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Certification Report for

**AAFA NORTH PACIFIC ALBACORE POLE & LINE AND
TROLL/JIG FISHERY**

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1. INTRODUCTION

This report sets out the results of the assessment of the AAFA North 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 is therefore defined as:

Species:	Albacore tuna <i>Thunnus alalunga</i>
Geographical Area:	North Pacific Ocean
Method of Capture:	Pole & line and Troll/Jig
Stock	The stock under assessment is the North 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 North 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). When operating in the U.S. EEZ the U.S. fishery is under domestic management of the Pacific Fishery Management Council.

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, will be 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, G Sakagawa
- I3. IATTC: R Allen, M Stocker

Other information sources

Published information and unpublished reports used during the assessment are:

- R1. AAFA website
- R2. AFRF Website
- 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 germon*), 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.
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- 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, Confidential – Not For Distribution. 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.
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- R26. NOAA Fisheries SWFSC Website.
- 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
- 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
- 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. Albacore matures by the relatively early age of approximately 6 years and has a moderate lifespan 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 the year, with a peak in summer months, in subtropical waters between about 10⁰ to 25⁰ N latitudes mostly in the western Pacific, in the vicinity of the Hawaiian Islands, and in some years off Guadalupe Island, Mexico. Growth rates are moderate, with fork lengths at first birthday nearly 40 cm and at sexual maturity at age 6 approximately 90 cm or somewhat less. First recruitment into a fishery is at about age 1 year, when albacore are caught by Japanese surface fisheries in the western Pacific. Pre-adult fish between 2 and 5 years are targeted by surface fisheries, and undergo extensive migrations in temperate and subtropical waters between the western or central and eastern North Pacific. On the other hand, spawning 6+ year old adults undertake more limited movements in the tropical and subtropical waters mostly within the central and western North Pacific. Adult fish 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 mirabile heat exchanger system, which enables them to maintain internal core body temperatures up to 10⁰ 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 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 increase the ease or population consequences of capture.

2.2 History of the Fishery

The U.S. surface troll fishery for albacore in the North Pacific began in the early 1900's when fishers

commenced targeting on seasonally migrating albacore in near shore ocean waters off southern California to meet the needs of a tuna cannery established there. The troll fishery gradually spread northwards, but was restricted to waters off California until the late 1930's, when it extended to waters off the states of Oregon and Washington, and eventually to off British Columbia, Canada. Traditionally until the late 1970's, the troll fishery usually began operating in early July, when migrating albacore approach the west coast of North America, and was primarily conducted in near shore oceanic waters. From 1961 through 1979, approximately 99% of the reported U.S. catches of North Pacific albacore were made within 200 miles of the North American coast, with 84% off the U.S. coast and 9% and 7% in the jurisdictional waters of Mexico and Canada, respectively. Since the late 1970's, U.S. albacore fishers with larger vessels begin troll fishing in the early spring months on the high seas. Some of these vessels operate as far west as the International Dateline and beyond, to extend the fishing season by intercepting albacore migrating towards the coast of North America and locating high catch rate areas. The extent of the albacore migration is variable and a significant characteristic of the U.S. surface fishery is the wide north-south variation in the geographical locations of the most productive fishing grounds. Uniquely, a large proportion of this variability is at the multi-decade rather than the inter-year time scale. The estimated number of vessels landing albacore peaked at more than 2,000 in the mid-1970's. However, fewer vessels have been active in recent years. During the past five years the number of U.S. troll vessels that landed albacore ranged from 652 and 870, with vessels smaller than about 17 m outnumbering larger vessels by approximately two to one.

The history of the U.S. pole-and-line fishery for albacore differs somewhat from that of the troll fishery, and is linked to the U.S. tropical tuna fishery for yellowfin, bigeye, and skipjack tunas. The pole-and-line method of catching albacore also began in the early 1900's with vessels operating within a one-day run from port to provide product for a tuna cannery located in southern California. A poor catch of albacore in 1918 forced pole-and-line boats to shift to fishing for tropical yellowfin and skipjack to fill the cannery's demand for tuna. In subsequent years even though the availability of albacore may have been high, the amount of pole-and-line effort expended for albacore was thereafter greatly influenced by events in the tropical tuna fishery. Today there are, fewer than about 200 U.S. vessels using this fishing method for catching North Pacific albacore.

The U.S. surface trolling and pole-and-line fisheries account for approximately 17% of the North Pacific albacore landed by all nations. The bulk of the catch is canned and marketed as 'white meat' tuna. A relatively small amount of the catch is marketed in the fresh and fresh-frozen trade.

2.2.1 Gear

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 often constructed often from ¼-inch braided nylon line, 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. In pole-and-line fishing, fishers use a stout pole, formerly constructed of bamboo and now made of fibreglass or a high-technology composite, with a short line that has a single barbless hook with either an artificial lure or live bait. Schools of albacore are usually located by trolling and the vessel is stopped near the school of albacore, which is kept close to the vessel by throwing small amounts of live fish chum, preferably northern anchovy. Each pole-and-line set-up is used by an individual fisher to catch one fish at a time that is lifted aboard the vessel. Vessels usually carry about three to six pole-and-line fishers and a captain, who usually also 'throws' chum.

2.2.2 Vessels

U.S. albacore trolling vessels, which are also often called ‘jig vessels’, that operate in the North Pacific are in two general size classes. Smaller vessels, which range mostly from about 10m to 15m in length with hold capacities that vary from about 5 to 30 short tons, mainly comprise the fleet that operates in near shore waters within about 200 miles of the North American coast. Vessels chiefly from about 17m to 30m in length, with hold capacities from about 40 to 100+ short tons, form the fleet that operates on the high seas, as well as on near shore waters. Most vessels have refrigerated fish holds employing various types of refrigeration, but some smaller vessels may use ice to keep catches fresh. Pole-and-line vessels, which may also be called ‘bait boats’, are generally about the same size range and hold capacities as the larger size class of trolling vessels. All have refrigerated fish holds, some with blast or plate freezing and others with refrigerated brine systems. Pole-and-line vessels also have capabilities to conduct troll fishing and may shift back and forth between these types of fishing depending on the fishing conditions and/or the availability of live fish for ‘chum’ and bait.

