



Ministry of
Fisheries
Te Tautiaki i nga tini a Tangaroa

Appendix D: Supporting information (albacore) DRAFT



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SUPPORTING INFORMATION (ALBACORE)

Scope of this information brief

2 This information brief provides information on fisheries for albacore tuna. The document summarises the current situation for these fisheries under the following headings:

- **Ecosystem information:** information on the biology of albacore tuna, and the ecosystems in which they are found;
- **Use and value information:** how albacore fisheries are used and the values achieved from them; and
- **Management information:** how albacore fisheries are managed, including research and other services currently provided.

Further information:

General information on the management of highly migratory species is contained in a summary document available at <http://fpcs.fish.govt.nz/FishPlanComplex.aspx?ID=27>



ECOSYSTEM INFORMATION

Harvest strategies (international and national)

3 Management of albacore tuna throughout the Western and Central Pacific Ocean (WCPO) is the responsibility of the Western and Central Pacific Fisheries Commission (WCPFC). Under this regional convention, New Zealand is responsible for ensuring the management measures applied within New Zealand fisheries waters are compatible with those of the Commission. Equally, the Commission must ensure its measures are compatible with those of coastal states.

4 Albacore is not managed as a quota management species. Therefore, no total allowable catch (TAC) applies in New Zealand fisheries waters or on the high seas. However, conservation and management measures set by WCPFC do place binding effort controls on the albacore fishery in New Zealand fisheries waters (Appendix 1 and Table 1). The conservation and management measure for albacore in the South Pacific mirrors a similar measure in place for northern albacore within the WCPFC area, and was partly established to ensure there was no displacement of effort from the northern fishery into the south.

Table 1: Catch limits and other management controls for ALB

Stock	s. 13 or s. 14?	TAC (Date into QMS)	Basis for setting TAC	Relevant RFMO	Additional international obligations (catch limit and/or effort controls)
ALB		N/A		WCPFC	CCMs ¹ shall not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above current (2005) levels or recent historical (2000-2004) levels. For NZ, this equates to 445 vessels based on the number of vessels reporting albacore tuna landings in 2001.

Stock status

5 Two albacore stocks (North and South Pacific) are recognised in the Pacific Ocean, based on location and seasons of spawning, low longline catch rates in equatorial waters, and tag recovery information. Analysis of genetic population structure suggests some gene flow between the North and South Pacific stocks. Most albacore catches occur in longline fisheries in the EEZs of other South Pacific states and territories and in high seas areas throughout the geographical range of the stock.

6 Albacore in the South Pacific Ocean (SPO) are found between 5°S and 50°S, from the Australian coast to South America. Adults spawn in tropical and sub-tropical waters between about 10°S and 25°S during the austral summer, with juveniles recruiting to surface fisheries

¹ Commission members, cooperating non-members and participating territories of the WCPFC

in New Zealand coastal waters about two years later. From this region albacore appear to gradually disperse to the north, but may make seasonal migrations between tropical and sub-tropical waters.

7 Stock assessments of the SPO stock of albacore tuna are undertaken by the Oceanic Fisheries Programme of Secretariat of the Pacific Community, under contract to WCPFC.

8 No assessment is possible for albacore within New Zealand fisheries waters, because the proportion of the greater stock found within New Zealand fisheries waters is unknown and likely varies from year to year.

Table 2: Stock status information

Stock	Stock status	Date of last assessment	NZ catches* (2004)	Regional catches South Pacific (2004)
ALB	The key conclusions were similar to those of the 2003 and 2005 assessments, i.e. that overfishing is not occurring ($F_{current} / FMSY < 1$) and the stock is not in an over-fished state ($B_{current} / BMSY > 1$). Overall, fishery impacts on the total biomass are low (10%), although considerably higher impacts occur for the portion of the population vulnerable to longline. The model estimates that recent recruitment is below average and, consequently, the portion of the population vulnerable to longline is predicted to decline further in the next 2-3 years. Current catch levels from the South Pacific albacore stock appear to be sustainable and yield analyses suggest that increases in fishing mortality and yields are possible. However, given the age specific mortality of the longline fleets, any significant increase in effort would reduce CPUE to low levels with only moderate increases in yields. CPUE reductions may be more severe in areas of locally concentrated fishing effort.	2005 (data updated 2006)	4,461	65,106

* Includes catches within NZ's EEZ, and by NZ vessels outside the zone.

