



Australian Government
Department of Agriculture
and Water Resources
ABARES

Preparation of Australia's southern bluefin tuna catch and effort data submission for 2018

P.I. Hobsbawn

Research by the Australian Bureau of Agricultural
and Resource Economics and Sciences

August 2018



Working Paper CCSBT-ESC/1809/11 prepared for the CCSBT
Extended Scientific Committee for the 23rd Meeting of the Scientific
Committee

3–8 September 2018, San Sebastian, Spain

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia (referred to as the Commonwealth).

Creative Commons licence

All material in this publication is licensed under a Creative Commons Attribution 3.0 Australia Licence, save for content supplied by third parties, logos and the Commonwealth Coat of Arms.



Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided you attribute the work. A summary of the licence terms is available from creativecommons.org/licenses/by/3.0/au/deed.en. The full licence terms are available from creativecommons.org/licenses/by/3.0/au/legalcode.

Cataloguing data

Hobsbawn, PI 2018, *Preparation of Australia's southern bluefin tuna catch and effort data submission for 2018*, ABARES Canberra, August. CC BY 3.0.

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)

Postal address GPO Box 858 Canberra ACT 2601

Switchboard +61 2 6272 2010|

Facsimile +61 2 6272 2001

Email info.abares@agriculture.gov.au

Web agriculture.gov.au/abares/

Inquiries regarding the licence and any use of this document should be sent to: copyright@agriculture.gov.au.

The Australian Government acting through the Department of Agriculture and Water Resources, represented by the Australian Bureau of Agricultural and Resource Economics and Sciences, has exercised due care and skill in preparing and compiling the information and data in this publication. Notwithstanding, the Department of Agriculture, ABARES, its employees and advisers disclaim all liability, including for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon information or data in this publication to the maximum extent permitted by law.

Acknowledgements

Work was supported by the Fisheries Resources Research Fund and ABARES. Ann Shepherd (AFMA) and Simon Nicol (ABARES) are thanked for their input.

Contents

- Summary..... 1
- 1 Introduction..... 2
- 2 Data Sources 3
 - Daily Fishing Logs Database..... 3
 - Catch Disposal Database 4
 - Tow Cage Size Monitoring Database 4
 - Fisheries Observer Database 5
- 3 Data Preparation..... 7
 - Definition of Seasons..... 7
 - Spatial Definitions 7
- 4 Data Validation 8
 - Data Management Systems..... 8
 - Cross-Verification of Datasets 8
- 5 Closing Remarks..... 9
- 6 References 10
- Appendix A..... 11
 - Example Scientific Logbook Forms (AL06, TPB03, PS01A) 11
- Appendix B..... 14
 - Example Catch Disposal Forms (CR4A, SBT03B, SBT04B) 14
- Appendix C..... 17
 - Tow Cage Size Monitoring Report 17
- Appendix D 19
 - Flow of Data from Data Sources to Reports..... 19

Summary

The aggregated catch and effort, catch by fleet, raised catch, catch at size, and non-retained catch data sets submitted to the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), on behalf of the Australian Government, are compiled from a number of databases. The daily fishing logbooks, catch disposal records and fisheries observer reports, collected and managed by the Australian Fisheries Management Authority (AFMA), are the main data sources. The Australian catch of southern bluefin tuna (SBT) from the surface (purse seine) fishery is also sampled by contracted field staff prior to release into farm cages. The sample data includes size and weight measurements that are used to calculate representative size distributions and average weights.

Relational databases, spreadsheets and query scripts are used to integrate and process the source data sets and create the data files required for the CCSBT data exchange. This report provides facsimiles of data collection forms, as well as flow charts illustrating the data integration procedures. The paper also describes the data validation procedures.

1 Introduction

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), within the Australian Government Department of Agriculture and Water Resources (the department), provides data reports each year to the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) as part of the annual data exchange (CCSBT 2012). In April 2018, the following reports were submitted to the data exchange:

- Aggregated Catch and Effort data 2016 and 2017
- Raised Catch 2016 and 2017
- Total Catch by Fleet 2016 and 2017 (quota and calendar year)
- Catch at Size data 2016 and 2017
- Non-retained Catches 2016 and 2017
- CPUE series (GAMM)

The following reports are also provided directly to the data exchange by the Commonwealth Scientific and Industrial Research Organisation (CSIRO):

- Tag Releases/Recoveries and Reporting Rates
- Direct Ageing data
- Catch at Age data
- Raised Catch-at-Age for the Australian Surface Fishery
- CPUE series (nominal)

Preparation of the CSIRO data sets is described in separate papers (e.g. Preece et al. 2004; Eveson 2011).