2.3 Fishing Locations and Administrative Boundaries

Albacore are distributed throughout much of North Pacific Ocean. Fishing locations for albacore include the areas: between about 25° N and 55° N latitudes in the coastal margin off North America, between 10° N and 45° N latitudes across the mid-ocean region, and between 25° and 40° N latitudes off the coast of Japan. The US troll fishery takes place in eastern North Pacific waters extending to about 200 miles off the coast of North America and in high seas waters in a band extending across the North Pacific to about 150° E longitude. The U.S. surface troll and pole-and-line fisheries are under domestic the management authority of the Pacific Fishery Management Council (PFMC) when operating in the U.S. EEZ, as well as on the high seas, if the albacore catch from the latter is landed in U.S. ports. International management of the North Pacific albacore resource is shared by two international fisheries commissions: the Inter American Tropical Tuna Commission (IATTC) for waters east of 150° W longitude, and the Western and Central Pacific Ocean Fisheries Commission (WCPO) for waters west of 150° W longitude. Regulations for international management of North Pacific albacore are based on recommendations by the staff or scientific committees of the IATTC and WCPFC, and are implemented by the member and cooperating countries.

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 North Pacific the horizontal dimension of albacore habitat is linked to oceanic frontal structure associated with the Kuroshio Current, the North Pacific Transition and Subtropical Convergence Zones, and the California Current. 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 most of the time in waters located in or near the thermocline, and the vertical dimension of their habitat is related to the configuration and depth of the thermocline. The vertical distribution of juvenile albacore, which are targeted by surface troll and pole-and-line fisheries in temperate zone waters of the North Pacific, tends to be shallower than that of adult sexually mature albacore, which are targeted by the longline fisheries in the subtropical and tropical zones of the North Pacific. Albacore are restricted to waters with dissolved oxygen saturations greater than 60%, and most albacore caught by trolling and pole-and-line fishing are from waters that have surface temperatures between 16° to 18° C. Temperatures lower than 10° C disrupt albacore physiological processes and 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 long-term ecosystem effects of removing large predators such as tunas is not fully understood. However, the conservation concern for troll and pole-and-line gear types is low.

2.4.1 By-catch and Discards

Hook and line trolling and pole-and-line fishing for albacore are notably ‘clean’ fishing methods that catch one fish at a time. Both fishing methods catch target species almost exclusively and bycatch of non-target species is relatively rare. This is especially true for pole-and-line fishing, where the fisher has visual contact with individual fish being caught. However, very limited catches of non-target species may be occasionally taken incidentally in troll fishing operations, 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 and pole-and-line fishing 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 fishery and discards are very 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 observer records, 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. An exceptionally minor amount of damaged albacore may be discarded.

The pole-and-line fishery in the North Pacific primarily uses northern anchovy for ‘chumming’ during albacore fishing operations, as well as some for bait. Fishers catch anchovy using lampara nets set on ‘pure’ schools of anchovy, and records are kept of the amounts and locations of anchovy catches. While the northern anchovy fishery has not yet applied for MSC certification, it is managed under the Pacific Fishery Management Council Coastal Pelagic Fisheries Management Plan, where it is designated as a monitored species. Logbook records are mandatory (there is a 63 year historical record) for ‘Live Bait’ catches of northern anchovy used for bait and chum by commercial and recreational fisheries and northern anchovy stock assessments are conducted periodically.

2.4.2 Interactions with Protected, Endangered and Threatened Species

Observer and logbook records indicate that the U.S. troll fishery for albacore has near-zero interactions with protected, threatened, and endangered species. Although there have been anecdotal reports of sea turtles being hooked in the albacore troll fishery off California, any turtle or other protected species caught is likely to be released alive since trolling gear is retrieved immediately. There are no known reports of pole-and-line fishery interactions with protected species.

2.5 Other Fisheries Relevant to this Assessment

All fisheries that operate on the North Pacific albacore stock that are not subject to this certification are identified and monitored. These include pelagic longline fisheries conducted in the western and central North Pacific by Japan, Taiwan, and Korea, and in the central North Pacific by the U.S. Hawaiian fishery; a pole-and-line fishery carried out in the western North Pacific by Japan; a troll

fishery executed in the eastern North Pacific by Canada; and a U.S. recreational hook and line fishery that takes place mostly off southern California. Several other countries also have minor fisheries with various fishing gears on North Pacific albacore. Asian drift-gillnet fisheries targeted albacore across much of the North Pacific mostly during the mid-1970s and 1980s, but were halted by U.N. action in 1992. 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 improved and expanded to include: catches and number of vessels, summarized catch and effort, and size composition of the catch. Data from all the fisheries catching albacore have been used in North Pacific albacore stock assessments.

The total catch of North Pacific albacore for all nations combined peaked at a record high of 124,800 mt in 1976, then declined to a low of 37,300 mt in 1991. In the early 1990s catches increased again, reaching a high in 1999 at 121,500 mt, and averaging 91,600 mt for the years 2000 to 2004. During the latter 5 year period, fisheries based in Japan accounted for 66.6% of the total harvest, followed by fisheries in the U.S. 15.9%, Chinese-Taipei 8.2%, Canada 6.3% and all other countries 2.8%. For the 2000 to 2004 period, the percentages of the catch of North Pacific albacore by gear type were: pelagic longline 37.5%, pole-and-line 36.8%, troll 20.2%, and all other gears including the U.S. recreational hook and line 5.5%.

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. 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. Whereas, ratification of the WCPFC has occurred just recently. Thus, their institutional mechanisms for management are under development.

Finally, the Albacore Troll Fishery is affected by the US-Canada Albacore Treaty created in 1981, amended in 2002 and codified in US law in 2004. The treaty allows access by US and Canadian fishers into Canadian and US waters, respectively. It also specifies vessel reporting requirements, data collection reporting requirements and provides for permit limitations on vessels wishing to have access to the other nation's waters.

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. Additionally, the states of Washington, Oregon and California have their own regulatory apparatus for managing albacore within state waters. A major goal of the FMP is to assure that state-Federal management is not incompatible.

3.2 Management Responsibilities and Interactions

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 for the Pacific Community for the WCPFC, providing further review of assessment advice.

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 North 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° to 25° 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. Thus, the aggregated evidence is relatively strong and the management unit definition is currently without controversy.

4.2 Monitoring of Stock Status

The North Pacific stock has been monitored through the assessment work of the North Pacific Albacore Working Group (NPALBWG). This is an *ad hoc* working group that has existed for more than 20 years, consisting of scientists from various nations that exploit North Pacific albacore. The

Working Group 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 NPALBWG coordinates biological research on aspects such as reproductive biology and disseminates research results and statistics to cooperating scientists and the management bodies. Additionally, results are available to the public at-large.

Specifically, for terms of the most recent assessment, the primary monitoring tools have been the catch-at-size and associated catch-at-age estimated from all nations who are fishing, and CPUEs from key fishing countries. Specifically, CPUEs from US troll and longline fisheries, Japanese offshore and distant water longline fisheries, Japanese pole and line fisheries, and Taiwanese longline fisheries. These fisheries and the standardized CPUEs derived from the fisheries have been the base “tuning” or monitoring data used in fitting stock assessments.

