



CCSBT-ERS/1503/04

## Summary of the Level and Distribution of SBT Effort

### Introduction

This paper presents a summary of the level and distribution of SBT effort in order to assist in highlighting risk to ecologically related species. The summaries presented are from three data sources held by the Secretariat. It is important to note that there are limitations for each data source that need to be considered when interpreting these data.

### Data Sources

The data sources used to represent SBT effort are listed below.

#### Official SBT catch data

These data match the official catch estimates provided by CCSBT Members, and are obtained from spatial catch data that have been raised to the official catch estimates at 5x5 degree resolution. It is therefore the best spatial representation of SBT catch. This dataset does not include raised effort, but remains useful as a representation of effort if we assume that CPUE is relatively constant in the SBT fishery. Please note that this information source does not include any data for Indonesia or the EU and it does not include data for South Africa prior to 2005 or for Indonesia before 2004 or after 2007.

#### Catch and Effort data

These data are catch and effort data aggregated at most by 5x5 degree square or provided as shot by shot. Coverage is very high or raised, but there are complications with what data are actually provided. As a minimum, Members provide catch and effort data for all operations where SBT are targeted or caught, but some Members provide catch and effort data for their entire fleet or for particular areas<sup>1</sup>. In addition, some of the data provided are raised, some are not. Therefore, while these data may provide the best effort data, they are complex and a simple aggregation of these data across fleets as is done here is not necessarily the best representation of SBT fishery specific effort. Please note that this information source does not include any data for Indonesia, the EU or the Philippines and only includes data for South Africa from 2005.

#### ERSWG Data Exchange Effort Data

As part of the ERSWG data exchange, Members provided total fishing effort by year and CCSBT statistical area for all operations where SBT were targeted or caught. The main disadvantage of this dataset is that the resolution is only by statistical area. Data under this exchange exist for the years from 2010 to 2013 and have been received from all Members except for Indonesia. Indonesia

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<sup>1</sup> Such as all SBT catch and all longline effort in statistical areas 4-9 during months 4-9 and all SBT catch and all longline effort for any 5 degree block in other areas/months where at least one SBT was caught in the month/block.

submitted data for 2013 in the 2014 exchange, but at present these data are not able to be used. Therefore, the tables and maps from this data source do not include effort from Indonesia's SBT fishery. No Cooperating Non-Members (CNMs) have submitted usable data under this data exchange.

## SBT Longline Effort Summaries

### Official SBT catch data

A summary of longline catch of SBT from official catch data is shown in Table 1 by year and statistical area. As mentioned previously, these data would be a reasonable proxy for effort and are more consistent than the effort data from the catch and effort dataset.

The distribution of official SBT catch by longline is provided in Attachment A, by year from 2000 to 2013. The area of each circle is proportional to the tonnage of SBT caught in that area, with all of the maps standardised to the same scale. In recent years, the most notable change in distribution has been a shift in effort from South-East of Africa to the South-West, although that has also happened in the past. Most of the SBT catch occurs between 30°S and 45°S.

Year	Statistical Area															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
2000	15	712	0	780	186	196	1,163	2,411	3,191	0	16	3	9	422	1	9,105
2001	3	386	0	635	113	283	1,451	1,850	3,878	2	2	1	3	979	1	9,586
2002	6	651		1,055	136	346	1,186	594	4,043	3		3	1	615	5	8,643
2003	5	834	0	1,255	218	194	676	847	3,342		2	4		197	82	7,656
2004	2	863		1,067	101	311	257	1,433	3,437		5	2		485	23	7,986
2005		1,241		951	221	62	226	1,968	4,035			7		481	16	9,208
2006		1,126		369	134	103	215	678	2,562			0	1	317		5,506
2007	2	479		337	225	206	212	822	1,970			0	2	415	1	4,671
2008	4	447		255	84	323	394	1,220	2,408			1	0	293	2	5,431
2009	4	484		579	158	415	212	1,007	2,303	0		1	2	229	3	5,399
2010	19	824		377	205	296	436	863	1,822	1	0	2	0	186	8	5,037
2011	2	433		216	241	309	609	809	1,752	0		1		97	11	4,481
2012	8	388		130	250	521	723	755	1,957					140	23	4,894
2013	1	693		431	348	411	833	950	1,764	16	2	1		375	24	5,847

Table 1 – SBT catch (mt) by statistical area from official SBT catch data.