2 Data Sources

In recent years, the Australian Fisheries Management Authority (AFMA) have developed a Data Warehouse that draws together data from various tables within the original databases. These original databases have evolved over time, with changes to logbooks, the introduction of electronic logbooks (e-logs) and transfer of catch disposal data to the licencing database (PISCES). Not all data are drawn into the data warehouse, however, it is still possible link back to necessary tables in the original databases when required.

Also, the introduction of electronic-monitoring (e-monitoring) has meant that from 1 July 2015 observers are no longer deployed on longline vessels and length measurements are now obtained solely from port sampling rather than at time of catch.

There were four sources of data used to produce the data reports. These were: Daily Fishing Logs Database; Catch Disposal Database; Tow Cage Size Monitoring Database; and Fisheries Observer Database.

Daily Fishing Logs Database

The Daily Fishing Logs Database is maintained by AFMA and contains data collected from logbooks that fishers are required to complete. The logbooks of relevance to southern bluefin tuna (SBT) catch for the 2017 data submission were the AL06 (pelagic longline), TPB03 (purse seine and pole log for farmed SBT), and PS01A (purse seine log for non-farm SBT). See Appendix A for samples of these logbooks. Each fishing operation is given a unique identifier in the Daily Fishing Logs Database and tables are linked using this identifier. The following tables are required from this database:

- 1) **Operations** – contains information on each operation, including start latitude, start longitude and vessel identifier.
- 2) **Catch** – contains a separate record for each species caught, together with the number of fish caught and estimated weight of the catch.
- 3) **Elect_Shot_Detail** – contains depth and position information for e-logs.
- 4) **Fishing_Effort** – contains fishing method used and fishing effort information (e.g. number of hooks for longline operations; search hours for purse seine operations).
- 5) **Operation_Longline** – contains other information on longlining operations (e.g. length of mainline).
- 6) **Operation_Pole** – contains other information on poling operations (e.g. number of poles used).
- 7) **Vessel** – contains information on each licensed vessel; vessel name is used to identify individual vessels when determining the number of vessels that fished.
- 8) **Tow_Cage_Transfer** – contains information on each transfer of fish from the capture vessel to the tow cage in each purse seine operation. Provides the link between the Daily Logs Database and the OtherInfo table produced from the Tow Cage Size Monitoring Reports.

Catch Disposal Database

The Catch Disposal Database is used by AFMA for quota monitoring and contains data collected from the CR4A (SBT Catch Disposal Record; all methods except purse seining for farms), SBT02 (SBT Farm Catch Disposal Record – Purse Seine Boat) and SBT04B (SBT Farm Catch Disposal Record; purse seining for farms). See Appendix B for samples of these forms. The following tables are required from this database:

- 1) **Catch Disposal** – contains information on trip start and end dates.
- 2) **Landing** – contains information on species caught, numbers of fish caught and weight of catch.
- 3) **Fishing_Method** – provides the fishing method information.
- 4) **Tow_Catch_Transfer** – contains identification of capture vessel for purse seine operations.

PISCES Database

PISCES is the licencing database. Landings data and quota monitoring has been moved into this database. The relevant tables for this database are now:

- 1) **CDR_Catch_Disposal** – contains general information about the landing, such as trip end date and fishing trip id.
- 2) **CDR_Operator_Landing** – where there is no receiver information, operator reported catches are used.
- 3) **CDR_Receiver Landing** – contains information about the catch, as reported by the receiver.
- 4) **CDR_SBT, CDR_SBT03, CDR_SBT03_Mortality, CDR_SBT04, CDR_SBT04_Transfer** – SBT information is kept in these separate table which store information about the SBT farm sector, such as tow cage information and transfers to farm cages.

AFMA create a single landings table in their Data Warehouse, which combines the Catch Disposal Database with the PISCES Database. However, this does not include the fishing method. ABARES has developed queries to append PISCES data to the Catch Disposal Database in such a way that fishing method is included and code changes have been accounted for.

