

EASTERN AUSTRALIAN ALBACORE TUNA FISHERIES
(COUNTRY REPORT, 1996)

T.R. Skousen¹ and A.E. Caton²

Introduction

A summary of past and the then-current fishing activities in the Australian 200 nautical mile fishing zone (AFZ) which caught albacore tuna (*Thunnus alalunga*), together with an overview of sources of biological and fisheries data on albacore, were provided by Caton and Ward (1991). This paper updates information on the status of fishing operations taking albacore in the AFZ, and reviews recent monitoring practice. Despite indicators that potential exists for a fishery targeting albacore in the AFZ, its exploitation there remains incidental to a range of other fishing activities. A major troll fishery feasibility survey off south-eastern Australia in the early 1990s (Chapman, et al, 1992) has not resulted in any significant fishery developments. Virtually no biological research has been undertaken on albacore in Australia.

Albacore are an incidental catch of commercial tuna fishing operations in the eastern AFZ³. They are most strongly represented in longline catches (Figure 1). In the 1990s the average annual catch of albacore by bilateral licensed Japanese longliners has been 1660 t, by Australia/Japan joint venture longliners has been about 85 t, and the domestic longline catch has been about 220 t. Surface fishing (mainly trolling) albacore catches ranged up to 50 t. The amount of albacore caught by recreational fishers is unknown. The previously reported estimates of 75-200 t annually may have been incorrect, catches more probably being in the range of 7-20 t annually.

Logbooks

Daily catch by species and effort data for Japanese longline fishing have been collected by a system of logbooks (Figure 2) and radio reports, and stored in the Australian Fishing Zone Information System for bilateral-licensed vessels since 1979 and for joint venture vessels since commencement of their operations in 1989. Catch and effort data are considered to be good in quality, but observers report that albacore weights were not consistently entered, especially in the earlier years. Domestic longline catch data have been collected by logbooks since 1985 but reasonable coverage was not achieved until 1989. Even since then, the representativeness of the albacore catch data is questionable. Domestic surface fishery logbooks focus on southern bluefin tuna (*Thunnus maccoyii*; SBT) pole and purse seine operations. Albacore are taken opportunistically by poling gear off New South Wales during operations for skipjack tuna (*Katsuwonus pelamis*) but they are rare in South Australian catches now because of changes in the nature of the SBT operations there. Surface-caught albacore are also taken by small-scale trolling operations off southern New South Wales and eastern Tasmania. Monitoring has been spasmodic until the development of a specific troll and handline fishery logbook in 1989.

¹ Address: Australian Fisheries Management Authority, PO Box 7051, Canberra Mail Centre ACT 2610, Australia.

² Address: Bureau of Resource Sciences, PO Box E11, Queen Victoria Terrace, PARKES ACT 2600, Australia.

³ In this report, the term 'eastern AFZ' refers to AFZ waters, including Norfolk Island, east of 140E.

New logbooks designs (Figures 3, 4 & 5) have just been introduced for domestic tuna fisheries after extensive discussion among skippers, logbook liaison personnel and fishery scientists. The Australian Fisheries Management Authority has strengthened its logbook liaison activities in an effort to improve the reporting rate and accuracy of data collected. Estimated return rate for tuna logbooks in the early 1990s was 80-85% but for 1994 and 1995 more than 90% were returned.

Domestic longline fishery

indicate that A small-vessel longlining fishery was established off the Australian east coast in the mid 1980s targeting yellowfin tuna (*Thunnus albacares*) for air freight to Japan (Caton and Ward 1991). The fishery also takes a significant albacore by-catch, which is marketed at the Sydney fresh fish market or the local cannery. While more than 200 permits are held for longlining in the eastern AFZ, the fishery currently involves about 30-40 vessels dedicated year-round to longlining, together with 40-50 further vessels operating part-time. The fishery is distributed between eastern Tasmania in the south and far north-eastern Queensland in the north, with main centres around Hobart (Tasmania), southern New South Wales and far north-eastern Queensland. Vessels range mainly from 12-18 m but some are as large as 30 m. Sets usually involve 800-1100 hooks, with a monofilament mainline. Some vessels may make more than one set per day. The Tasmanian and winter (April to September) operations off southern New South Wales target SBT. More northerly New South Wales operations and those in Queensland target yellowfin tuna. Longliners off north-eastern Queensland are limited to 500 hooks per set.

Japanese Longlining in the AFZ

Japanese longlining commenced in the 1950s in the region now encompassed by the AFZ, and was well established by 1960. Ward (1996) provides a comprehensive description of the history and characteristics of Japanese longline fishing off eastern Australia. Annual levels of activity in the area fluctuated widely during the 1960s, 1970s and 1980s. Vessels range in size from 40 m to 55 m. Current operations involve daily sets of 2500-3500 hooks. The average size of Japanese longline vessels and the amount of gear used have increased over the years.

With the establishment of the AFZ, Japanese longline activities off the east coast during the 1980s were marked by progressive access restrictions associated with development of Australian commercial and recreational tuna fisheries, and concern over the biological status of SBT. The access restrictions in 1994-95 are summarised in Figure 6. The 1994-95 arrangements terminated on 31 October 1995 and at present new arrangements for 1995-96 have not been resolved. Copies of the Head Agreement on fisheries between Australia and Japan, and of the annual bilateral access agreements for Japanese longliner operation in the AFZ since it commenced operation on 1 November 1979 are provided in Caton and Ward (1996).

During the 1980s the number of Japanese vessels undertaking licensed fishing operations in the eastern AFZ ranged between 109 and 184. Since 1990-91, there have been vessel limits for sub-areas of the AFZ (Table 1).

In 1989, 20 Japanese longliners entered into joint-venture arrangements with Australian companies to use Australian SBT quota in the AFZ. Operations have occurred each year since then, with up to 50 vessels involved. However, at the end of 1995 the arrangement lapsed and its future is uncertain because of an impasse between Australia, New Zealand and Japan over quota levels for the global SBT fishery.

Distribution of Longlining Activity in the AFZ

Distribution of Japanese longline austral summer (October to March) and winter (April to September) effort in the western and eastern AFZ, aggregated for the years 1980-1988, were provided by Caton and Ward (1991). The distribution of summer and winter locations of albacore catches in 1993/94 and 1994/95 off eastern Australia are shown for comparison (Figures 7 & 8). Note that the 'point' locations in the figure do not indicate magnitude of catch. In effect they outline the general pattern of effort distribution, and clearly depict the boundary of the eastern coastal region closed to Japanese longliner access. Like the earlier effort distributions, the 1993/94 and 1994/95 data show that the main concentration of effort occurs in the winter periods. It is relevant to note that SBT is the focus of the southern operations then, especially south of 40S, and albacore are essentially a by-catch.

The corresponding distribution of the locations of summer and winter domestic longline fishery catches of albacore in 1993/94 and 1994/95 are also shown (Figures 9 & 10). The concentration of operations coastward of the Japanese operational areas is apparent, as are the two centres of the fishery (off central and southern New South Wales, and north-eastern Queensland).

Japanese Longline AFZ Albacore Catches and Catch Rates

Annual summer (October to March) and winter (April to September) effort, albacore catches, average weight and catch rates of Japanese longliners in the eastern AFZ (ie east of 140E) from 1979 to 1995 are provided in Table 2. Effort, albacore catch and catch rate for the north-eastern (north of 30S), south-eastern (30S-40S) and Tasmanian (south of 40S) areas of the AFZ are shown in Figures 11 to 14. The effort, albacore catch and catch rate of Australia/Japan joint venture longliners in subareas of the eastern AFZ from 1989 to 1995 are provided in Table 3.

Caton and Ward (1991) provided total annual effort but also calculated effort in terms of the number of hooks set in 'albacore-grid-months'. These were all one-degree-square grids within which albacore had been caught during the period 1980-89. However, only those hook-sets in months for which albacore had been recorded were included, so that seasonal effort directed at other species might be avoided. Generally there was little difference between total hook-sets and those in 'albacore-grid-months' except around Tasmania (ie. south of 40S) where the albacore-linked effort represented 60% of the total, illustrating the effectiveness of the vessels' targeting on southern bluefin tuna in that area. In the current tables, 'albacore hooks' are the corresponding modified effort data. It should be noted that, whereas Caton and Ward (1991) confined tabulations to catches and effort within the AFZ, the current tables include some data for adjacent waters beyond the AFZ, so catches and effort are higher than those tabled in the earlier work.

Japanese longliner effort reported in Australian logbooks has varied between about 10 million and 30 million hooks between 1980 and 1995. In general, however, albacore CPUE has been fairly stable since the mid 1980s. The increase during the early 1980s may perhaps be associated with progressively more stringent access restraints and a concentration of Japanese longlining further offshore. The main CPUE trend apparent is a persistent increase for north-eastern Australia over the period of the data. This may perhaps be linked to an increase in activity in the far north-east of the AFZ where generally higher catch rates of yellowfin (and albacore in association) have been taken.

Domestic Longline Albacore Catches and Catch Rates

Annual effort, albacore catch and catch rate data for the southern component (south of 24S) of the domestic longline fishery are shown in Table 4 and Figure 15. Logbook confidentiality provisions prevent release of early catch data for the northern (north of

24S) operations because less than 5 vessels operated there, but catch rate trends are shown.

There has been a rapid increase in the effort recorded in logbooks during the 1990s. It is not clear to what extent this represents changes in reporting rate, but there are indications that effort increases have occurred, especially off north-eastern Queensland where the fleet has increased from 4 to 10 active vessels. In that area, some longliners are reporting catches of very large (up to 35 kg) albacore. The effort increase is clear in the several years of data for the south-eastern component of the fishery (Table 4). CPUE in both areas has been fairly steady across the time span of the data, with if anything a slight increase (Figure 15). This may reflect a change in the extent of reporting of albacore, but is not inconsistent with the general pattern for Japanese longlining.

Size Composition

The observer program on board Japanese longliners has been a useful source of monitoring data on albacore since establishment of the AFZ in 1979. As part of their duties observers regularly undertake size frequency sampling of the catch and collect other data and biological samples (eg. hard parts for aging). Annual summer (October to March) and winter (April to September) length frequency summaries for the north-eastern, south-eastern and Tasmanian regions of the AFZ are available.

A summary of the ancillary albacore biological samples collected by observers is provided in Table 5.

Domestic surface fishery

A study of the commercial feasibility of trolling for albacore off south-eastern Australia (Chapman, et al, 1992) obtained catch rates better than those of surveys of the developing New Zealand troll fishery but lower than those of commercial operations in the Sub-Tropical Convergence Zone (Caton 1993). Some temporary interest was aroused and there was an improvement in troll catches from 1992 to 1994 (Table 2). Subsequently activity declined, but anecdotal comments from skippers suggest that this was largely because of limited occurrence of surface-associated albacore since then. On rare occasions there have also been incidental catches of albacore by pole and bait vessels (Table 2).

Recreational fishery

Recreational fishers take a wide range of pelagic species along the east coast at various locations from Cairns (north Queensland) to Eaglehawk Neck (eastern Tasmania), and Lord Howe Island. The main concentration of eastern activity is off central and southern New South Wales (Caton and Ward 1991). No data are routinely collected from the recreational fishery; however a survey of fishing clubs and charter vessel operators in 1988/89 (West 1990) provided preliminary catch estimates of 7-20 t in 1989 off eastern Australia.

