

A manual of best practice handling techniques for longline caught tuna

Principal Investigator: Ms Cheryl Hughes



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AUSTRALIA

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The Australian Tuna Handling Manual: A Practical Guide for Industry

By Erica Starling & Geoff Diver

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Non Technical Summary

2003/414 A manual of best practice handling techniques for longline caught tuna

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OBJECTIVES:

1. To compile a manual of best handling practice for the tuna longline industry.
2. To conduct extension fieldwork to disseminate this information directly to the crews of longline vessels and staff of processing facilities.
3. To promote the process to domestic and international tuna buyers.

NON TECHNICAL SUMMARY:

Outcomes/outputs (from application)

The project will contribute to the planned outcome of improving the profitability of the west and east coast tuna fishery through improved handling practices. To achieve this planned outcome the following outputs will be produced:

- 1) A documented process which will allow buyers etc to trace each fish from the boat on which it was caught, through its various processes, through the air freight process, to the market.*
- 2) A manual for on-board handling that documents and describes best practice handling*

Outcomes achieved

This project has developed a useful training guide for all crews and skippers of tuna longline vessels. The aim is to improve the understanding by fishers of the issues of food safety, quality indicators and parameters, optimum handling, refrigeration and storage practices. A sound understanding of the principles behind these processes should lead to improved retention of the optimal practices.

This information has been compiled amidst an increasingly demanding market place where traders, buyers and consumers require more information about food safety, quality and supply chain processes. Various markets have various requirements and standards to be met. Processes and documentation must be tailored to these market requirements. The manual is designed to provide an understanding of the key elements of such requirements. It has not been designed as a prescriptive source of meeting such requirements but as a tool for educating and informing the fishers of the elements and suggestions on how to document key indicators of quality and processes.

An increase in regulation is also being experienced by food producers. In the past primary producers have often been the least regulated, with processors bearing the burden of documentation and traceability. In particular the seafood industry catching sector has been the largely unregulated with regards to food safety.

The introduction of the Australian Seafood Standard and the compulsory Primary Production and Processing Standards for Seafood (PPPS) has demonstrated the need for catchers to provide more information about their product and their processes on board. Record keeping is a key part of the demonstration of safe practices along with training and education. This manual helps explain the background of requirements and expectations of them as well as how to ensure the on board practices of a vessel can produce safe, good quality seafood.

Finally it is hoped the manual can contribute to the 'de-mystifying' of the grading and quality elements that are very unique to the Sashimi grade tuna market. Terms used by Japanese buyers have infiltrated our own industry as key words to describe quality problems. It has often been difficult to understand these in English and in particular the actual reasons causing these problems. A list of such terms, descriptions of the quality problems and identification of whether it is a biological or handling issue is a key benefit of this manual. Too often fishers are left guessing and wondering what they have done wrong when receiving poor market prices. In some cases it is a handling issue, yet in others it is the biological nature of the fish, where handling does not contribute to the problem, only the natural fish quality due to area of capture, feed and reproductive status. In other cases it is the vagaries of the market system and supply and demand.

The ultimate aim of this project is to help fishers understand the nature of tuna, quality, optimal handling and safe food practices and to have a clear grasp of what elements of the catching process they can control. It is hoped that by increasing their understanding they are able to improve overall quality of their catches, gain access to wider markets through demonstration of safe food practices and better quality in order to achieve improved returns for their catch.

KEYWORDS: yellowfin, tuna, swordfish, best practice handling manual, quality

Acknowledgments

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The research team also found help unbidden along the way as we worked through the early drafts. In particular, we have drawn on the excellent research and clear presentation style of the South Pacific Council who have produced a range of manuals and learning aids to teach crew about the correct handling of longline caught tuna. The SPC gave us open access to the text and graphics contained in these works. We are grateful to SPC staff Michel Blanc, Aymeric Desurmont, Lindsay Chapman, Andre Capiez and Steve Beverley for their openness in this access, and for their invaluable feedback on the drafts.

Many people were involved in the production of this manual. In particular, we would like to thank the following:

Alan Snow for editing, Alistair Ewan Douglas, our technical specialist, for advice and comments;

Steve Slattery & Andrew Forrest, from Old DPI, for technical advice and comments;

Richard Stevens & Don Nicholls from WAFIC for advice on the PPPS and Australian Seafood Standard;

Ken Banwell from T & F, Hirayanagi San from Daiichi Suisan, Japan and Kaikoh in Perth, for pictures and comments on grading and translation of Japanese terms;

A number of fishermen assisted this project and we are grateful for their support and insight into current practices providing feedback and comments.

