

Korean SBT Longline Fishery

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Introduction

Southern bluefin tuna (SBT) fishery is the most recently developed tuna fishery by Korean distant-water fishing industry since the early 1990s. The SBT catch made by Korean fleet reached a maximum in 1998, followed by continuous decrease until recent years. This was mainly due to the voluntary regulation of fleet size by Korean fishing companies to implement the resolution adopted by CCSBT before Korea joined CCSBT. The voluntary regulation of the fleet size at 16 vessels is effective until now, but the shift of these vessels from the Indian to the Pacific Ocean aiming to higher profit from the fishery also contributed to the further decrease in catch of this species.

Catch and Effort

Fishing season of Korean SBT longline fishery usually starts in March and ends by November or December. Thus, fisheries statistics are collected and reported for a calendar year. In the first half of fishing season from March to July or August, usually Korean longliners are fishing on the high seas of the western Indian Ocean off South Africa, with occasional expansion of its operation into southeastern Atlantic, while in the second half they move to the eastern Indian Ocean off the western Australia. This fishing pattern and fishing grounds have rarely been changed for the past 10 years of fishing history for SBT, but in 2002 some catches were also taken from the western fishing grounds until October.

In 2003, 4 out of 16 registered longliners fished for SBT and made a catch of 221 mt (reported as processed weight) of SBT in the usual fishing area, showing a decrease by about 66% from 2002 figure. This was mainly due to the decrease in total efforts exerted, i.e. number of vessels and fishing months.

Longline catches in the SBT fishing grounds consisted of about 80-90% of SBT and 10-20% of non-target species including yellowfin, bigeye, albacore, swordfish and others. In 2003, the proportion of SBT was lower than 80% but yellowfin and bigeye proportion was higher than other years.

Nominal CPUE

Catch per unit effort (CPUE) of Korean longline fishery for SBT has shown a decreasing trend from a peak at 8.4 fish/1,000 hooks in 1994. However, CPUE appeared to be more or less stable between 2.3 and 4.1 fish/1,000 hooks in recent years. In 2003, CPUE decreased compared with that of 2002 but is slightly higher than those in 2000 and 2001. It was noted from the monthly CPUE analyses that catch efficiency is higher from the western fishing ground, 2.7-5.6 fish/1,000 hooks than the eastern ground, 1.8-2.8 fish/1,000 hooks.

Size composition

Fishermen on board have routinely collected size of SBT and thus the size data are available for the years up to 2002. However, the data should be interpreted with caution due to relatively small sample size and no validation procedure. This problem will be resolved by the deployment of scientific observers on the fishing vessels. Size of SBT caught by Korean longliners during the past 5 years ranges from 100 to 210cm FL with the average of 153cm and shows that SBT caught in the eastern area (162.3cm) were bigger than those in the western area (152.4cm).

Fleet size and distribution

Korean SBT fishery commenced in 1991 with a few longliners shifted from tropical waters where they targeted bigeye and yellowfin. Thus, in the early years of this fishery, SBT did not attract Korean fishing industry, but because of higher market price number of longliners rapidly increased to reach a maximum fleet size of 19 longliners in 1998. However, by the voluntary regulation of fleet size among fishing industries, annual fleet size for SBT fishery never exceeded 16 registered number since then which resulted in less catch than allocated quota of 1,140 mt from 2001 onward. The number of longliners decreased from 10 in 2002 to 4 in 2003, which was mainly due to poor fishing condition in the Indian Ocean compared with Pacific Ocean and decreased Japanese market price.

Other relevant information

Scientific Observer program

Korean government initiated the fisheries observer program in 2002 for international fisheries including tuna fisheries to meet the plausible requirements of some relevant regional fisheries bodies in the future. At its initial stage, the scope of observer program is small but will be gradually expanded to cover all necessary areas of fisheries. The goal of the first stage of observer program development from 2002 to 2006 is to establish a domestic training system to educate national observers.

In 2002, a total of five observer candidates received a trainship from Hawaii longline observer program provided by Pacific Island Area Office (PIAO), NOAA. Among those five observers, two joined two-month research survey on-board RV of NFRDI in 2003, as part of the on-board training practices and two were deployed on two Korean commercial fishing vessels operating in the CCAMLR Convention Area for three months from the late 2003 to the early 2004.