### Catch and Effort data

The distribution of SBT longline effort is provided in Attachment B, by year from 2000 to 2013. The area of each circle is proportional to the amount of effort in that area, with all of the maps standardised to the same scale.

Caution is required before drawing any conclusions from comparisons from year to year, due to the nature of the data, but in recent years the effort seems to be more spread-out, particularly around and to the West of South Africa. These maps show significantly more effort north of 30°S than the maps of SBT catch, due to the inclusion of effort where SBT was neither targeted nor caught.

### ERSWG Data Exchange Effort Data

A summary of the level of longline effort from the data of the ERSWG data exchange is shown in Table 2, by year and statistical area, and also shows the level of observer coverage.

The distribution of total effort by longliners is provided in Attachment C, by year from 2010 to 2013. The area of each circle is proportional to the amount of effort in that area, with all of the maps standardised to the same scale. These maps show the effort distribution by CCSBT statistical area, with the proportion of effort that was observed shown in yellow. From these maps, the distribution of effort changes from year to year, however areas 9 and 8 are consistently relatively high, while areas 5 and 6 consistently relatively low.

Year	Statistical area	Total effort (1000s of hooks)	Observed effort (1000s of hooks)	Observer coverage	
<b>2010</b>	2	12,456	1,960	15.7%	
	4	4,007	66	1.6%	
	5	1,345	88	6.5%	
	6	739	408	55.2%	
	7	1,304	-	0.0%	
	8	7,396	615	8.3%	
	9	19,659	1,152	5.9%	
	14	3,978	102	2.6%	
		<i>2010 Total</i>	<i>50,884</i>	<i>4,391</i>	<i>8.6%</i>
<b>2011</b>	2	103	-	0.0%	
	4	4,208	191	4.5%	
	5	2,539	170	6.7%	
	6	683	365	53.5%	
	7	1,986	147	7.4%	
	8	6,118	589	9.6%	
	9	10,515	1,066	10.1%	
		<i>2011 Total</i>	<i>26,151</i>	<i>2,528</i>	<i>9.7%</i>
	<b>2012</b>	2	1,944	623	32.0%
4		3,452	306	8.9%	
5		2,269	93	4.1%	
6		1,112	498	44.8%	
7		2,451	110	4.5%	
8		4,214	280	6.6%	
9		11,193	1,530	13.7%	
14		1,088	450	41.3%	
		<i>2012 Total</i>	<i>27,724</i>	<i>3,889</i>	<i>14.0%</i>
<b>2013</b>	2	6,474	994	15.4%	
	4	2,952	220	7.5%	
	5	1,364	83	6.1%	
	6	450	349	77.6%	
	7	3,216	227	7.1%	
	8	6,446	670	10.4%	
	9	12,807	1,238	9.7%	
	14	6,775	967	14.3%	
		<i>2013 Total</i>	<i>40,485</i>	<i>4,748</i>	<i>11.7%</i>
<b>Total</b>		<b>145,243</b>	<b>15,556</b>	<b>10.7%</b>	

Table 2 – Total and observed longline effort from data submitted under the ERSWG data exchange

## SBT Purse Seine Effort Summaries

## ERSWG Data Exchange Effort Data

A summary of the level of purse seine effort from the data of the ERSWG data exchange is shown in Table 33 by year and statistical area, and also shows the level of observer coverage.