4.2.1 Current Stock Status

The status of the North Pacific stock of albacore is at or near full exploitation. Current spawning biomass (SSB) is estimated to be at about 17-31% of the unfished stock. This is compared to equilibrium surrogates for SSB at maximum sustainable yield (SSB at MSY) of 20-40%. Additionally, current fishing mortality rates (F 's) are near or above common F_{msy} benchmarks such as $F_{30-40\%}$.

4.3 Modelling

Assessment modelling in the most recently available assessment focused on general linear model GLM-type standardization of the relevant CPUEs and then the primary assessment model was a virtual population assessment through the VPA-2Box package. A VPA is a fairly structured model which assumes (among other things) that the catch-at-age is known without error, that the auxiliary data is limited to indices of abundance and that fitting criteria are limited to the matching of the population model with the auxiliary CPUE data and that stock-recruitment relationships are determined independently using the VPA results, rather than estimating stock-recruitment parameters internally within the estimation model framework. Variability in the abundance and mortality quantities resulting from the VPA were estimated by bootstrap analysis, assuming that all variability was encompassed in the fit (or lack thereof) between the population model and the indices of abundance.

Several more statistical modelling approaches such as MULTIFAN-CL and others were explored during the last assessment. These methods allow scientists to relax some of the restrictive assumptions of the VPA and allow disparate data to be utilized (e.g. tagging) in addition to the CPUE indices. However, the models are more data demanding for detailed fisheries data (selectivity) and require additional structural assumptions. Nevertheless, the NPALBWG recommended that extensive effort be put into their development for the next assessment.

4.4 Management Advice

There are still large uncertainties in estimates of current fishing mortality rates. Also, North Pacific albacore have exhibited periods of high and low recruitment, perhaps, caused by environmental conditions. While current levels appear to be relatively high, the assessment data do not allow much precision in these estimates. While the various fisheries target both juvenile and spawning sized fish, the magnitude of the overall mortality indicated that current fishing mortality was near the F benchmarks (based on YPR and SPR surrogates for F_{msy}). The stock assessment indicated the uncertainty resulting in two basic outcomes: one outcome where the stock was under-exploited and

one outcome where $B \sim B_{msy}$ (fully exploited). If it proves that current productivity is not in the higher regime, then future reductions in catch may be needed to maintain abundance.

5 FISHERY MANAGEMENT

5.1 Management Objectives

The North 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 North Pacific albacore the recent management advice has been primarily generated to assure that the stock is maintained at maximum sustainable yield

5.2 Consultative Process

The consultative process for North Albacore is extensive at both the scientific and management levels. First, reliance is put on the efforts and history of the NPALBWG 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.

Also, the IATTC has a permanent scientific staff for tuna research and assessment. While they have not led the assessment workings of the NPALBWG, they have cooperated in the processes. They, also, have the responsibility to review the assessment work and to interpret the results in terms of management advice for their commission. To that end, the IATTC scientific staff interpreted the options presented by the NPALBWG report of 2004 and focused on the more pessimistic options about current fishing mortality rates as being the basis for their management advice.

The management process responded by the IATTC approving Resolution C-05-02 in which the member countries agreed to assure that effort does not increase (i.e. a cap has been put on fishing mortality), to develop measures to limit the effort and to accelerate the catch reporting process so that monitoring can be more efficient and timely. The WCPFC responded with a similar resolution to make actions compatible for North Pacific Albacore throughout its range.

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 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.

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

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 system².
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;

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

- 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:

- 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. Michael is currently a part time marine fisheries consultant. Previously he led a Federal fisheries research laboratory multi-disciplinary research program, as well as an operational fishery forecasting program, for albacore tuna for a little over 20 years. The research included a broad range of topics and much of it was closely coordinated with the US albacore fishing industry. He conducted fishery development research that resulted in the US surface albacore fishery expansion to the central and western North Pacific and the South Pacific. He also worked closely with the west coast states and Canada to develop a uniform albacore fishery logbook system and a coordinated market sampling system to obtain length frequency and related fishery data in ports where albacore were landed. Much of the biological research, including albacore genetics, physiology, and general biology was conducted with academic partners that he recruited. He established a notably successful albacore tagging program where fishermen that were trained, tagged

and released over 30,000 albacore. This resulted in a unique, valuable database used in albacore age-and-growth, stock structure, migration, and ecological research on the species. The albacore oceanography research, which was a notably strong part of the program, resulted in greatly improved understanding of albacore habitat and the roles that environmental variability plays in causing variations in where, when, and how many albacore may be available and vulnerable to the surface fishery. He also pioneered the application of satellite remote sensing technology in albacore ecological research.

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, and serving as a fisheries manager. He has 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). 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. 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	19 Oct 06	Stock Assessment 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
	Notification of Draft Report	Direct E-mail Notification on MSC website
	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.

The assessment team is also aware of the Marine Fish Conservation Network's fall 2006 newsletter which criticizes the Pacific Councils reactions to perceived high levels of fishing mortality on the North Pacific albacore stock. The assessment team's interpretation of this is as follows:

1. At the June 2005 HMS Advisory Sub-Panel meeting, a report was presented on preliminary findings of an albacore stock assessment, conducted as part of the NPAWG, that indicated that the stock could be overfished, which led to the IATTC resolution discussed in this report.
2. Following usual protocol, NMFS SW Regional Director informed the PFMC about the IATTC Resolution regarding North Pacific albacore in a letter that is included in the Briefing Book for the September 2005 PFMC meeting.
3. The PFMC was given a briefing on the IATTC resolution regarding North Pacific albacore status at the November 2005 meeting. The Briefing Book for the November meeting contains

a review of the situation, a statement that NMFS has not declared that overfishing is occurring pursuant to MSFCA, and a NMFS report on recent developments with respect to the stock . Also, there is a call for council discussion and guidance on planning albacore management activities.

4. Pacific Marine Fishery Council Decision at the November 2005 Meeting directed the HMS Management Team (HMSMT) to determine a baseline level of historical fishing effort in the West Coast albacore troll fishery, which would facilitate implementing measures consistent with the IATTC Northern Albacore Resolution, and to scope reference points for albacore and other tunas with review by the SSC and assistance from NMFS Southwest Fisheries Science Center scientists.
5. At the June 2006 Council meeting the HMSMT submitted a report containing information on historical catch and effort by gear type. The report also discusses the need to define 'current' in IATTC Resolution and gives the Council options for providing guidance on fishing effort. The Council directed the HMSMT and HMSAS to continue developing information necessary to characterize current US fishing effort for North Pacific albacore. Council will consider results of the upcoming meetings of the IATTC and WCPFC when they are available.
6. NMFS Report in the Briefing Book for the November 2006 Council meeting reports to the Council that the Northern Committee of WCPFC at its September 2006 meeting, continued the Conservation and Management Measure regarding North Pacific albacore that was adopted by the WCPFC in 2005.