In 2004, another five observer trainees completed three-week training course provided by NFRDI and two of them were deployed on Korean purse seine fishing vessel operating in the Pacific Ocean and on SBT longline fishing vessel operating in the EEZ of South Africa, respectively. Scientific observation will be continued for about two months starting from the mid-August. During the trip, observers are to monitor catch of target and by-catch species. More observers will be deployed this year but in the case of SBT fishery scientific observation is now more difficult due to limited number of actual fishing vessels.

Table 1. Nominal Catch (mt) of southern bluefin tuna by the Korean longline fishery

Month	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Jan.	-	-	-	-	3	8	-	-	-	-
Feb.	-	-	-	-	15	1	-	-	1	-
Mar.	-	-	-	-	101	125	57	58	83	14
Apr.	-	-	-	-	191	180	68	81	113	44
May	-	-	-	-	106	116	65	58	90	33
Jun.	-	-	-	-	159	169	81	88	87	45
Jul.	-	-	-	-	226	193	91	37	67	20
Aug.	-	-	-	-	227	164	164	119	110	38
Sep.	-	-	-	-	169	87	186	96	78	27
Oct.	-	-	-	-	180	81	110	87	20	-
Nov.	-	-	-	-	130	92	86	80	-	-
Dec.	-	-	-	-	55	55	79	31	-	-
Total	119(1)	317(3)	1,148 (8)	1,238 (14)	1,562 (19)	1,271 (16)	987 (13)	735 (10)	649 (10)	221 (4)

() number of longliners, Data source : Ministry of Maritime Affairs and Fisheries (MOMAF)

Table 2. Species composition (%) of SBT longline fishery

	SBT	ALB	YFT	BET	BUM	STM	SWO	SKJ	SHA	OTH
1998	94.8	3.4	0.9	3.1	0.2	0.0	1.8	0.0	1.1	0.0
1999	81.7	0.9	15.0	0.6	0.1	0.1	0.9	0.0	0.7	0.0
2000	96.3	2.3	0.1	0.5	0.0	0.1	0.4	0.0	0.3	0.0
2001	83.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	6.7	9.8
2002	88.9	3.0	0.2	3.8	0.0	0.0	1.3	0.0	0.4	2.3
2003	76.2	0.0	7.2	6.4	0.0	0.0	2.3	0.0	0.0	7.9

SBT: southern bluefin tuna ALB: albacore tuna YFT: yellowfin tuna BFT: bigeye tuna

BUM: blue marlin SWO: swordfish SKJ: skipjack tuna SHA: sharks OTH: other fishes

Table 3. Catch (no. of fish), effort (no. of hooks) and CPUE (no. of fish /1,000 hooks) of southern bluefin tuna by the Korean longline fishery, 1994~ 2003

