Seafood Airfreight Packaging Strategy:

A Series of Consultative Forums



Project 97/401



A Report Detailing the Issues and Recommendations from Two Consultative Forums held in May and June 1997

Prepared for:

The National Seafood Centre

August, 1997

ACKNOWLEDGMENTS

The Forum organisers would like to express their appreciation to the following organisations for their contributions to the Melbourne and Brisbane Packaging Forums.

- Fisheries Research & Development Corporation
- National Seafood Centre
- The Australian Seafood Industry Council SeaQual Program
- Business Victoria
- Centre for Food Technology
- CRC for International Food Manufacture & Packaging Science
- Domestic Airlines Seafood Airfreight Committee
- Ansett Australia/Ansett Air Cargo
- Qantas

DISCLAIMER

This report has been prepared by Pacific Seafood Management Consulting Group (PSM) for the National Seafood Centre (NSC) with the objective of providing assistance in the development of enhanced packaging and handling for the airline transport of seafood. Neither PSM or the NSC accept any liability or responsibility whatsoever for any of the information contained herein. No part of this report may be included in any other document, circular or statement to a third party without prior approval of the form or context in which it appears.

CONTENTS

1.	Intro	4						
2.	Foru	6						
3.	Foru	Forum Format						
4.	Diffe	Different Perspectives						
	4.1	4.1 The Seafood Industry Perspective						
	4.2	The Airline's Perspective	7					
	4.3	Packaging Technologies	9					
5.	Foru	Forum Conclusions						
6.	Actio	10						
	6.1	Improving the Acceptance Process	10					
	6.2	Streamlining the Seafood Packaging Regulations	11					
	6.3	Developing A Co-operative Monitoring System	12					
	6.4	Establishing the Information Flow	13					
	6.5	Conducting Appropriate Training	14					
7.	Immediate Outcomes 1							
8.	Maintaining the Momentum: A Report Card							

Appendices

Appendix A: Forum Participants Appendix B: Forum Presentations Appendix C: Work Group Summaries

Prepared by PSM Group

Page

1. INTRODUCTION

Each year the Australian seafood industry exports in excess of \$350 million worth of perishable (live or chilled) seafoods to Asia alone. It is an industry where value adding often means 'delivery alive or ultra fresh', and as a consequence, it is highly dependent on effective air transport.

In any one year it likely that 40,000 tonnes of perishable seafood will be transported domestically, or depart from Australian airports by air. This is a significant volume by any standard.

The vast majority of this product reaches its destination on time and in the condition intended, however, because of the scale of this trade, problems do exist. These problems affect both the seafood industry and the airlines, although in different ways. Avoidable costs are estimated in the tens of millions of dollars annually.

The report by House of Representative's Standing Committee on Micro-economic Reform, Communication and Transport 'Jet Fresh - Paddock To Plate' considered impediments to effective airfreight of Australia's perishable exports as an issue of national importance. The report recognised the work being undertaken by SeaQual and the PSM Group and included in its recommendations that other industries should follow the example set by the seafood industry in developing through-chain quality (service) agreements between airlines and industry.

In June 1996, an Australian Seafood Exports Airfreight Program (jointly funded by the Commonwealth Department of Primary Industries and Energy and the ASIC SeaQual project) was established in collaboration with the National Seafood Centre (NSC) and Pacific Seafood Management Group (PSM). The program aims to improve the airfreight distribution system for perishable seafood exports thereby ensuring that a quality product leaving Australia is delivered to the customer in the best possible condition.

At a meeting in September 1996, representatives from the key sectors involved in airfreighting seafood (including major seafood exporters, the airlines, freight forwarders, researchers and the Federal Government) identified a range of issues which need to be addressed. One of the highest priority areas identified was that of packaging and handling. Responses to a survey of airlines, freight forwarding companies and seafood exporters also identified problems in the packaging and handling as one of the most important and pressing issues.

A major concern of the airlines is the continuing incidence of seafood related spills in aircraft cargo holds, particularly in narrow bodied aircraft commonly used on short haul domestic sectors. Salt water corrosion resulting from these spills represents significant cost to the airlines through repairs to damaged airframe structures, extended turn around times, and aircraft 'down time'.

Studies by the airlines have shown that this situation is a result of a combination of **packaging failures** and **inappropriate handling practices**. Most of the spills occur on

narrow bodied aircraft commonly used by the domestic carriers - particularly Ansett which carries about 75% of seafood airfreighted domestically. Spills are not normally an issue with wide bodied or containerised aircraft such as those used on most international routes. However, airfreighted seafood exports typically have a domestic airfreight component (eg. the Hobart to Sydney leg) so the issue relates to both domestic and export product.

From a seafood industry perspective, packaging needs to be cost effective, easy to use and transport, and capable of maintaining a suitable environment for the product while travelling to market and to satisfy the need of customers. Thus a wide range of packaging methods and materials are currently used to meet the needs of the various product forms.

Statistics collated by the airlines indicate that the use of unsupported expanded polystyrene (EPS) packaging is of particular concern. As a consequence, the airlines developed a timetable for the removal of all current approvals for unsupported EPS packaging, to be effective from 1 July 1997. Several options for replacement packaging have been explored by the airlines, but to date, this has been done largely without input from the seafood industry.

Resolving packaging and handling problems requires a co-operative effort by all parties in the distribution chain. During a meeting with the Domestic Airlines Seafood Airfreight Committee it was agreed that action would not be taken without formal consultation with the seafood and packaging industries. Subsequently two consultative forums were undertaken. More than 120 people were in attendance with representatives from all of the sectors (including packaging manufacturers).

The majority of the funding for the forums was provided by the Fisheries Research and Development Corporation through the National Seafood Centre (NSC). Financial support was also provided by Business Victoria. Additional *in-kind* support was provided by the domestic airlines, through the Domestic Airlines Seafood Airfreight Committee, which comprises representatives from Ansett, Qantas and Australian Air Express, SeaQual and PSM Group.

This report describes the consultation process followed in the forums, the conclusions reached and an action plan for implementing changes to the current systems. finally a process is proposed for ensuring that there is a reporting and feedback loop built in to the implementation process.

The outcomes of the forums integrate well with the existing Airfreight Program and provide the first step in the development of an agreed, cross-sector packaging and handling strategy for airfreighted seafood, aimed at minimising losses for both the airlines and the seafood industry. It is important that the momentum which has begun through these forums is maintained.

2. FORUM OBJECTIVES

The objectives of the forums were to:

- provide an input into the revised 'Domestic Airline Regulations for the Packaging of Seafood for Air Transport in Australia' and to seek consensus on the changes which need to be made to current packaging and handling practices for seafood airfreight;
- agree on a process for the approval of packaging materials and methods for airfreighted seafood;
- agree on a timetable for changes to the Regulations and revised packaging approval process;
- determine research priorities and directions for future packaging developments.
- establish permanent seafood industry representation on appropriate airline/industry committees; and
- identify training needs in relation to packaging and handling.

