>2012-2014</sub> /F <sub>10%</sub>	0.56	0.81	0.63
F <sub>2012-2014</sub> /F <sub>20%</sub>	0.63	0.91	0.71
F <sub>2012-2014</sub> /F <sub>30%</sub>	0.72	1.04	0.81
F <sub>2012-2014</sub> /F <sub>40%</sub>	0.85	1.21	0.96
F <sub>2012-2014</sub> /F <sub>50%</sub>	1.01	1.47	1.16

A – MSY includes male and female juvenile and adult fish

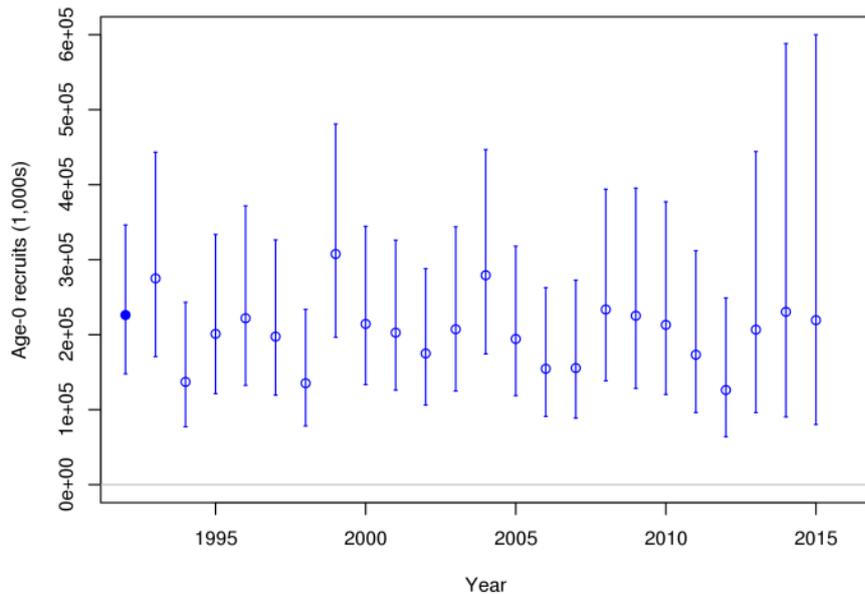
B – Spawning stock biomass (SSB) in this assessment refers to mature female biomass only.

Instantaneous fishing mortality at age (F-at-age) is similar in both sexes through age-5, peaking at age-4 and declining to a low at age-6, after which males experience higher F-at-age than females up to age 13 (ISC 2017a). Surface fisheries (primarily troll, and pole-and-line, but including gillnet and other miscellaneous gears), which tend to catch juvenile fish, have generally had a larger impact on the north Pacific albacore stock than longline fisheries, which tend to remove adult fish (Figure 9) at a ratio of about 2:1 (ISC 2017a).



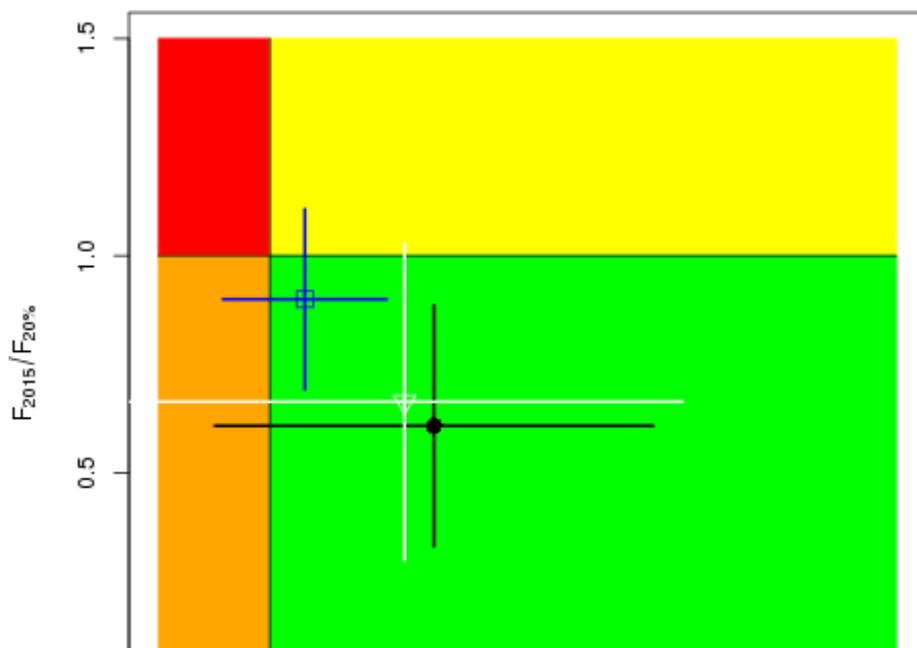
**Figure 9. Fishery impact analysis on north Pacific albacore (*Thunnus alalunga*) showing female spawning biomass (SSB) (red) estimated by the 2017 base case model as a percentage of dynamic unfished female SSB ( $SSB_0$ ). Colored areas show the relative proportion of fishing impact attributed to longline (USA, Japan, Chinese-Taipei, Korea and others) (green) and surface (USA, Canada, and Japan) (blue) fisheries (primarily troll and pole-and-line gear, but including all other gears except longline) (ISC 2017a).**

The estimated recruitments have fluctuated widely during the assessment period (1993 – 2015), ranging from a low of  $135.3 \pm 38.5$  million fish ( $\pm$  SD) in 1998 to a high of  $307.6 \pm 71.1$  million fish in 1999 (Figure 10). The average recruitment during the 1993 – 2015 period was 201.5 million fish, which was slightly below virgin recruitment (226.2 million fish).



**Figure 10. Maximum likelihood estimates of age-0 recruitment (open circles) of north Pacific albacore tuna (*Thunnus alalunga*). Vertical bars indicate 95% confidence intervals of recruitment estimates (ISC 2017a).**

Uncertainty in the recruitment estimates was relatively large because uncertainty estimated for the unfished recruitment parameter, which largely determines the population scale, was relatively large. In addition, the uncertainty in the last three years (2013 – 2015) of the



**Figure 11. Kobe plot showing stock status and 95% confidence intervals in the terminal year (2015) of the base case model (black; closed circle) and important sensitivity runs with  $M = 0.3 \text{ y}^{-1}$  for both sexes (blue; open square), and  $CV = 0.06$  for  $L_{inf}$  in the growth model (white; open triangle).  $F_s$  in this figure are not based on instantaneous fishing mortality. Instead, the  $F_s$  are indicators of fishing intensity based on SPR (ISC 2017a).**

assessment were larger than the rest of the time series because the amount of information on recruitment declines towards the end of a model period (ISC 2017a).

When alternative hypotheses about key model uncertainties such as natural mortality and growth were evaluated, the point estimate of female SSB in 2015 (SSB) did not fall below the LRP, although the risk increases with these more extreme assumptions (Figure 11) (ISC 2017a).

ALBWG computed biological reference points with the base case model (Table 4). It should be noted that the 20%SSB LRP is based on dynamic biomass and fluctuates depending on changes in recruitment (Figure 9). In addition, all F-based reference points were calculated as the fishing intensity (1-SPR) equivalents of the reference points. The point estimate of maximum sustainable yield (MSY; includes male and female of all age classes removed by fisheries) was 132,072 t and the point estimate of female SSB to produce MSY ( $SSB_{MSY}$ ) was 24,770 t. The ratio of  $F_{2012-2014}/F_{MSY}$  was estimated to be 0.61 and the ratio of  $SSB_{2015}/20\%SSB_{current,F=0}$  was estimated to be 2.47. Current fishing intensity ( $F_{2012-2014}$ ) is below  $F_{MSY}$  (Table 4) (ISC 2017a).

The LRP ( $20\%SSB_{current,F=0}$ ) adopted by the WCPFC is based on dynamic SSB and has fluctuated between 29,560 to 42,352 t during the assessment period 1993-2015. The maximum likelihood estimate of female SSB has therefore been above the LRP throughout the assessment period (ISC 2017a).

Based on the findings of the 2017 albacore stock assessment, the ALBWG concluded that: 1) the north Pacific albacore stock is likely not overfished, and 2) overfishing is likely not occurring (ISC 2017a).

The ISC provided the following information on the status of the north Pacific albacore stock (ISC 2017d):

1. The stock is likely not overfished relative to the limit reference point adopted by the Western and central Pacific Fisheries Commission ( $20\%SSB_{current,F=0}$ ), and
2. No F-based reference points have been adopted to evaluate overfishing. Stock status was evaluated against seven potential reference points. Current fishing intensity ( $F_{2012-2014}$ ) is below six of the seven potential reference points [see Table 4 above], except F50%.

The ALBWG noted that the lack of sex-specific size data, uncertainty in growth and natural mortality, and the simplified treatment of the spatial structure of north Pacific albacore population dynamics are important sources of uncertainty in the assessment (ISC 2017a).

### 3.3.5 Conservation information

The ALBWG conducted two 10-yr projection scenarios, constant  $F_{2012-2014}$  and constant catch (average of 2010-2014 = 82,432 t) externally to the base case model to evaluate impacts on future female SSB (ISC 2017a).

Based on the projections of the two scenarios, the stock performs better under the constant  $F_{2012-2014}$  harvest scenario with respect to the LRP than the constant catch scenario. Median female SSB is expected to decline slightly over 10 years with a negligible probability of declining below the limit reference point threshold during this period when a constant fishing intensity harvest scenario is applied to the stock (Figure 12). In contrast, there is a substantially greater probability that female spawning biomass will decline below the limit

reference point by 2025 under a constant catch harvest scenario (Figure 13). Although the probabilities of declining below the limit reference point in both harvest scenarios are likely higher, even the most extreme results from other model runs with plausible alternative assumptions confirm that median trends in female spawning biomass did not decline below the limit reference point (ISC 2017a).

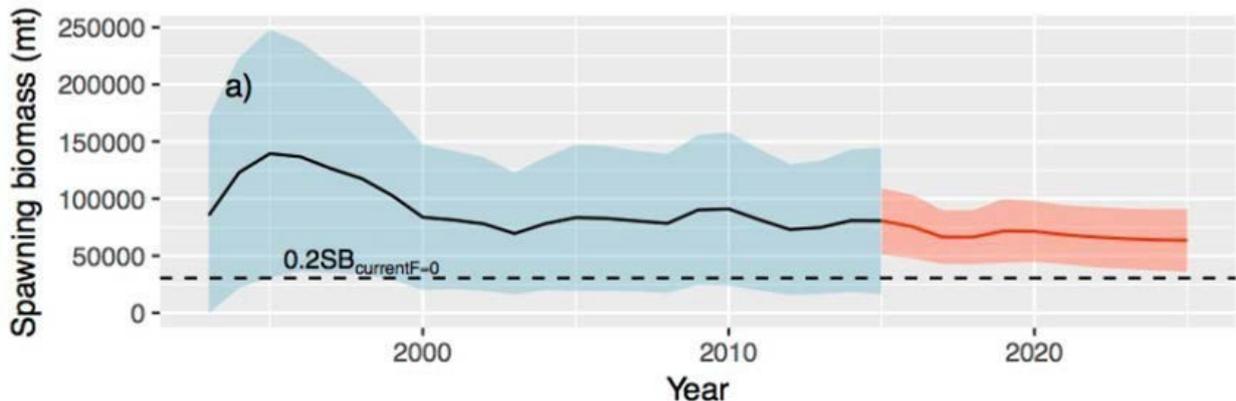


Figure 12. Historical and future trajectory of north Pacific albacore (*Thunnus alalunga*) female spawning biomass (SSB) under a constant fishing intensity (F harvest scenario). Future recruitment was based on the expected recruitment variability and autocorrelation. Black line and blue area indicates maximum likelihood estimates and 95% confidence intervals (CI), respectively, of historical female SSB, which includes parameter uncertainty. Red line and red area indicates mean value and 95% CI of projected female SSB (ISC 2017a)

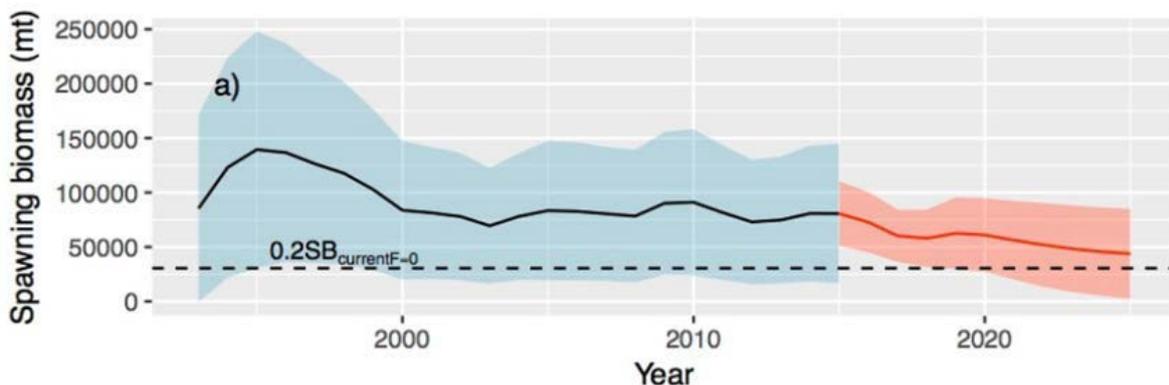


Figure 13. Historical and future trajectory of north Pacific albacore (*Thunnus alalunga*) female spawning biomass (SSB) under a constant catch (average 2010-2014 = 82,432 t) harvest scenario. Future recruitment was based on the expected recruitment variability and autocorrelation. Dashed line indicates the average limit reference point threshold for 2012-2014. Black line and blue area indicates maximum likelihood estimates and 95% confidence intervals (CI), respectively, of historical female SSB, which includes parameter uncertainty. Red line and red area indicates mean value and 95% CI of projected female SSB (ISC 2017a).

Based on the findings of the projection scenarios the ISC provided the following information (ISC 2017d):

1. If a constant fishing intensity ( $F_{2012-2014}$ ) is applied to the stock, then median female spawning biomass is expected to undergo a moderate decline, with a  $<0.01\%$

probability of falling below the limit reference point established by the WCPFC by 2015. However, expected catches in this scenario will be below the recent average catch level for this stock.

2. If a constant average catch ( $C_{20110-2014} = 82,432$  t) is removed from the stock in the future, then the decline in median female spawning biomass will be greater than in the constant F intensity scenario and the probability that SSB falls below the LRP will be greater by 2025 (30%). Additionally, the estimated fishing intensity will double relative to the current level ( $F_{2012-2014}$ ) by 2025 as spawning biomass declines.

### 3.3.6 Harvest strategy and harvest control rules

Article 6 of the WCPFC Convention requires that the Commission apply the guidelines of Annex II of the United Nations Fish Stocks Agreement (Guidelines for the application of the Precautionary Reference Points in Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks; including determination of stock-specific LRPs and TRPs.

The IATTC is similarly guided by Article IV of the Antigua Convention which relates to application of the Precautionary Approach as described in the FAO Code of Conduct for Responsible Fishing and/or (Annex II of) the United Nations Fish Stocks Agreement (Guidelines for the application of the Precautionary Reference Points in Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

In response to the scientific advice resulting from North Pacific albacore stock assessments conducted by the ALBWG in 2005, both the IATTC and the WCPFC adopted management measures for this stock. In 2005, the IATTC adopted C-05-02 (with supplemental Resolution C-13-03 in 2013) which resolved that: "The total level of fishing effort for North Pacific albacore tuna in the Eastern Pacific Ocean not to be increased beyond current levels." The resolution also requires all fishing entities within the IATTC convention Area to take necessary measures to ensure that their vessels' fishing effort is not increased, and that they report all albacore catches every six months.

The WCPFC adopted CMM-05-03, in 2005, that: "The total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond current levels."

For the IATTC harvest strategy, the harvest control rule is set out in C-05-02:

1. The total level of fishing effort for North Pacific albacore tuna in the Eastern Pacific Ocean not to be increased beyond current levels.
2. The CPCs shall take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore tuna is not increased;
3. All CPCs shall report all catches of North Pacific albacore tuna by gear type to the IATTC every six months.
4. The Director shall, in coordination with other scientific bodies conducting scientific reviews of this stock, monitor the status of North Pacific albacore tuna and report on the status of the stock at each annual meeting;
5. The CPCs shall consider future actions with respect to North Pacific albacore tuna as may be warranted based on the results of such future analysis.
6. The CPCs call upon the members of the WCPFC to consider, at the earliest opportunity, taking such action as may be necessary to ensure the effective conservation and management of North Pacific albacore tuna throughout its range including, in particular, measures to ensure that fishing effort on the stock in the WCPFC area does not increase and, as necessary, measures to reduce fishing effort to levels commensurate with the long-term sustainability of the resource.

For the WCPFC harvest strategy, the harvest control rule is set out in CMM-05-03:

1. The total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond current levels.
2. The Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore in the WCPF Convention Area is not increased beyond current levels;
3. All CCMs shall report all catches of North Pacific albacore to the WCPFC every six months, except for small coastal fisheries which shall be reported on an annual basis. Such data shall be reported to the Commission as soon as possible and no later than one year after the end of the period covered.
4. All CCMs shall report annually to the WCPFC Commission all catches of albacore north of the equator and all fishing effort north of the equator in fisheries directed at albacore.

It is noted that Resolution C-05-02 and CMM-05-03 are still in place in 2017.

WCPFC11 adopted CMM2014-06 to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO. The CMM identifies the elements that harvest strategies are to contain (WCPFC 2014b):

*“Each harvest strategy developed in accordance with this CMM shall, wherever possible and where appropriate, contain the following elements:*

- a Defined operational objectives, including timeframes, for the fishery or stock (‘management objectives’)*
- b Target and limit reference points for each stock (‘reference points’)*
- c Acceptable levels of risk of not breaching limit reference points (‘acceptable levels of risk’)*
- d A monitoring strategy using best available information to assess performance against reference points (‘monitoring strategy’)*
- e Decision rules that aim to achieve the target reference point and aim to avoid the limit reference point (‘harvest control rules’), and*
- f An evaluation of the performance of the proposed harvest control rules against management objectives, including risk assessment (‘management strategy evaluation’).”*

CMM 2014-06 included a requirement that the Commission agree on a work plan and indicative timeframes to adopt or refine harvest strategies for skipjack, bigeye, yellowfin, South Pacific albacore, Pacific Bluefin and northern albacore tuna by no later than the twelfth meeting of the Commission in 2015 (WCPFC 2014b). WCPFC13 adopted an Updated Harvest Strategy Work Plan (WCPFC 2017c; Attachment N).

A Limit Reference Point (LRP) for North Pacific albacore ( $20\%SSB_{current, F=0}$ ) has been adopted by the WCPFC. No Target Reference Points have been set for North Pacific albacore. One of the goals of the North Pacific albacore Management Strategy Evaluation (MSE) currently underway is to advise NC on a TRP of North Pacific albacore. Limit reference points for fishing intensity or F-based reference points for north Pacific albacore have not been adopted by either the IATTC or WCPFC (ISC 2017a).

NC11 recommended the incorporation of an emergency rule paragraph in the measure for when drastic drops of recruitment are detected. Discussions on North Pacific albacore included the development of reference points and harvest control rules, with agreement to advance the work on MSE at a workshop in April 2016 (WCPFC 2016).

At the Eleventh Regular Session of the Northern Committee, the USA introduced its North Pacific Albacore Evaluation of Candidate Harvest Control Rules proposal (WCPFC, 2015). As the follow-on to the adoption of the precautionary management framework for NP albacore and in preparation for the ISC to perform the management strategy evaluation, the USA proposed a series of candidate harvest control rules and reference points to be evaluated. The candidate harvest control rules include a set based on total allowable catch and a set based on total allowable effort. The reference points proposed for evaluation include combinations of B limits and F targets (WCPFC 2015b).

In 2014 WCPFC NC10 tasked the ALBWG with developing an MSE process to evaluate the performance of target reference points (WCPFC 2014a). The ISC and the Japan Fisheries Research Agency sponsored a workshop on MSE for tuna manager/stakeholders in Yokohama, Japan, 16-17 April 2015. Immediately afterward (20-22 April), the ALBWG held a mini-workshop at NRIFSF in Shimizu to begin the process of developing an MSE process for NPALB (ISC 2015a). Work plans were developed for the next year for review and approval by ISC15. The April 2015 ALBWG workshop identified some principles for the MSE development and identified several areas in which managers/stakeholders will need to be engaged in the process. A follow up 2nd ISC sponsored MSE workshop on fishery objectives and harvest control rules for managers was held 24-25 May 2016 in Yokohama, Japan (ISC 2016: Attachment 5).

The ISC has begun work on the Management Strategy Evaluation (MSE) for the North Pacific Albacore stock. The ALB MSE process is detailed in the framework proposed by the ALBWG (available in <https://www.wcpfc.int/node/23394>). An initial proposal of five objectives for the management of the North Pacific Albacore tuna stock were made by managers, scientists and other stakeholders, (including representatives from AAFA and WFOA) during the second ISC MSE Workshop (Yokohama, Japan, May 24-25, 2016). The ALBWG at its latest meeting (Shimizu, Japan, May 26-30, 2016) subsequently proposed one additional objective to facilitate the evaluation of target reference points (ISC 2016). ALBWG then proposed performance indicators related to these management objectives. The six management objectives identified were:

1. Maintain spawning biomass (SSB) above the limit reference point;
2. Maintain the total biomass, with reasonable variability (x%), around the average depletion level in the recent 10 years of the latest stock assessment;
3. Maintain harvest ratios by fishery (fraction of the SSB harvested) at current average
4. Maintain catches by fishery above average historical catch;
5. Limit the magnitude of change to effort or catch to < 15% at any one time due to management actions by fishery;
6. Maintain F at the target value (proposed by the ALBWG to facilitate performance).

The IATTC staff proposed to the Commission that the ALB MSE process be endorsed by the IATTC (IATTC 2016).

The US delegation informed NC12 that MSE is a priority for NOAA and each Science Center must hire one staff member dedicated to MSE (WCPFC 2016). The Southwest Fisheries Science Center, which has the lead with respect to North Pacific albacore, succeeded to secure such personnel. Desiree Tommasi has been hired to lead this work and comes to the program with expertise in MSE work with coastal pelagics. She will be assisted by another staff member with MSE expertise who has been recently hired by NOAA. They plan to work in collaboration to incorporate environmental data into the MSE assessment. On October 19, 2017, the ISC ALBWG concluded a third MSE workshop on North Pacific Albacore tuna in Vancouver, B.C. Delegations of managers, scientists and industry from Canada, the U.S., Japan, Taiwan and China, and representatives from the Inter-American Tropical Tuna

Commission (IATTC), WCPFC, World Wildlife Federation and the Monterey Bay Aquarium met to confirm management objectives, develop performance metrics, a set of candidate harvest control rules and a more diverse set of candidate reference points to be tested in the MSE process.

Through the MSE workshop, a harvest control rule was proposed which would meet the requirements for PI 1.1.2 and PI 1.2.2 whereby biomass would be maintained at its current level, which is above  $B_{MSY}$  and result in a reduction of exploitation rates as the LRP is approached. Over the next year, the MSE expert will run simulations to test the proposed harvest control rule as well as the harvest control rule used in the IATTC and a suite of candidate reference points. The MSE expert will then report the initial set of results to the same group at a fourth workshop to be held, likely in fall 2018. Following this workshop, a new harvest control rule and set of reference points could be adopted.

At NC13 (August 28-September 1, 2017), the USA, on behalf of the cosponsor, Canada, introduced its proposal to modify the existing Precautionary Management Framework (NC13-DP-13). The main purpose of the proposal is to change its title to Interim Harvest Strategy to clarify the nature of the document and to propose the Commission adopt it formally as a harvest strategy and provide it with appropriate publicity (WCPFC 2017).

NC13 recommended that the Commission adopt the revision to the title of previously adopted precautionary management framework for North Pacific albacore (WCPFC 2017: Attachment H), so that it may be recognized as a harvest strategy. In addition, NC13 recommends that the Commission direct the Secretariat to make this harvest strategy available, as a stand-alone harvest strategy document, on a web page dedicated to this and other harvest strategies, including interim harvest strategies, agreed to by the Commission (WCPFC 2017).

At the end of 2017, formal Harvest Control Rules (HCRs) have not yet been defined for North Pacific albacore by WCPFC or IATTC.

## **3.4 Principle Two: Ecosystem Background**

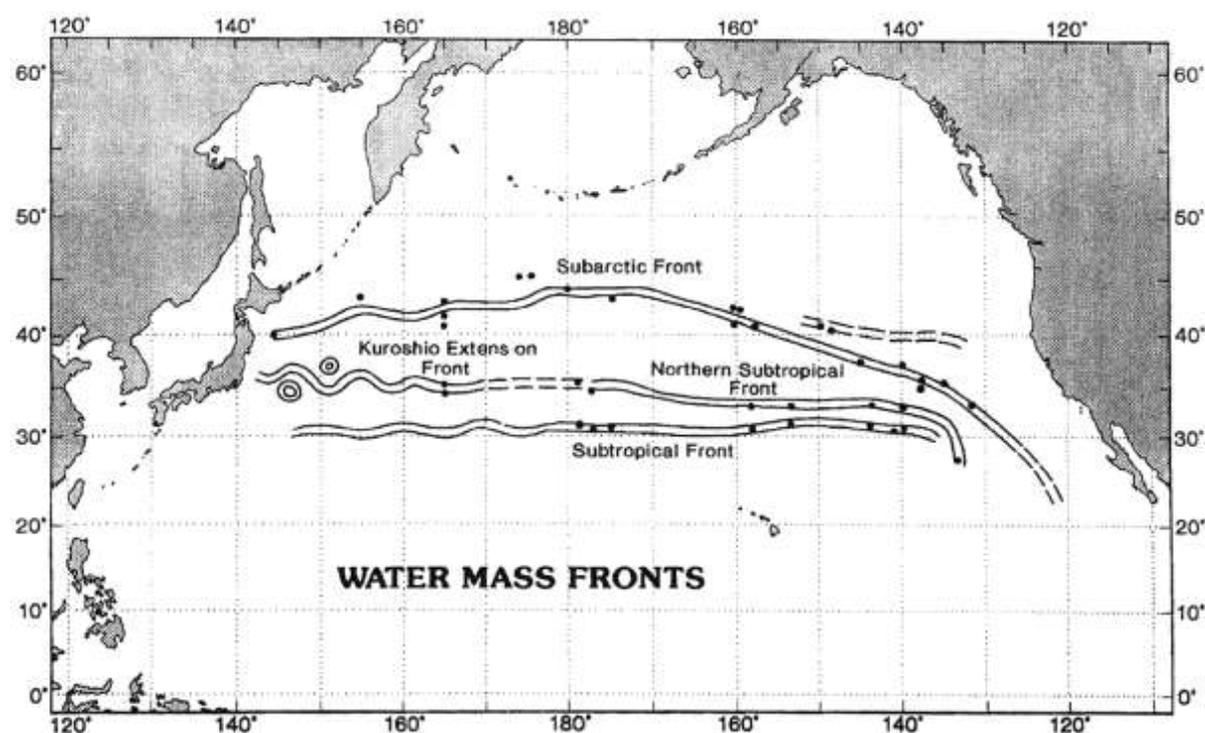
### **3.4.1 Background**

The text in *italics* below has been excerpted from Blythe-Skyrme *et al.* (2012), as this basic information about albacore and its role in the ecosystem is unchanged since the previous full-assessment.

#### **North Pacific albacore:**

*Albacore inhabit the open-ocean, and spend most of their time in the upper layers above 250 m depth (Childers et al. 2011). Albacore distribution, relative abundance and availability to capture are closely associated with oceanic frontal structure, and the species migrates extensively within the North Pacific Transition Zone (NPTZ), the area that lies between the Subarctic and Subtropical Fronts (Laurs & Lynn 1991, and Figure 14). More specifically, contemporaneous catch, sea-surface temperature and chlorophyll data show that the distribution of albacore within the NPCT appears to be closely linked to the Transition Zone Chlorophyll Front, a permanent, sharp gradient in sea surface chlorophyll that shifts seasonally north and south through the NPTZ (Polovina et al. 2001), while in coastal regions their distribution is linked to coastal upwelling boundaries, with albacore being found on the oceanic side of the upwelling boundaries in warmer ( $>16^{\circ}\text{C}$ ) and clearer ( $<0.3\text{ mgm}^{-3}$ )*

chlorophyll) water (Laurs et al. 1984).



**Figure 14. Schematic representation of the major fronts in the temperate zone of the North Pacific based upon numerous individual observations (dots). The transition zone lies between the fronts (Laurs & Lynn 1991).**

*Albacore are primarily daytime, visual predators, and are known to feed actively at the surface in coastal areas, thus making them susceptible to the pole and troll fishery (Childers et al. 2011). In the California Current off the west coast of the USA., juvenile albacore focus on northern anchovy while also feeding on other fish (mainly Pacific saury, *Cololabis saira*), cephalopod and crustacean species (Glaser 2009). Further offshore, albacore diet has been less intensively studied, but cephalopods and larval fish from the lanternfish and carangid families, as well as small-eye squaretail (*Tetragonurus cuvieri*) and amphipods appear to be important (Laurs & Lynn 1991). As well as humans, predators of adult albacore are believed to be large marine mammals, sharks, and billfishes, while young albacore may also be taken by other larger tunas and fish species (Kitchell et al. 1999).*

### **3.4.2 Primary and Secondary Species**

The pole & line and troll fishing gears employed in the AAFA and WFOA North Pacific albacore fishery are highly selective; both are employed at the sea surface in deep water such that there is never any contact with the seabed, while the gears always remain attached to the vessel and must be actively fished. Because fish are hauled aboard immediately after they become hooked, fishermen are also quickly able to discern if an albacore shoal being targeted is made up of fish that are too small to be retained for economic or regulatory reasons. In such cases, lines can be pulled in quickly and the vessel moved in search of another shoal containing larger, marketable albacore. Few data are available on bycatch in the fishery, as there is no systematic observer program, but, according to the ISC (2017e), the U.S. troll and pole-and-line fishery catches almost exclusively albacore with minor incidental catches of skipjack (*Katsuwonus pelamis*),

yellowfin (*Thunnus albacares*), and bluefin (*Thunnus orientalis*) tunas, eastern Pacific bonito (*Sarda chiliensis lineolata*), yellowtail (*Seriola lalandi*), and mahi (*Coryphaena hippurus*).

The latest FMP has recommended that the pole and troll fishery is observed in future, with NMFS to develop and review the observer sampling plans (PFMC 2016b). However, this has not yet occurred. According to PFMC (2016b, Appendix C [updated in 2007]), the limited available bycatch (in this case, bycatch=catch discarded at sea), data comes from either logbooks or an extremely limited observer program run by NMFS (27 trips in 8 years). Since observers were not required to collect discard data and observer placement was not made in a systematic fashion, a complete analysis of discarded bycatch is not possible. However, albacore, skipjack tuna, bluefin tuna, dorado, and billfish were observed as bycatch, as well as juvenile albacore. Preliminary analysis of the bycatch data (Norm Bartoo, NMFS La Jolla, pers. comm.) indicated 10% of the albacore less than 59 cm in length were immediately discarded upon capture. Overall, albacore less than 59 cm in length account for 5% of total catch so discarding of unwanted catch is low (< 0.5% of total catch). These fish were considered economic discards since they did not command the higher price associated with larger fish. Discards of albacore (target species) are considered in Principle 1 as unwanted catches.

**Bycatch reduction measures:**

There are currently no proposed actions to reduce bycatch mortality in this fishery (PFMC 2016b, Appendix C [updated in 2007]). A review of eight possible bycatch reduction measures was conducted in 2007, and it was determined that there was not sufficient reason to implement any of them, given the extremely low level of unwanted catches in this fishery. While fishing for albacore, other species of tuna may be retained which would therefore not be considered unwanted catch.

Landings data from the West Coast alb acore surface hook-and-line (troll and baitboat) fishery (including Canadian vessels) is available from 1990-2016 (Table 5). These data show that there are extremely low quantities of HMS species other than albacore landed in this fishery. The amount is too small to even consider these as minor primary or secondary species.

**Table 5. Number of vessels and commercial landings (round mt) in the West Coast albacore surface hook-and-line (troll and baitboat) fishery, 1990-2016, Canadian vessels included (PFMC 2016a)**

	# Vessels	Albacore	Other HMS	Total
		Landings (mt)	Landings (mt)	
1990	369	2,976		2,976
1991	179	1,654		1,654
1992	606	4,780	0.3	4,781
1993	613	5,974	0.2	5,974
1994	716	10,671		10,671
1995	476	6,474	0.6	6,475
1996	724	14,077	0.2	14,077
1997	1192	11,229	1	11,231
1998	866	13,588	0.4	13,589
1999	825	9,521	0.9	9,522
2000	763	8,974	0.8	8,975

2001	978	11,067	2	<b>11,070</b>
2002	734	10,000	0.7	<b>10,001</b>
2003	887	16,609	0.2	<b>16,609</b>
2004	779	14,497	0.3	<b>14,498</b>
2005	597	9,028	0.1	<b>9,028</b>
2006	634	12,772		<b>12,772</b>
2007	674	11,508	0.0	<b>11,508</b>
2008	522	11,127	0.2	<b>11,128</b>
2009	684	12,296	0.2	<b>12,296</b>
2010	650	11,842		<b>11,842</b>
2011	686	11,019	0.4	<b>11,019</b>
2012	811	13,885	0.1	<b>13,885</b>
2013	705	12,676	0.4	<b>12,676</b>
2014	602	12,459	0.1	<b>12,459</b>
2015	565	11,265		<b>11,265</b>
2016	566	10,448	0.2	<b>10,449</b>

### The Northern anchovy baitfish fishery

Fishermen in the AAFA and WFOA pole and troll fishery may utilize northern anchovy (*Engraulis mordax*) as chum. The northern anchovy may also be used occasionally as bait directly on the hooks, but more usually it is used solely as chum. When pole & line fishing, the northern anchovy are kept alive in tanks and are thrown overboard in small but regular quantities when albacore are located in order to aggregate the fish around the vessel and to excite them to strike artificial baits used on the fishing poles. On troll fishing vessels, northern anchovy are rarely kept alive in tanks, but are typically used frozen instead, with small quantities being thrown overboard when an albacore shoal is located in an attempt to hold the fish near to the surface. While this is not a common practice by troll fishermen, it may be occasionally used at the end of the fishing season. Following MSC guidance, the northern anchovy is considered in this assessment under the primary species components of the assessment since it is a managed species.

Northern anchovy may be caught by AAFA and WFOA fishermen or may be purchased from dedicated commercial bait fishermen who sell live or frozen northern anchovies to commercial and sport fishermen. AAFA and WFOA fishermen use relatively small lampara nets which have no purse line, whereas commercial bait fishermen use larger nets of a purse seine design. Together, lampara and purse seine nets are termed 'roundhaul' nets, and are set around single-species northern anchovy schools that are visually targeted near to the surface. If being kept alive, the northern anchovy are carefully brailed from the roundhaul net to the bait tanks in small scoops to minimize the risk of any damage. This brailing, and the fact that roundhaul nets are not designed to come in to contact with the seabed at any time, ensures that bycatch and mortality of other species in the northern anchovy fishery is very low, with sardine making up by far the greatest bycatch in observer records of the purse seine fleet from 2004 – 2008 at approximately 5% of the northern anchovy catch (PFMC 2011c).

Northern anchovy can be divided in to northern, central and southern sub-populations. The northern population ranges from San Francisco north to Canada, while the central population extends from San Francisco south to Baja, California. Northern anchovy is managed by the PFMC as a 'monitored' species, meaning that harvest guidelines and quotas are not established, but landings are monitored and the number and capacity of vessels in the

fishery is limited, while any changes in management are based on significant changes in the landings or the fishery (NMFS 2011b); a monitored fishery can become ‘actively managed’ if catches approach the acceptable biological catch (ABC) or maximum sustainable yield (MSY) levels, while overfishing of a monitored CPS stock is considered whenever current estimates or projections indicate that a minimum stock threshold will be realized within two years (PFMC 2011c).

While there is no up to date stock assessment and the most recent complete assessment was described in 1995, the PFMC adopted new management benchmarks for the northern and central subpopulations of northern anchovy in 2010 (PFMC 2011c). The overfishing limits (OFLs) are based on past estimates of biomass and are considered a MSY proxy, while the ABC values account for a 75 % uncertainty buffer in the OFL. The annual catch limit (ACL) was then set at 1500 t for the northern population (Table 6). Catches have varied widely over time (Table 7), but it is considered that the northern anchovy stocks currently experience limited targeted fishing pressure and relatively low levels of landings, and are not overfished or experiencing overfishing (PFMC 2017).

