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Public Certification Report for

AAFA SOUTH PACIFIC ALBACORE TROLL/JIG FISHERY

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1. SUMMARY

This assessment was of the American Albacore Fishing Asscoiation South Pacific fishery - the fishery is defined as follows. Species: Albacore tuna *Thunnus alalunga;* Geographical Area: South Pacific Ocean; Method of Capture: Troll/Jig; Stock: The stock under assessment is the South Pacific albacore stock. It is recognised that this fishery represents a small proportion of the total fishing pressure on this stock. As a consequence the status of the South Pacific stock as a whole is assessed, together with fishing practices and consequences within the AAFA pole & line and troll/jig fleet only; Management: Albacore occur within the jurisdictions of both the Inter-American Tropical Tuna Commission (IATTC) and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). Client Group: AAFA member vessels and vessels recognised by AAFA. Any vessels joining the unit of certification must recognise any requirements of MSC certification applied to AAFA vessels.

It is emphasised that this assessment applied only to the fishery defined above and findings may be different for other fisheries in the region, which must therefore be subject to separate assessments

The assessment was carried out by the Certification Body Moody Marine, the assessment team were as follows: **Lead assessor Dr Andrew Hough** - Andrew has acted as lead assessor on the majority of Moody Marine MSC pre assessments and main assessments; **Expert advisor: Michael Laurs**. Dr. Michael Laurs has extensive experience in resource management. For nearly a decade he was the director of a major NOAA National Marine Fisheries Service fisheries research laboratory in Honolulu, Hawaii, whose main mission is conducting scientific programs to support five fishery management plans for fisheries that operate in the central and western Pacific ranging from crustacean and bottomfish to highly migratory large pelagic fishes. **Expert advisor: Joseph Powers.** Dr. Joseph E. Powers currently serves as a professor of Stock Assessment in the School of the Coast and Environment, Louisiana State University. Previously Dr Powers served as Senior Stock Assessment Scientist of the Southeast Fisheries Science Centre conducting research on the implementation of science-based management policies for the nation's and world's fisheries.

The assessment followed set procedures as described in the MSC Fishery Certification Methodology Version 6. Key stages of the assessment were: 8 December 2005 Notification of confirmation of assessment; 12 April 2006 Notification of Assessment Team nominees; 13 June 2006 Confirmation of Assessment Team; 2 August 2006 Consultation on draft Performance Indicators and Scoring Guideposts; 11 October 2006 Release of final Performance Indicators and Scoring Guideposts; 13 September 2006 Notification of assessment visit and call for meeting requests; 15-20 October 2006 Assessment visit; 6 November 2006 Notification of Proposed Peer Reviewers; 15 June 2007 Notification of Draft Report. Following the initial stage of wider stakeholder review, the report, containing the recommendation of the assessment team, any further stakeholder comments and the peer review comments has been considered by the Moody Marine Governing Board (a body independent of the assessment team). The Governing Board have made the final certification determination on behalf of Moody Marine. Finally, the complete report, containing the Moody Marine Ltd Determination and all amendments, is now released for further stakeholder scrutiny.

Significant strengths of the fishery in relation to the MSC standard, derive from the intrinsically low-impact nature of the gear used. Trolling for albacore consists of towing artificial lures with barbless hooks behind a fishing vessel at a speed of about 6 knots. Usually about 14 to 20 lines may be trolled by an albacore fishing vessel, however, typically not all lines are pulled during heavy fishing activity. Hook and line trolling for albacore is a notably 'clean' fishing method which catches the target species almost exclusively and bycatch of non-target species is relatively rare.

The main weakness of the fishery is that, as a Highly Migratory Species, albacore are targeted by a number of different fleets. These include pelagic longline fisheries conducted by Chinese Taipei,

China, Japan, United States, Korea, Fiji, French Polynesia, New Zealand, Western Samoa, Vanuatu, and other Pacific Islands and countries; troll fisheries executed by New Zealand, French Polynesia, and other countries; and pole-and-line fisheries conducted by Japan and New Zealand. Asian drift-gillnet fisheries targeted albacore across much of the South Pacific beginning in 1983 until 1992, when they were halted by U.N. action. Information on the annual weights of albacore landed by each of the fisheries is available from 1952 to the present. In recent years the data provided by countries with fisheries catching albacore have been expanded and greatly improved. Data from all the fisheries catching albacore have been used in South Pacific albacore stock assessments. It should be noted that this assessment is only of the AAFA fishery as defined above, but the overall status of the stock will inevitably be influenced by the activities, and management, of all of these fleets.

As a highly migratory species, management of the fisheries and stock are under the auspices of international organizations within which member States can negotiate agreements on a variety of regulatory mechanisms such as TAC's, minimum sizes, closed areas, and gear restrictions to name a few. However once agreed upon, the actual implementation is left to the member State. In the case of this Albacore Troll fishery, this occurs primarily through the US Pacific Fishery Management Council. The Council has developed a Fishery Management Plan (FMP), more specifically the FMP for US West Coast Fisheries for Highly Migratory Species (HMS FMP). This FMP establishes goals and objectives for management and defines regulatory actions, if needed. Management is considered appropriate to the fishery.

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 80 against any Performance Indicators. It is therefore determined that the AAFA South Pacific Albacore Pole & Line and Troll/Jig Fishery should be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries. As a standard requirement of the MSC certification methodology, the fishery shall be subject to (as a minimum) annual surveillance audits. These audits shall be publicised and reports made publicly available.

2. INTRODUCTION

This report sets out the results of the assessment of the AAFA South Pacific Albacore Pole & Line and Troll/Jig Fishery against the Marine Stewardship Council Principles and Criteria for Sustainable Fishing.

1.1 The fishery proposed for certification

The MSC Guidelines to Certifiers specify that the unit of certification is "The fishery or fish stock (=biologically distinct unit) combined with the fishing method/gear and practice (=vessel(s) pursuing the fish of that stock) and management framework."

The fishery proposed for certification (the unit of certification) is therefore defined as:

Species:	Albacore tuna *Thunnus alalunga*
Geographical Area:	South Pacific Ocean
Method of Capture:	Troll/Jig
Stock:	The stock under assessment is the South Pacific albacore stock. **It is recognised that this fishery represents a small proportion of the total fishing pressure on this stock. As a consequence the status of the South Pacific stock as a whole is assessed, together with fishing practices and consequences within the AAFA pole & line and troll/jig fleet only.**
Management:	Albacore occur within the jurisdictions of both the Inter-American Tropical Tuna Commission (IATTC) and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC).

Client Group: AAFA member vessels and vessels recognised by AAFA. Any vessels joining the unit of certification must recognise any requirements of MSC certification applied to AAFA vessels.

1.2 Report Structure and Assessment Process

The aims of the assessment are to determine the degree of compliance of the fishery with the Marine Stewardship Council (MSC) Principles and Criteria for Sustainable Fishing, as set out in Section 5. It must be stressed that this assessment is concerned **only** with the fishery defined above.

This report firstly sets out:

- the background to the fishery under assessment
- the qualifications and experience of the team undertaking the assessment
- the standard used (MSC Principles and Criteria)
- stakeholder consultation carried out. Stakeholders include all those parties with an interest in the management of the fishery and include fishers, management bodies, scientists and Non-Governmental Organisations (NGO's)

Section 9 of the report sets out the methodology used to assess ('score') the fishery against the MSC Standard. The scoring table then sets out the Scoring Indicators adopted by the assessment team and Scoring Guidelines which aid the team in allocating scores to the fishery. The commentary in this table then sets out the position of the fishery in relation to these Scoring Indicators.

The intention of the earlier sections of the report is to provide the reader with background information to interpret the scoring commentary in context.

Finally, as a result of the scoring, the Certification Recommendation of the assessment team is presented, together with any conditions attached to certification.

In draft form, this report is subject to public scrutiny on the MSC website and critical review by appropriate, independent, scientists ('peer review'). The comments of these scientists are appended to this report. Responses are given in the peer review texts and, where amendments are made to the report on the basis of Peer Review comments, these are also noted in the peer review text.

The report, containing the recommendation of the assessment team, any further stakeholder comments and the peer review comments is then considered by the Moody Marine Governing Board (a body independent of the assessment team). The Governing Board then make the final certification determination on behalf of Moody Marine.

It should be noted that, in response to comments by peer reviewers, stakeholders and the Moody Marine Governing Board, some points of clarification may be added to the final report.

Finally, the complete report, containing the Moody Marine Ltd Determination and all amendments, is released for further stakeholder scrutiny.

1.3 Information sources used

Information used in the main assessment has been obtained from interviews and correspondence with stakeholders in the trawl fishery, notably:

I1. Fishing Industry and Sport Angling Representatives: S Rittenberg (AAFA), Pierre Marchand (Jessie's Ilwaco Fish Company, Inc.), J LeGrange (WFOA), B Fletcher (SAC), C Bissel (AAFA), M Lopuch (WWF), T Raftican (United Anglers), A Wakeman (United Anglers), N Webster (AAFA).

I2. National Marine Fisheries Service: M Helvey,
I3. WCPFC: G Sakagawa NMFS and Chair of WCPFC Scientific Committee
I4. IATTC: R Allen, M Stocker

Other information sources

Published information and unpublished reports used during the assessment are:

R1. AAFA website www.**americanalbacore**.com
R2. AFRF Website **afrf**.org
R3. Childers 2006. Summary of the 2005 U.S. North and South Pacific albacore troll fisheries. NOAA Fisheries, SWFSC Admin. Report LJ-06-06, 28pp.
R4. Clemens, H.B. 1961 The Migration, Age, And Growth of Pacific Albacore (Thunnus germo), 1951–1958 Cal. Dept. Fish and Game Fish Bulletin No. 115, 128pp.
R5. CLIOTOP Program: Climate Impacts on Oceanic Top Predators. CLIOTOP is a ten year programme implemented as a GLOBEC regional programme. CLIOTOP is devoted to the study of oceanic top predators within their ecosystems and is based on a worldwide comparative approach, i.e. among regions, oceans and species.
R5a. Collette, B.B. and C.E. Nauen., 1983. FAO species catalogue. Vol. 2. Scombrids of the world. An annotated and illustrated catalogue of tunas, mackerels, bonitos and related species known to date. FAO Fish. Synop. 125(2). 137 p.
R6. Cox, S. P., S. J. D. Martell, C. J. Walters, T. E. Essington, J. F. Kitchell, C. H. Boggs, and I. Kaplan. 2002. Reconstructing ecosystem dynamics in the central Pacific Ocean, 1952-1998: I. Estimating population biomass and recruitment of tunas and billfishes Can. J. Fish. Aquat. Sci. 59:1724-1735.
R7. Cox, S. P., T. E. Essington, J. F. Kitchell, S. J. D. Martell, C. J. Walters, C. H. Boggs and I. Kaplan. 2002. Reconstructing ecosystem dynamics in the central Pacific Ocean, 1952-1998: II. a preliminary assessment of the trophic impacts of fishing and effects on tuna dynamics. Can. J. Fish. Aquat. Sci. 59:1736-1747.
R8. Dotson, R. C. 1980. Fishing methods and equipment of the U.S. west coast albacore fleet. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NWS-SWFC-8, 126pp
R8a. Federal Register. 2004. Rules and Regulations. List of US fisheries. Vol. 69, No. 153, p48418.
R9. Gibbs, R.H., Jr. and B.B. Collette, 1967. Comparative anatomy and systematics of the tunas, genus *Thunnus*.. Fish. Bull. 66(1):65-130.
R10. Hinke, J. T., I. C. Kaplan, K. Aydin, G. M. Watters, R. J. Olson, and J. F. Kitchell. 2004. Visualizing the food-web effects of fishing for tunas in the Pacific Ocean. Ecology and Society. Vol: 9(1). Pages 10. Online version.
R11. IATTC Resolution C-05-2. 2005. (IATTC web site)
R12. IATTC. Stock Assessment Report Status of Tunas and Billfishes 2002.
R13. IATTC. Stock Assessment Report Status of Tunas and Billfishes 2005.
R14. Kelleher, K. 2004. Discards in the world's marine fisheries – an update. FAO Fisheries Technical Paper 470, FAO, Rome. 131pp.
R15. Kitchell, J. F., C. Boggs, X. He and C. J. Walters. 1999. Keystone predators in the Central Pacific. Pages 665-683 In Proc. 12th Wakefield Symposium on Ecological Considerations in Fisheries Management. Univ. of Alaska Sea Grant, Anchorage, Alaska. 756 pp.
R16. Labelle, M., and Hampton, J. 2003. Stock assessment of albacore tuna in the South. Pacific Ocean. Working Paper ALB-1/SCTB 16.
R17. Laurs, R.M. and R.J. Lynn. 1977. Seasonal migration of north Pacific Albacore, *Thunnus alalunga*, into north American coastal waters: distribution, relative abundance, and association with transition zone waters. Fishery Bulletin 75(4):795-822.
R18. Lehodey , P., F. Chai , and J. Hampton (2003): Modelling climate-related variability of tuna populations from a coupled ocean-biogeochemical-populations dynamics model. *Fisheries Oceanography* , Vol. 12, 45, 483-494.

R19. Lewis 1990 South Pacific albacore stock structure: a review of available information. Paper presented at the Third South Pacific Albacore Research (SPAR) Workshop, 9–12 October 1990, Noumeau, New Caledonia. *S.Pac.Comm.*, WP/5.
R20. Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Public Law 94-265. 1996.
R21. Marine Debris Research, Prevention, and Reduction Act Public Law 109-449.
R22. MARPOL 73/78. International Convention for the Prevention of Pollution From Ships, 1973, as modified by the Protocol of 1978, with annexes.
R23. Marsh, Jesse. 2006. Albacore tuna, Seafood Watch Seafood Report, Monterey Bay Aquarium. Final Draft. 75pp.
R24. Murray, Talbot. 1994. A review of the biology and fisheries for albacore, *Thunnus alalunga*, in the South Pacific Ocean. FAO**,** Fish. Tech. Pap. 336(2):188-206.
R25. Nishikawa et al 1985 Nishikawa, Y., M. Honma, S. Ueyanagi, and S. Kikawa. 1985. Average distribution of larvae of oceanic species of Scombroid fishes, 1956–1981. *S Ser.Far Seas Fish.Res.Lab.*, (12):99pp
R26. NOAA Fisheries SWFSC Website. http://swfsc.noaa.gov
R27. NOAA Fisheries. 2006. U.S. fisheries and research on tunas and tuna-like species in the North Pacific Ocean. 6th Meeting Interim Scientific Committee ISC/06/Plenary/13. 29pp.
R28. Pacific Fishery Management Council. 2004. Fishery Management Plan for West Coast Highly Migratory Species Fisheries., with amendments.
R29. Pacific Fishery Management Council. 2005. Status of the U.S. West Coast fisheries for highly migratory species through 2004. Stock Assessment and Fisheries Evaluation (SAFE) Report for PFMC HMS FMP. 138pp.
R30. Parrish, R.H., N.W. Bartoo, S.F. Herrick, P.M. Kleiber, R.M. Laurs, and J.A. Wetherall. 1989. Albacore management information document. NOAA-TLM-NMFS-SWFC-126:56pp
R31. Secretariat of the Pacific Community website www.spc.int
R32. Sibert, John, John Hampton, Pierre Kleiber, Mark Maunder. 2006. Biomass, size, and trophic status of top predators in the Pacific Ocean. Science 15 December 2006: 1773-1776. South Pacific Albacore Research Workshop. Reports 1st – 6th Meetings.
R33. Standing Committee on Tuna and Billfish. Reports 11th – 17th Meetings. See . Website Secretariat of the Pacific Community, Oceanic Fisheries Program. STCB.
R34. Stocker, M. 2005. editor Report 19th North Pacific Albacore Workshop, November 25 – December 2, 2004, Namaimo, B.C. Canada. 139pp.
R35. Ueyangi, Shoji. 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.
R36. Western and Central Pacific Fisheries Commission website http://www.wcpfc.int/
R37. Western Pacific Fisheries Management Council. 1990. Fishery Management Plan for Pelagic Fishes of the Western Pacific Region, with amendments.
R38. Western Pacific Fisheries Management Council. 2005. Annual Report, Pelagic Fisheries of the Western Pacific Region. (SAFE Report).
R39. Western Pacific Fisheries Management Council. 2005. Annual Report, Pelagic Fisheries of the Western Pacific Region. (SAFE Report).
R40. Western Pacific Fisheries Management Council. 2006. Annual Report, Pelagic Fisheries of the Western Pacific Region. (SAFE Report).

2 BACKGROUND TO THE FISHERY

2.1 Biology of the Target Species

Albacore tuna (*Thunnus alalunga*) is a highly migratory tuna found in all of the global oceans and Mediterranean Sea. In the Pacific Ocean there are two separate and distinct stocks of albacore, one in the northern hemisphere and the other in the southern hemisphere. South Pacific albacore matures by the relatively early age of approximately 6 years and have a moderate lifespan, usually to about 10 to

12 years. The species is highly fecund with up to about 2.6 million eggs per spawning. Spawning takes place throughout austral summer months in subtropical waters between about 10^0 to 25^0 S latitudes. The success of South Pacific albacore recruitment is related to ENSO conditions, with low recruitment during periods of El Nino conditions and high recruitment during episodes of La Nina. Growth rates are relatively slow compared to tropical tunas, with fork lengths at first birthday about 35 cm and at sexual maturity at about age 6 approximately 85 cm or somewhat larger. Juvenile albacore are first recruited into the New Zealand troll fishery at an age of about 10 to 14 months and measuring about 35 cm FL, following their migration from nursery grounds in the tropical and subtropical waters to temperate waters in the Tasman Sea. Somewhat older and larger fish move eastward in temperate waters along the South Pacific Subtropical Convergence Zone, where they are targeted by the U.S. and other troll fisheries. Pre-adult fish remain and migrate throughout South Pacific temperate zone waters until they approach maturity, when they migrate into the subtropical waters during austral autumn. As the fish move to subtropical waters, they tend to be distributed in deeper, and are targeted by longline fisheries.

Albacore, like other tunas, have a number of physiological and morphological specializations that adapt them to a fast, continuous swimming lifestyle in the pelagic open ocean environment. They are endothermic as the result of a countercurrent rete mirable heat exchanger system, which enables them to maintain internal core body temperatures up to 10^0 C warmer than ambient ocean water temperatures. Their metabolic rates are 2 to 10 times higher than most other bony fishes, and they have very large eyes for detecting prey and specialized fins and body form to reduce drag. Albacore are opportunistic carnivores and as adults have few predators, except they are sometimes are believed to be preyed on by large marine mammals, sharks, and billfish.

Albacore are generally considered inherently resilient to fishing pressure because they have a high rate of intrinsic increase, mature at an early age, are highly fecund, are not long-lived, have a broad distributional range, and do not exhibit any characteristics that enhance its susceptibility or population consequences to capture.

2.2 History of the Fishery

U.S. troll vessels began exploratory fishing operations for albacore in the central South Pacific east of New Zealand in 1986, leading to an expansion of the U.S. albacore troll fishery into the South Pacific during austral summer months. U.S. troll vessels that participate in the South Pacific albacore fishery depart from the west coast of North America or Hawaii following the North Pacific albacore fishing season and sail to Pago Pago, American Samoa or French Polynesia to prepare for the South Pacific albacore fishing season. The fishing area for the U.S. fleet extends from about the International Dateline to approximately 110^0W in the vicinity of the South Pacific Subtropical Convergence Zone between about 30^0 S and 50^0 S. At the end of the fishing season most U.S. troll vessel unload in Pago Pago, Fiji, or Tahiti and then travel to Hawaii or the west coast of North American to prepare for the North Pacific fishing season.