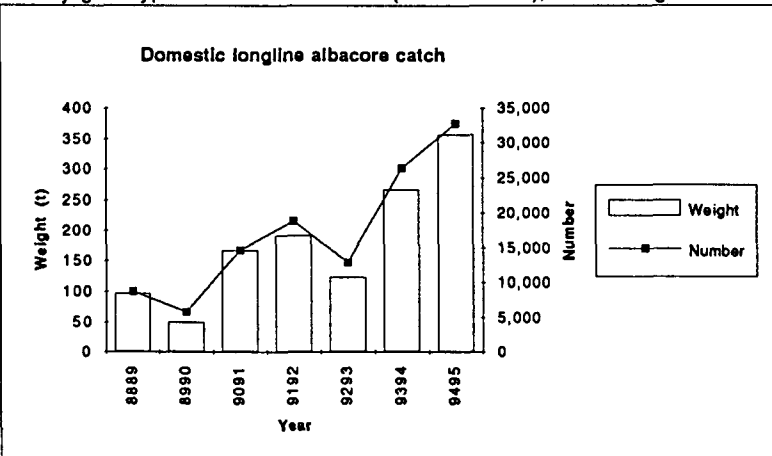
The New South Wales Fisheries Research Institute (NSWFRI), Cronulla, has managed the New South Wales Game Fish Tagging Program since 1973. It encourages recreational fishers to tag and release fish rather than retain them. NSWFRI produces an annual summary of releases and recoveries (eg Deguera and Matthews, 1993). At the end of 1989, the total releases of albacore by the program for all years was 1607 fish. Preliminary data for 1994-95 indicated that the total had reached 6356. The annual releases from 1991-92 to 1994-95 were 1171, 316, 1462 and 454 respectively (preliminary data; J. Matthews, NSWFRI, pers. comm.), illustrating the variability in annual success of the recreational operations. There had been 37 recoveries reported to 1993-94. Most were recovered adjacent to New South Wales but some recaptures were reported beyond 1000 km from the release point.

REFERENCES

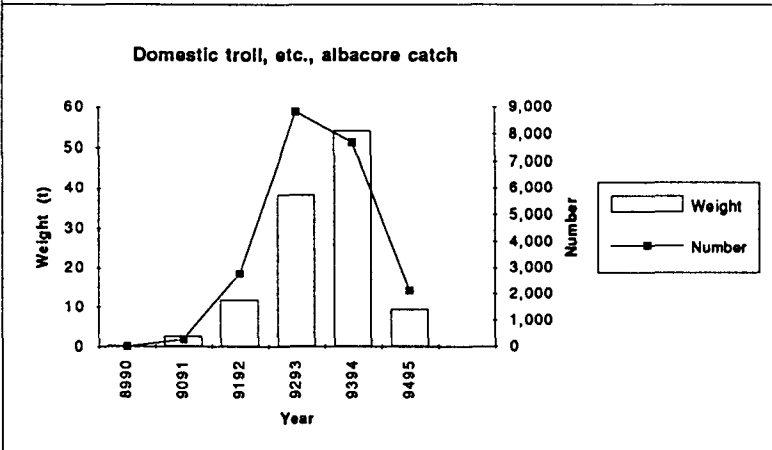
- Caton, A.E., (1993). Prospects for an albacore fishery in Australia. Working Paper SPC/SPAR 5/WP 15 to the South Pacific Commission Fifth South Pacific Albacore Research Workshop, Papeete, French Polynesia, 29 March - 1 April 1993.
- Caton, A.E., (1994). Update on albacore catches, catch rates and catch lengths in the Australian Fishing Zone. Working Paper SPC/SPAR 4/WP 8 to the South Pacific Commission Fourth South Pacific Albacore Research Workshop, Taipei, Republic of China, 4-8 November 1994.
- Caton, A.E. and P.J. Ward (1991). Albacore tuna and its fisheries in the Australian Fishing Zone. Bureau of Resource Sciences Working Paper No. WP/3/91. 30 pp.
- Caton, A.E. & Ward, P.J. (1996) Arrangements on fisheries between the Governments of Australia and Japan on tuna longlining access arrangements. Annex to Ward, P.J. (1996) Japanese Longlining in eastern Australian waters 1962 to 1990. Bureau of Resource Sciences, Canberra.
- Chapman, L.B., P.J. Ward and C. Ramirez (1992). Is trolling for albacore tuna off south-eastern Australia commercially feasible? Working Paper, Bureau of Resource Sciences, Canberra. 154 pp.
- Ward, P.J. (Ed.) (1996) Japanese longlining in eastern Australian waters 1962 to 1990. Bureau of Resource Sciences, Canberra.
[Includes the following chapters:
- . Access arrangements for Japanese longliners in eastern Australian waters (A.E. Caton & P.J. Ward)
 - . Longlining - what does it involve? (M.P. Baron)
 - . The Coral Sea handline fishery (G.C. Williams, P.J. Ward & A.E. Caton)
 - . The types of longlining activities of Japanese vessels in the eastern Australian fishing zone during the 1980s (P.J. Ward, C.M. Ramirez & A.E. Caton)
 - . The geographical and seasonal distribution of the Japanese longline fishery in north-eastern Australian waters, 1962 to 1990 (P.J. Ward, A.E. Caton & C.M. Ramirez)
 - . Preliminary analysis of factors affecting catch rates of Japanese longliners in the north-eastern AFZ (P.J. Ward, C.M. Ramirez & A.E. Caton)]
- West, L. (1990). A review of existing and potential data systems for recreational fishing for tunas and billfishes - east coast of Australia. Kewagama Research, Tewantin, Queensland.

Figure 1. Albacore catch by gear type in eastern Australia (east of 141E); source: logbooks

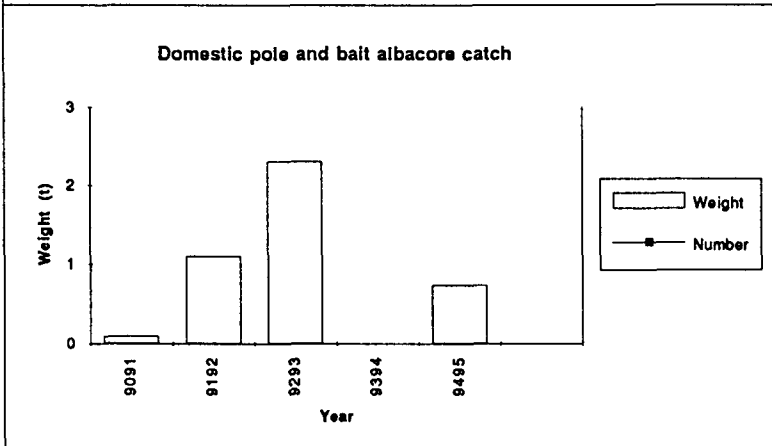
Domestic Longline		
Year	Weight	Number
8889	97	8,809
8990	49	5,864
9091	167	14,665
9192	191	18,891
9293	123	12,927
9394	267	26,330
9495	357	32,818



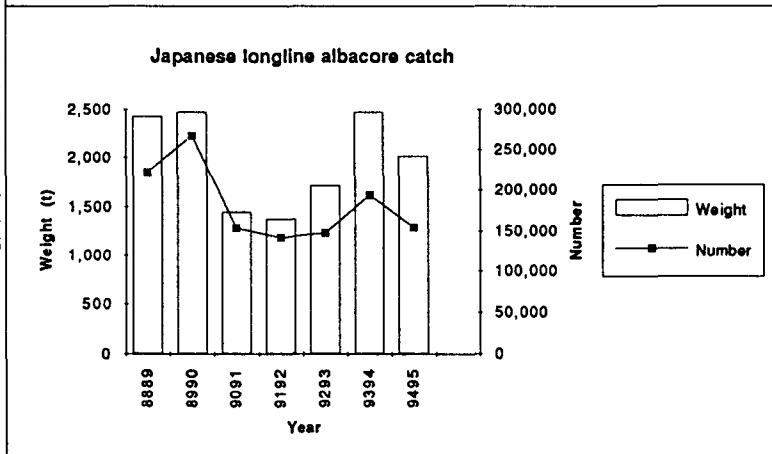
Troll, etc		
Year	Weight	Number
8990	0	13
9091	3	277
9192	12	2,769
9293	38	8,830
9394	54	7,690
9495	9	2,112



Pole and Bait		
Year	Weight	Number
9091	0	
9192	1	
9293	2	
9394	0	
9495	1	



Japanese Longline		
Year	Weight	Number
8889	2,429	221,617
8990	2,474	267,209
9091	1,444	153,478
9192	1,372	141,965
9293	1,714	147,694
9394	2,475	193,934
9495	2,017	154,375



AFZ CATCH RECORD
 まぐろはえなわ漁業操業日誌

VESSEL NAME:
 船 名
 AUSTRALIAN LICENCE No:
 オーストラリア漁業許可番号
 NAME OF CAPTAIN:
 船 長 名

Log No. 8236
 MONTH AND YEAR
 操 業 年 月

15 22

オーストラリア 漁業水域

Large - over 40 kgs. Medium - 25 to 40 kgs. Small - less than 25 kgs.
 注: 船名及び船名はロー字で記入して下さい。
 "大" は40kg以上、"中" は25kg-
 "小" は25kg以下(それぞれエラ・ハラ抜き)を記入して下さい。

Date 日付	GMT Noon Position 緯度 経度	Number of Hooks 罾数	TUNAS		まぐろ			BILLFISHES			か し き 類			Sharks さめ類	Other その他	Comment 備 考
			Bluefin くまじり	Southern Bluefin 大	Bluefin くまじり	Albacore 小	Yellowfin Tuna まはた	Broadbill Swordfish わかじき	Striped Marlin まかじき	Blue Marlin くろじき	Black Marlin しろじき	Sail Fish いしめ	Shoebill Fish かっぱ			
19-10	13-16 17 18	22 23 24	31 A 32 - 34 A 35 - 37 A 38 - 40 A 41 - 43 A 44 - 46 A 47 - 49 A 50 - 52 A 53 - 55 A 56 - 58 A 59 - 61 A 62 - 64 A 65 - 67 A 68 - 70 A 71 - 73 A 74 - 76 A	B 13 - 16 17 - 20 21 - 24 25 - 28 29 - 32 33 - 36 37 - 40 41 - 44 45 - 48 49 - 52 53 - 56 57 - 60 61 - 64 65 - 68 69 - 72 B												
A 1	1N 2S	1E 2W														
B 1																
A 2	1N 2S	1E 2W														
B 2																
A 3	1N 2S	1E 2W														
B 3																
A 4	1N 2S	1E 2W														
B 4																
A 5	1N 2S	1E 2W														
B 5																
A 6	1N 2S	1E 2W														
B 6																
A 7	1N 2S	1E 2W														
B 7																
A 8	1N 2S	1E 2W														
B 8																
A 9	1N 2S	1E 2W														
B 9																
A 10	1N 2S	1E 2W														
B 10																
A 11	1N 2S	1E 2W														
B 11																
A 12	1N 2S	1E 2W														
B 12																
A 13	1N 2S	1E 2W														
B 13																
A 14	1N 2S	1E 2W														
B 14																
A 15	1N 2S	1E 2W														
B 15																
A 16	1N 2S	1E 2W														
B 16																

On each day write number of fish caught by species on Line A, and weight of fish caught by species on Line B
 ("Give weight in tonnes - for example "0.567" - and use processed weight)
 "A" 行には毎日の魚種別漁獲尾数を記入して下さい。
 "B" 行には毎日の魚種別漁獲重量(それぞれ製品重量をトン単位で、例えば0.567のように)記入して下さい。

Figure 2.