Month	Item	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Jan.	Catch	-	-	-	-	-	152				
	Effort						126,220				
	CPUE						1.2				
Feb.	Catch	-	-	6	-	197	-	1			
	Effort			6,003		44,720		75,240			
	CPUE			1.0		4.4		0.1			
Mar.	Catch	-	2,336	220	2,015	715	1,005	231	906	2,439	
	Effort		130,775	75,244	417,469	264,372	200,552	71,061	167,288	689,365	
	CPUE		17.9	2.9	4.8	2.7	5.0	3.3	1.0	3.5	
Apr.	Catch	503	1,814	501	3,377	1,441	1,989	260	971	2,480	131
	Effort	60,480	172,228	96,164	686,783	405,594	397,563	87,840	323,922	690,345	52,730
	CPUE	8.3	10.5	5.2	4.9	3.6	5.0	3.0	2.4	3.6	2.5
May	Catch	337	584	582	2,794	327	1,065	146	687	1,451	209
	Effort	61,740	166,100	178,022	568,574	213,789	472,224	90,228	291,856	650,503	70,810
	CPUE	5.5	3.5	3.3	4.9	1.5	2.3	1.6	1.1	2.2	3.0
Jun.	Catch	120	213	303	2,170	1,251	2,274	274	829	2,092	228
	Effort	37,800	31,300	110,223	447,790	295,180	493,267	114,440	366,909	401,578	84,900
	CPUE	3.2	6.8	2.7	4.8	4.2	4.6	2.4	2.5	2.8	2.7
Jul.	Catch	421	190	1,125	4,812	1,753	1,560	614	496	2,395	156
	Effort	72,270	47,104	164,267	594,640	265,680	206,830	128,310	157,558	598,793	67,061
	CPUE	5.8	4.0	6.8	8.1	6.6	7.5	4.8	0.9	4.4	2.3
Aug.	Catch	1,415	394	1,686	2,269	1,892	1,544	272	1,412	1,412	433
	Effort	67,740	67,204	171,195	415,836	350,650	493,878	164,509	532,332	532,332	118,210
	CPUE	20.9	5.9	9.8	5.5	5.4	3.1	1.7	0.5	4.0	3.7
Sep.	Catch	674	487	258	1,031	824	580	960	987	2,309	3
	Effort	45,344	191,845	56,320	537,920	306,050	471,730	265,267	473,548	703,394	24,620
	CPUE	14.9	2.5	4.6	1.9	2.7	1.2	3.6	0.6	3.3	0.1
Oct.	Catch	87	77	669	1,049	397	140	252	840	408	
	Effort	40,120	61,542	287,645	516,846	246,550	167,221	183,500	494,814	257,035	
	CPUE	2.2	1.3	2.3	2.0	1.6	0.8	1.4	1.7	1.6	
Nov.	Catch	138	250	377	645	515	341	197	663		
	Effort	56,161	214,928	259,522	557,407	273,240	256,800	184,579	360,302		
	CPUE	2.5	1.2	1.5	1.2	1.9	1.3	1.1	2.3		
Dec.	Catch	-	47	76	235	350	189	60	337		
	Effort		33,920	64,700	198,508	214,820	165,826	80,675	123,769		
	CPUE		1.4	1.2	1.2	1.6	1.1	0.7	0.4		
Total	Catch	3,695	6,392	5,803	20,397	9,662	10,839	3267	8,218	10,854	1,160
	Effort	441,655	1,116,946	1,469,305	4,941,773	2,880,645	3,452,111	1,445,649	3,292,298	3,423,289	418,331
	CPUE	8.4	5.7	3.9	4.1	3.4	3.1	2.3	2.5	3.2	2.8

Data source : National Fisheries Research and Development Institute (NFRDI)

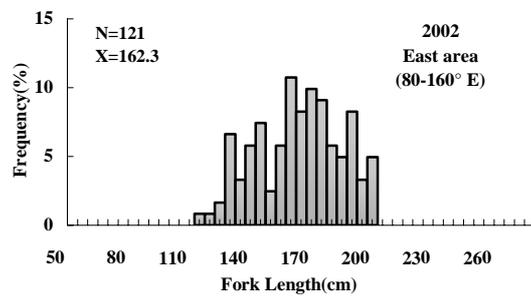
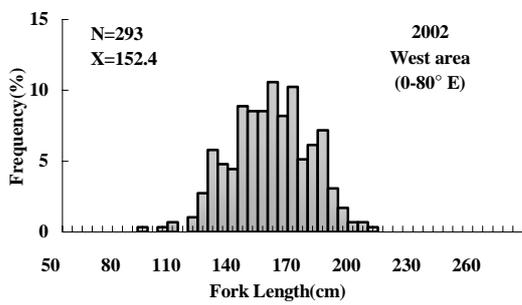
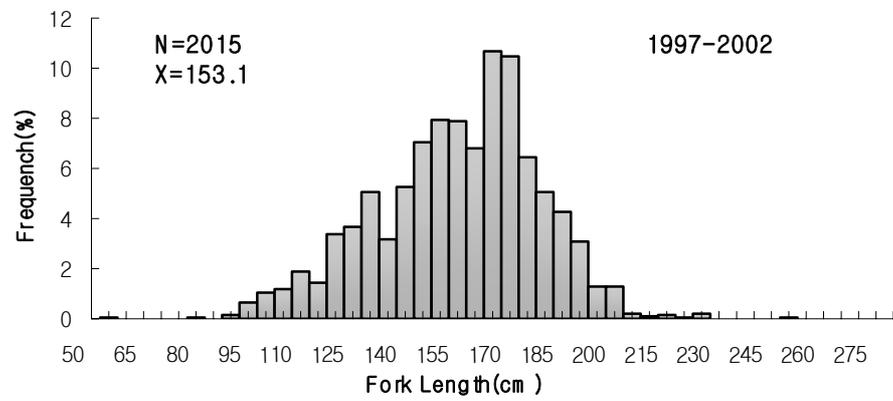