Tow Cage Size Monitoring Database

Tow cage size monitoring data are collected by Protec Marine Pty Ltd, a company contracted to AFMA, and its primary purpose is for estimation of total weight of SBT in tow cages prior to transfer of fish to farm cages. In 2006, the then Bureau of Rural Sciences (now the Australian Bureau of Agricultural and Resource Economics and Sciences; ABARES) developed a database for Protec Marine to record this information, the Tow Cage Size Monitoring Database, replacing a series of spreadsheet forms. Data for the 2006–07 and previous fishing seasons were then entered into this database from the original spreadsheets. From December 2007, data were entered directly into the database rather than using spreadsheets as an intermediate step. The database has been used as the source of SBT length samples for the purse seine component of the Catch at Size reports for 2008 to 2017 submissions. A sample of one of the reports produced by the database is given in Appendix C.

For each tow cage, fish were sampled until 100 fish (40-fish prior to 2012) weighing 10 kg or more were measured and weighed. The length and weight of all fish sampled were entered into

the database, including fish smaller than 10 kg, as were the total number of fish transferred to farm cages. Data were then collated to produce a table of statistics for each tow cage, named Analysis – OtherInfo, which was used in preparation of Raised Catch and Total Catch by Fleet reports (see Appendix D). The raw lengths and weights of all sampled fish for the year were combined and used in conjunction with the Daily Fishing Logs data to prepare the Catch at Size report.

In the 2010–11 fishing season, stereo video was used to measure fish lengths and determine the average weight for some of the tow cages. These data were initially recorded in another database. However, for the purposes of the data preparation, all necessary data were migrated to the Tow Cage Size Monitoring Database.

Fisheries Observer Database

AFMA employs fisheries observers to collect data on board fishing vessels in a number of fisheries. Observer coverage of pelagic longline vessels has been variable between 2001 and 2015, mainly concentrated in the Eastern Tuna and Billfish Fishery. A database of observed fishing operations is maintained by AFMA, including records of retained and discarded catch and biological data collection including length measurements. Length data collected by observers were used to compile the longline and trolling components of the Catch at Size reports for 2013 and 2014. The AFMA observer data were also used to produce the “Non-retained Catches” reports for 2013 and 2014. These reports provided numbers of non-retained fish observed in the longline fishery and were not raised or imputed from logbook data. The total longline fishing effort for each five degree cell is provided from the Aggregated Catch and Effort report with the corresponding observed effort and non-retained catch.

AFMA implemented a new Observer Database in September 2008, so this new database was used for the 2014 data submission. The following observer database tables contributed data to the Non-retained Catches report:

- 1) **Activity** – describes vessel activity (e.g. setting, hauling, searching and time, location, environmental conditions).
- 2) **Opn_Biological** – describes biological attributes of animals caught including life status of retained and discarded fish.
- 3) **Opn_Biological_Length** – gives the length type and length measurement of each sampled fish.
- 4) **Vyg_Project** – provides the name of the project under which the observer was operating.

Port sampled lengths were provided by AFMA in a spreadsheet for use in the longline length frequency submission for 2015.

Data Warehouse

Single tables have been created to bring data from the disparate areas together for easier access. The key tables in the warehouse are:

- 1) **Fact_CDR_Boat_Landing_Spcs** – draws together the Catch Disposal Database and the PISCES Database to create a single table with a complete time series of landings data.
- 2) **Fact_Fishery_Boat_Operation** – draws together data from the various tables in the Daily Fishing Logs Database to produce a single table with shot date, position and effort

information. It retains the original record number so that it can link back to the Daily Fishing Logs Database at any time, when required.

- 3) **Fact_Fishery_Boat_Optn_Species** – draw together data from the various tables in the Daily Fishing Logs Database and shows logbook recorded catches of each species in each operation.

3 Data Preparation

Oracle export files from the AFMA Daily Fishing Logs, Catch Disposal Records, Observer databases and Data Warehouse are acquired late in the first quarter of each calendar year. The data are imported into an Oracle relational database server to enable analysis using Structured Query Language (SQL) via Microsoft Access software on client workstations. The length data for the Catch at Size reports are processed at least partly in MS Excel to enable estimation of size distributions for month-location strata that have not been sampled by observers or Protec Marine Pty Ltd. New queries and procedures were established in 2016 to produce the data reports that ABARES submits each year. These queries may require minor modification each year as changes, if any, are made to the source data collection process or CCSBT requirements.