Australian Tuna Longline Fishing Logbook - AL03

NOTE: USE A NEW PAGE FOR EACH FISHING DAY OR IF YOU COMPLETED MORE THAN THREE SHOTS FOR THE DAY

Log No. 0369	Page No. 02	Date	Boat Name:	Dist Symbol:	Master's Name:														
NON-FISHING CODE 1. Bad Weather <input type="checkbox"/> 2. In Port <input type="checkbox"/> 3. Broken Days <input type="checkbox"/> 4. Steaming <input type="checkbox"/> 10. Refit <input type="checkbox"/> 5. Other Fishery <input type="checkbox"/>																			
I did not work between and due to: (TICK APPROPRIATE BOX)																			
Shot/Hauling Information: Start Shot (lat/long) End Shot (lat/long) Start Haul (lat/long) End Haul (lat/long)	Shot 1		Shot 2		Shot 3		Other Line Methods Used <i>- during your longline trip. Tick method used.</i>		Landing Details										
	LATITUDE	LONGITUDE	TIME (24HR)	LATITUDE	LONGITUDE	TIME (24HR)	LATITUDE	LONGITUDE	TIME (24HR)	Trolling: <input type="checkbox"/> Lat. <input type="text"/> Long. <input type="text"/> Total Hours Fished <input type="text"/> No. of Lines <input type="text"/>		Port of Landing: <input type="text"/> Date of Landing: <input type="text"/> Fish sold to: <input type="text"/>		Comments: <div style="border: 1px solid black; height: 100px; width: 100%;"></div>					
Gear Information:						Rod and Reel: <input type="checkbox"/> Lat. <input type="text"/> Long. <input type="text"/> Total Hours Fished <input type="text"/> No. of Lines <input type="text"/>		Handlining: <input type="checkbox"/> Lat. <input type="text"/> Long. <input type="text"/> Total Hours Fished <input type="text"/> No. of Lines <input type="text"/>											
Time Zone in which you are fishing:						Tick if LIVE bait used. Tick if bait purchased. Tick if LIVE bait used. Tick if bait purchased. Tick if LIVE bait used. Tick if bait purchased.		Verified Total Weights for Trip (kg)											
Sea surface temperature (C)						Start Set:		End Set:		Start Set:		End Set:				Start Set:		End Set:	
Current direction/speed (knots)						Start Set:		End Set:		Start Set:		End Set:				Start Set:		End Set:	
Wind direction/speed (knots)						Start Set:		End Set:		Start Set:		End Set:				Start Set:		End Set:	
Catch Details: <small>Tick box below to show target species</small>						No. of Fish caught & kept		Est. Total Weight caught & kept (kg)		No. of Fish returned to sea		No. of Fish caught & kept				Est. Total Weight caught & kept (kg)		No. of Fish returned to sea	
Yellowfin Tuna of less than 10kg																			
Yellowfin Tuna over 10kg																			
Southern Bluefin Tuna																			
Bigeye Tuna																			
Albacore																			
Skipjack Tuna																			
Striped Marlin																			
Broadbill Swordfish																			
Black Marlin																			
Blue Marlin																			
Blue Whaler Shark																			
Short-finned Mako Shark																			
Bronze Whaler Shark																			
Blacktip Shark																			
Tiger Shark																			
Hammerhead Shark																			
Spottail Shark																			
Ray's Bream																			
Mahi-Mahi (Dolphinfish)																			
Rudderfish																			
Wahoo																			
Other (specify)																			
Other (specify)																			
Other (specify)																			
Wildlife Interactions:						Number Live	Number Perished	Species (if known)	Number Live	Number Perished	Species (if known)	Number Live	Number Perished	Species (if known)	Master's Signature: I certify that the information I have provided on this form is a complete and accurate record. <div style="border: 1px solid black; height: 100px; width: 100%;"></div>				
Albatross																			
Other seabirds (specify)																			
Turtles																			
Other wildlife (specify)																			

Note: Enter weights for individual fish and/or tagged fish on reverse of this page if required. Remember - this is mandatory for SBT

If you catch any banded birds, or if you are having any problems with birds, please contact the Tasmanian Parks and Wildlife Service.

Figure 3.

Australian Tuna Purse Seine and Pole Logbook - TPB01

NOTE: DO NOT PUT DETAILS OF MORE THAN ONE TRIP ON EACH PAGE.

Log No.: 0221	Page No.: 02	Boat Name:	Dist. Symbol:	Master's Name:																
NON-FISHING CODE (TICK APPROPRIATE BOX)																				
I did not work between/...../..... and/...../..... due to:																				
<input type="checkbox"/> 1 Bad weather <input type="checkbox"/> 2 In port <input type="checkbox"/> 3 Broken Down <input type="checkbox"/> 4 Steaming <input type="checkbox"/> 7 Cage towing (also see field at bottom of page) <input type="checkbox"/> 10 Refit <input type="checkbox"/> 5 Other Fishery (specify)																				
Fishing Method Used? (tick appropriate box): Poling <input type="checkbox"/> Purse Seining <input type="checkbox"/> Distinguishing Number(s) of Poling Boat/s used for assistance while seining																				
Date of Fishing Operation	Non-Fishing Code (if applicable)	Searching Details (note whether searching for bait or market fish)		Fishing Details						Bait Details		Estimated Catch Weights per Shot (kg) - tick box below to indicate species targeted.								
		Code(s) listed above on right	Hours searched	Spotter Plane Used? (Y/N)	Time Zone you are using for log entry: Sea Surface Temp. (C)	Start Time (24 hr clock) (local time)	Latitude	Longitude	No. of Poles Used if Poling?	Pole Boat Assisted if purse seining? (Y/N)	Species of Bait Caught (specify)	Total Wt. of Bait Caught and Used (kg)	Southern Bluefin Tuna Target?	Skipjack Tuna Target?	Albacore Tuna Target?	Yellowfin Tuna Target?	Jack Mackerel Target?	Other species (specify above) Target?	Other species (specify above) Target?	Estimated % of school caught
19												<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Landing Details:				Wildlife Interactions: List any wildlife caught in your net (e.g. turtles, dolphins, seals etc) including the numbers caught.						Verified Catch Weights for Trip:										
Port of Landing: _____				Species: _____ Qty: _____						Skipjack _____ kg										
Date of Landing: _____				Species: _____ Qty: _____						Albacore _____ kg										
Owner of cage if cage towing: _____				Species: _____ Qty: _____						Southern Bluefin _____ kg										
Fish Sold To: _____				Species: _____ Qty: _____						Yellowfin _____ kg										
Comments:				State Species By Catch:						Other species (specify):										
				Yellowtail Kingfish _____ kg						_____ kg										
				_____ kg						_____ kg										
				_____ kg						_____ kg										
				_____ kg						_____ kg										
				Master's Signature: I certify that the information I have provided on this form is a complete and accurate record.																

Figure 4.

Australian Tuna Minor Line Fishing Logbook - OT02

NOTE: USE A NEW PAGE FOR EACH FISHING DAY

Log No: 0263	Page No: 02	Date:	Boat Name:	Dist. Symbol:	Master's Name:
I did not work between and due to:			NON-FISHING CODE 1 Bad Weather <input type="checkbox"/> 2 In Port <input type="checkbox"/> 3 Broken Down <input type="checkbox"/> 4 Steaming <input type="checkbox"/> (TICK APPROPRIATE BOX) 10 Refit <input type="checkbox"/> 5 Other Fishery (specify) _____		
Area Fished		Time Zone you are using:			
Latitude	Longitude		TOTAL CATCH FOR THE DAY		
Fishing Method(s) Used Today (tick)			Fish Retained		Number of Fish Returned to Sea
Handlining	<input type="checkbox"/>	Hrs. Fished _____ hrs	Species Code (see list on back of writing template)	Number of Fish caught and kept	
Trolling	<input type="checkbox"/>	Hrs. Fished _____ hrs			
Rod & Reel (not trolling)	<input type="checkbox"/>	Hrs. Fished _____ hrs			
Other (specify in Comments)	<input type="checkbox"/>	Hrs. Fished _____ hrs			
Number of Lines Used		_____			
Bait(s) Used Today (tick & enter Qty.)					
Jack Mackerel	<input type="checkbox"/>	Qty _____ kg			
Slimy Mackerel	<input type="checkbox"/>	Qty _____ kg			
Rat Tail	<input type="checkbox"/>	Qty _____ kg			
Yellowtail	<input type="checkbox"/>	Qty _____ kg			
Squid	<input type="checkbox"/>	Qty _____ kg			
Pilchards	<input type="checkbox"/>	Qty _____ kg			
Lures	<input type="checkbox"/>	Live Bait? Y/N <input type="checkbox"/>			
		Bait Purchased? Y/N <input type="checkbox"/>			
Other (specify)	<input type="checkbox"/>	Qty _____ kg			
Comments:			Wildlife Interactions		No. Live
			Albatross		
			Other Birds (specify)		
			Other Wildlife (specify)		
			Sold To: _____ Species Code: Export Wt (kg) Form Code Domestic Wt (kg) Form Code		
			Sold To: _____ Species Code: Export Wt (kg) Form Code Domestic Wt (kg) Form Code		
			Master's Signature: I certify that the information I have provided on this form is a complete and accurate record.		

Note: There is space to enter lengths and weights for individual fish and/or tagged fish on the reverse of this page if you are able to record these details.
ORIGINAL COPY - send to AFMA

If you catch any banded birds, or if you are having any problems with birds, please contact the Tasmanian Parks and Wildlife Service.
GPO Box 44A Hobart Tasmania 7001 Ph. 002 333 845 Fax 002 333 477

Figure 5a.

If you need a fish measuring ruler, please contact AFMA,
- we will be happy to send you one on request.

Market Codes: E = Export Market, D = Domestic Market

Species Length Weights and Market Details

Australian Tuna Minor LineFishing Logbook - OT02.

Form Codes: W = whole; H = headed; G = gilled & gutted (sashimi).
T = trunk (headed & gutted); F = filleted.

Species Code	Weight (kg)	Length (cm)	Mkt (Eor D)	Form Code	Species Code	Weight (kg)	Length (cm)	Mkt (Eor D)	Form Code	Species Code	Weight (kg)	Length (cm)	Mkt (Eor D)	Form Code	Species Code	Weight (kg)	Length (cm)	Mkt (Eor D)	Form Code	

Tag Recoveries.
Please also fill in a tag recapture form for each fish (in back of book).

Tag Numbers:				
--------------	--	--	--	--

Figure 5b.