Productivity

9 Table 3 summarises the available information on factors that contribute to the productivity (and level of vulnerability to fishing) for albacore.

Table 3: Key biological characteristics of HMS stocks. Note: 'm' and 'f' refer to male and female respectively. FL refers to fork length.

Species	Natural mortality rate (M)*	Fecundity	Length and age at maturity	Maximum age/size	Recruitment to commercial fishery	Growth	Spawning / juvenile areas
ALB	M = 0.34 per year estimated (constant over all age classes).	Large number eggs produced per spawning event	71cm FL (m); 82cm FL (f)	~141.7cm ~60 kg	The troll fishery catches juvenile ALB. LL fleets typically catch much larger albacore over a broader size range.		Female ALB from New Caledonian and Tongan waters are reported to spawn during the Nov–Feb summer season.

Information status and research

10 Stock assessments for albacore are undertaken by the Oceanic Fisheries Program of the Secretariat of the Pacific Community (SPC). The WCPFC reviews the stock assessment, most recently in 2005.

11 Research into albacore must be sufficient to allow for local monitoring of the subcomponents of the stock to meet domestic fisheries management requirements, but also provide a contribution to the wider understanding and sustainability of these species at the level of the greater stock. As New Zealand is at the extreme southern range for albacore, changes in New Zealand fisheries waters may be important indicators for overall stock status.

12 The table below summarises information on how albacore is assessed.

Table 4: Current use of information and stock assessment approaches (items in *italics* are specifically related to the regional stock assessment).

Species	Assessing stock status	Information available	Stock assessment current	Stock assessment future	Research needs
Albacore	Monitoring catches, catch sampling, and <i>a regional stock assessment</i>	Catch effort, length frequency data, abundance index for the domestic troll fishery, and <i>tag recapture information</i>	MULTIFAN- CL assessment was undertaken by the SPC in 2005/06	MULTIFAN- CL assessment undertaken by the SPC	Continued catch monitoring

Further information:

- New Zealand Pelagic Fisheries. Medium Term Research Plan 2006/07 to 2008/09. August 2006. Prepared by the Ministry of Fisheries Science Group, the Pelagic Fisheries Managers & the Pelagic Fisheries Research Planning Group

Biodiversity

Effects of fishing on biodiversity

13 Albacore is an 'apex' or 'top' predator. Albacore prey on fish and squid, particularly lancetfish and lantern fish, as well as crustaceans and octopus. Adult albacore have few natural predators themselves. Nonetheless, smaller albacore are probably an important food source for some HMS, as well as blue and mako sharks. Apex predators are thought to play a crucial role in maintaining the health of an ecosystem. Apex predators may exert substantial control over the sizes of the populations of many species on lower levels of the food web. Consequently, they may contribute to the stability of marine ecosystems, and maintain biodiversity.

Ecologically related species

14 Troll fishing is generally considered to have only limited bycatch of non-target species, and of seabirds and marine mammals. However, there has been no historic observer coverage in this fishery, so information is limited.

15 Exploratory observer coverage occurred on one vessel in 2006-07. The observer report noted birds were seen occasionally, always in low numbers, and showed very little interest in the fishing gear. Albatrosses, mollymawks, shearwaters, petrels and a gannet were seen, always on the wing, spending most of their time cruising well astern. Very limited numbers of other species (skipjack, unidentified) were observed in the catch.

16 Further observer coverage is planned for 2007-08.

Fishing methods

17 In New Zealand waters, a substantial proportion of albacore tuna is taken by trolling. This fishing method has no known environmental impacts.

18 Up to 60% of the albacore catch has been taken by longline in recent years. There are environmental impacts associated with use of longlines to target albacore. In general, environmental effects are common to the fishing method rather than specific to fishing for albacore. For more information, see chapter one.

USE AND VALUES INFORMATION

Allocations

High seas

19 Table 1 above outlines controls on the ALB fishery in the international context.

In zone

20 Albacore is managed outside of the QMS. There is no catch limit for albacore within New Zealand fisheries waters. The section on legislation and regulations in the front section of the plan outlines the context in which New Zealand albacore fisheries are managed.