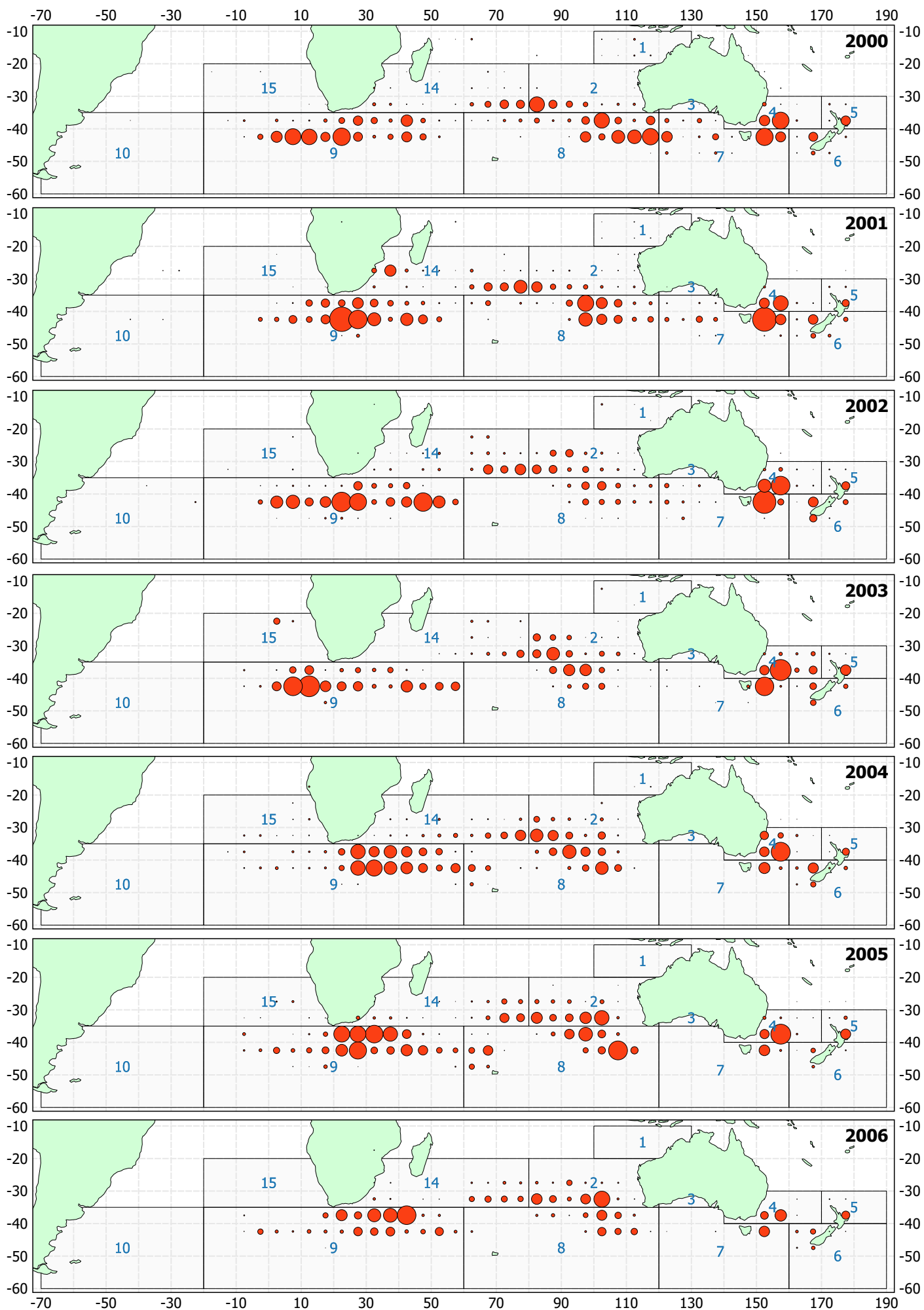
The distribution of Purse seine effort is provided in Attachment D, by year from 2010 to 2013. The area of each circle is proportional to the amount of effort in that area, with all of the maps standardised to the same scale. These maps show the effort distribution by CCSBT statistical area, with the proportion of effort that was observed shown in yellow. SBT purse seine effort is known to occur in only a small area and therefore is not shown in any further detail from other possible sources.