**Table 6. Catch limits for Pacific Fisheries Management Council monitored northern anchovy stocks (PFMC 2011c).**

Stock	Overfishing Limit (OFL)	Acceptable Biological Catch	Annual Catch Limit (ACL)	Annual Catch Target (ACT)
Northern anchovy, northern subpopulation	39,000 mt	9,750 mt	Equal to ABC	1,500 mt
Northern anchovy, central subpopulation	100,000 mt	25,000 mt	Equal to ABC	

**Table 7. West coast landings (t) of northern anchovy, 1981 – 2010 (PFMC 2011d).**

Year	Northern anchovy (t)	Year	Northern anchovy (t)	Year	Northern anchovy (t)
1981	52,309	1991	4,068	2001	19,345
1982	42,155	1992	1,166	2002	4,882
1983	4,430	1993	2,003	2003	1,929
1984	2,899	1994	1,859	2004	7,019
1985	1,638	1995	2,016	2005	11,414
1986	1,557	1996	4,505	2006	12,960
1987	1,467	1997	5,779	2007	10,548
1988	1,518	1998	1,584	2008	14,654
1989	2,511	1999	5,311	2009	3,519
1990	3,259	2000	11,832	2010	1,284

Albacore fishermen operating in waters off Washington and Oregon are required to report anchovy harvest through logbook submissions on albacore catches, but there is no such requirement in California. Because of this, and because the commercial bait catch may be used in other fisheries, there are no data available on the quantity of northern anchovy taken for use in the albacore pole and troll fishery. In order to quantify bait usage, during the previous full assessment, three experienced AAFA fishermen were asked to estimate how much northern anchovy would be used by the AAFA fleet during a fishing year. Two of the fishermen interviewed principally operate pole & line gear, while the other fisherman principally operates trolling gear. The fishermen were asked to describe the pole & line and troll fishing operations with respect to the use of northern anchovy, including the season for using Northern anchovy, the average number of trips per year during which anchovy are used, and the amounts used per trip; their comments are recorded in Table 8, below (from

Blythe-Skyrm et. al. 2012). This exercise was not repeated during the current assessment process as this data is still representative of fleet bait fishing practices.

By taking the greatest amounts estimated by the fishermen for each answer (number of trips, number of scoops and average scoop weight), and assuming that the bait tanks are filled to capacity and all the northern anchovy are used on each trip (which is not the case), an annual total of less than 250 t of northern anchovy would be used. However, by using the median answers to the questions, the total tonnage of northern anchovies used is approximately 130 t per year, again assuming that the bait tanks are filled to capacity that all the northern anchovy are used on each trip. These figures which likely represent over-estimates are very small and represent no threat to the northern anchovy stocks in the context of the US fisheries that produce an estimated 1,000 t – 3,000 t of northern anchovy that are sold as dead bait to sport fishermen, and the approximately 4,000 t of mixed sardine and northern anchovy that are sold live to sport fishermen (PFMC 2011c).

**Table 8. Bait usage by the AAFA fleet as estimated by experienced AAFA fishing captains (from Blythe-Skyrme et. al. 2012).**

	<b>Captain 1 (Pole &amp; Line)</b>	<b>Captain 2 (Pole &amp; Line)</b>	<b>Captain 3 (Troll)</b>
Number of P&L vessels	20 - 25 (varies according to year and how fish respond to bait)	20 - 25 (varies according to year and how fish respond to bait)	
Season for making (catching) bait for P&L vessels	End August - early November (season end depends on weather)	End August - early November (season end depends on weather)	
Number of fishing trips in P&L season	Up to 10 (but bait will not be 'made' (caught) before every trip)	Approximately 7	
Scoop weight	5 lb (scoop size is 8 lb officially, but smaller scoops are used to avoid damage to anchovy)	6 - 8 lb	
Number of scoops taken per trip across P&L fleet	Not asked	150 – 250 (large vessels may take more, but the average is probably at the low end)	
Maximum tonnes used by P&L vessels per annum (based on maximum values)	226 t (25 vessels x 10 trips x 250 scoops x 8 lb)/2205	159 t (25 vessels x 7 trips x 250 scoops x 8 lb )/2205	
Average tonnes used by P&L vessels per annum (based on answers)	104 t (23 vessels x 10 trips x 200 scoops x 5 lb)/2205	102 t (23 vessels x 7 trips x 200 scoops x 7 lb )/2205	
Number of Troll vessels using bait			30-50 % of the fleet (therefore 10 - 25 vessels)
Amount of bait used per troll trip			Average 180 lb (6 frozen boxes of 30 lb)
Number of troll trips where bait is used			Not asked (but assumed to be up to 10, as pole & line vessels)
Season for trolling with bait?			Common September to end Of season. Uncommon earlier in the year.

Maximum tonnes used by troll vessels per annum (based on answers)			20 t (25 vessels x 10 trips x 180 lb ) /2205
---	--	--	---

### 3.4.3 Endangered, threatened and protected (ETP) species

ETP species of potential relevance to the AAFA North Pacific albacore fishery include a variety of marine mammal, sea turtle and seabird species.

Various federal laws provide protection for special resources, including those for protected species under ESA, MMPA, and MBTA. Interactions of HMS fishing gears with protected species are described in Appendix D of the HMS FMP (PFMC 2016b). This FMP authorizes the adoption of measures to minimize interactions of HMS gears with protected species and to implement recommendations contained in Biological Opinions (ESA), Take Reduction Plans (MMPA), Seabird Management Plans, or other relevant documents pertaining to HMS fisheries. The FMP also authorizes programs to collect information on interactions in any or all HMS fisheries. Fishery-specific measures affecting protected species are included in the initial management measures for drift gillnet and longline fisheries, but protected species interactions with the other gear types (including surface hook-and-line/troll fisheries) are not major issues, and no alternatives were considered for those gears.

The FMP adopts a framework authorization for protected species conservation measures and implements initial conservation and management measures for drift gillnet and pelagic longline fisheries as described in section 6.2, Appendix D and the HMS FMP FEIS (PFMC 2006, sections 9.2.5.1-2) . The FMP requires general provision for its proposed protected species measures and also for future measures to reduce the takes of protected species and to minimize the risk of adverse impacts from those takes. The framework provisions of the FMP would be used to address new protected species concerns as they are identified. (PFMC 2016b)

The US National Bycatch Report assessed the North Pacific albacore pole & line fishery as being a Tier 0 fishery for bycatch of fish, marine mammals and other protected species, while the troll fishery was deemed to be in Tier 1 for the same animal groups (NMFS 2011). Tier 0 classification was stated as meaning that bycatch data collection programs have not been implemented, and that neither a method for estimating bycatch nor estimates of bycatch are available. Tier 1 classification is stated as typically meaning that bycatch estimates are based on outdated or unreliable information. However, the 2017 NOAA 'List of Fisheries', that as a requirement of the Marine Mammal Protection Act (1972) classifies US fisheries as being in Category I ("frequent incidental mortality and serious injuries of marine mammals"), Category II ("occasional incidental mortality and serious injuries of marine mammals") or Category III ("a remote likelihood or no known incidental mortality and serious injuries of marine mammals") assessed the North Pacific albacore pole and troll fisheries as Category III, with no marine mammal species or stocks killed or injured (NOAA 2017).

#### Marine mammals

Little data are available on marine mammal interactions in the AAFA and WFOA albacore fishery. What is available comes from either logbooks or an extremely limited observer program run by NMFS (27 trips in 8 years). Since observers were not required to collect interaction data, and the observer program was not conducted in a systematic fashion, a complete analysis of interactions is not possible. Logbooks show no interactions with

marine mammals, and the observer data have yet to be analyzed (Norm Bartoo, NMFS-La Jolla, personnel communications). There are no observer data or logbook data for live-bait boats fishing for albacore off the West Coast, so the extent, if any, of marine mammal interactions is unknown. Most fishing occurs many miles from shore, so the likelihood of interactions with pinnipeds is low. In 1997, one humpback whale was snagged by a central California troller (though this injury was not considered serious).

### **Turtles and ETP salmon**

The drift gillnet 2000 Biological Opinion states that anecdotal information indicates there are rare occurrences of sea turtle take in the U.S. albacore fishery (NMFS 2000). However, it is not possible to determine if any turtles were killed or seriously injured based on available data. Because of the nature of the live-bait fishery, there should be no interactions with turtles when fishing. There is the possibility, however remote, of capturing a sea turtle alive while catching bait. If a sea turtle were taken while catching bait, it could be easily released as the gear is actively fished. The extent of salmon interactions is unknown because the fishery is not observed in a scientifically designed observer program. However, albacore troll fishing technique and strategy differ from those used in trolling for salmon. While troll albacore vessels often carry both gears, and operators may shift strategy from albacore to salmon, or from salmon to albacore, depending on the availability of the different species in the area being fished, the likelihood of taking a listed salmon when targeting albacore is extremely low. (PFMC 2016b, Appendix D (Updated in 2007)).

### **Seabirds**

This HMS fishery is not regularly observed. Incidental takes of 'albatrosses, unid.' are known to occur in the albacore troll fishery but appear to be infrequent (Cousins and Cooper 2000 citing Bartoo). The extent of seabird interactions is unknown because observer placements on vessels in the fishery have been very rare and observers were not directed to record interactions. There are no records or observations of nor any evidence to suggest there would be any interactions between troll gear and short-tailed albatross, bald eagles, California least tern, western snowy plover, marbled murrelet, or California clapper rail (PFMC 2016b, Appendix D (Updated in 2007)).

In summary, the highly selective nature of the gear types, information provided in the various recovery and species action plans, the lack of any recommendations made regarding a need to collect more data on catches in the North Pacific albacore pole and troll fisheries in the US National Bycatch Report (NMFS 2011a), and the 'List of Fisheries' assessment (NOAA 2017), it is highly unlikely that the albacore pole and troll fisheries pose a threat to ETP species.

## **3.4.4 Habitat and ecosystem effects**

### **North Pacific albacore:**

The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. There is negligible catch of other primary or secondary species. The northern anchovy that is used for bait is an important forage fish species within the California Current System inshore, but the amounts used for bait in the AAFA and WFOA pole and troll fishery are small relative to other uses. Please note, northern anchovy is considered to be a primary species, and there is no MSC requirement to assess the baitfish fishery itself in terms of Principle 2 impacts.

Studies (e.g. Baum and Worm 2009) have indicated that large scale removals of large pelagic species can have ecosystem effects such as causing long-term changes in ecosystem structure in the ocean environment. However, the AAFA and WFOA removals of albacore as compared to the total removal of large pelagic species from all fisheries across the North Pacific is extremely small. Albacore is an important predator of northern anchovy in coastal areas off the western USA, and it has been suggested that albacore consume 0.1 % - 5 % of juvenile northern anchovy annual recruitment biomass, a figure that is sufficiently high to be observed in the subsequent year's northern anchovy recruitment strength (Glaser 2009). However, there is no indication that the removal of albacore by the AAFA and WFOA fleet adversely affects northern anchovy or other stocks of small, prey species. Conversely, albacore is also not a key prey item for any species in the North Pacific (Kitchell *et al.* 1999), and the fishery appears very unlikely to significantly impact other higher trophic-level predators.

### **3.5 Principle Three: Management System Background**

#### **3.5.1 Area of Operation**

**North Pacific albacore:** The North Pacific albacore fishery operates across the North Pacific and along the U.S. West Coast, inside and outside the EEZ. Because North Pacific albacore is distributed in ocean areas that encompass multiple zones of national jurisdiction, as well as the high seas, this resource is exploited by fisheries of many Nations (Blythe-Skyrme *et al.* 2012). A domestic management plan and an international agreement is necessary for the conservation of North Pacific albacore tuna stocks. Domestically the fishery falls under the jurisdiction of the Pacific Fisheries Management Council (PFMC) whereas the overarching management systems include the IATTC in the eastern Pacific ocean and the WCPFC in the western and central Pacific ocean (Fig. 15).

#### **3.5.2 Recognized groups with interests in North Pacific albacore**

U.S. commercial vessels that fish for north Pacific albacore primarily use troll/jig gear and pole and line gear, although some albacore is caught using purse seine, longline, drift gillnet handline and sport gear as well. The fishery ranges from the west coast states of California, Oregon and Washington expanding into Canada and based from Hawaii. The pole and line fishery for albacore was in the early years of the 20<sup>th</sup> century connected to the U.S. tropical tuna fishery for yellowfin, bigeye, and skipjack tunas. In 2015 there were 571 U.S. trolling vessels catching 11,571 t of north Pacific albacore (ISC 2017e).

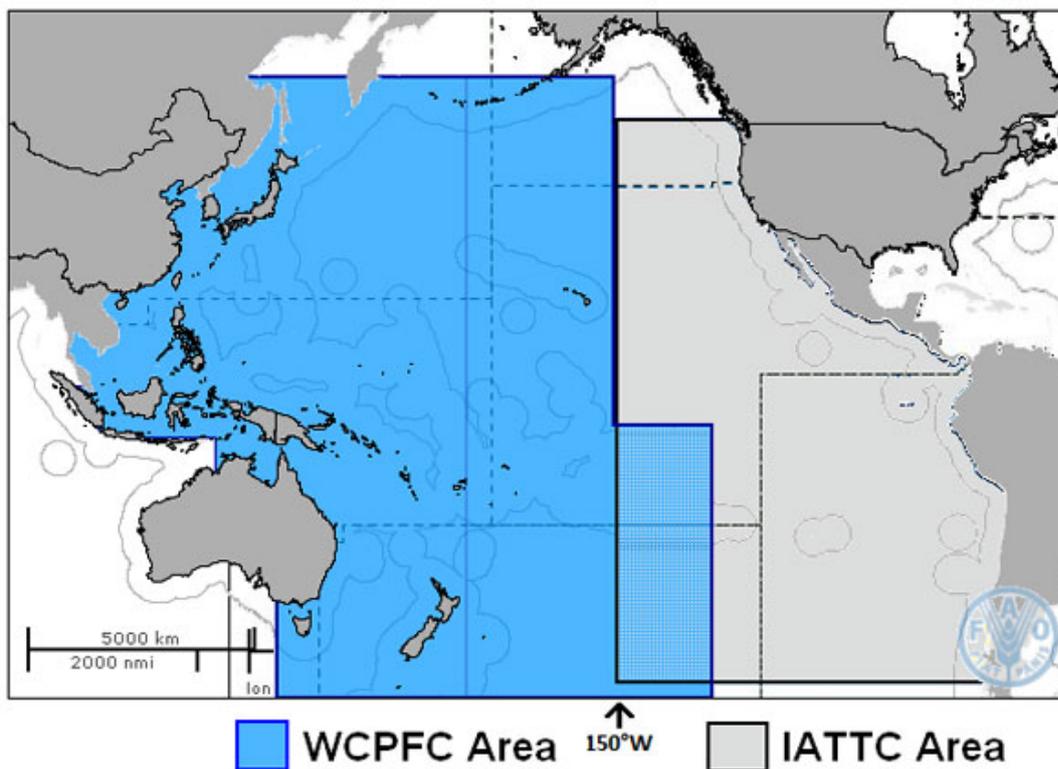
Recreational anglers target albacore in all three West Coast states. Albacore is targeted primarily by rod-and-reel gear using troll, live bait and jigging techniques, and success in this fishery is highly dependent on weather, ocean conditions, and distance from port to the fish and fuel prices (PFMC 2017b).

#### **3.5.3 Consultations leading to the formulation of the management plan**

Article 64 of the United Nations Law of the Sea Convention mandates States to cooperate directly, or through appropriate international organizations, to ensure the conservation of tunas, both within and beyond the EEZ. International management of the north Pacific albacore tuna resource and fisheries operating on it are shared under the auspices of the Inter American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC) (Figure 15) (Blyth-Skyrme *et al.* 2012). Tuna scientists

recognize a single north Pacific stock occurring in both convention areas (PFMC 2017b, ISC 2017a).

The IATTC and WCPFC formulate overarching resolutions based on recommendations from scientific committees or staff. Member states negotiate agreements on management mechanisms and, once agreed upon, the actual implementation is left to the individual member and cooperating countries.



**Figure 15.** WCPFC and IATTC Convention Areas (Fisheries and Oceans Canada)  
<http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/pelagic-pelagique/tuna-thon/index-eng.html#Map>

In 2005 the IATTC and the WCPFC adopted resolutions, which have been continued through the present time, for conservation of North Pacific albacore based on concerns that fishing effort may be approaching levels that are unsustainable in the long term. Resolutions adopted by both Commissions called upon their members and cooperating parties to take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore is not increased beyond current levels, and to report all catches of North Pacific albacore to the Commissions at 6-month intervals (Blythe-Skyrme *et al.* 2012). IATTC C-05-02 (IATTC 2005) requires that:

- The total level of fishing effort for North Pacific albacore tuna in the Eastern Pacific Ocean not be increased beyond current levels. At the 2008 IATTC meeting it was recommended that the fishing mortality averaged for 2002-2004 be used as the “current” fishing mortality as applies to (1).
- The Members, Cooperating Non-Members and participating Territories (CCMs) shall take necessary measures to ensure fishing effort for North Pacific albacore is not increased

- All CCMs shall report all catches of North Pacific albacore tuna by gear type to the IATTC every six months, with the exception of small coastal fisheries which will be reported annually. However, since the limit in the resolution is in terms of effort, the six-monthly reports include information on effort as well as catch, in terms of the most relevant measures for a given gear type.
- The Northern Committee will coordinate with other scientific bodies, including the WCPFC Scientific Committee, and monitor the status of North Pacific albacore report at each annual meeting and make any recommendations to the Commission as necessary for effective conservation.

In addition to IATTC C-05-02, a supplemental resolution on North Pacific albacore in 2013 was put in place, after the 2012 stock assessment. Resolution C-13-03 states:

- All Members and Cooperating non-members (CPCs) shall report to the Director a list of all their fisheries or fleets that had any catch of North Pacific albacore, and also list their fishing effort in fishing days and number of vessels fishing.
- Review, assess and monitor the current management approach for North Pacific albacore and report the status of the stock at each annual meeting.
- Coordinate with the ISC and WCPFC toward the development of a precautionary approach framework that includes target and limit reference points and harvest control rules and make recommendations to the Commission.
- IATTC scientific staff shall review work undertaken within the ISC and the WCPFC towards the development of a precautionary approach framework for North Pacific albacore that includes target and limit reference points and harvest control rules.

The WCPFC is one of the Regional Fisheries Management Organizations (RFMOs) to have been established following the finalization of the United Nations Fish Stocks Agreement. The WCPFC Convention was finalized in 2000 and the Commission established in 2004. WCPFC CMM 2005-03 (WCPFC 2005) requires similar actions be followed by Commission Members, Cooperating Non-Members, and participating Territories that conduct fishing operations for albacore in the Convention area north of 20° N (Blythe-Skyrme *et al.* 2012). The WCPFC Commission supports three subsidiary bodies where evaluation occurs: 1) Scientific Committee, 2) the Technical and Compliance Committee, and 3) Northern Committee, which each meet annually (WCPFC Convention).

The Pacific Fishery Management Council (PFMC) was supportive of the Department of State's conclusion of negotiations for a renewed regime for reciprocal fishing and port access privileges in 2017 and beyond under the U.S. – Canada Albacore Treaty. The US-Canada Albacore Tuna Treaty, which was initially put into effect in 1981, codified by law in 1984, was last amended in 2013 and brought into force February, 2014. During the term of the Treaty, Canada shall limit vessels fishing for albacore tuna in the EEZ of the United States to 45 troll vessels. The United States shall limit the vessels fishing for albacore tuna in the EEZ of Canada to a number of vessels reflective of historical levels (CTS 2014-6 USA albacore tuna). The Treaty allows, with conditions, fishing vessels of both countries to fish for North Pacific albacore in the respective EEZ waters outside 12 miles of the other country and to access certain ports to obtain supplies and services and to land their catch. For the US, the fishing season commences in June and ends in October. The port access season commences in June and ends in December. For Canada, the fishing season and the port access season commences in June and ends in September. The Treaty also called for exchange of fisheries data between the governments of the two nations and establishes regulations to

ensure compliance by albacore tuna fishing vessel operators when operating in the other country's waters (CTS 2014-6 USA albacore tuna).

#### **3.5.4 Arrangements for On-Going Consultations**

Management of albacore tuna throughout the WCPO is the responsibility of the WCPFC and the IATTC. The WCPFC adopted CMM2014-06 to develop and implement a harvest strategy for key fisheries and stocks in the WCPO. In addition, CMM 2014-06 included an agreed work plan intended to give effect to the requirements contained in paragraph 13 of CMM 2014-06:

*“The Commission shall agree a work plan and indicative timeframes to adopt or refine harvest strategies for skipjack, bigeye, yellowfin, South Pacific albacore, Pacific Bluefin and northern albacore tuna by no later than the twelfth meeting of the Commission in 2015. This workplan will be subject to review in 2017. The Commission may agree timeframes to adopt harvest strategies for other fisheries or stocks.”*

Under this CMM, the Northern Committee will be responsible for developing a schedule for North Pacific albacore.

In May 2016, the International Scientific Committee for Tuna and Tuna like Species (ISC) conducted a workshop to receive input from managers and stakeholders in member countries of the WCPFC Northern Committee on management objectives for the North Pacific albacore. These management objectives will aid in development of a management strategy evaluation (MSE). The Council recommended the NC and ISC approve the MSE objectives. As the initial MSE results become available, the Council will recommend additional elements and/or objectives for future analyses (PFMC Meeting - HMS Management June 2016). On October 19, 2017, the ISC ALBWG concluded a third MSE workshop on North Pacific Albacore tuna in Vancouver, B.C. Delegations of managers, scientists and industry from Canada, the U.S., Japan, Taiwan and China, and representatives from the Inter-American Tropical Tuna Commission (IATTC), WCPFC, World Wildlife Federation and the Monterey Bay Aquarium met to confirm management objectives, develop performance metrics, a set of candidate harvest control rules and a more diverse set of candidate reference points to be tested in the MSE process.

#### **3.5.5 Decision Making**

Domestic Management:

The following background information was taken from the 2012 Intertek Moody Marine Public Certification Report for albacore tuna (Blythe-Skyrme *et al.* 2012):

The *Magnuson-Stevens Fishery Conservation and Management Act* (MSA) provides the legislative framework and is the primary law governing marine fisheries management in United States. The Act was first enacted in 1976 and has been amended many times over the years. Two major recent sets of amendments to the law were the:

- The Sustainable Fisheries Act (1996) addresses many topics, among which includes Title V, *Implementation of Western and Central Pacific Fisheries Commission* ([http://www.nmfs.noaa.gov/sfa/sustainable\\_fisheries\\_act.pdf](http://www.nmfs.noaa.gov/sfa/sustainable_fisheries_act.pdf)).
- *Magnuson–Stevens Fishery Conservation and Management Reauthorization Act of 2006*, which has numerous purposes (<http://www.nmfs.noaa.gov/msa2005/index.html>):
  - a. Acting to conserve fishery resources
  - b. Supporting enforcement of international fishing agreements
  - c. Promoting fishing in line with conservation principles
  - d. Providing for the implementation of fishery management plans (FMPs)

- which achieve optimal yield
- e. Developing underutilized fisheries
- f. Protecting essential fish habitats
- g. Additionally, the law calls for reducing bycatch and establishing fishery information monitoring systems.

Under domestic law, the Chair of the Pacific Council is allocated a spot as a Commissioner for the United States Section to the WCPFC (HMS SAFE Report 2017). As a member of the Commission, the U.S. is responsible for ensuring that management measures applied within U.S. waters are compatible with those of the WCPFC, and that fishing by US-flagged vessels is carried out in accordance with any measures put in place by WCPFC. This provides a direct role for the Pacific Council in policies and proposals that the U.S. may advocate in the WCPFC. The PFMC is made up of two types of voting members, including private citizens who are knowledgeable about the region's fisheries, such as recreational and commercial fishermen, industry leaders, environmentalists, academics and tribal representatives. There are also designated members that include marine fishery management officials from each state and the NMFS administrator. Non-voting members also serve on the council and include the Coast Guard, State Department, U.S. Fish and Wildlife Service and Interstate Commissions. Councils receive input from advisory bodies, Council committees, and development teams, Scientific and Statistical Committees, and the general public. Decisions are based on best available science that is peer reviewed in public meetings, where stakeholders have opportunities for involvement during all stages of decision-making. The Pacific Fishery Management Council also has what is called a 'Briefing Book' that includes Meeting Agendas along with brief summaries that provide background for each agenda item, reports and materials for each agenda item, written public comment, and other materials to facilitate Council meetings. Briefing Books from 2000 to present are publicly available on the Council's website.

The National Marine Fisheries Service (NMFS) is responsible for approving management actions regarding the US West Coast albacore fishery as recommended by the Pacific Fishery Management Council (PFMC). The US West Coast albacore fishery is managed under the PFMC Highly Migratory Species Fishery Management Plan (PFMC 2011), which became effective February 10, 2005, and formalized the requirement for an HMS permit (PFMC 2017b). The management measures presently in place on the fishery apply to vessels fishing for albacore in the EEZ and on the high seas, with catch being landed in California, Oregon or Washington. The HMS FMP, last amended in 2017, include the following:

- A Pacific HMS fishing permit, with an endorsement for a specific gear and other accompanying provisions, is required by all commercial and recreational charter fishing vessels fishing for North Pacific albacore. Permits are issued to the owner of a specific vessel for a 2-year term and are renewable.
- A High Seas Fishing Compliance Act valid permit is required by all commercial and recreational charter fishing vessels fishing for albacore on the high seas. Permits are issued to a specific vessel for a 5-year term and are renewable.
- All Pacific HMS permit holders must maintain and submit to NMFS a daily logbook of catch and effort and catch disposition.
- The HMS FMP prohibits all pelagic longline fishing within the West Coast EEZ as well as shallow-set longline fishing in the adjacent high seas areas.

- All U.S. fishing vessels operating in HMS fisheries may be required to carry a NMFS certified observer on board to collect scientific data when directed to do so by the NMFS Regional Administrator.
- The US recreational albacore fishery is managed by daily bag limits of 10 albacore per angler south, and 25 albacore per angler north, of Point Conception, CA.
- The NOAA/NMFS compiles and makes reports to the respective Commissions of data on U.S. vessel fishing effort in compliance with IATTC C-05-02 and WCPFC CMM 2005-03.
- Oregon and California require State commercial fishing licenses to fish for or land albacore; Oregon also has an albacore fishing license when landing only albacore. No State fishing license is required to fish for albacore in Washington.

#### International Management:

The WCPFC and the IATTC are responsible for the management and conservation of fisheries for tunas taken by tuna-fishing vessels both outside and within areas of national jurisdiction. These two RFMOs agree to establish and maintain consultation, cooperation and collaboration in areas involving exchange of data and information, collaboration on research efforts relating to stocks and species of mutual interest and conservation and management measures (Memorandum of Understanding IATTC and WCPFC). The IATTC *Antigua Convention, Article IX* explains the established decision making process. Consensus of all the members of the Commission is required for decisions on adoptions of most amendments. The *WCPFC Convention, Article 20* outlines the established decision making policies for this area. Again, the general rule for decision making in the Commission shall be by consensus. If all efforts to reach a decision by consensus have been exhausted, the decisions by voting on questions of procedure shall be taken by a majority of those present and voting.

**The Northern Committee (NC) of the WCPFC, which is primarily responsible for northern albacore stocks, makes recommendations on the implementation of conservation and management measures that may be adopted by the Commission for the area north of 20°N.. The NC has also subsumed the Interim Scientific Committee (ISC), a forum to study the tuna and tuna-like species of the North Pacific Ocean, as its main source of scientific advice. The ISC reports both to IATTC and WCPFC.**

#### 3.5.6 Objectives for the Fishery

The IATTC *Antigua Convention, Article II* of the states that the objective is to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention, is in accordance with the relevant rules of international law. In addition, the members of the Commission shall be cautious, or apply a precautionary approach, in cases where information is uncertain, unreliable or inadequate, in regards to conservation and management. IATTC C-05-02 states that action needs to be taken as necessary to ensure the effective conservation and management of North Pacific albacore tuna throughout its range including, measures to ensure that fishing effort on the stock does not increase and measures to reduce fishing effort to levels commensurate with the long-term sustainability of the resource. IATTC C-13-03 also states that the IATTC scientific staff shall review work undertaken within the ISC and the WCPFC towards the development of a precautionary approach framework for North Pacific albacore that includes target and limit reference points and harvest control rules.

The *WCPFC Convention, Article 5*, states that the objective is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks, including north Pacific albacore) in the western and central Pacific Ocean in accordance with the 1995 UN Fish Stocks Agreement and the 1982 United Nations Convention on the Law of the Sea. The Convention also states that effective management and conservation require the application of the precautionary approach and the best scientific information available. Conservation and Management Measure-2005-03 promotes the cooperation of the Northern Committee, IATTC and other scientific bodies to monitor the status of north Pacific albacore and to maintain the level of fishing effort on north Pacific albacore within the Convention area commensurate with the long-term sustainability of the stock.

On a domestic level, the PFMC states the Highly Migratory Species Management Plan, which includes north Pacific albacore, is intended to promote the achievement of optimum yield of HMS throughout their ranges, both within and beyond the U.S. EEZ, while also ensuring conservation. Other objectives include:

- Contribute to international cooperation in the long-term conservation and sustainable use of HMS stocks that are caught by West Coast fishers
- Promote inter-regional collaboration in management of fisheries for species which occur in the PFMC and other Councils' areas.
- Establish procedures to facilitate rapid implementation of future management actions as necessary.
- Ensure that fisheries are in compliance with laws and regulations to conserve and restore species listed pursuant to the ESA, MMPA and MBTA (PFMC HMS Fishery Management Plan).

The management in the HMS FMP is precautionary and multidimensional in approach. Precautionary management is the primary theme in managing HMS species and is called for by the MSA, FAO's Code of Conduct for Responsible Fisheries (FAO 1995), United Nations' "Highly Migratory Species and Straddling Stocks Agreement" and regional agreements, such as the Multi-Lateral High Level Conference for Conservation and Management of Highly Migratory Species for the Central and Western Pacific (MHLC) (PFMC 2011). Precautionary management of HMS species includes consideration of the biological limits and control of the growth rate of fisheries. Multidimensional management, within the context of these precautionary concepts, refers to the complementary methods applied in actual management, including management by catch and effort, protecting reproductive potential, limiting access and limiting bycatch (PFMC 2011).

### **3.5.7 Monitoring, Control and Surveillance**

The US has a strong enforcement program to deter fisheries violations through successful prosecution and deterrent penalties. NOAA has authority and responsibility under more than 30 federal statutes to manage sustainable fisheries, and to protect living marine resources, including marine areas and species (NOAA 2011). Officers and agents in the NOAA Office of Law Enforcement, the US Coast Guard, Customs and Border Protection, Immigration and Customs Enforcement, US Fish and Wildlife Service, and State officers authorized under Cooperative Enforcement Agreements, monitor compliance and investigate potential violations of the statutes and regulations enforced by NOAA. Monitoring, control and surveillance are carried out across the fishing sectors to ensure observance of regulatory and statute requirements. Monitoring, control and surveillance actions include:

- Fishing permit requirements
- Fishing permit and fishing vessel registers
- Vessel and gear marking requirements
- Fishing gear and method restrictions
- Reporting requirements for catch, effort, and catch disposition
- Vessel inspections
- Record keeping requirements
- Auditing of licensed fish buyers
- Control of transshipment
- Monitored unloads of fish
- Information management and intelligence analysis
- Analysis of catch and effort reporting and comparison with landing and trade data to confirm accuracy
- Boarding and inspection by fishery officers at sea
- Aerial and surface surveillance,
- Any other measures agreed by WCPFC

Penalties for fisheries related fisheries related violations include fines; forfeiture of fish, vessels, other property and quota; and imprisonment. With respect to permit sanctions, where applicable, the statutes that NOAA enforces generally provide broad authority to suspend or revoke permits. Compliance with fisheries related regulations and statutes ultimately allows the US to meet its international obligations for the management and conservation of HMS (Blyth-Skyrme *et al.* 2012). The HMS Fishery Management Plan requires that all U.S. vessels that fish for HMS (including north Pacific albacore), offload, or land HMS in California, Oregon and Washington have a valid HMS vessel permit. U.S. vessels that land in Canada need to fill out an application for port activity and are subject to applicable albacore tuna landing fees, and subject to compliance with navigation, safety environmental and other regulations pursuant to the Canada – U.S treaty. U.S. vessels fishing on the high seas (outside the U.S EEZ, or 200nm) are also required to have a High Seas Fishing Compliance Act Permit (HSFCA) (PFMC 2016b). All vessels fishing HMS are required to fill out logbooks and return them to the Southwest Fisheries Science Center within 30 days if landed in the United States. Observers are not required for the north Pacific albacore fishery.

U.S. vessels that wish to fish in Canadian waters must be identified on the U.S. albacore vessel list; maintain and submit logbooks; mark their vessels with registration number and name; and report when they enter and leave Canadian waters. Additional permits are not required by the U.S.-Canada Treaty, however the same HMS/HSFCA permit requirements apply (CTS 2014-6 USA albacore tuna).

The IATTC *Antigua Convention, Article XVIII* states each Party<sup>1</sup> shall take appropriate measures to ensure the implementation of and compliance with this Convention and any conservation and management measures adopted, including the adoption of the necessary laws and regulations. It also states that each Party, through the Director, shall inform the Committee for the review of legal and administrative provisions, including those regarding infractions and sanctions, as well as actions taken to ensure compliance with conservation and management. Each Party is also required to provide to the Commission a report on the activities of its tuna-fishing vessels every six months.

---

<sup>1</sup> A “party” is defined in the *Antigua Convention* as the States and regional economic integration organizations which have consented to be bound by this Convention, in accordance with the provisions of Articles XXVII, XXIX, and XXX.

*WCPFC Convention Article XXV* establishes that each member of the Commission shall enforce the provisions of the Convention and any conservation and management measures issued by the Commission, *Article XXVI* establishes boarding and inspection procedures, *Article XXVII* establishes port-state inspection procedures which allows the port-state to prohibit landings and transshipment of catch and transshipment of catch taken through non-compliance, and *Article XXIX* outlines procedures for in-port and at-sea transshipment (Blyth-Skyrme *et al.* 2012). The WCPFC requires that any U.S. fishing vessel used for commercial fishing for HMS on the high seas have a WCPFC Endorsement. In order to obtain this endorsement, a HSFCA permit must have been issued or applied for. The WCPFC also requires owners/operators of any U.S. vessel fishing for HMS in the Convention Area be required to submit NOAA Fisheries information about the vessel, its owner and operators, and any fishing authorizations issued by such other nations. Vessel monitoring systems (VMS) and/or Enhanced Mobility Transmitting Units (EMTU) are required if the vessel is less than 24m and has an HSFCA permit. IATTC C 14-02 also requires all commercial vessels greater than 24 meters, harvesting tuna or tuna-like species, to be equipped by 1 January 2016 with a satellite-based VMS

Members of both RFMOs shall not grant a vessel authorization to fish if it is on the respective Convention's IUU vessel list. Sanctions are in place for non-compliance, including refusal, suspension or withdrawal of the authorization to fish (IATTC Antigua Convention, WCPFC Convention).

In addition to the domestic and international procedures for monitoring, enforcement and compliance, AAFA and WFOA have several procedures in place to keep the members of their associations in compliance with current management policies. Regulations, permit and vessel requirements, instructions for logbook submission, and mandatory safety measures are regularly updated and publicly available on their websites.

### **3.5.8 Reporting**

The US HMS fisheries management regime is supported by a comprehensive set of reporting and recordkeeping regulations, as per mandatory requirements set by the regulations issued by the NMFS under the authority of the WCPFC Implementation Act (see above) and the Tuna Conventions Act.. Recordkeeping and reporting requirements of the HMS FMP became effective in 2005. Title 50, Section 660.707 of the Code of Federal Regulations outlines the required HMS permit (PFMC 2017b). Logbook data collections are the only Federal mandated reporting for the albacore fishery.

IATTC C-05-02 states that the Director shall, in coordination with other scientific bodies conducting scientific reviews of this stock, monitor the status of North Pacific albacore tuna and report on the status of the stock at each annual Meeting. *Article XVIII* of the *Antigua Convention* also requires that each participating party of the Convention provide to the Commission every six months a report on the activities of its tuna-fishing vessels and any other necessary information for the work of the Committee for the Review of Implementation of Measures Adopted by the Commission.

### **3.5.9 Consultation**

The consultation processes of the management systems at both the international and domestic levels provide opportunities for all interested and affected parties to be involved. At the international level both RFMOs have articles in their respective Conventions that provide that the Commission will consult, cooperate and collaborate with other relevant organizations, particularly those with related objectives and which can contribute to the attainment of the objectives of the Convention. *Article XVI* of the *Antigua Convention* states

that: The Commission shall promote transparency in the implementation of this Convention in its decision making process and other activities through facilitating consultations with, and the effective participation of NGOs, representatives of the fishing industry, particularly the fishing fleet and other interested bodies and individuals. Subject to Commission rules and procedures, representatives from NCPs, IGOs and NGOs may participate in Commission meetings and its subsidiary bodies as observers or otherwise as appropriate; have access to pertinent information subject to Commission rules and procedures; and, are permitted to give oral presentations and distribute papers through the Secretariat.

The Northern Committee(NC) meets in August or September and makes recommendations to the Commission. Participation is limited to members located in the area north of 20 degrees north, however any member of the Commission is welcome to participate as observers. The WCPFC Conventions states that each subsidiary committee shall meet as often as is required for the efficient exercise of its functions and shall report to the annual meeting the results of its deliberations.

Interested stakeholders may keep apprised of fisheries management and related actions, topics, status, etc. Agendas for all meetings, reports of presentations given at meetings, status of actions, etc. are published in easily downloadable formats from the RFMO websites and other media (Blythe-Skyrme *et al.* 2012).