Fig. 1. Length frequency distribution of southern bluefin tuna caught by Korean longliners

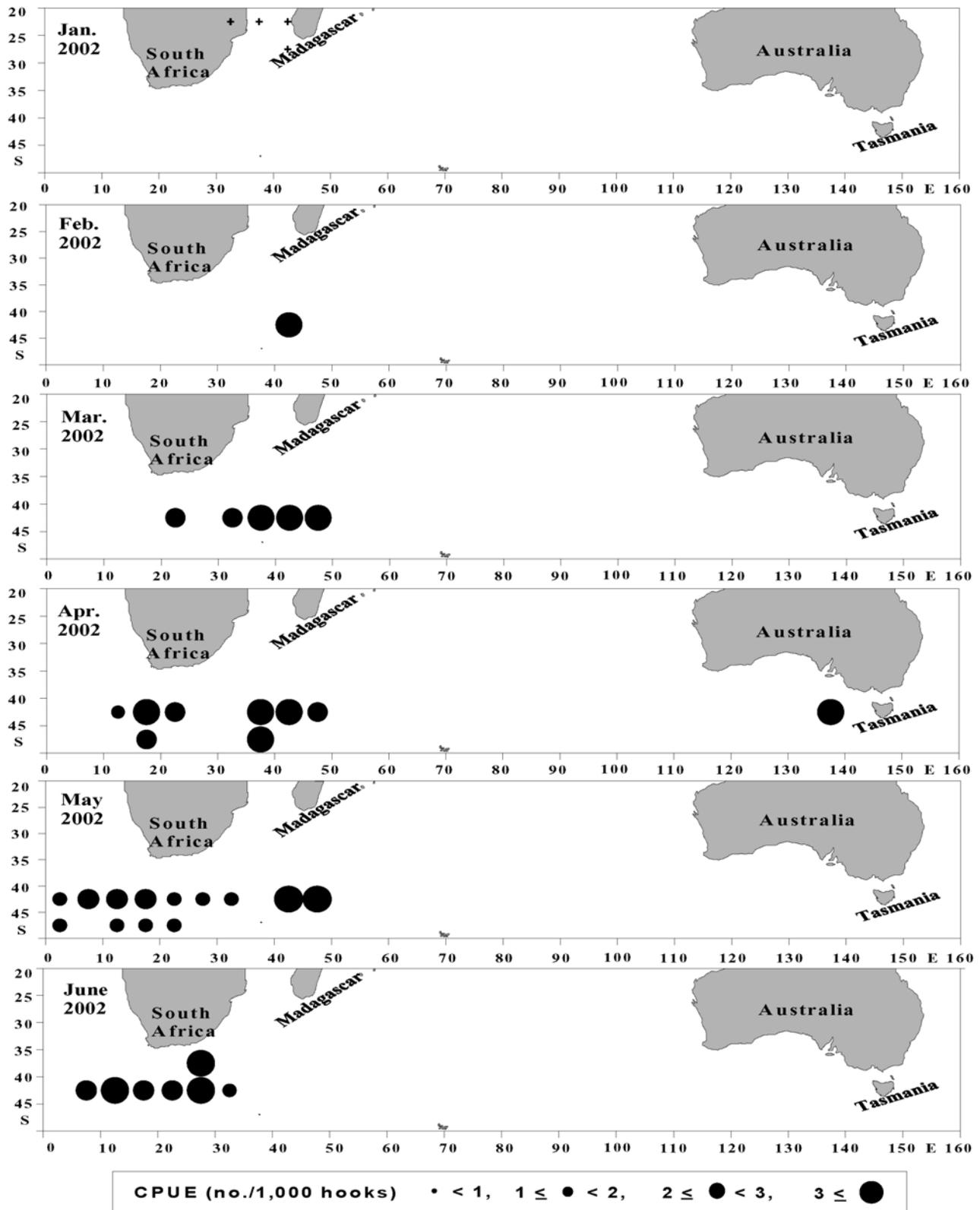


Fig. 2. Korean tuna longline fishery operation area in 2002.