Paul Copeland and Richard Booker from Vinci Seafoods, Ray Davies from Ocean Wild Tuna, Pinny Pirrottina from Radar Holdings, Brett Taylor from 4 Seas, Michael Boschetti from Latitude Fisheries, Kim Newbold from Tohzai King

Gary Burke and Sam Blight for their artwork and design.

Tuna West (formerly The WA Pelagic Longline Association) were consulted along with the now defunct ECTBOA. Tuna West made a significant contribution through the time and resources of their Executive Officer, Geoff Diver

Background

Longline fishing operations at the individual level are typically low volume, high quality fisheries with individual fish sold on their own characteristics. For these reasons the maximising of the quality of each fish is of enormous benefit to the industry. Recent years have seen the development of more and more sophisticated food quality testing by purchasing countries as well as more stringent food safety regulations in Australia.

There have been a number of guides and handling manuals written for other tuna fisheries around the world, such as in Hawaii and the South Pacific. These were a great source of material for our research and the basis for our adaptation to Australian conditions for Australian fishers.

The WA and East Coast pelagic longline industries were active participants in a project similar to this that focused on the handling of broadbill swordfish. Like this project, the focus of the swordfish research was to maximise yields from existing catches. This project focused on the handling practices for tuna. The combining of the two research projects will provide a complete understanding of handling practices for longliners.

Need

Both the West and East Coast tuna fisheries have significantly increased production over the last 10 years. Overseas and national markets are increasingly requesting documentation describing the handling process. Further, these processes need to meet or exceed the market and regulator's expectations.

To date no documented process exists for best practice handling processes for tuna, at the catching point. Most documentation processes revolve around AQIS requirements for registered vessels and processing factories.

Furthermore this project recognised the need for fishers to understand the basic principles of food safety and safe handling practices, through chilling, cleaning, hygiene principles and the relationship between these and fish quality and regulations governing this. These principles form the basis for HACCP, AQIS export regulations, Australian Seafood Standard and the PPS as well as various importing country requirements. The manual is not the definitive, prescriptive source of complying with these standards. The aim was to introduce fishers to the principles involved in meaningful terms and practices.

Objectives

The objectives as they appeared in the original application follow.

1. To compile a manual of best handling practice for the tuna longline industry
2. To conduct extension fieldwork to disseminate this information directly to the crews of longline vessels and staff of processing facilities
3. To promote the process to domestic and international tuna buyers

As we worked through the project, the tuna industry, particularly in WA, underwent a major decrease in fishing activity, due to economic circumstances. For this reason the planned extension objective was not continued. At the time of printing the manual, there were only 3 active operators in WA. The manual has been sent to all active operators (based on AFMA records) on the West & East Coast, as well a number of processors & buyers.

Methods

Objective 1: To compile a manual of best handling practice for the tuna longline industry

Phase one from application: *A literature study will collect all pertinent scientific and technical articles available on tuna handling practices and these will be reviewed.*

This was undertaken by a search of available material from a number of sources. Various documents and manuals were gathered, as well as facts on standards, food safety guidelines and other relevant material. Geoff, Erica and Cheryl identified relevant sections to use as reference material according to the criterion specified by Erica in the planning of the manual. Areas requiring modification and further research were identified and allocated to the members to follow up.

Phase two from application : *Observations of the fish handling techniques of boat crews, processing plant staff, and freight handlers will be made by a qualified food technologist. This will include observations in ports, in processing plants, interviews with boat crews and plant staff, boat and plant inspections, and the following of one consignment to the end market in Japan by the investigators.*

Visits to Fremantle and Geraldton were made by Geoff, Cheryl and Erica to examine various styles of longliners in the fishery. These visits also incorporated owner, skipper and crew interviews on current practices and flows of work on the deck. Areas of difference were identified and summaries of these differences were sent out to various operators for clarification. The final stage of following a consignment to Japan was not undertaken at the research stage due to Cheryl's pregnancy. Communication with the buyers was undertaken by Erica to ascertain their needs and in particular identify the sources of and names of various problems with quality. One trip to Japan was undertaken at the completion of the project to distribute the manual to buyers.

Phase Three from application : *Information from the above phases will be synthesised into a manual of best handling practices, and a formal documentation process that will allow all involved in the food handling process to trace each animal back to the boat and location where that animal was captured.*

A draft manual was developed as a starting point. It was refined by a number of editors and advisers.

Documentation was developed after ascertaining the criteria required from a food safety point of view, regulatory point of view and importantly a practical point of view. It was important to include documentation that was not an added burden to skippers but one that was complementary and supplementary to their existing on board records. Many fishers complete not only AFMA documentation, such as log books, but also their own fishing and boat logs. We tried to incorporate these needs into the documentation, as well as ensuring that only relevant and meaningful data was collated. We were very aware of not impeding the fishing process and making it too difficult to gather data, which we believed would hinder the uptake of the documentation process. Once again the documentation provided in the manual is designed not to be definitive or prescriptive. Templates have been provided and are available in MS Word form for fishers to adapt to their own style and enhance their existing record keeping.