<b>Year</b>	<b>Statistical area</b>	<b>Total effort (sets)</b>	<b>Observed effort (sets)</b>	<b>Observer coverage</b>
<b>2010</b>	3	82	21	25.6%
	<i>2010 Total</i>	82	21	25.6%
<b>2011</b>	3	98	17	17.3%
	7	10	-	0.0%
	<i>2011 Total</i>	108	17	15.7%
<b>2012</b>	3	71	10	14.1%
	7	81	7	8.6%
	<i>2012 Total</i>	152	17	11.2%
<b>2013</b>	3	8	-	0.0%
	7	111	14	12.6%
	<i>2013 Total</i>	119	14	11.8%
<b>Total</b>		<b>461</b>	<b>69</b>	<b>15.0%</b>

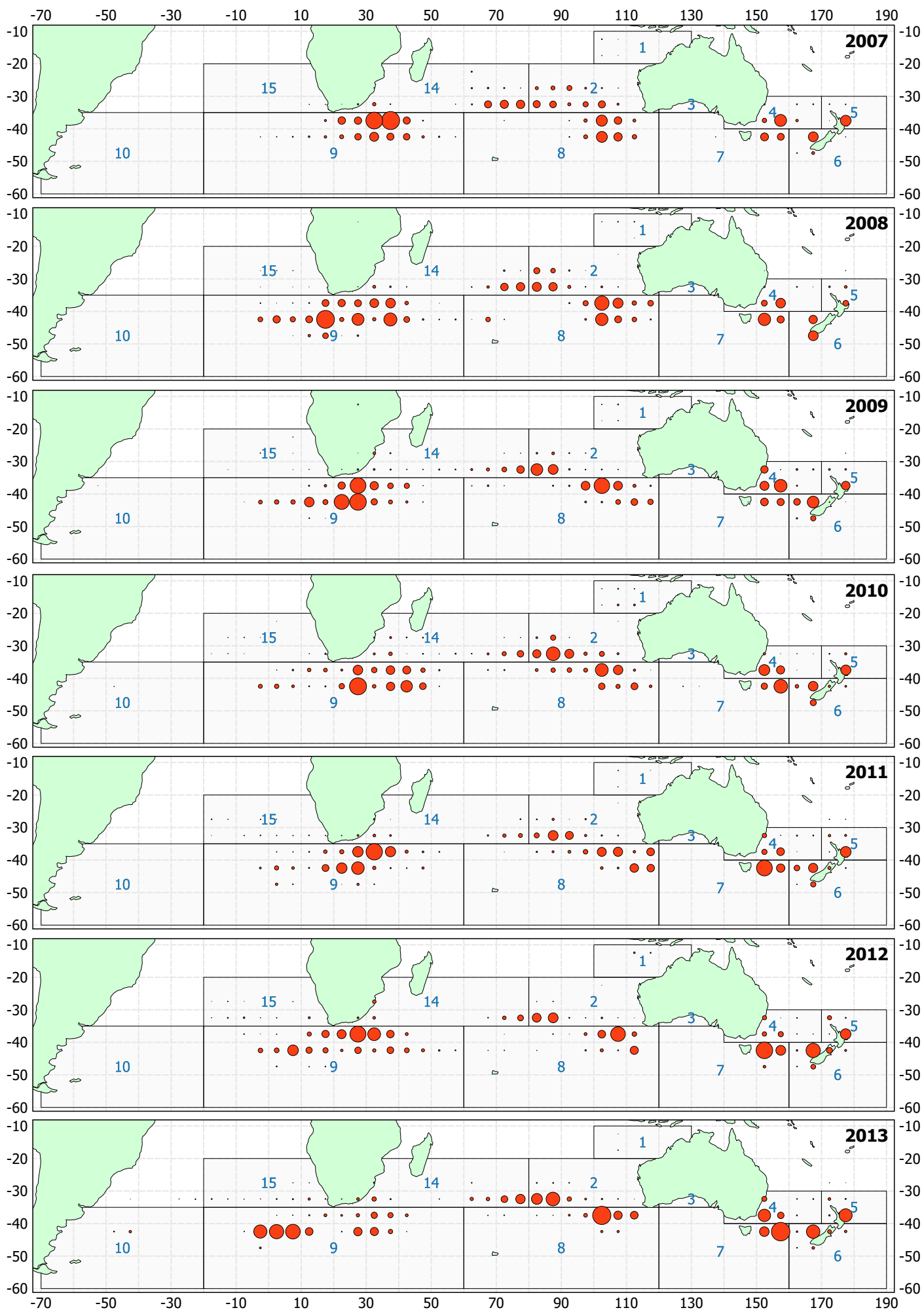
*Table 3 – Total and observed purse seine effort from data submitted under the ERSWG data exchange*