3. FORUM FORMAT

The two forums were held in Melbourne and Brisbane during May and June 1996. Brisbane was chosen as being most central to northern and south-east Queensland as well as New South Wales, and Melbourne was chosen as it is a major hub for Victoria, Tasmania and South Australia.

Invitations to the forums were sent to key personnel in the airline, packaging and seafood industries, as well as to researchers and government officers identified by the Australian Seafood Exports Airfreight Program, and from lists provided by industry organisations. To maximise participation, each forum was limited to 60 people. A list of the participants at both forums is provided in Appendix A.

Speakers were asked to provide different perspectives on the subject of packaging and handling perishable seafood for airfreight. Summaries of these presentations are provided in Section 4 below. Full copies of the speakers presentations are provided at Attachment B.

Small workgroup discussions were then held on the topics of:

- Box design -To focus on the testing and material specifications set out in the Regulations.
- Airline Acceptance Policy -To focus on the acceptance procedures and policies at airport terminals.
- Packaging Approvals Process To focus on the approvals process which the airlines have developed in the Regulations
- Handling Protocols and Training To focus on the approved packaging methods which the airlines stipulate in the Regulations, to consider industry uses of and needs for packaging materials (such as coolants, absorbents, etc) and to examine training needs of the airlines and seafood industry.

Representatives from each sector of the airfreight chain were involved in each workgroup. Each workgroup presented a summary of the main issues discussed and their recommendations for future action. An open forum session followed after all work groups had completed their summaries. Summaries of each of the workgroups in Melbourne and Brisbane are provided in Attachment C.

4. DIFFERENT PERSPECTIVES

4.1 Seafood Industry Perspective

Effective air transport is the key to seafood's export future.

Each year the Australian seafood industry exports \$400 million in perishable (live or chilled) seafoods to Asian markets alone. It is an industry where value adding often means delivery alive or 'ultra fresh' and, as a consequence, it is highly dependent on effective air transport.

Although the vast majority of the product reaches its destination on time, and in the condition intended, problems do arise and because of the scale of this trade, losses can be measured in millions of dollars annually.

The seafood industry has few options in reaching its export markets. Total transit time for live and 'ultra-fresh' seafood, from 'trawler to table', is measured in hours generally less than 20 hours for most Asian markets. After this, the increased risk of mortality among live seafoods becomes untenable, and post-mortem changes in chilled seafood products begin to significantly reduce their value.

Correct packaging, which provides an appropriate 'in-transit' environment for products and which minimises the external effects of transportation has been identified as an urgent priority.

Combined with the logistical functions of matching cargo space with suitable schedules and the actual carriage of product, air transport is probably the most important element of the Australian seafood industry's value adding strategy - the key to future growth in what is currently the nation's fifth largest primary industry.

4.2 Airlines Perspective

- The core business of the airline is carrying passengers.
- Aircraft designers and manufacturers make aircraft for airlines to carry passengers and luggage they probably gave almost no thought to carrying freight that might be corrosive.
- The materials of modern aircraft are very intolerant to corrosive leakage from seafood transport.
- Seafood producers have become very accustomed to and dependent on the air transport of the produce because of the speed of delivery.

- Poly or EPS boxes appear, at this time, to be favoured by the seafood industry for the majority of their transport by air, but poly-boxes are not as robust as the airlines would like.
- The conditions of transport by air can stress packaging more severely than other modes of transport, however, the airlines really cannot afford spillage from any seafood package because it is too costly.
- The Airlines are unsatisfied with the standard of many of the packages that are consigned at this time.
- The production boxes can not sustain these maximum loads when actually sent by air and subject to the rigours of multiple handling in less than ideal circumstances such as those involved in loading narrow bodied passenger aircraft

The Seafood Regulations used by Ansett, Qantas, Australian Air Express, and Ansett Air Freight have been in existence for nearly ten years. The current document was first issued in 1988 as a set of Guidelines for the industry. Subsequent issues in the 1990s saw them called Regulations.

The document is divided into three parts:

- 1. The Regulations
- 2. The package performance Schedule (Appendix A)
- 3. The approved packages (Appendix B)

The package approvals section currently lists over 175 approvals of differing types of packages, 80 of these are unsupported EPS boxes; definitely the favoured form of packaging for its low cost and insulation properties. To address the continuing problem of packaging failures the airlines are proposing the following major changes to the Regulations:

- Appendix A specifies the performance testing of the packaging that the airlines have approved for use for transporting seafood. It has been changed to reflect a tighter testing regime which includes a requirement for EPS boxes to be tested at a weight 10% greater than the approved weight.
- The use of absorbent pads in the packages have been defined Appendix A. The use of the new polyacrylate absorbents in the bottom of seafood packages will help to eliminate spillage.
- A section dealing with Passengers Carrying Seafood has been added.
- Special notes about the necessity to adequately drain crayfish, mud crabs, prawns etc. have been added.
- A bag film thickness of 75 micron minimum has been specified
- To minimise the number of approvals EPS boxes will be approved for 5, 10, 15, 20 and 23 kg increments. A mass of 23 kilograms is deemed to be the maximum (as it corresponds to the limit for one person to lift).
- Packing method 9 has been updated to show the requirements for large boxes for live fish.

- Packing method 10 describes the novel packing method used for especially valuable species of prawn.
- A method of checking consignments of seafood has been developed for freight acceptance staff. An example of the checklist is on page 41 of the Regulations.

4.3 Packaging Technologies

The airfreight export of seafood may involve as many has 15 to 20 separate handling operations from the point of packing by the exporter to the point of receival by the customer. Given that, it is not surprising that the 'seafood box' must have some special qualities if it is to maintain its integrity throughout the transport operation.

The important properties of a seafood box include:

- Size/weight
- Identification (labels and orientation)
- Strength (impact, shear, compression, expansion)
- Durability (water, handling, heat, cold)
- Integrity
- Recyclability

The perfect container for seafood may well be a sealed stainless steel 15kg gross container with the insulation characteristics of a thermos flask. However, commercial considerations dictate that this is not the answer. Research and development must continue if we are to find commercially viable options.

5. FORUM CONCLUSIONS

- ⇒ Approvals should be based on packaging systems rather than simply the box. (ie. this includes taping, absorbent padding, ice/gelpacks, liners, etc.)
- ⇒ Approved packaging systems should meet agreed <u>performance criteria</u> which allows for easier entry of new technology into the system.
- ⇒ An information database and associated feed back mechanisms should be established to incorporate all relevant packaging and handling data (not just spills).
- ⇒ Testing procedures should be designed to test compliance with performance criteria which are not overly prescriptive.
- ⇒ Approvals should be issued by a third party independent body based on performance testing, auditing, monitoring and reporting.
- ⇒Minimum service standards should be incorporated into each level of the handling chain.
- ⇒ Based on wider industry consultation and the use of a database information system, the training needs and delivery mechanisms should be established for all sectors of the airfreight chain.
- ⇒ Communication with wider industry and between industry sectors and researchers should be enhanced to ensure responsiveness of the system and its continuous improvement. A broad base consultation process should be formalised.