At the domestic level, the MSA mandates that the PFMC follow a transparent process for vetting domestic regulations and related actions that includes all interested stakeholders. The PFMC is made up of two types of voting members, including private citizens who are knowledgeable about the region's fisheries, such as recreational and commercial fishermen, industry leaders, environmentalists, academics and tribal representatives. There are also designated members that include marine fishery management officials from each state and the NMFS administrator. Non-voting members also serve on the council and include the Coast Guard, State Department, U.S. Fish and Wildlife Service and Interstate Commissions. Councils receive input from advisory bodies, Council committees, planned development teams, Scientific and Statistical Committees, and the general public. Decisions are based on best available science that is peer reviewed in public meetings, where stakeholders have opportunities for involvement during all stages of decision-making. The Pacific Fishery Management Council's Briefing Book" also includes meeting agendas, agenda item situation summaries and attachments from all past meetings publicly available on the Council's website. PFMC "Press Release" and newsletters are available on the website, which summarizes the various meetings and events, and proceedings of these meetings are publicly distributed. Upcoming meetings, webinars and changes to management plans, advisory panels, etc. are also posted on the PFMC website and in blog posts. There are also tools for understanding the fishery management process, including ways to get involved in the Council process ([www.pcouncil.org](http://www.pcouncil.org)).

### **3.5.10 Dispute Resolution**

At the domestic level, legal disputes are handled under the Administrative Procedures Act, which governs the process by which federal agencies (e.g. NOAA/NMFS) develop and issue regulations. Opportunities are provided for the public to comment on notices of proposed rulemaking (<http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf>).

NOAA has an extensive Dispute Resolution Process, defined by the Administrative Dispute Resolution Act of 1996, Pub. L. No. 104-320. They have an Alternative Dispute Resolution (ADR) process that consists of several approaches used to resolve conflict other than litigation if possible. The ADR process uses mediation, consultation and facilitated problem solving to resolve disputes in a confidential manner ([www.wfm.noaa.gov/adr/](http://www.wfm.noaa.gov/adr/)).

Both the IATTC and the WCPFC operate under charters specifying voting rules and procedures. However, decisions are usually made by consensus of the member states. There also are dispute resolution mechanisms. Additionally dispute resolution through litigation and the courts is available. Any such disputes are to be well documented and readily available to appropriate parties. The management system at the international level incorporates transparent mechanisms in decision making processes and other activities. WCPFC Convention Annex II establishes the authority to set up a Review Panel to review decisions made by the Commission to settle disputes among members of the Commission (Blythe-Skyrme *et al.* 2012).

## 4 Evaluation Procedure

### 4.1 Harmonised Fishery Assessment

There are three certified and in-assessment fisheries with North Pacific Albacore as a target stock, including the AAFA/WFOA fishery (Table 9). The Canadian Highly Migratory Species Foundation British Columbia Albacore Tuna North Pacific fishery was certified most recently in 2015, using version 1.3 of the MSC Default Assessment Tree. The present reassessment uses version 2.0 and is the first North Pacific albacore fishery to be assessed using 2.0, however scores under version 1.3 were harmonized during the prior assessment. The Japanese Pole and Line albacore and skipjack fishery was also assessed using version 1.3 except for Performance Indicator 1.2.2., for which version 2.0 and accompanying guidance was used. Although the timelines for these assessments/certifications are staggered, the respective assessment teams have ensured that the Principle 1 scores are harmonized across assessments such that there are no material differences in scores, although some scores have not been identical. Under version 2.0, there is no longer a separate Performance Indicator for reference points (previously 1.1.2; with a score of 70 with condition). Therefore, the condition related to reference points does not carry over into the assessment against v2.0. In addition, immaterial differences in other PI scores between the first AAFA/WFOA assessment and the present one result from differences between the earlier versions and v2.0 of the standard rather than reflecting a change in fishery performance.

During the PCDR comment period there were substantive comments suggesting score changes for two Principle 1 (and 2 Principle 3) Performance Indicators. As the responses to the P1 comments concerned also harmonized assessments, MRAG Americas conferred with the P1 experts for the other North Pacific albacore MSC fisheries before finalizing and publishing responses to these comments.

**Table 9. Harmonized Principle 1 scores across certified North Pacific albacore fisheries.**

Fishery	1.1.1	1.1.2	1.1.3	1.2.1	1.2.2	1.2.3	1.2.4
CHMSF	100	70	N/A	90	60	90	100
Japan	100	70	N/A	80	60	90	100
AAFA/WFOA	100	70	N/A	85	60	100	95
V2.0	1.1.1	1.1.2		1.2.1	1.2.2	1.2.3	1.2.4
<b>AAFA/WFOA (present assessment)</b>	<b>90</b>	<b>N/A</b>		<b>80</b>	<b>60</b>	<b>90</b>	<b>100</b>

### 4.2 Previous assessments

The present assessment is the second reassessment for AAFA and the first reassessment for the combined AAFA/WFOA client group. Previously, the WFOA fishery was certified in conjunction with the CHMSF British Columbia fishery. All information about previous assessments can be found on the MSC website here: [https://fisheries.msc.org/en/fisheries/aafa-and-wfoa-north-pacific-albacore-tuna/@\\_@assessments](https://fisheries.msc.org/en/fisheries/aafa-and-wfoa-north-pacific-albacore-tuna/@_@assessments). All previous assessments have been successful, concluding with certification of the fisheries. Previous assessments were all conducted by a different CAB, with the current clients transferring their certificate to MRAG Americas in 2016 to conduct the third and fourth surveillance audits and present reassessment. A summary of conditions status from previous assessments is given in Table 10.

**Table 10. Summary of Previous Assessment Conditions.**

Condition	PI(s)	Year closed	Justification
<p>1: By the end of the fourth year of certification, the SG 80 scoring requirements above must be met in full. This will be achieved if the limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity, and if the target reference point is such that the stock is maintained at a level consistent with BMSY or some measure or surrogate with similar intent or outcome.</p>	1.1.2	Not closed	<p>Through the North Pacific albacore MSE process the IATTC and WCPFC are considering appropriate target and limited reference points, however they are not yet established. For year 4, the requirement in the action plan is that evidence should be provided that appropriately precautionary, scientifically based, formal target and limit reference points (or measures/surrogates with similar intent) for North Pacific albacore tuna, that meet the MSC standard at SG80, are adopted by the IATTC and WCPFC.. The audit team therefore concluded that the Year 4 milestone was behind target.</p> <p><b>However, this condition does not carry over into the present assessment because under FCR v2.0, PI 1.1.2 does not exist in it's previous form. Instead, the evaluation of reference points has been put into PI 1.2.2, where a different condition already exists (see below).</b></p>
<p>2: By the end of the fourth year of certification, the SG 80 scoring requirements above must be met in full. This will be achieved if 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, the selection of the harvest control rules takes into account the main uncertainties, and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</p>	1.2.2	Not closed	<p>Through the North Pacific albacore MSE process the IATTC and WCPFC are considering appropriate harvest control rules; however, these are not yet established. The requirement for year four is that evidence should be provided that an appropriate harvest control rule for North Pacific albacore tuna is adopted by the IATTC and WCPFC, the agreed formal binding harvest control rule, related to the adoption of formal and appropriately precautionary biological reference points by the IATTC and WCPFC, has been implemented, and there is a clear basis for considering that it will be successful in achieving the desired outcome and that it has taken into account the main uncertainties. The audit team therefore concludes that the Year 4 milestone has not been met, and we found that the fishery was <b>behind target</b> on Condition 2. The score for PI 1.2.2 remains at 60. Note that because the assessment team is scoring 'available' for SG60, per the 2014 CAB notification <b>the condition can be carried over into reassessment</b>, since reassessment will be against FCR v2.0 and the term 'available' HCR will be used per v2.0 guidance.</p>

### **4.3 Assessment Methodologies**

The AAFA/WFOA North Pacific albacore fishery was reassessed against using the MSC Fishery Certification Requirements and associated Guidance to the MSC Fishery Certification Requirements, version 2.0.

The AAFA/WFOA North Pacific albacore fishery recertification assessment was conducted using the default assessment tree contained in v2.0 of the MSC FCR, without modification, and takes advantage of MSC guidance pertaining to carry over of conditions on PI 1.2.2 when FCR v2.0 is used for tuna fisheries.

### **4.4 Evaluation Processes and Techniques**

#### **4.4.1 Site Visits**

Information supplied by the clients and management agencies was reviewed by the assessment team ahead of the meetings, and discussions with the clients and management agencies centred on the content within the provided documentation. In cases where relevant documentation was not provided in advance of the meeting, it was requested by the assessment team and subsequently supplied during, or shortly after the meeting.

Thirty days prior to the assessment, all stakeholders from the full assessment were informed of the opportunity to provide information to the auditors in advance of, or during, the period of the audit. We received no requests from outside stakeholders to take part in meetings or provide information remotely, with the exception of Ivan Mateo, team leader for the CHMSF fishery, who participated remotely in meetings as indicated in Table 12.

The site visit was held in La Jolla, CA from August 9-11, 2017, with two additional conference calls held the prior week (see below for details). In order to avoid duplication the assessment teams of SAI Global (for the CHMSF Albacore fishery) and MRAG Americas (for this fishery) jointly conducted meetings with IATTC and NMFS. Ivan Mateo from SAI Global attended via telephone on behalf of the CHMSF fishery.

Table 11 lists the attendees and their affiliations, and Table 12 gives the schedule of meetings and who attended each.

**Table 11. AAFA and WFOA surveillance audit and reassessment participants and affiliations.**

<b>Name</b>	<b>Affiliation</b>
Amanda Stern-Pirlot	MRAG Americas, Assessment team
Max Stocker	Assessment team
Erin Wilson	MRAG Americas, Assessment team
Ivan Mateo	SAI Global, lead assessor for the CHMSF
Natalie Webster	AAFA, client
Wayne Heikkila	WFOA, client
Peter Flournoy	WFOA, client
Mike Conroy	WFOA and AAFA, client
Rick Deriso	IATTC
Mark Maunder	IATTC
Carolina Minte-Vera	IATTC
Steve Teo	NOAA/NMFS Southwest Fisheries Science Center
John Childers	NOAA/NMFS Southwest Fisheries Science Center
Gerard DiNardo	NOAA/NMFS Southwest Fisheries Science Center
Michael Killary	NOAA Fisheries Office of Law Enforcement
Michelle Zetwo	NOAA/NMFS SW Region Enforcement
Cyreis Schmitt	Oregon Department of Fish and Wildlife (ODFW)
Kit Dahl	Pacific Fisheries Management Council
Sergio Cansado	Accreditation Services International (ASI)
Heiko Sielert	ASI

**Table 12. Consultation Meetings during the Surveillance and Reassessment of the AAFA and WFOA Fishery.**

<b>Name Organization</b>	<b>Present at Meeting</b>	<b>Location</b>	<b>Meeting Type</b>	<b>Date/Time</b>
<b>NOAA/NMFS</b> Southwest Fisheries Science Center, 8901 La Jolla Shores Dr La Jolla, CA 92037-1508, USA	Amanda Stern-Pirlot, Max Stocker, Erin Wilson, Ivan Mateo, Steve Teo, John Childers, Steven Stohs	Southwest Fisheries Science Center, 8901 La Jolla Shores Dr La Jolla, CA 92037-1508, USA	Teleconference	2 August 2017 9 AM
<b>NOAA Fisheries Office of Law Enforcement</b> West Coast Division 7600 Sand Point Way NE Seattle, WA 98115, USA	Amanda Stern-Pirlot, Erin Wilson, Michael Killary	MRAG Americas, Inc. 1631 15 <sup>th</sup> Ave W, Suite 201 Seattle, WA 98119, USA	In person	4 August 2017 10 AM
<b>Client Meeting: AAFA and WFOA</b>	Amanda Stern-Pirlot, Max Stocker, Erin Wilson, Peter Flournoy, Mike Conroy, Natalie Webster	Empress Hotel 7766 Fay Ave, La Jolla, CA 92037	In person and by phone	9 August 2017 9:30 AM

	(phone), Wayne Heikkila (phone), Sergio Cansado (ASI), Heiko Seilert (ASI)			
<b>IATTC</b> 8901 La Jolla Shores Drive La Jolla CA 92037-1509, USA	Amanda Stern- Pirlot, Max Stocker, Erin Wilson, Ivan Mateo (phone) Rick Deriso, Mark Maunder, Carolina Minte- Vera, Sergio Cansado (ASI), Heiko Seilert (ASI)	IATTC 8901 La Jolla Shores Drive La Jolla CA 92037- 1509, USA	Teleconference	10 August 2017 10 AM
<b>NOAA/NMFS</b> Southwest Fisheries Science Center, 8901 La Jolla Shores Dr La Jolla, CA 92037-1508, USA	Amanda Stern- Pirlot,Max Stocker, Erin Wilson Gerard DiNardo, Sergio Cansado (ASI), Heiko Seilert (ASI)	<b>IATTC Office</b> 8901 La Jolla Shores Drive La Jolla CA 92037- 1509, USA	In person	10 August 2017 1:30 PM
<b>Pacific Fisheries Management Council</b> 7700 NE Ambassador Place, Suite 101 Portland, Oregon 97220, USA  <b>Oregon Department of Fish and Wildlife</b> Marine Resources Program 2040 SE Marine Science Drive Newport, OR 97365  Highly Migratory Species Committee	Amanda Stern- Pirlot, Max Stocker, Erin Wilson, Kit Dahl,Cyreis Schmitt, Sergio Cansado (ASI), Heiko Seilert (ASI)	<b>IATTC Office</b> 8901 La Jolla Shores Drive La Jolla CA 92037- 1509, USA	In person	10 August 2017 3 PM
<b>NOAA/NMFS Southwest Region of Enforcement</b> 501 West Ocean Boulevard, Suite 4200 Long Beach, CA 90802, USA	Amanda Stern- Pirlot, Max Stocker, Erin Wilson, Michelle Zetwo, Marcus Nieves, Sergio Cansado (ASI), Heiko Seilert (ASI)	Empress Hotel 7766 Fay Ave, La Jolla, CA 92037	In person	11 August 2017 1 PM

<p><b>Closing Meeting with Clients - AAFA and WFOA</b></p>	<p>Amanda Stern-Pirlot, Max Stocker, Erin Wilson, Peter Flournoy, Mike Conroy, Natalie Webster (phone), Wayne Heikkila (phone), Sergio Cansado (ASI), Heiko Seilert (ASI)</p>	<p>Empress Hotel 7766 Fay Ave, La Jolla, CA 92037</p>	<p>Teleconference</p>	<p>11 August 3 PM</p>
--	---	---	-----------------------	-----------------------

**4.4.2 Consultations**

See Table 12 above, with respect to details of the individuals interviewed during the site visit, and summary of topics discussed.

**4.4.3 Evaluation Techniques**

MRAG published an announcement of the reassessment on our website and sent a direct email to all stakeholders on our stakeholder list. MSC posted the announcement on its AAFA/WFOA North Pacific albacore track-a-fishery page, as well as sent it by email in their Fishery Announcements newsletter to all registered recipients. At this time, MRAG Americas also announced the assessment site visit dates and location, as well as the assessment team. This was done according to the process requirements as laid out in MSC’s Fisheries Certification Requirements v2.0. The site visit for this assessment was held at the same time as the site visit for the 4<sup>th</sup> surveillance audit for these fisheries, and the announcements for both went to stakeholders together. Together, these media presented the announcement to a wide audience representing industry, agencies, and other stakeholders.

The assessment team and the clients set up meetings with US North Pacific albacore fishery management and science personnel, and industry and harvest-sector representatives relevant to the fishery assessment.

In the CR v2.0 default assessment tree used for this assessment, the MSC has 28 ‘performance indicators’, six in Principle 1, 15 in Principle 2, and seven in Principle 3. The performance indicators are grouped in each principle by ‘component.’ Principle 1 has two components, Principle 2 has five, and Principle 3 has two. Each performance indicator consists of one or more ‘scoring issues;’ a scoring issue is a specific topic for evaluation. ‘Scoring Guideposts’ define the requirements for meeting each scoring issue at the 60 (conditional pass), 80 (full pass), and 100 (state of the art) levels.

Note that some scoring issue may not have a scoring guidepost at each of the 60, 80, and 100 levels; in the case of the example above, scoring issue (b) does not have a scoring issue at the SG60 level. The scoring issues and scoring guideposts are cumulative; this means that a performance indicator is scored first at the SG60 levels. If not all of the SG scoring issues meet the 60 requirements, the fishery fails and no further scoring occurs. If all of the SG60 scoring issues are met, the fishery meets the 60 level, and the scoring moves to SG80 scoring issues. If no scoring issues meet the requirements at the SG80 level, the fishery receives a score of 60. As the fishery meets increasing numbers of SG80 scoring issues, the score increases above 60 in proportion to the number of scoring issues met; performance indicator scoring occurs at 5-point intervals. If the fishery meets half the scoring

issues at the 80 level, the performance indicator would score 70; if it meets a quarter, then it would score 65; and it would score 75 by meeting three-quarters of the scoring issues. If the fishery meets all of the SG80 scoring issues, the scoring moves to the SG100 level. Scoring at the SG100 level follows the same pattern as for SG80.

Principle scores result from averaging the scores within each component, and then from averaging the component scores within each Principle. If a Principle averages less than 80, the fishery fails.

Scoring for this fishery followed a consensus process in which the assessment team discussed the information available for evaluating performance indicators to develop a broad opinion of performance of the fishery against each performance indicator. Review of sections 3.2-3.5 by all team members assured that the assessment team was aware of the issues for each performance indicator. Subsequently, the assessment team member responsible for each principle, filled in the scoring table and provided a provisional score. The assessment team members reviewed the rationales and scores, and recommended modifications as necessary, including possible changes in scores.

Performance Indicator scores were entered into MSC’s Fishery Assessment Scoring Worksheet (see Table 16 below) to arrive at Principle-level scores.

**Table 13. Scoring elements**

<b>Component</b>	<b>Scoring elements</b>	<b>Main/Not main</b>	<b>Data-deficient or not</b>
P1	North Pacific albacore tuna	Target	Not
P2 Primary	Northern Anchovy	Minor	Not
ETP	Marine Mammals	N/A	Not
ETP	Marine Turtles	N/A	Not
ETP	Seabirds	N/A	Not
Habitat	Pelagic	Only	Not
Ecosystem	North Pacific Transition Zone	Only	Not

The RBF was not used in this assessment.

## 5 Traceability

### 5.1 Eligibility Date

The target eligibility date for this fishery is the date of PCDR publication. While this fishery is already certified, we have chosen this TED in case the reassessment does not conclude before the expiry of the current certificate to ensure no lapse in certifiability of product. The traceability and segregation systems have already been implemented as this is a currently certified fishery.

### 5.2 Traceability within the Fishery

Traceability within the AAFA and WFOA North Pacific albacore fishery is considered to be excellent. All albacore are landed as blast or brine frozen whole fish, no processing takes place at sea and although transshipment is permitted, this occurs very rarely if at all and with reporting required. The limit of identification of landings is the landing of albacore by AAFA and WFOA member vessels, or other US pole and troll vessels identified by AAFA or WFOA as being part of the certified fishery.

The certified North Pacific albacore fishery covers the North Pacific albacore stock wherever it occurs and, while albacore are taken in the South Pacific, including by WFOA members, the AAFA and WFOA South Pacific albacore fishery is currently certified and is seeking recertification, and vessels must transit thousands of miles from the US West Coast in order to fish on the South Pacific grounds. As such, there is considered to be very little incentive or potential for fish other than North Pacific albacore to enter the AAFA and WFOA North Pacific albacore chain of custody.

In addition to MSC certification, AAFA and WFOA are marketing bodies focused on product quality, and every landing is coded and can be traced back to a specific vessel and date of landing, so allowing any quality concerns to be resolved quickly. This tracing supports the view that there is almost no potential for non-certified fish to be introduced to the supply chain or for transshipment to occur.

**Table 14. Traceability Factors within the Fishery**

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery	No risk factor present. The poll and line/troll and jig vessels do not carry any other gear when fishing for albacore.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	The vessels can fish in the North or South Pacific (both certified and currently in reassessment). However, as stated above, vessels must transit thousands of miles from the US West Coast in order to fish on the South Pacific grounds. As such, there is considered to be very little incentive or potential for fish other than North Pacific albacore to enter the AAFA and WFOA North Pacific albacore chain of custody, and tracking and tracing is such that it is highly unlikely that albacore caught in the South Pacific UoA would be misidentified as North Pacific.

Potential for vessels outside of the UoC or client group fishing the same stock	There are non-AAFA and non-WFOA member pole and line albacore fishermen who participate in this fishery. However, the sale of fish as MSC is controlled by AAFA and WFOA through their eligibility arrangements such that, unless authorized by one of these groups, this UoA fish outside the UoC will not enter the supply chain as MSC.
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)	No risk factor present. All North Pacific albacore is within the UoA. There is no transshipment, and landings are coded and traceable back to the fishing vessel.
Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody)	No risk factor present. There is no at-sea processing of pole and line albacore tuna.
Risks of mixing between certified and non-certified catch during transshipment	No risk factor present. There is no transshipment of this fish.
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	No risk factor present. See above.

### 5.3 Eligibility to Enter Further Chains of Custody

Eligibility to participate in the AAFA and WFOA North Pacific albacore fishery is determined by membership of AAFA and WFOA or other non-member vessels as identified by AAFA or WFOA. AAFA and WFOA maintain lists of eligible vessels on their respective websites. Those vessels may land at a small number of unloading stations on the Washington, Oregon and California coasts, where appropriate recording and monitoring of catches takes place. For 2018, the unloading stations are identified as:

- Bandon Pacific Seafood
- Bornstein Seafoods
- Fishpeople Seafood Inc., DBA Ilwaco Landing Fishermen
- Da Yang Seafoods
- Interocean Seafood Co
- Jessie's / Albers Ilwaco Fish Company
- Manabe & Company LLC
- Pacific Shrimp Co.
- Pacific Choice Seafood Company
- Pacific Coast Seafood
- Seafood Producers Cooperative
- Washington Crab Producers
- Wild Planet Foods Inc.

Fishery product are covered by the fishery certificate up to the point of landing, after which chain of custody must be in place. Change of ownership normally occurs at landing.

#### 5.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to Enter Further Chains of Custody

Not applicable, there are no IPI stocks in this fishery.

## 6 Evaluation Results

### 6.1 Principle Level Scores

Table 15. Final Principle Scores

Final Principle Scores	
Principle	Score
Principle 1 – Target Species	85.0
Principle 2 – Ecosystem	97.7
Principle 3 – Management System	88.1

## 6.2 Summary of PI Level Scores

Table 16. Summary of Performance Indicator Scores.

Principle	Component	Wt	Performance Indicator (PI)	Wt	Score
One	Outcome	0.333	1.1.1 Stock status	1.0	90
			Management	0.667	1.2.1 Harvest strategy
	1.2.2 Harvest control rules & tools	0.25	60		
	1.2.3 Information & monitoring	0.25	90		
	1.2.4 Assessment of stock status	0.25	100		
Two	Primary species	0.2	2.1.1 Outcome	0.333	100
			2.1.2 Management strategy	0.333	100
			2.1.3 Information/Monitoring	0.333	100
	Secondary species	0.2	2.2.1 Outcome	0.333	100
			2.2.2 Management strategy	0.333	100
			2.2.3 Information/Monitoring	0.333	100
	ETP species	0.2	2.3.1 Outcome	0.333	90
			2.3.2 Management strategy	0.333	95
			2.3.3 Information strategy	0.333	80
	Habitats	0.2	2.4.1 Outcome	0.333	100
			2.4.2 Management strategy	0.333	100
			2.4.3 Information	0.333	100
	Ecosystem	0.2	2.5.1 Outcome	0.333	100
			2.5.2 Management	0.333	100
			2.5.3 Information	0.333	100
Three	Governance and policy	0.5	3.1.1 Legal &/or customary framework	0.333	85
			3.1.2 Consultation, roles & responsibilities	0.333	85
			3.1.3 Long term objectives	0.333	100
	Fishery specific management system	0.5	3.2.1 Fishery specific objectives	0.25	100
			3.2.2 Decision making processes	0.25	85
			3.2.3 Compliance & enforcement	0.25	80
			3.2.4 Monitoring & management performance evaluation	0.25	80
<b>Overall weighted Principle-level scores</b>					<b>Score</b>
Principle 1 - Target species					85.0
Principle 2 - Ecosystem					97.7
Principle 3 - Management					88.1

### 6.3 Summary of Conditions

Table 17. Summary of Conditions

Condition number	Condition	Performance Indicator	Related to previously raised condition? (Y/N/NA)
1	By the end of the 4 <sup>th</sup> year of certification, well defined HCRs must be in place that ensure the exploitation rate is reduced as the PRI is approached, as expected to keep the stock fluctuating around a target level consistent with or above MSY. In addition, these HCRs must be likely to be robust to the main uncertainties, and there must be available evidence to indicate that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	1.2.2	Yes, related to previous conditions 1 and 2 (carry over as permitted by MSC guidance for tuna fisheries using v2.0 of the FCR for reassessment)

### 6.4 Recommendations

N/A

### 6.5 Determination, Formal Conclusion and Agreement

On the basis of this assessment of the fishery, the Assessment Team recommends that the fisheries be certified. Following this recommendation of the assessment team, review by stakeholders and peer-reviewers, and the completion of the objections period, a final decision is hereby made by MRAG Americas to recertify this fishery.

### 6.6 Changes in the fishery prior to and since Pre-Assessment

Not applicable as this is a full reassessment.

## References

- Administrative Procedures Act. 1946. <http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf>
- Akroyd, J., K. Stokes and K. Nagano. 2016. MSC sustainable fisheries certification, Japanese pole and line skipjack and albacore fishery. Public Certification Report. October 2016. Acoura Marine Ltd. 238 p.
- Baum and Worm (2009). Cascading top down effects of changing oceanic predator abundances. *Journal of Animal Ecology* 78: 699-714.
- Blythe-Skyrme, R.E., N. Bartoo, and M. Laurs. 2012. American Albacore tuna Fishing Association, North Pacific albacore tuna pole & line and troll/jig fishery, Public Certification Report. Intertek Moody Marine, 24<sup>th</sup> December 2012. 160p.
- Chen, D.G. 2011a. CIE Review Report for Albacore Tuna Assessment. ISC/12/PLENARY/INFO /14.
- Chen, K.-S., P.R. Crone, and C.-C. Hsu. 2010. Reproductive biology of albacore *Thunnus alalunga*. *J. Fish Biol.* 77: 119-136.
- Chen, K.-S., T. Shimose, T. Tanabe, C.-Y. Chen, C.-C. Hsu. 2012. Age and growth of albacore *Thunnus alalunga* in the North Pacific Ocean *J. Fish. Biol.* 80: 2328-2344.
- Chen, Y. 2011b. CIE Independent Peer Review Report on Stock Assessment of albacore tuna, *Thunnus alalunga*, in the North Pacific Ocean. ISC/12/PLENARY/INFO /15.
- Childers, J., S. Snyder, and S. Kohin. 2011. Migration and behavior of juvenile albacore (*Thunnus alalunga*). *Fish. Oceanogr.* 20: 157-173.
- Clemens, H.B. 1961. The migration, age, and growth of Pacific albacore (*Thunnus germon*), 1951-1958. *Calif. Dept. Fish Game Fish. Bull.* 115: 1-128.
- Cordue, P.L. 2011. Review of the 2011 North Pacific Ocean albacore tuna stock assessment. ISC/12/PLENARY/INFO/16.
- Criquet, G., I. Mateo and M. Stocker. 2015. Marine Stewardship Council Re-Assessment Public Certification Report for the Canadian Highly Migratory Species Foundation (CHMSF) Albacore Tuna (*Thunnus alalunga*) North Pacific Fishery. SAI Global Assurance Service, Dundalk, Co. Louth, Ireland. 235 p.
- FAO. 1995. Code of conduct for responsible fisheries. Food and Agricultural Organization, Rome, Mimeo Report. 14 p.
- Foreman, T.J. 1980. Synopsis of biological data on the albacore tuna *Thunnus alalunga* (Bonnatere, 1788), in the Pacific Ocean. Pp 17-70 In W.H. Bayliff (ed.). Synopses of biological data on eight species of Scombrids. Inter-American Tropical Tuna Commission. Special Report No. 2. 520 p.
- Glaser, Sarah 2011. Do albacore exert top-down pressure on northern anchovy? Estimating anchovy mortality as a result of predation by juvenile north pacific albacore in the California current system. *Fisheries Oceanography*. Volume 20, Issue 3. May 2011. Pages 242-257.
- Graham, J.B. and R.M. Laurs. 1982. Metabolic rate of the albacore tuna *Thunnus alalunga*. *Marine Biology* 72: 1-6.

IATTC. 2016. Recommendations by the staff for conservation measures in the Eastern Pacific ocean. IATTC 90<sup>th</sup> Meeting, 23 June – 1 July, 2016, La Jolla, CA (USA). Document IATTC-90-04d(REV): 8 p.

IATTC. 2014. Fifth Meeting of the IATTC Scientific Advisory Committee. <http://www.iattc.org/Meetings/Meetings2014/MAYSAC/PDFs/SAC-05-May-2014-Meeting-report.pdf>

IATTC. 2013. Supplemental Resolution on North Pacific Albacore. IATTC 85<sup>th</sup> Meeting, 10-14 June, 2013, Veracruz, Mexico.

IATTC. 2005. Resolution on Northern Albacore Tuna. IATTC 73<sup>rd</sup> Meeting, 20-24 June 2005, Lanzarote, Spain: Resolution C-05-02.

IATTC. 2003. Convention for the Strengthening of the Inter-American Tropical Tuna Commission Established by the 1949 Convention between the United States of America and the Republic of Costa Rica: The Antigua Convention. 21 p.

IOTC. 2011. Approaches to allocation criteria in other tuna Regional Fishery Management Organizations. Technical Committee Meeting on Quota Allocation Criteria. IOTC-2011-SS4-03 [E].

ISC. 2017a. Annex 12. Report of the Albacore Working Group. Stock assessment of the albacore tuna in the North Pacific Ocean in 2017. *In*: Report of the Seventeenth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Plenary Session, 12-17 July, 2017, Vancouver, BC, Canada. 110 p.

ISC. 2017b. Annex 9. Report of the Albacore Working Group Workshop. *In*: Report of the Seventeenth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Plenary Session, 12-17 July, 2017, Vancouver, BC, Canada. 26 p.

ISC. 2017c. Annex 4. Report of the Albacore Working Group Workshop, 8-14 November 2016. Nanaimo, BC, Canada. *In*: Report of the Seventeenth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Plenary Session, 12-17 July, 2017, Vancouver, BC, Canada. 64 p.

ISC. 2017d. Report of the Seventeenth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Plenary Session, 12-17 July, 2017, Vancouver, BC, Canada. 26 p.

ISC. 2017e. National Report of U.S.A. (U.S.A. Fisheries and Research on Tuna and Tuna-like Fisheries in the North Pacific Ocean). Document prepared for the 17th Meeting of the ISC, 12-17 July, 2017, Vancouver, BC, Canada. ISC/17/PLENARY/09: 32 p.

ISC. 2016. Report of the Albacore Working Group Workshop. Meeting Report, 26-30 May, 2016 National Research Institute of Far Seas Fisheries Shimizu, Shizuoka, Japan. 35 p.

ISC. 2014. Annex 11. Report of the Albacore Working Group. Stock assessment of the albacore tuna in the North Pacific Ocean in 2014. *In*: Report of the Fourteenth Meeting of the International Scientific Committee on Tuna and Tuna-like Species in the North Pacific Ocean. Plenary Session, 16-21 July, 2014, Taipei, Taiwan. 131p

Kitchell, J.F., Boggs, C.H., He, X. & C.J. Walters. 1999. Keystone predators in the Central

Pacific. In, Proceedings of the Symposium on Ecosystem Considerations in Fisheries Management, September 30 – October 3, 1998, Anchorage Alaska. University of Alaska Sea Grant College Program, AK-SG-99-01, 1999, pp. 665-683.

Laurs, R.M. and R.J. Lynn .1991. North Pacific albacore ecology and oceanography. In: J.A. Wetherall (ed.), Biology, oceanography, and fisheries of the North Pacific Transition Zone and Subarctic Frontal Zone. Pp. 69-87, US Department of Commerce, NOAA Technical Memorandum, NOAA-TM-NMFS-SWFSC-105.

Laurs, R.M., P.C. Fiedler, and D.R. Montgomery. 1984. Albacore tuna catch distributions relative to environmental features observed from satellites. Deep-Sea Research, V.31, pp. 1085–1099.

Magnuson-Stevens Fishery Conservation and Mangement Act as Amended through January 12, 2007. NOAA, U.S. Department of Commerce. 2007. 178pp (<http://www.nmfs.noaa.gov/msa2005/index.html>)

Methot, R.D. 2000. Technical description of the Stock Synthesis assessment program. NOAA Tech. Memo. NMFS=NWFSC-43. 46 p.

Methot Jr., R.D., and C.R. Wetzel. 2013. Stock Synthesis: a biological and statistical framework for fish stock assessment and fishery management. Fish. Res. 142: 86-99.

Minte-Vera, C. and M.N. Maunder. 2016. Illustration of the use of the age-structured production model diagnostic tool in the North Pacific albacore stock assessment. ISC/16/ALBWG01/01. Work. Doc. Submitted to ALBWG Meeting 26-30 May 2016. Natl. Res. Inst. Far Seas Fish., Shimizu, Shizuoka, Japan. 8 p.

MSC. 2016. Harmonisation meeting for Western Pacific tuna fisheries. Summary Report Marine Stewardship Council Pilot Workshop, 21-22 April, 2016, Hong Kong. 13 p.

National Marine Fisheries Service. 2011. U.S. National Bycatch Report [W. A. Karp, L. L. Desfosse, S. G. Brooke, Editors]. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-117C, 508pp. Accessed at: [http://www.nmfs.noaa.gov/by\\_catch/BREP2011/2011\\_National\\_Bycatch\\_Report.pdf](http://www.nmfs.noaa.gov/by_catch/BREP2011/2011_National_Bycatch_Report.pdf)

NOAA 2017. List of Fisheries for 2018. 82 FR 47424. 50 CFR 229. Pages 47,424-47,455. Accessed at: <https://www.federalregister.gov/documents/2017/10/12/2017-21837/list-of-fisheries-for-2018>

Ochi, D., H. Ijima, and H. Kiyofuji. 2017. Abundance indices of albacore caught by Japanese longline vessels in the North Pacific during 1976-2015. ISC/17/ALBWG/01. Work. Doc. Submitted to ALBWG Meeting 11-19 April 2017. Southwest Fisheries Science Center, La Jolla, CA, USA.

PMFC. 2017a. Fact Sheet: Highly migratory species. Pacific Fisheries Management Council, 7700 NE Ambassador Way, Suite 101, Portland OR 97220. September 24, 2015: 3 p.

PFMC. 2017b. Stock Assessment and Fishery Evaluation (SAFE) Documents: Current HMS SAFE Report. Stock Assessment and Fishery Evaluation (SAFE) Documents:

PFMC. 2016a. Stock Assessment and Fishery Evaluation (SAFE) Documents: Current HMS SAFE Report. Stock Assessment and Fishery Evaluation (SAFE) Documents:

PFMC. 2016b. Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species. Portland, OR: Pacific Fisheries Management Council. March 2016.

PFMC. 2016c. Coastal Pelagic Species Fishery Management Plan as amended through amendment 15. Pacific Fisheries Management Council, Portland, OR, February 2016.

PFMC. 2015. Fact Sheet: Highly migratory species. Pacific Fisheries Management Council, 7700 NE Ambassador Way, Suite 101, Portland OR 97220. September 20, 2017: 4 p.

PFMC. 2011. Fisheries management plan for U.S. west coast fisheries for highly migratory species: As amended through amendment 2. Pacific Fisheries Management Council, 7700 NE Ambassador Way, Suite 101, Portland OR 97220. July 2011: 122 p.

Policy for the Assessment of Civil administrative Penalties and Permit Sanctions, NOAA office of the General Counsel – Enforcement Section. 1 July 2014.

Polovina, J.J., E. Howell, D.R. Kobayashi and M.P. Seki. 2001. The transition zone chlorophyll front, a dynamic global feature defining migration and forage habitat for marine resources. *Progr. Oceanogr.* 49: 469-483.

Wells, R.J.D., S. Kohin, S.L.H. Theo, O.E. Snodgrass, and K. Uosaki. 2013. Age and growth of North Pacific albacore (*Thunnus alalunga*): Implications for stock assessment. *Fish. Res.* 147: 55-62.

Stocker, M. (Ed.). 2005. Report of the 19th North Pacific Albacore Workshop. Nineteenth North Pacific Albacore Workshop, Nanaimo, B.C. Canada, November 25-December 2, 2004. Fisheries and Oceans Canada, Pacific Biological Station, Nanaimo, B.C. 127 p.

Takagi, M., T. Okamura, S. Chow, and N. Taniguchi. 2001. Preliminary study of albacore (*Thunnus alalunga*) stock differentiation inferred from microsatellite DNA analysis. *Fish. Bull.* 99: 697-701.