**Prepared by the Secretariat**

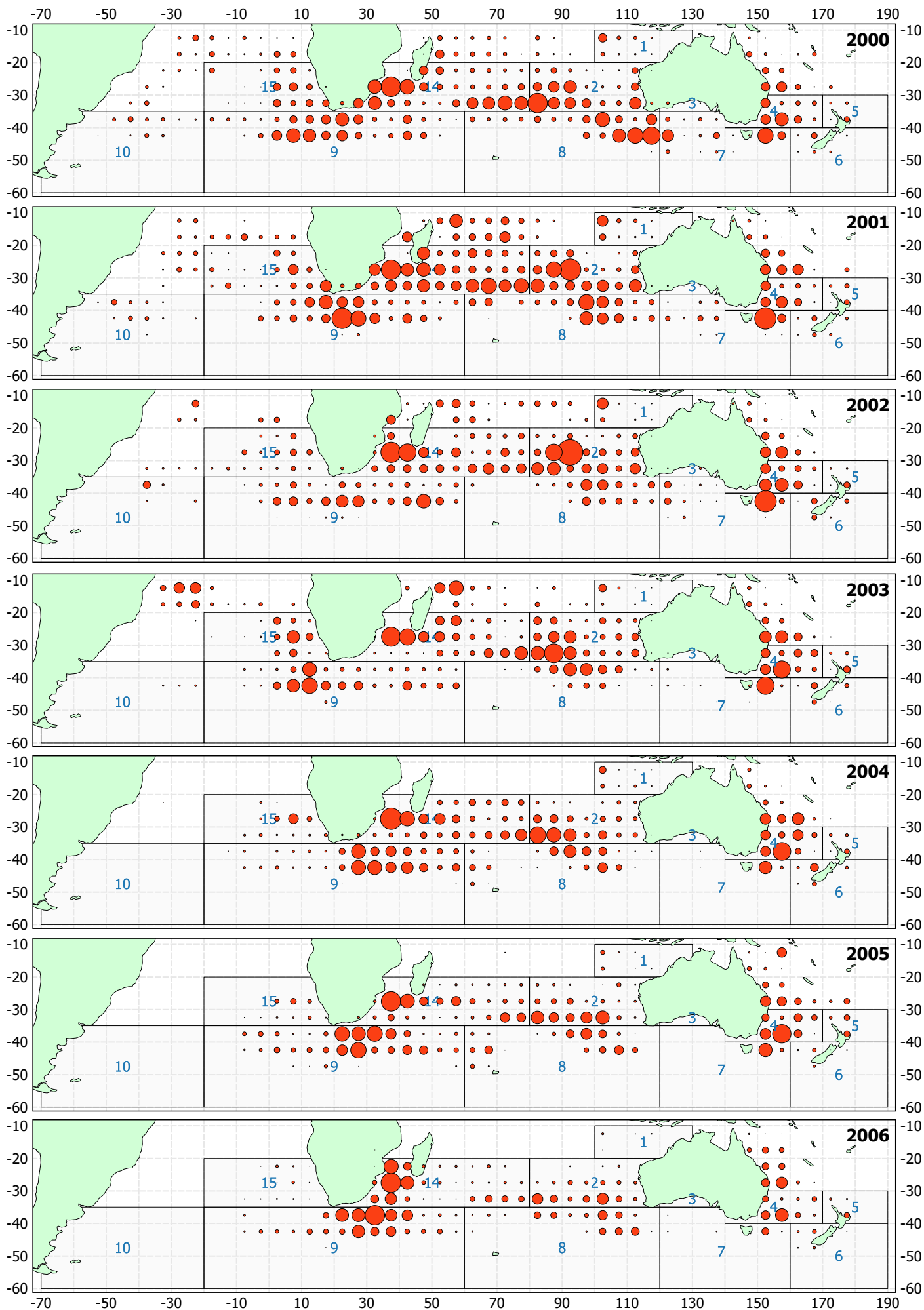
Official SBT longline catch distribution 2000-2006