6. ACTION PLAN

Based on the discussions and conclusions reached at both forums, an action plan designed to assist the establishment of facilities and processes which meet the minimum requirements for the maintenance of quality in perishable seafood during air transport has been developed. Successful implementation of this plan will require all sectors involved in the production and distribution chain to work cooperatively and to commit to fulfilling their roles and responsibilities.

Improvements have already been evident as a result of enhanced understanding and communication from the forums. This momentum must be maintained. Areas for immediate action and those which will require further discussion and/or work to implement have been identified as follows:

6.1 Improving the Acceptance Process

It was agreed that the airline acceptance process is in need of streamlining and simplification. This could be achieved by establishing service agreements between seafood companies and airlines, implementing a fast-track acceptance system and amending the existing Seafood Checklist. Preventing the use of second hand boxes (which is currently difficult to monitor) could also be achieved through the use of service agreements.

Under such agreements, seafood companies undertake to comply with packaging regulations including the use of approved packaging systems. As a result they would be entitled to use an abbreviated Seafood Checklist which would show their service agreement number, and include a declaration that conditions of the Agreement have been met for that particular shipment.

The airline, for its part, would agree to accept the consignment with minimal scrutiny (eg. only a visual check for breakages or leaks and occasional random weight check.) Boxes would NOT be opened for inspection. This should ensure minimal handling and delay through the terminal to ramp staff. The airlines might also (as part of the agreement) undertake to apply any consequent time saving to more sensitive handling of consignments (supported by training of handling and ramp staff).

One incentive for the Service Agreements is the fast tracking of consignments which would minimise handling and in turn reduce the opportunity for problems to occur. There is also potential to negotiate differential freight rates. Any violation of the Service Agreement discovered during random checks or auditing, could result in cancellation of the Service Agreement and the need for re-accreditation. There are potential legal issues for both the airlines and the seafood company involved which would need to be investigated (recognising that there are legal questions concerning responsibility and accountability in the current system).

The 'green line' system would operate in parallel with the existing full check system ('red line') for companies without a current Service Agreement.

In the short term, the current Seafood Checklist should be reviewed to reduce the amount of information required, particularly in those instances where the information is provided on other documentation. The checklist is potentially a valuable source of data for a monitoring system.

Immediate Action:

- The Domestic Airlines Seafood Airfreight Committee to develop and implement a revised checklist which takes account of the suggestions provided in Attachment C of this report and the need to develop an effective monitoring system.
- Airlines to establish a register of approved seafood industry clients as an interim measure prior to the development of a "green line" system. A reduced inspection rate should accompany listing in the register.

Further Action:

- To develop and implement a "green line" and "red line" system including an assessment of potential legal implications and an assessment of the incentives, rewards and penalties.
- ◊ To develop and implement a Service Agreement to assist the implementation of the "green line" system.

6.2 Streamlining the Seafood Packaging Regulations

It was agreed that there are currently too many approved box types which complicates both the approval process and the acceptance policies and procedures.

To minimise the need for future amendments to the regulations and to ensure continuous improvement and innovation, the airlines should move towards a more performance based criteria for packaging. Packaging system design should consider both the nature of the product being carried and the requirements of the shipper and receiver. Airlines and seafood companies should therefore cooperate to develop and document a set of packaging performance criteria which encompasses their mutual requirements for those systems.

The range of issues which would need to be addressed include, but are not limited to: wet strength; recyclability; waterproofing; internal structures; tape colour; and the use and type of polyethylene liner bags and absorbents.

The regulations should seek to test the adequacy of the 'systems' rather than detail the material specifications and packaging methods. For instance, the regulations should not prescribe the methods for achieving water resistance in fibreboard packaging. Implicit in this approach is the need to develop performance criteria based on a thorough analysis of current problems.

It was widely agreed that responsibility for the administration of the packaging approvals process should lie entirely with the airlines. Testing should be done by NATA approved laboratories, and ongoing QA auditing (to an agreed standard) should be undertaken by a third party.

This approach should be flexible enough to enable new materials and packaging innovations to be introduced quickly. This would be unlikely to happen under the current highly prescriptive based system.

Immediate Action:

- Airlines need to specify performance criteria for whole packaging systems and agree on the tests and other sources of information which demonstrate compliance
- The packaging industry should be encouraged to develop and sell 'whole packaging systems'.
- Opportunities for collaboration between the CRC for Food and Packaging and the CRC for Aquaculture should be pursued.

Further Action:

- ◊ To investigate the feasibility of having a 3rd party (independent) body issue approvals and maintain audit systems.
- It incorporate as many visual cues as possible into packaging systems (eg a wall chart at the acceptance counter, coloured tape for box orientation, colour coding absorbency pads etc.)
- O To apply packaging standard to airfreighted seafood imported to Australia for carriage on domestic airlines.
- To facilitate the design and manufacture of packaging systems which account for the size and shape of the aircraft holds and to encourage airlines to continue to investigate methods and mechanisms which make handling easier within current constraints.

6.3 Developing A Co-operative Monitoring System

The development of performance based packaging systems is dependent on the establishment of appropriate performance criteria. Establishing in turn these criteria is reliant on an effective information data base and analysis of that data. Appropriate data base should include precise information on failures in packaging systems. Improvements in handling processes and the identification of communication and training needs are also dependent on having an adequate monitoring system in place.

Discussions at the forums highlighted the lack of accessible information about packaging failures. It was unanimously agreed that a formal monitoring and reporting system must be implemented. This should include identification of problems which occur at all points in the transport and distribution chain with particular reference to potential spillages (which were averted) as well as actual spillages.

To implement such a system the three sectors (airlines, packaging manufacturers and the seafood industry) need to co-operate to collect and share data (noting the need to maintain confidentiality). Data requirements include, but are not limited to:

- value and volume carried;
- packaging rejections at acceptance and receival points; and
- spill reports.

This information should be made as accessible as possible if commitment from all participants in the airfreight chain is to be obtained and continuous system improvements to be gained.

Immediate Action:

- Information currently collected by the airlines should be analysed and made available to the seafood and packaging industries.
- Airlines and packaging manufacturers should implement a customer feedback system to provide important data/information for all stakeholders interested in improving the airfreight system.
- Airlines, packaging manufacturers and the seafood industry should identify information needs, potential data sources and collection mechanisms.
- Airlines and packaging manufacturers should investigate ways by which trace back mechanisms can be implemented.
- Airlines should formalise a spill reporting system which includes consultation with all parties involved and feedback to all industry sectors (maintaining confidentiality) to enable continuous improvement to occur.

Further Action:

- To develop and implement an effective monitoring and reporting system concerning packaging failures which meets the information needs of the airlines, packaging manufacturers and seafood companies
- To establish an Internet homepage for data collection and information sharing on packaging failures

6.4 Establishing the Information Flow

Communication is the key to implementing an improved packaging and handling system for seafood airfreight. This needs to occur at a strategic industry level as well as at individual enterprise level. Improving links between all sectors of the airfreight chain (and researchers) is critical to ensuring that best practice is identified and adopted.