See Appendix D for flow diagrams of data sources and tables used to produce the various reports. Note that with the introduction of e-monitoring in July 2015, Australia is still investigating how to prepare the Non-retained Catch component of the data submission. The flow diagram included here is how the 2014 data was prepared, using the observer data.

Definition of Seasons

All data reports use date of capture to sort catch records by time period, except the catch by fleet – quota year statistics. The quota year statistics use tow end date (farm purse seining) or trip end date (other methods) to define whether a catch falls within a particular season/fishing period.

Spatial Definitions

Since the 2003 data exchange, raised catch or catch at size data have been provided by latitude/longitude grid cells (1x1 degrees for purse seine and 5x5 degrees for longline). This was made possible for the farm sector by the introduction of the SBT03 forms. The forms enable the linking of the Tow Cage Size Monitoring Database to the Daily Fishing Logs Database, thus providing capture location information for SBT transferred from tow cages. The Aggregated Catch and Effort Report also provides spatial information; all data for this report coming from the Daily Fishing Logs Database.

4 Data Validation

Data Management Systems

AFMA maintains two systems for tracking catches of SBT in Australian waters. One system is on MS Excel spreadsheets and the other is AFMA's main Oracle database that stores all logbook and catch disposal records. These two systems are cross-referenced to ensure that data entry is correct in both systems. This process ensures validity and plausibility of data during the data entry process.

ABARES obtains copies of the AFMA Daily Fishing Logs Database and Catch Disposal Database and stores it in an Oracle system. It is these copies that are used for the preparation of the annual data submission.

Cross-Verification of Datasets

All Commonwealth authorised receivers of SBT are required to complete reconciliation sheets at the end of each season that are then cross-checked against catch disposal records and catch documentation scheme records. This is called the Audit Level 1.

There are a number of triggers (such as discrepancies in the Audit Level 1) that can trigger the Audit Level 2, which involves AFMA officers examining the books and invoices of the company involved.

During the preparation of the annual data submission, data from the Tow Cage Monitoring Database are cross-referenced with data from the Daily Fishing Logs Database and Catch Disposal Database to ensure accuracy of results. Any discrepancies are tracked down to original forms, if required.

Lengths and weights in the Tow Cage Monitoring Database are graphed to identify any outliers.

5 Closing Remarks

The description of data preparation and submission in this report applies to the 2015 and 2016 commercial fishery catch and effort data supplied to the CCSBT. ABARES can provide more details of data collection and data processing methods upon request.

6 References

CCSBT, 2012, Report of the Seventeenth meeting of the Scientific Committee, 27–21 August 2012, Tokyo, Japan

Eveson P, 2011 Updated growth estimates for the 1990s and 2000s, and new age-length cut points for the operating model and management procedures, CCSBT-ESC16/1107/09, CCSBT 16th Meeting of the Scientific Committee, 19–28 July 2011, Bali, Indonesia

Preece A, Cooper S, Hartog J, 2004, Data post-processing for input to the 2004 stock assessments and comparisons of 2001 and 2004 assessment datasets, CCSBT-ESC9/0409/27, CCSBT 9th Meeting of the Scientific Committee, 13–16 September 2004, Jeju, Korea

Appendix A

Example Scientific Logbook Forms (AL06, TPB03, PS01A)

Australian Pelagic Longline Daily Fishing Log – AL06

NOTE: DO NOT USE A SINGLE PAGE FOR MORE THAN ONE TRIP Original Copy – Send to AFMA

Boat Name Cormorant		Dist. Symbol LFB963		Log No.	Page No.
Port Departed SYDNEY		Date Departed 25 / 6 / 07		NON-FISHING PERIOD I did not work between 19 / 6 / 07 and 24 / 6 / 07	
Port Returned ULLADALLA		Date Returned 27 / 6 / 07		Non-Fishing Codes (if not zero) 1 - Bad Weather 2 - In Port 3 - Broken Down 4 - Steaming 5 - Searching 6 - Other Fishery (specify)	