21 MFish has consulted stakeholders on two occasions about introducing albacore to the QMS. Firstly, for introduction on 1 October 2005, and secondly for introduction on 1 October 2007. On both occasions, the decision was made not to introduce albacore at that time.

22 MFish's preferred option was to introduce albacore into the QMS. MFish considered the current management framework did not adequately provide for utilisation of albacore. Allocation of rights was seen to provide better incentives for stakeholder involvement in management and utilisation of the fishery. In particular, existing fishers and new entrants would be able to use the resource without detrimental effects from competitive fishing.

23 There were competing views from different sectors of the industry about whether or not albacore should be introduced to the QMS. There were also differences of opinion about which catch history years should be introduced, and what the timeframe for introduction should be.

24 In 2006, the Minister outlined his position in relation to the introduction of albacore into the QMS. He noted he considered at that time the current open access management arrangement for albacore was able to provide for the utilisation of the species in New Zealand waters. However, MFish was directed to engage and consult with stakeholders on:

- Whether or not the current management of albacore was providing for the utilisation of the species, with the aim of reaching a greater level of consensus amongst stakeholders;
- A proposal to identify the appropriate qualifying catch history years for albacore; and
- The development of management objectives to guide the setting of a TAC for albacore if it were introduced to the QMS in future.

25 MFish considers that this HMS fisheries plan will be the appropriate vehicle for engaging stakeholders on these issues. At a minimum MFish would expect the plan to identify a review date to reconsider the application of the QMS to albacore.

Use and value

Commercial use

Landings and fleet characteristics

26 Domestically, albacore form the basis of a summer troll fishery, primarily on the west coasts of the North and South Islands. This fishery accounts for a large proportion of the albacore landings. Albacore are also caught throughout the year by longline (1000–2500 t per year). Total annual landings over the past 10 fishing years have averaged 5337 t (largest landing 6525 t in 1997-98) (Tables 5 and 6).

27 Regular commercial catches of tuna (including albacore) were not reported until 1961. Prior to 1973, the albacore troll fishery was centred off the North Island (Bay of Plenty to Napier and New Plymouth) with the first commercial catches off Greymouth and Westport (54% of the total catch) in 1973. After experimental fishing by the *W. J. Scott* showed substantial quantities of albacore off the Hokitika Canyon and as far south as Doubtful Sound, albacore trolling expanded to the west coast of the South Island. Tuna longlining, the subject of early trials in 1964, did not establish itself as a fishing method in the domestic industry until the early 1990s.

28 The New Zealand albacore fishery, especially the troll fishery, has been characterised by periodic poor years that have been linked to poor weather or colder than average summer seasons. Despite this variability, albacore landings increased steadily since the start of commercial fishing in the 1960s. The average catch in the 1960s of 19 t increased in the 1970s to 705 t, in the 1980s to 2,256 t and in the 1990s averaged 4,571 t. There has been a declining trend within NZ fisheries waters in more recent years, from a peak of 6,744 t in 2003 to 2,585 t in 2006 (see table 5).

Table 5: Reported albacore catch (t) by Fisheries Management Area (FMA) in the New Zealand exclusive economic zone (EEZ) from 1989 to 2006.

Year	FMA1	FMA2	FMA3	FMA4	FMA5	FMA6	FMA7	FMA8	FMA9	FMA10	Total
1989	472	2189	6	3	27	0	732	0	899	558	4884
1990	199	797	2	3	194	0	1620	11	51	136	3011
1991	192	431	5	1	81	0	1663	5	41	32	2450
1992	266	489	12	1	57	1	2462	68	121	4	3481
1993	647	267	7	0	30	0	1658	185	530	3	3327
1994	1098	497	0	0	50	0	2409	186	1013	3	5255
1995	1118	552	1	0	58	0	2792	354	1279	3	6159
1996	1320	834	4	1	41	0	2052	1085	981	1	6320
1997	1133	321	12	0	35	0	1528	267	331	0	3628
1998	1905	621	0	0	34	0	2404	456	1104	1	6525
1999	1623	511	0	0	19	0	1513	47	184	6	3903
2000	763	719	1	0	31	0	2525	135	248	5	4428
2001	869	932	1	1	29	0	1765	509	1225	19	5349
2002	550	1366	2	1	47	0	2110	700	779	11	5566
2003	497	1757	0	4	15	0	1898	577	1785	209	6744
2004	173	673	1	3	3	0	1268	704	1630	0	4455
2005	172	271	1	1	26	0	1898	332	758	1	3460
2006	108	257	1	0	29	0	1457	297	433	4	2585

Table 6: Reported total New Zealand landings (t) and landings (t) from the South Pacific Ocean (SPO) of albacore tuna from 1972 to 2006.