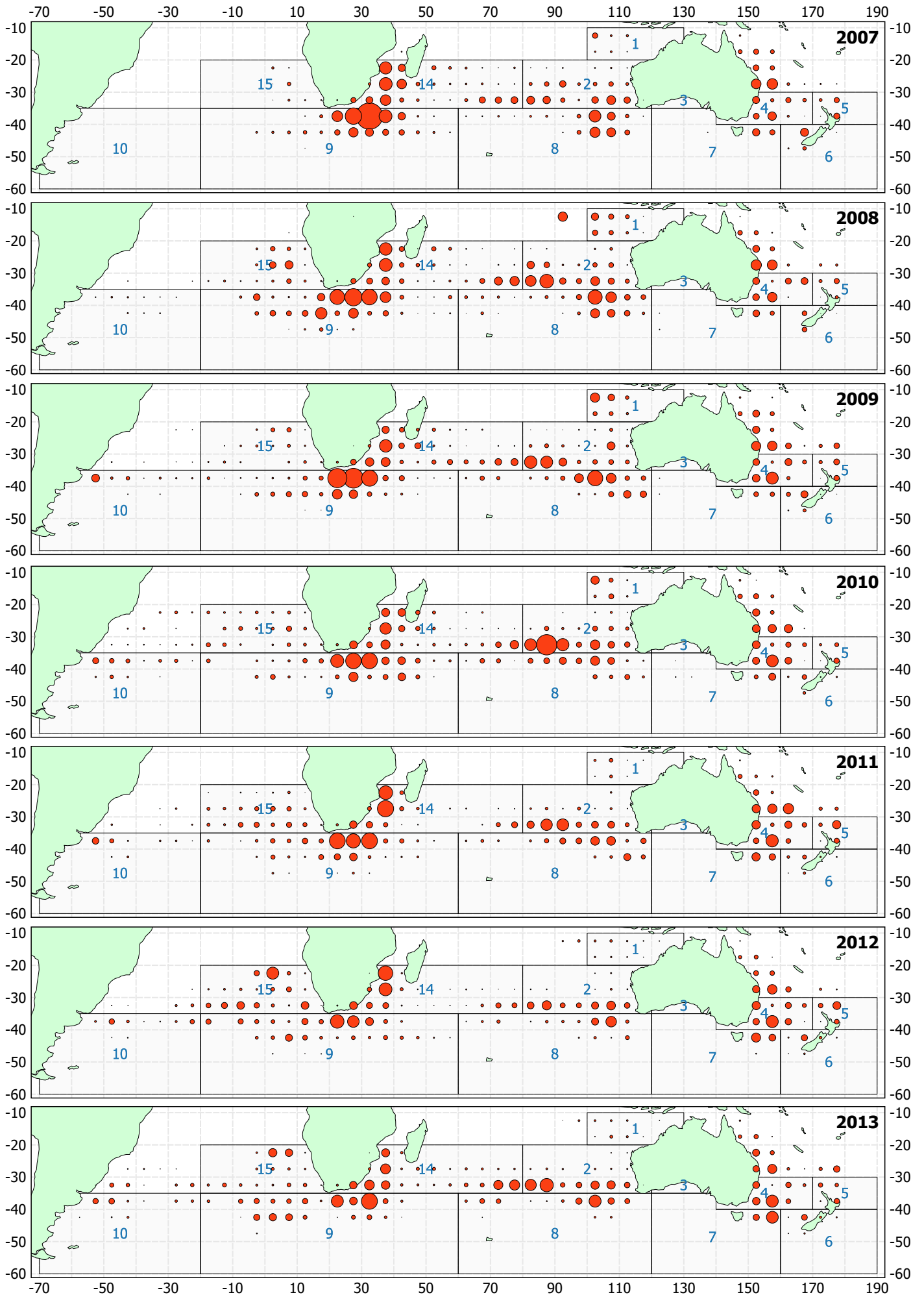
# Official SBT longline catch distribution 2007-2013