TRIP INFORMATION	Shot 1	Date	26/6/07	Shot 2	Date	27/6/07	Shot 3	Date
Target species	Yellowfin, Bigeye			Yellowfin, Bigeye				
Start set time (24h)	0300			0230				
Start set Lat. (dd mm)	33 35			36 31				
Position Long. (ddd mm)	151 42			151 55				
End set time (24h)	0610			0515				
End set Lat. (dd mm)	35 19			36 25				
Position Long. (ddd mm)	151 40			151 40				
Start haul time (24h)	1500			1300				
Start Haul Lat. (dd mm)	35 20			36 20				
Position Long. (ddd mm)	151 41			151 42				
End Haul time (24h)	2200			1900				
End Haul Lat. (dd mm)	33 36			36 30				
Position Long. (ddd mm)	151 40			151 56				
Vessel shooting speed (kn)	7			7				
Mainline length/hooks	30 nm/1000 hooks			25 nm/700 hooks				
Line checker used (circle)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			Yes <input type="checkbox"/> No <input type="checkbox"/>	
Snare/float/other traps used (circle) and specify	TOB: CHUTE CAPS PSB: DYES NET: OTHER: NAFF			TOB: CHUTE CAPS PSB: DYES NET: OTHER: NAFF			TOB: CHUTE CAPS DYES NET: OTHER: NAFF	
Targeted catch (in metric)	30 min 100 star			30 min 100 star			min	max
No. hooks between bubbles	6			6				
No. of lightsticks used	500			300				
Bait type(s) / source(s) / No. status / weight(s) used for shot	SQO (S) L (D) 50 kg MAY (S) (D) 50 kg			SQO (S) L (D) 35 kg PTL (S) L (D) 45 kg			B S L D kg	

CATCH DETAILS	No. Fish Caught	Est. Processed (kg)	Fork Code	No. Fish Released	Status	No. Fish Caught	Est. Processed (kg)	Fork Code	No. Fish Released	Status	No. Fish Caught	Est. Processed (kg)	Fork Code	No. Fish Released	Status
Yellowfin Tuna	11	350	GG	3	US	14	490	GG	1	DM					
Bigeye Tuna	4	150	GG			6	160	GG	4	TL					
Albacore Tuna	7	50	W			4	40	W							
Southern Bluefin Tuna															
Broadbill Smerdich						2	90	TR							
Striped Marlin	1	35	TR												
Shorttail Shearwater															
Ray/Bream						3	10	GG							
Mullet															
Rudfish															
Gillich/Escolar															
Dolphin															
Wahoo															
Lanternfish						4	UM								
Short Finned Mako Shark	1	80	TR						1	US					
Bonito/Whale Shark															
Grey Whale Shark															
Blue Shark									4	UM					
Common Whitefin Shark															
Other Species															
Thresher shark									1	UM					
Yellowfin	4	60	GG		SD										
Bigeye	1	20	GG		SD										
Bigeye	3	25	W												

No. Fish Caught	Species	Number Released		Number Released		Number Released	
		Alive	Dead	Alive	Dead	Alive	Dead
	Blue Marlin		1	1			
	Black Marlin						

Did you have an Observer on Board (circle) **(No)** / Yes Observer Trip ID _____

Concession holder or authorized agent - I certify that the information provided on this form is a true and accurate record.

Please provide an estimate of the time taken to complete this form: **10** min

Did you have an interaction with a Listed Marine or Threatened Species? (circle) Yes / **(No)**

Author details of all Listed Marine and Threatened Species interactions must be recorded on the Listed Marine and Threatened Species form at the back of this logbook.

Printed Name: **Tim Gardener**

Signature: **Tim Gardener** Date: **27 / 6 / 07**

Comments: **5 fish damaged by sharks in first shot but fish still retained**

NOTE • If tagged fish / animals or banded birds are captured, please complete tag form at back of book and return to AFMA.

Australian Purse Seine and Pole Daily Fishing Log - For Farmed Southern Bluefin Tuna Only TPB03

Wildlife Interactions
Recapture Authority
Commonwealth of Australia

Log Book No: **0026** Page No: **02** Boat Name: **Sea Spray** Dist. Symbol: **LFB 12345** Master's Name: **C. Gavin**

TICK APPROPRIATE NON-FISHING (NF) CODE BOX AT RIGHT: 1 Bad Weather 2 In Port 3 Broken Down 7 Cage Towing Fishing Method Used? (tick appropriate box) Poleing Purse Seining

I did not work between: **28.5.98** and **28.11.98** 4 Starving 10 Rest Distinguishing No. of assisting vessels: **LFB023 (pub boat)**
 NE State whether pole or seine boats