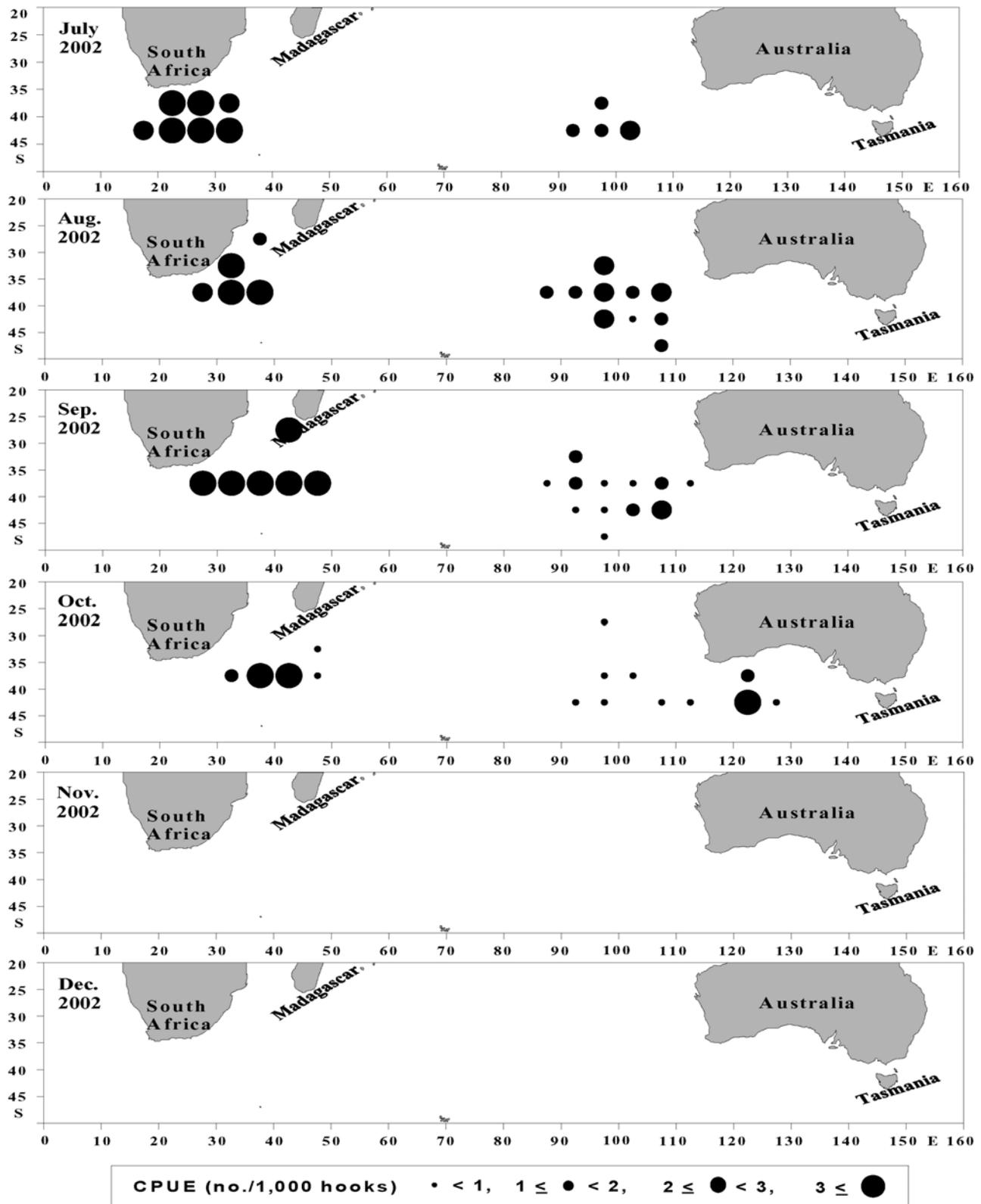


Fig. 2. continued.