Objective 2: To conduct extension fieldwork to disseminate this information directly to the crews of longline vessels and staff of processing facilities

From application: Once reviewed and edited, trials of the manual will be carried out with a sample number of boats, and with the packing/processing staff of the applicant. The manual will then be published and taken to Fremantle, Geraldton and Albany in a workshop format for boat crews and processing plant staff. The workshops will be conducted by a food technologist, and the WAPLA EO. The promotion of these workshops was outlined previously

A number of versions of the draft manual were supplied to various fishers and technical advisers for comments and feedback. This feedback was incorporated into the manual accordingly. A number of points were identified that needed clarification and this was sought from fishers and technical specialists according to the area involved.

The second part about workshops was not undertaken due to the lack of active fishers in WA as explained earlier.

Objective 3: To promote the process to potential buyers

From application: The concepts and products developed will also be promoted to domestic and foreign buyers by the applicant. It is anticipated that this will involve the development of a unique "product branding" for tuna handled in accordance with the outcomes of this project.

The finished manual was hand delivered to a number of buyers in Japan. A positive response was received from these buyers. Some key traders in Australia have also been sent copies of the manual.

The concept of 'product branding' has not been carried through due to the lack of fishers in the fishery. This area could be further developed subject to the uptake in the East Coast Fishery at a later stage or as a later project.

Results/Discussion

The results of the project are incorporated in the final output, being the manual itself. The manual has been developed to be read as a 'plain english' guide to all facets of the on board handling of fish.

The preferred format for distribution to industry and buyers was in the form of a soft cover A4 book. The manual ran to 80 pages (front & back). Artwork was designed by Sam Blight with page layouts created by Gary Burke. Both were recommended by Geoff Diver as they had worked on the WTBF Code of Practice. Full colour printing was required due to the pictures of tuna flesh conditions being included. Gary Burke arranged 3 printing quotes and after some negotiation on price and quality we were able to select a printer they had previously used and had good production processes at a reasonable price, albeit more than we had budgeted for. Two colour proofs were generated prior to printing a run of 500 copies.

Benefits

The main beneficiaries of this project are the fishers in the longline industry. They now have a comprehensive best practice manual to use as a guide for their own operations. Furthermore the manual has been developed to be used as a training guide for new and existing crew as our experience has been that training in safe food handling and catch handling has been very limited and mainly anecdotal and passed on by other crew often without formal training. Longline operators spend time training crews in Occupational Health and Safety, but very little, if any on personal hygiene and safe handling practices. It is envisaged the manual will help make such training more widely undertaken.

One of the keys to aid training is the explanation of some of the underlying principles of quality, hygiene, cleaning and refrigeration, i.e. how the chilling process works, what is the difference between cleaning and sanitising. The aim is to explain the principles to encourage understanding of the principles and processes to enhance understanding of the recommended practices.

Another major benefit of the manual is the inclusion of a fairly comprehensive list of terms used to describe various quality issues. As most product ends up in Japan, often Japanese terms are used to describe problems. Translation and descriptions of these terms, along with some photographs is incorporated. Furthermore these issues were categorised as biological or handling issues. The aim is to translate some of the feedback from buyers and try to ascertain how the problems occur and importantly what action can be taken to prevent them occurring. From a Japanese buyer's point of view, communication of these quality issues to fishers in Australia should be enhanced by this list of terms. Together buyers and sellers should be able to enhance the quality of fish going to market, through better practices and better selection of fish prior to export, hopefully leading to better returns to fishers.

Further Development

Some suggestions to enhance the benefits of the manual include:

- Development of a training video/DVD to demonstrate the handling practices in action. Would be useful as a training tool and a visual reinforcement.
- Development of the manual recommendations into a formal training program as a unit in the Seafood Industry Training Program. This would enable formal accreditation and recognition of the skills learnt by crew, an area very much lacking in crew on all types of fishing vessels.
- A series of workshops could be implemented to train crews. However it is very difficult in the longline industry to gather crews and skippers together at any one time due to the nature of the industry, being no 'off seasons'.
- Perhaps use the manual as a training guide for fishers in developing tuna fisheries around the world as part of Australia's program of educating and training other nations in fisheries management and practices
- Take the manual to a formally recognized 'branding' or accreditation level. This would involve both industry and government involvement, including many agencies agreeing on an acceptable standard and protocol. In the current environment of poor commercial returns I am not sure that industry would embrace this due to lack of funds for developing the branding. It would require significant co-ordination and investment from Government.