In summary, the Council has directed the HMSMT and HMSSA to develop information necessary to characterize current US fishing effort for North Pacific albacore as well as to scope reference points for albacore (and other tunas) and has developed regulations on albacore bag limits by sports fishers. As yet NMFS, IATTC nor anyone else has provided a rigorous stock assessment to the Council demonstrating the North Pacific albacore is overfished. In addition NMFS has not declared overfishing to be taking place in accordance with the MSFMCA. The findings of this report have not, therefore, been changed as a result of these actions.

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 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 NORTH 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 : 82 PASS
Principle 2: Maintenance of Ecosystem	Overall : 92 PASS
Principle 3: Effective Management System	Overall : 95 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 Performance Indicators. It is therefore recommended that the AAFA North Pacific Albacore Pole & Line and 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.

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 fishery attained a score of below 80 against one Performance Indicator. The assessment team has therefore set a condition for continuing certification that AAFA, as the client for certification, is required to address. The condition is applied to improve performance to at least the 80 level within a period set by the certification body but no longer than the term of the certification.

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. Status of Stock

Action required: The present stock assessment suggests that the stock may be “*either fully exploited or sustaining fishing mortality above levels that are sustainable in the long term*”. Accordingly, management resolutions have been provided by IATTC/WCPFC for a cap on existing effort and expedited reporting of catches. Also, a re-examination of stock assessment data has been initiated by ISC. Actions required of AAFA in this regard are:

1. AAFA to promote and support the management actions put forward, notably limitations on effort. Communications supporting such management measures should be made to the Pacific Fishery Management Council and/or NMFS. Records should be provided by AAFA of communications and responses.
2. AAFA to provide a summary to Moody Marine on US's responses to IATTC/WCPFC management resolutions, as provided by NMFS and/or Pacific Fishery Management Council

A meeting of ISC Albacore Working Group was held in December 2006, and is due to report in March 2007. This will provide updated information on stock status and, depending on the latest information, may make further recommendations for management actions.

3. Should the existing resolution be withdrawn following the ISC report, then this condition would be considered closed.
4. If additional resolutions are proposed, then these should be supported as in 1. above.

Timescale:

- Point 1. if still appropriate, should be pursued immediately upon certification.
 Point 2. AAFA should provide this information within 6 months of certification.
 Point 4. should further resolutions be passed by IATTC/WCPFC in this regard, supportive actions should be initiated at the earliest possible opportunity thereafter.

Relevant Scoring Indicator: 1.1.4.1

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	82
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.		33.3	85
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. 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. Albacore is the only temperate tuna species with distinctive, very long pectoral fins extending over half the length of the body. Generally, it 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.	I1, 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	95
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 of albacore is understood, is 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.	R25, R5a, R35		
80	The life history of the species is clearly documented and understood. Spawning and nursery areas are known.	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.			
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.	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.			

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	90
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 and archival tagging studies. Seasonal variability in migrations are reasonably well described in the N Pacific.	R19, R24, R5a		
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, estimated by analysing hard parts, evaluations of size distributions of the landed catch, and tag-recapture studies. 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.	R4, R16, R24, R30		
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.	<p>Continuous logbook records for the US fishery since 1961 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 North Pacific albacore have been used at North Pacific Albacore Workshops, held usually bi-annually since 1974, to monitor and evaluate trends in North Pacific albacore stock status.</p> <p>Conventional tagging studies have been carried out in the North Pacific. Tagging results are not directly incorporated in assessment at present because recoveries are limited and not well distributed in space and time.</p>	R3, R16, R24, R34		
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.	<p>Trends (CPUEs) are well evaluated through statistical standardization procedures.</p> <p>Indices are considered reliable and indicative of stock status.</p>			
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.	<p>Migration and availability are key factors for this species. There is an extensive body of multidisciplinary research findings on marine environmental influences on albacore in the North Pacific; research is ongoing. Results clearly demonstrate environmental variability over broad spatial (ocean basin large-scale to local meso-scale) and temporal (many decade to days) scales affects albacore stock dynamics including distribution, 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</p> <p>Relationships of migration, availability and vulnerability to oceanography are well described, Year class strengths (related to el Nino, la Nina) are well described for the South Pacific and may be applicable in the North Pacific also. 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.</p>	R12, R17, R18, R24		
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.	<p>Recruitment has been monitored on a North Pacific stock basis through the international North Pacific Albacore Workshop series that was begun in 1974, and was recently shifted to the North Pacific Albacore Working Group of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC). The stock assessment has generated a long time series of data on recruitment trends.</p> <p>Coordinated research is ongoing in several countries, including the US, on recruitment variability and factors affecting recruitment of the North Pacific albacore stock. Progress is being made in this area, but its predictive ability is currently limited.</p>	R33, R34		
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 fishery have been in place for nearly five decades. Data are verified by comparing logbooks with sales records. Likewise systems are in place for recording landings made by foreign fisheries operating on the North Pacific stock. Landings data from all fisheries operating on the North Pacific stock have regularly been exchanged among fisheries scientists from the various countries that operate fisheries, through the North Pacific Albacore Workshop, with the time series going back to 1952. 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.	I1, R3, R33, R34		
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 pole & line and troll/jig fishery, all fishing methods and gear types employed by vessels operating in fisheries on North 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 North Pacific albacore are mandated by the High Sea Compliance Act to have a Federal permit. In addition, if they operate in the US EEZ, or land fish caught in the US EEZ or adjacent high seas waters, in any of the west coast states or Hawaii, they are regulated by the Pacific Fishery Management Council or Western Pacific Fishery Management Council, respectively. Both councils have Highly Migratory Species Fishery Management Plans (FMPs) that include 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 for the HMS FMPs that include data on the size and composition of the fleets operating on albacore. The FMPs also require vessels to carry observers to make in-situ observations of fishing operations, if deemed necessary by the councils. While there are no mandatory requirements for the U.S. vessels that operate in the North Pacific albacore fishery to carry observers, there is a long history of U.S. albacore vessels frequently carrying observers on a voluntary basis for scientific studies.	R12, R28, R29, R33, R37, R38		
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	100
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 North Pacific albacore stock that are not subject to this certification are identified and monitored. All catches are recorded and data have regularly been contributed by the respective country formerly to the North Pacific Albacore Workshop (data summaries extend back to 1952) and beginning in 2006 to the ISC. In recent years three categories of data are provided including 1) catches and vessels, 2) summarized catch and effort, and 3) size composition.	R34		
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.	<p>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.</p> <p>Size frequency data are also available from pole and troll fisheries, which gives a clear time series of data on selectivity.</p> <p>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 North), but satisfactory data are available on both.</p>	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
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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	80
60	Limit and precautionary reference points have been chosen and are justified based on standard international practice.	<p>The 19th NPAW utilized reference levels based upon eras of high and low productivity (i.e. high and low recruitment), and upon scenarios of future fishing mortality selectivity being high or low. These were used as standards to compare with current biomass (B), and with current fishing mortality rate (F), giving a suite of options including both limit and precautionary levels. The standards may also implicitly be interpreted (after reparameterisation) as BMSY and FMSY. Indeed, the high productivity, high F scenario implies an equilibrium spawning stock biomass at 17% of unfished levels which may be interpreted as an estimate of relative BMSY.</p> <p>High priority has been given by the ISC to further developing limit and precautionary levels. Such levels are included in the US FMP, but are not yet fully defined for international management. At present, there is no statistical simulation of the robustness of these levels.</p>	R29, R34, R39, 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	85
60	The stock status is estimated relative to reference points.	Biomass (B) and Fishing mortality (F) trajectories are evaluated relative to the productivity-F standards as discussed in 1.1.3.1. above. Data are examined regularly, allowing any issues to be identified and evaluated within appropriate timescales.	R34		
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	80
60	Major uncertainties are identified. Some attempt has been made to evaluate these.	Major uncertainties have been identified and evaluated in terms of competing hypotheses of productivity, fishing mortality rate etc. While the competing hypotheses have not been satisfactorily resolved, impacts on reference points and management actions have been evaluated. Additionally, the 19 th NPAW recommended that more integrated assessment procedures be evaluated in the future which will allow better estimation of uncertainties (such as reproductive biology, age and growth, movement, CPUE standardisation, alternative modelling structures). A new assessment was recommended for Dec 2006 (ISC). A report of that meeting is currently in preparation.	R34		
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
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1.1.3.4		Are uncertainties and assumptions explored and reflected in management advice?		12.5	80
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. These are conveyed through the management process. Decision rules are formulated on the basis of scientific advice, taking uncertainties into account.	R34		
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	80
60	The evaluation makes an initial approximation of the consequences of current harvest strategies.	Projections have been made under current F patterns incorporating structural uncertainty and bootstrap estimates of variance. Results indicate that full exploitation rates may be being approached or exceeded under plausible model scenarios.	R34		
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	80
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. Within the US fishery, a default decision control rule (fishing mortality rate is to be reduced when abundance is less than BMSY) has been defined for domestic management.	R29, R34, R38, 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.	International management decision rules are under development which rely on the basic B/BMSY and F/FMSY benchmarks. These will be further defined by the ISC (possibly at their December 2006 meeting). Reconciliation with reference points and data/assessment limitations are undertaken as discussed above.			
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.	Decision rules are clearly defined in the US FMP. For the Commissions, broad policy rules relevant to MSY reference levels are in place.			