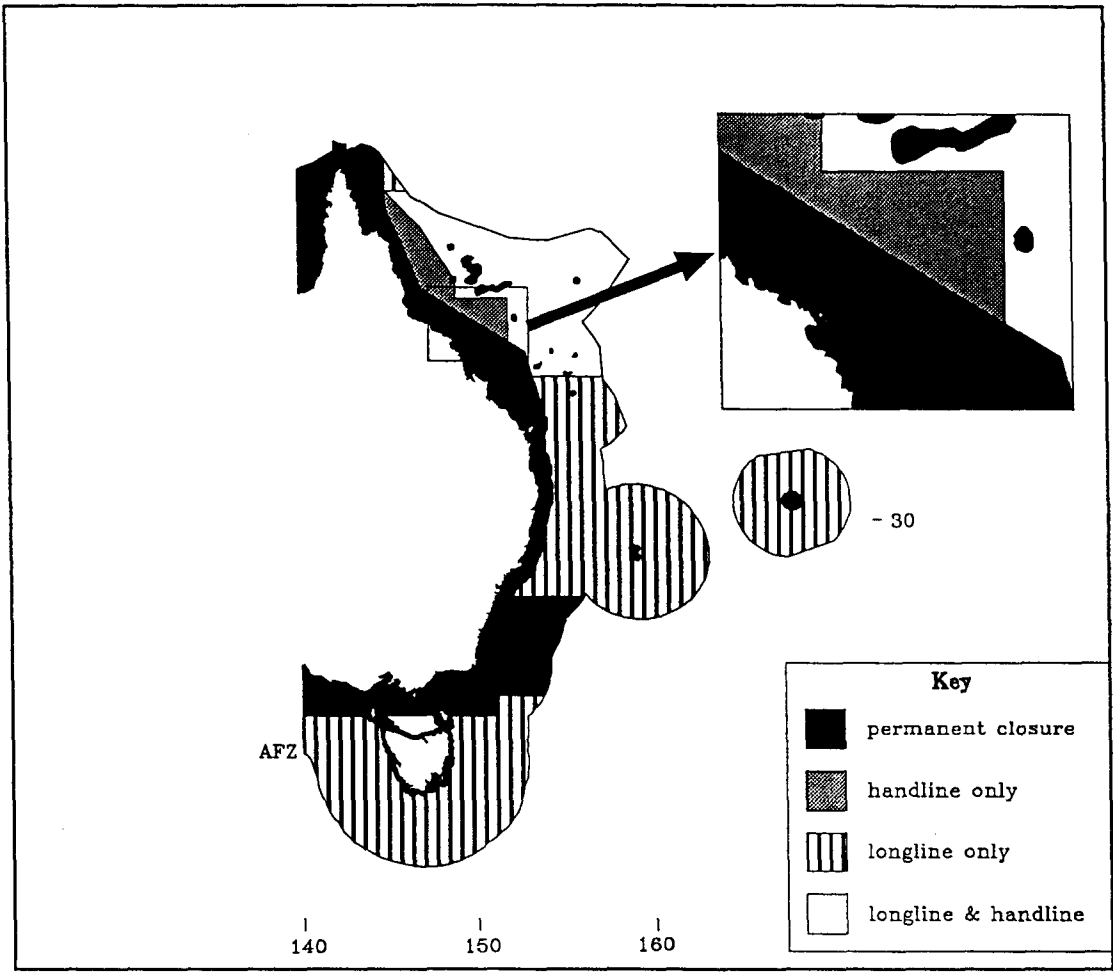


Figure 6. Access arrangements for Japanese longliners in the eastern Australian fishing zone, 1994-95.

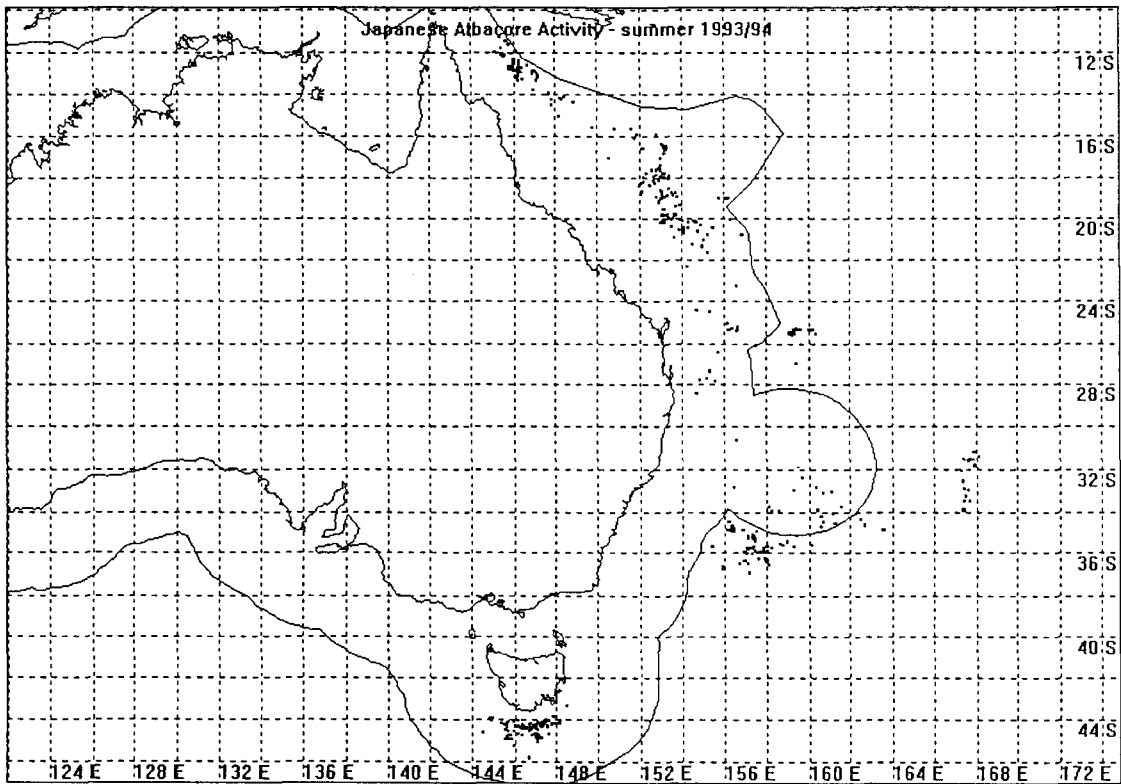
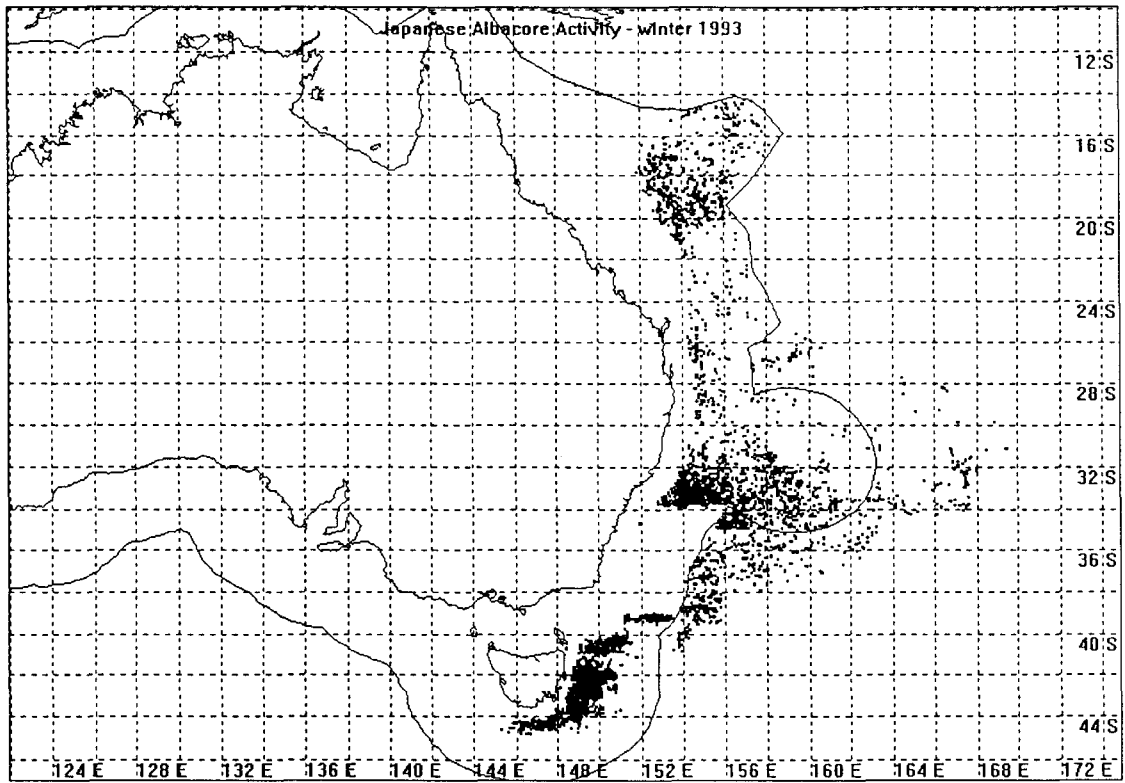


Figure 7.

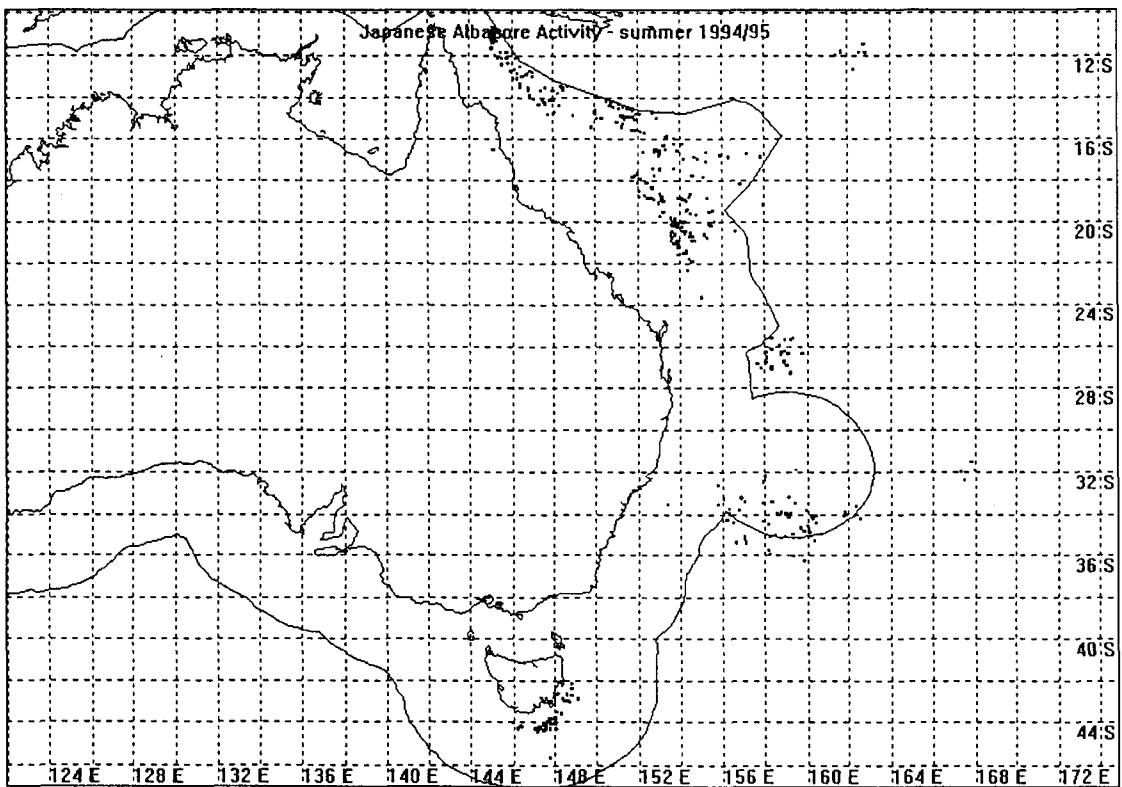
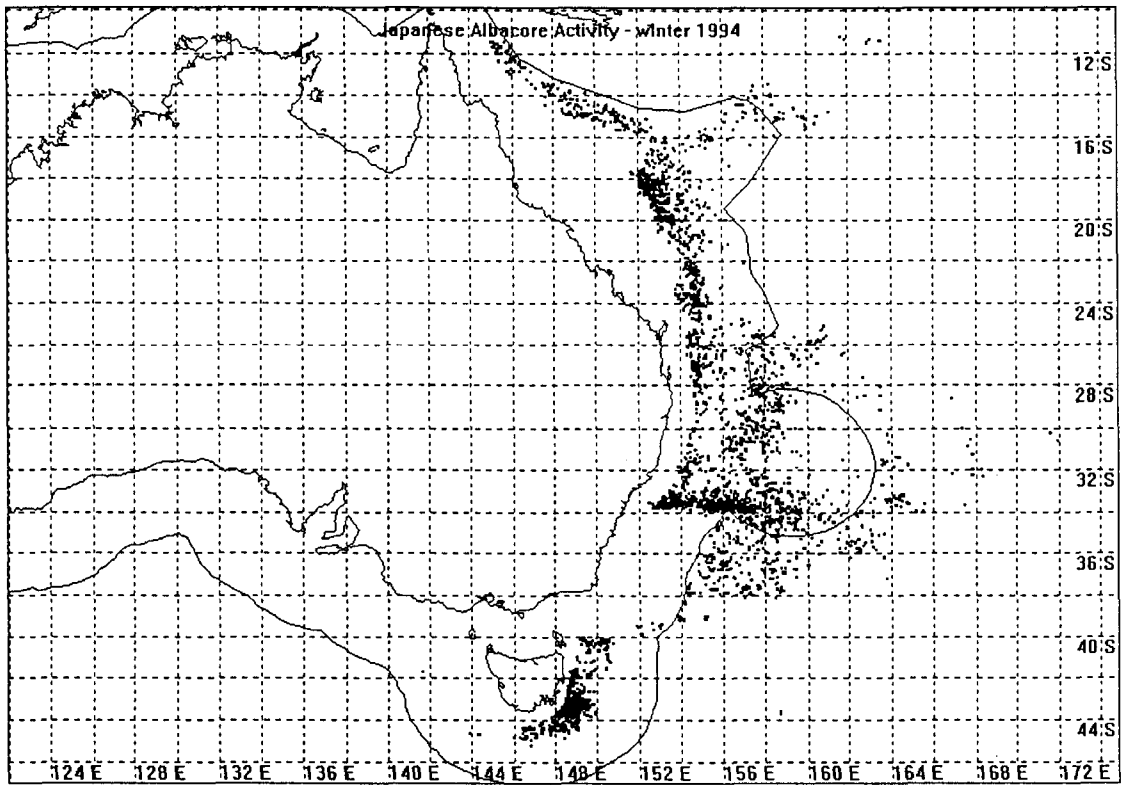