The establishment of a National Airfreight Packaging Council with high level representation the airlines packaging manufacturers, seafood industry and research and development organisations, could provide the appropriate structure for this. Furthermore, the Council could provide the mechanism whereby the seafood packaging and handling protocols and performance criteria could be agreed - based on the needs of both the airlines and the seafood industry - with reference to technological capacity. The Council could also manage the monitoring and reporting system and promote the development and implementation of minimum standards and service agreements.

A communication strategy could be developed to inform seafood companies of 'best practice' packaging technologies and to assist them in complying with the seafood regulations.

Immediate Action:

- The Domestic Airlines Seafood Airfreight Committee should develop a proposal for the establishment of a National Seafood Airfreight Packaging Council.
- The packaging and seafood industries should advise members of the proposal and seek commitment and representation.
- The airlines in consultation with the seafood and packaging industries should identify and use appropriate mechanisms to disseminate information about changes to the packaging regulations.
- Airlines, packaging manufacturers, the seafood industry and research and development organisations should develop a list of key contacts.

Further Action:

- ◊ To develop and fund an agreed work program for the National Seafood Airfreight Packaging Council
- ◊ To investigate the possibility of conducting regular (perhaps annual) consultative forums to discuss innovations in packaging technology, trends in industry requirements and potential amendments to packaging regulations. Consideration would also need to be given to how this would be funded.

6.5 Conducting Appropriate Training

Understanding the nature of the product being transported, how that product is to be transported, what environmental conditions it will be exposed to during the transport process and how the product is packed, is essential to improving the current seafood airfreight packaging and handling system.

Training should be nationally based and consistent in its objectives and process. Staff in all sectors should be aware of their roles and responsibilities and, in particular, any training program should recognise the use of temporary or transient staff. The focus should be on practical programs with flexible delivery mechanisms; encompassing both formal training courses (which may require staff to be absent from their normal jobs) and informal on-the-job training.

Training curricula development should be linked to the monitoring and reporting system, the correct use of packaging systems, explain the regulations and why they exist (eg that second hand boxes may look good but might be structurally unsound), include familiarisation visits, and product needs such as temperature control.

The potential roles that packaging suppliers could play in this area should be recognised. They could provide training and information to seafood companies on the correct application and handling of their products, which in turn, should improve customer satisfaction (and loyalty) and reduce the incidence of packaging failures.

Immediate Action:

- The Domestic Airlines Seafood Airfreight Committee should reduce the size of current documentation to a more manageable/readable level by focussing on packaging performance needs.
- The Domestic Airlines Seafood Airfreight Committee should identify and produce information items (eg charts and pamphlets) for wide distribution.

Further Action:

- ◊ To develop an easy to use guide to the airfreight packaging approvals and airlines acceptance processes
- To assess suitability of existing training materials (wall posters, newsletters, Internet) and develop specific seafood packaging and handling training curricula and materials
- ◊ To hold regular familiarity sessions for industry and airline staff (including acceptance, handling and ramp staff).
- ♦ To produce a packaging manual which includes the regulations and information about 'best practice', where to go for help and research and development activity.

7. IMMEDIATE OUTCOMES

While it was agreed that the airlines should move towards a performance based approvals system, it was also recognised that there is a need for interim arrangements.

It was agreed that the withdrawal of current approvals would be deferred until October 1997. Other agreed changes include:

- ⇒ New approval codes should identify approved gross mass and should be located on both the lid and the box base.
- ⇒ Absorbent pads should be labelled with capacity information with differences between fresh and salt water capacity being specified.
- ⇒ A specified minimum sample size should be provided for testing packaging systems for compliance with the regulations.
- ⇒ Two types of approvals should be investigated: one for product containing wet ice (including brine ice) and another for product containing other coolants such as gel packs.

8. MAINTAINING THE MOMENTUM: A REPORT CARD

It is important that having started the process of improving the system that the momentum is maintained. Many of the Forum recommendations will require significant further work to bring to fruition. Initially, it is proposed that a six monthly "report card" be issued by the Domestic Airlines Seafood Airfreight Committee detailing progress against the action plan.

Action	Airlines	Seafood	Pack.	Comments/
Implement changes to surrent demestic sector deinforielt	(DASAC)	Industry	Manuf.	timetable for
regulations			•	changes advised
Develop and implement a revised seafood acceptance checklist	1			
Establish a register of approved seafood industry clients	1			
Specify performance criteria for whole packaging systems	1	1		
Develop and sell 'whole packaging systems			1	
Pursue opportunities for collaboration between researchers eg the CRC for Food and Packaging and the CRC for Aquaculture		5	1	A meeting has been held between two CRC's
Analyse current data on spills and make available to other stakeholders	1			
Implement a customer feedback system	1		1	
Identify information needs, potential data sources and collection mechanisms	1	1	1	· · ·
Investigate ways in which trace back mechanisms can be implemented	1		1	
Formalise a spill reporting system	1			
Develop a proposal for the establishment of a National Seafood Airfreight Packaging Council	1			
Seek commitment to and representation on the proposed Council		1	5	
Identify and use appropriate mechanisms to disseminate information about changes to the packaging regulations	1			
Issue a list of key contacts	1	1	1	
Reduce the size of current documentation to a more manageable/readable level	1			
Identify and produce information items (eg charts and pamphlets) for wide distribution	1		. 1	

Only the immediate actions have been included at this stage as they can be implemented generally within existing organisations and/or frameworks. The proposed National Seafood Airfreight Packaging Council could use the future actions list as a blueprint for developing its workplan. Resource implications will be considered in that context.