Ueyanagy, S. 1969. Observations on the distribution of tuna larvae in the Indo-Pacific Ocean with emphasis on the delineation of the spawning areas of albacore, *Thunnus alalunga*. *Bull. Far Seas Fish. Res. Lab.* 2: 177-256.

Ueyanagy, S. 1957. Spawning of the albacore in the Western Pacific. *Rep. Nankai Reg. Fish. Res. Lab.* 6: 113-124.

UN. 1995. Agreement for the implementation of the provisions of the United Nations convention on the law of the sea of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks. United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks. Sixth session. New York, 24 July-4 August 1995. A/CONF. 164/37 8 September 1995.

UNCLOS. 1982. United Nations Convention on the Law of the Sea (UNCLOS), Article 64, Highly migratory species, 1982.

United States – Canada Treaty Series. 2013. CTS-2014-6 USA Albacore tuna.

WCPFC. 2017a. Summary Report. Thirteenth Regular Session of the Scientific Committee. Rarotonga, Cook Islands 9 - 17 August 2017: 289 p.

WCPFC. 2017b. Northern Committee. Thirteenth Regular Session. Busan, Republic of Korea, 28 August – 1 September 2017: 238 p.

WCPFC. 2017c. Summary Report. Thirteenth Regular Session of the Commission. Denarau Island, Fiji, 5-9 December 2016: 361 p.

WCPFC. 2016. Northern Committee Twelfth Regular Session. Summary Report 19 August – 2 September, 2016, Fukuoka, Japan. 50 p.

WCPFC. 2015a. The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Twelfth Regular Session of the Commission, 3-8 December, 2015, Bali, Indonesia. 341 p.

WCPFC. 2015b. Northern Committee Eleventh Regular Session. Summary Report. 31 August – 3 September, 2015, Sapporo, Japan. 43 p.

WCPFC. 2014a. Northern Committee Tenth Regular Session. Summary Report. 1-4 September, 2014, Fukuoka, Japan. 44 p.

WCPFC. 2014b. Conservation and management measures on establishing a harvest strategy for key fisheries and stocks in the western and central Pacific Ocean. Eleventh Regular Session. Apia, Samoa, 1-5 December 2014. CMM 2014-06: 6p.

WCPFC. 2009. Final Report on Independent Review of the Commission's Transitional Science Structure and Functions. WCPFC-SC5-2009/GN-WP-7

WCPFC. 2004. Convention of the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. June 2004. WCPF Convention.

Xu, Y., T. Sippel, S.L.H. Teo, K. Piner, K.-S. Chen, and R.J. Wells. 2014. A comparison study of North Pacific albacore (*Thunnus alalunga*) age and growth among various sources. Working Paper submitted to the ISC Albacore Working Group Meeting, 14-28 April, 2014, La Jolla, USA. ISC/14/ALBWG/04: 13 p.

Yoshida, H.O. 1968. Early life history and spawning of the albacore, *Thunnus alalunga*, in Hawaiian waters. Fish. Bull. 67: 205-211.

Zainuddin, M., H. Kiyofuji, K. Satho, and S.-I. Saitoh. 2006. Using multi-sensor satellite remote sensing and catch data to detect ocean hot spots for albacore (*Thunnus alalunga*) in the northwestern North Pacific. Deep-Sea Res. II 53: 419-431.

Zainuddin, M., K. Satho, and S.-I. Saitoh. 2008. Albacore (*Thunnus alalunga*) fishing ground in relation to oceanographic conditions in western North Pacific Ocean using remote sensed satellite data. Fish. Oceanogr. 17: 61-73.

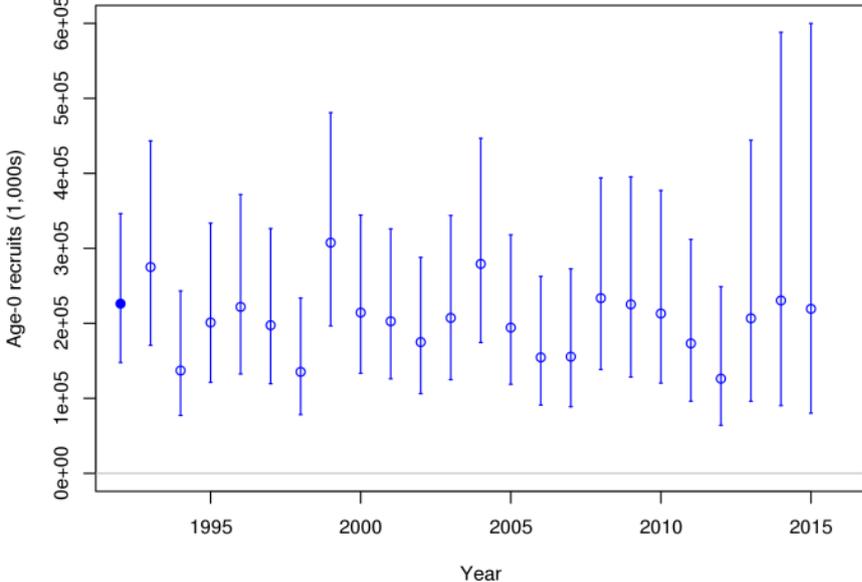
# Appendices

## Appendix 1 Scoring and Rationales

### Appendix 1.1 Performance Indicator Scores and Rationale

Evaluation Table for PI 1.1.1 – Stock status

<b>PI 1.1.1</b>	<b>The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing</b>			
<b>Scoring Issue</b>	SG 60	SG 80	SG 100	
<b>a</b>	Stock status relative to recruitment impairment			
	<b>Guide post</b>	It is <b>likely</b> that the stock is above the point where recruitment would be impaired (PRI).	It is <b>highly likely</b> that the stock is above the PRI.	There is a <b>high degree of certainty</b> that the stock is above the PRI.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>The SS3 assessment provides probabilistic estimates of parameters of interest, has been extensively explored and subjected to sensitivity testing of biological assumptions and data treatment and weighting.</p> <p>The stock assessment estimates 2015 spawning stock biomass, <math>SSB_{2015}</math>, to be 2.3 times <math>20\%SSB_0</math>. This is well above the WCPFC and IATTC-implicit, and MSC default, LRP of <math>20\%SSB_0</math>. The SSB was estimated to be 80,618 t and was 2.47 times greater than the LRP (<math>20\%SSB_{current,F=0}</math> adopted by the Northern Committee of the WCPFC) of 34,374 t.</p> <p>There is no indication of any recruitment impairment. There is a high degree of certainty that the current spawning stock biomass is above the point where recruitment would be impaired as the <math>SSB_{MSY}</math> (24,770 t) is lower than the LRP estimate (32,614 t).</p>		

PI 1.1.1	<b>The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing</b>		
Scoring Issue	SG 60	SG 80	SG 100
	 <p>The SG100 requirement is met.</p>		
<b>b</b>	<b>Stock status in relation to achievement of MSY</b>		
<b>Guide post</b>		The stock is at or fluctuating around a level consistent with MSY.	There is a <b>high degree of certainty</b> that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
<b>Met?</b>		Y	N
<b>Justification</b>	<p>The stock assessment estimated current spawning stock biomass, <math>SSB_{2015}</math>, to be 3.3 times the MSC default TRP. <math>SSB_{MSY}</math> is in fact lower than the standard MSC default LRP of <math>20\%SSB_0</math>. The stock is estimated to never have been reduced to <math>SSB_{MSY}</math> and has hence been above the default TRP in all years with a high degree of certainty.</p> <p>A major improvement in the 2017 akbacore assessment was the use of age and sex-specific natural mortality. In previous assessments the <math>M</math> of <math>0.3\text{ y}^{-1}</math> was used. The ALBWG reviewed the basis for this assumption (<math>M</math> of <math>0.3\text{ y}^{-1}</math>) and found that this assumption was not well supported in the scientific literature (ISC 2017a: p25). However, the ALBWG considered <math>M</math> to be the most important axis of uncertainty in the assessment. For the <math>M=0.3\text{ y}^{-1}</math> model run <math>SSB_{2015}</math> is estimated to be <math>1.31 \cdot LRP</math> or <math>0.26SSBF=0</math> and it is therefore highly likely that <math>SSB</math> is at or above a level consistent with MSY, as defined in a precautionary way by MSC, but there may not be a 'high degree of certainty' that the stock is above that level. The score is 80.</p>		

<b>PI 1.1.1</b>	<b>The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing</b>		
<b>Scoring Issue</b>	<b>SG 60</b>	<b>SG 80</b>	<b>SG 100</b>
	<p>Based on status relative to the default TRP, the SG100 requirement is met.</p>		
<b>References</b>	ISC 2017a		
<b>Stock Status relative to Reference Points</b>			
	<b>Type of reference point</b>	<b>Value of reference point</b>	<b>Current stock status relative to reference point</b>
<b>Reference point used in scoring stock relative to PRI (S1a)</b>	20%SSB <sub>current,F=0</sub>	32,614 t	80,618 t/20%SSB <sub>current,F=0</sub> = 2.47
<b>Reference point used in scoring stock relative to MSY (S1b)</b>	B <sub>MSY</sub>	24,770 t	80,618/B <sub>MSY</sub> =3.3
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>90</b>
<b>CONDITION NUMBER (if relevant):</b>			<b>NA</b>

Evaluation Table for PI 1.1.2 – Stock rebuilding

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	<b>Rebuilding timeframes</b>			
	<b>Guide post</b>	A rebuilding timeframe is specified for the stock that is <b>the shorter of 20 years or 2 times its generation time</b> . 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 <b>one generation time</b> for the stock.
	<b>Met?</b>	NA		NA
	<b>Justification</b>	The North Pacific Albacore tuna stock is not considered to be depleted.		
b	<b>Rebuilding evaluation</b>			
	<b>Guide post</b>	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, <b>or it is likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.	There is <b>strong</b> evidence that the rebuilding strategies are rebuilding stocks, <b>or it is highly likely</b> based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the specified timeframe.
	<b>Met?</b>	NA	NA	NA
	<b>Justification</b>	The North Pacific Albacore tuna stock is not considered to be depleted.		
<b>References</b>		ISC 2017a		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>NS</b>
<b>CONDITION NUMBER (if relevant):</b>				<b>NA</b>

Evaluation Table for PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is <b>expected</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy <b>work together</b> towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is <b>designed</b> to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	Y	Y	N
	Justification	<p>MSC defines Harvest Strategy as the combination of monitoring, stock assessment, harvest control rules and management actions, which may include a Management Procedure (MP) or an MP (implicit) and be tested by MSE (MSC CR v2.0). The intention is that these elements (monitoring, stock assessment, harvest control rules and management actions) should work together effectively to ensure overall performance, measured in terms of achieving outcomes (i.e. meeting objectives).</p> <p>The harvest strategy currently in operation is not formalised but consists of the elements considered at PIs 1.2.2 (Harvest Control Rule), 1.2.3 (Monitoring), and 1.2.4 (Stock Assessment). Each PI is considered below in its own right. PI 1.2.1 is intended to consider how they work together to achieve objectives.</p> <p>First, as per PI 1.2.2 (see below) generally understood HCRs are available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached. Although not scored at the SG80 level at PI 1.2.2a, b and c, implicitly, LRPs exist for biomass (<math>WCPFC\ 20\%SSB_{current,F=0}</math>) and fishing mortality rate (WCPFC and IATTC). An implicit MSY- related biomass TRP similarly and arguably exists (WCPFC and IATTC).</p> <p>While formal decision rules (harvest control rules) are being developed, and TRP and LRPs further defined, (WCPFC 2014b; IATTC, 2014), management of North Pacific albacore has operated informally to meet the objectives. The information base is extensive from a wide range of biological studies and from a diverse range of fisheries. The information is sufficient to support the SS3 state-of-the-art stock assessment that provides probabilistic estimates of key parameters and their relationship to the implicit reference points. Advice from the stock assessment is provided by the relevant scientific committees (e.g., WCPFC 2017a; ISC 2017a,d) and additional work is carried out by the scientific provider, SPC, to the WCPFC, or in-house by IATTC. Annual decision-making, articulated through WCPFC CMM and IATTC Resolutions, is supported by good scientific decision-support materials. The Commissions also receive advice from their respective technical and compliance committees. The most current WCPFC CMM is CMM 2005-03, which lays out a range of effort controls and reporting requirements. IATTC C- 05-02 lays out similar measures and is supplemented by IATTC C-13-03. A range of complementary measures exist at both RFMOs.</p> <p>While there are no formally agreed harvest control rules yet in place, the harvest strategy, utilizing high quality science and compliance information, and founded on high quality scientific advice, is considered to be responsive to the state of the albacore stock. Consistent with harmonization requirements and existing CHMSF</p>		

<b>PI 1.2.1</b>	<b>There is a robust and precautionary harvest strategy in place</b>		
	<p>(2015) and Japanese Pole and Line Skipjack and Albacore Fishery (2016) scoring, the SG80 requirements are considered to be met.</p> <p>The harvest strategy is not yet designed to achieve stock management objectives, though WCPFC CMM 2014-06 is aimed at ensuring this is the case and agreement at IATTC (2014; see Appendix 3) provides a similar structure to progress TRP, LRP and HCR for North Pacific albacore, amongst other stocks. The SG100 requirements are not currently met.</p>		
<b>b</b>	<b>Harvest strategy evaluation</b>		
<b>Guide post</b>	The harvest strategy is <b>likely</b> to work based on prior experience or plausible argument.	The harvest strategy may not have been fully <b>tested</b> but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been <b>fully evaluated</b> and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>Fishing mortality rate remains well below <math>F_{MSY}</math> (WCPFC and IATTC implicit LRP) and the stock is well above <math>SSB_{MSY}</math> (MSC default TRP) and <math>20\%SSB_{current,F=0}</math> (WCPFC explicit LRP). Evidence of this is seen in PI 1.1.1 (above) where <math>F_{2012-2014}/F_{MSY}</math> is currently at 0.61, and <math>SSB_{2015}/20\%SSB_{current,F=0} = 2.47</math>. The SG80 requirements are met.</p> <p>The harvest strategy is informal and not fully evaluated. SG100 is not met.</p>		
<b>c</b>	<b>Harvest strategy monitoring</b>		
<b>Guide post</b>	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
<b>Met?</b>	Y		
<b>Justification</b>	<p>Internationally systems are in place for recording catch and effort for all fishing entities fishing on north Pacific albacore. ISC Members are required to annually report the following data for fishery monitoring: Category I: total annual catch (round weight by species) total annual effort (active vessels by fishery); Category II: catch-effort (summary of logbook data); Category III: biological data, (size composition, length or weight frequencies, sex information).</p> <p>The ISC exchanges data with the IATTC and the WCPFC (through the SPC) on an annual basis.</p> <p>NMFS monitors the U.S. albacore fishery by collecting catch and effort data from fishing logbooks and sales slips landings from the U.S. troll fleet operating in the Pacific Ocean.</p> <p>Monitoring is in place that is expected to determine whether the harvest strategy is working. The SG60 requirements are met.</p>		
<b>d</b>	<b>Harvest strategy review</b>		

<b>PI 1.2.1</b>		<b>There is a robust and precautionary harvest strategy in place</b>		
	<b>Guide post</b>			The harvest strategy is periodically reviewed and improved as necessary.
	<b>Met?</b>			N
	<b>Justification</b>	<p>No harvest strategy for north Pacific albacore tuna has been formalised and is not subject to a formal review process. However, the harvest strategy is periodically reviewed and improved as necessary. Both the IATTC and the WCPFC receive advice and review management resolutions during their respective annual meetings.</p> <p>The U.S. west coast albacore fishery is reviewed by PFMC. The PFMC produces the SAFE document <a href="#">Stock Assessment and Fishery Evaluation (SAFE) Documents:</a></p>		
<b>e</b>				
<b>Shark finning</b>				
	<b>Guide post</b>	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	<b>Met?</b>	Not relevant	Not relevant	Not relevant
	<b>Justification</b>			
<b>f</b>				
<b>Review of alternative measures</b>				
	<b>Guide post</b>	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>This fishery targets north Pacific albacore specifically. Discarded rates of undersized albacore are minimal (&lt;&lt;0.5%). Hence there is no significant 'unwanted catch' *of albacore in this fishery. The PFMC (2016b) did conduct a review in 2007 of possible management measures that could be deployed to further reduce unwanted catches across the HMS fisheries by gear type, and determined that no action was required to implement any of them for this fleet. We consider this appropriate to meet the SG80 for this indicator, as there is a process in place for examination and review of the issue of unwanted catches and recommendations for action or inaction as appropriate for the fleet.</p> <p>*SA3.1.6: The term 'unwanted catch' shall be interpreted by the team as the part of the catch that a fisher did not intend to catch but could not avoid, and did not want or chose to use.</p>		

<b>PI 1.2.1</b>	<b>There is a robust and precautionary harvest strategy in place</b>	
<b>References</b>	MSC 2016; WCPFC 2014b; WCPFC: Attachment N; IATTC 2014; PFMC 2016; WCPFC 2017a; WCPFC 2017b: Attachment H; ISC 2017d; Akroyd <i>et al.</i> 2016; Criquet <i>et al.</i> 2015.	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>NA</b>

Evaluation Table for PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	<p><b>Generally understood</b> HCRs are in place <b>or available</b> that are <b>expected</b> to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.</p>	<p><b>Well defined</b> HCRs are <b>in place</b> that <b>ensure</b> that the exploitation rate is reduced as the PRI is approached, are <b>expected</b> to keep the stock <b>fluctuating around</b> a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.</p>	<p>The HCRs are expected to keep the stock <b>fluctuating at or above</b> a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, <b>most</b> of the time.</p>
	Met?	Y	N	
	Justification	<p>MSC CR v2.0 lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level.</p> <p>First, CR v2.0 SA2.5.2a provides for HCR being recognised as available “...if stock biomass has not previously been reduced below <math>B_{MSY}</math> or has been maintained at that level for a recent period of time”.</p> <p>As noted at PI 1.1.1(c), The SS3 assessment provides probabilistic estimates of parameters of interest, and has been extensively explored through sensitivity tests (ISC 2017a). The stock assessment estimates spawning stock biomass, <math>SSB/SSB_{MSY}</math> to be 2.1 with no overlap in confidence intervals. The stock is estimated never to have reduced to <math>SSB_{MSY}</math> and has hence been above <math>SSB_{MSY}</math> in all years.</p> <p>The CR v2.0 SA2.5.2a condition is therefore met.</p> <p>Second, CR v2.0 SA2.5.3b provides for HCR being recognised as available if “...there is an agreement or framework in place that requires the management body (WCPFC and IATTC) to adopt HCRs before the stock declines below <math>B_{MSY}</math>”.</p> <p>WCPFC CMM 2014-06 (WCPFC 2014b) sets out definitions of harvest strategies to be developed and implemented. The definitions include target and limit reference points and decision rules or (“harvest control rules”), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The Commission agreed to adopt a work plan at the 2015 Commission meeting, with revision in 2016 (WCPFC 2017c), with application to skipjack, bigeye, yellowfin, Pacific Bluefin, and South and North Pacific albacore tunas, with the Northern Committee of the ISC responsible for developing and recommending the work plan for North Pacific albacore. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process, and the Northern Committee (WCPFC 2017b).</p> <p>According to ISC (2017a), projections at constant fishing mortality and average historical recruitment indicate the stock will remain relatively stable at between the 25th and median historical percentiles over the short- and long-term, suggesting also the stock will remain above <math>SSB_{MSY}</math>.</p>		

PI 1.2.2	<b>There are well defined and effective harvest control rules (HCRs) in place</b>		
	The CR v2.0 SA2.5.3b condition is therefore met.		
<b>b</b>	<b>HCRs robustness to uncertainty</b>		
<b>Guide post</b>		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a <b>wide</b> range of uncertainties including the ecological role of the stock, and there is <b>evidence</b> that the HCRs are robust to the main uncertainties.
<b>Met?</b>		N	N
<b>Justification</b>	HCR are still under development and neither SG80 nor SG100 is met.		
<b>c</b>	<b>HCRs evaluation</b>		
<b>Guide post</b>	There is <b>some evidence</b> that tools used <b>or available</b> to implement HCRs are appropriate and effective in controlling exploitation.	<b>Available evidence indicates</b> that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	<b>Evidence clearly shows</b> that the tools in use are effective in achieving the exploitation levels required under the HCRs.
<b>Met?</b>	Y	N	N
<b>Justification</b>	<p>Two MSC CR v2.0 conditions need to be addressed.</p> <p>First, CR v2.0 SA2.5.6 requires that as part of the evidence that tools are working, “...teams should include current levels of exploitation in the UoA, as measured by fishing mortality rate where available”. The best available information on the exploitation rate is in ISC (2017a); the SS3 base case assessment estimates F/F<sub>msy</sub> as 0.61, and F is estimated to never have reached F<sub>MSY</sub>. CR v2.0. GSA2.5.2-7 as relates to SA2.5.6, notes that current F being “equal to or less than F<sub>MSY</sub> should be taken as evidence that the HCR is effective.”</p> <p>Second, MSC CR v2.0 SA2.5.5b, related to when HCRs are recognized as being available at Sla at the SG60 level (see above), requires “...a description of a formal or legal agreement to trigger the development of HCR”.</p> <p>As noted at, CMM 2014-06 and IATTC (2014) set out definitions of harvest strategies to be developed and implemented. The definitions include target and limit reference points and decision rules or (“harvest control rules”), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack, bigeye, yellowfin, Pacific Bluefin, and South and North Pacific albacore tunas, with the WCPFC Northern Committee responsible for developing and recommending the work plan for North Pacific albacore. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process, the ISC MSE process, and the Northern Committee (WCPFC 2017b). IATTC (2014) has also adopted measures to progress development and adoption of TRP, LRP, and HCR.</p> <p>The WCPFC CMM and IATTC adoption of an approach has already triggered</p>		

<b>PI 1.2.2</b>	<b>There are well defined and effective harvest control rules (HCRs) in place</b>	
	continuation of HCR development of <i>inter alia</i> North Pacific albacore.  A score of SG60 is awarded, using CR v2.0 provisions for SG60 scoring.	
<b>References</b>	WCPFC 2017a,b,c; IATTC 2014; MSC CR v2.0	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>60</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>1</b>

Evaluation Table for PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	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, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	Y
	Justification	<p>The North Pacific albacore stock has been monitored through the assessment work of the North Pacific Albacore Workshop from 1975-2004. Since 2004 this function has been assumed by the ISC Albacore Working Group. The ALBWG coordinates biological research needs and disseminates research results and statistics to cooperating scientists and the management bodies.</p> <p>Stock structure: Knowledge of the spatial distribution and seasonal migration for the migratory coastal north Pacific albacore is fairly well understood. The species is highly migratory, making annual trans-oceanic migrations. Albacore tuna in the Pacific Ocean consists of two distinct stocks, the north Pacific stock (the subject of this evaluation) and the south Pacific stock. The equator is considered the north-south boundary between albacore stocks. Based on analysis of genetic data there is differentiation between north and south Pacific albacore. Other information that supports the discreteness of the two stocks includes fishery data, tagging data and ecological data.</p> <p>Stock productivity: Overall, there is adequate knowledge of the life-history parameters for north Pacific albacore to conduct robust assessments and develop appropriate biological reference points. Biological samples are routinely collected on an annual basis from both domestic (NMFS) and international (ISC, IATTC) albacore fisheries. Reliable data are available to estimate sex-specific growth rates, maturity ogive and fecundity. Length-weight relationships are established by the ALBWG to convert population numbers to biomass. In the 2017 stock assessments, natural mortality was defined as an age-specific <math>M</math> schedule. The stock-recruitment function is a Beverton-Holt parameterization with a prior for steepness (<math>h</math>) of 0.9.</p> <p>Fleet composition: Detailed fleet information on the north Pacific albacore tuna fisheries is kept domestically by NMFS and internationally by IATTC and WCPFC. IATTC Resolution C-04-06 and amendment C-14-02 established a vessel monitoring system in the Eastern Pacific Ocean: “Members and Cooperating non-Members of the Commission (CPCs) shall ensure that all their commercial fishing vessels 24 meters or more in length operating in the Eastern Pacific Ocean (EPO) and harvesting tuna or tuna-like species shall be equipped, by 1 January 2016, with a satellite-based vessel monitoring system (VMS).” This requirement has also been established in the Western Pacific by WCPFC.</p> <p>Stock abundance: The ALBWG aggregated catch and effort data into monthly <math>1^0 \times 1^0</math> for the surface fishery, and <math>5^0 \times 5^0</math> for the longline strata for standardization using generalized linear models. Ochi et al. (2017) described an updated abundance index for north Pacific albacore caught by the distant Japanese longline fleet. Stock</p>		

<b>PI 1.2.3</b>	<b>Relevant information is collected to support the harvest strategy</b>		
	<p>abundance is determined via stock assessment (see PI 1.2.4).</p> <p>Fishery removals: Total catch from the Canadian albacore tuna fishery is reported annually to the ISC, IATTC and WCPFC. DFO developed the Canadian Albacore Tuna Catch and Effort Relational Database Management System to monitor albacore catch and effort data from fishing logbooks and sales slips landings from the Canadian troll fleet operating in the Pacific Ocean. Internationally systems are in place for recording catch and effort for all fishing entities fishing on north Pacific albacore. ISC Members are required to annually report the following data for fishery monitoring: total annual catch, total annual effort and catch-effort (summary of logbook data).</p> <p>Other data: NMFS and PBS have completed studies on environmental influences on albacore distribution using archival tagging.</p>		
<b>b</b>	<b>Monitoring</b>		
<b>Guide post</b>	Stock abundance and UoA removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are <b>regularly monitored at a level of accuracy and coverage consistent with the harvest control rule</b> , and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	<b>All information</b> required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent <b>uncertainties</b> in the information [data] and the robustness of assessment and management to this uncertainty.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>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.</p> <p>Standardized abundance indices are regularly monitored by the ALBWG. The ALBWG aggregated catch and effort data into monthly 1<sup>0</sup>x1<sup>0</sup> strata for the surface fishery, and 5<sup>0</sup>x5<sup>0</sup> strata for the longline for standardization using generalized linear models.</p> <p>Internationally systems are in place for recording catch and effort for all fishing entities fishing on north Pacific albacore. ISC Members are required to annually report the following data for fishery monitoring: Category I: total annual catch (round weight by species) total annual effort (active vessels by fishery); Category II: catch-effort (summary of logbook data); Category III: biological data, (size composition, length or weight frequencies, sex information).</p> <p>Removals are monitored annually through NMFS landings and logbook records for the U.S. fishery.</p> <p>Because there are some sources of uncertainty such as lack of sex – specific size data, and the simplified treatment of the spatial structure, and the simplified treatment of the spatial structure of north Pacific albacore</p>		

<b>PI 1.2.3</b>	<b>Relevant information is collected to support the harvest strategy</b>		
	population dynamics, the fishery does not meet the SG100.		
<b>c</b>	Comprehensiveness of information		
	<b>Guide post</b>		There is good information on all other fishery removals from the stock.
	<b>Met?</b>		Y
	<b>Justification</b>	There is adequate information on all other fishery removals from the stock. Other fishery removals such as recreational fishery by the US are reported in the catch tables in the annual ISC Plenary report.	
<b>References</b>	ISC 2017a, Ochi et al. 2017; ISC 2017d,e.		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>90</b>
<b>CONDITION NUMBER (if relevant):</b>			<b>NA</b>

**Evaluation Table for PI 1.2.4 – Assessment of stock status**

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Appropriateness of assessment to stock under consideration			
	<b>Guide post</b>		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 UoA.
	<b>Met?</b>		Y	Y
	<b>Justification</b>	<p>The assessment for albacore tuna is carried out with the Stock synthesis (SS) model developed by Richard Methot of the National Marine Fisheries Service. SS is a statistical age-structured population modeling framework that has been applied in a wide variety of fish assessments globally. The method has generally been accepted as rigorous. SS is a state-of-the-art software that is implemented in the Automatic Differentiation Model Builder (ADMB) software developed by David Fournier. The 2017 stock assessment model is a sex-specific, length-base, age-structured, forward-simulating, fully integrated, statistical model. The base-case model representing the collective work of the Albacore Working Group.</p> <p>The specification of the base case model for north Pacific albacore followed several steps. First, the spatial and temporal extent of fisheries in the assessment was defined based on analyses of the biology and historical fishing operations of albacore fisheries. Second, the data sources and inputs for these fisheries in the model, including total catch, indices of relative abundance, and size compositions were identified, collated and reviewed for completeness, trends, and outliers or unusual behavior. Third, important biological parameters (e.g., growth, stock-recruitment relationship) were obtained from previous studies after review by the ALBWG and included in the model as fixed parameters, or estimated within the assessment model. Sensitivity analyses were conducted to evaluate impact on model results from changes in data series, life history parameter assumptions (growth, natural mortality), selectivity parameters, and alternative weightings of composition data.</p> <p>The SG 100 requirements are met.</p>		
<b>b</b>	Assessment approach			
	<b>Guide post</b>	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	<b>Met?</b>	Y	Y	
	<b>Justification</b>	The 2017 assessment provides estimates north Pacific albacore stock status relative to the $F_{20\%}$ and $20\%SSB_{current, F=0}$ :		

<b>PI 1.2.4</b>		<b>There is an adequate assessment of the stock status</b>		
		<p>The SG 100 requirements are met.</p>		
<b>c</b>	<b>Uncertainty in the assessment</b>			
	<b>Guide post</b>	The assessment <b>identifies major sources</b> 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 <b>probabilistic</b> way.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>The ALBWG used model diagnostics to assess issues with model convergence, model structure, parameter mis-specification and data conflicts. Diagnostic tools included model convergence tests, profiles of estimated recruitment at unfished equilibrium (<math>R_0</math>), residual analysis, and retrospective analysis.</p> <p>To explore uncertainty, the ALBWG conducted sensitivity analysis to evaluate changes in data series, growth curve parameters, natural mortality, stock recruitment steepness, selectivity parameters and weighting of size composition data.</p> <p>The trajectories of SSB and 95% CIs relation to LRP show that the stock status is expressed in a probabilistic way in relation to reference points. In addition, stochastic future projections of the north Pacific albacore stock were made with probabilities expressed as boxplots.</p> <p>The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way. SG100 requirements are met.</p>		
<b>d</b>	<b>Evaluation of assessment</b>			
	<b>Guide post</b>			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been

<b>PI 1.2.4</b>		<b>There is an adequate assessment of the stock status</b>	
			rigorously explored.
	<b>Met?</b>		Y
	<b>Justification</b>	<p>The ALBWG conducted extensive sensitivity analyses to evaluate alternative assumptions on the assessment results. These included sensitivity to biological assumptions (growth, CV of <math>L_{inf}</math>, <math>M</math>, <math>h</math>) and sensitivity to data inputs (alternative CPUE indices, size composition weighting). Also, an age-structured production model (ASPM) diagnostic indicated that the ASPM had similar scale and production trends to the base case SS# model. The connection between catch-at-age and the S1 abundance index adds confidence to the data used, and represents a major improvement from previous albacore assessments.</p> <p>Retrospective analyses were conducted to identify systemic inconsistencies in population estimates given increasing or decreasing data periods. Retrospective analyses did not reveal any important pattern in the estimates of spawning biomass and fishing intensity (1-SPR) with the successive elimination of terminal year data. Thus, the assessment has been tested using a systematic exploration of the interactions among different sets of assumptions. This confirms that alternative hypothesis and assessment approaches have been rigorously explored.</p> <p>The SG 100 requirements are met.</p>	
<b>e</b>	Peer review of assessment		
	<b>Guide post</b>	The assessment of stock status is subject to peer review.	The assessment has been <b>internally and externally</b> peer reviewed.
	<b>Met?</b>	Y	Y
	<b>Justification</b>	<p>There is a robust science and assessment process in place which has been subject to external review (WCPFC 2009).</p> <p>The albacore assessments are internally reviewed by the ALBWG. The results are reviewed by the ISC Plenary, the WCPFC Scientific Committee, and the staff of the IATTC.</p> <p>The ISC had three independent reviewers from the Center of Independent Experts (University of Miami) conduct reviews of the ALBWG 2011 albacore stock assessment.</p>	
	<b>References</b>	Chen 2011a, b; Cordue 2011; ISC 2014, 2017a, 2017d; WCPFC 2009; WCPFC 2017; Minte-Vera and Maunder 2016.	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>			<b>NA</b>

Evaluation Table for PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are <b>likely</b> to be above the PRI  OR  If the species is below the PRI, the UoA has measures in place that are <b>expected</b> to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are <b>highly likely</b> to be above the PRI  OR  If the species is below the PRI, there is either <b>evidence of recovery</b> or a demonstrably effective strategy in place <b>between all MSC UoAs which categorise this species as main</b> , to ensure that they collectively do not hinder recovery and rebuilding.	There is a <b>high degree of certainty</b> that main primary species are above the PRI <b>and are</b> fluctuating around a level consistent with MSY.
	Met?	Y	Y	Y
	Justification	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery and the SG100 is met for this scoring issue.		
b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI  OR  If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species
	Met?			Y
	Justification	This fishery may use northern anchovy ( <i>Engraulis mordax</i> ) as bait. As there is a directed fishery on northern anchovy with regular stock assessments, monitored by the PFMC, this is considered as a minor primary species in this assessment. It is highly likely that this species is above the PRI. Annual		

<b>PI 2.1.1</b>	<b>The UoA aims to maintain primary species above the PRI and does not hinder recovery of primary species if they are below the PRI.</b>	
		<p>catch limits are set as equal to the Allowable Biological Catch (ABC) for this species, and have not been exceeded since they were established (PFMC 2016). While there is no up to date stock assessment and the most recent complete assessment was described in 1995, the PFMC adopted new management benchmarks for the northern and central subpopulations of northern anchovy in 2010 (PFMC 2016). The overfishing limits (OFLs) are based on past estimates of biomass and are considered a MSY proxy, while the ABC values account for a 75 % uncertainty buffer in the OFL. The annual catch limit (ACL) was then set at 1500 t for the northern population. Catches have varied widely over time, but it is considered that the northern anchovy stocks currently experience limited targeted fishing pressure and relatively low levels of landings, and are not overfished or experiencing overfishing. Thus, the SG100 is met for this scoring issue</p>
<b>References</b>	PFMC 2016.	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		

Evaluation Table for PI 2.1.2 – Primary species management strategy

<b>PI 2.1.2</b>		<b>There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</b>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>a</b>	Management strategy in place			
	<b>Guide post</b>	There are <b>measures</b> in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to above the point where recruitment would be impaired.	There is a <b>partial strategy</b> in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the point where recruitment would be impaired.	There is a <b>strategy</b> in place for the UoA for managing main and minor primary species.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery. Northern anchovy, the bait used in this fishery, is the only minor primary species identified. This is a directed fishery monitored by the PFMC, wherein annual catch limits are set (equal to ABC), and these have not been reached or exceeded in recent years (PFMC 2016). The UOA uses pole and troll method of fishing ensures that the capture of species other than albacore is a rare event and poses no risk to those species. Therefore it is considered that there is a strategy in place for the UoA for managing minor primary species, and the SG100 is met for this scoring issue.		
<b>b</b>	Management strategy evaluation			
	<b>Guide post</b>	The measures are considered <b>likely</b> to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery. Northern anchovy, the bait used in this fishery, is the only minor primary species identified. This is a directed fishery monitored by the PFMC, wherein annual catch limits are set (equal to ABC), and these have not been reached or exceeded in recent years (PFMC 2016). The UOA uses pole and troll method of fishing ensures that the capture of species other than albacore is a rare event and poses no risk to those species. Therefore testing supports high confidence that the strategy is working based on information directly about the fishery and species involved and the SG100 is met.		