Year	NZ fisheries waters	SPO	Year	NZ fisheries waters	SPO	Year	NZ fisheries waters	SPO
1972	240	39 512	1987	1236	25 042	2002	5566	65 477
1973	432	47 324	1988	672	37 863	2003	6744	60 873
1974	898	34 743	1989	4884	48 562	2004	4455	65 106

1975	646	23 595	1990	3011	34 124	2005	3446	58 168
1976	25	29 077	1991	2450	32 693	2006	2625	Not available
1977	621	38 735	1992	3481	37 246			
1978	1686	34 674	1993	3327	34 670			
1979	814	27 071	1994	5255	41 606			
1980	1468	32 536	1995	6159	37 331			
1981	2085	34 783	1996	6320	31 442			
1982	2434	30 788	1997	3628	31 967			
1983	720	25 092	1998	6525	44 236			
1984	2534	24 704	1999	3903	35 556			
1985	2941	32 328	2000	4428	40 341			
1986	2044	36 586	2001	5349	54 666			

Source: Lawson (2005), LFRR and MHR for most recent years

29 Total South Pacific albacore catches have fluctuated between 25 – 65,000t since 1960. Average catch over the period 1990 to 2005 was approximately 44,094t (Table 5). Catches from within New Zealand fisheries waters are about 10% (average for 2000 through 2004) of those from the greater stock inhabiting the South Pacific Ocean.

Fishing patterns

30 The albacore troll fishery is based almost exclusively on the west coast of North and South Islands, and operates between December and May each year. The distribution of catch and effort is almost identical (Figure 1).

31 Most albacore troll fishery catches are in the 1st and 2nd quarters, with the 4th quarter important in some years (1994 to 1996). Most of the troll fishery catch comes from FMA7, off the west coast of the South Island although FMA 1, FMA 2, FMA 8 and FMA 9 have substantial catches in some years. High seas troll catches have been infrequent and a minor component (maximum catch of 42.2 t in 1991) of the New Zealand fishery between 1991 and 2000.

32 Albacore caught incidentally during longline sets for bigeye and southern bluefin tuna or as a target species has become increasingly important, and since 1999 represents 30–50% of domestic albacore landings by calendar year. Most of the longline albacore catch is reported from FMA 1 and FMA 2, with lesser amounts caught in FMA 9. Albacore are regularly caught by longline in high seas areas, but effort and therefore catches are small. Small catches of albacore are occasionally reported using pole-and-line and hand line gear. Pole-and-line catches of albacore have been reported from FMAs 1, 2, 5, 7, and 9. Hand line catches have been reported from FMAs 1 and 7.

Table 7: Percentage catch by gear type for ALB taken in New Zealand fisheries in the western and central Pacific Ocean convention area.

	Longline	Troll	Handline	Pole & Line	Purse seine
2005	18	82	0	<1	<1
2006	20	80	0	<1	0