Date of Fishing (day/month)	NF Code?	Search Details (Hours above Codes listed)	Fishing Details				Total Weight and Type of Bait		Estimated Catch Weights per Shot (kg)			Towing						
			Start Time (24hr local time)	Latitude	Longitude	No. Poles Used?	Pole Boat Assisted Y/N	Seine Boat Assisted Y/N	Type	Kgs	SBT Weight	Other Species	Other Weight	Estimated % of school caught	Carrier Boat Name	Weight Transferred	Transfer Date	SBT 03 Book No.
29/11	6	4	20 1300	32°40'	152°30'	4	4			4,000	-	-	90	Sea	4,000	29/11	036	09
30/11	4	4	21 1200	34°05'	151°08'	4	4			15,000	-	-	95	Sea	15,000	1/12	024	36
1/12		5	19 1100	33°50'	151°20'	4	4			25,000	-	-	70	"	25,000	2/12	024	36
2/12		2	19 1600	33°54'	151°11'	4	4			12,000	-	-	80	"	12,000	2/12	024	36

Comments:

Wildlife Interactions:
 List any wildlife interacting with you during your fishing activities, including netted animals. If possible, list Species name, Interaction Date, No. of Animals and Life Status of any animals released after capture. Life Status Codes are listed on the writing template. Please record any extra details in the Comments section.

Species: _____ Date: _____ Qty: _____ Life Status: _____

Concession Holder or Authorised Person:
 I certify that the information I have provided on this form is a complete and accurate record.
 Dated: **3/12/98**
 Name: **C. GAVIN**
 Signature: **C. Gavin**

WHITE COPY - send to AFMA BLUE COPY - retain for your records Note: There are tagged fish/wildlife recapture forms at the rear of this book.

Purse Seine Daily Fishing Log - PS01A

NOTE: IF FOLING PLEASE USE THE TUNA MINOR LINE LOGBOOK TO RECORD YOUR CATCH

Original Copy - Send to AFMA

Boat Name: **WATERCRESS** Dist. Symbol: **LFB 60** Disguising Nos. of assisting POLO vessels: **LFB 8071**

Log No. **###** Page No. **##**

Did not work in this fishery between **7/1/10** and **15/1/10** TICK APPROPRIATE NON-FISHING (NF) CODE BOX AT RIGHT

1 Bad Weather 2 In Port 3 Broken Gear 4 Swarming 5 Searching 6 Other Fishery (Specify)

Fishing Date	NF Code (see instructions)	Search Details (see instructions)	Time Zone used for log entries				EST		CATCH DETAILS - Estimated Weights per Shot (kg) - tick box below fish name to indicate target species						BAIT/CHUM DETAILS												
			Start Time (00 min)	Set Time (00 min)	Set Depth (m)	Shot Size (mm)	Latitude (dd mm)	Longitude (dd mm)	Assisted by POLO VESSEL	Skipjack Tuna <input checked="" type="checkbox"/>	Yellowfin Tuna <input type="checkbox"/>	Jack Mackerel <input type="checkbox"/>	Blue Mackerel <input checked="" type="checkbox"/>	Yellowtail Snapper <input type="checkbox"/>	Southern Bluefin Tuna <input type="checkbox"/>	Other Spec. (list above) <input type="checkbox"/>	Estimated % of school caught <input type="checkbox"/>	Estimated Yr (kg 400)	Estimated Yr (kg 200)	Let species of bait caught each day	Bait caught (kg)						
6/1/10	4																										
7/1/10	6	5 N																									
8/1/10		2 N	21	1015	3	7	3	0	1	5	0	2	0	Y	9,000												
8/1/10		1 N	22	1410	3	7	4	2	1	5	0	0	5	N													
9/1/10		3 N	20	1120	3	8	1	5	1	5	2	1	2	Y	7,500												
0/1/10	4																										

Comments: **Approx. 300 kg Damaged Skipjack**

Complete at End of Trip

Trip Start Date	16.1.10
Port of Departure	WALKER COVE
Trip End Date	21.1.10
Port of Landing	WALKER COVE
First Recipients of Fish	BASIL'S FRESH FISH

I certify the information which I have provided on this form to be a complete and accurate record.

Concession Holder or Authorised Agent
 Printed Name: **L Waller**
 Signature: **L Waller**
 Date: **21/1/10**

Please provide an estimate of the time taken to complete this form **8** mins

NB Did you have an interaction with any wildlife or other protected species? Please tick Yes No
 If yes, please enter details on a "Wildlife and Other Protected Species" Form at the back of this book.