Figure 8.

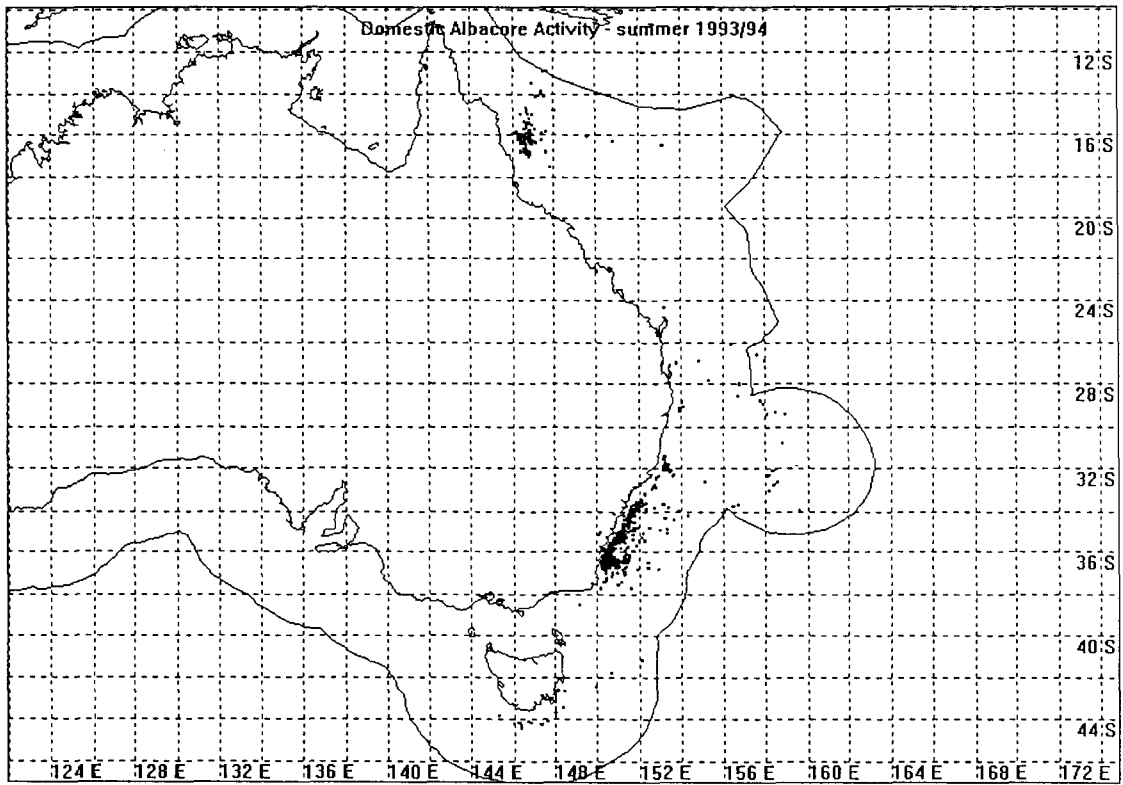
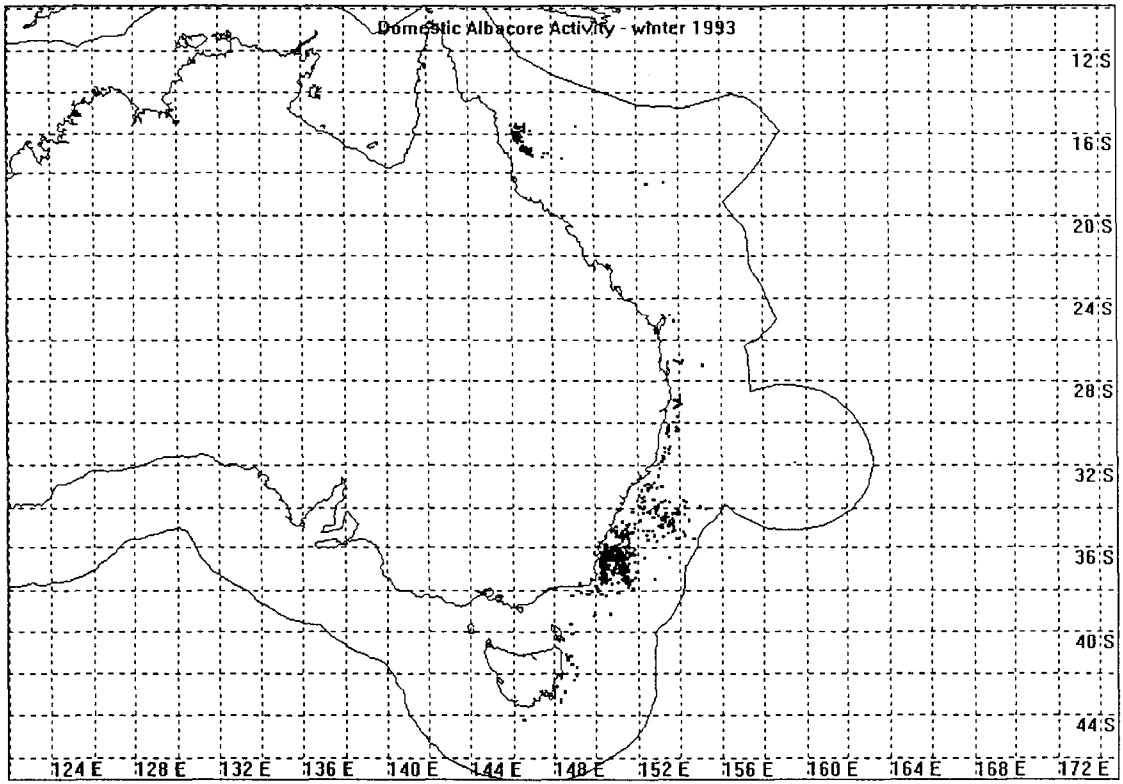


Figure 9.

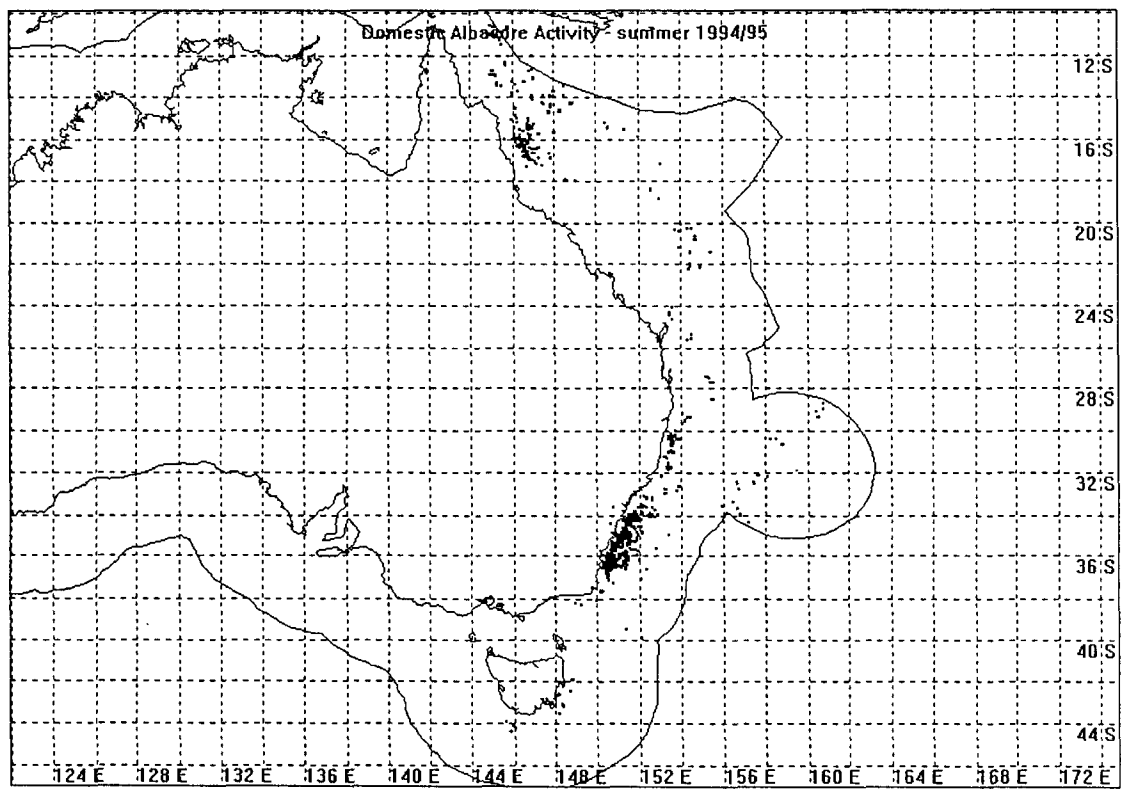
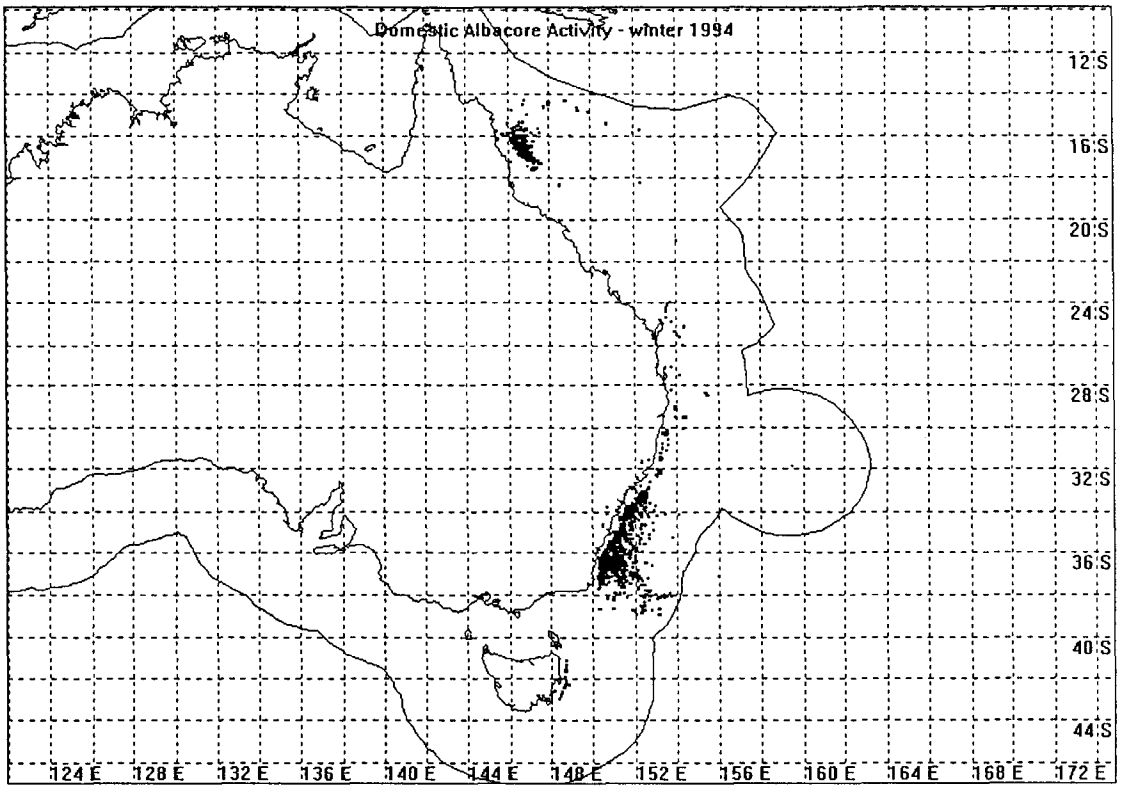