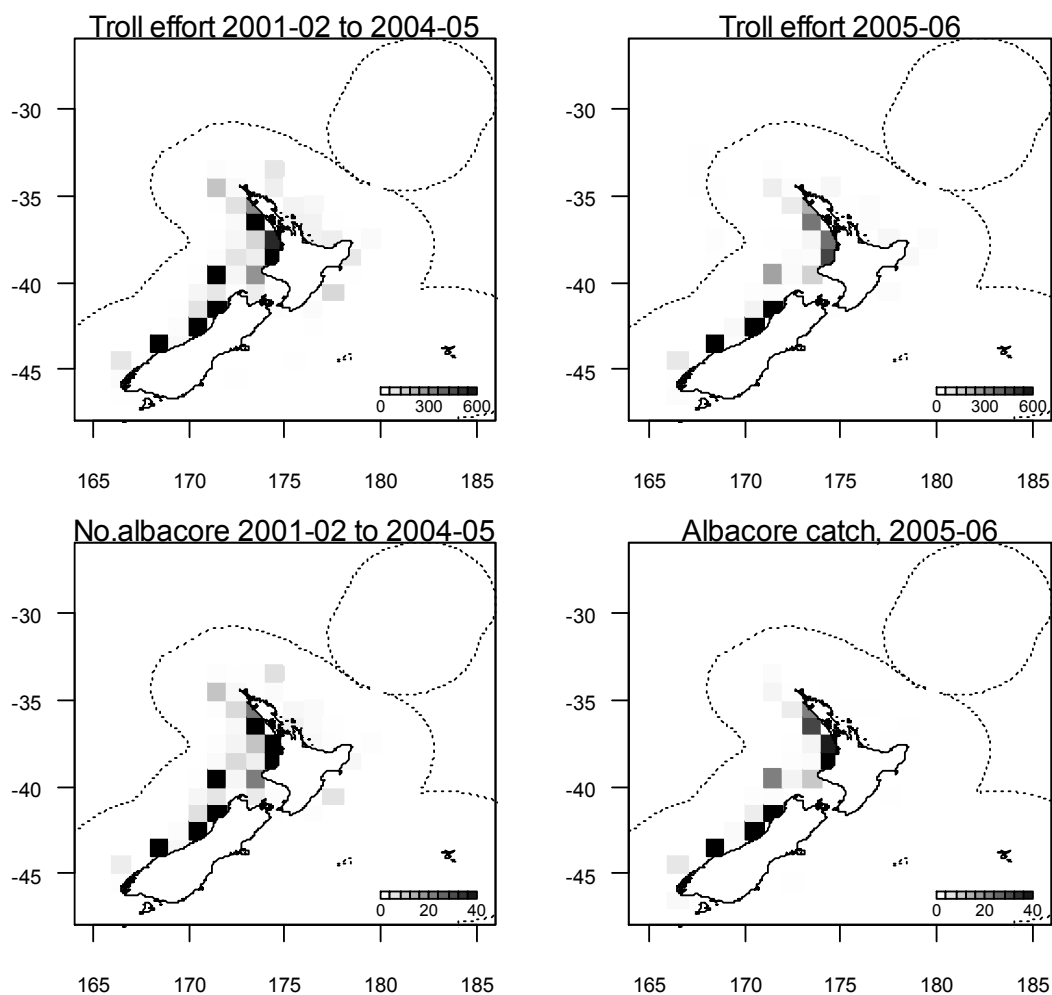


Figure 1: Annual troll effort (vessel-days per 1 degree square) for 2001-02 to 2004-05 troll seasons (average) and for 2005-06 season (top); and annual troll catch of albacore (thousands of fish per 1 degree square) for 2001-02 to 2004-05 troll seasons (average) and for 2005-06 season (bottom).

Processing

33 Most albacore is landed whole (greenweight) (table 8).

Table 8: Landed states of ALB (2005-06 fishing year) (kgs). Note that landings returns include some fish that are returned to the sea or eaten on board.

Species	Greenweight	Headed and gutted*	Gilled and gutted**	Dressed	Fish meal	Not specified / other	Fillets †	Total
ALB	2,795,744	98	401	1,297	113	1,940	100	2,799,693

* Includes Headed and gutted; Headed, gutted, and tailed; Headed, gutted, and finned

** Includes gilled and gutted tail off, tail on; and gutted

† Includes skin-off and skin on

Commercial value indicators

34 Most tuna caught in New Zealand waters is exported. Table 9 shows the main product forms, and the volume and value of export products for albacore.

35 The destination of exports varies depending on the species. Large tunas caught by longline (including albacore) are mostly exported “chilled” to Japan, with a smaller proportion exported to the United States. Troll caught albacore are sent to a variety of markets for canning including Thailand and Pago pago. In the most recent year a significant proportion of albacore was exported to canneries in Spain.