Planned outcomes

The project's output is the manual itself. The manual also incorporates documentation templates for use by industry to improve their record keeping and document safe handling. This documentation allows for traceability and identification of problems in handling, such as poor chilling due to mechanical failure in a timely fashion. This should enable fishers to minimise quality problems through rapid remedial action.

The manual has been designed as a training tool to educate skippers and crew about optimal handling practices. This will hopefully lead to improved handling and quality, and ideally better returns for fish, (as always subject to the whims of the market!!). This should then meet the planned outcomes of the project.

Conclusion

The manual has been distributed to current active industry operators for immediate use. This satisfies our main objective of the project in producing a manual for industry. The second objective of undertaking workshops has not been achieved due to the downturn in activity in WA. The final objective of distributing the manual to domestic and international buyers should lead to better communication between buyers and sellers in identifying and managing fish quality issues. It is hoped the manual will also instill in buyers a sense of 'good intentions' on behalf of industry, in that we take fish quality issues seriously and are striving for optimum quality at all times.

Finally it is hoped the manual will be used as a training guide for crews and skippers for the continual improvement of their on board handling techniques and continual quality improvement.

References

A full list of references is included in the manual and is also reproduced here:

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Food Safety Program: *'Seafood Processors Pty Ltd'*
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Handbook for On-board Handling of Fresh Fish.
The Western Australian Quality Finfish Guide
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Appendix 1:

Intellectual Property

No clear intellectual property has been identified.

Appendix 2:

Staff

See the manual, (Foreward and Acknowledgements) for a list of people involved with this project.

Appendix 3:

Distribution List

INDUSTRY- East Coast	AFMA- current operators	approx 80 operators, single/multi vessels.
INDUSTRY- West Coast	Ocean Wild	By hand
	Radar	By hand
	Latitude	By hand
	Kim Newbold	By hand
	Ian Ricciardi	Ricciardi Seafoods
	Ocean Wild	Jenny & Universal
	Nick/Joe	Vinci Seafoods
	Gary Kennedy	Albany
Processors	Gary Bevan	C- Gary Kennedy
	Universal Seafoods	C-Ocean Wild
	Colin Marshall	Sea - ex Sydney
	De Bretts	C- Afma mailing
	4 seas	C- Afma mailing
	Great Barrier Reef Tuna	C- Afma mailing
	IOFA	
Overseas Buyers	John & Mitch	Boston
	Kanechu Foods	Japan
	Nippon Suisan	Japan
	T & F Company	Japan
	Daichi Suisan	Japan
Domestic Buyers	Martin	Sealanes- Perth
	David Catalano	Catalanos-Perth
	Nick Geralis	Saltwater Seafoods- Melb
	Tom A	Angelakis Bros - Adelaide
	Tony Bull	Kailis Bros. Pty Ltd- Perth

Distribution List-cont'd

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	John Kalish	Bureau of Rural Sciences, Dept of AFFA
	Patrick Hone	Executive Director, FRDC
	Cheryl Hughes	Facts on Food
	Ian Cartwright	Thalassa Consulting Pty Ltd
	Steve Bolton	AFMA
	Anthony De Fries	Executive officer - WTBF MAC
	Mr Kaino	Kaikoh Perth
	Alan Snow	Seafood Services Australia
	Dr John Sumner	Workshop on Tuna Handling
	Steve Slattery & Andrew Forrest	Senior Seafood Technologist, DPI Qld & researcher on Swordfish project
	Rob Fish	Tasmanian Seafoods P/L
	Lindsay Joll	WA Fisheries
	Edwina Clowes	RIRDC National Coordinator, Rural Women's Award
	Damien Trinder	Pelagicus Perth
	Lucas Woolford	Sydney Fish Markets
	Greg Waller	WA AQIS
	Alistair Ewan Douglas	Japan
	Steve Beverly et al	Secretariat of the Pacific Community
	Grant Hunt	Austrade Japan
Geoff- by hand:	WAFIC	Richard Stevens, Carl etc
	AFMA	Andrew Townley
	CSIRO Library	Marinelle Basson
Electronic Dist	SSA Website	Available as download or hard copy
	IOFA Website	Link to SSA website, download templates
Libraries	National Library	Canberra
	CSIRO Library	Tasmania
FRABs	Mr Ian Cartwright	Cwlth Research & Environment Committee
	Prof Derek Anderson	NSW Fisheries Research Advisory Body
	Mr Richard Sellers	NT Fisheries Research & Development Advisory Committee
	Dr Burke Hill	Qld Fishing Industry Research Advisory Committee
	Mr Richard Stevens	SA Fisheries research and development Board
	Mr Tony Ibbott	TAS Fisheries Research Advisory Board
	Ass. Prof. John Sherwood	VIC Fisheries Co-management Council
	Mr Angus Callander	WA Aquatic Resources research and development Advisory Committee