Figure 10.

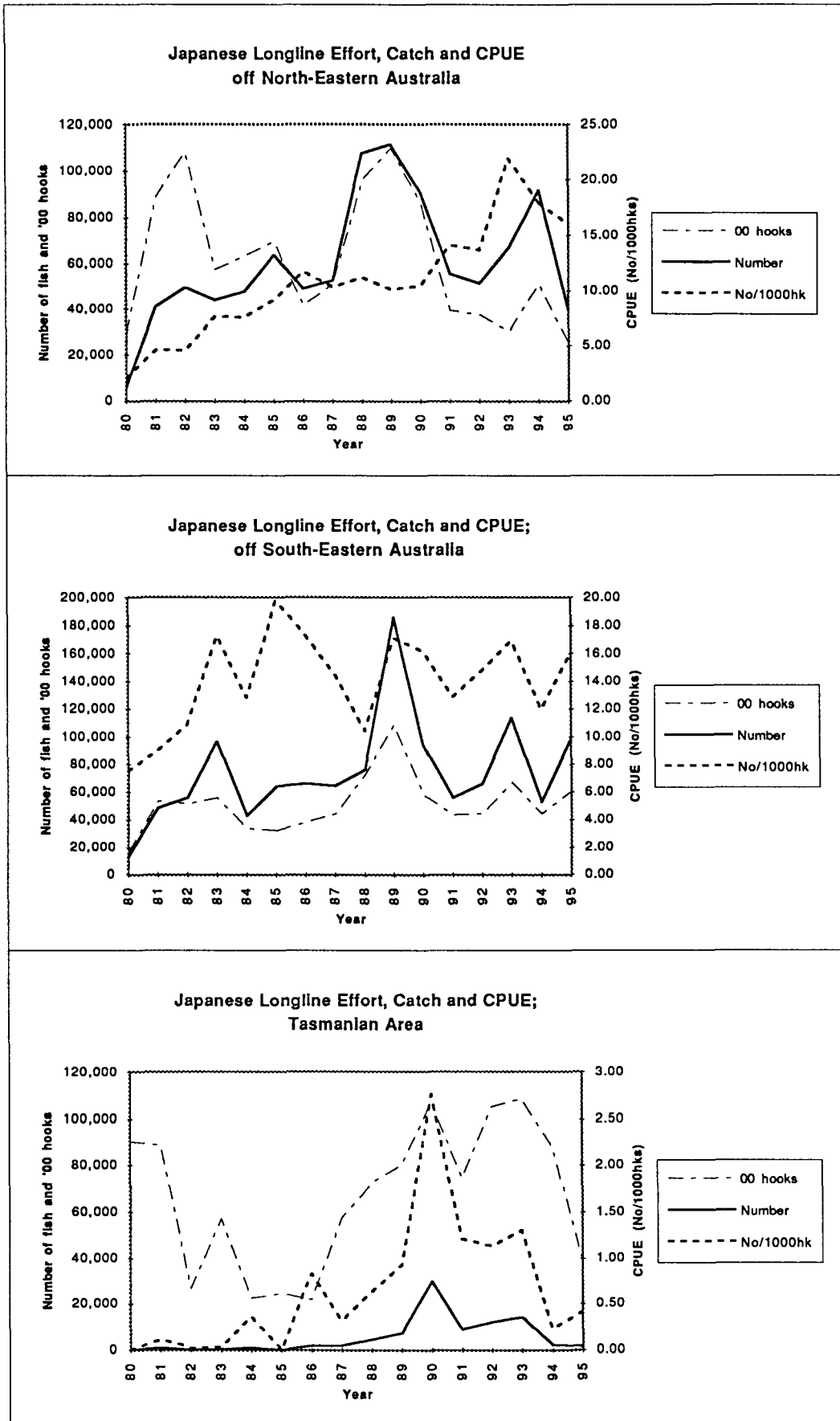


Figure 11. Japanese longline effort (all hooks), albacore catch and catch rate by sub-area

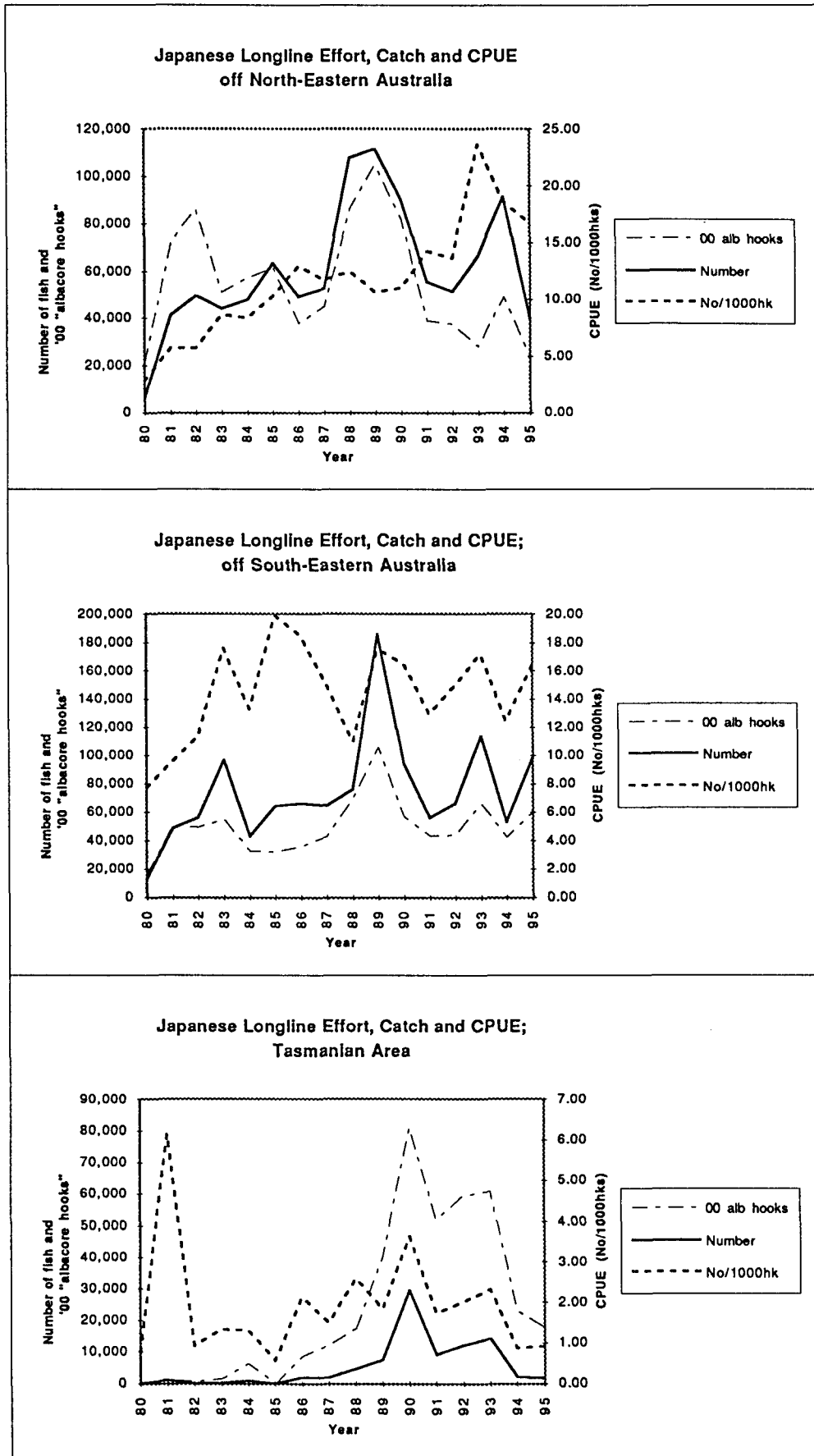


Figure 12. Japanese longline effort ('albacore hooks'), albacore catch and catch rate by sub-area