2.2.1 Gear

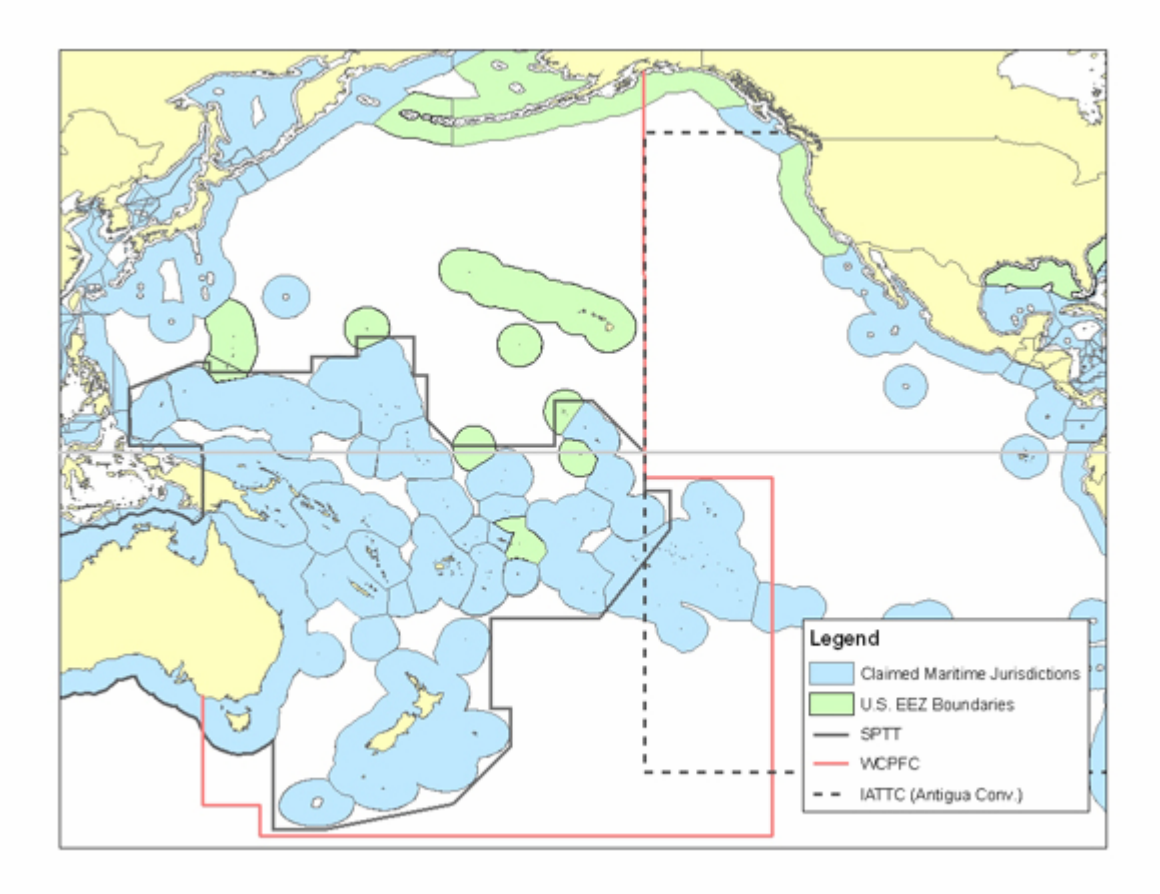
The U.S. has surface troll/jig and subsurface longline fisheries that operate for albacore in the South Pacific. However, only the surface troll/jig fishery is under consideration for certification. Trolling for albacore consists of towing artificial lures with barbless hooks behind a fishing vessel at a speed of about 6 knots. Individual trolling lines are generally 3 to 20 fathoms long and usually constructed from ¼-inch braided nylon with a 2 fathom leader made from 200 to 260 pound test nylon monofilament, to which is attached an artificial feathered jig with a barbless double hook. Fish are caught one at a time on the trolling line and upon striking the jig, are retrieved immediately with a hydraulic gurdy or line-puller. Usually about 14 to 20 lines may be trolled by an albacore fishing vessel, however, typically not all lines are pulled during heavy fishing activity. Trolling vessels will customarily operate with a captain and one or sometimes two crew.

2.2.2 Vessels

Albacore trolling vessels, which are also often called 'jig vessels', that operate in the South Pacific range from about 20m to 30m in length with hold capacities from about 40 to 100+ short tons. The vessels have refrigerated fish holds employing various types of refrigeration, some with blast or plate freezing and others with refrigerated brine systems. The number of U.S. troll vessels that may participate in the South Pacific albacore fishery depends on the market price for albacore, fuel costs, and other factors. During the last 10 years, a high of 53, low of 8, and average of 25 U.S. vessels participated in the fishery. The annual U.S. portion of the South Pacific albacore catch has averaged 5% since it's inception. For information, Tables giving the North and South Pacific albacore catches by countries and gear types for the years 1986-2005 are given in: John Childers and Scott Aalbers (2006). Summary of the 2005 U.S. North and South Pacific albacore troll fisheries. NOAA National Marine Fisheries Service Southwest Fisheries Science Centre, Admin. Rpt. LJ-06-06:28pp.

2.3 Fishing Locations and Administrative Boundaries

Albacore are distributed throughout much of South Pacific Ocean South of the Equator, but primarily between about 10^0 and 55^0 S latitudes. International management of albacore in the South Pacific is divided along 150^0 W longitude, with the Western and Central Pacific Ocean Fisheries Commission (WCPO) being responsible to the west and the Inter American Tropical Tuna Commission (IATTC) to the east. The Pacific Islands Forum Fisheries Agency and the Secretariat of the Pacific Community conduct research and coordinate fisheries agreements between Pacific Islands. Individual countries may have additional bodies that manage their respective fisheries, e.g., the Western Pacific Fishery Management Council and the Pacific Fishery Management Council for the U.S. troll fishery. Regulations for international management of South Pacific albacore are based on recommendations by the staff or scientific committees of the WCPFC and IATTC, and are implemented by the member and cooperating countries.



The IATTC is responsible for the oceanic area east of 150^0 W meridian north of the Equator and east of the 130^0W meridian south of the Equator and the WCPFC is responsible for the area to the west of these meridians between 60^0N and approximately 55^0S. There is a relatively small region of overlap between the two commissions near the Equator.

2.4 Ecosystem Characteristics

The habitat of albacore generally may be defined as open ocean pelagic waters with regions of oceanic frontal structure. In the South Pacific the horizontal dimension of a major portion of albacore habitat is linked to oceanic frontal structure associated with Subtropical Convergence Zone and other current boundaries. Oceanic frontal structure greatly influences the distribution, relative abundance, and availability of albacore, as well as their migration routes and rates and their vulnerability to capture. Albacore are distributed mostly in waters located in or near the thermocline and the vertical dimension of the habitat is related to the configuration and depth of the thermocline. The vertical distribution of juvenile albacore, which are targeted by the surface fisheries in temperate zone waters of the South Pacific, tends to be shallower than that of adult sexually mature albacore, which are targeted by the longline fisheries that are conducted mostly in the subtropical and tropical zones of the South Pacific. Albacore are restricted to waters with dissolved oxygen saturations greater than 60%, and most albacore caught by trolling are from waters that have surface temperatures between 16^0 to 18^0 C. Temperatures lower than 10^0 C disrupt albacore physiological processes that may lead to fatality.

Albacore are opportunistic carnivores that occupy relatively high trophic levels. Their diet is made up of a variety of pelagic and mesopelagic species including small fishes, cephalopods, and crustaceans. Little is known about what animals prey on albacore, but predators on adult albacore are believed to be large marine mammals, sharks, and billfishes. Young albacore have been found in stomachs of large tunas and other large fishes.

Pelagic trolling and pole-and-line fishing operations and gear have negligible habitat effects since the gear makes no contact with the bottom. The ecosystem effects of removing large predators such as tunas is not fully understood. However, the conservation concern for troll gear is low.

2.4.1 By-catch and Discards

Troll fishing for albacore is a notably 'clean' fishing method that catches one fish at a time. Target species are caught almost exclusively and bycatch of non-target species is relatively rare. However, very limited catches of non-target species may be taken incidentally, mostly when transiting between port and albacore fishing grounds. Bycatch species may include skipjack tuna, bluefin tuna, yellowfin tuna, bigeye tuna, eastern Pacific bonito, dorado (mahi mahi), billfish, and blue and sometimes other sharks. The distributions and ecologies of all of these bycatch species are well described and the impacts of the incidental catches taken during albacore trolling are believed to be negligible.

Interactions of this fishery with protected and endangered species have been evaluated and no significant impacts have been identified. There have been zero known takes of listed sea turtles, marine mammals and listed fishes; and near zero takes of listed seabirds. Thus, the effects of this fishery on threatened and endangered species are within scientifically acceptable limits.

There is minimal 'high grading' in the U.S. albacore troll fishery and discards are quite low. Schools of albacore tend to be segregated by size of fish and fishers avoid schools of small size albacore not only for conservation reasons, but because lower prices are paid for small fish. Information from logbook records and fish buyer landing records indicate that generally the entire catch taken is landed. Based on tagging studies, incidental mortality is believed to be low on the limited number of small albacore that are caught incidentally. Very minor amounts of damaged albacore may be discarded.

2.4.2 Interactions with Protected, Endangered and Threatened Species

Limited observer and logbook records indicate that the U.S. troll fishery for albacore in the South Pacific has near-zero interactions with protected, threatened, and endangered species. Any protected species caught is likely to be released alive since trolling gear is retrieved immediately upon hooking.

2.5 Other Fisheries Relevant to this Assessment

All fisheries that operate on the South Pacific albacore stock that are not subject to this certification are identified and monitored. These include pelagic longline fisheries conducted by Chinese Taipei, China, Japan, United States, Korea, Fiji, French Polynesia, New Zealand, Western Samoa, Vanuatu, and other Pacific Islands and countries; troll fisheries executed by New Zealand, French Polynesia, and other countries; and pole-and-line fisheries conducted by Japan and New Zealand. Asian drift-gillnet fisheries targeted albacore across much of the South Pacific beginning in 1983 until 1992, when they were halted by U.N. action. Information on the annual weights of albacore landed by each of the fisheries is available from 1952 to the present. In recent years the data provided by countries with fisheries catching albacore have been expanded and greatly improved. Data from all the fisheries catching albacore have been used in South Pacific albacore stock assessments.

The total catch of South Pacific albacore for all nations combined peaked at a record high of 59,318 mt in 2003. Chinese-Taipei accounted for 23% of the total harvest, followed by fisheries in the Fiji 15%, U.S. 13%, Japan and Western Samoa each 9%, French Polynesia 8%, and other countries and Pacific Islands 12%. Percentages of the 2003 catch of South Pacific albacore by gear type were: pelagic longline 91%, troll 9%, and pole-and-line <1%. The annual U.S. troll fishery portion of the South Pacific albacore catch has averaged about 5% since its inception.

3. ADMINISTRATIVE CONTEXT

3.1 Legislation

Various legislative acts and treaties allow the Albacore Troll Fishery to be regulated and allow international management agreements on albacore to be negotiated. First within the US, the Magnuson-Stevens Fishery Conservation and Management Act provides fishery management policy directives, national standards for US fishery management and provides the enabling legislation to create regional fishery management councils which promulgate regulations addressing domestic (US) management objectives. The specific councils which address the Albacore Troll Fishery are the Pacific Fishery Management Council and to a lesser extent the Western Pacific Fishery Management Council. Additional national US legislation that must be addressed by the Councils when promulgating regulations are: the Endangered Species Act, the Marine Mammal Protection Act, the National Environmental Policy Act and the Administrative Procedures Act.

Under the auspices of Article 64 of the United Nations Law of the Sea (UNCLOS), coastal States and other States whose nationals fish for highly migratory species (such as albacore in the Pacific) to cooperate through appropriate international organizations to ensure sustainable conservation and management within the States' Exclusive Economic Zones (EEZs) as well as on the high seas. The international organizations which have Pacific albacore under their competence are the Inter-American Tropical Tuna Commission (IATTC) and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). These two organizations were created through formal ratification of treaties by the member States; in the case of the United States ratification occurred through enabling legislation of the US Congress. IATTC has existed via this mechanism for many decades. However, ratification of the WCPFC has occurred just recently. Thus, their institutional mechanisms for management are under development.

3.1.1 Regulation

The international organizations (IATTC and WCPFC) are institutions where member States can negotiate agreements on a variety of regulatory mechanisms such as TAC's, minimum sizes, closed areas, and gear restrictions to name a few. However once agreed upon, the actual implementation is left to the member State. In the case of the Albacore Troll fishery, this occurs primarily through the Pacific Fishery Management Council. The Council has developed a Fishery Management Plan (FMP), more specifically the FMP for US West Coast Fisheries for Highly Migratory Species (HMS FMP). This FMP establishes goals and objectives for management and defines regulatory actions, if needed. Regulations are promulgated by the National Oceanic and Atmospheric Administration (NOAA) through the National Marine Fisheries Service (NMFS or NOAA Fisheries) via formal rule-making procedures. A major goal of the FMP is to assure that state-Federal management is not incompatible.

3.2 Management Responsibilities and Interactions

Albacore tuna is a highly migratory species (HMS) that is harvested by many countries the North and South Pacific Oceans. There are discrete and distinct albacore stocks in the North and South Pacific, respectively, which are managed separately. Management of the two stocks is through international commissions (Inter-American Tropical Tuna Commission- IATTC and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean - WCPFC) and domestically for the US troll caught albacore fishery through the Highly Migratory Species Fishery Management Plan (HMS FMP) of the Pacific Fishery Management Council. The jurisdictions of the international commissions overlap somewhat. Additionally the WCPFC is a relatively new body for management. However, there have been joint agreements between the two commissions on which commission will take the lead for the South stock (WCPFC) and the North stock (IATTC). There is an excellent record of communication and consultation

between the IATTC and the WCPFC regarding management measures related Pacific HMS, including albacore.

Formal scientific working groups conduct stock assessments, as well as coordinate related research programs for the respective North and South Pacific albacore populations, and report their findings to the commissions. Scientific representatives from both of the commissions, along with fisheries scientists from the various countries that harvest albacore from the respective populations, are members or observers that participate on these scientific working groups. The scientific/assessment support is currently supplied by the Secretariat of the Pacific Community, SPC, (South stock, with the WCPFC, providing further review of assessment advice) and the IATTC (North stock).

The WCPFC Convention was entered into force on June 19, 2004 following many years of negotiations, planning and organizing. The organization has a notably firm foundation of comprehensive guidelines, procedures, and regulations, as well as a strong scientific program under the leadership of the Scientific Committee. The duties of the latter are contracted to the notably able and competent SPC Oceanic Fisheries Programme, which also provided guidance and direction for the development of an extensive strategic plan for the years 2007-2011. The WCPFC also has a broad sea turtle research program. In addition, the WCPFC has inclusive and thorough technical and compliance programs. During the short time that the Convention has been in force, the WCPFC has adopted 15 Conservation and Management Measures (CMM) for conserving and managing HMS resources and mitigating the impacts of fishing on protected species. These include CMMs related to South Pacific and North Pacific albacore, swordfish in the southwest Pacific, striped marlin in the southwest Pacific, sharks in the western and central Pacific, and two measures related to bigeye tuna and yellowfin tuna in the western and central Pacific, and mitigating the impact of fishing for HMS on stocks of seabirds. In addition, the WCPFC has adopted five Resolutions, including one to mitigate the impact of fishing for HMS on sea turtles, one to address non-target species, and one to reduce HMS harvesting overcapacity. Two Resolutions were also adopted that address responsible fishing including marking and identification of fishing vessels, boarding and inspection procedures, listing of vessel presumed to carried out illegal fishing activities in the western and central Pacific, and setting up a vessel monitoring system and regional observer program. The outlook is very favourable for the WCPFC to be a capable, competent, and successful organization in providing effective management measures resulting in the sustainability of HMS fisheries in the Convention area.

The Albacore Working Group of the WCPFC Scientific Committee meets annually regarding investigations related to the South Pacific albacore population stock status and related biological and ecological research. This working group is a continuation of the South Pacific Albacore Research (SPAR) workshop series that was formed in the mid-1980’s and later subsumed as part of the SPC Standing Committee on Tuna and Billfish (SCTB) albacore working group. Among the first tasks of the South Pacific Albacore Research Workshop (SPAR) series was to produce a comprehensive data set of catch and effort statistics for all the fisheries that operate on the South Pacific albacore stock. In addition SPAR coordinated international research regarding the development of surface jig fisheries by several countries in the central South Pacific as well as broad, coordinated biological and ecological research on South Pacific albacore. The efforts related to South Pacific albacore were continued and expanded when SPAR was followed by the SCTB beginning in the early to mid-1990's. SCTB then became the forum of planning, coordinating, and conducting biological research and stock assessments for South Pacific albacore and continued efforts to improve and expand South Pacific albacore catch statistics. With the formation, adoption, and implementation of the WCPFC Convention, the SCTB was disbanded and the WCPFC Scientific Committee (SC) was established and first met in 2005. Among its duties the SC has taken over the former responsibilities and role of the SCTB regarding fisheries research and stock assessments for all species covered by the Convention, including albacore, and continues to emphasize the importance of the collection of comprehensive fishery statistics. The Third Meeting of the SC was held August 2007 in Honolulu, HI. While the WCPFC has a short history in managing western and central Pacific highly migratory fish stocks, the outlook for it to be effective in managing albacore stocks is positive and favourable,

e.g., Conservation and Management Measure for South Pacific albacore (C&MM 2005-2) as well as for North Pacific albacore (C&MM 2005-3). Scientists from IATTC, as well as scientists representing the WCPFC, participate on the WCPFC Scientific Committee albacore working group.

North Pacific and South Pacific management measures adopted by the IATTC and the WCPFC are passed to the respective member countries that conduct fishing operations on Pacific albacore for implementation. In the case of the U.S., specific management regulations to implement the commissions management measures are developed in cooperation with NOAA Fisheries and issued by the Pacific Fishery Management Council for the surface troll and pole-and-line fisheries operating on the North population and for the surface troll fishery operating on the South Pacific population, and by the Western Pacific Fishery Management Council for the U.S. subsurface longline albacore fisheries operating on either the North or South Pacific albacore population.

The commissions formulate overarching management regulations based upon recommendations from scientific committees or staff. Regulations are then implemented by individual member and cooperating countries. The USA is a cooperating country of the WCPFS, behaving as a member.

4 STOCK ASSESSMENT

4.1 Management Unit

The management unit is the South Pacific stock of albacore. This management unit has been defined on the basis of the distribution concentrations of the fish and the fisheries (see above). While east-west distributions are fairly extensive, the distribution of albacore spawning is limited to subtropical waters between about 10^0 to 25^0 latitudes. For assessment and management purposes, the north-south boundary between albacore stocks is considered to be the equator. There does not appear to be significant mixing across this boundary. Additionally, for assessment purposes the stock is considered to occur east of 140°E. Thus, the aggregated evidence is relatively strong and the management unit definition is currently without controversy.

4.2 Monitoring of Stock Status

The South Pacific stock has been monitored through the assessment work of the Standing Committee on Tunas and Billfishes (SCTB) with the primary assessment lead provided by the permanent scientific staff of the SPC. The SCTB is a working group that has existed for more than 20 years, consisting of scientists from various nations that exploit South Pacific albacore. The SCTB arose from the assessment activities of the SPC; it organizes and prioritizes the scientific research needed to monitor and assess the stock and periodically they conduct assessments.