36 There is no domestic price information other than port price (table 10).

Table 9: Export information for albacore for 2006 calendar year

Nett weight volume (kgs) of exported catch for year to December 2006						
Frozen whole	Chilled whole	Frozen fillets	Frozen H&G	Chilled H&G	Chilled other form	Total
2,711,514	3,490	0	43,000	0	115	2,758,119
Value (NZ\$) of exported catch for year to December 2006 (FOB ⁺)						
Frozen whole	Chilled whole	Frozen fillets	Frozen H&G	Chilled H&G	Chilled other form	Total
8,602,683	99,837	0	151,283	0	803	8,854,606
⁺ FOB - Free on board. The value of export goods, including raw material, processing, packaging, storage and transportation up to the point where the goods are about to leave the country as exports. FOB does not include storage, export transport or insurance cost to get the goods to the export market. H&G = headed and gutted						

Table 10: Port price information for albacore (\$ / Kg greenweight)

Fishstock	2006/07	2005/06	2004/05	2003/04
ALB	2.00	2.00	2.18	3.23

Recreational use

37 Albacore is an important target species on the whole west coast of both North and South Islands, as well as off the east coast of the North island from the Bay of Plenty to Wairarapa and the northern east coast of the South Island. Club records list Castle Point and Jackson Bay as key areas. Large albacore (10-20kg in weight) are targeted with trolled lures in these areas. They are pursued both for food and sport. Small albacore are commonly caught for bait or as a bycatch off the northern coast of the North Island. These are predominantly juvenile fish of 1-3kg.

38 Combined catch records of clubs affiliated to New Zealand Big Game Fishing Council (NZBGFC) show relatively stable annual catches of albacore, between 500 and 1000 fish (Table 12). Anecdotal information also suggests that many more albacore are landed but not weighed at clubs. On average, 734 albacore per year are recorded as landed in club records over the last 11 years. Fishers have been actively discouraged from tagging albacore with the large gamefish tags issued in New Zealand.

39 The recreational season for albacore is from November to May, with peak catches in February and March according to NZBGFC records. The seasonality of landing may reflect the amount of fishing effort rather than availability. Small numbers of 10-20kg albacore are caught in April/May off east Northland, but these fish are a bycatch of the billfish fishery. Numerically, the recreational catch of small tunas, albacore and skipjack, may be greater than all other gamefish species in New Zealand.

40 There is some uncertainty regarding the recreational harvest estimates for albacore reported below in Table 11.

Table 11: Estimates of recreational albacore catch by number and weight (t). Source: Bradford (1996, 1998).

Year	Area	Catch (number)	Catch (t)
1993	MFish North region	48 000	245
1996	FMA 1	16 000	82
	FMA 2	20 000	102
	FMA 3	< 500	< 2.5
	FMA 5	2000	10
	FMA 8	5000	26
	FMA 9	8000	41
	1996 total	51 000 to 51 500	260 to 263
2000	Nation wide	30 000	

41 The harvest estimates are derived from telephone diary surveys and it has recently been concluded that those from 1996 and earlier may be inaccurate because the methodology used in estimation is considered to contain an error. Estimates from 2000 are considered by some to be over-estimates and in this case are only based on numbers of fish because no weight information was collected during the survey. Nonetheless, the historic survey results suggest annual recreational catches of albacore were around 245-260 t.

42 The landed catch from NZBGFC records is summarised below.

Table 12: NZBGFC national landed catch tallies for albacore by season (does not include tag and release).

Season	Albacore
1993/94	703
1994/95	617
1995/96	
1996/97	803
1997/98	993
1998/99	599
1999/00	453
2000/01	803
2001/02	576
2002/03	1005
2003/04	789
Total	7341

Table 13: Gamefish tagging records for albacore by season in New Zealand waters.

Season	Albacore
1993-94	27
1994-95	5
1995-96	
1996-97	7
1997-98	1
1998-99	1
1999-00	24
2000-01	
2001-02	2
2002-03	1
2003-04	2
Total	70

Further information:

Characterisation of the New Zealand Recreational Gamefish Fishery
Final Research Report. REC2004/02. J. Holdsworth K. Walshe, T. Sippel. 2005.

Customary use

43 It is uncertain whether albacore were caught by early Maori, although it is clear that they trolled lures (for kahawai) that are very similar to those still used by Tahitian fishermen for various small tunas. The unexpected absence of a Maori name for albacore has been noted, whereas there are Maori names for a number of other oceanic pelagic species.