Appendix A

MELBOURNE AND BRISBANE FORUM PARTICIPANTS

FORUM PARTICIPANTS

Lynne	Warn	FWD Abalone	Fiona	Cornwell	Agribusiness
Ian	Wells	National Seafood Centre	Stewart	Bain	Air Express International
George	Ganzenmuller	Amcor Fibre Packaging	Gavin	Sedgmen	Andpak Pty Ltd
Laurie	Higson	Ansett Air Freight	Greg	Riley	Aquatas Pty Ltd
Paul	McNeil	Ansett Air Freight	James	Archer	Archer Express
Terry	Pyke	Ansett Air Freight	Bob	Mitchell	Australian Customs Service
Brian	Johnston	AQIS	George	Deans	Business Victoria
Steve	Thrower	AUSEAS	Anne	McDonald	Business Victoria
David	Robinson	Aust Paper Functional Coating	s D	Gerlach	CASA
Liz	Evans	Aust Prawn Farmers Ass	Kees	Sonneveld	CRC for Packaging
Jayne	Gallagher	Aust Seafood Industry Council	Tim	Harding	Fisheries Victoria
Bruce	Goodrick	Centre for Food Technology	Julie	Thomas	FOODLIFE
Peter	Skarshewski	Centre for Food Technology	Sandy	McPherson	Frontier Industries P/L
Dean	Howard	Chillpak	Shane	Whittle	Nortas
Ian	Kearsley	Civil Aviation Safety Authority	Lawrence	Wong	Oceanic Australia Imports
Adrian	Panow	CRC for Food & Packaging	Arnold	Patch	Perishable Air Freight Tecl
Rob	Swindlehurst	DPI Fisheries	Tom	Haywood	Perishable Airfreight Tech
Sam	Сосо	Farm Fresh Sea Food Pty Ltd	Simon	Pickett	Polyfoam Australia Ltd
Martin	Campbell	Flexi-Foam P/L	Lou	Cara	Qantas Airways Ltd
Steven	Fairclough	Fremantle Fishermens Co-op	John	Furlong	Qantas Airways Ltd
Noel	Herbst	Gold Coast Marine Hatchery	Robert	Gregory	R.F. McLaughlin's
Wayne	Harrison	Insul-Box P/L	Mario	Huezo	R.F. McLaughlin's
Robert	Smith	Insul-Box P/L	Cor	Janson	R.F. McLaughlin's
Jim	Smith	Insul-Box P/L	Frank	Reitsema	Reitsema Packaging (Tas)
P.	Spackman	Long Plastics Ltd	L.	Kirk	RMax South Australia
Ian	Wells	National Seafood Centre	Ziggy	Schweiker	RMAX Tasmania
Sid	Pelling	Norfoam Australia	A	Gasparini	RMAX Victoria
Malcolm	Shelley	Ozsea Aquaculture Systems	D	Russell	RMax Western Australia
Phillip	De Ronchi	Polystyrene Industries P/L	Dale	Brvan	Seablest P/L
Reinhard	Goschiniak	Qantas Airways Ltd	Jason	McKenzie	Searaker Fisheries P/L
John	Griffiths	Qantas Airways Ltd	Phil	Cooper	TASSAL
Arnold	Snape	Oantas Airways Ltd	Branko	Tintor	Thermasorb P/L
Kylie	Paulsen	OCFO	Neil	Parker	Tommy Finn's
Martin	Perkins	ODPI	Mathew	Major	Total Freight
Bruce	Sambell	Old Fish Hatcheries Assoc'n	Karen	Campbell	Victorian Fisheries
Murray	West	Old Fishing Ind Training	Ross	Chiodo	Visy Board P/L
John	Blake	RMAX	Terry	Barrett	WDM International
Peter	Hopkins	Rmax	Graeme	Morrisby	Ansett Airfreight
Terry	Imrie	Rmax	David	Brennan	Ansett Australia
Mike	O'Brien	RMAX	Paul	Gething	Ansett Australia
Brian	Vernon	Seafarm P/L	Iohn	Vietz	Ansett Australia
Rod	Darnett	Thermarite Pty Ltd	Martin	Thompson	Australian Air Express
Dick	Lee	Transed Pty Ltd	Paul	Dumais	Oantas Airways Ltd
Greg	Johnson	Visy Board P/L	Laurie	Willoughby	Qantas Airways-Ltd
Wayne	Dunne	Visy Board packaging P/L	Murray	Roebuck	RMAX Central
Rod	Johnson	ADL Seafood Group			14
Margi	Smith	ADL Seafood Group			

Appendix B

FORUM PRESENTATIONS

1. The Seafood Industry Perspective

Norm Grant, Facilitator of the Forums and Director of PSM Consulting Group

2. The Airline's Perspective - Part A

John Vietz, Controller Materials Engineering, Ansett Australia

3. The Airline's Perspective - Part B

Terry Pike, Materials Engineering, Ansett Australia

4. Centre for Food Technology Perspective

Bruce Goodrick, Senior Food Technologist at the Centre for Food Technology.

5. Food & Packaging CRC Perspective

Adrian Panow, Business Manager of the Food and Packaging CRC.

1. The Seafood Industry Perspective Norm Grant, Facilitator of the Forums and Director of PSM Consulting Group

Effective Air Transport - The Key To Seafood's Export Future

Each year the Australian seafood industry exports \$400 million in perishable (live or chilled) seafoods to Asian markets alone. It is an industry where value adding often means delivery alive or 'ultra fresh' and, as a consequence, it is highly dependent on effective air transport.

Most of Australia's capture fisheries are now under strict management and have reached sustainable levels of production. Although there are some opportunities for growth in production volumes, the emphasis is now clearly on adding value to the catch.

Production growth in Australian aquaculture is likely to be very significant in years to come (passing capture fisheries production by 2005) but due to the generally high cost of culturing and farming most species, adding value to the harvest is essential.

However, unlike many industries which add value through manufacturing, adding value to seafood more often means 'simply' preserving its original condition all the way to the market place. The most obvious example of this is seafood which is sold alive, although 'ultra-fresh' chilled fish now represents a significant proportion of our seafood exports.

This process, of course, is far from simple. It requires the application of complicated technologies in relation to the physiology of the animals, their in-transit environment, and handling practices along the distribution chain.

In 1994/95, the unit value of seafood exported by air was around \$20 per kilo. Compare this with fruit and vegetables at around \$2 per kilo; meat at around \$6.50 per kilo, and even cut flowers at around \$8.00 per kilo, and the importance of effective air transport to this high value trade is obvious.

At the same time, seafood is a major contributor to the air cargo industries of Australia. In any one year it is estimated that 50,000 tonnes of seafood will be transported domestically, or depart from Australian ports, by aircraft - a significant volume by any standard. As a rule, seafood pays the highest rate of these main commodity sectors, but that higher rate also generally means seafood gets priority when it comes to space.

Although the vast majority of the product reaches its destination on time, and in the condition intended, problems do arise and because of the scale of this trade, losses can be measured in millions of dollars annually.

Efficient air transport is particularly relevant to seafood. Many perishable commodities such as fruits and vegetables have sufficient shelf life to enable storage at critical points in the distribution chain, mitigating some of the capacity and scheduling problems which arise. In many cases, overall time through the distribution chain is also less critial. In fact, some of these industries may be able to take advantage of other transport systems, such as fast shipping, in the future.

The seafoood industry, however, has few options in reaching its export markets. Total transit time for live and 'ultra-fresh' seafood, from 'trawler to table', is measured in hours - generally less than 20 hours for most Asian markets.

After this, the increased risk of mortality among live seafoods becomes untenable, and post-mortem changes in chilled seafood products begin to significantly reduce their value.

Correct packaging to provide the appropriate in-transit environment for products and minimise the external effects of transportation, and sensitive handling by all those in the through chain, have been identified by the industries involved as an urgent priority.

Combined with the logistical functions of matching cargo space with suitable schedules and the actual carriage of product, air transport is probably the most important element of the Australian seafood industry's value adding strategy - the key to future growth in what is currently the nation's fifth largest primary industry.

2. The Airline's Perspective - Part A John Vietz, Controller Materials Engineering, Ansett Australia

2. The Airline's Perspective - Part A

A new Boeing 767 today costs about \$120-130M, depending on options. A B737 is about half that price, and an Airbus A320 slightly more than half this. We expect our aircraft to be in the air for 10 to 15 hours per day, every day for 3 or 4 years between major overhauls, and to have an economic life of 20 or so years. Each major overhaul after 3 or 4 years may take 5 or 6 weeks and cost in the region of \$1 million.

The inside of an aircraft gives little indication of the structure behind the facade, and few passengers give it much thought.