Monitoring of the stock consists of collecting appropriate catch data, collating and analyzing effort data through catch-per-unit-effort (CPUE) analysis, conventional tagging and limited archival/pop-up tagging. Additionally, the SCTB advises on priorities for biological research on aspects such as reproductive biology and disseminates research results and statistics to cooperating scientists and the management bodies.

Specifically, for terms of the most recent assessment, the primary monitoring tools have been the catch-at-size, conventional tagging and CPUEs from key fishing countries. Specifically, CPUEs from longline fisheries of Japan, Korea, Taiwan and the Pacific Island nations are used. Additionally, CPUE data from US and New Zealand troll fisheries are incorporated and driftnet fisheries from Japan that existed in the past. These data are used as auxiliary data which are matched statistically with population model predictions of these data in order to determine the parameters that best fit.

4.2.1 Current Stock Status

The impact of the fisheries on total biomass is estimated to have increased over time, but is likely to be low, a reduction of about 3% from unexploited conditions. Additionally, the estimation of equilibrium yields as a function of fishing mortality and *F*- and *B*-based reference points is hampered by the very low resolution of absolute abundance estimates by the model. This is likely to result from the combination of low exploitation rates, a small amount of tagging data, and no independent information on tag-reporting rates. Nevertheless, the model results continue to indicate that recent catches are less than the MSY, aggregate fishing mortality is less than F_{MSY} and the adult biomass is greater than B_{MSY}.

The ratio of F/Fmsy has been well below the overfishing reference point throughout the time series. Also, while adult biomass has declined somewhat in recent years, it is still well above Bmsy, indicating that the whole stock population has not reached an overfished status.

4.3 Modelling

The primary modelling tool for South Pacific albacore is MULTIFAN-CL in which catch and catch at size and fishing effort are disaggregated into quarterly time periods from the last five decades, the various fisheries mentioned above and three spatial regions within the South Pacific. Also, tag releases were used (stratified by release region, time period of release and size class). A total of 9,691 releases were classified into 5 tag release groups. The returns from each size class of each tag release group (163 tag returns in total) were then classified by recapture fishery and recapture time period.

The MULTIFAN-CL setup for South Albacore required numerous structural assumptions relative to selectivity of the various fisheries, input coefficients of variation on catchability, initial (1952) conditions, how growth is modeled within the assessment, and the structure (and priors) on the stock-recruitment parameters, movement, natural mortality and other factors in order to constrain solutions within biologically realistic bounds. This structure was chosen based upon previous assessments and exploratory runs of the model.

The final assessment results indicated that estimates of some parameters are weak, primarily due to the lack of tagging data. However, fits to size data appear to be adequate. The modeling approach and the results from that assessment have provided useful management advice.

4.4 Management Advice

The impact of the fisheries on total biomass is estimated to have increased over time, but is likely to be low, a reduction of about 3% from unexploited conditions. Nevertheless, the existing fisheries target all sizes (ages) and so the size distributions should continue to be monitored. Additionally, the estimation of equilibrium yields as a function of fishing mortality and *F*- and *B*-based reference points is hampered by the very low resolution of absolute abundance estimates by the model. This is likely to result from the combination of low exploitation rates, a small amount of tagging data, and no independent information on tag-reporting rates. Nevertheless, the model results continue to indicate that recent catches are less than the MSY, aggregate fishing mortality is less than F_{MSY} and the adult biomass is greater than B_{MSY} (Labelle and Hampton 2003).

Therefore, no further management advice has been offered, or is yet required.

5 FISHERY MANAGEMENT

5.1 Management Objectives

The South Pacific Albacore occur within the jurisdictions of both the Inter-American Tropical Tuna Commission (IATTC) and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). While jurisdictions

overlap relative to albacore, the conservation and management objectives of the two organizations are similar and compatible. Important aspects of these objectives are: maintenance of the long-term sustainability of the resource (i.e. MSY), prevent overfishing, recover overfished stocks should they occur, apply the precautionary approach when data are uncertain and incorporate ecosystem concerns into management where appropriate.

Specifically for South Pacific albacore the recent management advice has been primarily generated to determine stock levels relative to maximum sustainable yield. Since the status of this stock is well below MSY levels, the Commissions have taken no further action in regards to the conservation of this stock.

5.2 Consultative Process

The consultative process for South Pacific Albacore is extensive at both the scientific and management levels. First, reliance is put on the efforts and history of the SCBT and the efforts of the scientific staff of the SBT to generate the primary assessments. Additionally, the Interim Scientific Committee (ISC) is a formal scientific body made up of scientists from countries throughout the Pacific which reviews tuna assessments and research in the Pacific. The ISC works on both south and north Pacific tuna resources. Additionally, the ISC may well evolve into the formal scientific committee supporting the WCPFC.

Additionally, the IATTC has a permanent scientific staff for tuna research and assessment. While they has been an understanding that the SCBT and the SPC has taken the lead on South Pacific albacore assessments, they have cooperated in the processes and interpret those results relative to the management responsibilities of the IATTC. The IATTC and the WCPFC are expected to make actions compatible for South Pacific Albacore throughout its range should actions be warranted.

6 STANDARD USED

The MSC Principles and Criteria for Sustainable Fisheries form the standard against which the fishery is assessed and are organised in terms of three principles. Principle 1 addresses the need to maintain the target stock at a sustainable level; Principle 2 addresses the need to maintain the ecosystem in which the target stock exists, and Principle 3 addresses the need for an effective fishery management system to fulfil Principles 1 and 2 and ensure compliance with national and international regulations. The Principles and their supporting Criteria are presented below.

Principle 1

A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery. [1]**:**

Intent:
The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

Criteria:

[1] The sequence in which the Principles and Criteria appear does not represent a ranking of their significance, but is rather intended to provide a logical guide to certifiers when assessing a fishery. The criteria by which the MSC Principles will be implemented will be reviewed and revised as appropriate in light of relevant new information, technologies and additional consultations

1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.
2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.
3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

Principle 2

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Intent:
The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.

Criteria:

1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.

2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species.

3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

Principle 3

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Intent:

The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.

A. Management System Criteria:

1. The fishery shall not be conducted under a controversial unilateral exemption to an international agreement.

The management system shall:

2. Demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management

decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process.

3. Be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and evaluating performance and acting on findings.

4. Observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability.

5. Incorporates an appropriate mechanism for the resolution of disputes arising within the system[2].

6. Provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing.

7. Act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty.

8. Incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion.

9. Require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted.

10. Specify measures and strategies that demonstrably control the degree of exploitation of the resource, including, but not limited to:

    a) setting catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species;
    b) identifying appropriate fishing methods that minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas;
    c) providing for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames;
    d) mechanisms in place to limit or close fisheries when designated catch limits are reached;
    e) establishing no-take zones where appropriate.

11. Contains appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective actions to be taken in the event that they are.

B. Operational Criteria

Fishing operation shall:

[2] Outstanding disputes of substantial magnitude involving a significant number of interests will normally disqualify a fishery from certification.

12. Make use of fishing gear and practices designed to avoid the capture of non-target species (and non-target size, age, and/or sex of the target species); minimise mortality of this catch where it cannot be avoided, and reduce discards of what cannot be released alive.

13. Implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas.

14. Not use destructive fishing practices such as fishing with poisons or explosives;

15. Minimise operational waste such as lost fishing gear, oil spills, on-board spoilage of catch etc.

16. Be conducted in compliance with the fishery management system and all legal and administrative requirements.

17. Assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

7 BACKGROUND TO THE EVALUATION

7.1 Evaluation Team

Evaluation leader: Dr Andrew Hough: Moody Marine Limited. Dr Hough has a PhD in marine ecology from the University of Wales, Bangor and fourteen years post-doctoral experience in commercial marine and coastal environmental management projects. He is manager of Moody Marine operations within Moody International Certification with particular responsibility for the implementation of MSC Certification procedures and development of MSC methodologies. Dr. Hough has acted as lead assessor on the majority of Moody Marine MSC pre assessments and main assessments.

Expert advisor: Michael Laurs. Dr. Michael Laurs has extensive experience in resource management. For nearly a decade he was the director of a major NOAA National Marine Fisheries Service fisheries research laboratory in Honolulu, Hawaii, whose main mission is conducting scientific programs to support five fishery management plans for fisheries that operate in the central and western Pacific ranging from crustacean and bottomfish to highly migratory large pelagic fishes. Dr. Laurs was responsible for providing overall direction and guidance for research that formed the basis for fishery management measures related to these fishery management plans. In addition, he was responsible for providing briefings regarding research findings as they pertained to the development of fishery management measures and to fisheries issues to the Western Pacific Fishery Management Council and often to fishers and conservation groups, legislative and Congressional hearings, the media, and the general public and sometimes to the Court. The laboratory is also responsible for research related to the recovery of the highly endangered Hawaiian monk sea, endangered and threatened sea turtles and protected seabirds. The latter laboratory responsibilities included extensive research related to assessing the status of the listed and protected species populations and to mitigate fisheries interactions. Dr. Laurs is fully familiar with the complete spectrum of actions related to resource management, including its scientific underpinnings, as well as the social-economic aspects, the U.S. legal and procedural requirements, and actions for implementing fishery management measures. In addition, Dr. Laurs spent nearly 25 years leading multidisciplinary research programs on tunas, mostly on albacore tuna, designed to develop the knowledge and understanding required for assessing and understanding their population status and possible needs for management. He was also the leader or member of international fisheries working groups whose main goal was evaluation of population status of highly migratory large pelagic fishes, and potential needs for their management. The working groups included: the North Pacific Albacore Workshop series, South Pacific Albacore Research Workshop series, SPC Standing Committee on Tuna and Billfish, and ISC Swordfish Working Group. He was also a member of the U.S. delegations that led

to the initial formation of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC) and the creation of the Western and Central Pacific Fisheries Commission (WCPFC).

Expert advisor: Joseph Powers. Dr. Joseph E. Powers currently serves as a professor of Stock Assessment in the School of the Coast and Environment, Louisiana State University. Previously Dr Powers served as Senior Stock Assessment Scientist of the Southeast Fisheries Science Centre conducting research on the implementation of science-based management policies for the nation's and world's fisheries. He has had extensive experience in conducting population dynamics studies, scientific stock assessments, in communicating results to constituents and managers, analyzing policy implications for regional, national and international fisheries and serving as a fisheries manager. Specifically, he has served as the Southeast Regional Administrator for the National Marine Fisheries Service, i.e. the senior fisheries manager in the southeast United States interacting with nine coastal states and the US Caribbean in developing and implementing the region's Fishery Management Plans. He has, also, been the lead US scientist conducting stock assessments for Atlantic tuna and billfish species including bluefin tuna, swordfish, albacore and marlins for the International Commission for the Conservation of Atlantic Tunas (ICCAT) and provided policy advice to the US delegation for some 20 years. Additionally, Dr. Powers served as the Chairman of the Scientific Committee of ICCAT (1998-2002) coordinating international research efforts and providing the scientific advice for management to a Commission involving more than 30 nations. Dr. Powers' research interests continue to be the modelling of robust sustainable management procedures, integrating ecosystem factors into stock assessments, risk analysis in decision-making and the role of scientific investigations in fisheries management policy.

7.2 Previous certification evaluations

The fishery has not been previously assessed against the MSC standard.

7.3 Inspections of the Fishery

Inspection of the fishery focused on the practicalities of fishing operations, the mechanisms and effectiveness of management agencies and the operation of the AAFA fleet. Specifically, responsibilities and recent developments of the IATTC and Western and Central Pacific Fisheries Commission were discovered through discussions with Dr. Robin Allen and Dr. Gary Sakagawa (currently, Chair of the WCPFC Scientific Committee). Dr. Robin Allen, in his capacity as Director of IATTC has directly cooperated with WCPFC to implement that Commission. These individuals (and also Michael Laurs) actively participated in the consultations which created and implemented the WCPFC. The landing and subsequent handling of fish was also investigated to determine the suitability of fish landed to enter into a subsequent chain of custody.

Meetings were held as follows. The key issues discussed have been identified for each meeting.

Name	Affiliation	Date	Key Issues
N Webster S Rittenberg A Blocker R Hawkins J Hawkins C Bissell N Lee	AAFA	17 Oct 06	AAFA organisation Fishing practices MSC administrative requirements
M Helvey M Stocker	NMFS – SWR Consultant		Fishery Management Stock Assessment
R Allen	Director IATTC	19 Oct 06	Fishery Management
G Sakagawa	NMFS - SWFSC and	19 Oct 06	Stock Assessment

	Chair WCPFC Scientific Committee		Fishery Management Research

8 STAKEHOLDER CONSULTATION

8.1 Stakeholder Consultation

An eventual total of 36 stakeholders were identified and consulted specifically by Moody Marine. Information was also made publicly available at the following stages of the assessment:

Table 1: Stakeholder Consultations Held

Date	Purpose	Media
8 December 2005	Notification of confirmation of assessment	Direct E-mail/letter Notification on MSC website Advertisement in press
12 April 2006	Notification of Assessment Team nominees	Direct E-mail Notification on MSC website
13 June 2006	Confirmation of Assessment Team	Direct E-mail Notification on MSC website
2 August 2006	Consultation on draft Performance Indicators and Scoring Guideposts	Direct E-mail Notification on MSC website
11 October 2006	Release of final Performance Indicators and Scoring Guideposts	Direct E-mail Notification on MSC website
13 September 2006	Notification of assessment visit and call for meeting requests	Direct E-mail Notification on MSC website
15-20 October 2006	Assessment visit	Meetings
6 November 2006	Notification of Proposed Peer Reviewers	Direct E-mail Notification on MSC website
15 June 2007	Notification of Draft Report	Direct E-mail Notification on MSC website
13 August 2007	Notification of Final Report	Direct E-mail Notification on MSC website

8.2 Stakeholder Issues

Feedback from stakeholders has assisted in the selection of the assessment team and refinement of the Performance Indicators and Scoring Guideposts. No significant issues have been identified by stakeholders in relation to the fishery under assessment.

Helpful comments have been received from the Monterey Bay Aquarium Seafood Watch (George H. Leonard, Seafood Watch Science Manager and Jesse C. Marsh, Seafood Watch Senior Fisheries Research Analyst) who also provided a pre-draft copy of the Seafood Watch evaluation of albacore tuna (http://www.mbayaq.org/cr/SeafoodWatch/web/sfw_factsheet.aspx?gid=67). Comments were supportive of certification of the American Albacore Fishing Association Pacific albacore fishery, which is considered a 'Best Choice' seafood. Comments relating to stock status, fishing mortality, ecosystem impacts and management were all in accordance with the findings of the MSC assessment team as outlined above.

9 OBSERVATIONS AND SCORING

9.1 Introduction to scoring methodology

The MSC Principles and Criteria set out the requirements of certified fishery. The certification methodology adopted by the MSC involves the interpretation of these Principles and Criteria into specific Performance Indicators against which the performance of fishery can be measured according to pre-specified guideposts.

The Performance Indicators developed by the Moody Marine assessment team have been identified on the MSC website (Performance Indicators and Scoring Guideposts). In order to make the assessment process as clear and transparent as possible, these guideposts identify the level of performance necessary to achieve 100, 80 (a pass score), and 60 scores for each Performance Indicator.

These generic Performance Indicators and Scoring Guideposts have been the subject of stakeholder consultation and have been confirmed or modified following this process based on the judgement of the assessment team. Prior to scoring, the Indicators are also 'weighted' in relative importance according to the nature of the fishery undergoing certification.

At the top level, no weightings are assigned in terms of each MSC Principle; a fishery must 'pass' each of Principles 1, 2 and 3 in order to achieve certification and these are of equal importance.

Within each Principle, and related to each MSC Criterion, Sub-criteria and Performance Indicators are grouped in a hierarchy. Each level represents separate areas of important information (e.g. Indicator 1.1 requires a sufficient level of information on the target species and stock, 1.2 requires information on the effects of the fishery on the stock and so on).

At the level of the Performance Indicators, the performance of the fishery is assessed as a 'score'. In order for the fishery to achieve certification, an overall weighted average score of 80 is necessary for each of the three Principles and no Indicator should score less than 60. Accordingly, 100 represents a theoretically ideal level of performance and 60 a measurable shortfall. As it is not considered possible to allocate precise scores, a scoring interval of five is used in evaluations. As this represents a relatively crude level of scoring, weighted average scores for each Principle are rounded to the nearest whole number.

Weights and scores for the Fishery are presented in the scoring table. Weights for criteria, sub-criteria and Performance Indicators add to a total of 100 at each level of the hierarchy. Scores are allocated relative to the Scoring Guideposts.

9.2 Evaluation results

Observations are presented in the scoring table, together with any weighting applied to the Fishery and the scores allocated.

10 LIMIT OF IDENTIFICATION OF LANDINGS FROM THE AAFA PACIFIC ALBACORE FISHERY

The extent of the fishery certification is as identified in Section 1.1 above. The limit of identification of landings is the landing of albacore by AAFA member vessels, or other US pole & line and troll/jig vessels identified by AAFA as being part of this certified fishery, at recognised ports where appropriate recording and monitoring of landings may take place.

To be eligible to carry the MSC logo, these fish must then enter into separate Chain of Custody certifications. It is recommended that in ongoing MSC Chain of Custody certifications, that membership of, or authorisation by, AAFA is determined for vessels landing albacore.

11 CERTIFICATION RECOMMENDATION

11.1 Certification recommendation

The Performance of the Fishery in relation to MSC Principles 1, 2 and 3 is summarised below:

MSC Principle	Fishery Performance
Principle 1: Sustainability of Exploited Stock	Overall : 87 PASS
Principle 2: Maintenance of Ecosystem	Overall : 93 PASS
Principle 3: Effective Management System	Overall : 94 PASS

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any Indicators. It is now determined that the AAFA South Pacific Albacore Troll/Jig Fishery be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries.

11.2 Scope of Certification

This assessment relates only to the fishery defined in Section 1.1 up to the point of landing as defined in Section 10. It is emphasised that this assessment applied only to the fishery defined above and findings may be different for other fisheries in the region, which must therefore be subject to separate assessments

Monitoring and control of fishing locations and methods is considered sufficient to ensure fish and fish products invoiced as such by the fishery originate from within the evaluated fishery. Accordingly, the assessment team recommend a joint fishery and chain of custody certificate. This will allow fish and fish products from this fishery to enter into further chains of custody subject to appropriate assessment and certification.

11.3 Pre-conditions, Conditions or Recommendations Associated with Certification

11.3.1 *Pre-Conditions*

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any Indicator. No pre-conditions are therefore required prior to certification being granted.

11.3.2 *Conditions*

As a standard requirement of the MSC certification methodology, the fishery shall be subject to (as a minimum) annual surveillance audits. These audits shall be publicised and reports made publicly available. The audits will specifically monitor any changes in management and the multi-national environment in which the fisheries are managed.

The fishery attained a score of below 80 against two Performance Indicators. The assessment team has therefore set a condition for continuing certification that AAFA, as the client for certification, is required to address.

As a standard condition of certification, the client shall develop an 'Action Plan' for Meeting the Conditions for Continued Certification', to be approved by Moody Marine.

The conditions are associated with one key area of performance of the fishery. The Condition, associated timescales and relevant Scoring Indicator are set out below.