PI 2.1.2	There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.		
c	Management strategy implementation		
	Guide post		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .
	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a).		
Met?		Y	Y
Justification	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery. Relative to the minor primary species, northern anchovy (used as bait) there is clear evidence that the strategy (setting of and adherence to ACLs, use of highly selective gear), is being implemented successfully and is achieving its overall objective (no overfishing, not overfished) as set out in scoring issue a, therefore the SG100 is met.		
d	Shark finning		
	Guide post	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.
	There is a <b>high degree of certainty</b> that shark finning is not taking place.		
Met?	Y	Y	Y
Justification	Although this is a tuna fishery, the use of poll and troll gear makes captures of sharks highly unlikely. Enforcement reports from NOAA fisheries indicate that there have been no shark finning violations recorded for this fleet in at least five years. Therefore there is a high degree of certainty that shark finning is not taking place.		
e	Review of alternative measures		
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.
	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.		
Met?	Not relevant	Not relevant	Not relevant
Justification	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery. The only minor primary species is northern anchovy, used as bait and therefore not caught within the UoA and also not unwanted. Extremely negligible quantities of other HMS species are discarded at sea according to a description of the unsystematic observer program and logbook analysis		

<b>PI 2.1.2</b>	<b>There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</b>	
		from the 1990s. Nevertheless, the PFMC (2016b) did conduct a review of possible management measures that could be deployed to further reduce unwanted catches, and determined that no action was required to implement any of them. The major proportion of unwanted catches in the fishery were found to be juvenile albacore, the target species. Therefore this SI is not relevant.
<b>References</b>	PFMC 2016a. STATUS OF THE PACIFIC COAST COASTAL PELAGIC SPECIES FISHERY AND RECOMMENDED ACCEPTABLE BIOLOGICAL CATCH. STOCK ASSESSMENT AND FISHERY EVALUATION 2016.  PFMC 2016b.	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		

Evaluation Table for PI 2.1.3 – Primary species information

<b>PI 2.1.3</b>		<b>Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100	
<b>a</b>	Information adequacy for assessment of impact on main primary species			
<b>Guide post</b>	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main primary species with respect to status.  OR  If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is <b>adequate to assess</b> the impact of the UoA on the main primary species with respect to status.  OR  If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main primary species with respect to status.	
<b>Met?</b>	Y	Y	Y	
<b>Justification</b>	There is no primary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery and the SG100 is met for this scoring issue.			
<b>b</b>	Information adequacy for assessment of impact on minor primary species			
<b>Guide post</b>			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.	
<b>Met?</b>			Y	
<b>Justification</b>	The bait species northern anchovy is the only minor primary species in this fishery. According to the PFMC (2016), this species is not overfished or experiencing overfishing. As the UoA is only one user of this species, and the stock is healthy, it can be considered that some quantitative information is available and adequate to estimate the impact of the UoA on minor primary species with respect to stock status. Extremely negligible quantities of other HMS species are caught and retained in this fishery ( <b>Error! Reference source not found.</b> ; (<<0.01% combined) and as such are not considered to be significant enough to even consider as minor species. The SG100 is met.			
<b>c</b>	Information adequacy for management strategy			
<b>Guide post</b>	Information is adequate to support <b>measures</b> to	Information is adequate to support a <b>partial</b>	Information is adequate to support a <b>strategy</b> to	

<b>PI 2.1.3</b>		<b>Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species</b>		
		manage <b>main</b> primary species.	<b>strategy</b> to manage <b>main</b> Primary species.	manage <b>all</b> primary species, and evaluate with a <b>high degree of certainty</b> whether the strategy is achieving its objective.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	There is no primary species that exceeds 5% of the total albacore landings, therefore the SG60 and 80 are met. Regarding the minor primary species, northern anchovy, used as bait in this fishery, information contained in the PFMC Coastal Species SAFE document (PFMC 2016), including landings data from federal waters as well as CA, OR, and WA state waters, is adequate to support a strategy to manage this species and evaluate with a high degree of certainty that this strategy is achieving its objective, though management of northern sardine is not the responsibility of the albacore fishery. The SG100 is met.		
<b>References</b>		MC 2016. STATUS OF THE PACIFIC COAST COASTAL PELAGIC SPECIES FISHERY AND RECOMMENDED ACCEPTABLE BIOLOGICAL CATCH. STOCK ASSESSMENT AND FISHERY EVALUATION 2016.		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.2.1 – Secondary species outcome

<b>PI 2.2.1</b>		<b>The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.</b>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>a</b>	<b>Main secondary species stock status</b>			
	<b>Guide post</b>	Main Secondary species are <b>likely</b> to be within biologically based limits.  OR  If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are <b>highly likely</b> to be above biologically based limits  OR  If below biologically based limits, there is either <b>evidence of recovery</b> or a <b>demonstrably effective partial strategy</b> in place such that the UoA does not hinder recovery and rebuilding.  AND Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that also have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.	There is a <b>high degree of certainty</b> that main secondary species are within biologically based limits.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	There is no secondary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery and the SG100 is met for this scoring issue.		
<b>b</b>	<b>Minor secondary species stock status</b>			
	<b>Guide post</b>			Minor secondary species are highly likely to be above biologically based limits.

<b>PI 2.2.1</b>		<b>The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit.</b>	
			OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	<b>Met?</b>		Y
	<b>Justification</b>	The total proportion of non-target HMS species caught in this fishery is extremely low (<<0.01%; see <b>Error! Reference source not found.</b> and section 3.2.2), and therefore there is no single unmanaged species that is caught in significant enough quantities to even be considered as a minor secondary species. Hence, the SG100 is met.	
<b>References</b>		PFMC 2016b.	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>			

Evaluation Table for PI 2.2.2 – Secondary species management strategy

<b>PI 2.2.2</b>	<b>There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	<b>Management strategy in place</b>		
<b>Guide post</b>	There are <b>measures</b> in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>partial strategy</b> in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a <b>strategy</b> in place for the UoA for managing main and minor secondary species.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	There are no main or minor secondary species in this fishery (see justifications in PI 2.2.1), thus there is no management strategy needed for the UoA and the SG100 is met for this scoring issue.		
<b>b</b>	<b>Management strategy evaluation</b>		
<b>Guide post</b>	The measures are considered <b>likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	There are no main or minor secondary species in this fishery (see justifications in PI 2.2.1), thus there is no management strategy needed for the UoA and the SG100 is met for this scoring issue.		
<b>c</b>	<b>Management strategy implementation</b>		
<b>Guide post</b>		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
<b>Met?</b>		Y	Y
<b>Justifi</b>	There are no main or minor secondary species in this fishery (see		

<b>PI 2.2.2</b>		<b>There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch.</b>		
	<b>Justification</b>	justifications in PI 2.2.1), thus there is no management strategy needed for the UoA and the SG100 is met for this scoring issue.		
<b>d</b>	<b>Shark finning</b>			
	<b>Guide post</b>	It is <b>likely</b> that shark finning is not taking place.	It is <b>highly likely</b> that shark finning is not taking place.	There is a <b>high degree of certainty</b> that shark finning is not taking place.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	Although this is a tuna fishery, the use of poll and troll gear makes captures of sharks highly unlikely. Enforcement reports from NOAA fisheries indicate that there have been no shark finning violations recorded for this fleet in at least five years. Therefore there is a high degree of certainty that shark finning is not taking place.		
<b>e</b>	<b>Review of alternative measures to minimise mortality of unwanted catch</b>			
	<b>Justification</b>	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of main secondary species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of <b>unwanted</b> catch of all secondary species, and they are implemented, as appropriate.
	<b>Met?</b>	Not relevant	Not relevant	Not relevant
	<b>Guide post</b>	There are no unwanted catches of secondary species in this fishery.		
<b>References</b>		PFMC 2016b		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.2.3 – Secondary species information

<b>PI 2.2.3</b>		<b>Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100	
<b>a</b>	<b>Information adequacy for assessment of impacts on main secondary species</b>			
<b>Guide post</b>	Qualitative information is <b>adequate to estimate</b> the impact of the UoA on the main secondary species with respect to status.  OR  <b>If RBF is used to score PI 2.2.1 for the UoA:</b>  Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and <b>adequate to assess</b> the impact of the UoA on main secondary species with respect to status.  OR  <b>If RBF is used to score PI 2.2.1 for the UoA:</b>  Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and <b>adequate to assess with a high degree of certainty</b> the impact of the UoA on main secondary species with respect to status.	
<b>Met?</b>	Y	Y	Y	
<b>Justification</b>	There is no secondary species that exceeds 5% of the total albacore landings, therefore there are no main primary species identified in this fishery and the SG100 is met for this scoring issue.			
<b>b</b>	<b>Information adequacy for assessment of impacts on minor secondary species</b>			
<b>Guide post</b>			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.	
<b>Met?</b>			(Y/N)	
<b>Justification</b>	The total proportion of non-target HMS species caught in this fishery is extremely low (<<0.01%; see <b>Error! Reference source not found.</b> and section 3.2.2), and therefore there is no single unmanaged species that is caught in significant enough quantities to even be considered as a minor secondary species. This assessment is supported by some quantitative information from the limited observer program and logbook analysis of the 1990s (PFMC 2016b). Hence, the SG100 is met.			
<b>c</b>	<b>Information adequacy for management strategy</b>			
<b>Guide post</b>	Information is adequate to support <b>measures</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>partial strategy</b> to manage <b>main</b> secondary species.	Information is adequate to support a <b>strategy</b> to manage <b>all</b> secondary species, and <b>evaluate with a high degree of certainty</b> whether the strategy is <b>achieving</b>	

<b>PI 2.2.3</b>		<b>Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species.</b>		
				<b>its objective.</b>
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	The total proportion of non-target HMS species caught in this fishery is extremely low (<<0.01%; see <b>Error! Reference source not found.</b> and section 3.2.2), and therefore there is no single unmanaged species that is caught in significant enough quantities to even be considered as a minor secondary species. Therefore no strategy is needed and thus no further information needed to evaluate the effectiveness of the strategy, and the SG100 is met.		
<b>References</b>		PFMC 2016b		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.3.1 – ETP species outcome

PI 2.3.1	The UoA meets national and international requirements for the protection of ETP species			
	The UoA does not hinder recovery of ETP species			
Scoring Issue	SG 60	SG 80	SG 100	
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/stock are known and <b>likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, the <b>combined effects of the MSC UoAs</b> on the population/stock are known and <b>highly likely</b> to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a <b>high degree of certainty</b> that the <b>combined effects of the MSC UoAs</b> are within these limits.
	Met?	N/A	N/A	N/A
	Justification	Not scored, see SI b		
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not <b>hinder recovery</b> of ETP species.	Known direct effects of the UoA are <b>highly likely</b> to not <b>hinder recovery</b> of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	Y	Y	N
	Justification	<p>ETP species of potential relevance to the AAFA North Pacific albacore fishery include a variety of marine mammal, sea turtle and seabird species. , the 2017 NOAA 'List of Fisheries', that as a requirement of the Marine Mammal Protection Act (1972) classifies US fisheries as being in Category I ("frequent incidental mortality and serious injuries of marine mammals"), Category II ("occasional incidental mortality and serious injuries of marine mammals") or Category III ("a remote likelihood or no known incidental mortality and serious injuries of marine mammals") assessed the North Pacific albacore pole and troll fisheries as Category III, with no marine mammal species or stocks killed or injured (NOAA 2017).</p> <p>The drift gillnet 2000 Biological Opinion states that anecdotal information indicates there are rare occurrences of sea turtle take in the U.S. albacore fishery (NMFS,2000). However, it is not possible to determine if any turtles were killed or seriously injured based on available data. Because of the nature of the live-bait fishery, there should be no interactions with turtles when fishing. There is the possibility, however remote, of capturing a sea turtle alive while catching bait. If a sea turtle were takenwhile catching bait, it could be easily released.</p> <p>This HMS fishery is not regularly observed. Incidental takes of 'albatrosses, unid.' are known to occur in the albacore troll fishery but appear to be infrequent (Cousins and Cooper 2000 citing Bartoo). The extent of seabird interactions is unknown because observer placements on vessels in the fishery have been very rare and observers were not directed to record interactions. There are no records or observations of nor any evidence to suggest there would be any interactions</p>		

PI 2.3.1	<p><b>The UoA meets national and international requirements for the protection of ETP species</b></p> <p><b>The UoA does not hinder recovery of ETP species</b></p>			
		<p>between troll gear and short-tailed albatross, bald eagles, California least tern, western snowy plover, marbled murrelet, or California clapper rail (PFMC 2016b, Appendix D (Updated in 2007)).</p> <p>In summary, the highly selective nature of the gear types, information provided in the various recovery and species action plans, the lack of any recommendations made regarding a need to collect more data on catches in the North Pacific albacore pole and troll fisheries in the US National Bycatch Report (NMFS 2011a), and the 'List of Fisheries' assessment (NOAA 2017), it is at least highly likely that there are no significant detrimental direct effects of the UoA on ETP species, but without more data it cannot be said that there is a 'high degree of confidence' according to the MSC definition. Hence the SG80 is met but not the SG100.</p>		
c	Indirect effects			
	Guide post		Indirect effects have been considered and are thought to be <b>highly likely</b> to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	Y
	Justification	Ind Studies (e.g. Baum and Worm 2009) have indicated that that large scale removals of large pelagic species can have ecosystem effects such as causing long-term changes in ecosystem structure in the ocean environment. However, the AAFA and WFOA removals of albacore as compared to the total removal of large pelagic species from all fisheries across the North Pacific is extremely small. Albacore is not a key prey item for any species in the North Pacific, including ETP species (Kitchell et al. 1999), and the fishery appears very unlikely to significantly impact other higher trophic-level predators. Hence the SG100 is met.		
References	Baum and Worm, 2009; Glaser, 2009; Kitchell et. Al. 1999			
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>90</b>	
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.3.2 – ETP species management strategy

<p>PI 2.3.2</p>	<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</p>		
<p>Scoring Issue</p>	<p>SG 60</p>	<p>SG 80</p>	<p>SG 100</p>
<p>a</p>	<p>Management strategy in place (national and international requirements)</p>		
<p>Guide post</p>	<p>There are <b>measures</b> in place that minimise the UoA-related mortality of ETP species, and are expected to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.</p>	<p>There is a <b>strategy</b> in place for managing the UoA’s impact on ETP species, including measures to minimise mortality, which is designed to be <b>highly likely to achieve</b> national and international requirements for the protection of ETP species.</p>	<p>There is a <b>comprehensive strategy</b> in place for managing the UoA’s impact on ETP species, including measures to minimise mortality, which is designed to <b>achieve above</b> national and international requirements for the protection of ETP species.</p>
<p>Met?</p>	<p>Y</p>	<p>Y</p>	<p>Y</p>
<p>Justification</p>	<p>Various federal laws provide protection for special resources, including those for protected species under ESA, MMPA, and MBTA. Interactions of HMS fishing gears with protected species are described in Appendix D of the HMS FMP (PFMC 2016b). This FMP authorizes the adoption of measures to minimize interactions of HMS gears with protected species and to implement recommendations contained in Biological Opinions (ESA), Take Reduction Plans (MMPA), Seabird Management Plans, or other relevant documents pertaining to HMS fisheries. The FMP also authorizes programs to collect information on interactions in any or all HMS fisheries. Fishery-specific measures affecting protected species are included in the initial management measures for drift gillnet and longline fisheries, but protected species interactions with the other gear types (including surface hook-and-line/troll fisheries) are not major issues, and no alternatives were considered for those gears.</p> <p>The FMP adopts a framework authorization for protected species conservation measures and implements initial conservation and management measures for drift gillnet and pelagic longline fisheries as described in section 6.2, Appendix D and the HMS FMP FEIS. :The FMP requires general provision for its proposed protected species measures and also for future measures to reduce the takes of protected species and to minimize the risk of adverse impacts from those takes. The framework provisions of the FMP would be used to address new protected species concerns as they are identified. (PFMC 2016b).</p> <p>Although it is highly unlikely that this UOA is contributing to any detrimental impacts to ETP species, insofar as this management strategy is</p>		

PI 2.3.2	<p><b>The UoA has in place precautionary management strategies designed to:</b></p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p><b>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</b></p>			
	<p>comprehensive and responsive to the need to adopt and revise management measures for HMS fisheries with know impacts to ETP species, as well as to identify and address new concerns, it can be said that there is a comprehensive strategy in place for managing the UoA’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. Thus the SG100 is met.</p>			
<b>b</b>	Management strategy in place (alternative)			
	<b>Guide post</b>	There are <b>measures</b> in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a <b>strategy</b> in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a <b>comprehensive strategy</b> in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species
	<b>Met?</b>	Not relevant	Not relevant	Not relevant
	<b>Justification</b>	N/A		
<b>c</b>	Management strategy evaluation			
	<b>Guide post</b>	The measures are <b>considered likely</b> to work, based on <b>plausible argument</b> (e.g. general experience, theory or comparison with similar fisheries/species).	There is an <b>objective basis for confidence</b> that the measures/strategy will work, based on <b>information</b> directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a <b>quantitative analysis</b> supports <b>high confidence</b> that the strategy will work.
	<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>All US fisheries are required to abide by protected species regulations, including the MMPA and other relevant regulations. Although these are overarching policies, they do contain requirements for reporting all ETP species interactions, and careful handling in the case of encounters with fishing gear. This UoA is considered a “Tier III” fishery, defined as having negligible impact to marine mammals, and available data suggests that it is highly unlikely to have any significant interactions with other ETP species including turtles and seabirds. This comprises an objective basis for confidence that any measures/strategy to ensure this UoA does not hinder the recovery of ETP species would work, based on information directly about the fishery also the species involved. Because this fishery has negligible ETP species interactions, this confidence is mainly achieved through evidence of the rigorous application of the above-described policies and regulations in fisheries that have more potential to impact ETP species. As such, it is not possible to say that there has been the quantitative</p>			

PI 2.3.2	<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</p>			
	analysis of this UoA required in the SG100. Thus the SG80 is met but not the SG100			
d	Management strategy implementation			
	Guide post		There is some <b>evidence</b> that the measures/strategy is being implemented successfully.	There is <b>clear evidence</b> that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b).
	Met?		Y	Y
	Justification	As explained in 2.3.1, this fishery is at least highly unlikely to detrimentally impact ETP species. That said, there is clear evidence that the comprehensive strategy for managing fishery impacts to ETP species in general under the US ESA, MMPA and other relevant regulations is being implemented successfully and achieving it's objectives, and this fishery is part of that management framework. Therefore the SG100 is met.		
e	Review of alternative measures to minimize mortality of ETP species			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a <b>regular</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a <b>biennial</b> review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	Y	Y	Y
Justification	All US fisheries are required to abide by protected species regulations, including the MMPA and other relevant regulations. Although these are overarching policies, they do contain requirements for reporting all ETP species intractions, and careful handling in the case of encounters with fishing gear. This UoA is considered a "Tier III" fishery, defined as having negligible impact to marine mammals, and available data suggests that it is highly unlikely to have any significant interactions with other ETP species including turtles and seabirds. As such, a biennial review of measures specifically related to this UoA does not take place, but is also not necessary. There is an annual review of the MMPA "list of fisheries' and fisheries are reclassified into different Tiers where data suggests it is necessary. In addition, the National Bycatch Report subject to limited updating with relevant changes as new information becomes available. This framework is therefore considered adequate to meet the SG100 for this			

<b>PI 2.3.2</b>	<p><b>The UoA has in place precautionary management strategies designed to:</b></p> <ul style="list-style-type: none"> <li>• meet national and international requirements;</li> <li>• ensure the UoA does not hinder recovery of ETP species.</li> </ul> <p><b>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species.</b></p>	
	<p>Scoring Issue.</p>	
<b>References</b>	<p>PFMC 2016b; NOAA 2017; NMFS 2011</p>	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>95</b>
<b>CONDITION NUMBER (if relevant):</b>		

Evaluation Table for PI 2.3.3 – ETP species information

<p>PI 2.3.3</p>	<p>Relevant information is collected to support the management of UoA impacts on ETP species, including:</p> <ul style="list-style-type: none"> <li>Information for the development of the management strategy;</li> <li>Information to assess the effectiveness of the management strategy; and</li> <li>Information to determine the outcome status of ETP species.</li> </ul>		
<p>Scoring Issue</p>	<p>SG 60</p>	<p>SG 80</p>	<p>SG 100</p>
<p>a</p>	<p>Information adequacy for assessment of impacts</p>		
<p>Guide post</p>	<p>Qualitative information is <b>adequate to estimate</b> the UoA related mortality on ETP species.</p> <p>OR</p> <p>If RBF is used to score PI 2.3.1 for the UoA:</p> <p>Qualitative information is <b>adequate to estimate productivity and susceptibility</b> attributes for ETP species.</p>	<p>Some quantitative information is <b>adequate to assess</b> the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species.</p> <p>OR</p> <p>If RBF is used to score PI 2.3.1 for the UoA:</p> <p>Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.</p>	<p>Quantitative information is available to assess with a high degree of certainty the <b>magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status</b> of ETP species.</p>
<p>Met?</p>	<p>Y</p>	<p>Y</p>	<p>N</p>
<p>Justification</p>	<p>The 2017 NOAA ‘List of Fisheries’, that as a requirement of the Marine Mammal Protection Act (1972) classifies US fisheries as being in Category I (“frequent incidental mortality and serious injuries of marine mammals”), Category II (“occasional incidental mortality and serious injuries of marine mammals”) or Category III (“a remote likelihood or no known incidental mortality and serious injuries of marine mammals”) assessed the North Pacific albacore pole and troll fisheries as Category III, with no marine mammal species or stocks killed or injured (NOAA 2017). However, little data are available on marine mammal interactions in the AAFA and WFOA albacore fishery. What is available comes from either logbooks or an extremely limited observer program run by NMFS (27 trips in 8 years). Since observers were not required to collect interaction data, and the observer program was not conducted in a systematic fashion, a complete analysis of interactions is not possible. Logbooks show no interactions with marine mammals, and the observer data have yet to be analyzed (Norm Bartoo, NMFS-La Jolla, personnel communications). There are no observer data or logbook data for live-bait boats fishing for albacore off the West Coast, so the extent, if any, of marine mammal interactions is unknown. In 1997, one humpback whale was snagged by a central California troller (though this injury was not considered serious).</p> <p>The drift gillnet 2000 Biological Opinion states that anecdotal information indicates there are rare occurrences of sea turtle take in the U.S. albacore fishery (NMFS,2000). However, it is not possible to determine if any turtles were killed or</p>		

PI 2.3.3	<p><b>Relevant information is collected to support the management of UoA impacts on ETP species, including:</b></p> <ul style="list-style-type: none"> <li>• <b>Information for the development of the management strategy;</b></li> <li>• <b>Information to assess the effectiveness of the management strategy; and</b></li> <li>• <b>Information to determine the outcome status of ETP species.</b></li> </ul>		
	<p>seriously injured based on available data. Because of the nature of the live-bait fishery, there should be no interactions with turtles when fishing. There is the possibility, however remote, of capturing a sea turtle alive while catching bait. If a sea turtle were taken while catching bait, it could be easily released.</p> <p>This HMS fishery is not regularly observed. Incidental takes of 'albatrosses, unid.' are known to occur in the albacore troll fishery but appear to be infrequent (Cousins and Cooper 2000 citing Bartoo). The extent of seabird interactions is unknown because observer placements on vessels in the fishery have been very rare and observers were not directed to record interactions. There are no records or observations of nor any evidence to suggest there would be any interactions between troll gear and short-tailed albatross, bald eagles, California least tern, western snowy plover, marbled murrelet, or California clapper rail (PFMC 2016b, Appendix D; Updated in 2007).</p> <p>It is clear that there is not sufficient observer coverage or logbook recording to determine that available to assess with a high degree of certainty the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species. However, due to the nature of the fishery and the evidence that is available from evaluations of impacts or potential impacts, it is possible to determine that some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. Therefore the SG80 is met but not the SG100.</p>		
<b>b</b>	<b>Information adequacy for management strategy</b>		
<b>Guide post</b>	Information is adequate to support <b>measures</b> to manage the impacts on ETP species.	Information is adequate to measure trends and support a <b>strategy</b> to manage impacts on ETP species.	Information is adequate to support a <b>comprehensive strategy</b> to manage impacts, minimize mortality and injury of ETP species, and evaluate with a <b>high degree of certainty</b> whether a strategy is achieving its objectives.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>As explained in SIa, there is no systematic monitoring or reporting from this fishery related to ETP species interactions. The ESA and MMPA require reporting of listed species interactions when they do occur, which is thought to be infrequent. However, without a more regular system for monitoring (e.g. through observer programs), it cannot be said that Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a <b>high degree of certainty</b> whether a strategy is achieving its objectives. However, information is adequate to measure trends and support a strategy to manage impacts on ETP species that is appropriate for this fishery. Hence the SG80 is met but not the SG100.</p>		

PI 2.3.3	<p>Relevant information is collected to support the management of UoA impacts on ETP species, including:</p> <ul style="list-style-type: none"> <li>• Information for the development of the management strategy;</li> <li>• Information to assess the effectiveness of the management strategy; and</li> <li>• Information to determine the outcome status of ETP species.</li> </ul>	
References	PFMC, 2016b; Cousins and Cooper 2000; NOAA 2017; NMFS 2000	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>		

Evaluation Table for PI 2.4.1 – Habitats outcome

<b>PI 2.4.1</b>	<b>The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	Commonly encountered habitat status		
<b>Guide post</b>	The UoA is <b>unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. Therefore the only commonly encountered habitat is pelagic and there is evidence that the UoA is highly unlikely to reduce the structure and function of this habitat to the point of serious or irreversible harm, and the SG100 is met.		
<b>b</b>	VME habitat status		
<b>Guide post</b>	The UoA is <b>unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is <b>highly unlikely</b> to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
<b>Met?</b>	Not relevant	Not relevant	Not relevant
<b>Justification</b>	Not relevant as no VME habitats are encountered by this fishery.		
<b>c</b>	Minor habitat status		
<b>Guide post</b>			There is <b>evidence</b> that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
<b>Met?</b>			Y
<b>Justification</b>	There are no minor habitats encountered by this fishery, therefore the SG100 is met.		
<b>References</b>	N/A		

PI 2.4.1	The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates.
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>	<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>	

Evaluation Table for PI 2.4.2 – Habitats management strategy

<b>PI 2.4.2</b>	<b>There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	Management strategy in place		
<b>Guide post</b>	There are <b>measures</b> in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a <b>partial strategy</b> in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a <b>strategy</b> in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. Therefore no strategy for managing the impact of the UoA on habitats is necessary and the SG100 is met.		
<b>b</b>	Management strategy evaluation		
<b>Guide post</b>	The measures are <b>considered likely</b> to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some <b>objective basis for confidence</b> that the measures/partial strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on <b>information directly about the UoA and/or habitats</b> involved.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. Therefore no strategy for managing the impact of the UoA on habitats is necessary and the SG100 is met.		
<b>c</b>	Management strategy implementation		
<b>Guide post</b>		There is <b>some quantitative evidence</b> that the measures/partial strategy is being implemented successfully.	There is <b>clear quantitative evidence</b> that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
<b>Met?</b>		Y	Y
<b>Justifi</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates		

<b>PI 2.4.2</b>		<b>There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats.</b>		
	<b>ration</b>	at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. Therefore no strategy for managing the impact of the UoA on habitats is necessary and the SG100 is met.		
<b>d</b>	<b>Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs</b>			
	<b>Guide post</b>	There is <b>qualitative evidence</b> that the UoA complies with its management requirements to protect VMEs.	There is <b>some quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is <b>clear quantitative evidence</b> that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	<b>Met?</b>	Not relevant	Not relevant	Not relevant
	<b>Justification</b>	Not relevant as this fishery does not encounter VME habitats.		
<b>References</b>		N/A		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.4.3 – Habitats information

<b>PI 2.4.3</b>	<b>Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	<b>Information quality</b>		
<b>Guide post</b>	<p>The types and distribution of the main habitats are <b>broadly understood</b>.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Qualitative information is adequate to estimate the types and distribution of the main habitats.</p>	<p>The nature, distribution and <b>vulnerability</b> of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA.</p> <p>OR</p> <p>If CSA is used to score PI 2.4.1 for the UoA:</p> <p>Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.</p>	<p>The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.</p>
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	<p>The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. The distribution of the pelagic habitat in which this fishery operates is fully known and thus the SG100 is met.</p>		
<b>b</b>	<b>Information adequacy for assessment of impacts</b>		
<b>Guide post</b>	<p>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.</p> <p>OR</p> <p><b>If CSA is used to score PI 2.4.1 for the UoA:</b></p> <p>Qualitative information is adequate to estimate the consequence and spatial attributes of the</p>	<p>Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear.</p> <p>OR</p> <p><b>If CSA is used to score PI 2.4.1 for the UoA:</b></p> <p>Some quantitative information is available and is adequate to</p>	<p>The physical impacts of the gear on all habitats have been quantified fully.</p>

<b>PI 2.4.3</b>		<b>Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat.</b>		
		main habitats.	estimate the consequence and spatial attributes of the main habitats.	
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. Thus there is not thought to be any “physical impact” of the gear on the pelagic habitat in which it is fished, and the SG100 is met.		
<b>c</b>	<b>Monitoring</b>			
	<b>Guide post</b>		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in habitat distributions over time are measured.
	<b>Met?</b>		Y	Y
	<b>Justification</b>	The AAFA and WFOA pole and troll fishery is highly selective, and operates at the surface in deep, oceanic water; there is therefore no interaction with the seabed, while the gear comprises short lines with jigs or live bait attached, which at most can impact the surface pelagic habitat of the North Pacific in an imperceptible and highly transient manner. There has not been any change to the distribution of the pelagic habitat in which this fishery operates, thus the SG100 is met.		
<b>References</b>	N/A			
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 2.5.1 – Ecosystem outcome

<b>PI 2.5.1</b>	<b>The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	Ecosystem status		
<b>Guide post</b>	The UoA is <b>unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is <b>highly unlikely</b> to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is <b>evidence</b> that the UoA 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.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	<p>Although there have been studies (e.g. Baum and Worm 2009) indicating that large scale removals of large pelagic species can have ecosystem effects in the ocean environment, the albacore removals from the AAFA and WFOA fishery are negligible as compared with all fishery removals of large pelagics in the North Pacific ocean.</p> <p>The northern anchovy that is used for bait is an important forage fish species within the California Current System inshore, but the amounts used for bait in the AAFA and WFOA pole and troll fishery are small relative to other uses. Please note, northern anchovy is considered to be a primary species, and there is no MSC requirement to assess the baitfish fishery itself in terms of Principle 2 impacts.</p> <p>Albacore is an important predator of northern anchovy in coastal areas off the western USA, and it has been suggested that albacore consume 0.1 % - 5 % of juvenile northern anchovy annual recruitment biomass, a figure that is sufficiently high to be observed in the subsequent year's northern anchovy recruitment strength (Glaser 2009). However, there is no indication that the removal of albacore by the AAFA and WFOA fleet adversely affects northern anchovy or other stocks of small, prey species. Conversely, albacore is also not a key prey item for any species in the North Pacific (Kitchell et al. 1999), and the fishery is very unlikely to significantly impact other higher trophic-level predators.</p> <p>Evidence, in the form of AAFA/WFOA albacore removals as compared to total North Pacific large pelagic species removals, therefore exists to determine that the UoA 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 and the SG100 is met.</p>		
<b>References</b>	Baum and Worm 2009; Kitchell <i>et al</i> 1999		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>			

Evaluation Table for PI 2.5.2 – Ecosystem management strategy

<b>PI 2.5.2</b>	<b>There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	<b>Management strategy in place</b>		
<b>Guide post</b>	There are <b>measures</b> in place, if necessary which take into account the <b>potential impacts</b> of the fishery on key elements of the ecosystem.	There is a <b>partial strategy</b> in place, if necessary, which takes into account <b>available information and is expected to restrain impacts</b> of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a <b>strategy</b> that consists of a <b>plan</b> , in place which contains measures to <b>address all main impacts of the UoA</b> on the ecosystem, and at least some of these measures are in place.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	No strategy is necessary to address the main impacts of the UoA on the ecosystem, because there is no perceptible impact (see PI2.5.1). Thus SG100 is met.		
<b>b</b>	<b>Management strategy evaluation</b>		
<b>Guide post</b>	The <b>measures</b> are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ ecosystems).	There is <b>some objective basis for confidence</b> that the measures/partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved	<b>Testing</b> supports <b>high confidence</b> that the partial strategy/strategy will work, based on information directly about the UoA and/or ecosystem involved
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	No strategy is necessary to address the main impacts of the UoA on the ecosystem, because there is no perceptible impact (see PI2.5.1). Thus SG100 is met.		
<b>c</b>	<b>Management strategy implementation</b>		
<b>Guide post</b>		There is <b>some evidence</b> that the measures/partial strategy is being <b>implemented successfully</b> .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a).
<b>Met?</b>		Y	Y
<b>Justification</b>	No strategy is necessary to address the main impacts of the UoA on the ecosystem, because there is no perceptible impact (see PI2.5.1). Thus SG100 is met.		

<b>PI 2.5.2</b>	<b>There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function.</b>	
<b>References</b>	N/A	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		

Evaluation Table for PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem.		
Scoring Issue		SG 60	SG 80	SG 100
<b>a</b>	Information quality			
	<b>Guide post</b>	Information is adequate to <b>identify</b> the key elements of the ecosystem.	Information is adequate to <b>broadly understand</b> the key elements of the ecosystem.	
	<b>Met?</b>	Y	Y	
	<b>Justification</b>	The ecosystems in which the AAFA/WFOA albacore fishery operate (North Pacific Transition Zone, California Current LME) is well described and understood. Both the HMS and CS SAFE documents (PFMC 2016a; PFMC 2016c) examine broader ecosystem impacts of all fisheries they include, as well a report on monitored key ecosystem dynamics. Hence the SG80 is met.		
<b>b</b>	Investigation of UoA impacts			
	<b>Guide post</b>	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but <b>have not been investigated</b> in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and <b>some have been investigated in detail</b> .	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and <b>have been investigated in detail</b> .
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	Both the HMS and CPS SAFE documents (PFMC 2016a; PFMC 2016c) [coastal species] examine broader ecosystem impacts of all fisheries they include, as well a report on monitored key ecosystem dynamics.  Albacore is an important predator of northern anchovy in coastal areas off the western USA, and it has been suggested that albacore consume 0.1 % - 5 % of juvenile northern anchovy annual recruitment biomass, a figure that is sufficiently high to be observed in the subsequent year's northern anchovy recruitment strength (Glaser 2009). However, there is no indication that the removal of albacore by the AAFA and WFOA fleet adversely affects northern anchovy or other stocks of small, prey species. Conversely, albacore is also not a key prey item for any species in the North Pacific (Kitchell et al. 1999), and the fishery appears very unlikely to significantly impact other higher trophic-level predators. These are considered to be the main interactions between the UoA and ecosystem elements and these have been investigated in sufficient detail to warrant a score of 100.		
<b>c</b>	Understanding of component functions			
	<b>Guide post</b>		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions

<b>PI 2.5.3</b>		<b>There is adequate knowledge of the impacts of the UoA on the ecosystem.</b>	
		ecosystem are <b>known</b> .	of these components in the ecosystem are <b>understood</b> .
	<b>Met?</b>	Y	Y
	<b>Justification</b>	<p>Both the HMS and CPS SAFE documents (PFMC 2016a; PFMC 2016c) examine broader ecosystem impacts of all fisheries they include, as well a report on monitored key ecosystem dynamics.</p> <p>Albacore is an important predator of northern anchovy in coastal areas off the western USA, and it has been suggested that albacore consume 0.1 % - 5 % of juvenile northern anchovy annual recruitment biomass, a figure that is sufficiently high to be observed in the subsequent year's northern anchovy recruitment strength (Glaser 2009). However, there is no indication that the removal of albacore by the AAFA and WFOA fleet adversely affects northern anchovy or other stocks of small, prey species. Conversely, albacore is also not a key prey item for any species in the North Pacific (Kitchell et al. 1999), and the fishery appears very unlikely to significantly impact other higher trophic-level predators. These are considered to be the main interactions between the UoA and ecosystem elements and these have been investigated in sufficient detail to warrant a score of 100.</p>	
<b>d</b>	<b>Information relevance</b>		
	<b>Guide post</b>	Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components <b>and elements</b> to allow the main consequences for the ecosystem to be inferred.
	<b>Met?</b>	Y	Y
	<b>Justification</b>	<p>Both the HMS and CPS SAFE documents (PFMC 2016a; PFMC 2016c) examine broader ecosystem impacts of all fisheries they include, as well a report on monitored key ecosystem dynamics.</p> <p>Albacore is an important predator of northern anchovy in coastal areas off the western USA, and it has been suggested that albacore consume 0.1 % - 5 % of juvenile northern anchovy annual recruitment biomass, a figure that is sufficiently high to be observed in the subsequent year's northern anchovy recruitment strength (Glaser 2011). However, there is no indication that the removal of albacore by the AAFA and WFOA fleet adversely affects northern anchovy or other stocks of small, prey species. Conversely, albacore is also not a key prey item for any species in the North Pacific (Kitchell et al. 1999), and the fishery appears very unlikely to significantly impact other higher trophic-level predators. These are considered to be the main impacts of the UoA on the ecosystem, and these have been investigated in sufficient detail to warrant a score of 100.</p>	

<b>PI 2.5.3</b>	<b>There is adequate knowledge of the impacts of the UoA on the ecosystem.</b>			
<b>e</b>	<b>Monitoring</b>			
	<b>Guide post</b>		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	<b>Met?</b>		Y	Y
	<b>Justification</b>	The likelihood of ecosystem impacts from this fishery are extremely low (see earlier justifications). However, both the HMS and CS SAFE documents (PFMC 2016a; PFMC 2016c) examine broader ecosystem impacts of all fisheries they include, as well a report on monitored key ecosystem dynamics. Therefore information does exist and is updated with regularity such that potential ecosystem impacts of this fishery could be identified if they emerged. Hence the SG100 is met.		
<b>References</b>	PFMC 2016a; PFMC 2016c; Kitchell <i>et. al</i> 1999; Glaser 2009			
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>				