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	80
60	Mechanisms exist to monitor and (if necessary) reduce harvest, but may not fully contain harvest, or have not been tested/evaluated.	Mechanisms to implement harvest limitations (output controls) exist through the IATTC and the Pacific Management Council (for domestic US controls); effort limitations (input controls) exist through permitting limitations (in USA). Indeed, IATTC's 2005 Conservation measure (and WCPFC in 2006 where jurisdictions differ) puts a cap on effective effort (i.e. F). This will be implemented differently in different nation states. As this is a new conservation measure, results have not yet been demonstrated, however comparable actions have been taken by IATTC and WCPFC for other species with demonstrable results.	R11, R29, R38, 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.	<p>IATTC and WCPFC jurisdiction covers both N and S 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.</p> <p>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.</p> <p>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 tuna in 1970's for which biomass has since fluctuated near or above Bmsy for the last 20 years).</p>	R11 ,R12, R13, R29, R38, R40		
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
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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	75
60	The stock is likely to be above the limit reference levels and trends in the stock are positive.	<p>The current level of spawning stock biomass (i.e. $SSB_{2004} = 165,000$ mt) is largely reflective of a very strong 1999 year-class that eventually became a major contributor in 2004 as part of ‘mature’ (spawning) biomass. However, subsequent recruitment (R) declined to levels more typical of the extended historical time series, which translated to reduced levels of forecasted SSB, particularly, assuming ‘high F’ scenarios within the overall uncertainty analysis. This, coupled with a current fishing mortality rate (F_{2003}) that is high relative to commonly used reference points, may be cause for concern regarding the current stock status of North Pacific albacore. Future conditions are less well known, but if rates of F continue at assumed levels, the SSB will decrease to the range from approximately 100,000 to 150,000 mt in 2010; the only potential exception to this point is the ‘low productivity/low F’ scenario. Thus, participants of the North Pacific Albacore Workshop noted the critical need to closely monitor the population over the coming years, particularly to validate SSB abundance in relation to MSY levels. In this context, it was recommended that another assessment be conducted in 2006.”</p> <p>The IATTC staff considers the higher level for current fishing mortality (0.68) to be more likely, based on the methods used to calculate the estimates. Furthermore, even the high estimate may be too low, given the retrospective bias shown by the model. According to the 2004 North Pacific Albacore Workshop estimates, the higher fishing mortality of 0.68 implies an equilibrium spawning stock biomass at 17% of unfished levels. Projections assuming fishing mortality of 0.68, under low and high scenarios of future recruitment, suggest that the biomass may decline if the current levels of fishing mortality persist.</p> <p>Therefore, the stock may or may not be below precautionary reference levels B_{msy}, and this is being evaluated at present.</p>	R13, R34		
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.		33.3	80
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?		100	80
60	<p>Appropriate rebuilding measures through reduction in exploitation exist and are being implemented. Rebuilding measures other than reduction in exploitation are being considered.</p> <p>Measures are implemented but may not have not been tested.</p>	<p>In response to the “full exploitation” advice, the IATTC/WCPTC recommended a cap on effective effort. Domestically in the US, this has already been implemented through permitting limitations.</p> <p>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, the Conservation Measure is currently being implemented and so has not yet been tested.</p> <p>Previous limitations from IATTC have, however, been implemented for other species and have been shown to have been effective (e.g. yellowfin tuna in the 1970’s for which biomass has since fluctuated near or above Bmsy for the last 20 years).</p>	R11, R13 R29, R38, R40		
80	<p>Appropriate rebuilding measures are being implemented to promote recovery within reasonable time frames.</p> <p>Measures have been tested, in this or a comparable situation, and can be shown to be effective in rebuilding the stock.</p>				
100	<p>Appropriate rebuilding measures are being implemented to promote recovery as quickly as possible.</p> <p>Additional measures are being implemented to prevent problems in the future.</p>				

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.			33.3	80
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. There are some indications of the existence of two sub-groups of albacore in the North Pacific, but the assessments have treated the population as a single stock. 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.	R30, R34		
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.	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. The age/size relationship is validated on a regular basis through growth rate studies and monitoring of size frequencies. Estimates are also available on the sex structure (from observer studies). The relationships between age and sex structures and reproductive capacity have been examined.			
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.	Further reproductive studies have been recommended by the 19 th NPAW.			