Underneath those decorative linings are frames, stringers and skin made of high strength aluminium alloy which is considerably stronger than mild steel and one third the weight. Not only does the structure keep the wind out but the fuselage is a big pressure vessel, made as light as possible and subjected to a differential pressure of about 6 to 8 psi at altitude. Under the floor, in the area where the baggage and cargo goes, it is similarly complex.

Because it is typically minus 45° C outside, the fuselage is lined with insulation blankets against the skin to make it comfortable for the passengers. These, of course, can add to our corrosion problems by holding fluids against the structure.

High strength aircraft aluminium alloys are typically twice the strength of the 'boat' alloys; the down side is that although strong, they are extremely susceptible to corrosion, even from very dilute salt solutions, such as one might expect from almost any seafood shipments if they leak.

Repairing or replacing corroded structure accounts for between 15% and 30% of our overhaul costs. Say, \$150,000 to \$300,000 at an overhaul every 3 or 4 years. Often major unscheduled work is necessary and can delay the return to service of an aircraft by weeks, which is also costly.

Once one spill has occurred, condensation, which occurs every flight, is enough to keep corrosion progressing. The sudden discovery of this can lead to significant flight cancellations and the need to bring aircraft in for repairs out of schedule. These cancellations really upset the Engineering Director.

Sometimes 2 or 3 metres of skin must be replaced. The concern is that all these items are highly stressed structure. Its not as simple as just riveting a patch over the area. It would take a couple of sheet metal personnel 5 to 7 days to repair and patch. Remember that the aircraft is a quite large pressure vessel pumped up to 6 to 8 psi every flight!

Nearly all seafood producers believe that seafood spills are not their doing - and they are pretty well right.

On many mornings the Melbourne Ansett freight shed looks like a market. Many other airports around the country took similar with hundreds of boxes of seafood. In fact, Ansett averages about 30,000 - 40,000 such boxes of seafood freight per month - and 2 to 8 spills are reported each month. Not really that bad statistically, but still 2 to 8 spills too many!

The reason for our concerns are that the airlines' core business is carrying passengers on tightly controlled schedules. For Ansett, some 3,000 flights per week and some 30,000 - 40,000 passengers per day (compared to 30,000 - 40,000 fish boxes per month), and a delay due to a seafood spill cleanup is devastating to this passenger trade in many ways. The lost revenue alone is about \$20,000 per hour delayed, let alone the bad PR, the upset schedules and missed connections throughout the network. And this is not counting the corrosion.

A few years ago, for reasons of both cost and on-time departure problems, which are used as a primary measure of the airline's performance, Ansett's Engineering Director threatened that if we don't stop spills - we stop carrying seafood. That would be bad for all of us!

The seafood industries preferred container seems to be the "poly box". It is relatively cheap, insulates, and is certainly thought of as disposable.

Most are good. This is obviously the case based on the statistics of our leakage rates that I have just given you - say, 2 in 10,000. (We all must be doing something right!) But poly boxes are basically fragile with little "safety" margin and they can be quite porous. Both factors are real problems if the quality control during production is lax.

Why do the airlines have a problem with "poly boxes"? You, the seafood processor/freight forwarder/etc. can load them into a truck and transport them without damage or leaks - even if they are fragile. Of course, that is pretty easy! The truck floor is pretty well flat, you walk up and stack them one on top of another. They were designed for that sort of handling.

We, the airlines have a similar opportunity for gentle handling when we load an aircraft freight container in the freight shed. We don't even have to rush, we can get it ready a fair time before the flight. The boxes a stacked neatly on each other. It's a real "Walk up affair". Then we mechanically (even gently) lift that well packed freight container into a so-called, **wide-bodied** aircraft, such as a B767. The reverse procedure occurs at the other end. No great sweat! But, only about 30% of our fleet are wide bodied aircraft and not being able to schedule these to the airports from where most seafood is shipped means that less than that percentage of seafood travels on them.

Most of our carriage of seafood is on so-called **narrow-bodied** aircraft. No containers here! Loading on these aircraft is by loaders working in maybe a metre of head height on their knees, in longish cargo holds where the walls are curved with only a bit of flat floor. In some aircraft it is not even possible to kneel - the loaders have to work half lying on their side.

So-much for expecting the load for the packages in a stack to be carried down through the walls of the boxes per the design criteria! It can really be tough on a package.

The scheduled turn around for most flights is typically 25 to 35 minutes and in that time perhaps 4 loaders have to unload 6 tonnes of baggage and freight and reload 6 tonnes of the same - and 2 or 3 tonnes of what they handle may be 20 kg - 23 kg poly boxes of seafood.

To speed up the process, to ease the back strain, and to, very much, minimise the damage to seafood packages by heaving/kneeing/sliding them along the cargo compartment floors, Ansett has in the last year or two spent in the order of \$100,000 around our network on a light weight roller system. It is gratifying to report that the introduction of these rollers has resulted in a dramatic reduction in leakage reports.

Fibre board packaging seems to be fairly much neglected for the transport of seafood by the industry. Some fairly innovative designs exist and imaginative folding can result in the box outer being liquid proof

Fibreboard has various advantages; it is quite robust, the unassembled packages take up little space and they can be printed with promotional material. And of course fibreboard boxes can be built for specific purposes, including for very large fish (tuna say).

What about a combination of EPS with fibreboard outer. A concept really greatly favoured by the airlines for its robustness but not often used, presumably because of cost and because it requires some cooperation between the two competing packaging industries. It has been reported that in the USA seafood is not accepted in EPS unless it has a fibreboard outer.

A factor that few people take into account is that even though the aircraft is pressurised for the passengers comfort and survival, the pressure in the aircraft is 3 to 4 psi lower than on the ground when it was loaded. Well sealed EPS boxes have been found to not withstand this differential, and surprisingly the bottoms fail rather than the thinner and more flexible top.

I mentioned earlier porosity of poly boxes, especially if Quality Control is poor. At normal flying altitude the cabin of a passenger jet is pressurised to the equivalent of 8,000 feet, which is about 3 to 4 psi below the pressure at which it is loaded. If an EPS box contains unabsorbed leakage from seafood the internal pressure differential forces this fluid out through the porous foam. You didn't see leakage when you packed the poly-box, but we, the airline, see it as leakage in our cargo holds due to altitude effect. Proper fusion of the EPS is critical.

Just recently the airlines where contemplating requiring pressure testing of EPS boxes (there is an Australian Standard), but this seems fairly impractical and inconclusive. Instead we are now suggesting that a couple of holes are poked in the boxes to allow the pressure to equalise. Surprisingly this is contrary to the airlines' belief that the boxes should be water-tight in any orientation, so where do we put the holes so as to not lead to leakage. For produce like live crabs and crayfish we say that the holes should be in the centre of the ends. We perceive that people will stack boxes on their lid or side, but would they stack them on their end? Think about where the hole should be!

Discussion on box design brings me to **This Way Up** labels. We presently require them, but are they that obvious? With white poly boxes and clear tape the correct orientation is not quickly obvious.

Contrasting coloured tape makes that very clear when boxes are obviously all the right way up!. The airlines, today, are in fact, proposing that this be the shipping standard to

indicate the correct orientation. No This Way Up labels required. Think about that also.