Condition 1. Decision rules and harvest control mechanisms

Action required: It is recognised that the South Pacific albacore stock is assessed to be in a situation where recent catches are less than the MSY, aggregate fishing mortality is less than *F*MSY and the adult biomass is greater than *B*MSY. As such, at this point in the stock's exploitation history, decision rules are not mandatory, and specific mechanisms to control harvest are not needed (although these have been implemented for other species when required). However, to expedite the precautionary consideration of such rules and mechanisms, AAFA are required to take appropriate steps to request that management agencies begin a process to develop a framework for development and clear documentation of decision rules and appropriate harvest control mechanisms in the fishery.

Timescale:
Appropriate requests from AAFA should be made within 6 months of certification of the fishery.

Relevant Scoring Indicator: 1.1.3.6, 1.1.3.7

APPENDICES

Appendix A: Peer Review Reports

1. Peer Reviewer Biographies
2. Peer Review Report A
3. Peer Review Report B

Appendix B: Client Action Plan

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score
Principle 1	**A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.**		**33.3**	**87**
1.1 *(MSC Criterion 1)*	**The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.**		**50.0**	**91**
1.1.1	There should be sufficient information on the target species and stock separation to allow the effects of the fishery on the stock to be evaluated.		**25.0**	**-**
Weighting Commentary	The three MSC criteria are considered of equal importance, but Criteria 2 is not applicable to this fishery and is therefore not weighted. The four sub-criteria under 1.1 (MSC Criterion 1) and the Performance Indicators under sub-criterion 1.1.1 are also considered of equal importance; essentially representing a 'logical sequence' of issues.			
1.1.1.1	Is the species readily identified as adults and juveniles?		14.3	100
60 Misidentification is possible and increases recording errors of catches, but this does not compromise monitoring to unacceptable levels.	The species is readily identified by fisheries and regulators and is recorded appropriately. The only temperate tuna species with distinctive, very long pectoral fins extending over half the length of the body Generally is not found in mixed schools with other tuna species, except occasionally bluefin tuna which are easily separated. Possible confusion between pre-adult bigeye tuna and large, adult albacore based on morphology, but habitats of two species are separate and species very rarely caught together.	R9		
80 The target species are unlikely to be confused with any other species and is recorded appropriately				
100 The species is readily identified by fishers and by regulators and is recorded appropriately.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.2		Is the life history of the species understood and the spawning and nursery areas well described?		14.3	85
60	There are gaps in information but the basis of the life history is understood. There is some information on spawning and nursery areas.	The life history is understood and very well documented and all life stages are identifiable. Distributions of larvae are not well described. Pre-adult and adult migrations are relatively well described (1 year+) through conventional and archival tagging in the North Pacific, but only conventional tagging in the South Pacific. Spawning areas in the North Pacific and South Pacific oceans have been identified in lower latitudes, mostly mid-ocean areas, by ichthyoplankton surveys. Nursery habitat in mid-ocean upper water column in subtropical areas where little surface tuna fishing takes place. Albacore are pelagic spawners, so interactions with the sea-bed are not relevant. Spawning areas very remote from surface fishing areas. While longline fisheries operate at depth in areas where there is spawning, there is no targeting by surface fisheries of early juvenile stages.	R5a, R35, R25		
80	The life history of the species is clearly documented and understood. Spawning and nursery areas are known.				
100	The life history of the species is clearly documented and understood including behaviour and ecological interactions. Spawning and nursery areas are sufficiently well documented to support closed area / seasons where this is deemed necessary.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.3		Is the geographical range of the target stock known and any seasonal migration described?		14.3	85
60	An estimate of the geographical range of the target stock is available. A management unit approximating the stock is used with some biological justification.	The species is highly migratory making trans-oceanic migrations. North and South Pacific stocks are accepted as separate, distinct populations. Complete geographical range of the stocks, including ontogenic and seasonal patterns of migrations, is understood and verified by conventional tagging studies. These are less well known than in N Pacific.	R5a, R19, R24		
80	A reliable estimate of the geographic range of the target stock is available including seasonal patterns of movement and availability.				
100	The complete geographic range of the stock, including seasonal patterns of movement/availability, is demonstrably understood and verified.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.4		Is there information on fecundity and growth?		14.3	85
60	There is some appropriate information available on fecundity and growth.	Reliable estimates are available on fecundity, growth rates, and length and weight at age. Size composition of landings is used to detect and monitor spatial and temporal shifts and trends in age composition of catches. The time series of these data are shorter in length in the South Pacific than in the North Pacific.	R4, R30, R24, R16		
80	Reliable estimates are available of fecundity at size and growth rates.				
100	There is comprehensive and reliable information on the fecundity at size, growth rates, and length and weight at age, and these are monitored over time to detect trends and shifts.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.5		Is information collected on the abundance/density/composition of the stock?		14.3	85
60	Either fishery dependent or fishery independent indices are available on the abundance / density / composition of the stock biomass. Qualitative information exists on the appropriateness of the indices as proportional indicators of stock status.	Continuous logbook records since the start of the US fishery in the South Pacific provide fishery dependent CPUE indices for estimating and monitoring the relative abundance composition of the stock. Fishery dependent information from the US fishery, as well as from foreign fisheries harvesting South Pacific albacore have been used at South Pacific Albacore Research Workshop series and the South Pacific Commission Standing Committee on Tuna and Billfish meetings to monitor and evaluate trends in South Pacific albacore stock status. Tagging data have been collected for the South Pacific (9691 releases in 1990-92, resulting in 163 recaptures). While the tag releases were done by scientific personnel and fishers, the recoveries were obtained through normal fishing operations. Thus, these data are classified as fishery-dependent. The data resulting from these studies are incorporated into the MULTIFAN-CL assessment. Considerable evaluation of the robustness and appropriateness of the information providing trends in abundance (CPUEs) have been conducted in the context of the stock assessment. These uncertainties were examined through the statistical standardization of the CPUEs and through exploration of alternative model formulations. While uncertainties still remain in some of the data sets, the indices are considered useful for elucidating resource trends. The impact of those uncertainties are considered when the overall scientific advice is formulated. Indices are considered reliable and indicative of stock status.	R43, R30, R24, R16		
80	Fishery dependent and/or fishery independent indices are available on the abundance / density / composition of the stock. Uncertainties have been analysed and those uncertainties have been reduced so as to allow trends to be determined from indices.				
100	Fishery dependent and fishery independent indices are available on the abundance / density / composition of the stock. Indices are consistent and there is clear evidence that they are proportional to the stock status.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.6		Is information available on environmental influences on the stock dynamics?		14.3	80
60	Some relevant studies have been undertaken on the effects of biological and physical influences on the stock (including natural mortality). Research is encouraged and ongoing.	Migration and availability are key factors for this species. Environmental variability over broad spatial (ocean basin large-scale to local meso-scale) and temporal (many decade to days) scales affects South Pacific albacore stock dynamics including distribution, recruitment, migration rates and routes, relative abundance, availability, and vulnerability to capture. Environmental variability affecting albacore may result from long-scale remote teleconnections to local oceanic processes. Relationships of migration, availability and vulnerability to oceanography are well described, Year class strengths (related to el Nino, la Nina) are well described. Albacore are not a main prey species, therefore there are no known critically dependent predators, Natural mortality is estimated in modelling and through life-history characteristics.	R17, R18, R24, R33		
80	There is sufficient knowledge of biological and physical factors affecting distribution, survival and year class strength (including natural mortality) to allow an estimation of effects on stock dynamics.				
100	There is sufficient knowledge of biological and physical factors affecting distribution, survival and year class strength (including natural mortality) to allow detailed estimation of effects on stock dynamics.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.1.7		Is there information on the variability in recruitment and can this be used to predict recruitment to the fishery?		14.3	80
60	There is some information on factors generating recruitment variability, including some time-series data.	Recruitment has been monitored on a South Pacific stock basis through the international South Pacific Albacore Workshop series and the South Pacific Commission Standing Committee on Tuna and Billfish. Coordinated research is ongoing in several countries, including the US, on recruitment variability and factors affecting recruitment of the South Pacific albacore stock. The stock assessment has generated a long time series of data on recruitment trends. Coordinated research is ongoing in several countries on recruitment variability and factors affecting recruitment of the South Pacific albacore stock. Progress is being made in this area, but its predictive ability is currently limited.	R33, R16		
80	There is some direct measurement of recruitment and/or ongoing research into the factors generating recruitment variability so as to predict future recruitment. Good time series data are available.				
100	There is reliable monitoring of recruitment and/or strong evidence of ongoing research projects to study recruitment variability factors with some evidence of an understanding of those factors. Information, built up over a long time series exists and can be reliably used to predict recruitment for medium term stock projections.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.2		There should be sufficient information on the fishery to allow its effects on the target stock to be evaluated		25.0	-
Weighting Commentary		Within this sub-criterion, greatest weight is given to the recording of landings from the total stock (essentially for stock assessment) and, allied to this, the knowledge of other fisheries pursuing the stock (the US Pole and Troll fleet only taking a small proportion of total landings).			
1.1.2.1		Are all major sources of fishery related mortality recorded/estimated, including landings, discards, incidental mortality and mortality of juveniles?		43.0	90
60	Sufficient information is available to allow accurate estimates to be made of landings. Estimates of discards and incidental mortality are available.	Systems for accurately recording landings for the US troll fishery have been in place since soon after it began operating in the South Pacific. Likewise systems are in place for recording landings made by foreign fisheries operating on the South Pacific population. Albacore landings data from all fisheries operating in the South Pacific have regularly been exchanged among fisheries scientists from the various countries that operate fisheries, through the South Pacific Albacore Research Workshop series and the South Pacific Commission Standing Committee on Tuna and Billfish. Estimates of discards are available from observer records, which show that discards are quite low; observer information is limited, but consistent. Fishermen tend to avoid schools of small size albacore, which are often naturally largely segregated by size, because of lower prices paid for small fish. Incidental mortality, based on tagging studies, is believed to be low.	R3, R33		
80	Landings are accurately recorded. Discards and incidental mortality are well estimated.				
100	Landings, discards and incidental mortality are accurately monitored.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.2.2		Are fleet descriptions, fishing methods and gear types known throughout the fishery?		9.5	100
60	Main fishing methods and gear types are known for the fishery. Information is available on the size and composition of the fleet, but is not regularly updated. Seasonal and geographical variations are estimated.	For the US troll/jig fishery (there is currently no US pole & line fishing in the South Pacific), all fishing methods and gear types employed by vessels operating in fisheries on South Pacific albacore are known and information is available on geographic areas of use, notably fishing locations are recorded in logbooks. All US vessels operating on South Pacific albacore are mandated by the High Sea Compliance Act to have a Federal permit. In addition, they are regulated by the Western Pacific Fishery Management Council. Individual permit status is monitored annually by NMFS and are reported in aggregate to the appropriate management bodies. The WPFMC HMS FMP includes legal definitions for gear types and authorize its use; any gear not authorized is illegal. Status of Stocks and Fishery Evaluation (SAFE) reports are prepared annually that include data on the size and composition of the fleets operating on albacore. The FMP also requires vessels to carry observers to make in-situ observations of fishing operations, if deemed necessary by the councils.	R29, R33, R28, R40		
80	Main fishing methods and gear types are known and information is available on the geographical areas of use. Recorded information is available on the size and composition of the fleet. This is updated at appropriate intervals. Seasonal and geographical variations are known.				
100	All fishing methods and gear types employed in the fishery are known. In-situ observations are made of fishing practices. Information on the size and composition of the fleet, and seasonal and geographical variability, is recorded and regularly reviewed.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.2.3		Is the target species taken in other fisheries in the area that are not subject to this certification and are such catches recorded or estimated?		41.6	95
60	There is an appropriate level of information relating to other fisheries in the area that are not subject to this certification, although these are not fully identified. Catches are estimated.	All fisheries that operate on the South Pacific albacore stock that are not subject to this certification are identified and monitored. Although IUU fishing may occur, it is highly unlikely to be significant. All catches are recorded and data have regularly been contributed by the respective country formerly to the South Pacific Albacore Research Workshop series and the South Pacific Commission Standing Committee on Tuna and Billfish meetings. Data provided includes 1) catches and vessels, 2) summarized catch and effort, and 3) size composition.	R33		
80	The main fisheries not subject to certification are identified. Catches of the target species are either recorded or reliably estimated.				
100	All fisheries (and other sources of human-induced mortality) in the area that are not subject to this certification are identified and monitored. All the catches are recorded.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.2.4		Is gear selectivity known for the fishery?		5.9	90
60	Information is available on selectivity and qualitative changes in selectivity.	Fishermen routinely use fishing strategies wherein they move away from shoals of small fish. This action can be effective since albacore tend to form schools of fish of about the same size. Fishermen are motivated to avoid catching small fish not only for conservation purposes, but because there is little market demand for albacore less than nine pounds, and prices paid for fish less than nine pounds can be substantially discounted. Size frequency data are also available from pole and troll fisheries, which gives a clear time series of data on selectivity. There are differences between the North and South Pacific in terms of stratification of selectivity data by time and space (reporting is more accurate temporally in South and spatially in N), but satisfactory data are available on both.	I1, R3		
80	Selectivities of gear types are well estimated for key locations and times.				
100	Full selectivities have been accurately estimated for all gears, locations and times of fishing over a suitable time period.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3	**There is a well-defined and effective harvest strategy to manage the target stock.**			25.0	-
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
1.1.3.1		Are there appropriate limit and precautionary reference points based on stock biomass and fishing mortality?		12.5	90
60	Limit and precautionary reference points have been chosen and are justified based on standard international practice.	Standard limit and precautionary reference levels are defined and estimated (based on BMSY and FMSY). As in most assessments, the stock recruitment data from the assessment are not very discriminating. Thus, the BMSY, FMSY depend upon the steepness parameter. Based on similar stocks, the prior belief was that a reduction in equilibrium recruitment (when the equilibrium spawning biomass is reduced to 20% of its unexploited level) would be fairly small (a decline of 10%). Incorporating this modelling into the assessment resulted in estimates of BMSY and FMSY. At present there are no statistical simulations of the robustness of management based on these assessments, but estimates of Bmsy and Fmsy are being made. Current assessments indicate that the stock is well above precautionary biomass limits	R17, R33, R40		
80	Limit and precautionary reference points are justified based on stock biology (e.g. a stock-recruitment relationship) and are measurable given data and assessment limitations.				
100	Limit and precautionary reference points are justified based on stock biology, uncertainty, variability, data limitations and statistical simulations of these factors.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.2		Is the stock status evaluated relative to appropriate reference points?		12.5	90
60	The stock status is estimated relative to reference points.	Biomass and F trajectories are evaluated relative to BMSY and FMSY standards discussed in 1.1.3.1. above. Stock projections have been conducted in the recent assessments indicating both short term and equilibrium (long term) trends. These were done under assumptions that current fishing mortality rates will continue. Additionally, the robustness of these estimates on future trends are also evaluated. Data are examined regularly, allowing any issues to be identified and evaluated within appropriate timescales.	R17, R33		
80	There is an approximated evaluation of the stock status relative to the reference points.				
100	There is a reliable evaluation of the stock status relative to the reference points and these provide short and longer term forecasts.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.3		Does the evaluation take into account major uncertainties in data and have assumptions been evaluated?		12.5	85
60	Major uncertainties are identified. Some attempt has been made to evaluate these.	Most major uncertainties have been evaluated. It is noted that in the MULTIFAN-CL assessment, various priors, penalty functions and parameter distributions have been used. Thus, model outputs (posteriors) are a measure of the uncertainties. Additionally, impacts of major alternative model structures were tested. Results indicated that major research emphasis should be placed on: 1) information on vertical habitat utilization by albacore and gear configuration and fishing depth information for longline vessels targeting albacore, to enable estimation of effective longline fishing effort; and 2) accurate estimation of fishery impacts and sustainable yield ultimately requires information allowing more accurate estimation of absolute abundance. For widely distributed mobile species such as albacore, large-scale conventional tagging probably remains the only viable option.	R17, R33		
80	The evaluation takes into account major uncertainties in the data and functional relationships. The most important assumptions have been evaluated and the consequences are known.				
100	The evaluation addresses all significant uncertainties in the data and functional relationships and evaluates the assumptions in terms of scope, direction and bias relative to management-related quantities.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.4		Are uncertainties and assumptions explored and reflected in management advice?		12.5	85
60	Major uncertainties are recognised and are reported in management advice, as well as possible implications of those uncertainties on the management advice.	The assessment reports clearly present uncertainties and assumptions, as explained in section 1.1.3.3. These are conveyed through the management process. In particular, the unlikelihood of precautionary limits being exceeded despite the uncertainties have been reiterated in the scientific reports and in the reports to the Commission(s)	R17, R33		
80	Major uncertainties and assumptions are addressed in the management advice and through the appropriate decision rules to address those limitations.				
100	All significant uncertainties and assumptions are addressed and reflected in the management advice, including appropriate decision rules.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.5		Does the assessment include the consequences of current harvest strategies?		12.5	85
60	The evaluation makes an initial approximation of the consequences of current harvest strategies.	Equilibrium yield curves versus fishing mortality rate have been computed. Additionally, estimates of current fishing mortality results are given. Both the fishing mortality rate estimates and the equilibrium (long term) annual rates have been examined under the noted uncertainties in their estimates. Thus, the assessment indicates that advice on current harvest is robust to the uncertainties.	R17, R33		
80	The evaluation includes a robust approximation of the consequences of current harvest strategies. Uncertainties are considered in harvest strategy evaluations.				
100	The evaluation includes the consequences of current harvest strategies, forecasts future consequences of these and evaluates stock trajectories under decision rules.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.6		Are clear, tested decision rules set out?		12.5	75
60	It can be demonstrated that decision making, though not documented, is logical and appropriate. Rules may not have been tested.	The scientific basis for decision making is well established and documented. At this point in the stock's exploitation history, decision rules are not mandatory, but effort should be made soon to begin the definition/evaluation process. Decision rules are currently based on the fundamental B/BMSY and F/FMSY benchmarks. Reconciliation with reference points and data/assessment limitations is undertaken as discussed above. The overarching decision rule to maintain stocks at or above MSY has been established and codified by the Commissions. Thus, this decision rule in place is consistent with reference points from the assessment and the limitations of data that are inputs to the assessment.	R17, R33, R39, R40		
80	Clear decision making rules exist, are fully documented, but may not have not been fully evaluated. Decision rules are reconciled with appropriate reference points and with data and assessment limitations.				
100	Clear, documented and tested decision rules are fully implemented and have been fully reconciled with reference points, and the data and assessment limitations, and have been periodically evaluated.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.7		Is there a mechanism in place (via input or output controls) to contain harvest as required?		12.5	75
60	Mechanisms exist to monitor and (if necessary) reduce harvest, but may not fully contain harvest, or have not been tested/evaluated.	Mechanisms (should they be needed) can be initiated through the IATTC and WCPFC. Comparable actions have been taken by IATTC and WCPFC for other species (such as yellowfin and bigeye tunas). Currently, measures are in place in all three Commissions to not allow increases in fishing effort on albacore. This is exemplified by the Conservation and Management Measure WCPFC-03 which went into place on Feb 16, 2006.	R11, R39, R40		
80	Appropriate mechanisms are in place to contain harvest as and when required to maintain, or allow the target stock to return to, productive levels.				
100	Mechanisms are in place to contain harvest as and when required to maintain (or allow the target stock to return to) productive levels. Specific measures to demonstrate effectiveness are in place.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.3.8		Are appropriate management tools specified to implement decisions in terms of input and/or output controls?		12.5	80
60	Management tools exist to implement decisions of input and/or output controls although these are not developed for the specific fishery, or management tools are not fully developed, but are specifically related to the fishery. Some evidence exists to show that tools can be effective.	IATTC and WCPFC jurisdiction covers both the North and South Pacific. Conservation Measures are put forward through the commissions (IATTC and WCPFC); for example IATTC's 2005 Conservation Measure (and WCPTC in 2006 where jurisdictions differ) requires a cap on effective effort (i.e. F) and accelerated reporting of catches. Mechanisms to control output/input are under national control by parties to the commission. In the US, control is exercised through effort limitations (input controls) via permitting limitations. For albacore, this Conservation Measure was implemented in 2006 and so has not yet been tested. Previous limitations from IATTC have, however, been implemented for other species and have been shown to have been effective (e.g. yellowfin in 1970's and bigeye in 1990's).	R11, R33, R38, R39		
80	Management tools have been specified to implement decisions of input and/or output controls. These are generic although some attempt has been made to relate them to the specific fishery OR tools are lacking in some details but are specifically related to the fishery. Evidence exists to show clearly that tools are effective.				
100	Management tools, appropriate to the species and fishery, have been specified to implement decisions of input and/or output controls. Tools are responsive, relevant and timely. Performance of the tools has been evaluated and evidence exists to show clearly that tools achieve their objectives.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.1.4	**The stock is/are at an appropriate level to maintain long-term productivity.**			25.0	-
1.1.4.1		Is there evidence that stock status is consistent with that providing long-term productivity? **[YES - Criteria 1 is complete. NO - Answer Criteria 2]**		100	100
60	The stock is likely to be above the limit reference levels and trends in the stock are positive.	The estimation of equilibrium yields as a function of fishing mortality and *F*- and *B*-based reference points is hampered by the very low resolution of absolute abundance estimates by the model. This is likely to result from the combination of low exploitation rates, a small amount of tagging data, and no independent information on tag-reporting rates. Nevertheless, the model results continue to indicate that recent catches are less than the MSY, aggregate fishing mortality is less than *F*MSY and the adult biomass is greater than *B*MSY. Results indicate that recent that current status is not very near to BMSY or FMSY, i.e. the stock is highly likely to be consistently above precautionary reference levels.	R17, R33		
80	The stock is likely to be above precautionary reference levels				
100	The stock is highly likely to be consistently above precautionary reference levels.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.2 (MSC Criterion 2)	**Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.**			-	-
1.2.1		If the stock is below the appropriate reference point, or trends in the stock are significantly negative, are measures to rebuild the stock specified?		-	-
60	Appropriate rebuilding measures through reduction in exploitation exist and are being implemented. Rebuilding measures other than reduction in exploitation are being considered. Measures are implemented but may not have not been tested.	As detailed above, no evidence of depletion is evident and so this Criterion is not applied to this fishery.	R40, R33		
80	Appropriate rebuilding measures are being implemented to promote recovery within reasonable time frames. Measures have been tested, in this or a comparable situation, and can be shown to be effective in rebuilding the stock.				
100	Appropriate rebuilding measures are being implemented to promote recovery as quickly as possible. Additional measures are being implemented to prevent problems in the future.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