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.	<p>The population structure is based on adequate sampling and verification for this stock. Sampling and monitoring are ongoing and increasing.</p> <p>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. While there is some evidence that two subgroups may be present in the North Pacific, the population is monitored as a unit stock.</p>	R12, 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	80
60	Changes in 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 North Pacific population of albacore that would affect recruitment. Age structure is monitored through the assessment process.	R13, R34		
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	92	
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. 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, except for range extensions further offshore to about 160 deg. E. 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 is readily available to fishery managers via the annual PFMC HMS FMP Stock Assessment and Fishery Evaluation (SAFE) report, as mandated by US Federal law.	R3, R29, R38, R40		
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 and pole-and-line fishing for albacore are notably 'clean' fishing methods that catch 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%. The pole-and-line fishery primarily uses northern anchovy to 'chum' albacore during fishing operations and a small amount of bait. Anchovy are caught using lampara nets set on 'pure' schools of anchovy. Careful records are kept of the amounts and locations where anchovy are caught. The northern anchovy is a coastal pelagic species managed by the Pacific Fishery Management Council.	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 ECOPATH analyses have provided information on major interactions. 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.	R6, R7, R10, R15		
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
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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 of the ecosystem relevant to the fishery (i.e. trophic impacts), are generally understood, particularly as the fishery has minimal, if any, impacts on the ecosystem. This is supported by ECOSIM and ECOPATH analyses.	R5, R6, R7, 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
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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, R29, 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 fish buyer 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%. PFMC HMS FMP requires that all non-retained catch be logged; this is routinely complied with by fishers.	R14, R28, 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
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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 or by pole-and-line fishing using a single hook artificial jig or sometimes baited hook attached to short line that is fasten to a pole that is tended by an individual fisherman. 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'.	<p>The gear used in hook and line trolling and pole-and-line fishing operations are 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. Previous extensive AFRF/NMFS cooperative research involved extensive scientific staff time on vessels and any gear loss would be a recorded factor had this occurred. Information from industry also indicates that gear loss is very unusual 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.</p> <p>Pole-and-line fishing uses a single hook artificial jig or sometimes baited hook attached to short line that is fasten to a pole that is tended by an individual fisherman. Gear loss is so rare it can be considered negligible.</p>	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 model analyses (ECOSIM, ECOPATH) 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 North Pacific Ocean over foreseeable time scales.	R5, R6, R7, R10, 32		
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 analyses are available should it be required to further evaluate impacts of the fishery on central North Pacific ecosystems.	R5, R6, R7, 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 either trolled or attached to a pole tended by a fisherman. Accordingly, no specific studies have been undertaken, nor are these considered appropriate.	I1		
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 (not specific to, but including albacore) do not indicate any unacceptable impacts on the biological diversity, community structure and productivity of the North Pacific mid-ocean ecosystem. Use of northern anchovy for 'chum' by the pole-and-line segment of the fishery has no negative impact on the northern anchovy stock. The latter stock is managed by the PFMC under the Coastal Pelagics FMP and is subject to regular stock assessment review on a tri-annual basis.	R6, R7, R10		
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 PFMC 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.	R28, 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 (PET 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.	R28, R37		
80	Key protected, threatened and endangered species directly related to the fishery have been identified. Populations are monitored on a regular basis.	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.			
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.	No critical habitat is identified relevant to this fishery.			

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.	<p>Interactions of fisheries with PET species are evaluated by the Marine Mammal Pacific Scientific Review Group as specified in the Marine Mammal Protection Act. No significant interactions have been identified in relation to this fishery.</p> <p>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.</p> <p>There are no opportunities identified for indirect impacts.</p>	R3, R28, R37		
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 acceptable limits for the maintenance of populations.	R38, R40		
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.	<p>No populations of non-target species, which may be taken as by-catch in this fishery, are identified as being depleted. This Criterion is not, therefore, relevant.</p> <p>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)</p>	I1, 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	95
3A	Management System Criteria			50.0	93
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.	<p>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).</p> <p>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 <i>ad hoc</i> 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 for the Pacific Community for the WCPFC, providing further review of assessment advice. The IATTC and SPC have responded to recommendations from scientific reports. In particular, both Commissions have responded to recent Northern Albacore assessments by capping effort at current levels.</p> <p>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).</p> <p>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.</p> <p>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.</p>	R11, R20, R28, R31, R37, 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.	<p>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.</p> <p>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.</p> <p>The US troll albacore fishery offers a specific life-style (cultural context) , i.e. a way of conduction 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.</p> <p>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.</p>	R11, R20, R28, R29, R31, R36, R37		
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.	<p>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.</p> <p>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.</p> <p>Effective internal review of scientific processes, together with adequate review of other management aspects, takes place at appropriate intervals.</p>	R11, R20, R28, R29, R31, R36, R37		
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.	<p>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 (PFMCs) Scientific and Statistical Committee.</p> <p>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.</p> <p>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.</p>	R11, R20, R28, R29, R31, R36, R37		
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
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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.	<p>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.</p> <p>The Commissions regulating HMS stocks, including albacore (notably IATTC and WCPFC) are established through international agreement and treaty.</p> <p>The fishery operates consistently with relevant International Conventions and Agreements (as above) as well as bilateral access agreements between the US and Canada.</p>	R11, R20, R28, R37, 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.	<p>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.</p>	R20		
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.	R29, R38, 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
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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.		R11, R29, R36, R37		
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.					
		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.				

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).	R11, R29, R36, R37		
80	Transparent operational procedures are applied to the meeting of objectives. These procedures can be expected to support the objectives.	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.			
100	Operational procedures are transparent and clearly applied. There is a feedback mechanism testing effective application.	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.			

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 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 stock maintaining the status quo is a precautionary action.	R11, R29, R36, R37, 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, R29, R36, R37		
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.	R11, R20, R29, R36, R37		
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.	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).			
100	The system includes an appropriate consultative process including all affected stakeholders. Decisions specifically discuss and/or address stakeholder concerns.	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.			