Proper taping according to the regulations is extremely important to achieve robustness of EPS boxes. Besides lid taping we require two body bands at about 1/3 spacing and one lengthwise strap.

Conclusions:

- The core business of the airline is carrying passengers.
- The aircraft designers and manufacturers make aircraft for airlines to carry passengers and luggage they probably gave almost no thought to carrying freight that might be corrosive.
- The materials of modern aircraft are very intolerant to corrosive leakage from seafood transport.
- Seafood producers have become very accustomed to and dependent on the air transport of the produce because of the speed of delivery.
- Poly or EPS boxes appear, at this time, to be favoured by the seafood industry for the majority of their transport by air, but poly-boxes are not as robust as the airlines would like.
- The conditions of transport by air can certainly stress packaging more severely than other modes of transport, however the airlines really cannot afford spillage from any seafood package because it is too costly in so many ways.
- The Airlines are still not satisfied with many of the packages that are consigned at this time.
- Too often the boxes approved by the testing facilities for the airline have been taken to their limit on weight at which they will pass when they were tested for the approval. However, we are all then let down by quality control variations and deficiencies during their manufacture. The production boxes can not sustain these maximum loads when actually sent by air when subject to the rigours of multiple handling in less than ideal circumstances involved in loading narrow bodied passenger aircraft

We, the airlines, have agonised hard and long about what to do to improve the situation, particularly over whether to require more rigorous testing of boxes before they gain approval for use in transporting seafood by air. Of course, all these improvements must be affordable by the shipper.

3. The Airline's Perspective - Part B Terry Pike, Materials Engineering, Ansett Australia

Packaging for Transport of Seafood by Air Forum

Terence Pyke, Materials and Processes Engineer, Ansett

Melbourne and Brisbane, May and June 1997

June 2, 1997

This forum is about getting fresh seafood from where it is caught to where it ends up on a dinner plate as quickly as possible

The Airlines network provides fast transport of perishable goods to far off markets.

The problem we have here is getting packaging that is robust enough to arrive safely from where the seafood is packed to where it is unpacked.

The airlines have experienced many spills involving seafood. Analysis indicates that the spills predominantly involve expanded polystyrene boxes that do <u>not</u> have any support such as an outside fibreboard sleeve or box.

The problems with unsupported EPS boxes are real and that's why we are here. Solutions to this issue must come through discussion and cooperation with the Groups involved.

These are

OH 1 the seafood industry

the packaging industry

the airlines

We should not get into the situation where each industry is blaming the other for shipments of seafood that do not make it to their destination intact. The packaging industry, particularly the EPS sector, has been saying that the handling of the boxes is the problem, the seafood industry and airlines say that the quality of the EPS boxes has dropped. The airlines question the packing methods used by the seafood industry.

Solutions to seafood packing will only come from a cooperative effort from all industries.

It is hoped that through this forum we can discuss some of the issues and after the workshops have a clear set of actions that will allow the air transport of seafood to continue.

The purpose of this part of the forum is to show the development of the Seafood Regulations that have been worked on by Ansett, Qantas, Australian Air Express, Ansett Air Freight, the freight arms of the two major airlines.

OH2 - draft regulations

The Regulations have been reviewed in part by people from the seafood and the packaging industries and have been in existence for nearly ten years.

OH3 - revisions

The current document was first issued in 1988 as a set of Guidelines for the industry. Subsequent issues in the 1990s saw them called Regulations.

This latest revision, in draft form, is being more widely discussed here so that the way the airlines and freight areas accept and handle seafood shipments can be improved.

There have been at least three occasions since the late 1980's that one or the other airline has been on the verge of not accepting seafood for air transport at all. When seafood spills disrupt a flight in the operation, the downstream effects cause delays all day which makes regular passengers and the airline's operational management unhappy. If seafood spills are not cleaned up or go un-noticed, then extensive corrosion in the aircraft structure usually results, making the airline maintenance and engineering management unhappy. The last time airline management were about to stop air transport of seafood was early last year. A Seafood Committee, charged with the task to reduce spills was formed in Ansett. This group has monitored seafood spills, made changes within the freight operation, facilitated training for loading staff and discussed modifications to the existing Regulations.

In the handouts for this forum is a copy of the latest version, in DRAFT form, of the Seafood Regulations.

I will briefly go over the content and changes made to this document since the last issue.

These changes show the solutions as we see them from the air transport viewpoint.

As mentioned before, the text of these Regulations can form a basis for discussion at the workshops later this morning.

OH 4 - sections

The document is divided into three parts

- 1. The Regulations
- 2. The package performance Schedule
- 3. The approved packages

The package approvals section has been revised most often it currently lists over 175 approvals of differing types of packages, 80 of these are unsupported EPS boxes, definitely the favoured form of packaging for its low cost and insulation properties.

OH5 Contents

The third page of the Regulations section lists the Contents of the document. There has been very little change to the contents since the last issue.

The changed areas of this document are shown as a vertical line revision mark along the left edge of the text. You can see that a new section for Passengers carrying seafood and a Seafood Acceptance Checklist has been added to the Regulations.

As we go through the document, minor editorial changes have occurred. These again are shown with the vertical revision marks on the left.

There are some changes to the Regulations that I would like to highlight here. These could form some of the topics for discussion at the Workgroups.

OH6 Changes to regulations

- Appendix A specifies the performance testing of the packaging that the airlines have approved for use for transporting seafood. The Appendix defines tests required to be performed by an independent testing laboratory to ensure that it is robust enough for air transport. The Regulations have been updated to refer to Appendix A where appropriate
- A mass of 23 kilograms is deemed to be the maximum limit for a loader to handle for one person to lift. This has been arrived at during consultations in both airlines Safety departments, the unions and some guidelines set in the Industrial Relations courts

- the International Air Transport Association (IATA), to which most airlines in the world are members, put out a number of guidelines and Regulations dealing with the transport of cargo. Some of these that are related to the transport of seafood include the Live Animal Regulations, Guidelines for the transport of Perishable Goods and the Dangerous Goods Regulations. Unfortunately, the guides for packaging used for seafood are not well developed. As such, the regulations used in Australia are more stringent than those set out in the IATA guides. This can lead to differences in the way packaging is qualified for shipments being flown to or from other countries.
- The section dealing with Passengers Carrying seafood was added in response to a need from Passenger Services Departments in both airlines to provide guidelines on how small quantities of seafood can be transported accompanied by a passenger.
- The use of absorbent pads in the packages have always been defined in the recommended methods of packing seafood. References to Appendix A have been added to show suitable products that should be used. We believe that the use of the new polyacrylate absorbents in the bottom of seafood packages will help to eliminate spillage. This issue is one that should be discussed at the Workshops.
- Special notes about the necessity to adequately drain crayfish, mud crabs, prawns etc. have been added. This is another issue that should be discussed at the Workshops. It appears that some producers believe there is a need for the animals to retain water to allow them to survive.
- The correct thickness of the bagging material has been a point of considerable discussion within the Airlines Seafood Committee and with people in the seafood industry. The previous issue of the Regulations called for the bag material to be 100 micron thick. It seems that this thickness or a thicker film will not resist the sharp fins or spikes of fish and prawns. Also, the thicker the bag material, the more difficult it is to properly gooseneck seal it. The current draft calls for a bag film thickness of 75 micron minimum. This issue should also be a point of discussion in the Workshops
- The current version of the Regulations requires that the EPS boxes be marked on the bottom of the base. The approved gross weight could be any weight that the box can sustain in the testing in Appendix A. We have changed the marking requirements to have a symbol on the lid as well as on the sides. For the approved weight, we have specified that the EPS box should be approved for 5, 10, 15, 20 and 23 Kg increments. The marking and the weight increments will simplify the acceptance of the package by freight staff. The weight increments will also reduce the incidence of overloading the EPS boxes. The testing in Appendix A now requires that EPS boxes to be tested at a weight 10% greater than the approved weight.