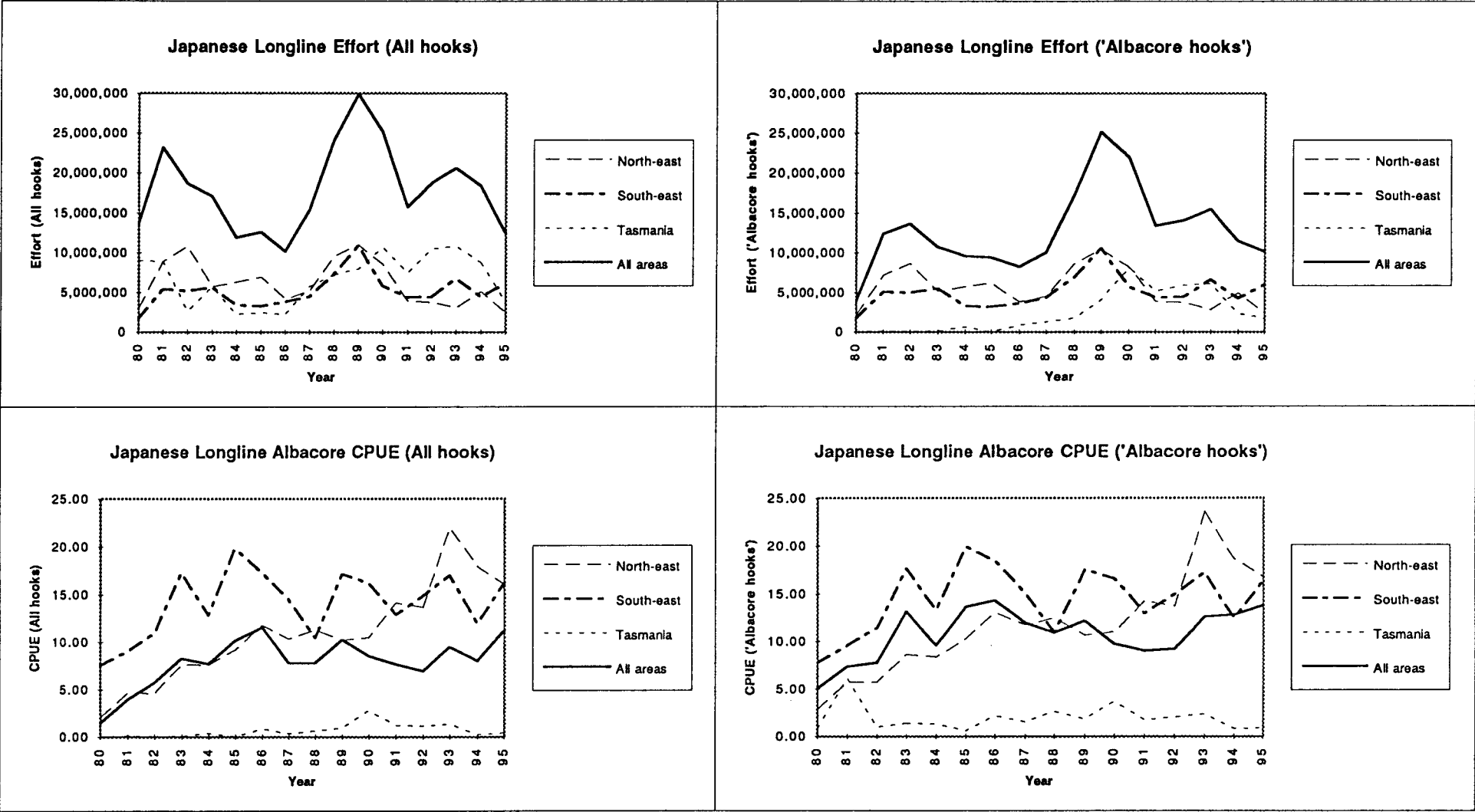


Figure 13. Japanese effort and catch rate by eastern Australian sub-area for all hooks (left) and 'albacore hooks' (right)

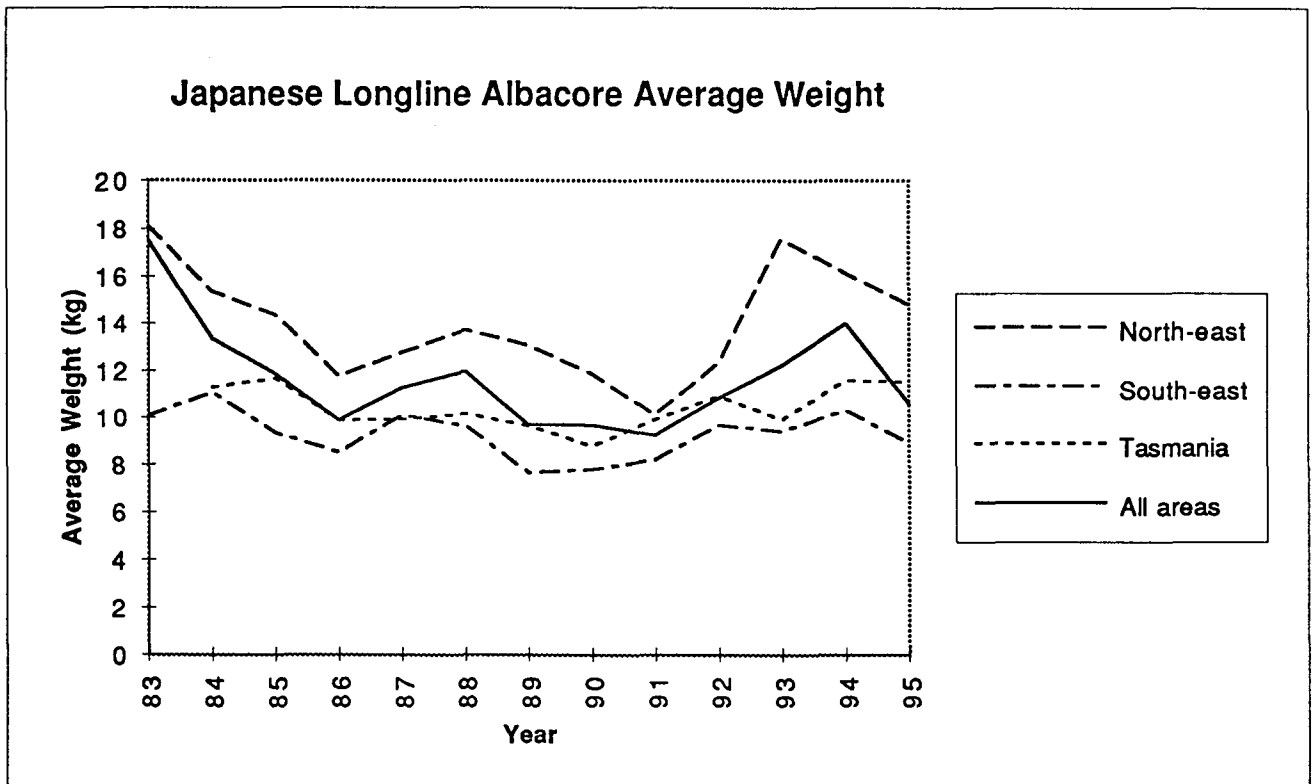


Figure 14. Annual average weight (kg) of albacore caught in eastern Australian sub-areas.

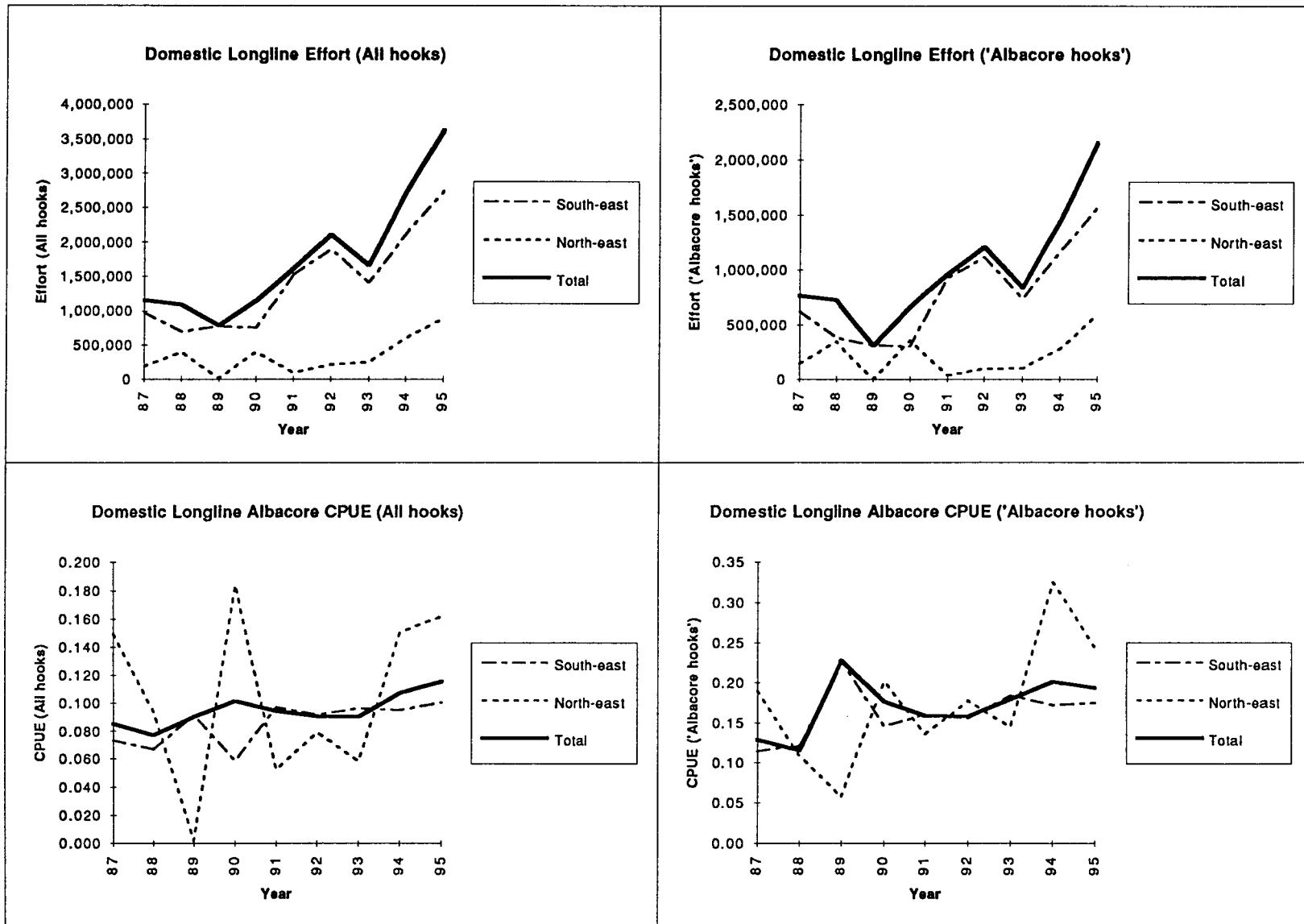


Figure 15. Domestic albacore effort and catch rate by eastern Australian sub-area for all hooks (left) and 'albacore hooks' (right)

Table 1. Regional effort restraints on Japanese longliners in the Australian Fishing Zone, 1990-1995.

Area	Tasmania (S of 39S)	East Coast (N of 34S)	West Coast (N of 34S)
1990-91	36 vessels	60 vessels	50 vessels
1991-92	400 t of SBT (~12 vessels)	50 vessels (3150 days; 2040 from 1 July to 31 October)	40 vessels
1992-93	400 t of SBT (~10 vessels)	55 vessels (2500 days/9 million hooks; 2040 days from 1 July to 31 October)	20 vessels
1993-94	400 t of SBT	55 vessels each 4- month period (2575 days/ 7.5 million hooks; 2100 days from 1 July to 31 October)	20 vessels
1994-95	400 t of SBT	55 vessels each 4- month period (2575 days; 2100 from 1 July to 31 October)	20 vessels

Table 2

Annual Japanese longline effort, albacore catch, and catch rate in sub-areas off eastern Australia (ie east of 140E), 1979-1995. Source : Logbooks

[NE: - north of 30S; SE: - 30S to 40S; TAS: - south of 40S. 'Alb hooks' refer to sets in 1-degree-square grids in which albacore have been caught; additionally they only include sets in months in which albacore were caught.]