Evaluation Table for PI 3.1.1 – Legal and/or customary framework

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>• Is capable of delivering sustainability in the UoA(s); and</li> <li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>• Incorporates an appropriate dispute resolution framework.</li> </ul>		
Scoring Issue	SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management		
Guide post	<p>There is an effective national legal system <b>and a framework for cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2</p>	<p>There is an effective national legal system and <b>organised and effective cooperation</b> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.</p>	<p>There is an effective national legal system and <b>binding procedures governing cooperation with other parties</b> which delivers management outcomes consistent with MSC Principles 1 and 2.</p>
Met?	Y	Y	Y
Justification	<p>The Magnuson-Stevens Fishery Conservation and Management Act, and its amendments, is the primary law governing northern albacore in U.S Federal waters. In Sec. 102 of the the Reauthorized MSA, it states that “the United States shall cooperate directly or through appropriate international organizations with those nations involved in fisheries for highly migratory species with a view to ensuring conservation and shall promote the achievement of optimum yield of such species throughout their range, both within and beyond the EEZ.” The MSA also states that conservation and management refers to all the regulations that are required to rebuild, restore, or maintain any fishery resource and the marine environment, and assure that irreversible or long-term adverse effects on fishery resources and the marine environment are avoided. The Pacific Fishery Management Council (PFMC) is one of the regional fishery management councils established by the MSA, and has jurisdiction of highly migratory species in the north Pacific, which includes northern albacore tuna.</p> <p>Article VII of the Antigua Convention states that the Commission shall adopt measures to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention and to maintain or restore the populations of harvested species at levels of abundance which can produce the maximum sustainable yield and human activities on the populations. It also states the Commission shall adopt conservation and management measures for species belonging to the same ecosystem and that are affected by fishing for or associated with, the fish stocks covered by this Convention. Measures should be adopted to avoid, reduce and minimize waste, discards, and reduce catch and impacts of non-target species, in particular endangered species,</p> <p>The WCPFC Convention, Article 5, states that measures should be adopted that are designed to restore stocks at levels capable of producing maximum sustainable yield, assess the impacts of fishing, other human activities and environmental factors on target stocks, non-target species, and species</p>		

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>• Is capable of delivering sustainability in the UoA(s); and</li> <li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>• Incorporates an appropriate dispute resolution framework.</li> </ul>		
	<p>belonging to the same ecosystem associated with the HMS stocks. It also states that biodiversity should be protected in the marine environment, and measures should be taken to eliminate over-fishing, reduce waste, discards, pollution from fishing vessels, and catch of non-target species.</p> <p>Under domestic law the Chair of the Pacific Council is allocated a spot as a Commissioner for the United States Section to the WCPFC (PFMC 2017b). As a member of the Commission, the U.S. is responsible for ensuring that management measures applied within U.S. waters are compatible with those of the WCPFC, and that fishing by US-flagged vessels is carried out in accordance with any measures put in place by WCPFC. This provides a direct role for the Pacific Council in policies and proposals that the U.S. may advocate in the WCPFC (PFMC 2017b).</p> <p>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; therefore the SG 100 level is met for this scoring issue.</p>		
b	Resolution of disputes		
Guide post	The management system incorporates or is subject by law to a <b>mechanism</b> for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes which is <b>considered to be effective</b> in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a <b>transparent mechanism</b> for the resolution of legal disputes that is appropriate to the context of the fishery and has been <b>tested and proven to be effective</b> .
Met?	Y	Y	N
Justification	<p>At the domestic level, legal disputes are handled under the Administrative Procedures Act, which governs the process by which federal agencies (e.g. NOAA/NMFS) develop and issue regulations. Opportunities are provided for the public to comment on notices of proposed rulemaking (<a href="http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf">http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf</a>).</p> <p>The IATTC Antigua Convention, <i>Article XXV</i>, states that members of the Commission shall cooperate and consult about any dispute to reach a solution as quickly as possible, and may refer the dispute to to an expert panel constituted within the framework of the Commission when necessary. <i>Article XVI</i> states that the Commission shall promote transparency in the implementation of this Convention in its decision-making process and other activities.</p>		

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>• Is capable of delivering sustainability in the UoA(s); and</li> <li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>• Incorporates an appropriate dispute resolution framework.</li> </ul>		
	<p>The WCPFC also promotes the peaceful settlement of disputes through the Commission, but may seek additional dispute resolution mechanisms (legal arbitration) when necessary. Article XXI of the WCPFC Convention states that “the Commission shall promote transparency in its decision-making process and other activities.”</p> <p>The domestic and international level management have a transparent mechanism for dispute resolution and decision making processes. At the domestic level, this has proven to be tested and effective in other fisheries. At the international level, it is unclear whether this management mechanism has been tested and proven to be effective, so the SG 100 level is not met for this scoring issue.</p>		
c	Respect for rights		
Guide post	<p>The management system has a mechanism to <b>generally respect</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system has a mechanism to <b>observe</b> the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system has a mechanism to <b>formally commit</b> to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>
Met?	Y	Y	N
Justification	<p>At the domestic level, the PFMC is mandated by MSA. The MSA states that “Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks) take into account the importance of fishery resources to fishing communities by utilizing economic and social data to provide for the sustained participation of such communities and to the extent practicable, minimize adverse economic impacts on such communities.”</p> <p>The IATTC Antigua Convention states that the parties of this convention must consider the “importance of fishing for highly migratory fish stocks as a source of food, employment and economic benefits for the populations of the Parties and that conservation and management measures must address those needs and take into account the economic and social impacts of those measures.”</p> <p><i>WCPFC Convention Article V takes into account the interests of artisanal and subsistence fishers, Article X specifies the needs of small developing</i></p>		

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>• Is capable of delivering sustainability in the UoA(s); and</li> <li>• Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>• Incorporates an appropriate dispute resolution framework.</li> </ul>	
	<p>States, territories, etc. whose economies, food supplies, and livelihoods are dependent of the exploitation of marine resources must be taken in to account, <i>inter alia</i>, in developing criteria for allocation of TACs or total level of fishing effort or other management actions; <i>Article XXX</i> recognises the special requirements of developing states.</p> <p>There is little evidence that suggests that the management system has a mechanism to <b>formally commit</b> 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. The IATTC and WCPFC have not yet adopted a formal procedure to allocate fishing opportunities to all its Members (IOTC 2011). This scoring issue is met at the 80 level, but not met at the 100 level.</p>	
References	<p>Blythe-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; UNCLOS 1982; PFMC 2017b; MSA 2007; <a href="http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf">http://www.nmfs.noaa.gov/pr/pdfs/laws/apa.pdf</a>; IOTC 2011.</p>	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/A</b>

## Evaluation Table for PI 3.1.2 – Consultation, roles and responsibilities

<b>PI 3.1.2</b>		<p><b>The management system has effective consultation processes that are open to interested and affected parties.</b></p> <p><b>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</b></p>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>a</b>	Roles and responsibilities			
	<b>Guide post</b>	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>generally understood.</b>	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for key areas of responsibility and interaction.</b>	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are <b>explicitly defined and well understood for all areas of responsibility and interaction.</b>
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The IATTC and WCPFC formulate overarching resolutions based on recommendations from scientific committees or staff. Member states negotiate agreements on management mechanisms and, once agreed upon, the actual implementation is left to the individual member and cooperating countries. IATTC Resolution C-05-02 states that the Director shall in coordination with other scientific bodies conducting scientific reviews of this stock, monitor the status of North Pacific albacore tuna and report on the status of the the stock at each annual meeting.</p> <p>The Northern Committee (NC) of the WCPFC makes recommendations on the implementation of conservation and management measures that may be adopted by the Commission for the area north of 20°N, including those for North Pacific albacore. The NC has also subsumed the Interim Scientific Committee (ISC), a forum to study the tuna and tuna-like species of the North Pacific Ocean, as its main source of scientific advice.</p> <p>Under domestic law the Chair of the Pacific Council is allocated a spot as a Commissioner for the United States Section to the WCPFC (PFMC 2017b). As a member of the Commission, the U.S. is responsible for ensuring that management measures applied within U.S. waters are compatible with those of the WCPFC, and that fishing by US-flagged vessels is carried out in accordance with any measures put in place by WCPFC.</p> <p>The roles of the management process are defined at the domestic and international level of management, however it is difficult to state that the functions, roles and responsibilities are explicitly defined and well understood <b>for all areas</b> of responsibility and interaction. Therefore this fishery meets the SG80 level, but not the SG 100 level.</p>		
<b>b</b>	Consultation processes			
	<b>Guide</b>	The management	The management	The management

<b>PI 3.1.2</b>		<p><b>The management system has effective consultation processes that are open to interested and affected parties.</b></p> <p><b>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</b></p>		
	<b>post</b>	system includes consultation processes that <b>obtain relevant information</b> from the main affected parties, including local knowledge, to inform the management system.	system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	system includes consultation processes that <b>regularly seek and accept</b> relevant information, including local knowledge. The management system demonstrates consideration of the information and <b>explains how it is used or not used.</b>
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>At the international level both RFMOs have articles in their respective Conventions that state that the Commission will consult, cooperate and collaborate with other relevant organizations, particularly those with related objectives and which can contribute to the attainment of the objectives of the Convention.</p> <p>Article XVI of the Antigua Convention states that the decision-making processes shall promote transparency <i>inter alia</i> through the public dissemination of pertinent non-confidential information and facilitate consultations with, and the effective participation of NGOs, representatives of the fishing industry, particularly the fishing fleet, and other interested bodies and individuals. It also states that representatives of non-Parties, relevant IGOs, NGOs, including environmental organizations and the tuna fishing fleet, shall be afforded the opportunity to take part in the meetings of the Commission and have timely access to relevant information. IATTC C-05-02 states that the Director shall, in coordination with other scientific bodies conducting scientific reviews of this stock, monitor the status of North Pacific albacore tuna and report on the status of the stock at each annual Meeting.</p> <p>The PFMC is made up of two types of voting members, including private citizens who are knowledgeable about the region's fisheries, such as recreational and commercial fishermen, industry leaders, environmentalists, academics and tribal representatives. There are also designated members that include marine fishery management officials from each state and the NMFS administrator. Non-voting members also serve on the council and include the Coast Guard, State Department, U.S. Fish and Wildlife Service and Interstate Commissions. Councils receive input from advisory bodies, Council committees, plan development teams, Scientific and Statistical Committees, and the general public. Decisions are based on best available science that is peer reviewed in public meetings, where stakeholders have opportunities for involvement during all stages of decision-making. The Pacific Fishery Management Council also has what is called a 'Briefing Book' that includes meeting agendas, agenda item situation summaries and attachments from all past meetings publicly available on their website. There are also tools for understanding the fishery management process,</p>		

PI 3.1.2	<p><b>The management system has effective consultation processes that are open to interested and affected parties.</b></p> <p><b>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</b></p>		
	<p>including ways to get involved in the Council process.</p> <p>The MSA, ammendments and other relevant acts, mandate the consultation process and that the functions, roles and responsibilities are well understood and explicitly defined; therefore this fishery meets the SG 100 level for this scoring issue.</p>		
c	Participation		
Guide post		The consultation process <b>provides opportunity</b> for all interested and affected parties to be involved.	The consultation process provides <b>opportunity and encouragement</b> for all interested and affected parties to be involved, and <b>facilitates</b> their effective engagement.
Met?		Y	N
Justification	<p><i>Article XVI</i> of the Antigua Convention states that The Commission shall promote transparency in the implementation of this Convention in its decision making process and other activities through facilitating consultations with, and the effective participation of NGOs, representatives of the fishing industry, particularly the fishing fleet and other interested bodies and individuals.</p> <p>Subject to Commission rules and procedures, representatives from NCPs, IGOs and NGOs may participate in Commission meetings and its subsidiary bodies as observers or otherwise as appropriate; have access to pertinent information subject to Commission rules and procedures; and, are permitted to give oral presentations and distribute papers through the Secretariat. Interested stakeholders easily may keep appraised of fisheries management and related actions, topics, status, etc. Agendas for all meetings, reports of presentations given at meetings, status of actions, etc. are published in easily downloadable formats from the RFMO and US Fishery Management Council websites and other media (Blythe-Skyrme <i>et al</i> 2012)</p> <p>The MSA mandates that the PFMC follow a transparent process for vetting domestic regulations and related actions that includes all interested stakeholders. Evidence was found of different public comments for various agenda items. PFMC “Press Release” and newsletters are available on the website, which summarizes the various meetings and events, and proceedings of these meetings are publicly distributed. Upcoming meetings, webinars and changes to management plans, advisory panels, etc. are also posted on the PFMC website and in blog posts.</p> <p>The IATTC, WCPFC and the PFMC websites all have past and future meetings listed, downloadable agendas, meeting minutes, etc., however it remains unclear how these management agencies encourage participation for all interested parties. Therefore this fishery does not meet the SG 100</p>		

<b>PI 3.1.2</b>	<p><b>The management system has effective consultation processes that are open to interested and affected parties.</b></p> <p><b>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</b></p>	
	<p>level for this scoring issue.</p>	
<b>References</b>	<p>Blythe-Skyrme <i>et al.</i> 2012; IATTC 2003; IATTC 2005; MSA 2007</p>	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>85</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/A</b>

### Evaluation Table for PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC fisheries standard and the precautionary approach, are <b>implicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach are <b>explicit</b> within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are <b>explicit</b> within <b>and required by</b> management policy.
	Met?	Y	Y	Y
	Justification	<p>The IATTC <i>Antigua Convention, Article II</i> of the states that the objective is to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention, in accordance with the relevant rules of international law. In addition, states that the members of the Commission shall be cautious, or apply a precautionary approach, in cases where information is uncertain, unreliable or inadequate, in regards to conservation and management. The Commission shall revise measures regularly as new scientific information becomes available. The IATTC <i>Antigua Convention, Article IX</i> explains the established decision making process. Consensus of all the members of the Commission is required for decisions on adoptions of most amendments.</p> <p>The <i>WCPFC Convention</i> states that the objective is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1995 UN Fish Stocks Agreement (UN 1995) and the 1982 United Nations Convention on the Law of the Sea UNCLOS 1982. The Convention also states that effective management and conservation require the application of the precautionary approach and the best scientific information available. The <i>WCPFC Convention, Article 20</i> outlines the established decision making policies for this area. Again, the general rule for decision making in the Commission shall be by consensus. If all efforts to reach a decision by consensus have been exhausted, the decisions by voting on questions of procedure shall be taken by a majority of those present and voting.</p> <p>On a domestic level, the PFMC states the Highly Migratory Species Management Plan is intended to promote the achievement of optimum yield of HMS throughout their ranges, both within and beyond the U.S. EEZ, while also ensuring conservation. Other objectives include:</p> <ul style="list-style-type: none"> <li>• Contribute to international cooperation in the long-term conservation and sustainable use of HMS stocks that are caught by West Coast fishers</li> <li>• Promote inter-regional collaboration in management of fisheries for species which occur in the PFMC and other Councils' areas.</li> <li>• Establish procedures to facilitate rapid implementation of future</li> </ul>		

<b>PI 3.1.3</b>	<b>The management policy has clear long-term objectives to guide decision-making that are consistent with MSC fisheries standard, and incorporates the precautionary approach.</b>	
		<p>management actions as necessary.</p> <ul style="list-style-type: none"> <li>• Ensure that fisheries are in compliance with laws and regulations to conserve and restore species listed pursuant to the ESA, MMPA and MBTA (PFMC HMS Fishery Management Plan).</li> </ul> <p>The management in the HMS FMP is precautionary and multidimensional in approach. Precautionary management is the primary theme in managing HMS species and is called for by the MSA, FAO's Code of Conduct for Responsible Fisheries and regional agreements, such as MHLCC. Precautionary management of HMS species includes consideration of the biological limits and control of the growth rate of fisheries. Multidimensional management, within the context of these precautionary concepts refers to the complementary methods applied in actual management, including management by catch and effort, protecting reproductive potential, limiting access and limiting bycatch (PFMC 2017b).</p> <p>There are explicit, long-term objectives required by both the international and domestic level management policy; thus meeting the SG100 level for this scoring issue.</p>
<b>References</b>	Blyth-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; UNCLOS 1982; PFMC 2016b, PFMC 2017b; MSA	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/A</b>

## Evaluation Table for PI 3.2.1 Fishery-specific objectives

<b>PI 3.2.1</b>	<b>The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	<b>Objectives</b>		
<b>Guide post</b>	<b>Objectives</b> , which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>implicit</b> within the fishery-specific management system.	<b>Short and long-term objectives</b> , which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are <b>explicit</b> within the fishery-specific management system.	<b>Well defined and measurable short and long-term objectives</b> , which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery-specific management system.
<b>Met?</b>	Y	Y	Y
<b>Justification</b>	<p>The HMS FMP lists main objectives for Pacific albacore, including</p> <ul style="list-style-type: none"> <li>• Ensure or contribute to international cooperation in the long-term conservation and sustainable use of HMS fish stocks that are caught by West Coast-based fishers.</li> <li>• Implement harvest strategies which achieve optimum yield for long-term sustainable harvest levels</li> <li>• Minimize economic waste and adverse impacts on fishing communities</li> <li>• Minimize bycatch and avoid discard and implement measures to adequately account for total bycatch and discard mortalities</li> <li>• Promote inter-regional collaboration in management of fisheries in the Pacific Council's managed area</li> <li>• Promote effective enforcement and monitoring</li> <li>• Ensure fisheries are in compliance with laws and regulations to conserve and restore species listed pursuant to the MMPA, ESA and MBTA.</li> </ul> <p>The <i>WCPFC Convention, Article 5</i>, states that the objective is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks, including north Pacific albacore) in the western and central Pacific Ocean in accordance with the 1995 UN Fish Stocks Agreement and the 1982 United Nations Convention on the Law of the Sea. The WCPFC exercise management control into the high seas zones outside national EEZs. Conservation and Management Measure-2005-03 promotes the cooperation of the Northern Committee, IATTC and other scientific bodies to monitor the status of north Pacific albacore and to maintain the level of fishing effort on north Pacific albacore within the Convention area commensurate with the long-term sustainability of the stock.</p> <p>The Interim Scientific Committee (ISC) evolved through consultations</p>		

PI 3.2.1	<p><b>The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.</b></p>
	<p>between the U.S. and Japan. North Pacific albacore is listed as a species covered by the ISC, and objectives and functions for Pacific albacore and other covered species include:</p> <ul style="list-style-type: none"> <li>• Regularly assess and analyze fishery and information concerning the species</li> <li>• Prepare reports on its findings or conclusions on the status of population abundance, developments of fisheries and conservation needs</li> </ul> <p>Coordinate international and national programs of research addressing species covered.</p> <p>IATTC C-05-02 states that action needs to be taken as necessary to ensure the effective conservation and management of North Pacific albacore tuna throughout its range including, measures to ensure that fishing effort on the stock does not increase and measures to reduce fishing effort to levels commensurate with the long-term sustainability of the resource. IATTC C-13-03 also states that the IATTC scientific staff shall review work undertaken within the ISC and the WCPFC towards the development of a precautionary approach framework for North Pacific albacore that includes target and limit reference points and harvest control rules. WCPFC CMM-2005-03 contains similar language and objective measures for the long term sustainability and conservation of north Pacific albacore, which are consistent with the MSC Principles 1 and 2.</p> <p>In addition, the WCPFC adopted CMM2014-06 to develop and implement a harvest strategy for key fisheries and stocks in the WCPO. An agreed work plan was included in this CMM, and is subject to review in 2017. In May 2016, the International Scientific Committee for Tuna and Tuna like Species (ISC) conducted a workshop to receive input from managers and stakeholders in member countries of the WCPFC Northern Committee on management objectives for the North Pacific albacore. These management objectives will aid in development of a management strategy evaluation (MSE).</p> <p><b>Updated Information:</b> At the recent WCPFC meeting (WCPFC14 Manila, Philippines, December 2017), an update was provided on the status of the harvest strategy work plan for North Pacific albacore, recommending that the Precautionary Management Framework be recognized as a harvest strategy. The MSE was also reported to be progressing well, where the management objective for the North Pacific albacore fishery is stated to maintain the biomass, with reasonable variability, around its current level in order to allow recent exploitation levels to continue and with a low risk of breaching the limit reference point (WCPFC14, 2018). Specific to the US-based fishery, the Pacific Fisheries Management Council recommended the NC and ISC approve the MSE objectives.</p> <p>The fishery management systems have explicit, well defined measurable short and long-term objectives which achieve the outcomes expressed by MSC Principles 1 and 2; thus meeting the SG100 level for this scoring issue.</p>

<b>PI 3.2.1</b>	<b>The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.</b>	
<b>References</b>	Blyth-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; IATTC C-05-02; IATTC C-13-03; WCPFC CMM 2005-03; PFMC 2017b, PFMC 2016b, MSA	
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>		<b>100</b>
<b>CONDITION NUMBER (if relevant):</b>		<b>N/A</b>

## Evaluation Table for PI 3.2.2 – Decision-making processes

<b>PI 3.2.2</b>	<b>The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.</b>		
<b>Scoring Issue</b>	SG 60	SG 80	SG 100
<b>a</b>	Decision-making processes		
<b>Guide post</b>	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are <b>established</b> decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
<b>Met?</b>	Y	Y	
<b>Justification</b>	<p>At the domestic level, the PFMC has authority over HMS species and manages its respective fisheries independently, except when an action might affect other councils. Each year, the HMS Management Team delivers a combined SAFE report for all species in the HMS FMP to the Council. The SAFE report will be used by the Council and NMFS to develop and evaluate regulatory adjustments under the Framework procedure or the FMP amendment process. The HMS Framework Procedure outlines how flexible management and implementing regulations can be achieved without amending the FMP. The flexible management measure may be imposed, adjusted or removed at any time during the year or in a pre-determined management cycle, and may be imposed for resource conservation, or social or economic reasons consistent with FMP procedures and objectives. Information in the SAFE report is used to assess the relative success of existing state and federal fishery management programs.</p> <p>The WCPFC and the IATTC are responsible for the management and conservation of fisheries for tunas taken by tuna-fishing vessels both outside and within areas of national jurisdiction. These two RFMOs agree to establish and maintain consultation, cooperation and collaboration in areas involving exchange of data and information, collaboration on research efforts relating to stocks and species of mutual interest and conservation and management measures (Memorandum of Understanding IATTC and WCPFC).</p> <p>WCPFC CMM-2005-03 states that the WCPFC executive Director shall communicate with the IATTC and request that the two Commissions engage in consultations with a view to reaching agreement on a consistent set of conservation and management measures for North Pacific albacore, and to propose that both Commissions adopt as soon as practicable uniform conservation and management measure and any other measures needed to ensure compliance. It also states that the Commission shall consider future actions with respect to north Pacific albacore based on recommendations from the Northern Committee.</p> <p>IATTC CM 05-02 the Director shall, in coordination with scientific bodies, monitor the status of the North Pacific albacore and report on the status of the stock at each annual meeting. Actions to ensure the effective conservation and management of North Pacific albacore will be taken, in particular measures to reduce fishing effort to levels commensurate with the</p>		

PI 3.2.2	<b>The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.</b>		
	<p>long-term sustainability of the resource. The IATTC Antigua Convention, Article IX outlines their established decision making policies.</p> <p>Both RFMOs use the best available scientific information and take into consideration the findings presented by the ISC ALBWG.</p> <p>The established decision-making processes present in both the domestic and international management meet the SG 80 level for this scoring issue.</p>		
<b>b</b>	<b>Responsiveness of decision-making processes</b>		
<b>Guide post</b>	Decision-making processes respond to <b>serious issues</b> 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 <b>serious and other important issues</b> 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 <b>all issues</b> identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>Decision-making processes are in place at both the international and domestic level. Advice is received from several different scientific bodies and experts, including local participation, and relevant research and monitoring are evaluated regularly in order to ensure the effective monitoring and conservation of the north Pacific albacore fishery.</p> <p>Although the decision-making processes are in place and respond to most serious issues at both the national and international level, it is not clear that these processes respond to ALL issues for the north Pacific albacore fishery. There is not enough evidence to meet the '100' level for this scoring issue.</p>		
<b>c</b>	<b>Use of precautionary approach</b>		
<b>Guide post</b>		Decision-making processes use the precautionary approach and are based on best available information.	
<b>Met?</b>		Y	
<b>Justification</b>	<p>As noted in 3.1.3, all management, both at the domestic and international level, use a precautionary approach in their decision making processes. The IATTC Antigua Convention, <i>Article IV</i> and <i>Article VII</i> give further detail to this management approach. The WCPFC Convention, <i>Articles V and VI</i> outline its precautionary approach, specifically for highly migratory fish stocks that includes north Pacific albacore tuna. IATTC C 13-03 states that</p>		

PI 3.2.2	<b>The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.</b>		
	<p>the ongoing work within the WCPFC towards the development of a precautionary approach framework for North Pacific albacore shall be considered.</p> <p>The PFMC HMS FMP states that the general rule to their management is the precautionary approach.</p> <p>The fishery meets this SG at both the international and the national level of management.</p>		
<b>d</b>	Accountability and transparency of management system and decision-making process		
<b>Guide post</b>	Some information on the fishery's performance and management action is generally available on request to stakeholders.	<b>Information on the fishery's performance and management action is available on request</b> , 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 <b>provides comprehensive information on the fishery's performance and management actions</b> and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>The PFMC, IATTC and WCPFC maintain public websites with reports, scientific papers and data, meeting minutes and upcoming meetings all available for download. The RFMOs also have a published IUU list and a record of eligible fishing vessels. Interested stakeholders are able to access information in a number of ways on the management actions and the overall performance of the fishery.</p> <p>Even though meeting minutes, reports and agendas are available, there is no formal explanation that ensures that all parts of the decision making process have been disclosed, nor is there evidence that the management decisions represent all the information presented.</p> <p>The fishery meets the SG 80 level for this scoring issue, but not the SG 100 level.</p>		
<b>e</b>	Approach to disputes		
<b>Guide post</b>	Although the management authority or fishery may be	The management system or fishery is attempting to comply in	The management system or fishery acts proactively to avoid

<b>PI 3.2.2</b>		<b>The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.</b>		
		subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	a timely fashion with judicial decisions arising from any legal challenges.	legal disputes or rapidly implements judicial decisions arising from legal challenges.
	<b>Met?</b>	Y	Y	Y
	<b>Justification</b>	<p>At the domestic level, NOAA has an extensive Dispute Resolution Process, defined by the Administrative Dispute Resolution Act of 1996, Pub. L. No. 104-320. They have an Alternative Dispute Resolution (ADR) process that consists of several approaches used to resolve conflict other than litigation if possible. The ADR process uses mediation, consultation and facilitated problem solving to resolve disputes in a confidential manner (<a href="http://www.wfm.noaa.gov/adr/">www.wfm.noaa.gov/adr/</a>).</p> <p>Both the IATTC and the WCPFC operate under charters specifying voting rules and procedures. However, decisions are usually made by consensus of the member states. There also are dispute resolution mechanisms. Additionally dispute resolution through litigation and the courts is available. Any such disputes are to be well documented and readily available to appropriate parties. The management system at the international level incorporates transparent mechanisms in decision making processes and other activities. WCPFC Convention Annex II establishes the authority to set up a Review Panel to review decisions made by the Commission to settle disputes among members of the Commission (Blythe-Skyrme et al. 2012).</p> <p>It should be noted that, to the assessment team's knowledge, no current legal disputes are occurring in the North Pacific albacore fishery, nor is there evidence of non-compliance that threatens the conservation and sustainability objectives. The north Pacific albacore fishery is managed with transparency, uses a precautionary approach and the management processes are responsive to issues identified through monitoring, evaluation and consultation.</p> <p>Both the international and national level of management meet the SG100 level for this scoring issue.</p>		
	<b>References</b>	<p>Blythe-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; UNCLOS 1982; PFMC 2017b; MSA</p> <p>WCPFC_IATTC. Memorandum of Understanding between the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean and The Inter-American Tropical Tuna Commission. <a href="https://www.wcpfc.int/system/files/WCPFC-IATTC%20Memorandum%20of%20Understanding.pdf">https://www.wcpfc.int/system/files/WCPFC-IATTC%20Memorandum%20of%20Understanding.pdf</a></p>		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>				<b>85</b>

PI 3.2.2	The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery.
CONDITION NUMBER (if relevant):	

**Evaluation Table for PI 3.2.3 – Compliance and enforcement**

<b>PI 3.2.3</b>		<b>Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.</b>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>a</b>	MCS implementation			
	<b>Guide post</b>	Monitoring, control and surveillance <b>mechanisms</b> exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance <b>system</b> has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A <b>comprehensive</b> monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>At the domestic level, NOAA and the PFMC manage this fishery. The HMS Fishery Mangement Plan requires that all U.S. vessels that fish for HMS (including north Pacific albacore), offload, or land HMS in California, Oregon and Washington have a valid HMS vessel permit. U.S. vessels fishing on the high seas (outside the U.S EEZ, or 200nm) are also required to have a High Seas Fishing Compliance Act Permit (HSFCA). All vessels fishing HMS are required to fill out logbooks and return them to the Southwest Fisheries Science Center within 30 days if landed in the United States. Observers are not required for the north Pacific albacore fishery.</p> <p>U.S. vessels that wish to fish in Canadian waters must be identified on the U.S. albacore vessel list; maintain and submit logbooks; mark their vessels with registration number and name; and report when they enter and leave Canadian waters. Additional permits are not required by the U.S.-Canada Treaty, however the same HMS/HSFCA permit requirements apply.</p> <p>The WCPFC requires that any U.S. fishing vessel used for commercial fishing for HMS on the high seas have a WCPFC Endorsement. In order to obtain this endorsement, a HSFCA permit must have been issued or applied for. The WCPFC also requires owners/operators of any U.S. vessel fishing for HMS in the Convention Area be required to submit NOAA Fisheries information about the vessel, its owner and operators, and any fishing authorizations issued by such other nations.</p> <p>The IATTC C-13-03 requires that all CPCs shall report to the Director every 6 months about north Pacific albacore catches, including area, if they were targeting north Pacific albacore and the annual average catch by gear type. Fishing effort shall be reported in fishing days and number of vessels fishing for north Pacific albacore. Vessel monitoring systems (VMS) are required if the vessel is less than 24m and has an HSFCA permit, and required on all vessels greater than 24 meters.</p> <p>The IATTC <i>Antigua Convention, Article XVIII</i> states that the IATTC shall take appropriate measures to ensure the implementation of and compliance with this Convention and any conservation and management measures adopted, including the adoption of the necessary laws and regulations. Each party, through the Director, shall inform the Committee for the review of legal and administrative provisions, including those regarding infractions</p>		

PI 3.2.3	<b>Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.</b>		
	<p>and sanctions, as well as actions taken to ensure compliance with conservation and management.</p> <p>. <i>WCPFC Convention Article XXV</i> establishes that each member of the Commission shall enforce the provisions of the Convention and any conservation and management measures issued by the Commission, Article XXVI establishes boarding and inspection procedures, Article XXVII establishes port-state inspection procedures which allows the port-state to prohibit landings and transshipment of catch and transshipment of catch taken through non-compliance, and Article XXIX outlines procedures for in-port and at-sea transshipment. Members of both RFMOs shall not grant a vessel authorization to fish if it is on the respective Convention's IUU vessel list.</p> <p>The area of management for north Pacific albacore is quite large and therefore difficult to ensure proper measures of monitoring, control and surveillance mechanisms are enforced. VMS systems have recently been required on vessels over 24 meters, however data on the efficiency of this monitoring system has yet to be evaluated or proven. Also, because there is no observer program for North Pacific albacore tuna, it is difficult to conclude that the monitoring, control and surveillance system has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules; therefore this fishery did not meet the SG 100 level for this scoring issue.</p>		
<b>B</b>	<b>Sanctions</b>		
<b>Guide post</b>	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, <b>are consistently applied</b> and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and <b>demonstrably</b> provide effective deterrence.
<b>Met?</b>	Y	Y	N
<b>Justification</b>	<p>At the domestic level, sanctions for non-compliance exist, that are defined by law. Sanctions include written warnings, verbal warnings, summary settlements, and compliance assistance. The degree of the sanction depends on the degree of the crime, the number of offenses, etc.</p> <p>At the international level, sanctions are also in place for non-compliance, including refusal, suspension or withdrawal of the authorization to fish. The Sanctions do exist and are applied and thought to provide effective deterrence, thus meeting the SG 80 level for this scoring issue. However, because of limited resources available for HMS species in the Pacific, the lack of observer program for albacore tuna and reported challenges in terms of monitoring effectiveness due to the huge geographic area of the fisheries, it is difficult to conclude this fishery demonstrably provides effective deterrence; therefore this fishery does not meet the SG 100 level for this scoring issue.</p>		
<b>C</b>	<b>Compliance</b>		
<b>Guide post</b>	Fishers are <b>generally thought</b> to comply with the management system for the fishery under assessment,	<b>Some evidence exists</b> to demonstrate fishers comply with the management system under assessment,	There is a <b>high degree of confidence</b> that fishers comply with the management system under assessment,

<b>PI 3.2.3</b>	<b>Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.</b>																																																																										
	including, when required, providing information of importance to the effective management of the fishery.	including, when required, providing information of importance to the effective management of the fishery.	including, providing information of importance to the effective management of the fishery.																																																																								
<b>Met?</b>	Y	Y	N																																																																								
<b>Justification</b>	<p>Evidence exists to demonstrate that US North Pacific albacore fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery. There is ample evidence that US albacore troll and jig fishers comply with the management system, including fishers providing information of importance to the effective management of the fishery, e.g., daily logbook records, participation in conventional and electronic tagging programs, participation in collection of various data projects. Compliance reports are routinely prepared by the NOAA Fisheries Enforcement and NOAA General Council Offices and US Coast Guard and presented to the PFMC meetings.</p> <p>Most non-compliance issues for the north Pacific albacore fishery are “paper related”, including failure to renew permits, having the correct permit on the vessel, or incomplete logbooks.</p> <p>A data set was pulled by a NOAA Enforcement officer to show examples of the common non-compliance issues. The data includes the tuna fishery as a whole, and includes more than north Pacific albacore, and multiple gear methods. The data range was from January 1, 2016 – August 10, 2017 and the search parameters used were “Tuna” and “HMS”.</p> <table border="1"> <thead> <tr> <th>Activity Type</th> <th>Number</th> <th>Violation Types Found</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Complaints:</td> <td>4</td> <td>No safe boarding ladder (USCG)</td> <td>1</td> </tr> <tr> <td>Boardings:</td> <td></td> <td>Four unlawful shark fins</td> <td>1</td> </tr> <tr> <td></td> <td>USCG 3</td> <td>Landing with no HMS permit</td> <td>3</td> </tr> <tr> <td></td> <td>OLE 1</td> <td>Discard of tuna</td> <td>1</td> </tr> <tr> <td>Shoreside Inspections - OLE:</td> <td>28</td> <td>Failure to retain HMS permit onboard</td> <td>4</td> </tr> <tr> <td><b>TOTAL:</b></td> <td><b>36</b></td> <td>Failure to maintain legible log entries</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td>Take/retention without issued HMS permit</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td>Failure to retain logbook onboard</td> <td>11</td> </tr> <tr> <td><b>Violation Outcomes</b></td> <td></td> <td>Logbook not up-to-date</td> <td>1</td> </tr> <tr> <td>Summary Settlements</td> <td>4</td> <td>Failure to submit logbook pages timely</td> <td>4</td> </tr> <tr> <td>Written Warnings</td> <td>14</td> <td>False advertisement for bluefin tuna</td> <td>1</td> </tr> <tr> <td>Verbal Warnings</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>COPPS (Compliance Assistance)</td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>Open</td> <td>2</td> <td></td> <td></td> </tr> <tr> <td>No Violation</td> <td>10</td> <td></td> <td></td> </tr> <tr> <td>Lack of Evidence</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td><b>TOTAL:</b></td> <td><b>36</b></td> <td></td> <td></td> </tr> </tbody> </table> <p>The unlawful shark fins was investigated further, and was to be on a longline vessel and not the Pole and Line albacore fleet.</p> <p>Audits of logbooks occur annually, and they are performed at random, or as a follow up to previous inconsistencies or infractions. The West Coast States have a co-operative agreement to enforce each state’s regulations, however ‘loopholes’ were reported to be a problem with the different state laws. Most enforcement occurs by dockside monitoring if officers are present. Resources were reported to be limited for enforcement for HMS species in general.</p> <p>This constitutes some evidence to demonstrate fishers comply with the management system under assessment as required by the SG80. However, evidence that this fishery complies with management policies at the international level is difficult to assess with a high degree of confidence.</p>			Activity Type	Number	Violation Types Found	Number	Complaints:	4	No safe boarding ladder (USCG)	1	Boardings:		Four unlawful shark fins	1		USCG 3	Landing with no HMS permit	3		OLE 1	Discard of tuna	1	Shoreside Inspections - OLE:	28	Failure to retain HMS permit onboard	4	<b>TOTAL:</b>	<b>36</b>	Failure to maintain legible log entries	1			Take/retention without issued HMS permit	1			Failure to retain logbook onboard	11	<b>Violation Outcomes</b>		Logbook not up-to-date	1	Summary Settlements	4	Failure to submit logbook pages timely	4	Written Warnings	14	False advertisement for bluefin tuna	1	Verbal Warnings	2			COPPS (Compliance Assistance)	3			Open	2			No Violation	10			Lack of Evidence	1			<b>TOTAL:</b>	<b>36</b>		
Activity Type	Number	Violation Types Found	Number																																																																								
Complaints:	4	No safe boarding ladder (USCG)	1																																																																								
Boardings:		Four unlawful shark fins	1																																																																								
	USCG 3	Landing with no HMS permit	3																																																																								
	OLE 1	Discard of tuna	1																																																																								
Shoreside Inspections - OLE:	28	Failure to retain HMS permit onboard	4																																																																								
<b>TOTAL:</b>	<b>36</b>	Failure to maintain legible log entries	1																																																																								
		Take/retention without issued HMS permit	1																																																																								
		Failure to retain logbook onboard	11																																																																								
<b>Violation Outcomes</b>		Logbook not up-to-date	1																																																																								
Summary Settlements	4	Failure to submit logbook pages timely	4																																																																								
Written Warnings	14	False advertisement for bluefin tuna	1																																																																								
Verbal Warnings	2																																																																										
COPPS (Compliance Assistance)	3																																																																										
Open	2																																																																										
No Violation	10																																																																										
Lack of Evidence	1																																																																										
<b>TOTAL:</b>	<b>36</b>																																																																										