1.3 *(MSC Criterion 3)*		**Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.**			**50.0**	**83**
1.3.1		**Fishing activity maintains the age, genetic structure or sex composition of the stock to a degree that does not impair reproductive capacity.**			**100**	**-**
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.				
1.3.1.1		Is there adequate information on the stock sex and age structure and the existence of possible sub-populations?			33.3	80
60	There is some information available on the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity.	Genetic studies on albacore in the Pacific and South Atlantic do not show any genetic differences. Geographic information is available on both landings and CPUE at the same scale, and is sufficiently discriminatory to detect any obvious geographic differences in stock status. Estimates are available of the age composition of the catch (from lengths) by geographic area and for each major fishery. These are monitored using length frequency data translated by statistical methods to age composition. Estimates are also available on the sex structure (from observer studies). The relationships between age and sex structures and reproductive capacity have been examined. Further reproductive studies have been recommended by the 19th NPAW.	R30, R17			
80	Estimates are available of the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity.					
100	There is comprehensive and reliable information on the sex and age structure and the presence of sub-populations within the stock, and the relationship of these to reproductive capacity as well as evaluations of the implications of shifts in these parameters on productivity and management quantities.					

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.3.1.2		Is the age and sex structure and status of sub-populations of the stock monitored so as to detect any impairment of reproductive capacity?		33.3	80
60	Population structure is based on some sampling and verification. Some monitoring of sub-populations is available as necessary.	The population structure is based on adequate sampling and verification for this stock. Sampling and monitoring are ongoing and increasing. While genetic analyses have found no significant differences between albacore in the Pacific and Atlantic Oceans, a wealth of information (including tagging data, distribution of fishery catches, migration patterns, and size and age compositions) provides evidence that the albacore stocks in the North and South Pacific are separate and distinct.	R19, R33, R30,		
80	Population structure is based on adequate sampling and verification for this stock. Genetic or sub-population studies have been carried out as appropriate.				
100	Population structure is well estimated with only insignificant errors. Genetic or sub-population studies have been conducted at appropriate time intervals.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
1.3.1.3		Does information indicate any changes in structure that would alter reproductive capacity?		33.3	90
60	Changes is stock structure have been detected but there is no evidence of negative effect on recruitment of the stock.	There is neither evidence nor any indication that the fishery has caused changes in stock structure of the South Pacific population of albacore. Age structure is monitored through the assessment process. The South Pacific stock is currently estimated as being only 3% depleted from unexploited conditions, suggestive of a more robust population structure.	R17, R33		
80	Evidence exists that the fishery has not caused changes in stock structure that would affect recruitment.				
100	Data strongly indicate a robust age, sex and genetic structure in the stock, such as would maintain reproductive capacity.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score
Principle 2	**Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends**		**33.3**	**93**
2.1 *(MSC Criterion 1)*	**The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.**		**50.0**	**91**
2.1.1	**There is adequate determination of ecosystem factors relevant to the geographical scale and life history strategy of the target species.**		32.0	-
Weighting Commentary	The three MSC Criteria are given equal weightings, but Criteria 3 is not applicable to this fishery and is therefore not weighted. Sub-criteria under MSC Criterion 2.1 are weighted equally except 2.1.3, relating to habitat impacts and possible 'ghost fishing', which is down-weighted – these issues being of relatively minor importance for such a highly pelagic fishery. Under sub-criterion 2.1.1, the Performance Indicators are weighted equally, again with the exception of the Indicator relating to knowledge of habitat.			
2.1.1.1	Are the nature, sensitivity and distribution of habitats relevant to the fishing operations known?		4.0	100
60 Information exists on the main habitat types but may not be comprehensive or up to date. The seasonal distribution of fishing operations is known.	The nature, sensitivity, and distribution of habitats relevant to the fishing operations are well known. The habitat, which is generally defined as open ocean pelagic areas often associated with regions of oceanic frontal structure, has remained constant throughout the history of the fishery. Oceanographic conditions and their influence on albacore and other fish stocks are monitored on an ongoing basis. The distribution of fishing operations and their effort is monitored using mandatory logbook records and available to fishery managers via reports from the National Marine Fisheries Service and the Secretariat Pacific Community Standing Committee on Tuna and Billfish.	R3, R29, R33		
80 The nature and distribution of all main habitat types are known in moderate detail. Information is recent. The distribution of fishing operations is monitored and the sensitivity of key habitats is understood.				
100 The nature, sensitivity and the distribution of all habitats relevant to the fishing operations are known in detail. Information is recent. The distribution of fishing operations and their effort is monitored.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.1.2		Is information available on non-target species directly affected by the fishery?		32.0	100
60	The main non-target species affected have been identified.	Hook and line trolling for albacore is a notably 'clean' fishing method that catches one fish at a time. Extremely limited catches of non-target species may be occasionally taken in troll fishing operations, mostly when transiting to/from albacore fishing areas and ports. These species may include skipjack tuna, bluefin tuna, yellowfin tuna, bigeye tuna, eastern Pacific bonito, dorado (mahi mahi), billfish, and sharks. The distributions and ecologies of all of these species caught incidentally are well described. Average discard rate for HMS troll fisheries globally is 0.1%.	R3, R14		
80	Information is available on non-target species directly affected by the fishery including some information on their distribution and ecology.				
100	Information is available on all non-target species directly affected by the fishery including their distribution and ecology.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.1.3		Is information available on the trophic position, status and relationships of the target species within the food web?		32.0	90
60	Key prey, predators and competitors are known.	General information is available on the trophic position, status and relationships of the albacore within the food web and ecosystem analyses have provided information of major interactions. The CLIOTOP programme (multi-national, multi-disciplinary study) is applying ecosystem modelling techniques in the South Pacific. Pre-adult and adult albacore are opportunistic carnivores whose diets may vary between inshore and mid-ocean portions of its habitat. Albacore is not a common forage species, but may play minor roles in the diet of some marine mammals, tunas, billfishes, and large sharks; there is no evidence of critically dependent predators.	R18, R10, R5		
80	Information is available on significant aspects of the position, relationships and importance of target species in the food web at key life stages.				
100	Information is available on the position and importance of the target species and relationships within the food web at key life stages. Specific information is available on major interactions.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.1.4		Is there information on the potential for the ecosystem to recover from fishery related impacts?		32.0	85
60	Key elements of the functioning of the ecosystem, relevant to the fishery, are identified.	The main elements of the functioning and dynamics of the South Pacific open ocean ecosystem relevant to the tuna fisheries are generally known and the subject of a major multidisciplinary and multi-country research program (CLIOTOP). The magnitude of the troll fisheries by all countries is small, less than 10% (U.S. troll about 3% to 5%) of the total South Pacific albacore annual catch, and is believed to have minimal potential ecosystem impacts.	R5, R10		
80	The main elements of the functioning of the ecosystem, relevant to the fishery, are understood.				
00	Detailed information is available on the potential for affected elements of the ecosystem to recover from fishery related impacts.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.2	**General risk factors are adequately determined.**			32.0	-
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
2.1.2.1		Is information available on the nature and extent of the by-catch (capture of non-target species)?		50.0	90
60	Qualitative information is available on significant by-catch species.	Both observer and logbook records indicate that the fishery rarely takes by-catch species. Records on the nature and extent of all by-catch species are required by the HMS FMPs under which this fishery operates and are routinely supplied by fishers.	R3, R28, R37		
80	Quantitative information is available on significant by-catch. If obtained by sampling, this is considered sufficient to provide adequate information.				
100	Accurate records are kept on the nature and extent of all by-catch species.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.2.2		Is information available on the extent of non-retained catch?		50.0	95
60	Information is available of the extent of non-retained catch, or the likely significance of this.	Information from observer records, logbook records, and cannery landing records indicate that generally the entire catch taken is landed. The fishery has minimal 'high grading', rarely catches non-target species, and has very little, if any, by-catch. Average discard rate for HMS troll fisheries globally is 0.1%. WPFMC HMS FMP requires that all non-retained catch be logged; this is routinely complied with by fishers.	R14, R37		
80	Information is available to allow estimates of the non-retained catch to be calculated and interpreted.				
100	Accurate and verifiable information is available on the extent of all non-retained catch, and the consequences of these. Or the entire catch is landed.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.3	**There is adequate knowledge of the effects of gear-use on the receiving ecosystem and extent and type of gear losses.**			4.0	-
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
2.1.3.1		Is there adequate knowledge of the physical impacts on habitat due to use of gear?		50.0	90
60	Main impacts of gear use on habitat are identified or can be estimated, including extent and locations of use.	The fishery is executed in the epipelagic zone of the open ocean by trolling feathered jigs through the water. There is no contact with the sea bed and no known physical impacts on the habitat due to the use of these fishing gears.	R8		
80	Impacts of gear use on the habitat are identified or can be reliably estimated including reliable information on the extent, timing and location of use.				
100	The physical impacts on the habitat due to use of gear have been studied and quantified, including details of any irreversible changes.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.3.2		Is any gear lost during fishing operations and can 'ghost fishing' occur?		50.0	80
60	Some recording of gear losses takes place and an assessment can be made of possible 'ghost fishing'.	The gear used in hook and line trolling is simple and well documented. Individual trolling lines are generally 3 to 20 fathoms long and constructed from ¼-inch braided nylon with a 2 fathom leader made from 200 to 260 pound test nylon monofilament with an artificial feathered jig with a barbless double hook attached. Information from industry indicates that gear loss is very rare and when it occurs, is usually limited to the 2 fathom monofilament leader and/or the feathered jig. This will rapidly sink if lost and become unavailable to seabirds, marine mammals or sea turtles. Ghost fishing on target and non-target species from lost gear is likely non-existent because the jig must be trolled through the water in order to attract and catch fish.	R8		
80	There is knowledge of the type, quantity and location of gear lost during fishing operations. Estimates made show that losses do not cause unacceptable effects on the ecosystem through for example 'ghost fishing'.				
100	There is detailed knowledge of the type, quantity and location of gear types lost during fishing operations. The impact of gear loss on target and non-target species can be shown to have negligible effects on habitats, ecosystems or species of concern through for example 'ghost fishing'.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.4	**Assessments of impacts associated with the fishery including the significance and risk of each impact show no unacceptable impacts on the ecosystem structure and/or function, on habitats or on the populations of associated species.**			32.0	-
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance with the exception of 2.1.4.3, relating to impacts on habitat.			
2.1.4.1		Does the removal of target stocks have unacceptable impacts on ecosystem structure and function?		24.2	85
60	The removal of target stocks could lead to impacts upon ecological systems (applying the precautionary approach where necessary). A programme is in development to identify these and, if appropriate, reduce mortality to acceptable limits.	Sufficient information is available from ecosystem research and modelling on the consequences of current and simulated higher levels of removal of the albacore target species to suggest no predictable unacceptable impacts of the fishery on ecological systems within the central South Pacific Ocean over forseeable time scales.	R5, R10, R32		
80	Sufficient information is available on consequences of current levels of removal of target species to suggest no unacceptable impacts of the fishery on ecological systems within major fishing areas.				
100	The ecological consequences of current levels of removal of target stocks have been evaluated and determined to be within acceptable limits.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.4.2		Does the removal of non-target stocks have unacceptable impacts on ecosystem structure and function?		24.2	85
60	The removal of non-target stocks could lead to impacts upon ecological systems (applying the precautionary approach where necessary). A program is in development to identify these and, if appropriate, reduce these to acceptable, defined limits.	Levels of by-catch are extremely small, and evaluation of the effects of these is likely to be within background 'noise'. ECOPATH and other analyses are available should they be required to further evaluate impacts of the fishery on central South Pacific ecosystems.	R5, R10		
80	Sufficient information is available on consequences of current levels of removal of non-target species to suggest no unacceptable impacts of the fishery on ecological systems within major fishing areas.				
100	The ecological consequences of current levels of removal of non-target stocks have been evaluated and determined to be within acceptable limits.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.4.3		Does the fishery have unacceptable impacts on habitat structure?		3.0	95
60	There is no evidence that the fishery is having unacceptable impacts, based on a reasonable understanding of the fishery, although the issue has not been directly studied.	There is no mechanism for the fishery to have unacceptable or detrimental impacts on the open ocean water habitat within major fishing areas and/or sensitive habitats elsewhere. The fishery is conducted on or near the sea surface by hook and line trolling. Accordingly, no specific studies have been undertaken, nor are these considered appropriate.	I1, R23		
80	It can be demonstrated that the fishery does not have unacceptable impacts upon habitats within major fishing areas or on sensitive habitats elsewhere.				
100	Effects on habitat structure are well documented and are within acceptable tested/justified limits.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.4.4		Are associated biological diversity, community structure and productivity affected to unacceptable levels?		24.2	80
60	There is no evidence that the fishery is having unacceptable impacts, based on a reasonable understanding of the fishery, although the issue has not been directly studied.	Analyses involving tuna fisheries (concentrating on yellowfin and bigeye tunas, but including albacore) do not indicate any unacceptable impacts on the biological diversity, community structure and productivity of the mid-ocean ecosystem.	R10, R32		
80	The effects of the fishery on biological diversity, community structure and productivity have been considered and it can be demonstrated/justified that there are no unacceptable impacts.				
100	The effects of the fishery on biological diversity, community structure and productivity have been quantified and are within acceptable tested/justified limits.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.1.4.5		Are management objectives set in terms of impact identification and avoidance/reduction?		24.2	100
60	Management objectives include for some impact identification and avoidance/reduction.	In accordance with the national standards and other provisions of the Magnusson-Stevens Conservation and Management Act, management objectives are set out in the WPFMC HMS FMP, including the requirement to detect and reduce impacts and to protect populations of target and not-target species, essential marine habitat, and ecosystems, e.g. to reduce by-catch to the minimum level practicable.	R29, R37		
80	Management objectives are set to detect and reduce impacts. These are designed to adequately protect key aspects of the ecosystem within main fishing areas.				
100	Management objectives are set to detect and reduce impacts. These are designed to adequately protect ecosystems, habitats and populations of target and non-target species.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

2.2 *(MSC Criterion 2)*	**The fishery is conducted in a manner that does not threaten biological diversity (at the genetic, species or population levels and avoids or minimises mortality of, or injuries to endangered, threatened or protected species.**				**50.0**	**94**
2.2.1	**Fishing is conducted in a manner, which does not have unacceptable impacts on recognised protected, endangered or threatened species.**				50.0	-
Weighting Commentary		Within this Criterion, all Sub-criteria and Performance Indicators are weighted equally.				
2.2.1.1		Is there information on the presence and populations of protected, endangered or threatened species?			33.3	95
60	There is a programme in place to identify protected, threatened and endangered species directly related to the fishery. There is periodic monitoring of the main population trends and status of protected, endangered and threatened species.	Due to the nature of the fishery, there rarely are direct interactions with protected, threatened or endangered species. Nevertheless, populations of protected, threatened, and endangered species that potentially may be present in areas where the fishery takes place have been identified and their populations monitored on a regular basis, including turtles, seabirds and mammals. Fishermen are also mandated to report all interactions with protected, threatened, and endangered species and are provided training in procedures for avoiding and releasing listed species, most notably seabirds, in the event that interactions occur. PET species are identified by US Endangered Species Act and Marine Mammal Protection Act. Marine mammals, seabirds and turtles are subject to research and monitoring programmes, with appropriate measures implemented where significant impacts are identified. No critical habitat is identified relevant to this fishery.	R29, R37		
80	Key protected, threatened and endangered species directly related to the fishery have been identified. Populations are monitored on a regular basis.					
100	There is knowledge of all populations of protected species directly or indirectly related to the fishery including their dynamics. Regular monitoring of protected, endangered and threatened species is undertaken, supported by research programmes to assess threats and promote their conservation. The type and distribution of critical habitats have been identified.					