Longline effort distribution (hooks) from catch and effort data (2000-2006)

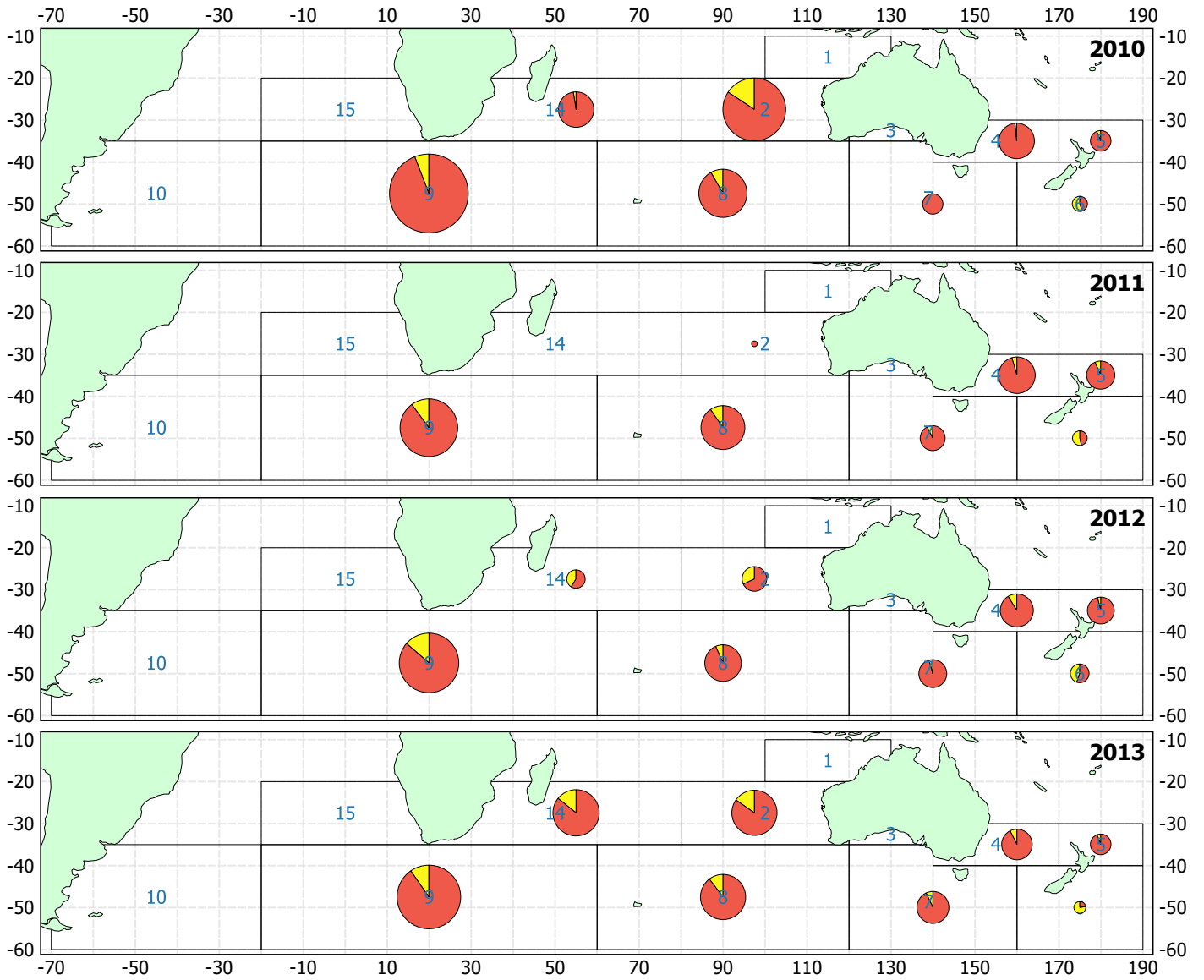


# Longline effort distribution (hooks) from catch and effort data (2007-2013)





Longline SBT effort from ERSWG data, showing observer coverage (yellow)



Purse seine SBT effort from ERSWG data, showing observer coverage (yellow)