<b>PI 3.2.3</b>		<b>Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with.</b>	
		Because there is limited resources both at the domestic and international level, the large area to enforce and monitor, and no observer program in place, this fishery does not meet the SG 100 level for this scoring issue.	
<b>D</b>	Systematic non-compliance		
	<b>Guide post</b>		There is no evidence of systematic non-compliance.
	<b>Met?</b>		Y
	<b>Justification</b>	There is no evidence that there is systematic non-compliance at the domestic or international management level; thus this fishery meets the SG80 level for this scoring issue.	
<b>References</b>	Blyth-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; <a href="http://www.fpir.noaa.gov/SFD/SFD_permits_info.html#WCPCAEVMS">http://www.fpir.noaa.gov/SFD/SFD_permits_info.html#WCPCAEVMS</a> ; IATTC C-14-02		
<b>OVERALL PERFORMANCE INDICATOR SCORE:</b>			<b>80</b>
<b>CONDITION NUMBER (if relevant):</b>			<b>N/A</b>

### Evaluation Table for PI 3.2.4 – Monitoring and management performance evaluation

<b>PI 3.2.4</b>		<p><b>There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives.</b></p> <p><b>There is effective and timely review of the fishery-specific management system.</b></p>		
<b>Scoring Issue</b>		SG 60	SG 80	SG 100
<b>A</b>	Evaluation coverage			
	<b>Guide post</b>	There are mechanisms in place to evaluate <b>some</b> parts of the fishery-specific management system.	There are mechanisms in place to evaluate <b>key</b> parts of the fishery-specific management system	There are mechanisms in place to evaluate <b>all</b> parts of the fishery-specific management system.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>The WCPFC Commission supports three subsidiary bodies where evaluation occurs: 1) Scientific Committee, 2) the Technical and Compliance Committee, and 3) Northern Committee, which each meet annually. Stakeholder input and external scientific experts are also a part of the evaluation process.</p> <p>The IATTC includes a Scientific Advisory Committee, Committee for the Review of Implementation of Measure, external scientific experts and stakeholder testimony.</p> <p>The domestic level includes several committees, including the SSC, HMS/Management team, HMS Advisory Subpanel, NMFS albacore fisheries scientists on ISC Albacore Working Group and stakeholder submissions.</p> <p>The fishery does not have mechanisms in place to evaluate all parts of the management system, namely harvest control rules. Although several proposals have been recommended, they have yet to be fully adopted by the RFMOs. This fishery does not meet the SG 100 level of performance for this scoring issue.</p>		
<b>B</b>	Internal and/or external review			
	<b>Guide post</b>	The fishery-specific management system is subject to <b>occasional internal</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>occasional external</b> review.	The fishery-specific management system is subject to <b>regular internal</b> and <b>external</b> review.
	<b>Met?</b>	Y	Y	N
	<b>Justification</b>	<p>At the domestic level, management by the PFMC is subject to numerous internal and external reviews including: 1) those conducted by the SSC; 2) the HMS/FMP SAFE report provided for initial and final decision making on the need for new harvest specifications and management measures; 3) peer review by outside experts of specific management actions and particularly controversial issues; 4) FMPs, including the HMS/FMP, are subject to NMFS oversight; and 5) ultimate external oversight of the Fishery Management Councils is provided by the Secretary of Commerce (Blythe-Skyrme <i>et al.</i> 2012).</p> <p>For the WCPFC, management is subject to numerous internal and external</p>		

<p><b>PI 3.2.4</b></p>	<p><b>There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives.</b></p> <p><b>There is effective and timely review of the fishery-specific management system.</b></p>	
	<p>reviews including: 1) those by the Scientific Committee established by WPCFC Convention <i>Article XII</i>, the IATTC, and frequently other scientific experts to review stock assessments, status of target, non-target and associated stocks, and scientific information and advice that may be provided by the Commission; 2) the Technical and Compliance Committee provides the Commission with information, technical advice, and recommendations related to the implementation and compliance with CMMs; 3) Convention Article XIII provides for the Commission to engage external scientific experts to carry out periodic peer reviews of scientific information and advice provided by the Commission; 4) Members transmit to the Commission an annual statement of compliance measures, including imposition of sanctions it has taken for any violations; 5) the business and meetings of the WCPFC are transparent and conducted annually and as a consequence, the status of conservation and management objectives are the subject of review of public opinion and subsequent political ramifications; and 6) scientific advice and review specific to North Pacific albacore are provided by the ISC to the Northern Committee.</p> <p>The IATTC also has numerous internal and occasional external reviews including: 1) comprehensive review functions and responsibilities of the Scientific Advisory Committee (established under Antigua Convention Article XI); 2) review functions and responsibilities of the Committee for the Review of Implementation of Measures (established under Antigua Convention Article XVIII) are set forth in Annex 3 of the Antigua Convention; 3) the Commission may engage external scientific experts to carry out periodic peer reviews of scientific information and advice provided by the Commission may; and 4) the business and meetings of the IATTC are transparent and conducted annually and as a consequence, the status of conservation and management objectives are the subject of review of public opinion and subsequent political ramifications.</p> <p>The fishery-specific management system is subject to regular internal review, however only occasional external review occurs at the international level. This does not meet the SG 100 Level.</p>	
<p><b>References</b></p>	<p>Blythe-Skyrme <i>et al.</i> 2012; IATTC 2003; WCPFC 2004; UNCLOS 1982; PFMC 2016b; PFMC 2017b; MSA</p>	
<p><b>OVERALL PERFORMANCE INDICATOR SCORE:</b></p>		<p><b>80</b></p>
<p><b>CONDITION NUMBER (if relevant):</b></p>		<p><b>N/A</b></p>

## **Appendix 1.2 Risk Based Framework (RBF) Outputs**

Risk Based Framework (RFB) was not used in this assessment

## Appendix 1.3 Conditions

(RE-ASSESSMENT ONLY, PRDR AND ALL SUBSEQUENT REPORTS)

Table A1.3: Condition 1

<p><b>Performance Indicator</b></p>	<p><b>NORTH PACIFIC ALBACORE</b></p> <p><b>1.2.2a. Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.</b></p> <p><b>1.2.2b. The HCRs are likely to be robust to the main uncertainties.</b></p> <p><b>1.2.2c. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs</b></p>
<p><b>Score</b></p>	<p>60</p>
<p><b>Rationale</b></p>	<p><b>SG60:</b> Generally understood HCRs are in place <b>or available</b> that are <b>expected</b> to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.</p> <p><b>SG80:</b> <b>Well defined</b> HCRs are <b>in place</b> that <b>ensure</b> that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock <b>fluctuating around</b> a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.</p> <p><b>SG100:</b> The HCRs are expected to keep the stock <b>fluctuating at or above</b> a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, <b>most</b> of the time.</p> <p>MSC CR v2.0 lays out two conditions for acceptance of HCR being available sufficient to justify scoring at the SG60 level.</p> <p>First, CR v2.0 SA2.5.2a provides for HCR being recognised as available “...if stock biomass has not previously been reduced below <math>B_{MSY}</math> or has been maintained at that level for a recent period of time”.</p> <p>As noted at PI 1.1.1(c), The SS3 assessment provides probabilistic estimates of parameters of interest, and has been extensively explored through sensitivity tests (ISC 2017a). The stock assessment estimates spawning stock biomass, <math>SSB/SSB_{MSY}</math> to be 2.1 with no overlap in confidence intervals. The stock is estimated never to have reduced to <math>SSB_{MSY}</math> and has hence been above <math>SSB_{MSY}</math> in all years.</p> <p>The CR v2.0 SA2.5.2a condition is therefore met.</p> <p>Second, CR v2.0 SA2.5.3b provides for HCR being recognised as available if “...there is an agreement or framework in place that requires the management body (WCPFC and IATTC) to adopt HCRs before the stock declines below <math>B_{MSY}</math>”.</p> <p>WCPFC CMM 2014-06 (WCPFC 2014b) sets out definitions of harvest strategies to be developed and implemented. The definitions include target and limit reference points and decision rules or (“harvest control rules”), with a clear intention that harvest control rules, tested using simulation approaches, will be</p>

	<p>part of the implemented harvest strategies. The Commission agreed to adopt a work plan at the 2015 Commission meeting, with revision in 2016 (WCPFC 2017c), with application to skipjack, bigeye, yellowfin, Pacific Bluefin, and South and North Pacific albacore tunas, with the Northern Committee of the ISC responsible for developing and recommending the work plan for North Pacific albacore. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process, and the Northern Committee (WCPFC 2017b).</p> <p>The CR v2.0 SA2.5.3b condition is therefore met.</p> <p>Because the HCR is scored in scoring issue a as 'available' rather than 'well- defined', scoring issues b and c cannot be met at the SG80 level.</p>
<b>Condition</b>	<p>By the end of the fourth year of certification, the SG 80 scoring requirements above must be met in full. This will be achieved if well defined harvest control rules are in place at the IATTC and WCPFC that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as the PRI is approached, the selection of the harvest control rule takes into account the main uncertainties, and available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</p>
<b>Milestones</b>	<ol style="list-style-type: none"> <li>1. By the first annual surveillance audit the certifier will be presented with information on those consultations which have occurred with the responsible parties.</li> <li>2. By the second surveillance audit the certifier will be presented with information on progress which has been made in establishing a scientifically based target reference point and harvest control rules.</li> <li>3. By the third annual surveillance the certifier will be presented with information on how those harvest control rules, assuming they have been agreed to by the RFMOs, might be implemented.</li> <li>4. By the end of the certification period, well defined HCRs will be in place that ensure that the exploitation rate is reduced as the PRI is approached, that are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.</li> </ol>
<b>Client action plan</b>	<ol style="list-style-type: none"> <li>1. AAFA and WFOA will continue, through their participation in the US delegations to the two relevant tuna RFMOs, the IATTC and WCPFC, to promote the development of a scientifically based target reference point and harvest control rules that apply to all of the fishing mortality of the North Pacific albacore stock. Since this work is being primarily conducted by the Northern Committee of the WCPFC and its science provider, the International Scientific Committee, the clients will continue to actively participate in the US delegations to those meetings. As they have in the past, both organizations will support positions taken by the US delegations to the IATTC and WCPFC to develop and implement a scientifically based target reference point and harvest control rules.</li> <li>2. AAFA and WFOA will continue to work with, and will report on, ongoing efforts to explore opportunities to cooperate with and support the work of other tuna fisheries organizations to develop a scientifically based target reference point and harvest control rules.</li> <li>3. WFOA's science advisor will also continue to work with the Albacore Working Group of the International Scientific Committee as it proceeds with its Management Strategy Evaluation process to pursue the establishment of a scientifically based target reference point and harvest control rules.</li> </ol>
<b>Consultation on condition</b>	<p>AAFA and WFOA will support the West Coast Region of the National Marine Fisheries Service and their scientific staffs, the Pacific Islands Regional Office of</p>

	<p>the National Marine Fisheries Service, which usually heads delegations to the WCPFC Northern Committee to develop harvest control rules. Both organizations will also support the efforts of the U.S. Department of State to negotiate the acceptance of a scientifically based target reference point and harvest control rules.</p>
--	--

## Appendix 2 Peer Review Reports

Peer Reviewer A

### Summary of Peer Reviewer Opinion

<b><i>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</i></b>	<b>Yes/No</b> Yes	<b>CAB Response</b>
<p><u>Justification:</u> I concur with the overall scores. As expected there are P1 limitations due to the lack of formal harvest strategies and harvest control rules. The fishery needs to respond to those needs. P2 performance is very good because the fishery has very limited interaction with other species, habitat and its ecosystem effects are probably minimal. P3 scores attempt to balance the fact the management operates within the RFMO framework, as well as the domestic mechanisms through the Magnusen-Stevens Act and the Pacific Fishery Management Council. The general unwieldiness of RFMOs is counterbalanced by the PFMC and domestic legislation.</p>		No response needed.

<b><i>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]</i></b>	<b>Yes/No</b> Yes	<b>CAB Response</b>
<p><u>Justification:</u> Condition requires the completion of an HCR within RFMO framework which then will be adopted domestically through the PFMC and the HMS FMP.</p>		No response needed.

If included:

<b><i>Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]</i></b>	<b>Yes/No</b> Yes	<b>CAB Response</b>
<p><u>Justification:</u> The action plan specifies that the client will pursue the implementation of control rules through participation in domestic and RFMO management processes, and in participation in the ISC scientific development of candidate HCRs and management strategy evaluations of those HCRs. Of course, the success of an HCR is judged on a stock-wide basis which implies that the RFMOs are the final step in implementation. The clients do not have final control over the RFMOs but they <i>must</i> exercise their influence at all possible avenues to achieve this. The proposed action plan outlines the ways the clients must proceed such that HCRs can be achieved within the certification period. I would note that if the RFMOs do not implement HCRs within 4 years, then there are serious ramifications not only to this fishery, but to other tuna stocks and to other RFMOs.</p>		Thank you. Your warnings are well noted.

Table 18 For reports using one of the default assessment trees:

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.1.1	Yes	Yes	NA	<p>The certifier scored 1.1.1a as 100. The most recent stock assessment by the Albacore Working Group of ISC was in 2017. The LRP agreed by WCPFC was 20%SBF=0 The assessment estimated SSB (in terms of female spawner biomass) to be ~2.5 times above the LRP. Projections at constant fishing intensity suggest a high degree of certainty (&gt;99%) that the SSB will not fall below the LRP in 2020 and 2025. No indication of recruitment impairment.</p> <p>The certifier scored 1.1.1b as 100. The stock assessment SSB<sub>2015</sub> is estimated to be &gt;2 times higher than the LRP (2.47 times higher for the base case model, 2.15 times higher for the alternative growth model and 1.31 times higher for an alternative M scenario. Clearly this meets the 80 guidepost. However, one might argue that if the alternative M were true, then 1.31 times the LRP is not sufficient to classify this as a "high degree of certainty." Also, Figure 7 of this Draft Report shows the 20% LRP line to be within the 95% confidence interval.</p> <p>But, the variability of estimated SSB from year to year is not large and did not exceed the LRP during the two decades of assessment data. Also, the estimated Bmsy was less than the 20% LRP due in part to the selection of the steepness of the stock-recruitment relationship (which was consistent with other assessments). So in balance I agree that SG100 is met, but the certifiers might revisit their arguments in this regard.</p>	<p>A major improvement in the 2017 albacore assessment was the use of age and sex-specific natural mortality. In previous assessments the M of 0.3 y<sup>-1</sup> was used. The ALBWG reviewed the basis for this assumption (M of 0.3 y<sup>-1</sup>) and found that this assumption was not well supported in the scientific literature (ISC 2017a: p25). However, the ALBWG considered M to be the most important axis of uncertainty in the assessment. Thus the Assessment Team agrees with the peer reviewer that for the M=0.3 y<sup>-1</sup> model run SSB<sub>2015</sub> is estimated to be 1.31*LRP or 0.26SSB<sub>F=0</sub> and it is therefore highly likely that SSB is at or above a level consistent with MSY, as defined in a precautionary way by MSC, but there may not be a 'high degree of certainty' that the stock is above that level. The score has been changed to 80 for 1.1b.</p>
1.1.2	NA	NA	NA		

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.2.1	Yes	No	No (Maybe)	<p>1.1.1.a was scored as meeting SG60 and SG 80 but not SG 100; the key issue is whether SG 80 is met or not ("the HS is responsive to the state of the stock and the elements of the harvest strategy <b>work together</b> towards achieving stock management objectives"). It can be argued that the IATTC and WCPFC measures to ensure that fishing effort on North Pacific albacore does not increase above 'current levels' are not sufficiently precise to be counted as being responsive to stock status. Are the RFMOs prepared to use the "recent level" criteria to impose restrictions should it be exceeded? While a formal HS is under development, it is unclear whether that will be "responsive." This has been a lingering issue in MSC albacore scores. If this is rescored then it is possible that 1.2.1 might have a score less than 80. In that case a condition would be needed which I expect would be similar to that for 1.2.2.</p> <p>1.2.1.f was determined to be "not relevant." While clearly bycatch is currently not a relevant concern with these fisheries, the guidepost is asking about periodic reviews which might determine whether bycatch might be becoming a problem. Perhaps some further discussion is needed.</p> <p>No comments on 1.1.1.b-d; I concur with these.</p>	<p>1.2.1a: Based on updated information on North Pacific albacore fishing effort for the period 2005-2016 it is observed that the total number of vessels fishing for north Pacific albacore has stayed below the 2002-2004 average. Therefore we conclude that the IATTC and WCPFC measures introduced in 2005 to ensure that fishing effort on North Pacific albacore does not increase above 'current levels' are sufficient to be counted as being responsive to stock status.</p> <p>While there are no formally agreed harvest control rules yet in place, the harvest strategy, utilizing high quality science and compliance information, and founded on high quality scientific advice, is considered to be responsive to the state of the albacore stock. Consistent with harmonization requirements and existing CHMSF (2015) and Japanese Pole and Line Skipjack and Albacore Fishery (2016) scoring, the SG80 requirements are considered to be met.</p> <p>1.2.1f: . The PFMC (2016b) did conduct a review in 2007 of possible management measures that could be deployed to further reduce unwanted catches, and determined that no action was required to implement any of them for this fleet. The major proportion of unwanted catches in the fishery were found to be juvenile albacore, and these catches were very small. We have updated the scoring table to reflect this and have thus scored the issue at the 80 level rather than declare it is irrelevant.</p> <p>Slb-d: No response required.</p> <p>It is noted that there is no condition raised for this PI.</p>

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.2.2	Yes	Yes	Yes	<p>As with most (all?) RFMO tuna species, the critical P1 score for N Pacific Albacore comes down to 1.2.2: whether there is a harvest control rule or not. A formal HCR has not been implemented but the MSC provides some leeway in interpreting the SG 60 guideposts (1.2.2.a. SG60= <b>Generally understood</b> HCRs are in place <b>or available</b> that are <b>expected</b> to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached; and 1.2.2.c. SG60= There is <b>some evidence</b> that tools used <b>or available</b> to implement HCRs are appropriate and effective in controlling exploitation). The draft certification report invokes two MSC CR v2.0 conditions in regards to 1.2.2.a: 1) that a stock has not been reduced below Bmsy or has not been below Bmsy in recent times; and 2) that there is a framework for the RFMO to adopt HCRs before a stock declines below Bmsy. Clearly, 2) is met, based upon the certifier's arguments. But it can be argued (see my comments on 1.1.1) that the BMSY estimate is not precautionary and that if catch reductions were to be required, then there is not strong evidence of how this would be done. Also, one might interpret one set of projections from the stock assessment as indicating that a constant catch strategy could result in a probability (&lt;50%) that the stock is reduced below 20%SSBF=0 by 2025. However, I believe the constant catch strategy scenario was not relevant to how the fishery operates and is not a good example of the probability of SSB being below SSBmsy by 2025. In balance I agree with the certifier scores. However, there may be a need to address concerns outlined in 1.2.2 and 1.1.1.</p>	<p>CR v2.0 SA2.5.6 requires that as part of the evidence that tools are working, "...teams should include current levels of exploitation in the UoA, as measured by fishing mortality rate where available". The best available information on the exploitation rate is in ISC (2017a); the SS3 base case assessment estimates F/Fmsy as 0.61, and F is estimated to never have reached F<sub>MSY</sub>. CR v2.0. GSA2.5.2-7 as relates to SA2.5.6, notes that current F being "equal to or less than F<sub>MSY</sub> should be taken as evidence that the HCR is effective." Thus a score of SG60 has been awarded by the Assessment Team, using CR v2.0 provisions for SG60 scoring. A 60 score is consistent with harmonization requirements and existing CHMSF (2015) and Japanese Pole and Line Skipjack and Albacore Fishery (2016) scoring.</p>

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.2.3	Yes	Yes	NA	There is reasonably good information available for testing harvest strategy meeting SG100 criteria for a) and SG 80 for b) and c). SG 100 for b is not met. Data limitations include sex-specific data and relevant uncertainty estimates for HCRs, MSEs and MPs. I concur with scores	No response required
1.2.4	Yes	Yes	NA	There is good information available for assessments and status determination meeting SG100 criteria for a) and c) and SG80 for b). While all assessments have limitations, the limitations here are unlikely to alter our perceptions of status. I concur with scores	No response required
2.1.1	Yes	Yes	NA	No primary species; minor species of northern anchovy used for bait is monitored and managed under US Pacific Fishery Management Council FMP. I concur with scores	No response required
2.1.2	Yes	Yes	NA	No primary species; minor species of northern anchovy used for bait is monitored and managed under US Pacific Fishery Management Council FMP. I concur with scores	No response required
2.1.3	Yes	Yes	NA	No primary species; minor species of northern anchovy used for bait is monitored and managed under US Pacific Fishery Management Council FMP. I concur with scores	No response required
2.2.1	Yes	Yes	NA	No secondary species. I concur with scores	No response required

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
2.2.2	Yes	Yes	NA	No secondary species. I concur with scores	No response required
2.2.3	Yes	Yes	NA	No secondary species. I concur with scores	No response required
2.3.1	Yes	Yes	NA	ETP species. I concur with scores	No response required
2.3.2	Yes	Yes	NA	ETP species. I concur with scores	No response required
2.3.3	Yes	Yes	NA	ETP species. I concur with scores	No response required
2.4.1	Yes	Yes	NA	Habitat: I concur with scores	No response required
2.4.2	Yes	Yes	NA	Habitat: I concur with scores	No response required
2.4.3	Yes	Yes	NA	Habitat: I concur with scores	No response required
2.5.1	Yes	Yes	NA	Ecosystem: I concur with scores	No response required
2.5.2	Yes	Yes	NA	Ecosystem: I concur with scores	No response required
2.5.3	Yes	Yes	NA	Ecosystem: I concur with scores	No response required

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.1.1	Yes	Yes	NA	I concur with scores. The management system exists within the legal and customary framework. This fishery operates within the framework of the US Pac Fish Mngmt Council who have representation on the US delegations for the IATTC and WCPFC. While the management of the N Pac Albacore depends on cooperation through the RFMOs, the US component has the authority to implement RFMO agreements.	On the basis of Peer Reviewer B's comments, this score has been changed, no longer meeting the SG 100 level, but meeting the SG 80 level. The overall score for 3.1.1 is now 85. Please see below for justification.
3.1.2	Yes	Yes	NA	I concur with scores. The consultative roles and responsibilities are generally known and open to participation	Based on Peer Reviewer B's comments, the scoring issue c. has been reduced from SG100 level to the SG80 level, causing the overall score to be 85. See below for justification.
3.1.3	Yes	Yes	NA	I concur with scores. Long term objectives specified through RFMOs and PFMC through domestic legislation.	No response required
3.2.1	Yes	Yes	NA	I concur with scores. Fishery-specific objectives specified, short and long-term and are measurable through RFMOs and US FMP and US legislation.	No response required

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.2.2	Yes	Yes	NA	I concur with scores. Decision-making and dispute resolution. US Domestic processes through the Pacific Council are pretty strong through public hearings, public comment periods, open transparent meetings, advisory committees, etc. Arbitration mechanisms are available but not generally used. And of course the final measure is litigation. Stakeholders and participates are well aware of their avenues to participate. Participation in RFMOs is through formal observers and through national delegations. Also, decisions usually are consensus based and not driven by votes. While resolutions are binding to a CPC they represent sovereign nations, so it is possible to opt out. But the processes are well defined.	Based on Peer Reviewer B's comments, the score has been changed to meet the SG 80 level, but not the SG 100 level, causing the overall score for 3.2.2 to be 85. See below for justification.
3.2.3	Yes	Yes	NA	I concur with scores. Monitoring, Control and Surveillance. MCS is primarily at the domestic level with reporting and compliance determinations at the RFMOs. Us commitment through the Council and the National Marine Fisheries Service has been adequate. RFMOs have compliance processes but mechanisms are not strong.	No response required
3.2.4	Yes	Yes	NA	I concur with scores. Monitoring and management performance evaluation. Domestic review processes are regularly conducted and are pretty robust including advisory committees, legal processes for rule-making and the revisiting of the basic fisheries legislation through reauthorization,  RFMO reviews of the science are pretty regular. There have been reviews of the management system in RFMOs but it has not been regular.	No response required



Peer Reviewer B

**Summary of Peer Reviewer Opinion**

<b><i>Has the assessment team arrived at an appropriate conclusion based on the evidence presented in the assessment report?</i></b>	Yes/No	<b>CAB Response</b>
<u>Justification:</u> <b><u>Some minor suggestions have been made</u></b>		Thank you, these have been addressed where specified.

<b><i>Do you think the condition(s) raised are appropriately written to achieve the SG80 outcome within the specified timeframe? [Reference: FCR 7.11.1 and sub-clauses]</i></b>	YES	<b>CAB Response</b>
<u>Justification:</u> <b><u>THIS CONDITION IS CARRIED OVER FROM THE PREVIOUS CERTIFICATE AND IS IN HARMONY WITH OTHER NTH PACIFIC ALBACORE CERTIFIED FISHERIES</u></b>		No response required

If included:

<b><i>Do you think the client action plan is sufficient to close the conditions raised? [Reference FCR 7.11.2-7.11.3 and sub-clauses]</i></b>	Yes	<b>CAB Response</b>
<u>Justification:</u> <b>The client action plan is satisfactory. As with other MSC assessments of RFMO tuna fisheries, the condition requires agreement to be reached by RFMO representatives on scientific and management committees. The CAP recognises that the client cannot guarantee outcomes at the RFMOs and focus is on client advocacy for change.</b>		Thank you. Your response is consistent with that of Peer Reviewer 1, and well noted by the assessment team.

**Table 19 For reports using one of the default assessment trees:**

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.1.1	Y	Y/N	NA	<p>Slb probably ok at 100 but consider 80.</p> <p>The ALBWG set out 3 different model scenerios ( refer Table 4). For the base case and the alternative growth model, <math>SSB_{2015}</math> is estimated to be &gt;2 times higher than the LRP (2.47 times higher for the base case model, 2.15x higher for the alternative growth model) i.e. overall above this proxy <math>SSB_{MSY}</math>. For the <math>M=0.3</math> model, however, <math>SSB_{2015}</math> is estimated to be <math>1.31 \times LRP</math> or <math>0.26 SSB_{F=0}</math>.</p> <p>It is highly likely that SSB is at or above a level consistent with MSY, as defined in a precautionary way by MSC, but there may not be a 'high degree of certainty' that the stock is above that level.</p> <p>In report sentence/words missing at top of p22 (below Fig.7)</p>	<p>A major improvement in the 2017 akbacore assessment was the use of age and sex-specific natural mortality. In previous assessments the <math>M</math> of <math>0.3 \text{ y}^{-1}</math> was used. The ALBWG reviewed the basis for this assumption (<math>M</math> of <math>0.3 \text{ y}^{-1}</math>) and found that this assumption was not well supported in the scientific literature (ISC 2017a: p25). However, the ALBWG considered <math>M</math> to be the most important axis of uncertainty in the assessment. Thus the Assessment Team agrees with the peer reviewer that for the <math>M=0.3 \text{ y}^{-1}</math> model run <math>SSB_{2015}</math> is estimated to be <math>1.31 \times LRP</math> or <math>0.26 SSB_{F=0}</math> and it is therefore highly likely that SSB is at or above a level consistent with MSY, as defined in a precautionary way by MSC, but there may not be a 'high degree of certainty' that the stock is above that level. The score has been changed to 80 for Slb.</p> <p>p22 missing text has been added in the report.</p>
1.1.2	Y	Y		The information provided supports the conclusions and scoring.	No response required.
1.2.1	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
1.2.2	Y	Y	Yes	The information provided supports the conclusions and scoring.	No response required.
1.2.3	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
1.2.4	Y	Y	NA	SlA MET? the Y from SG 60, 80 and 100 is missing The information provided supports the conclusions and scoring.	Y for 80 and 100 added in the report.
2.1.1	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.1.2	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.1.3	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.2.1	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.2.2	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.2.3	Y	Y		The information provided supports the conclusions and scoring.	No response required.

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
2.3.1	Y	Y	NA	What is the status of the logbook information? It would score better if there were independent information collected. The justification provided supports the conclusions and scoring.	Yes we noted in the report that a lack of independent information collection is what causes this and PI 2.3.3 to score lower than perhaps would be possible given the likely lack of interactions with ETPs, were there better evidence to support that likelihood. There is no observer program, however, and logbook data is only relative to the target species and other HMS incidental catches so not useful for the ETP indicators.
2.3.2	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.3.3	Y	Y	NA	Comment as for 2.3.1. The justification provided supports the conclusions and scoring.	See above for response under 2.3.1.
2.4.1	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.4.2	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.4.3	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.5.1	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
2.5.2	Y	Y	NA	The information provided supports the conclusions and scoring.	No response required.
2.5.3	Y	Y	NA	Slc Very old references- 2009 and 1999) is ther no newer data?	Noted, Glaser 2009 has been replaced by Glaser 2011, an update on the same study regarding Albacore predationon northern anchovy, though the conclusions are the same. However the Kitchell et al 1999 study is still relevant and there is no newer reference available or necessary given the ecosystem-level study.
3.1.1	Y	Y/N	NA	Slc. While both IATTC and WCPFC have a management system that observes the legal rights created explicitly or established by custom for people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. Mechanisms in place are not "formal commitments" eg IATTC just statements of what arguments might be admissible in determining fishing rights allocation and WCPFC considers common allocation principles such as historical participation, the rights of Coastal States and the rights of developing States but these are not yet formally part of the allocation system.	After further research into how quota is allocated at the RFMO level, there is little evidence that suggests that 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 consisiternt with the objectives of MSC Principles 1 and 2. The IATTC and WCPFC have not yet adopted a formal procedure to allocate fishing opportunities to all its Members. The WCPFC has provisions included in the basic Convention text that are to be utilized in devleping further allocation arranggements. Based on this additional review, this scoring issue is met at the 80 level, but not met at the 100 level. The score has been changed, causing the overall score for 3.1.1 to be an 85.

Performance Indicator	Has all available relevant information been used to score this Indicator? (Yes/No)	Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)	Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.1.2	Y	Y/N	NA	<p>Sla. IATTC and WCPFC have had a number of problems with flag states that have not applied appropriate controls to their vessels. Some problems are likely due to a lack of understanding of requirements. Responsibilities are explicitly defined for key areas but not all areas? Maybe only 80 met</p> <p>SI c. At international level IATTC facilitates effective engagement of its stakeholders. IATTC also provides training and support to States lacking the capacity in areas of data management and fisheries science, which facilitates effective and full involvement in its activities. Additionally, IATTC meetings are open to stakeholders such as NGOs and fisher-groups. WCPFC in addition to member participation, allows participation by non-members and territories, with particular opportunities for Cooperating non-members, and allows observers to participate in meetings of the Commission and its subsidiary bodies, including the SC, the TCC and the Finance and Administration Committee. Attendance at Commission and related meetings are comprehensive, and logistic and financial support is provided to ensure attendance, meaningful involvement and interaction in the cooperative management. Maybe 100 met</p>	<p>. Upon further review, we agree there is not enough evidence to support that functions, roles and responsibilities are explicitly defined and understood <b>for all areas</b> of responsibility and interaction. We agree with the Peer Reviewer and have modified this scoring issue to meet the SG 80 level, but not the SG 100 level.</p> <p>The Peer Reviewer makes a good argument on how the RFMOs facilitate the involvement of the various interested parties. No evidence was found that training is provided by the WCPFC or IATTC. FCR SA4.4.1 indicates that the focus of scoring shall be on the <i>effectiveness and transparency of the consultation processes implemented by fishery managers to obtain and consider information from a wide range of sources, including local knowledge, for input into a broad range of decisions, policies and practices within the management system</i>. There is transparency in the consultation process at both the local and international level, and information is obtained from a wide range of sources, including local knowledge. The meetings are open to stakeholders and facilitate engagement at both the domestic and international level, however it still remains uncertain how stakeholders are <b>encouraged</b> to participate in the consultation process. There is very little guidance in the FCR as what constitutes 'encouragement' or how to score it. Because of this uncertainty, this scoring issue remains and is met at the 80 level, but not SG100 level.</p>

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.1.3	Y	Y	NA	The information provided supports the conclusions and scoring.	
3.2.1	Y	Y	NA	The information provided supports the conclusions and scoring.	
3.2.2	Y	Y/N	NA	Slid -while reports are available, it is not clear that they represent all information that is used in decision making. There is no formal, detailed explanation linking the information provided to the decision that results. In an international context, it is recognized that it is very difficult to give full explanations for all decisions, since this might undermine co-operation. Decisions are often negotiated outcomes with the trade-offs not always apparent. Maybe score of 80.	In assessing the performance and management actions of the fishery, accountability and transparency of management system and decision making process need to be considered. Public access to information on the fishery's performance and fisheries data is available on the RFMOs' websites, including meeting minutes, proposed actions on conservation measures and compliance, actions taken by mangement involving new research, and monitoring and compliance. According to SA4.8.7, at the SG100 level, the information listed in the SG60 and SG80 levels should be comprehensive and available openly, publicly and regularly to all stakeholders, which it is for the North Pacific albacore fishery. SA4.8.4 states the extent to which transparency and accountability is embedded within the mangement should be considered. For this point, I agree with the Peer Reviewer in the sense that there is no formal explanation that ensures all parts of the decision making process have been disclosed or are apparent. The score has been changed to the SG80 level.
3.2.3	Y	Y	NA	The information provided supports the conclusions and scoring.	

<b>Performance Indicator</b>	<b>Has all available relevant information been used to score this Indicator? (Yes/No)</b>	<b>Does the information and/or rationale used to score this Indicator support the given score? (Yes/No)</b>	<b>Will the condition(s) raised improve the fishery's performance to the SG80 level? (Yes/No/NA)</b>	<b>Justification</b> Please support your answers by referring to specific scoring issues and any relevant documentation where possible. Please attach additional pages if necessary.  Note: Justification to support your answers is only required where answers given are 'No'.	<b>CAB Response</b>
3.2.4	Y	Y	NA	The information provided supports the conclusions and scoring.	

## Appendix 3 Stakeholder submissions

The following comments were received and from the International Seafood Sustainability Foundation (ISSF) below, with MRAG Americas' responses given in orange text below each ISSF comment. The complete letter from ISSF can be found in Appendix 6.

### ISSF Comment:

#### *PI 1.2.1. Harvest Strategy*

The independent report by [Medley and Gascoigne \(2017\)](#) indicates that the fishery would not meet SG80 for SI 1.2.1.a and that, as a result, the overall PI score would be less than 80 and would require a condition for this PI in order for the fishery to get certified:

**1.2.1.a.** (...) *In the longer term it does not seem that the current management measures to implement the harvest strategy can be argued to be likely to achieve stock management objectives (maintain biomass above the LRP), since there is currently no means of controlling catches directly and no means of enforcing the requirements on fishing effort at regional level (in any case difficult because the Resolution/CMM does not define what it means by 'fishing effort'). There is a commitment to introduce another CMM should biomass fall below the LRP, but not necessarily in the circumstances of increased probability of biomass falling below the LRP in the future. On this basis, taking into account the usual definition of a LRP (i.e. that biomass should be maintained above this level with a high probability), there is not clear evidence that the harvest strategy will continue to meet this objective. **SG80 is not met.***

*In order to improve this score, the harvest strategy need to be improved such that i) it takes into account the risk of the stock falling below the LRP, and ii) such that there is evidence that tools can be put in place to implement the strategy, if required.*

**1.2.1.b.** (...) SG80.

**1.2.1.c.** (...) SG60.

**1.2.1.d.** (...) N.

**1.2.1.f.** (...) SG80.

**All SG60 were met, and 2 out of 3 SG80 were met.**

**PI 1.2.1 score: 75**

### MRAG Americas' Response:

CMM 2005-03 clearly defines 'fishing effort'. Item number 4: "Fishing effort shall be reported in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished".

1. The total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond current levels.
2. The Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore in the WCPF Convention Area is not increased beyond current levels;
3. All CCMs shall report all catches of North Pacific albacore to the WCPFC every six months, except for small coastal fisheries which shall be reported on an annual basis. Such data shall be reported to the Commission as soon as possible and no later than one year after the end of the period covered.
4. All CCMs shall report annually to the WCPFC Commission all catches of albacore north of the equator and all fishing effort north of the equator in fisheries directed at albacore. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished<sup>1</sup>.

Every year CCMs report catch and effort information to the Northern Committee of the WCPFC (NC 2017) and similarly to the IATTC. NC Report Table 2 provides fishing effort for North Pacific from 2005 – 20016 (NC 2017) and also shows the average effort for 2002 – 2004. From these data it is clearly shown that effort has not increase as per the CMM 2005-03 adopted in 2005. CCMs also report what measures are taken to ensure that the level of fishing effort is not increased beyond the 2002-2004 level (related to Paragraph 2 in CMM 2005-03) (NC 2017: Table 2-1).

On this basis, taking into account the usual definition of a LRP there is clear evidence that the harvest strategy will continue to meet its objective.