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.2.1.2		Are interactions of the fishery with such species adequately determined?		33.3	90
60	The main interactions directly related to the fishery are known.	The fishery rarely has direct interactions with PET non-target species. Nevertheless, there is a requirement to record and report all incidental mortalities and provisions are available to evaluate the effects of any interactions that may occur. This is supported by a long history (since late 1950's) of observer and research coverage of this type of fishery. There are no opportunities for indirect impacts and no significant interactions have been identified in relation to this fishery..	R3, R37, R38		
80	Estimates are made of the effects of interactions directly related to the fishery. There is a requirement to record and report all incidental mortalities.				
100	Reliable quantitative estimates are made of the interactions of all populations directly related to the fishery, and qualitative information is available on indirect impacts. Incidental mortalities are recorded and reported.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.2.1.3		Do interactions pose an unacceptable risk to such species?		33.3	95
60	Known effects are within acceptable limits of national and international legislative requirements and are believed to create no biological threats to the species concerned.	As discussed in 2.2.1.2, interactions of fisheries and PET species are evaluated and significant impacts specifically identified. No significant impacts have been identified for this fishery and the history of zero known takes of listed sea turtles, marine mammals, and fishes and near zero takes of listed seabirds further demonstrates that the effects of the fishery on threatened and endangered species are within scientifically acceptable limits.	R37, R38, R39		
80	Critical interactions are well estimated and do not threaten protected species.				
100	It is known that the direct and indirect effects of fishing on threatened and endangered species are within acceptable limits.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
2.2.2	**Strategies have been developed within the fisheries management system to address and restrain any significant impacts of the fishery on protected, endangered or threatened species.**			50.0	-
2.2.2.1		Are management objectives and accompanying strategies in place in relation to impact identification and avoidance/reduction?		100	95
60	Some management systems exist in terms of impact identification and avoidance/reduction.	The HMS FMP, under which the albacore fishery operates, sets forth management objectives that are intended to protect endangered and threatened species and include the detection and reduction of any impacts of the fishery on listed species. Although the albacore fishery has a history of near zero interactions with listed species, fishermen are nevertheless provided training on the identification of listed species, e.g. seabirds, and actions to take in the event of an interaction.	R29, R37		
80	Management objectives are set to detect and reduce impacts. Accompanying strategies are designed to adequately protect endangered and threatened species within main fishing areas.				
100	Tested management objectives are set to detect and reduce impacts Accompanying strategies are designed to adequately protect endangered and threatened species.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

2.3 *(MSC Criterion 3)*		**Where exploited populations (of non-target species) are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.**			-	-
2.3.1		**There are management measures in place that allow for the rebuilding of affected populations.**			-	-
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.				
2.3.1.1.		Is there sufficient information to allow determination of necessary changes in fishery management to allow recovery of depleted populations?			-	-
60	There is some information on functional relationships, sufficient to allow alterations to be made to fishing to recover and rebuild depleted species.	No populations of non-target species, which may be taken as by-catch in this fishery, are identified as being depleted. The distribution of southern bluefin tune is far away from the geographic areas where the U.S. surface troll fishery takes place for South Pacific albacore and there are no known incidental catches of southern bluefin taken by the U.S. albacore troll vessels. This Criterion is not, therefore, relevant to this fishery. Notwithstanding the above, should direct interactions with non-target species occur, there are requirements to record and report all incidental mortalities. Additionally, the regulatory mechanisms exist for evaluating and managing non-target species (under the HMS Fishery Management Plan).	R28		
80	There is adequate information, combined with a precautionary approach wherever necessary, to allow alterations to be made to fishing that would be expected to recover and rebuild depleted species.					
100	There is a clear understanding of functional relationships between the impacted population and the fishery. Intervention measures based on this understanding have been tested.					

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score
Principle 3	**The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable**		**33.3**	**94**
3A	**Management System Criteria**		**50.0**	**94**
Weighting Commentary	Management System criteria (3A) and Operational Criteria (3B) are considered of equal significance. Within 3A, Sub-criteria are considered of equal importance except for issues of incentives and subsidies (3A.4) and control of ecosystem-related effects (3A.7) which are of relatively minor importance within an overall system without subsidies and in a fishery with important management considerations, but low ecosystem impact potential.			
3A.1 (*MSC Principle 3 Intent and Criterion 3*)	**A management system containing an institutional and operational framework exists with clear lines of responsibility.**		15.1	93
Weighting Commentary	Under sub-criterion 3A.1, the interaction and effectiveness of management agencies is considered of greatest significance.			

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.1.1		Are organisations with management responsibility clearly defined including areas of responsibility and interactions?		55.9	95
60	Organisations with management responsibility are known. Responsibilities and interactions require clarification.	Management of the two stocks is through international commissions (Inter-American Tropical Tuna Commission- IATTC and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean - WCPFC) and domestically for the US troll caught albacore fishery through the Highly Migratory Species Fishery Management Plan (HMS FMP) of the Pacific Fishery Management Council. The jurisdictions of the international commissions overlap somewhat. Additionally the WCPFC is a relatively new body for management. However, there have been joint agreements between the two commissions on which commission will take the lead for the South stock (WCPFC) and the North stock (IATTC). Additionally, the scientific/assessment support is currently supplied by the SPC (South stock) and the IATTC (North stock). Additionally, in the latter case the IATTC has delegated the scientific support to the North Pacific Albacore Working Group (an *ad hoc* working group of albacore scientists from countries interested in North albacore), and more recently the Interim Scientific Committee (albacore working group). Also, the scientific advice for management for the South is developed through the Secretariat of the Pacific Community for the WCPFC, providing further review of assessment advice. The HMS FMP provides the regulatory mechanisms needed for the US albacore troll fishery and the mechanisms for advising the US on negotiations for access rights with other countries (Canada). The commissions formulate overarching management regulations based upon recommendations from scientific committees or staff. Regulations are then implemented by individual member and cooperating countries. The USA is a cooperating country of the WCPFS, behaving as a member. Organisations are clearly defined, interactions between organisations are effective, demonstrated by the recent actions on albacore and bigeye tunas. The effectiveness of nation states in dealing with commission recommendations is yet to be fully demonstrated, however.	R11, R12, R13, R20, R33, R36,		
80	Organisations with management responsibility have been defined including key areas of responsibility and interaction.				
100	Organisations with management responsibility are clearly defined including all areas of responsibility and interaction. Interactions are demonstrably effective.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.1.2		Is the system consistent with the cultural context, scale and intensity of the fishery?		11.0	95
60	Inconsistencies may arise in some key areas but a programme is in place to address these.	Management of the fishery operates at several different scales – oceanic/international, national and regional within the US. The international commissions provide avenues for multiple national objectives to be vetted and fishing access be negotiated to meet these objectives. These management systems deal specifically with HMS species, although Ecosystem Approaches and objectives are being developed. Domestic management of the US albacore troll fishery through the HMS FMP allows the incorporation of management actions related to ecosystem effects should they occur. Public input assures that cultural values are considered in the development of management regulations. The US troll albacore fishery offers a specific life-style (cultural context) , i.e. a way of conducting business that is unique. While currently there is a downward trend in number of vessels and upward trend in catches – due to market forces, the management system will allow maintenance of this cultural context. IATTC has long history of considering cultural aspects of member states. The management system within the US is considered wholly consistent with the culture, scale and intensity of the US Pacific fishery.	R11, R12, R13, R20, R29, R33, R36,		
80	The system is consistent with key elements of the cultural context, scale and intensity of the fishery.				
100	The system is entirely consistent with the cultural context, scale and intensity of the fishery.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.1.3		Is the management system subject to internal review?		19.7	90
60	There are mechanisms in place to allow for internal review.	The scientific system supporting management is subject to numerous internal and external reviews through the SPC, SCBT and IATTC, the NPAWG and the Interim Scientific Committee. Additionally, the assessment meetings of the NPAWG are open and transparent. Further, the scientific findings used for domestic US management by the HMS FMP are subject to review by the Pacific Fishery Management Council's (PFMCs) Scientific and Statistical Committee. The IATTC has an internal review process and the WCPFC has an equivalent mechanism. Management conservation measures from commissions are implemented in US albacore fisheries through the Fishery Management Councils. These are subject to legislatively mandated transparency and review processes, including public input. Effective internal review of scientific processes, together with adequate review of other management aspects, takes place at appropriate intervals.	R11, R12, R13, R20, R 29, R33, R36,		
80	The management system is subject to internal review at appropriate intervals.				
100	The management system is subject to regular and frequent internal review. Monitoring and evaluation are ongoing and improvements quickly tested and implemented.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.1.4		Is the management system subject to external review?		13.4	90
60	There are mechanisms in place to allow for external review.	As discussed above, the scientific system supporting management is subject to numerous internal and external reviews through the SPC, SCBT and IATTC, the NPAWG and the Interim Scientific Committee. Additionally, the assessment meetings of the NPAWG are open and transparent. Further, the scientific findings used for domestic US management by the HMS FMP are subject to review by the Pacific Fishery Management Council's (PFMC's) Scientific and Statistical Committee. Since the both the international commissions and the PFMC are politically defined bodies they are not reviewed in the sense of a program review. However, the business and meetings of these bodies are transparent and conducted annually (international) or quarterly (domestic). The degree to which conservation and management objectives are being met are evaluated frequently subject to the review of public opinion and the political ramifications thereof. Management conservation measures from commissions are implemented in US albacore fisheries through the Fishery Management Councils. As well as being subject to legislatively mandated transparency and review processes, there is also a mechanism, often employed, of independent technical review of particularly controversial issues. Ultimate external oversight of the Councils is through Congress. Management is therefore regularly reviewed, but many elements in the implementation of improvements can be lengthy,	R11, R12, R13, R20, R 29, R33, R36,		
80	The management system is subject to external review at appropriate intervals.				
100	The management system is subject to regular and frequent external review.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3 A.2 (*MSC Criteria 1, 2, 4*)	**The management system has a clear legal basis.**			15.1	100
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
3A.2.1		Is the fishery consistent with International Conventions and Agreements?		33.3	100
60	The management system operates under relevant international conventions and agreements, but some management actions may be questionable in relation to the terms of these.	The fishery operates under the US management authority of the Pacific Fishery Management Council. The Council must manage this fishery in concert with the US's international obligations through IATTC and the WCPFC. Thus, the Council's Fishery Management Plan has been established to be fully compliant with these international obligations. The fishery operates consistently with UN conventions, e.g. UN Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks, FAO Code of Conduct, UNCLOS and others. The Commissions regulating HMS stocks, including albacore (notably IATTC and WCPFC) are established through international agreement and treaty. The fishery operates consistently with relevant International Conventions and Agreements (as above) as well as bilateral access agreements between the US and Canada.	R11, R12, R13, R20, R33, R36,		
80	The management system appears to be in full compliance with international conventions and agreements.				
100	The management system is demonstrably compliant with all relevant international conventions and agreements.				

3A.2.2		Is the fishery consistent with national legislation?		33.3	100
60	The management system operates under relevant national legislation, but some management actions may be questionable in relation to the terms of these.	The fishery operates nationally under the Magnuson-Stevens Fishery Conservation and Management Act MSFCMA) The measures of the Act are consistent with international agreements. Additionally, the Act and the Council process allows for concerns and differing management objectives of the states (California, Oregon, Washington – including state legislation) such that the management system is integrated. Periodically, the MSFCMA must be legislatively reauthorized which allows changes to be made which addresses new or existing problems. The MSFCMA has recently been reauthorized. The fishery is wholly compliant with relevant national legislation.	R33, R36, R37, R39, R40		
80	The management system appears to be in full compliance with national legislation.				
100	The management system is demonstrably compliant with all relevant national legislation.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.2.3		Does the system observe the legal and customary rights of people dependent upon fishing?		33.3	100
60	The customary and legal rights of the people dependent upon fishing are known and no major conflicts have occurred.	The laws and rights affecting the US fishery and fishers are clearly defined through the MSFCMA and other relevant Acts, and through case law developed through litigation. Laws and regulations are formally codified.	R20, R36, R37, R39, R40		
80	The system observes the legal and customary rights of people dependent upon fishing but does not necessarily have a formal codified system.				
100	The system observes all legal and customary rights of people dependent upon fishing under a formal codified system.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3 *(MSC Criteria 2, 5, 7)*	**The management system includes strategies to meet objectives including consultative procedures and dispute resolutions.**			15.1	91
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
3A.3.1		Does the management system contain clear short and long-term objectives?		16.7	90
60	Short and long-term resource and environment objectives are implicit within the management system.	Domestic management through the HMS FMP clearly defines sustainability objectives and exploitation objectives. Performance indicators (for measurement of exploitation status of stocks) are included in the FMP. These implement broader policy objections of the National Standards for fishery management defined within the MSFCMA, including stock sustainability and ecosystem (by-catch reduction, essential habitat etc) objectives. International management objectives (through IATTC and WCPFC charters and relevant international conventions and agreements) are defined broadly, in the long-term, in terms of sustainability of catches at maximal levels, reducing bycatch if appropriate and promoting ecosystem approaches.	R11, R33, R36, R37, R39, R40		
80	The management system contains short and long-term resource and environment objectives.				
100	The management system contains clear and explicit short and long-term resource and environment objectives that can be measured by performance indicators.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3.2		Do operational procedures exist for meeting objectives?		16.7	95
60	Operational procedures exist which are applied to the meeting of objectives.	For international management the process of determining management recommendations and allocations are transparently defined through Commission plenaries and working groups, in terms of longer-term objectives. Actual implementation of the agreements are left to the parties (nations). In US domestic management, regulations are vetted through a transparent process through the Pacific FMC. These procedures define the objectives and how they are to be achieved. The process of their definition is transparent to the public and requires public input. Specific regulatory actions must be justified on the basis of addressing short and long-term objectives. Performance of the stock and fisheries are evaluated relative to sustainability and exploitation objectives through the assessment process and subsequent regulatory analyses (enforcement and compliance monitoring etc). Feedback on application of operational procedures is provided through Council/NMFS SAFE reports and (IATTC, WCPFC) Commission Fishery Status reports.	R11, R20, R33, R36, R37, R39, R40		
80	Transparent operational procedures are applied to the meeting of objectives. These procedures can be expected to support the objectives.				
100	Operational procedures are transparent and clearly applied. There is a feedback mechanism testing effective application.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3.3		Do procedures include for a precautionary approach in the absence of sufficient information?		16.7	90
60	Measures exist to implement a precautionary approach in the absence of sufficient information. There is some evidence that this is occurring.	Domestic management through the HMS FMP defines precautionary control rules which adjust for uncertain assessment and exploitation information. The Fishery Management Plan formally established precautionary limits for this fishery through its "control rule" presented in the Stock Assessment and Fishery Evaluation Report. This rule adjusts for the uncertainties in data and information. The charters of both Commissions include a formalised precautionary approach. Specific precautionary control rules related to albacore are also under development by the Interim Scientific Committee for adoption by the Commissions. Notwithstanding the lack of such formalisation, the recent response of the IATTC and the WCPFC to advice indicating that North albacore is approaching full exploitation has been to implement caps on effort. This should be interpreted as a precautionary response to the information. At this point, for the South Pacific stock, maintaining the status quo is a precautionary action.	R11, R20, R33, R36, R37, R39, R40		
80	Formalised measures exist to implement a precautionary approach in the development and application of operational procedures in the absence of sufficient information.				
100	All procedures include for evaluation of uncertainty and application of precaution at an appropriate level.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3.4		Are there procedures for measuring performance relative to the objectives?		16.7	85
60	Operational procedures exist which can be used to measure performance relative to the objectives.	Performance of the stock and fisheries are evaluated relative to sustainability and exploitation objectives through the assessment process and subsequent regulatory analyses (regulatory compliance and enforcement). Procedures are generic and tested, but it has not been necessary to apply these, to date, for albacore. Compliance is monitored domestically through US compliance reports, given by NOAA General Counsel to Fishery Management Councils triannually. Other general aspects of performance are included within annual SAFE Reports, prepared through the Fishery Management Council.	R11, R20, R33, R36, R37, R39, R40		
80	There are procedures used for measuring performance relative to the objectives.				
100	Tested procedures are used for regular measurement of performance relative to the objectives.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3.5		Does the system include a consultative process including relevant and affected parties?		16.7	90
60	The system includes a consultative process including key stakeholders within the fishery.	In domestic management regulations are vetted through a transparent process through the Pacific FMC. These procedures define the objectives and how they are to be achieved. The process of their definition is transparent to the public and requires the opportunity for public input and appropriate responses to such input. For international management the process of determining management recommendations and allocations are transparently defined through Commission plenaries and working groups. Within US, stakeholders have opportunities to make representations to their national delegation (which are necessarily limited in number). Actual implementation of the agreements is left to the parties (nations). Performance of the stock and fisheries are evaluated relative to sustainability and exploitation objectives through the assessment process and subsequent regulatory analyses. The consultative process within the US domestic management system is considered to be robust. Opportunities for consultative processes for international Commissions are considered satisfactory.	R11, R20, R33, R36, R37, R39, R40		
80	The system includes an appropriate consultative process including all main public and private stakeholders and can demonstrate consideration of representations made or a reliable mechanism for such considerations.				
100	The system includes an appropriate consultative process including all affected stakeholders. Decisions specifically discuss and/or address stakeholder concerns.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.3.6		Is there an appropriate mechanism for the resolution of disputes within the system?		16.7	95
60	Mechanisms are theoretically adequate but have not been consistently applied or tested.	In domestic management the MSFCMA mandates a mechanism and processes for dispute resolution. These have been tested and considered appropriate. These include FMP, as well as regulatory implementation, review (including public comment). FMP review and approval extends to the Secretary of Commerce (a cabinet post serving under the President). Regulations are approved at the NOAA Administrator level. Additionally, dispute resolution through litigation and the courts is available and has been well tested. Any such disputes are well documented. IATTC and WCPFC operate under charters specifying voting rules and procedures. However, usually, decisions are made by consensus of the member states.	R11, R20, R33, R36, R37, R39, R40		
80	There is an appropriate and established mechanism for the resolution of disputes within the system.				
100	There is an appropriate and tested mechanism within the system for the documentation and resolution of disputes of varying magnitude.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.4 *(MSC Criterion 6)*	**The management system operates in a manner appropriate to the objectives of the fishery.**			5.0	90
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
3A.4.1		Does the system include subsidies that contribute to unsustainable fishing?		50.0	100
60	Subsidies exist that may contribute indirectly to unsustainable fishing. These are short-term and are in the process of being removed within acceptable timescales.	Domestically within the US fishery, there are no subsidies that would contribute to unsustainable fishing or ecosystem degradation.	R37, R39, R40		
80	The system is free from subsidies that contribute to unsustainable fishing or ecosystem degradation.				
100	The system has no subsidies that contribute to unsustainable fishing or ecosystem degradation.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.4.2		Does the system include economic/social incentives that contribute to sustainable fishing?		50.0	80
60	Measures to allocate fishing opportunities and/or entry to the fishery, or other incentives, are generally supportive of achieving fishery objectives.	There are both formal (such as AAFA, WFOA and AFRF) and informal linkages between groups of fishers which promote sustainable and ethical fishing practices. Domestically within the US, there are permit, reporting and training requirements which are designed to maintain the fishery within sustainability goals. Although opportunities for management incentives have been limited, speciality products and AAFA labelling incentives etc are expected to contribute to rewarding of sustainable practices.	R1, R2		
80	Allocations of fishing opportunities and/or entry to the fishery, and/or other incentives, promote fishery and ecosystem management goals.				
100	The system has established economic and social incentives that contribute to sustainable fishing and ecosystem management.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

3A.5 *(MSC Criterion 8)*	**A research plan exists in line with the management system to address information needs.**			15.1	97
Weighting Commentary	All Performance Indicators within this sub-criterion are considered of equal significance.				
3A.5.1		Have key research areas requiring further information been identified?		33.3	100
60	Major areas requiring further research have been identified.	Comprehensive reviews of key research areas requiring further information are undertaken as part of the fishery management council process for addressing potential domestic management of albacore and through international bodies, e.g. ISC, IATTC, WCPFC for potential international management needs of the Pacific albacore stocks. Additionally, in the SCTB, SPAR, NMFS/AFRF and NPAWG there are long-standing processes to review research priorities, planning and progress addressing these priorities.	R28, R37		
80	Key areas requiring further research have been identified.				
100	A comprehensive review of information requirements has been undertaken.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.5.2		Is research planned/undertaken by the scientific advisers to meet the specific requirements of the management plan?		33.3	90
60	Research is planned for highest priority information needs.	Research is planned and undertaken by the NMFS to provide the necessary scientific support required for the management of the US fishery operating on South Pacific albacore. There are demonstrable resources to allow implementation of the programme. International research was planned and coordinated formerly through the South Pacific Albacore Research Workshops and the South Pacific Commission Standing Committee on Tuna and Billfish, and presently is provided by the Western and Central Pacific Fisheries Commission for assessing and monitoring and for potential international management of the South Pacific albacore stock. Funding for the research and monitoring is provided by the individual countries, SPC and EU funding sources. In the US, funding is allocated towards stock assessment and fishery monitoring.	R33		
80	Research is planned and undertaken to provide necessary scientific support to the plan. There are demonstrable resources to allow implementation of the programme.				
100	There is an ongoing, funded, comprehensive and balanced research programme, linking research to the management plan.				