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.	<p>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.</p> <p>Additionally, dispute resolution through litigation and the courts is available and has been well tested. Any such disputes are well documented.</p> <p>IATTC and WCPFC operate under charters specifying voting rules and procedures. However, usually, decisions are made by consensus of the member states.</p>	R20		
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
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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.	R29, 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.	<p>There are both formal (such as AAFA, WFOA and AFRF) and informal linkages between groups of fishers which promote sustainable and ethical fishing practices.</p> <p>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.</p>	R2, R28, R29, R37, R40		
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
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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, R29, R34		
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 domestic management of North Pacific albacore. There are demonstrable resources to allow implementation of the programme. Research is also planned and coordinated among US and foreign scientists, formerly through the North Pacific Albacore Workshops, and presently through the North Pacific Albacore Working Group of the ISC, to provide scientific support needed for assessing and monitoring the status of the North Pacific albacore stock and for potential international management of the fisheries harvesting North Pacific albacore. Funding for the research and monitoring is provided by the individual countries. In the US, funding is allocated through NMFS budgets.	R27, R28, R34		
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
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3A.6 (MSC Criteria 7, 9, 10)		The management system includes measures to pursue objectives for the stock.		15.1	87
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) from various international fleets covering several gears (troll, longline, pole and line). The assessment includes the contribution of the US troll fishery.	R28, R29, R34, R37, R40		
80	A monitoring programme is in place that addresses all key aspects of resource and effects at appropriate intervals and results are recorded.	The US albacore troll fishery is specifically monitored through logbooks and observers. Trip tickets are administered through the relevant States (California, Oregon, Washington, Hawaii). Landing data are available in 1° intervals. These data are available to relevant bodies and are exchanged at working groups.			
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	85
60	Reference points exist and some level of evaluation against these is possible.	<p>The 19th NPAW utilized reference points based upon eras of high and low productivity (i.e. high and low recruitment), and upon future fishing mortality selectivity being high or low. These were used as standards to compare with current biomass (B), and with current fishing mortality rate (F). The standards may also implicitly be interpreted (after reparameterisation) as BMSY and FMSY. Indeed, the high productivity, high F scenario implies an equilibrium spawning stock biomass at 17% of unfished levels which may be interpreted as an estimate of relative BMSY.</p> <p>Results are evaluated (through the assessment) every two to three years at present.</p>	R34		
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, R28, R37, R36		
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
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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.	R23		
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 fisheries, 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 and are implemented by the member and cooperating countries. Also, no take zones, or other domestic management actions, could be established and implemented by the PFMC.	R11, R28, R36, R37		
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
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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.	R11, R28, R36, R37		
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.	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.			
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.	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.			

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 generally are into Pago Pago, US Samoa, where effective control and surveillance is in place.	R11, R20, R28 R36,, R37		
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, R28, R36, R37		
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
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3 B	Operational Criteria			50.0	96
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, R8a		
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
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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.	R20, 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
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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	100
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 following US Coast Guard regulations garbage and plastic discards are retained, logged and returned to port for disposal or recycling, and regulations and standards are strictly followed for pumping bilges and handling waste water and sewage. Fishers have supported the provision of shore-side waste disposal facilities.	R21		
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
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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.	<p>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.</p> <p>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.</p> <p>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).</p> <p>There appears to be good awareness among fishers - received directly from NMFS and from AAFA.</p>	R11, R20, R28, R36, R37		
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 good.	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.	R28, R37, R29, 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
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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, R36, R37	
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.			



**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 North 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 North Pacific pole and line and 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 make very good use of the information available to support the assessment of the fishery against the three MSC Principles. However, as described in the following sections, some clarifications or modifications are still needed. I specifically stress that it was not clear to me how the evaluators justified the score allocated to the fishery under some indicators. Given that there are some indications (even though unverified) that overexploitation of the stock might take place, special attention needs to be paid to sections that explain how the fishery attained a score of more than 80 against indicators related to sustainable management (and thus adoption of a condition for certification associated with that indicator was not needed).

The certification report

On page 9 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.”

Section 2.4.1 also describes how the fishers catch the bait they use in the pole and line fishery. It will be useful to have more information about that fishery. Is it certified? If it is not, does it meet the MSC criteria? **MML Comment:** Text modified to include comment “While the northern anchovy fishery has not yet applied for MSC certification, it is managed under the Pacific Fishery Management Council Coastal Pelagic Fisheries Management Plan, where it is designated as a monitored species.

Logbook records are mandatory (there is a 63 year historical record) for ‘Live Bait’ catches of northern anchovy used for bait and chum by commercial and recreational fisheries and northern anchovy stock assessments are conducted periodically”.

Further, the evaluators refer to the more pessimistic option about current fishing mortality rates (page 13, section 5.2) but do not say what the status of the stock was under that option. Unless that information is provided the reader cannot decide whether the resolution approved by the IATTC was the appropriate one. **MML Comment:** This issue is covered in section 4 in detail.

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 1.1.2.4: “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 1.1.3.7: why does the fishery score 80 against this indicator given that the results of the mechanism have not been demonstrated yet? **MML Comment:** A score of 80 requires that mechanisms be in place, not necessarily that these have been demonstrated/tested (a healthy stock with appropriate fishing mortality would otherwise be unjustly penalized). In relation to this fishery, although formal adoption of benchmarks is still under development, the decision process has reacted to informal benchmarks (the Commissions specify that stocks should be maintained near Bmsy in their broad policy objectives) and formal benchmarks have been adopted in the US. Therefore, the score of 80 was chosen to indicate that the decision rules exist and have been documented, but await further refinement – hence a score of only 80.

Indicator 1.2.1: If you give a score of 80 to the fishery that means that the effort limitation is the appropriate rebuilding measure for this fishery. Are there studies that confirm that? **MML Comment:** Capping effort means that fishing mortality rates should not be increased. This could be achieved by converting F to an equivalent catch and maintaining the catches below that which would give Fmsy. Alternatively, one could just keep the number of boats and fishing days about the same. The

Commissions have chosen the latter, although the former may be used in the future. The “cap on effort” is taken to be a generic strategy indicating the need to constrain either catch or effort to maintain the stock at or above B_{msy}.

Indicator 1.2.1: The last sentence in this section: “... has been shown to have been effective” needs to be clarified. Was it effective in rebuilding the stock or reducing the fishing effort? (and if it is the latter, did it result in stock rebuilding?) MML

Comment: Text modified as per other Peer Review comments.

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 9 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.”