However, given the number of other oceanic species known to Maori, and the early missionary reports of Maori regularly fishing several miles from shore, albacore were probably part of the catch of early Maori.

MANAGEMENT INFORMATION

Stakeholder engagement

44 The advisory group for this fisheries plan is likely to include members from the following groups:

- Customary input into the plan will be facilitated by Pou Takawaenga, and will make use of existing contacts including regional forums.
- Recreational representative groups with an interest in HMS species include the Big Game Fishing Council and the Recreational Fishing Council.
- National bodies include SeaFIC and the New Zealand Federation of Commercial Fishermen. The New Zealand Tuna Management Association Inc represents albacore fishers.
- Environmental stakeholders including Forest and Bird and ECO have an interest in HMS fisheries.

International obligations

45 The WCPFC conservation and management measures that apply specifically to albacore are in appendix 1. In addition, a summary of New Zealand's implementation of WCPFC conservation and management measures is provided in the front section of this report.

Further information:

The full text of WCPFC conservation and management measures and resolutions is available at:
<http://www.wcpfc.int/decisions.htm>

Relevant regulations

46 The main regulations that apply to the albacore fishery are:

- Fisheries (Commercial Fishing) Regulations 2001 and regional commercial fishing regulations;
- Fisheries (Foreign Fishing Vessel) Regulations 2001;
- Fisheries (Western and Central Pacific Ocean Highly Migratory Fish Stocks) Regulations 2003.

47 The specific regulations that apply to trolling for albacore are listed below. General regulations for HMS are in the front section of the plan.

Table 14: Fisheries regulations relevant to the albacore troll fishery. General regulations relevant to HMS are covered in the front section of the plan.

Regulation	Who does it apply to	Date introduced	Purpose of regulation when introduced
Fisheries (South-East Area Commercial Fishing) Regulations 1986, r 11K No commercial fisher shall take any fish by means of trolling in those waters of quota management area 3 lying within 1 nautical mile of the mean high water mark of any land adjacent to the waters of that area.	Commercial	1986	

Compliance

48 The main drivers for fishing offences involving HMS include the high value and high demand in international markets, and the extensive and remote areas where these stocks can be found. There is limited information about compliance levels on HMS fisheries.

49 With regard to albacore which is a relatively low value species and not catch limited these drivers may not apply. There is some incentive to underreport catches to save on levy payments (for non-QMS these are based on landed catch) but there is a strong counter incentive in that there is separate reporting of landed catch by fishers and by licensed fish receivers. Discrepancy reporting provides a method to monitor for this activity.

50 No bag limits apply to the recreational fishery

51 Further information on compliance, monitoring and enforcement in HMS fisheries is found in the front section of the plan.

Specific fishery services

52 The following tables outline planned research and observer services for these fisheries (tables 15-18), along with cost recovery information (table 19). Appendix 2 lists the details of the research projects that were cost recovered in 2005-06.

Table 15: Scheduled research services (2007/08)

Project	Description
TUN2007/01	Characterisation of New Zealand tuna fisheries for international obligations
TUN2007/02	Commercial catch sampling programme for highly migratory species
OBS2007/05	Research Observer Services – Pelagic Fisheries

Table 16: Planned research services (2008/09)

Project	Description
ALB2008/01	Stock monitoring of albacore
ALB2008/02	Relative abundance of troll caught albacore
PEL2008/02	Analysis of observer data from pelagic fisheries
OBS2007/05	Research Observer Services – Pelagic Fisheries

Table 17: Planned observer coverage 2007/08

Species	Proportion of fishery to be covered	Reason for coverage	Information to be collected
Albacore	Longline: 700 target tuna longline days Troll: 20 target albacore troll days	To estimate catches of target species and of fish and non-fish bycatch as required under international obligations To describe the troll fishery, particularly with respect to potential measures of effort	Catch estimates and biological samples and estimate non target catches Descriptions of operational procedures and interpretation of reporting requirements in the troll fishery

Table 18: Summary of planned observer coverage for the 2007/08 year

SPECIES	METHOD			TOTAL
	Purse-seine	Longline	Trawl	
Billfish	140#	700#	N/A	0
Pelagic Sharks	140#	700#	~	0
Tuna	140@	700	N/A	840
ALB troll				20