NOTE: If tagged fish / animals or banded birds are captured, please complete tag form at back of book and return form and tag to AFMA.

Appendix B

Example Catch Disposal Forms (CR4A, SBT03B, SBT04B)

CR4A Form Southern Bluefin Tuna Fishery Catch Disposal Record

Book No.		Page No.	
----------	--	----------	--

Part A: SFR Holder or Authorised Representative to Complete

SFR Holder **Tuna International P/L** Boat Name **Hunter IV** Dist. Symbol **0999**

Area Fished Tas Vic NSW SA WA QLD

Fishing Method Pole Purse Seine Longline Trolling

Trip Start Date **8 / 7 / 04** Trip End Date **14 / 7 / 04**

Port Unloaded **Tuncurry** Date Unloaded **14 / 7 / 04**

Whole Catch Consigned Part Catch Consigned Book No. Page No. Other CR4A details

Name of Receiver **Tuna Exporters P/L**

Name of Transporter **Bradley Transport** Type of Vehicle **Truck** Trailer Vehicle Reg **YLT-091** Date/Time of Departure of Consignment from point of Unloading **14 / 7 / 04 15:30**

Please provide an estimate of the time taken to complete this form.
Hrs. **5** mins

SOUTHERN BLUEFIN TUNA		
Number of Fish	Total Accurate Weight Kg	Form Code
3	300	B

NORTHERN BLUEFIN TUNA		
Number of Fish	Total Accurate Weight Kg	Form Code

Form Codes

W means Whole Weight – No Processing

A means SBT that has been gilled and gutted so that:
a. the gill plates are removed; and
b. the tail is wholly removed.

B means SBT that has been gilled and gutted so that:
a. the gill plates are not removed; and
b. the tail is not wholly removed.

I declare that the information I have provided in Part A to be a complete and accurate record.

SFR Holder or Authorised Representative
Printed Name
JOHN WELSH

Signature & Date
J. Welsh 14/7/04

Part B
I acknowledge that I have received for transportation the amount of fish referred to in Part A.

Printed Name of Driver
PETER BRADLEY

Signature & Date
Peter Bradley 14/7/04

Forward White copy to AFMA within 24 hours of unloading.
Leave Green copy in book.
Send the Blue and Yellow copies with the fish to the receiver of your fish.

SBT03B
Southern Bluefin Tuna Fishery
Farm Transit Log

Log No:	Page No:
---------	----------

Section 1

Carrier Boat Name **MARY LOU** Dist. Symbol **DE 123**

Permit Holder **A B CUTTER** Carrier Boat Permit Number **400100**

Tow Cage ID Number **T800**

Fish Received From Purse Seine Boat – Complete Sections 1, 2, 4 and 7, then Section 5 or 6

Fish Received From Carrier Boat – Complete Sections 1, 3, 4 and 7, then Section 5 or 6

Section 2 **Transfer Details**

Name of Purse Seine Boat	Dist. Symbol	Date & Time First Transfer Started	Date & Time Last Transfer Finished	Estimate of Weight (Tonnes)	SBT02 Book No.	SBT02 Page No.
BLUE OCEAN	333	20 / 12 / 09 9:30	22 / 12 / 09 11:30	50	111	05

Section 3

Previous Carrier Boat Name Dist. Symbol

SBT03A Log No: Page No: A Record of Retained to Land Mortalities Recorded in Box "G3" of Previous SBT03B G1 A Record of Mortalities Recorded in Box "G" of Previous SBT03B E

Section 4 **Record of Mortalities During This Tow**

Date/Time **20 / 12 / 09 09:30** Record a Date + Number of Mortalities for Each 24 hr Period.

Date	20/12	21/12	22/12	23/12	24/12			
Number	5	1	3	4	2			
Date								
Number								
Date								
Number								

Total Mortalities During This Tow F **15** Progressive Total of Mortalities (E & F = G) G **15**

Total Mortalities Retained to Land During This Tow G2 **4** Progressive Total of Mortalities Retained to Land (G1 & G2 = G3) G3 **4**

Section 5 **Tow Cage Transferred To Another Carrier Boat**

Carrier Boat Name **MISTY MOON** Dist. Symbol **FJ308**

SBT03B Book No **333** SBT03B Page No **2** Date/Time Tow Cage Transferred **25 / 12 / 09 06:30**

Section 6 **Fish Transferred To Fish Receiver**

Date/Time Transfer Ended / / : Name of Fish Receiver Permit Holder Fish Receiver Permit Number

Section 7

I declare that the information which I have provided on this form to be a complete and accurate record.