3A.5.3		Is relevant research carried out by other organizations (e.g. Universities) and is this taken into consideration?		33.3	100
60	The management system is aware of research carried out by other organisations and elements of this are taken into consideration.	Relevant research carried out by the American Fishermen's Research Foundation, as well as academic institutions, is taken into account for management considerations. AFRF invite scientific participation in relevant meetings. This research is closely co-ordinated with NMFS existing research plans of the management system. There are also long-standing fora for integration and coordination of research outputs, such as NPAWG, ISC, SCTB etc.	R2, R26		
80	Appropriate research carried out by other organisations is taken into consideration, although there is not necessarily any proactive co-ordination between organisations.				
100	Relevant research carried out by other organisations is taken into account for management considerations. This research is often co-ordinated with existing research plans of the management system.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.6 *(MSC Criteria 7, 9, 10)*	**The management system includes measures to pursue objectives for the stock.**			15.1	88
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
3A.6.1		Are the resource and effects of the fishery monitored?		33.3	90
60	A monitoring programme is in place that addresses some key aspects of resource and effects and which can be extended.	As discussed under Principle 1, monitoring of the resource is achieved through the assessment and its associated data (catch, size frequencies, catch-per effort, tagging data) from various international fleets covering several gears (troll, longline, pole and line). The US albacore troll fishery is specifically monitored through logbooks, observers. Trip tickets are administered through the relevant States (California, Oregon, Washington, Hawaii). Landing data are available in 1^{o} intervals. These data are available to relevant bodies and are exchanged at working groups.	R17, R33, R39, R40		
80	A monitoring programme is in place that addresses all key aspects of resource and effects at appropriate intervals and results are recorded.				
100	The resource and effects of the fishery are closely monitored over appropriate geographical areas and time periods. Full records are kept of monitoring results and these are made available to relevant research and management bodies.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.6.2		Are results of monitoring evaluated against appropriate reference point(s)?		33.3	90
60	Reference points exist and some level of evaluation against these is possible.	Standard limit and precautionary reference points are defined and estimated (BMSY and FMSY). As in most assessments, the stock recruitment data from the assessment are not very discriminating. Thus, the BMSY, FMSY depend upon the steepness parameter. A prior was used for this parameter with modal value 0.9,(based upon the history of fishing and the time series of recruitment estimates) indicating that the prior belief is that the reduction in equilibrium recruitment when the equilibrium spawning biomass is reduced to 20% of its unexploited level would be fairly small (a decline of 10%). Incorporating this parameterization into the assessment results in estimates of BMSY and FMSY. Results are evaluated on a 3-4 year cycle.	R17, R33		
80	Results of monitoring are regularly interpreted in relation to reference points.				
100	Results of monitoring are quantitatively evaluated against precautionary reference points on a regular and timely basis.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.6.3		Do procedures exist for reductions in harvest in light of monitoring results and how quickly and effectively can these be implemented?		33.3	85
60	Practical procedures exist to reduce harvest. Programmes to link these with monitoring results are underway.	Procedures for reduction in harvest should they be needed, are documented and would follow the following protocol: 1) at the plenary meeting of the international commission (either IATTC and/or WCPFC) subsequent to the availability of the scientific advice that suggests reductions, the body will make a recommendation for member states to reduce the harvest according to some negotiated allocation.; 2) it is expected that the member states will implement procedures as quickly as possible, i.e. within the subsequent year. 3) Member states will be evaluated in terms of compliance in subsequent meetings; 4) domestic implementation within the US is implemented through the HMS FMP. If changes in catch and regulations are not too great then this can be done through a shortened rule-making process within approximately six months (still requiring public comment). Larger changes must be dealt with through the full US rule-making process (with a full complement of public input and impact evaluation) which may require a year or more depending on the actions being proposed. In such a case an interim or emergency rule may be implemented to address critical situations. This process and timescale, combined with management anticipation of trajectories in stock, appears appropriate to the fishery.	R11, R20, R33, R36, R37, R39, R40		
80	Practical procedures exist to reduce harvest in the light of monitoring results and provide for stock recovery to specified levels. Measures can be implemented speedily				
100	Practical procedures exist to reduce harvest in light of monitoring results and provide for stock recovery to specified levels within specified time frames. There are well documented procedures to implement changes and these can be introduced with immediate effect.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

3A.7*(MSC Criterion 10)*	**The management system includes measures to pursue objectives for the affected ecosystem.**			6.1	95
Weighting Commentary	Overall environmental impacts (3A.7.1) are considered of greater significance than MPA/closures (3A.7.2) for a highly migratory species with a widespread spawning habit.				
3A.7.1	Are measures in place to address (avoid or minimise) significant environmental impacts?			75.0	100
60 Significant environmental impacts are known and measures are being applied to reduce key impacts.	Due to the nature of the way the fishery operates, it is considered to have no major negative impacts on the oceanic environment. The fishery is conducted on or near the sea surface by hook and line either trolled or attached to a pole tended by a fisherman. Gear loss is very low and US Coast Guard and international high seas regulations regarding disposal of garbage and plastic discards, waste and bilge waters, and sewage are strictly followed. Notwithstanding this, and in accordance with the national standards and other provisions of the Magnusson-Stevens Conservation and Management Act, management objectives are set out in the relevant FMP including the requirement to detect and reduce impacts and to protect populations of target and not-target species, essential marine habitat, and ecosystems, e.g. to reduce by-catch to the minimum level practicable.	I1, R20, R23, R28		
80 Environmental impacts are known. Measures are being applied to minimise all significant ones and there is evidence that the measures are working.				
100 Measures are in place to avoid all significant environmental impacts and are subject to monitoring and periodic review.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.7.2		Are no take zones, Marine Protected Areas or closed areas for specific periods appropriate and, if so, are these established and enforced?		25.0	80
60	Suitability of no-take zones and/or closed areas / seasons has been reviewed against objective biological criteria. Plans are in place to implement some or all of these as appropriate.	No 'no take' or closed zones, areas, or time periods have been deemed necessary for this fishery - although closed areas have been considered for other species, this has not been identified as being necessary for albacore. However, such zones or any other international management regulations, if determined necessary, could be established by the IATTC and WCPFC based on recommendations by their staff or scientific committees, and are implemented by the member and cooperating countries.	R11, R20, R33, R36, R37, R39, R40		
80	Suitability of no-take zones and closed areas / seasons has been reviewed and these have been or are currently being implemented and enforced if and where appropriate.				
100	No-take zones and closed areas / seasons are established and enforced if and where appropriate and, if implemented, the consequences are being monitored.				

SCORING INDICATORS	Comments	Audit Trace Ref.	Weight	Score

3 A.8 *(MSC Criterion 11)*	**There are control measures in place to ensure the management system is effectively implemented.**			13.5	93
Weighting Commentary	All Performance Indicators within this sub-criterion are considered of equal significance.				
3A.8.1	Are information, instruction and/or training provided to fishery operatives in the aims and methods of the management system?			33.3	95
60	Mechanisms exist for the dissemination of information, instruction and training of fishery operatives. Implementation of these mechanisms may not be universally implemented.	Since both international and domestic US management processes are transparent, a multitude of publicly available documents are available. Typically, these are available on the IATTC website, the SPC website, the Pacific Fisheries Management. Additionally, AAFA (and other organisations such as WFOA, AFRF) receive documents directly from NMFS and Councils and serves as a conduit for these documents including interpreting the details for fishery operatives who may have only a limited amount of time to study the issues. Information is provided in association with fishing permits. Specific training is provided to fishers in certain aspects of logbook completion, record keeping, protected species identification and releases. There have also been workshops on High Sea Fishing Permit requirements and other particular issues. Additionally, the public in general and this fishery in particular have taken the opportunity to provide their input into the US positions in IATTC and other international agreements (Canada). Fishers demonstrate good knowledge of management requirements.	R11, R20, R33, R36		
80	Information, instruction and training are provided to fishery operatives in the aims and methods of the management system allowing effective management of the system.				
100	Information, instruction and training are provided to fishery operatives in the aims and methods of the management system allowing effective management of the fishery and operatives demonstrate comprehensive knowledge of this information.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3A.8.2		Is surveillance and monitoring in place to ensure that requirements of the management system are complied with?		33.3	85
60	An enforcement system has been implemented; however, its effectiveness and/or compliance has not been fully demonstrated relative to conservation objectives.	Compliance with US domestic regulations and violations thereof are continually monitored through the Enforcement Office (EO) of NOAA fisheries, the Coast Guard and the General Council's Office (GCO) of NOAA and associated Department of Justice lawyers for some cases. Compliance includes not only fishery regulations, but safety requirements, as well. Enforcement is supported by training initiatives. Systems are in place, but are hampered somewhat through funding restrictions. Nevertheless, enforcement is considered appropriate. Compliance reports are generated by NOAA's GCO and EO which are presented to the Pacific Council. Compliance on the part of the US albacore troll fishery appears to be good. South Pacific landings are into Pago Pago, US Samoa, where effective control and surveillance is in place.	R11, R20, R33, R36, R37, R39, R40		
80	An effective enforcement system has been implemented and there is an appropriate degree of control and compliance.				
100	An effective enforcement system has been implemented and there is a high degree of control and compliance.				

3A.8.3		Can corrective actions be applied in the event of non-compliance and is there evidence of their effectiveness?		33.3	100
60	Mechanisms exist or are being developed which can be implemented or applied to deal with non-compliance.	Correctives actions available for domestic US fisheries are agreed, documented, tested, monitored by Councils and reported on. Actions available include the entire scale of warnings, fines, incarceration, forfeiture of catch and forfeiture of permits and vessels.	R11, R20, R33, R36, R37, R39, R40		
80	There are set measures that can be applied in the event of non-compliance although these may not be included in a formal or codified system.				
100	Agreed and tested corrective actions can be applied in the event of non-compliance.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3 B	**Operational Criteria**			**50.0**	**95**
Weighting Commentary	Within this criterion, greatest weighting is given to issues of compliance and provision of data by fishers, least to issues of habitat impacts and destructive fishing practices, neither of which is important for a pelagic fishery of this nature.				
3B.1*(MSC Criterion 12)*	**There are management measures that include practices to reduce impacts on non-target species and inadvertent impacts upon target species.**			16.8	-
3B.1.1		Do management measures, principally through the use of gear and other fishing practices, include avoidance of impacts on non-target species and inadvertent impacts upon target species? These would include by-catch, discard, slippage and high grading.		100	100
60	Measures have been, or can be, implemented as appropriate that are intended to reduce the major impacts on non-target species and inadvertent impacts on target species, but their effectiveness is uncertain.	Fishermen have developed fishing practices and measures to reduce and avoid catching small albacore, adopted special handling methods and techniques to reduce discards and improve the quality catches, and employ barbless hooks to allow rapid and effective release of non-target and by-catch species, as well as target species. These measures have demonstrated reduced impacts on non-target species and inadvertent impacts on target species. For example, as a result of zero or near-zero takes of marine mammals, the fishery is designated a Category III fishery under the Marine Mammal Protection Act. Category III fisheries are those US fisheries in which marine mammal interactions are considered to be negligible.	I1		
80	Measures have been, or can be, implemented as and when appropriate to reduce any major impacts on non-target species and inadvertent impacts on target species and there is evidence that they are having the desired effect when applied.				
100	Measures have been implemented to reduce the major impacts on non-target species and inadvertent impacts on target species, and their effectiveness is clearly demonstrated.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.2 *(MSC Criterion 13)*	**There are management systems in place that encourage fishing methods that minimise adverse impacts on habitat.**			2.9	-
3B.2.1		Do fishing operations implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning or nursery areas?		100	100
60	Fishing operations use measures to reduce major impacts on habitat, especially in critical or sensitive zones such as spawning or nursery areas.	The nature of the fishery using single hooks in the surface waters with no contact with the seabed, as well as not operating in spawning or nursery areas, results in notably benign impacts on the environment.	R23		
80	There is evidence that fishing operations are effective in avoiding significant adverse effects on the environment, especially in critical or sensitive zones such as spawning or nursery areas.				
100	There is direct evidence that fishing operations implement appropriate methods to avoid significant adverse impacts on all habitats.				

3B.3 *(MSC Criterion 14)*	**The management system incorporates measures that discourage destructive practices.**			2.2	-
3B.3.1		Does the fishery employ destructive fishing practices (such as poisons or explosives)?		100	90
60	The fishery does not allow any such destructive fishing practices.	The fishery employs no destructive fishing practices. There are legal definitions of acceptable gear in the FMP, other gear is illegal and subject to enforcement control. Codes of good conduct are understood within the fishing community and supported by the fishers.	R28, R37		
80	The fishery does not employ any such destructive fishing practices and enforcement is considered sufficient to prevent their use.				
100	The fishery does not employ any destructive fishing practices. There is a code of conduct for responsible fishing, prohibiting these, that is fully supported by fishers.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.4 *(MSC Criterion 15)*	**The management system incorporate measures that reduce operational waste.**			11.8	-
3B.4.1		Do measures exist to reduce operational waste?		100	90
60	Measures/facilities are in place to reduce sources of operational waste that are known to have detrimental environmental consequences, but further reductions may be possible.	The fishery has in place measures to reduce all sources of operational waste that are known to have detrimental environmental consequences. Gear loss is very low and fishermen strictly follow regulations and standards for pumping bilges and handling waste water, sewage, garbage and plastic discards.	I1, R22		
80	Measures/facilities are in place to reduce all sources of operational waste that are known to have detrimental environmental consequences, and there is evidence they are effective.				
100	Measures/facilities are in place to reduce all sources of operational waste that are known to have detrimental environmental consequences, and there is evidence they are effective and these measures are supported by the fishers.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.5 *(MSC Criterion 16)*	**Fishing operations are conducted in compliance with the management system and legal and administrative requirements.**			33.1	90
Weighting Commentary		All Performance Indicators within this sub-criterion are considered of equal significance.			
3B.5.1		Are fishers aware of management system, legal and administrative requirements		33.3	95
60	Fishers are aware of key management and legal requirements.	Since both international and domestic US management processes are transparent, a multitude of publicly available documents are available. Typically, these are available on the IATTC website, the SPC website, the Pacific Fisheries Management. Additionally, AAFA (and other organisations such as WFOA, AFRF) receive documents directly from NMFS and Councils and serves as a conduit for these documents including interpreting the details for fishery operatives who may have only a limited amount of time to study the issues. Information is provided in association with fishing permits. Specific training is provided to fishers in certain aspects of logbook completion, record keeping, protected species identification and releases. There have also been workshops on High Sea Fishing Permit requirements and other particular issues. Additionally, the public in general and this fishery in particular have taken the opportunity to provide their input into the US positions in IATTC and other international agreements (Canada). There appears to be good awareness among fishers - received directly from NMFS, e.g., information provided with permit applications, information on NMFS websites, invited lectures given by NMFS scientists and managers to fishers meetings and workshops, NMFS training programs, etc. and from AAFA, e.g., through directed newsletters and correspondence, website, and ‘word-of-mouth’.	R11, R33, R36, R37, R39, R40		
80	Fishers are aware of management and legal requirements upon them and are kept up to date with new developments.				
100	All fishers are aware of management legal requirements through a clearly documented and communicated mechanism such as a code of conduct.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.5.2		Do fishers comply with management system, legal and administrative requirements?		33.3	90
60	Fishers appear generally to comply with requirements, but there is incomplete information o the actual extent of compliance.	AAFA membership is in full support of management objectives for the stock and are active participants in process. Compliance appears to be very good for AAFA vessels. There are no known indications of consistent violations by U.S. albacore fishing vessels in either the North or South Pacific. Conservation and Management Measure 2006-9 adopted by the WCPFC directs the Commission to establish a list of vessels presumed to have carried out illegal, unreported and unregulated fishing activities in the Western and Central Pacific Ocean. The IATTC has a similar regulation.	R1		
80	Fishers appear compliant with relevant management and legal requirements and there are no indications of consistent violations.				
100	Fishers are fully compliant with, and fully supportive of, legal, and administrative requirements, such as through a code of conduct.				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.5.3		What is the record of enforcement of regulations in the fishery: quota control, by-catch limits, MLS, mesh regulations and closed areas?		33.3	85
60	There is information on breaches of regulations and on corrective action to prevent or curtail.	Current regulations that are effectively directed at this fishery are permitting, reporting requirements and closed access areas. The fishers themselves try to control the interaction with undersized fish by modifying their fishing strategies. Closed access is generally adhered to, especially in relation to access to Canadian waters and when in transit through other Country's EEZ's. Regulations are monitored through at-sea monitoring and monitoring of landings. Reporting requirements for logbooks are closely monitored and are being complied with by this fishery.	R36, R37, R39, R40		
80	Evidence of rigorous monitoring of all the enforcement measures and evidence of actions taken in the event of breaches is available.				
100	Strong evidence of rigorous monitoring and control of the enforcement measures through for example satellite monitoring, shipboard observers and nominated landing ports. Strong evidence of firm action taken in the event of breaches				

SCORING INDICATORS		Comments	Audit Trace Ref.	Weight	Score
3B.6 *(MSC Criterion 17)*	**The management system involves fishers in data collection.**			33.1	-
3B.6.1		Do fishery operatives assist in the collection of catch, discard and other relevant data?		100	100
60	Fishery operatives are involved in the collection of some catch, discard and other information.	As in most fisheries, fishery-generated catch and effort data are reported through logbooks (and landing receipts from buyers); these are integral to scientific monitoring and management. This fishery has been responsive in the implementation of these catch data collection protocols. Additionally, observer programs are being developed. AAFA boats have consistently volunteered to carry observers and not refused to carry observers in the past. Sampling at sea received excellent response from fishery as a whole. Currently NOAA Fisheries allocation of observer-sea days to this fishery is minimal due to the known lack of interaction with bycatch species. Also, this fishery has sponsored several independent research projects (through AFRF and AAFA) which required collection of data by fishers and on-board scientific personnel. The fishers have been cooperative in this.	R1, R2, R28, R37, R39, R40		
80	Fishery operatives are regularly involved in the collection and recording of relevant catch, discard and other information.				
100	Fishery operatives assist significantly in the collection and recording of all appropriate catch, discard and other information.				

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American Albacore Fishing Association (AAFA)
Pacific Albacore Pole & Line and Troll/Jig Fishery

MSC Certification: Main Assessment
Certification Body: Moody Marine Ltd

Peer Reviewers

A Peer Review panel was assembled for this fishery. Potential peer reviewers were approached on the basis of their experience of one or more of the following; the fishery under assessment, fishery management, stock assessment issues and relevant ecosystem interactions.

Brief details of each reviewer are provided below.