Indicator 3B.1.1: At the end of this part we learn that the fishery is designated a Category III fishery under the Marine Mammal Protection Act. It is not explained though what that categorization means. MML Comment: Clarified in text: “Category III fisheries are those US fisheries in which marine mammal interactions are considered to be negligible.”

Recommendation

The recommendations and conditions in the recommendation document are in accordance with material presented in the other two documents. However, given that the report of the ISC Albacore Working Group must be available by now, I expect that this section will be modified accordingly to reflect the findings of the Working Group. If the scoring document is modified in response to concerns raised above then the recommendations and conditions also need to be modified. MML Comment: Under MSC methodologies, the collection of information for the assessment effectively ends following the site visit – otherwise the assessment may never be complete. Any subsequent changes to the management or scientific basis of the fishery is evaluated as part of the annual surveillance audit programme, post-certification.

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

Peer Review B

The assessment of this fishery comprises four sections: the certification report; the scoring- Principal 1, 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.

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.

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 found no facts in dispute, such as the management unit, monitoring of stock status, the status of the research (does any scientist think there is ever enough data available?) and the data used in the stock assessment. Rather, this appears to one of the strongest data bases for an oceanic fishery available.

Items 4.2.1, Current Stock Status and 4.3, Modeling are the very near the top of sensitivity in a report such as this. The description of the modeling methods used for assessment is direct and accurate. It is refreshing to read a document where the assumptions for VPA are stated (catch-at-age is known without error); even though it is not fulfilled (age is estimated from length based upon a growth model). That and the other processes used in the stock assessment for albacore are the standard methods at this time. It is important that the authors specifically address the recommendation of the NPALBWG that “extensive effort be put into their development for the next assessment”. MSC should follow this recommendation and see if it is followed in the next assessment as that analysis should provide a better understanding of the uncertainty in stock assessments. [MML Comment: This aspect of fishery management will be monitored in ongoing annual surveillance audits.](#)

Management Advice (4.4) is important because the report directly states that “there are still large uncertainties in estimates of current fishing mortality rates”. However, the existing data “do not allow much precision”. Thus, it is important to monitor the data bases for estimates of recruitment, especially since this fish shows periods of high and low recruitment. This is not unexpected in a HMS with a life span in the Pacific of 10-12 years that reaches full sexual maturity at 6 years. Based upon the text (2.1 and 2.5) the long-line fleet catches mature fish (37.55 in 2000-2004) and the trolling and pole-line fisheries target juveniles (57% in 2000-2004). I do find it troublesome that the fishery is prosecuted heavily in both the juvenile and spawning size categories. Since the status is that the fishery is “at or near full exploitation”, 4.2.1, I would like to see this issue more fully addressed in the report and explain why this is or is not a problem. (See 8.2). [MML Comment: While the various fisheries target both juvenile and spawning sized fish, the magnitude of the mortality combined led to the general conclusion that the stock is “at or near full exploitation.” This was based on F benchmarks that balanced the juvenile and adult mortality rates in terms of YPR and SPR. The stock assessment indicated the uncertainty resulting in two basic outcomes: one outcome where the stock was under-exploited and one outcome where \$B \sim B_{msy}\$ \(fully exploited\). To clarify this further, the following text has been added to Section 4.3:](#)

[“While the various fisheries target both juvenile and spawning sized fish, the magnitude of the overall mortality indicated that current fishing mortality was near the F benchmarks \(based on YPR and SPR surrogates for \$F_{msy}\$ \). The stock assessment indicated the uncertainty resulting in two basic outcomes: one](#)

outcome where the stock was under-exploited and one outcome where $B \sim B_{msy}$ (fully exploited).”

Fishery Management (5)

The management objectives are clearly stated and the Consultative Process is so broad (does anyone have time to do something besides go to meetings (NPALBWG, ISC, WDPFC, IATTC) that it is hardly conceivable that anyone remotely close to this fishery has not had an opportunity to comment or review the status of the fishery. It would be helpful to discuss the different options for achieving the management objectives other than effort control (5.2 pp 3). It does appear that the various commissions do take the scientific advice, “the more pessimistic options”, and acts upon that advice. **MML Comment: Effort control is considered an entirely appropriate mechanism for this fishery and is consistent with the requirements of the MSC standard.**

Standard Used (6)

The three principles that form the standard against which the fishery is assessed are similar to those used for other North Pacific 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. Of all oceanic fisheries with which I am familiar, there is more coherence in the international interactions in this fishery than any other.

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. They properly addressed the material in the Marine Fish Conservation Network newsletter (material which is not necessarily critically reviewed but must be considered) and explained their interpretation of the necessary actions and the state of the fishery.

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.

1.1.1.4 “estimates of length and weight at age” Are the age estimates directly determined from an analysis of hard structures? **MML Comment:** Age and growth parameters of North Pacific albacore have been estimated by analyzing hard parts, evaluations of size distributions of the landed catch, and tag-recapture studies (SWFSC web site). However, the conversion of catch at size to catch at age is, of course, subject to uncertainties in the conversion process. Clarified in text.

1.1.2.2 What percentage of the vessels carries observers? 100%? **MML Comment:** There are no mandatory requirements for the U.S. vessels that operate in the North Pacific albacore fishery to carry observers. However, there is a long history of U.S. albacore vessels frequently carrying observers on a voluntary basis for scientific studies. Added to text.

1.1.3.8 It would be helpful to provide some documentation that the output/input controls for conservation measures have been effective for yellowfin and bigeye. **MML Comment:** Reference R13 indicates yellowfin biomass has fluctuated near or above Bmsy for the last 20 years, where the control measures were primarily TACs. Text clarified here in scoring table.

1.2.1 It would be helpful to provide some documentation that the output/input controls for conservation measures have been effective for yellowfin and bigeye. **MML Comment:** as above.

1.3.1.1 There can be shifts in age/size relationships as the larger fish in a stock are removed. The age/size relationship needs to be validated on a regular basis (5-7 years) **MML Comment:** this is being done through growth rate studies and monitoring of the size frequencies. Added to text.

2.1.2.1 100% observer coverage? **MML Comment:** as above.

3A.1.1 What is the history of the organization accepting the technical recommendations of the scientific staff? **MML Comment:** Text modified to include: “The IATTC and SPC have responded to recommendations from scientific reports. In particular, both Commissions have responded to recent Northern Albacore assessments by capping effort at current levels.”

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? MML
Comment: External review of research plans and priorities are vetted through the ISC and the NPAWG (see last sentence of 3A.5.3).

3A.6.1 100% observer coverage? MML Comment: as above

3A.6.3 Good luck.

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.

11.3 The pre-conditions and conditions are appropriate and supported by the findings of the evaluation team. This fishery meets the MSC standards for certification.