Furthermore, while there are no formally agreed harvest control rules yet in place, the harvest strategy, utilizing high quality science and compliance information, and founded on high quality scientific advice, is considered to be responsive to the state of the albacore stock. Consistent with harmonization requirements and existing CHMSF (2015) and Japanese Pole and Line Skipjack and Albacore Fishery (2016) scoring, the SG80 requirements are considered to be met.

NC. 2017. Updated information on North Pacific albacore fishing effort. WCPFC-NC13-2017/WP-01. Busan, Republic of Korea, 28 August – 1 September 2017. 9 p.

**Therefore, the team has determined that the SG80 is met and no change to the score has been made.**

#### **ISSF Comment:**

##### ***PI 1.2.2. Harvest Control Rules***

The independent report by [Medley and Gascoigne \(2017\)](#) indicates that the fishery would not meet SG60 for SIs 1.2.2.a and 1.2.2.c and that, as a result, the overall PI score would be less than 60 (“Fail”):

**1.2.2.a:** *“At SG60, MSC allows a harvest control rule to be ‘available’ rather than ‘in place’ if the requirements summarised below are met (for full list see SA2.5.2, 2.5.3):*

- *Stock biomass has not previously been reduced below the MSY level, or has been maintained at that level for a recent period of time ... and is not predicted to be reduced below BMSY within the next 5 years;*
- *HCRs are effectively used in other stocks by the same management body or an agreement or framework is in place requiring the management body to adopt HCRs before the stock declines below BMSY.*

The second of MSC's requirements for scoring an 'available' HCR is met for northern albacore by WCPFC CMM 2014-06. In terms of the first, the first difficulty is to evaluate what estimate of  $B_{MSY}$  to use. The ISC stock assessment provides an estimate which is low relative to  $SSB_0$ ; if this estimate is used, biomass is not predicted to drop below this level. If the MSC proxy of  $2xLRP$  is used (i.e.  $40\%SSBF=0$ ), biomass is projected to drop to ~this level by 2025 based on constant fishing intensity, but below this level by 2020 based on constant catch.

#### **MRAG Americas' Response:**

Since  $B_{MSY}$  has been estimated (i.e., is analytically available) in the 2017 stock assessment (ISC 2017a) there is no need to use an MSC proxy. MSC CRv2.0 GSA2.2.3.1: "In the case where either  $B_{MSY}$  or  $PRI$  are analytically determined, those values should be used as the reference points for measuring stock status unless additional precaution is sought." [NB 'additional precaution' in this context is normally concerning key forage stocks and the need to maintain higher-than-Bmsy biomass for dependant predators] Thus, as stated in the ISSF letter: "...biomass is not predicted to drop below this level [ $B_{MSY}$ ]" It is also noted that the constant catch scenario is inconsistent with current management approaches for North Pacific albacore tuna adopted by the IATTC and the WCPFC (ISC 2017, p. 47). In addition, noted for justification not to use proxy indicators: MSC CRv2.0 SA2.2.3 "Where information is not available on the stock status relative to  $PRI$  or  $MSY$  levels, proxy indicators and reference points may be used to score  $PI$  1.1.1." This is not presently the case for North Pacific Albacore.

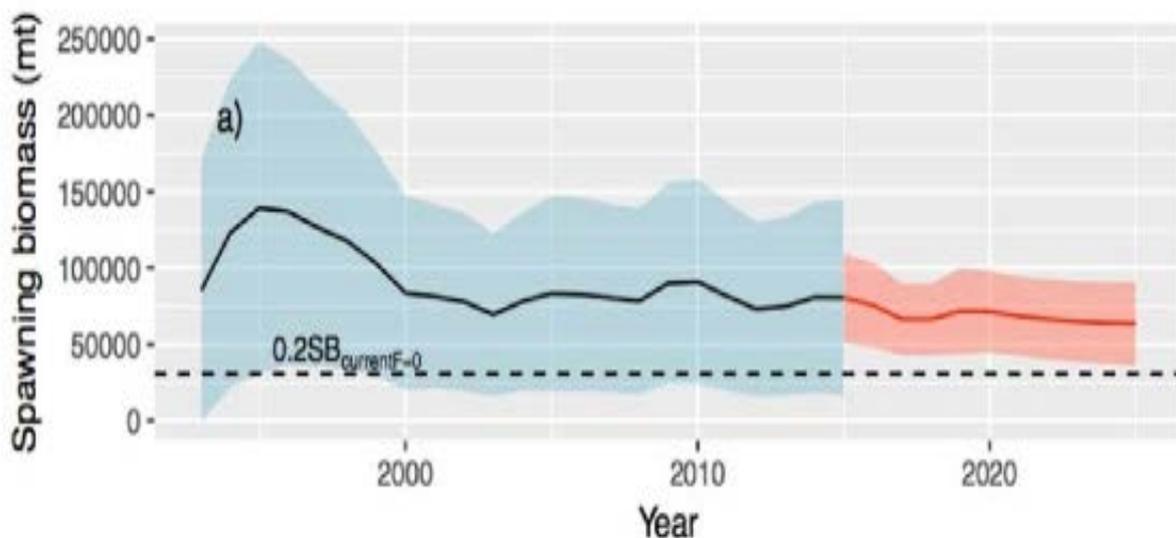
#### **ISSF Comment:**

The estimate of  $B_{MSY}$  from the stock assessment is low relative to unfished biomass and is therefore not a precautionary target. Although the harvest strategy is predicated on constraining fishing effort, there are no stock-wide measures in place to do this; the harvest strategy relies on individual countries taking action for their fleets. The most recent stock assessment, however, estimates that in order to maintain  $F$  at the level requirement for the stock biomass to be kept above the  $LRP$ , some reduction in catch is required from present levels. Since there is no evidence at the moment that this can be achieved, there is not really a good reason to expect that the harvest strategy can reduce the exploitation rate as the  $LRP$  is approached. Therefore, **SG60 is not met.**

**1.2.2.b:** (...) Not met.

#### **MRAG Response:**

There are stock-wide measures in place to constrain fishing effort (CMM 2005-03, IATTC C-05-02 and IATTC C-13-03). According to the projections using constant fishing intensity there is evidence that it will take many years after 2025 before the  $LRP$  is approached.



The Northern Committee harvest strategy for north Pacific albacore Adopted by WCPFC (WCPFC 2018 Attachment I) states the following LRP rule:

*“In the event that, based on information from ISC, the spawning stock size decreases below the LRP at any time, NC will, at its next regular session or intersessionally if warranted, adopt a reasonable timeline, but no longer than 10 years, for rebuilding the spawning stock to at least the LRP and recommend a CMM that can be expected to achieve such rebuilding within that timeline. NC will take into account historical fishing activity and the source of increased fishing mortality when developing management strategies to rebuild the stock, including in establishing effort reductions. NC will further consider socioeconomic factors, as per UNFSA Article 6.3.c., as well as which NC members, if any, contributed to exceeding the LRP.”*

WCPFC. 2018. The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Fourteenth Regular Session. Summary Report. Manila, Philippines, 3-7 December 2017. 389 p.

**The assessment team considers that PI 1.2.2.a SG60 is met and there has been no change made to the score or rationale for this PI.**

**ISSF Comment:**

**1.2.2.c:** At SG60, to evaluate the effectiveness of ‘available’ tools, MSC states that following is required (SA2.5.5):

- Evidence that HCRs are being ‘effectively’ used in other named UoAs, also managed by the same management body, including the basis on which they are regarded as ‘effective’; or
- A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs

*For the moment, it is not clear that there are any tools in place to control fishing capacity, despite the requirements of C-05-02 and CMM 2005-03; fishing capacity appears to have been restrained by relatively higher levels of recruitment than in previous decades. WCPFC have a formal framework for the development of a HCR (CMM 2014-06); for this stock it should be implemented by the Northern Committee. The NC have proposed an interim harvest strategy to WCPFC, which includes a trigger level ( $SSB < LRP$ ) for the development of a more effective CMM (including rebuilding timeframe), meanwhile ISC are working on a MSE to put in place a TRP and HCR, and the NC also have this in their 2018-2020 workplan*

(see 2017 report, Attachment I). IATTC do not have such a formal commitment in place for this stock, but so far, management has been coordinated between the two RFMOs and there is no reason to suppose that this will not continue.

The situation at present, however, is that unlike of the past. It appears that action is required to reduce catches relative to current levels, otherwise there is an increased risk that the stock will fall below the agreed LRP. There are no convincing tools in place at present to achieve this. In this situation of increased risk to the stock under the current management regime, it is not appropriate to consider that 'available' tools will be effective in constraining  $F$  to appropriate levels, so **SG60 is not met**.

In order to improve this scoring, the interim (and final) harvest strategy needs to include management tools (stock-wide effort or catch limits) which have a reasonable expectation of being able to constrain exploitation rate to appropriate levels.

**0 out of 2 SG60 were met.**

**PI 1.2.2 score: "Fail"**

### **MRAG Response:**

For a score of 60 for the second bullet two MSC CR v2.0 requirements need to be addressed.

First, CR v2.0 SA2.5.6 requires that as part of the evidence that tools are working, "...teams should include current levels of exploitation in the UoA, as measured by fishing mortality rate where available". The best available information on the exploitation rate is in ISC (2017a); the SS3 base case assessment estimates  $F/F_{MSY}$  as 0.61, and  $F$  is estimated to never have reached  $F_{MSY}$ . CR v2.0. GSA2.5.2-7 as relates to SA2.5.6, notes that current  $F$  being "equal to or less than  $F_{MSY}$  should be taken as evidence that the HCR is effective."

Second, MSC CR v2.0 SA2.5.5b, related to when HCRs are recognized as being available at Sla at the SG60 level (see above), requires "...a description of a formal or legal agreement to trigger the development of HCR".

As noted at, CMM 2014-06 and IATTC (2014) set out definitions of harvest strategies to be developed and implemented. The definitions include target and limit reference points and decision rules or ("harvest control rules"), with a clear intention that harvest control rules, tested using simulation approaches, will be part of the implemented harvest strategies. The WCPFC agreed to adopt a work plan at the 2015 Commission meeting, with potential revision in 2017, with application to skipjack, bigeye, yellowfin, Pacific Bluefin, and South and North Pacific albacore tunas, with the WCPFC Northern Committee responsible for developing and recommending the work plan for North Pacific albacore. In fact, work towards establishing reference points and harvest control rules is already well underway through the Management Objectives Workshop (MOW) process, the ISC MSE process, and the Northern Committee (WCPFC 2017b). IATTC (2014) has also adopted measures to progress development and adoption of TRP, LRP, and HCR.

The WCPFC CMM and IATTC adoption of an approach has already triggered continuation of HCR development of *inter alia* North Pacific albacore. Also, consistent with harmonization requirements and existing CHMSF (2015) and Japanese Pole and Line Skipjack and Albacore Fishery (2016) scoring, the SG60 requirements are considered to be met.

**A score of SG60 is justifiably awarded, using CR v2.0 provisions for SG60 scoring. Therefore no change to the score or rationale has been made.**

**2 out of 2 SG60 are met**

**PI 1.2.2 score 60**

**ISSF Comment:**

### **PI 3.1.3. Long-term objectives**

According to the independent report, this PI would not meet SG100 as regards IATTC and WCPFC regional management.

**IATTC** – (...) *Although the precautionary approach is in the Convention, it is less clear that it is applied in all policy. Reference points for bigeye do not appear to be particularly precautionary when taking into account significant uncertainties (although there may be evidence to support the values used), and precautionary action has not been taken to prevent the bigeye stock declining to current levels. In practice, there is no clear link between the convention and practical implementation of policy in all fisheries.*

*Overall, clear explicit objectives incorporating the precautionary approach and ecosystem-based management in the policy meet the MSC Principles and Criteria, and therefore SG80. It is not clear that the precautionary approach is a requirement across all areas of policy, so **SG100 is not met.***

**WCPFC** – (...) *While it appears to be a requirement, in practice it is less clear that the precautionary approach is applied in practice across all policy. Stock assessments in 2010, 2011 and 2014 indicate that bigeye fishing mortality exceeded levels consistent with MSY. While precautionary reference points have been set, there has not been a corresponding precautionary action that has reduced exploitation levels.*

*Overall, clear explicit objectives incorporating the precautionary approach and ecosystem-based management in the policy meet the MSC Principles and Criteria, and defined, meeting SG80. However, it is not yet clear that the precautionary approach is applied in practice across all policy for all stocks, so **SG100 is not met.***

**All SG60 and SG80 were met, and 0 out of 1 SG100 were met.**

**PI 3.1.3 score: 80 (Both IATTC and WCPFC)**

### **MRAG Response:**

The stakeholder comments for this PI appear to be concerned specifically with how, in practice, the precautionary approach is applied/implemented, rather than how it is codified within management policy. 3.1.3 SG100 guidepost states that “Clear long-term objectives that guide decision-making, consistent with MSC fisheries standard and the precautionary approach, are **explicit** within and **required** by management policy.” The IATTC Antiqua Convention and the WCPFC Convention both state these objectives in their overall management framework, while also stating that “effective management and conservation **require** the application of the precautionary approach and the best scientific information available. The MSC guidance pertaining to this performance indicator (GSA4.5) for PI 3.1.3 states “this PI forms an important part of the overall understanding of the use or otherwise of a precautionary approach in the UoA but is not concerned with the operational implementation of the precautionary approach within the ‘day –to-day’ management of the UoA itself.”

In part the reason for the focus on the existence of appropriate regulations and objectives rather than the implementation of them for this and PI 3.2.1 is to avoid scoring the same thing in more than one place within the assessment, with effectiveness of management implementation being scored in P1 and P2 for the respective components within those Principles.

The SG100 is therefore met for this PI and no change to the score or rationale has been made.

### **ISSF Comment:**

#### **PI 3.2.1. Fishery-specific objectives**

According to the independent report, this PI would not meet SG100 as regards IATTC and WCPFC regional management.

**IATTC** – (...) Each conservation measure has an objective which is clearly stated, although in one case has not been easy to interpret (“Current levels” of effort specified in Resolution C-05-02 for albacore is not defined and effort is not routinely measured, although steps are being taken to resolve this in C-13-03). Otherwise, because the conservation measures contain explicit and specific intentions and objectives, and also allow for monitoring of the performance against these objectives, the fisheries meet SG80.

However, although broadly measurable, they are not necessarily well-defined, particularly in relation to achieving MSC P&C. Stock assessments are not available for all species (e.g. skipjack), and proxies for MSY have not been determined. Therefore, objectives may be somewhat vague with respect to determining precise status using reference points, for example. Certain resolutions and conservation measures might be presumed to achieve MSC objectives, but it is not certain. This would need to be evaluated for each specific fishery when undergoing MSC assessment.

The scientific advice is based on MSC Principles 1 and 2, because these objectives are implicit in the management of each stock, meeting SG60. In addition, explicit objectives are provided through the resolutions and recommendations, which determine the aim and intention of the conservation measures. In most cases, this meets SG80. However, these objectives are not stock specific and often cannot be determined to be entirely consistent with the requirements of MSC Principles 1 and 2, since they are related to the conservation measure rather than the stocks or species. Therefore **SG100 is not met**.

**WCPFC** – (...) Because the conservation measures contain reasonably explicit and specific intentions and objectives, and also allow for evaluation of the performance against these objectives, the fisheries meet SG80.

However, although broadly measurable, they are not necessarily well-defined particularly in relation to achieving MSC P&C. For skipjack there is now an explicit target set out in 15-06. For bigeye and yellowfin it is also relatively clear, for albacore less so. But for most fisheries, 100 wouldn't be met because there is not a full suite of well-defined and measurable objectives for P2 (...).

Objectives may be somewhat vague with respect to determining precise status using reference points, for example, and allowing for unspecified qualifications. Certain resolutions and conservation measures might be presumed to achieve MSC objectives, but it is not certain. A higher score might be possible should WCPFC develop reference points directly linked to proscribed management action, as would be applied through a harvest control rule, for example. This would need to be evaluated for each specific fishery when undergoing MSC assessment.

The scientific advice is based on MSC Principles 1 and 2, because these objectives are implicit in the management of each stock, meeting SG60. In addition, effectively explicit objectives are provided through the conservation and management measures. In most cases, this should meet SG80. However, with the qualifications, it may not be possible to determine whether these are consistent with the requirements of MSC Principles 1 and 2, since they are related to the conservation measure itself rather than the stocks, species or ecosystem. Therefore, **SG100 cannot be met**. (...)

**All SG60 and SG80 were met, and 0 out of 1 SG100 were met.**

**PI 3.2.1 score: 80 (Both IATTC and WCPFC)**

### **MRAG Response:**

SG 100 for PI 3.2.1 states that “Well defined and measurable short and long-term objectives, which are consistent with achieving the outcomes expressed by MSC’s Principles 1 and 2, are explicit with the fishery-specific management system.”

The WCPFC Convention, Article 5, states that the objective is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks, including north Pacific albacore) in the western and central Pacific Ocean in accordance with the 1995 UN Fish Stocks Agreement and the 1982 United Nations Convention on the Law of the Sea. IATTC C-05-02 states that action needs to be taken as necessary to ensure the effective conservation and management of North Pacific albacore

tuna throughout its range including, measures to ensure that fishing effort on the stock does not increase and measures to reduce fishing effort to levels commensurate with the long-term sustainability of the resource. IATTC C-13-03 states that the IATTC scientific staff shall review work undertaken within the ISC and the WCPFC towards the development of a precautionary approach framework for North Pacific albacore that includes target and limit reference points and harvest control rules. WCPFC CMM-2005-03 contains similar language and objective measures for the long term sustainability and conservation of north Pacific albacore, which are consistent with the MSC Principles 1 and 2. In addition, the WCPFC adopted CMM2014-06 to develop and implement a harvest strategy for key fisheries and stocks in the WCPO. An agreed work plan was included in this CMM, and is subject to review in 2017. In May 2016, the International Scientific Committee for Tuna and Tuna like Species (ISC) conducted a workshop to receive input from managers and stakeholders in member countries of the WCPFC Northern Committee on management objectives for the North Pacific albacore. These management objectives will aid in development of a management strategy evaluation (MSE). At the recent WCPFC meeting (WCPFC14 Manila, Philippines, December 2017), an update was provided on the status of the harvest strategy work plan for North Pacific albacore, recommending that the Precautionary Management Framework be recognized as a harvest strategy. The MSE was also reported to be progressing well, where the management objective for the North Pacific albacore fishery is stated to *maintain the biomass, with reasonable variability, around its current level in order to allow recent exploitation levels to continue and with a low risk of breaching the limit reference point* (WCPFC14, 2018). Specific to the US-based fishery, the Pacific Fisheries Management Council recommended the NC and ISC approve the MSE objectives.

These short and long-term objectives are explicit within the management system for North Pacific albacore, and therefore the SG 100 level has been met. As with the response to 3.1.3, it is important to make sure that scoring in P3 does not duplicate scoring in P1 and 2. Therefore the specific implementation of measures resulting from existence of short and long-term objectives is not scored here—rather it is scored within the management PIs in P1 and P2.

No changes to the score has been made, however the rationale was updated to include the recent WCPFC meeting referenced below.

WCPFC. 2018. The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Fourteenth Regular Session. Summary Report. Manila, Philippines, 3-7 December 2017. 389 p.

#### **ISSF Comment:**

##### **Client Action Plan**

ISSF believes that the Condition set is adequate. However, we are concerned that the Client's Action Plan relies on actions to be performed by the West Coast Region of the National Marine Fisheries Service (NMFS) and by the Pacific Islands Regional Office of the NMFS, but the PCDR contains no clear commitment from these organizations themselves. ISSF is concerned that, without such a letter from these organizations or the NMFS, there is no clear expectation that the Client Action Plan will achieve its objectives.

For your reference, please consult formal letters included in PCDRs or Final Reports for other tuna fisheries that have obtained MSC certification in recent years. These are formal letters from the corresponding national fisheries agency or ministry of fisheries, in which they state their conformity and commitment to the milestones and actions described in the Client's Action Plan (see for example the [PCDR of the Fiji Albacore and Yellowfin Tuna](#)

Longline Fishery (Appendix 1.4, p.213), or the Final Report of the re-assessment of the Pole and Line Skipjack Fishery in the Maldives (Appendix 1.3.1, p.173)).

**MRAG Americas’ Response**

The assessment team and CAB recognize a lack of formal commitment by parties required to take action within a client action plan can and at times has been, an impediment to realizing the implementation of the plan. However, in the current case, the agencies implicated have demonstrated through the past certifications their commitment to undertaking the actions assigned to them in relation to the conditions of this fishery. Therefore the assessment team was confident that the action plan is achievable and thus approved it. Note also it was subject to peer review and neither peer reviewer raised this concern in this particular instance. We will, of course, closely monitor progress against this condition through surveillance audits and in the event that milestones fall behind target, appropriate action will be taken per MSC requirements.

The following Technical Oversight comments were submitted by the MSC. CAB response follows the table.

Requirement	Reference	Details	PI
FCR-7.12.1.5 v.2.0	The CAB shall identify and document: a. The UoC b. The point of intended change of ownership of the product, and c. The point from which Chain of Custody is required.	Please confirm the point of change of ownership.	
FCR-7.12.1.5c v.2.0	The CAB shall identify and document: a. The UoC, b. The point of intended change of ownership, and c. The point from which subsequent Chain of Custody is required.	Please confirm the point from which subsequent CoC is required.	

on by the CAB and ASI in order to improve consistency with the MSC scheme requirements: MSC does not review all work products

**MRAG Americas Response:**

Both the point of change of ownership and point from which subsequent CoC is required have now been confirmed in section 5.

## Appendix 4 Surveillance Frequency

1. The report shall include a rationale for any reduction from the default surveillance level following FCR 7.23.4 in Table 4.1.
2. The report shall include a rationale for any deviations from carrying out the surveillance audit before or after the anniversary date of certification in Table 4.2
3. The report shall include a completed fishery surveillance program in Table 4.3.

**Table 4.1 : Surveillance level rationale**

Year	Surveillance activity	Number of auditors	Rationale
<i>e.g.3</i>	<i>e.g. On-site audit</i>	<i>e.g. 1 auditor on-site with remote support from 1 auditor</i>	<i>e.g. From client action plan it can be deduced that information needed to verify progress towards conditions 1.2.1, 2.2.3 and 3.2.3 can be provided remotely in year 3. Considering that milestones indicate that most conditions will be closed out in year 3, the CAB proposes to have an on-site audit with 1 auditor on-site with remote support – this is to ensure that all information is collected and because the information can be provided remotely.</i>

**Table 4.2: Timing of surveillance audit**

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
<i>e.g. 1</i>	<i>e.g. May 2014</i>	<i>e.g. July 2014</i>	<i>e.g. Scientific advice to be released in June 2014, proposal to postpone audit to include findings of scientific advice</i>

**Table 4.3: Fishery Surveillance Program**

Surveillance Level	Year 1	Year 2	Year 3	Year 4
<i>e.g. Level 5</i>	<i>e.g. On-site surveillance audit</i>	<i>e.g. On-site surveillance audit</i>	<i>e.g. On-site surveillance audit</i>	<i>e.g. On-site surveillance audit &amp; re-certification site visit</i>

## Appendix 5 Objections Process

(REQUIRED FOR THE PCR IN ASSESSMENTS WHERE AN OBJECTION WAS RAISED AND ACCEPTED BY AN INDEPENDENT ADJUDICATOR)

The report shall include all written decisions arising from an objection.

*(Reference: FCR 7.19.1)*

## **Appendix 6 Complete Stakeholder Submissions**



Susan Jackson  
ISSF President  
1440 G Street NW  
Washington DC 20005  
United States

Amanda Stern-Pirlot  
MRAG Americas, Inc.  
8950 Martin Luther King Jr. Street N. #202  
St. Petersburg, FL 33702

Washington, D.C. May 09, 2018

**SUBJECT: AAFA and WFOA North Pacific Albacore tuna fishery**

Dear Ms. Stern-Pirlot,

The International Seafood Sustainability Foundation (ISSF) is a registered stakeholder in the MSC assessment of the AAFA and WFOA North Pacific Albacore tuna fishery. We are writing to express our concerns on the score of several performance indicators in the Public Comment Draft Report for the above mentioned fishery that was posted on 10<sup>th</sup> April 2018. Comments on Principle 1 and 3 scores are based on an independent report by [Medley and Gascoigne \(2017\)](#).

***PI 1.2.1. Harvest Strategy***

The independent report by [Medley and Gascoigne \(2017\)](#) indicates that the fishery would not meet SG80 for SI 1.2.1.a and that, as a result, the overall PI score would be less than 80 and would require a condition for this PI in order for the fishery to get certified:

**1.2.1.a.** (...) *In the longer term it does not seem that the current management measures to*

implement the harvest strategy can be argued to be likely to achieve stock management objectives (maintain biomass above the LRP), since there is currently no means of controlling catches directly and no means of enforcing the requirements on fishing effort at regional level (in any case difficult because the Resolution/CMM does not define what it means by 'fishing effort'). There is a commitment to introduce another CMM should biomass fall below the LRP, but not necessarily in the circumstances of increased probability of biomass falling below the LRP in the future. On this basis, taking into account the usual definition of a LRP (i.e. that biomass should be maintained above this level with a high probability), there is not clear evidence that the harvest strategy will continue to meet this objective.

**SG80 is not met.**

In order to improve this score, the harvest strategy need to be improved such that i) it takes into account the risk of the stock falling below the LRP, and ii) such that there is evidence that tools can be put in place to implement the strategy, if required.

**1.2.1.b.** (...) SG80.

**1.2.1.c.** (...) SG60.

**1.2.1.d.** (...) N.

**1.2.1.f.** (...) SG80.

**All SG60 were met, and 2 out of 3 SG80 were met.**

**PI 1.2.1 score: 75**

### **PI 1.2.2. Harvest Control Rules**

The independent report by [Medley and Gascoigne \(2017\)](#) indicates that the fishery would not meet SG60 for SIs 1.2.2.a and 1.2.2.c and that, as a result, the overall PI score would be less than 60 ("Fail"):

**1.2.2.a:** "At SG60, MSC allows a harvest control rule to be 'available' rather than 'in place' if the requirements summarised below are met (for full list see SA2.5.2, 2.5.3):

- Stock biomass has not previously been reduced below the MSY level, or has been maintained at that level for a recent period of time ... and is not predicted to be reduced below  $B_{MSY}$  within the next 5 years;
- HCRs are effectively used in other stocks by the same management body or an agreement or framework is in place requiring the management body to adopt HCRs before the stock declines below  $B_{MSY}$ .

The second of MSC's requirements for scoring an 'available' HCR is met for northern albacore by WCPFC CMM 2014-06. In terms of the first, the first difficulty is to evaluate what estimate of  $B_{MSY}$  to use. The ISC stock assessment provides an estimate which is low relative to  $SSB_0$ ; if this estimate is used, biomass is not predicted to drop below this level. If the MSC proxy of  $2xLRP$  is used (i.e.  $40\%SSB_{F=0}$ ), biomass is projected to drop to ~this level by 2025 based on constant fishing intensity, but below this level by 2020 based on constant catch.

The estimate of  $B_{MSY}$  from the stock assessment is low relative to unfished biomass and is therefore not

a precautionary target. Although the harvest strategy is predicated on constraining fishing effort, there are no stock-wide measures in place to do this; the harvest strategy relies on individual countries taking action for their fleets. The most recent stock assessment, however, estimates that in order to maintain  $F$  at the level requirement for the stock biomass to be kept above the LRP, some reduction in catch is required from present levels. Since there is no evidence at the moment that this can be achieved, there is not really a good reason to expect that the harvest strategy can reduce the exploitation rate as the LRP is approached. Therefore, **SG60 is not met.**

**1.2.2.b:** (...) Not met.

**1.2.2.c:** At SG60, to evaluate the effectiveness of 'available' tools, MSC states that following is required (SA2.5.5):

- Evidence that HCRs are being 'effectively' used in other named UoAs, also managed by the same management body, including the basis on which they are regarded as 'effective'; or
- A description of the formal agreement or legal framework that the management body has defined, and the indicators and trigger levels that will require the development of HCRs

For the moment, it is not clear that there are any tools in place to control fishing capacity, despite the requirements of C-05-02 and CMM 2005-03; fishing capacity appears to have been restrained by relatively higher levels of recruitment than in previous decades. WCPFC have a formal framework for the development of a HCR (CMM 2014-06); for this stock it should be implemented by the Northern Committee. The NC have proposed an interim harvest strategy to WCPFC, which includes a trigger level ( $SSB < LRP$ ) for the development of a more effective CMM (including rebuilding timeframe), meanwhile ISC are working on a MSE to put in place a TRP and HCR, and the NC also have this in their 2018-2020 workplan (see 2017 report, Attachment I). IATTC do not have such a formal commitment in place for this stock, but so far, management has been coordinated between the two RFMOs and there is no reason to suppose that this will not continue.

The situation at present, however, is that unlike of the past. It appears that action is required to reduce catches relative to current levels, otherwise there is an increased risk that the stock will fall below the agreed LRP. There are no convincing tools in place at present to achieve this. In this situation of increased risk to the stock under the current management regime, it is not appropriate to consider that 'available' tools will be effective in constraining  $F$  to appropriate levels, so **SG60 is not met.**

In order to improve this scoring, the interim (and final) harvest strategy needs to include management tools (stock-wide effort or catch limits) which have a reasonable expectation of being able to constrain exploitation rate to appropriate levels.

**0 out of 2 SG60 were met.**

**PI 1.2.2 score: "Fail"**

### **PI 3.1.3. Long-term objectives**

According to the independent report, this PI would not meet SG100 as regards IATTC and WCPFC regional management.

**IATTC – (...)** Although the precautionary approach is in the Convention, it is less clear that it is



*applied in all policy. Reference points for bigeye do not appear to be particularly precautionary when taking into account significant uncertainties (although there may be evidence to support the values used), and precautionary action has not been taken to prevent the bigeye stock declining to current levels. In practice, there is no clear link between the convention and practical implementation of policy in all fisheries.*

*Overall, clear explicit objectives incorporating the precautionary approach and ecosystem-based management in the policy meet the MSC Principles and Criteria, and therefore SG80. It is not clear that the precautionary approach is a requirement across all areas of policy, so **SG100 is not met.***

**WCPFC** – (...) *While it appears to be a requirement, in practice it is less clear that the precautionary approach is applied in practice across all policy. Stock assessments in 2010, 2011 and 2014 indicate that bigeye fishing mortality exceeded levels consistent with MSY. While precautionary reference points have been set, there has not been a corresponding precautionary action that has reduced exploitation levels.*

*Overall, clear explicit objectives incorporating the precautionary approach and ecosystem-based management in the policy meet the MSC Principles and Criteria, and defined, meeting SG80. However, it is not yet clear that the precautionary approach is applied in practice across all policy for all stocks, so **SG100 is not met.***

**All SG60 and SG80 were met, and 0 out of 1 SG100 were met.**

**PI 3.1.3 score: 80 (Both IATTC and WCPFC)**

### **PI 3.2.1. Fishery-specific objectives**

According to the independent report, this PI would not meet SG100 as regards IATTC and WCPFC regional management.

**IATTC** – (...) *Each conservation measure has an objective which is clearly stated, although in one case has not been easy to interpret ("Current levels" of effort specified in Resolution C-05-02 for albacore is not defined and effort is not routinely measured, although steps are being taken to resolve this in C-13-03). Otherwise, because the conservation measures contain explicit and specific intentions and objectives, and also allow for monitoring of the performance against these objectives, the fisheries meet SG80.*

*However, although broadly measurable, they are not necessarily well-defined, particularly in relation to achieving MSC P&C. Stock assessments are not available for all species (e.g. skipjack), and proxies for MSY have not been determined. Therefore, objectives may be somewhat vague with respect to determining precise status using reference points, for example. Certain resolutions and conservation measures might be presumed to achieve MSC objectives, but it is not certain. This would need to be evaluated for each specific fishery when undergoing MSC assessment.*

*The scientific advice is based on MSC Principles 1 and 2, because these objectives are implicit in the*



management of each stock, meeting SG60. In addition, explicit objectives are provided through the resolutions and recommendations, which determine the aim and intention of the conservation measures. In most cases, this meets SG80. However, these objectives are not stock specific and often cannot be determined to be entirely consistent with the requirements of MSC Principles 1 and 2, since they are related to the conservation measure rather than the stocks or species. Therefore **SG100 is not met**.

**WCPFC** – (...) Because the conservation measures contain reasonably explicit and specific intentions and objectives, and also allow for evaluation of the performance against these objectives, the fisheries meet SG80.

However, although broadly measurable, they are not necessarily well-defined particularly in relation to achieving MSC P&C. For skipjack there is now an explicit target set out in 15-06. For bigeye and yellowfin it is also relatively clear, for albacore less so. But for most fisheries, 100 wouldn't be met because there is not a full suite of well-defined and measurable objectives for P2 (...).

Objectives may be somewhat vague with respect to determining precise status using reference points, for example, and allowing for unspecified qualifications. Certain resolutions and conservation measures might be presumed to achieve MSC objectives, but it is not certain. A higher score might be possible should WCPFC develop reference points directly linked to proscribed management action, as would be applied through a harvest control rule, for example. This would need to be evaluated for each specific fishery when undergoing MSC assessment.

The scientific advice is based on MSC Principles 1 and 2, because these objectives are implicit in the management of each stock, meeting SG60. In addition, effectively explicit objectives are provided through the conservation and management measures. In most cases, this should meet SG80. However, with the qualifications, it may not be possible to determine whether these are consistent with the requirements of MSC Principles 1 and 2, since they are related to the conservation measure itself rather than the stocks, species or ecosystem. Therefore, **SG100 cannot be met**. (...)

**All SG60 and SG80 were met, and 0 out of 1 SG100 were met.**

**PI 3.2.1 score: 80 (Both IATTC and WCPFC)**

### **Client Action Plan**

ISSF believes that the Condition set is adequate. However, we are concerned that the Client's Action Plan relies on actions to be performed by the West Coast Region of the National Marine Fisheries Service (NMFS) and by the Pacific Islands Regional Office of the NMFS, but the PCDR contains no clear commitment from these organizations themselves.

ISSF is concerned that, without such a letter from these organizations or the NMFS, there is no clear expectation that the Client Action Plan will achieve its objectives.

For your reference, please consult formal letters included in PCDRs or Final Reports for other tuna fisheries that have obtained MSC certification in recent years. These are formal letters from the corresponding national fisheries agency or ministry of fisheries, in which they state their conformity and commitment to the milestones and actions described in the Client's



Action Plan (see for example the [PCDR of the Fiji Albacore and Yellowfin Tuna Longline Fishery \(Appendix I.4, p.213\)](#), or the [Final Report of the re-assessment of the Pole and Line Skipjack Fishery in the Maldives \(Appendix I.3.1, p.173\)](#)).

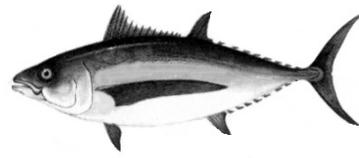
Thank you for considering our position on these issues.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan S. Jackson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Susan S. Jackson  
President  
International Seafood Sustainability Foundation

# **WESTERN FISHBOAT OWNERS ASSOCIATION**



P.O. Box 992723  
Redding, CA 96099

Ph. (530) 229-1097  
Fax (530) 232-0107

[wfoa@charter.net](mailto:wfoa@charter.net)  
[wfoa-tuna.org](http://wfoa-tuna.org)  
[PacificAlbacore.com](http://PacificAlbacore.com)

June 12, 2018

Amanda Stearns - Pirlot  
Director Fisheries Certification  
MRAG America's - Seattle  
1631 15<sup>th</sup> Ave W. Suite 201  
Seattle, WA 98119

Re: North Pacific Albacore PCR Acceptance

Dear Amanda,

Last week WFOA received the Public Certification Report (PCR) for the U.S. North Pacific Albacore Fishery. On behalf of WFOA which is a client for the Marine Stewardship Council's (MSC) certification of US North Pacific Albacore fishery I have reviewed the PCR and accepted it as evidence that the fishery has met the MSC standards as a well managed and sustainable fishery.

WFOA also wishes to thank the staff of MRAG for completing this lengthy and somewhat frustrating process and look forward to moving ahead in the next few years under this re-certification. The certification is important to many of our fishermen and processors who have developing markets for MSC albacore tuna from the US.

Sincerely,

A handwritten signature in blue ink that reads "Wayne Heikkila". The signature is written in a cursive, flowing style.

Wayne Heikkila  
Executive Director



June 12, 2018

Amanda Stearns - Pirlot  
Director Fisheries Certification  
MRAG America's - Seattle  
1631 15th Ave W. Suite 201  
Seattle, WA 98119

Re: North Pacific Albacore PCR Acceptance

Dear Amanda,

Last week the American Albacore Fishing Association ("AAFA") received the Public Certification Report (PCR) for the U.S. North Pacific Albacore Fishery. On behalf of AAFA, which is a client for the Marine Stewardship Council's (MSC) certification of US North Pacific Albacore fishery, I have reviewed the PCR and accepted it as evidence that the fishery has met the MSC standards as a well-managed and sustainable fishery.

AAFA also wishes to thank the staff of MRAG for completing this lengthy and somewhat frustrating process and look forward to moving ahead in the next few years under this recertification. The certification is important to many of our fishermen and processors who have developed and developing markets for MSC albacore tuna from the US.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie Webster".

Natalie Webster  
Director Of Operations