Peer Reviewers:

1. Panayiota Apostolaki. Panayiota is currently Fishery Scientist with the Centre for Environment, Fisheries and Aquaculture Science, UK. Her expertise includes tuna and tuna-like species biology and fisheries management issues through extended work on North Atlantic bluefin tuna including contribution to the 2002 eastern and western North Atlantic BFT stock assessments; contribution to research on the Management of Tropical Atlantic Tunas in a Mixed Fishery undertaken in the context of a European project entitled "Framework For The Evaluation of Management Strategies"; reviews of the evaluation processes followed by the Blue Ocean Institute in New York to produce its ranked list of seafood (elasmobranch section) and assessment of the sustainability of shark fisheries in the Atlantic and Pacific Oceans and fishery management and sustainability issues related to a wide range of fisheries including multi-gear, multi-species, commercial, and recreational fisheries. She also has knowledge of U.S. and European environmental legislation.

2. John Dean. John has been intimately involved with the science and policies of management of highly migratory species for more than 25 years. His laboratory was a leader in developing the techniques and conducting studies of age estimation of large pelagic species such as swordfish, marlin and tunas. He taught many undergraduate and graduate students that continue to contribute professionally to the literature of fisheries ecology, and all continue his laboratory's tradition of participation in fisheries policy at the local, national and international levels. His experiences as an advisor to the seafood industry, and service as a member of public sector bodies, such as the regional fishery management council, have provided him with unique perspectives. He is recognized for his research contributions and advice to organizations from a non-advocatory perspective. He has collaborated with scientists in Japan (sabbaticals in Nagasaki and Hakodate), Mauritius, Latin America, Netherlands, Italy (sabbatical in Sardinia and collaborations in Bari and Sicily), Greece and Turkey. For the last ten years he has been very involved in collaborative studies of the biology and management of bluefin tuna, swordfish and albacore in the Mediterranean. He retired from the University of South Carolina in 2002 and continues to have an active program of collaborative research, writing and public service.

Marine Stewardship Council AAFA South Pacific Albacore Pole & Line and Troll/Jig Fishery

Peer Review of Fishery Assessment
May 2007

Peer Review A

The documents reviewed here are the certification report, the numeric scoring for Principal 1, Principal 2 and Principal 3, and the recommendation section, which is the concluding part of the certification report. Comments on each of these documents are provided below.

Overview
The certification report and scoring document provide a detailed and thorough review of the AAFA South Pacific troll/jig fishery that covers all the main features of the fishery with regard to the MSC Principles and Criteria for Sustainable Fishing. The evaluators provide clear and concise information to support the assessment of each feature of the fishery against the three MSC Principles. There are only a few parts that need some additional work and those are described in the next section.

The certification report

On page 8 of the report the evaluators state that "Pelagic trolling and pole-and-line fishing operations and gear have negligible habitat effects" but they do not explain why this is so. The reader needs to read the scoring document to get the information they need. The same is true for the statement "conservation concerns for troll gear is low". A brief explanation of how the evaluators reached that conclusion is needed. Also, section 2.4.1 does not refer to seabirds and mammals. However, those species are mentioned in the discard section of the scoring document. So, some additional text is needed in section 2.4.1 to cover that aspect of the assessment. MML Comment: This section has been modified in the report. Specifically: " … negligible habitat effects since the gear makes no contact with the bottom." Also, "Interactions of this fishery with protected and endangered species have been evaluated and no significant impacts have been identified. There have been zero known takes of listed sea turtles, marine mammals and listed fishes; and near zero takes of listed seabirds. Thus, the effects of this fishery on threatened and endangered species are within scientifically acceptable limits."

Some editing is also needed to improve readability. I note, for example, that the last sentence under section 4.2.1 needs to be modified to make clear that what the evaluators refer to in that sentence is the ratio B/Bmsy and not the actual biomass. Similarly, the last sentence under section 5.1 says that the status of the stock is well below MSY levels; a statement that does not make sense. MML Comment: Text modified: Fishing mortality rate has been well below Fmsy throughout the time series. Also, while adult biomass has declined somewhat in recent years, it is still well above Bmsy. Thus, the population is not overfished.

Scoring

Indicator 1.1.1.4: … “Size composition of landings, monitored since early 1960’s, is used to detect and monitor spatial and temporal shifts and trends in age composition of catches”. How does that relate to the collection/improvement of the quality of information on growth and fecundity? If this is of relevance then why the fact that the times series in the South Pacific is shorter than in the North Pacific did not affect the score? (the North Pacific fishery scored 85 points which is exactly the same score given to the South Pacific fishery). MML Comment: the north albacore size distribution has been monitored since the 60’s and various changes in those distributions have been noted. Whereas, the South Pacific fisheries and monitoring have been more recent. However, the level of sampling is currently similar and providing similar levels of understanding (if a more accurate scoring were appropriate, there may be some minor differentiation).

Indicator 1.1.2.3: There are not any references to IUU fishing in this section or elsewhere in the scoring document. Is that because IUU fishing is not taking place? MML Comment: IUU fishing is not seen as a major issue, but indeed, some may occur. This is recognised now by adding the following text “Although IUU fishing may occur, it is highly unlikely to be significant.” And changing the score from 100 to 95.

Indicator 1.1.2.4: “Fishermen routinely change gear selectivity…” If they constantly try to avoid small fish (and they are successful in doing so) and given that albacore tuna aggregate by age/size then the selectivity should not change that much. If it does though then how does that affect the ability of researchers to predict the future effects of management/rebuilding plans? MML Comment: the comment about “..routinely change gear selectivity..” relates to the short term fishing strategies. Whereas, since all fishers use similar strategies, the aggregate effect on annual selectivity of the fishery is reasonably stable. This is clarified in the text of 1.1.2.4 to: “Fishermen routinely use fishing strategies wherein they move away from shoals of small fish.”

Indicator 1.1.3.1. A very small decline in recruitment is assumed to follow considerable declines in SSB. Is that assumption justified? How sensitive are the model results to changes in that assumption? MML Comment: this is basically, a steepness assumption based on similar stocks. The text has been modified: Add the text “Based on similar stocks, the prior belief was that … At present there are no statistical simulations of the robustness of management based on these assessments, but estimates of Bmsy and Fmsy are being made. Current assessments indicate that the stock is well above precautionary biomass limits.”

Indicator 1.1.3.3. The need for statistical simulation to evaluate the robustness of the reference levels that is highlighted under 1.1.3.1 could also be referred to here. MML Comment: See 1.1.3.1

Indicator 2.1.3.2: “Ghost fishing on target and non-target species from lost gear is likely non-existent because the jig must be trolled through the water in order to attract and catch fish” What about other species like mammals? It might not attract fish but can it still harm other species? MML Comment: The loss of trolling/jig fishing gear is very unusual and when it does occur is generally limited to the loss of only the fishing lure, which quickly sinks and becomes unavailable to seabirds, marine mammals or sea turtles (clarified in text).

Indicator 2.1.4.1. On page 8 of the report you state that: “The long-term ecosystem effects of removing large predators such as tunas is not fully understood”. How does that statement fit here? MML Comment: We raise the longer term impacts as a note of caution. However, while the long-term (decadal) ecosystem effects of removing large predators such as tunas is not fully understood, sufficient information is available …within the North Pacific Ocean over ‘foreseeable’ timescales.”

Recommendation
The recommendations and conditions in the recommendation document are in accordance with material presented in the previous two documents.

Marine Stewardship Council
South Pacific Albacore Pole & Line and Troll/Jig Fishery

Peer Review B

The assessment of this fishery comprises four sections: the certification report; the scoring- Principle1, 2 and 3 and the recommendation on certification. This review will follow that format.

The Certification Report

The contents of the certification report present the critical information for the reader to develop both an overview of the fishery in scale and understand the fundamentals of the fishery as it is practiced as well as the basic biology of the fish. There are no glaring omissions in any of the key elements of the certification report. There are some very minor details that are more a function of how I read a document and what I expect, but they do not change the interpretation of the findings and are thus not worth spending time on. I leave the clean up of typos and rhetorical inconsistencies (incomplete sentences etc)to your editorial staff.

The Background to the Fishery (2)

I found "The Background to the Fishery (2) to be succinct but it is complete enough to satisfy the needs of the remainder of the document. It provides the reader with an overview that enables one to understand the fishery from a broad scale but with enough depth to know that the writers have sufficient knowledge to conduct the scoring and interpretation with subtlety and confidence, albeit with an understanding of the uncertainty that goes with fisheries science. In 2.1 I would like to have a good citation to support the final long sentence. I do not disagree, but it is a very inclusive statement with very serious implications for the remainder of the report. MML Comment: For example, Reference R23.

Although the statement is made in 2.2.1 that "only the troll etc fishery is under consideration for certification, to say that "only troll/jig gear is used by US vessels in the South Pacific" is inaccurate. The US vessel longline fishery is very active in the South Pacific (WPFMC: http://www.wpcouncil.org/documents/WPRFMCDocument/WPRFCBrochure.pdf, page 7) I am assuming that the US territory vessels are considered US vessels as they are managed by the WPFMC and their landings are recorded as such. I am puzzled by the inconsistency in the certification report discussion of the troll landings in the South Pacific and Table 6 on page 7 of the WPFMC report, which shows no troll landings of albacore for 2002. It would be helpful to be more specific in the last two sentences in 2.5 by landings for the US by gear type. I suggest that the report should clarify that the troll/jig landings are a very small percentage of the total albacore catch in the South Pacific. Perhaps a table

inserted here would be helpful in making that point. MML Comment: The U.S. has surface troll/jig and subsurface longline fisheries that operate for albacore in the South Pacific. However, only the surface troll/jig fishery is under consideration for certification. Text modified.

Childers and Aalber. 2006. Summary of the 2005 U.S. North and South Pacific albacore troll fisheries (Reference R3) provides the most current and verified information on albacore catches by countries and gear, e.g., Table 2 shows U.S. South Pacific albacore troll catch as 1,337mt. Childers and Aalber R3 state that … "The annual U.S. portion of the South Pacific albacore catch has averaged 5% since it's inception'. Added to text, Section 2.2.2.

Administrative Context (3)

This section is one of the most difficult to write coherently and briefly. For the reader that is not used to reading about oceanic fishery management regimes, with all the acronyms, it is difficult to comprehend. The authors, both of whom have broad experience in navigating such a mine field, have explained the structures for albacore as concisely as possible. The relatively new WCPFC will bear watching to see if it takes an aggressive stand on conservation of HMS fisheries. It has been observed that the success enjoyed by IATTC as a management entity has been, to a significant degree, due to its professional scientific staff. Since the WCPFC is dependent upon contributions of resources from the member states, this will be a more complex environment in which to make management decisions. The annual surveillance audit should pay attention to this issue. MML Comment: This is a key aspect of fishery management and so one which will be monitored in ongoing annual surveillance audits.

Stock Assessment (4)

This is clearly one of the most critical and sensitive portions of the report. Each of the elements must be as unequivocal as possible without misleading the reader. That is, the report should not imply that the basis for interpretation is either stronger or weaker than the material can support. We should not have to "read between the lines" to reach the same conclusion. Rather, the text should lead us through the content in such a way that we would come to the same conclusion, as if we had done the extensive readings, discussions and analysis they did.

I find it confusing in 4.1, Management Unit, with the exception of the 1st sentence and the next to last sentence, to find the description the same as in the North Pacific Albacore Certification Report. MML Comment: Modified to "…10^{o} to 25^{o} latitudes…" i.e. either North or South.

South Pacific Albacore

4 STOCK ASSESSMENT

4.1 Management Unit

The management unit is the South Pacific stock of albacore. ***This management unit has been defined on the basis of the distribution concentrations of the fish and the fisheries (see above). While east-west distributions are fairly extensive, the distribution of albacore spawning is limited to subtropical waters between about 10^0 to 25^0 N latitudes. For assessment and management purposes, the north-south boundary between albacore stocks is considered to be the equator. There does not appear to be significant mixing across this boundary.*** Additionally, for assessment purposes the stock is considered to occur east of 140°E. ***Thus, the aggregated evidence is relatively strong and the management unit definition is currently without controversy.***

North Pacific Albacore

4 STOCK ASSESSMENT

4.1 Management Unit

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This is quite probably an editing oversight, but it should be corrected. All the discussions in 2.1 about the spawning area (10º – 25º S. latitudes)and the fact that the modeling is a different approach for the North and South stocks tells me they are assessed and managed as different stocks.

I found no facts in dispute, beyond the previous question, with monitoring of stock status, the status of the and the data used in the stock assessment. It appears that the stock is characteristic of one that has not been heavily exploited

and it will be of interest to see if the management units recognize the opportunity to keep a healthy fishery.

Items 4.2.1, Current Stock Status I call attention to the last sentence in pg 1 and the two sentences in pg 2. The rhetoric is technically correct, but it is perhaps difficult for someone outside the field to interpret. Is it possible to redraft those sentences with clearer less complex sentences? MML Comment: Modified in text.

Management Advice (4.4) The report states, “Therefore, no further management advice has been offered, or is yet required”. The status is that the fishery is very near the unexploited level (a reduction of 3 % and I assume that is from all gear types). It would seem prudent to point out that the fishery is prosecuted in both the juvenile and spawning size categories, albeit with different gear types. I suggest this issue should be more fully addressed in the report. It should explain why this is or is not a potential problem that should be addressed now rather than later. The troll fishery could find itself in an overfishing status to which they have contributed very little. MML Comment: Comment added: “Nevertheless, the existing fisheries target all sizes (ages) and so the size distributions should continue to be monitored.

Fishery Management (5)

The management objectives are clearly stated and the Consultative Process is broad. It would be helpful to discuss the different options for achieving the management objectives. The annual surveillance is important to determine if the commissions take the scientific advice and use it appropriately.

Standard Used (6)

The three principles that form the standard against which the fishery is assessed are similar to those used for other fisheries. The statement of each principle is clear and the following statements of intent and criteria are direct and unambiguous and there are quantitative criteria that can be followed (Principle 1, Criteria 3) with the exception of Principle 2. The question is whether those metrics are being collected now so they can be followed in the future for a trend analysis. As for Principle 2, I question whether that principle can really be measured in a meaningful way, except by acting in a proactive way on fishing practices. In that case, the outcomes will be indirect and difficult to evaluate.

Background to the Evaluation (7)

The evaluation team is very well qualified to do the certification report. Their inspection of the fishery was comprehensive with interviews with the appropriate individuals. Similarly, the stakeholder consultation process was inclusive and conducted over a long enough time frame and with appropriate notification.

Observations and Scoring (9)

Although I might personally score the Performance Indicators differently from those in the report, none of my scores would change the final scoring of the Principles. The observations presented in the scoring table that support the final scoring in each principle adequately explain the rationale for the score. I will only refer to specific items where some clarification might help, but it will still not change the outcome of the scoring of the Performance Indicator.

3A.1.1 A caution; a structure and process does not guarantee a positive outcome for the resource. MML Comment: This aspect will also be monitored in ongoing annual surveillance reports.

3A.1.2 pg 3, conducting not conduction? MML Comment: modified

3A.4.1 Are there subsidies for fisheries from nations other than the US, which can impact the stock? MML Comment: There may or may not be. However, this Performance Indicator relates only to the fishery under assessment – i.e. the AAFA fishery as defined. Other fisheries are relevant in terms of their contribution to the total fishing pressure on the stock which is evaluated primarily under Principle 1.

3A.5.2 is there independent external review of the research plans and assessments of implementation of plans and recommendations? MML Comment: Research and research plans are reviewed regularly by independent experts.

3A.6.3 Good luck.

3B.5 The last sentence is too cryptic. How do fishers receive awareness? MML Comment: Text modified: “There appears to be good awareness among fishers - received directly from NMFS, e.g., information provided with permit applications, information on NMFS websites, invited lectures given by NMFS scientists and managers to fishers meetings and workshops, NMFS training programs, etc. and from AAFA, e.g., through directed newsletters and correspondence, website, and ‘word-of-mouth’.”

Limit of Identification of landings from the AAFA North Pacific Albacore Fishery (10)

It is clear that the limit of identification is of landings by AAFA member vessels or other US pole & line and troll/jig vessels that constitute the certified fishery. The chain of custody requirement is appropriate and essential.

Certification Recommendation (11)

11.1 I concur with the recommendation based upon the scores in each of the 3 principles. The analyses support the recommendation and there are no-preconditions.

11.2 I concur with the scoring of the performance indicators and the annual surveillance audit as a standard requirement.

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ACTION PLAN FOR MEETING THE CONDITION FOR CONTINUED CERTIFICATION OF THE AAFA SOUTH PACIFIC ALBACORE TROLL/JIG FISHERY

The condition set for continuing certification is associated with one key area of performance of the fishery. This condition (Condition 1.), associated timescales and relevant Scoring Indicator are set out below.

Condition 1. Decision rules and harvest control mechanisms

Action required: It is recognised that the South Pacific albacore stock is assessed to be in a situation where recent catches are less than the MSY, aggregate fishing mortality is less than *F*MSY and the adult biomass is greater than *B*MSY. As such, at this point in the stock's exploitation history, decision rules are not mandatory, and specific mechanisms to control harvest are not needed (although these have been implemented for other species when required). However, to expedite the precautionary consideration of such rules and mechanisms, AAFA are required to take appropriate steps to request that management agencies begin a process to develop a framework for development and clear documentation of decision rules and appropriate harvest control mechanisms in the fishery.

Timescale:
Appropriate requests from AAFA should be made within 6 months of certification of the fishery.

Relevant Scoring Indicator: 1.1.3.6, 1.1.3.7

Action Plan:

AAFA seeks to promote and support responsible management actions in order to encourage the adoption and practice of a precautionary approach to fishery management and development. In order to affect such practices, AAFA plans to continue monitoring the actions of responsible management organizations, and to undertake steps to encourage the development of an appropriate framework for the responsible progress and management of the South Pacific fishery. AAFA plans to communicate its support to appropriate national and international fishery management organizations and promote actions in accordance with sustainable fishery principles, including pertinent international resolutions.

ACTION PLAN

(cont'd.)

Action:

AAFA continues its practice of keeping informed, attending, and participating in the key discussions and meetings of the appropriate scientific, regulatory, and government bodies tasked with policy and management responsibilities for South Pacific albacore and the stock's pole & line and troll/jig fisheries. These bodies include:

- Western and Central Pacific Fisheries Commission (WCPFC);
- Inter American Tropical Tuna Commission (IATTC);
- Western Pacific Fishery Management Council (WPFMC);
- Pacific Fishery Management Council (PFMC);
- National Marine Fisheries Service (NMFS);
- National Oceanic and Atmospheric Administration (NOAA);
- Department of Commerce;
- Department of State.

Action Plan:

AAFA's anticipated actions in accordance with this plan include:

1. Generation and submission of letters, e-mails, etc. to Regional Fisheries Management Organizations (RFMOs) (e.g., see *above*) as necessary, similar to those means already applied with respect to the North Pacific albacore stock, for communicating AAFA's support for sustainable fishery practices and relevant provisions of the reauthorized Magnuson-Stevens Act of 2006 (rMSA) for ensuring long-term sustainability.
2. Attendance and participation, to the extent practicable, at RFMO sessions and/or ancillary meetings to convey AAFA's support for development and adoption of a framework of appropriate management measures and clear documentation of decision rules, in conjunction with appropriate harvest control mechanisms for the South Pacific albacore pole & line and troll/jig fishery.
3. Continued attendance, participation, and submission of communications to appropriate management bodies in accordance with current practice, as demonstrated by AAFA's actions with respect to the North Pacific albacore pole & line and troll/jig fishery.
4. AAFA will provide to Moody Marine a summary on U.S. responses to RFMO management actions, and updates on significant developments with respect to stock assessment and/or management, as such materials become available.