Area	Year	Effort		Wt (kg)	Nums	No & wt present		Average wt (kg)	Nos/1000 hooks	Nos/1000 Alb hooks
		Hooks	Alb hooks			Wt (kg)	Nums			
NE	79	1,294,261	582,527		1,109				0.86	1.90
NE	80	2,942,136	2,120,664		5,976				2.03	2.82
NE	81	8,881,034	7,188,019		41,065				4.62	5.71
NE	82	10,832,266	8,643,884		49,366				4.56	5.71
NE	83	5,755,659	5,100,395	169,939	43,825	169,939	9,394	18.09	7.61	8.59
NE	84	6,305,830	5,730,964	714,782	47,699	714,782	46,613	15.33	7.56	8.32
NE	85	6,926,255	6,176,717	875,927	63,476	875,927	61,073	14.34	9.16	10.28
NE	86	4,171,593	3,781,831	547,635	49,115	547,635	46,570	11.76	11.77	12.99
NE	87	5,095,124	4,491,040	662,837	52,650	662,837	52,012	12.74	10.33	11.72
NE	88	9,579,738	8,633,182	1,462,760	107,611	1,462,760	106,837	13.69	11.23	12.46
NE	89	10,984,998	10,484,580	1,452,329	111,389	1,452,329	111,235	13.06	10.14	10.62
NE	90	8,602,247	8,203,035	1,070,541	90,329	1,070,541	90,323	11.85	10.50	11.01
NE	91	3,922,834	3,882,944	559,890	55,375	559,890	55,375	10.11	14.12	14.26
NE	92	3,759,523	3,748,082	632,900	51,235	632,900	51,235	12.35	13.63	13.67
NE	93	3,033,220	2,820,243	1,170,298	66,619	1,170,298	66,619	17.57	21.96	23.62
NE	94	5,113,656	4,913,884	1,476,262	91,504	1,476,262	91,504	16.13	17.89	18.62
NE	95	2,487,091	2,387,846	591,352	39,962	591,352	39,962	14.80	16.07	16.74
SE	80	1,718,929	1,672,134		12,902				7.51	7.72
SE	81	5,366,371	5,053,679		48,320				9.00	9.56
SE	82	5,143,882	4,918,896		55,867				10.86	11.36
SE	83	5,592,055	5,485,385	7,350	96,670	7,350	732	10.04	17.29	17.62
SE	84	3,353,475	3,237,821	456,009	42,967	456,009	41,215	11.06	12.81	13.27
SE	85	3,226,435	3,204,928	549,772	63,831	549,772	59,027	9.31	19.78	19.92
SE	86	3,818,831	3,575,920	547,261	65,994	547,261	64,450	8.49	17.28	18.46
SE	87	4,455,954	4,279,962	632,004	64,418	632,004	62,690	10.08	14.46	15.05
SE	88	7,269,230	6,932,613	715,106	75,876	715,106	74,418	9.61	10.44	10.94
SE	89	10,857,671	10,600,455	1,421,466	185,705	1,421,466	185,642	7.66	17.10	17.52
SE	90	5,808,093	5,673,153	730,172	93,822	730,172	93,822	7.78	16.15	16.54
SE	91	4,345,074	4,327,574	456,719	55,840	456,719	55,840	8.18	12.85	12.90
SE	92	4,440,879	4,404,979	634,799	65,746	634,799	65,746	9.66	14.80	14.93
SE	93	6,700,043	6,598,033	1,064,165	113,623	1,064,165	113,623	9.37	16.96	17.22
SE	94	4,433,610	4,258,438	544,756	52,948	544,756	52,948	10.29	11.94	12.43
SE	95	6,075,996	5,980,968	868,500	97,850	868,500	97,850	8.88	16.10	16.36
TAS	79	4,586,128	35,150	0	24				0.01	0.68
TAS	80	9,008,620	19,400	0	15				0.00	0.77
TAS	81	8,863,902	156,025	0	958				0.11	6.14
TAS	82	2,653,330	63,960	0	59				0.02	0.92
TAS	83	5,704,916	140,410	0	187				0.03	1.33
TAS	84	2,238,334	615,260	9,074	803	9,074	803	11.30	0.36	1.31
TAS	85	2,444,020	5,400	35	3	35	3	11.67	0.00	0.56
TAS	86	2,183,369	846,640	17,770	1,801	17,770	1,801	9.87	0.82	2.13
TAS	87	5,732,901	1,219,065	18,075	1,822	18,075	1,822	9.92	0.32	1.49
TAS	88	7,243,900	1,742,134	45,650	4,519	45,650	4,507	10.13	0.62	2.59
TAS	89	7,986,672	4,031,177	70,654	7,359	70,654	7,359	9.60	0.92	1.83
TAS	90	10,705,956	8,090,558	258,352	29,490	258,352	29,490	8.76	2.75	3.64
TAS	91	7,446,744	5,193,779	88,617	8,954	88,617	8,954	9.90	1.20	1.72
TAS	92	10,507,342	5,927,435	129,846	11,911	129,846	11,911	10.90	1.13	2.01
TAS	93	10,833,281	6,083,332	139,256	14,071	139,256	14,071	9.90	1.30	2.31
TAS	94	8,792,295	2,299,975	22,960	1,982	22,960	1,982	11.58	0.23	0.86
TAS	95	3,934,337	1,785,723	18,559	1,610	18,559	1,610	11.53	0.41	0.90
Total	79	5880389	617677		1133				0.19	1.83
Total	80	13,669,685	3,812,198		18,893				1.38	4.96
Total	81	23,111,307	12,397,723		90,343				3.91	7.29
Total	82	18,629,478	13,626,740		105,292				5.65	7.73
Total	83	17,052,630	10,726,190	177,289	140,682	177,289	10,126	17.51	8.25	13.12
Total	84	11,897,639	9,584,045	1,179,865	91,469	1,179,865	88,631	13.31	7.69	9.54
Total	85	12,596,710	9,387,045	1,425,734	127,310	1,425,734	120,103	11.87	10.11	13.56
Total	86	10,173,793	8,204,391	1,112,666	116,910	1,112,666	112,821	9.86	11.49	14.25
Total	87	15,283,979	9,990,067	1,312,916	118,890	1,312,916	116,524	11.27	7.78	11.90
Total	88	24,092,868	17,307,929	2,223,516	188,006	2,223,516	185,762	11.97	7.80	10.86
Total	89	29,829,341	25,116,212	2,944,449	304,453	2,944,449	304,236	9.68	10.21	12.12
Total	90	25,116,296	21,966,746	2,059,065	213,641	2,059,065	213,635	9.64	8.51	9.73
Total	91	15,714,652	13,404,297	1,105,226	120,169	1,105,226	120,169	9.20	7.65	8.96
Total	92	18,707,744	14,080,496	1,397,545	128,892	1,397,545	128,892	10.84	6.89	9.15
Total	93	20,566,544	15,501,608	2,373,719	194,313	2,373,719	194,313	12.22	9.45	12.54
Total	94	18,339,561	11,472,297	2,043,978	146,434	2,043,978	146,434	13.96	7.98	12.76
Total	95	12,497,424	10,154,537	1,478,411	139,422	1,478,411	139,422	10.60	11.16	13.73

Table 3.

Annual Australia/Japan joint venture longline effort, albacore catch and catch rate in sub-areas of the eastern Australian fishing zone (ie east of 140E), 1989 to 1995. Source : Logbooks.

[NE: - north of 30S; SE: - 30S to 40S; TAS: - south of 40S. 'Alb hooks' refer to sets in 1-degree-square grids in which albacore have been caught ; additionally they only include sets in months in which albacore were caught.]

Area	Year	Effort		Wt (kg)	Nums	Average	Nos/1000	Nos/1000
		Hooks	Alb hooks			wt (kg)	hooks	Alb hooks
NE	89	36,600	36,600	3,031	271	11.18	7.40	7.40
NE	90							
NE	91							
NE	92							
NE	93	6,120	6,120	411	35	11.74	5.72	5.72
NE	94	98,910	95,850	16,849	1,490	11.31	15.06	15.55
NE	95							
SE	89	3,178,520	3,142,750	468,431	70,123	6.68	22.06	22.31
SE	90	1,174,580	1,157,200	142,648	18,121	7.87	15.43	15.66
SE	91	294,794	294,794	13,566	1,570	8.64	5.33	5.33
SE	92	69,595	66,535	1,886	170	11.09	2.44	2.56
SE	93	281,410	281,410	17,315	1,778	9.74	6.32	6.32
SE	94	255,617	204,335	12,589	1,378	9.14	5.39	6.74
SE	95	79,255	79,255	5,772	667	8.65	8.42	8.42
TAS	89	112,860	59,520	2,980	471	6.33	4.17	7.91
TAS	90	179,670	126,490	2,931	312	9.39	1.74	2.47
TAS	91	3,982,873	2,661,972	53,132	5,420	9.80	1.36	2.04
TAS	92	8,942,650	4,510,445	104,075	9,548	10.90	1.07	2.12
TAS	93	9,598,855	4,969,718	110,866	11,201	9.90	1.17	2.25
TAS	94	7,284,233	1,665,509	16,421	1,354	12.13	0.19	0.81
TAS	95	2,634,060	1,248,363	13,630	1,156	11.79	0.44	0.93
Total	89	3,327,980	3,238,870	474,442	70,865	6.70	21.29	21.88
Total	90	1,354,250	1,283,690	145,579	18,433	7.90	13.61	14.36
Total	91	4,277,667	2,956,766	66,698	6,990	9.54	1.63	2.36
Total	92	9,012,245	4,576,980	105,961	9,718	10.90	1.08	2.12
Total	93	9,886,385	5,257,248	128,592	13,014	9.88	1.32	2.48
Total	94	7,638,760	1,965,694	45,859	4,222	10.86	0.55	2.15
Total	95	2,713,315	1,327,618	19,402	1,823	10.64	0.67	1.37

Table 4.

Annual domestic longline effort, albacore catch and catch rate in sub-areas of the AFZ east of 140E.

Source : Logbooks.

[NE - north of 24S; SE- south of 24S. 'Alb hooks' refer to sets in 1-degree-square grids in which albacore have been caught; additionally they only include sets in months in which albacore were caught.]

Area	Year	Hooks	Alb hooks	Wt (kg)	Nos	hooks	Alb hooks	hooks	hooks
NE	94	599,830	277,778	90,282	5,295	8.83	19.06	0.151	0.325
NE	95	886,298	589,433	143,314	8,005	9.03	13.58	0.162	0.243
SE	87	972,484	620,470	71,149	6,479	6.66	10.44	0.073	0.115
SE	88	692,456	380,777	46,407	4,673	6.75	12.27	0.067	0.122
SE	89	771,714	309,620	70,682	7,827	10.14	25.28	0.092	0.228
SE	90	751,937	301,168	43,879	4,986	6.63	16.56	0.058	0.146
SE	91	1,523,801	924,935	147,832	15,843	10.40	17.13	0.097	0.160
SE	92	1,897,428	1,115,372	173,929	18,019	9.50	16.16	0.092	0.156
SE	93	1,413,306	738,013	135,747	14,504	10.26	19.65	0.096	0.184
SE	94	2,115,243	1,168,315	201,088	23,804	11.25	20.37	0.095	0.172
SE	95	2,736,140	1,566,862	274,123	27,789	10.16	17.74	0.100	0.175