#This sampling occurs during the target tuna fisheries, therefore these days are not included in the total

~ Occasional POS data on are collected in trawl fisheries

@ Skipjack tuna

Table 19: Cost recovery information (2007-08 levy) for albacore

MFish Research		MFish Departmental			MFish Observers	Pre unders/overs levy	Total Cost Recovery Levy (\$)
Environmental	Stock Assess.	Compliance	Statutory	Registry			
5,096.2	54,334.19	50,719.35	1,719.73	25,934.72	9,877.05	147,681.24	\$221,679.41

ANNEXES

Annex 1: WCPFC South Pacific Albacore measure

CONSERVATION AND MANAGEMENT MEASURE ON SOUTH PACIFIC ALBACORE Conservation and Management Measure 2005-02

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

In accordance with the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean:

Recalling that the Scientific Committee notes that there are critical biological uncertainties for South Pacific albacore;

Noting that while current catch levels from the South Pacific albacore stock appear to be sustainable, given the age-specific mortality of the longline fleets, any significant increase in effort would reduce CPUE to low levels with only moderate increases in yields. CPUE reductions may be more severe in areas of locally concentrated fishing effort.

Further noting that while future increases in albacore catch are likely to be sustainable, estimates of MSY are highly uncertain because of the extrapolation of catch and effort well beyond any historical levels. Projections demonstrated that longline exploitable biomass, and hence CPUE, would fall sharply if catch and effort were increased to MSY levels. Therefore, the economic consequences of any such increases should be carefully assessed beforehand.

Resolves as follows:

1. Commission Members, Cooperating Non-Members, and participating Territories (CCMs) shall not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above current (2005) or average historical (last five years) levels.
2. CCMs actively fishing for South Pacific albacore shall not increase catches of South Pacific albacore in the Convention Area south of the equator above current (2005) or average historical (last five years) levels.
3. The provisions of paragraphs 1 and 2 shall not prejudice the legitimate rights and obligations under international law of small island developing state CCMs and coastal state CCMs in the Convention Area for whom South Pacific albacore is an important component of the domestic tuna fishery in waters under their national jurisdiction, and who may wish to pursue a responsible level of development of their fisheries for South Pacific albacore.
4. CCMs that actively fish for South Pacific albacore in the Convention Area south of the equator shall cooperate to ensure the long-term sustainability and economic viability of the fishery for South Pacific albacore, including cooperation and collaboration on research to reduce uncertainty with regard to the status of this stock.

Annex 2: research projects

Table 20: Research projects levied for cost recovery in 2006-07 for albacore.

Project	Project Description	Cost recovered
ALB2005-01	Stock monitoring of albacore	\$54,939.98
SAM2005-02	Effects of climate on commercial fish abundance	\$284.22
TUN2004-01	Estimation of non-target fish catches in the tuna longline fishery	\$1,196.87
TUN2005-01	Characterisation of the NZ tuna fisheries	\$9,763.74
TUN2005-02	Development of a commercial catch sampling programme for HMS	\$6,563.09
TUN2006-02	Estimation of non-target fish catches in the tuna longline fishery	\$6,315.26
ENV2004-05	Modelling of impacts of fishing-related mortality on NZ seabird populations	\$1,320.66
ENV2005-01	Estimation of the nature and extent of incidental captures of seabirds in NZ fisheries.	\$366.55
GBD2006-01	DNA database for commercial marine fish and invertebrates	\$848.79
PRO2006-01	Data collection of demographic, distributional and trophic information on selected seabirds species to allow estimation of effects of fishing on population viability	\$3,269.69
PRO2006-02	Modelling the effects of fishing on population viability of selected seabirds	\$567.12
PRO2006-04	Estimation of the nature and extent of incidental captures of seabirds in NZ fisheries	\$635.03

Table 21: Cost recovery information (2006-07 levy) for albacore

Stock	MFish Research		MFish Departmental			MFish Observers	DoC Observers	Total Cost Recovery Levy (\$)
	Stock assessment	Other	Statutory	Registry	Compliance	Research/ Enforcement	Research/ Enforcement	
ALB	\$71,266.81	\$14,804.19	\$3,122.34	\$34,720.24	\$59,144.34	\$26,756.92	\$4,635.49	\$214,450.33