Carrier Boat Permit Holder or their Agent

Print Name **JASON MANNING** Signature *J. Manning* Date **25 / 12 / 09**

SBT04B
Southern Bluefin Tuna Fishery
Farm Catch Disposal Record

Log No:
 Page No:

Part 1

Fish Receiver Permit Holder Name: **McNally Fresh Fish** Tow Cage ID Number: **T600**
 Fish Receiver Permit Holder Number: **9999** Carrier Boat's SBT03B Log and Page No's: **198** / **15**

Progressive total of all mortalities during tow (G = SBT03B) **A 17**

Total number of mortalities recorded from date of receipt of tow cage **B 2**

Record the number of retained to land mortalities from the date of receipt of the tow cage. **B1 2**

Transfer from Tow Cage to Farm

Transfer Date	Farm Number Cage No.	Live Fish Count
29/01/10	C01	4,802
30/01/10	C02	1,098

Total Number of mortalities **F 35**
F = A + B + J

Count Total **C 5,900**

Total Weight of mortalities **H 638.75**
H = F x E
 (E: Average Weight in Kg)

Weight Total **D 107675**
D = C x E
 (E: Average Weight in Kg)

Total Weight of Fish in Kg **I 108313.75**
I = D + H

I have had the opportunity to witness the verified count conducted by AFMA's Agent and I agree with and verify the count taken. I declare that the information which I provide on the form to be a complete and accurate record.

Video Reference Number (1) **T600-1**

FRP Holder **E. Watson**

No. of Videos viewed (2) **4**

Video Reference Date **2 / 2 / 10**

FRP Signature **E. Watson** Date: **2 / 2 / 10**

Part 2 I authorise AFMA to deduct the SBT kilos of quota recorded in box I above from my/our quota holdings:

SFR Holder **A. Brazil** SFR Signature **A. Brazil** Date: **2 / 2 / 10**

Part 3

Purse Seine Boat Name: **TUNA 1** Dist. Symbol: **0253**

SBT02 Log No: **12** / Page No: **4** Log No: Page No: **J 16** Number of mortalities during pursing and transfer to tow cage

Progressive total of retained to land mortalities during tow (G3=SBT03B) **A1 3** **J1 1** Number of mortalities retained to land during pursing and transfer to tow cage

Average Weight sample from Tow Cage

Sample Date: **28 / 1 / 10** Name of Person Sampling: **T. Smith** Signature of Person Sampling: **T. Smith**

Average Weight in Kg **E 18.25** No. of Fish taken from tow cage: **42** Farm Stocking Form No.: **FSAU 10 00101**

I declare that the information which I provide on the form to be a complete and accurate record.

AFMA Agent's Name: **T. Poppy** AFMA Agent's Signature: **T. Poppy** Date: **3 / 2 / 10**

Appendix C

Tow Cage Size Monitoring Report

**Southern Bluefin Tuna Fishery
Farm Catch per Tow Cage**

200506

Tow Identification

Tow Cage ID _____	Catch Disposal Form _____	Book No. Page No. _____
Tow Number for Deacon _____	FSA Recorder Number _____	

Catch Information

Catcher/Vessel _____	AFBA Form _____
Capture location _____	
Date of First Transfer to Tow Cage _____	
Date of Last Transfer to Tow Cage _____	
Tow Vessel _____	
Date Tow Ended _____	Total Weight of Fish Captured in this Tow Cage: _____
Number of Mortalities during Catching _____	Estimated Weight (kg): _____
Number of Mortalities during Tow _____	Total Number of Mortalities: _____
Number of Mortalities between end of Tow and Release to Farm _____	Total Number of Fish: _____

Average Weight Sample Information

Sample Date	Witness	Average Length	Average Weight
_____	_____	_____	_____

Fish Count Information

Transfer Date	Video Count	Tonnage	Static Cage ID	Static Cage Owner
_____	_____	_____	_____	_____

Total number of fish counted: _____

Appendix D

Flow of Data from Data Sources to Reports