Too often packages arrive in the freight areas with clear packaging tape used to reinforce EPS containers. The idea of using a coloured or contrasting tape will help loading staff with the identification and orientation of the package during the journey will help loading staff

OH7 - packing methods

 Page 16 of the Regulations starts the packing methods that are to be used with the approved packages. There are 10 approved packing methods. There is a lot of variation in the preferences used by the seafood industry for packing a particular product.

OH8 - packing method

It is recommended that people from the seafood industry involved in the work groups closely review the methods described here and make recommendations for any

improvements or modifications that are required. Note that there has been very little change to the Packing Methods since the last issue, except that the description for the transport of live aquarium fish has been modified to show what is acceptable.

- packing method 9 has been updated to show the requirements for large boxes for live fish. This method of packing is currently acceptable for consignments flying within Australia. If oxygen is used a special concession from the Civil Aviation Safety Authority (CASA) is required.
- Packing method 10 describes the novel packing method used for especially valuable species of prawn from Queensland. The prawns are live and packed in sawdust. They are maintained in a torpid state with the judicious use of gelled ice packs and polystyrene insulation within a fibreboard outer. There is no source of fluid from the product that can leak. This is a very acceptable method for transporting live prawns.

OH9 - checklist

 A method of checking consignments of seafood has been developed for freight acceptance staff. An example of the checklist is on page 41 of the Regulations. The checklist should simplify some of the current acceptance methods used when seafood shipments are consigned. It requires a section to be filled out by the seafood shipper and another section to be filled out by the acceptance clerk. A copy of the completed checklist travels with the consigned shipment for easy reference should there be any problems with the handling of the load during its journey. As one of its tasks, the Work group dealing with checking seafood could review this new checklist for its suitability for seafood freighted by air.

Appendix A has always described the way seafood packaging is to be tested so that it can be listed as approved. This Appendix has had to be changed to reflect a tighter testing regime and to improve the quality control of the manufacture of expanded polystyrene foam boxes.

Since last year we have been considering all sorts of options to try and improve the sturdiness of unsupported EPS boxes. Some of the suggestions have been

- to put an outer or inner liner of plastic. Unfortunately, the number of different sizes of EPS boxes would necessitate there being many different sizes of liners. When we understood that the liners only become cost effective when they are produced in very large numbers, this option became infeasible.
- To put an outer fibreboard box around the EPS box. This is feasible and there are a number of approved combination packaging in the current approvals. The cost increase is moderate.
- 3. To use a polystyrene moulded-in liner. This is another option that has been developed in the EPS industry (here is a <u>sample</u> of the type of liner that is possible). The liner has been used in Scandinavian countries and tested in Australia on an experimental basis. Again, the liner adds cost to the package but it would improve the durability of unsupported EPS boxes.
- 4. Make an expanded <u>polyethylene</u> box this is a different type of foam that is impact resistant. It is used for packaging and for making bumper bars overseas. Unfortunately, it is cost prohibitive to produce it in Australia at present and there is some question about its suitability for seafood boxes (here is a sample that shows its toughness.

OH 10 - changes to Appendix A

Now, I will briefly go through the changes that have been made to Appendix A. These are expected to improve seafood packaging and not increase costs too much.

 The gross mass of the test packages will be 10 % greater than the final approval weight. Experience has shown that the boxes that have been approved are at the limit of their capability. If there is only a slight degradation in quality or if the box is slightly overloaded, it is likely to fail during transport. A 10 % overload on the approved weight during the qualification testing will help to ward off failure from quality that is lacking or an over full load.

OH 11 - vertical impact test

- The vertical impact test on a corner and two edges from a height of half a metre is described. This has not changed. Nor has the stacking test to a height of 1.5 metres. There has been a lot of discussion about the pressure test. The fact is that the packages in aircraft at altitude do see a lowering of pressure by about 3 or 4 pounds per square inch (psi). The effect is that a well sealed package will try to blow up. The pressure test described in Appendix A describes a method using a low pressure chamber to the Australian Standard. Unfortunately, we are not aware of any facility that is capable of testing to this Standard in Australia. We tried to simulate the effect by pressurising a sealed EPS box, but the failures are not like what is experienced in service and the load on the box is far greater than would be experienced in a low pressure environment.
- An impact test using a 7 Kg dart dropped from a height of 100mm onto a 150 mm diameter target is used. This test is based on a test for similar packaging from the IATA Dangerous Goods Regulations. This is intended to simulate the type of failure we see when the head of a heavy fish pokes through the end of a box.
- The substitute load used has been better defined where either plastic granules or water is used to load the box during the test.
- In addition to the test requirements, the manufacturer is requested to show how the quality control of the box will be maintained and report the criteria upon which the quality will be based. The criteria would include the density, weight, mould volume, and the base and compressive strengths from the manufacturing quality control testing.
- To ensure that quality of boxes supplied to the seafood industry is maintained, a system of independent testing of sample boxes will be implemented. This will involve periodic testing of boxes or of those suspected after failing during transport due to reduced quality. If an approved box fails one of these quality control tests, then the manufacturer will be notified and asked to withdraw any faulty boxes. If another box fails at a later test, the approval could be withdrawn and the airline freight centres notified not to accept consignments of seafood using that packaging for a period of one year. This "two strikes and your out" system is intended to maintain and improve the quality of the packaging supplied to the seafood industry. It is specifically aimed at maintaining the quality of the unsupported expanded polystyrene boxes which we have tested and shown to be lacking at times.
- OH 12 shows Page A-9 of the Regulations with the familiar fish symbol used to identify an approved package. The changes here are to have the symbol on the sides and the lid so that freight acceptance staff do not have to invert the package to find the approval number
- the future approvals of EPS boxes will only be given in increments of 5, 10, 15, 20 and 23 kilograms gross weights.

OH 13 - absorption pad

 All the packaging methods require the use of an absorption pad to absorb any liquid that is produced from the product. Page A-10 of Appendix A gives a guidance table for the size of the pad necessary to absorb liquid from a number of seafood products. This is a guide. Evaluation of the particular product being shipped may require more absorption. The new polyacrylate absorption pads are quite efficient for absorbing fresh water but salty water reduces the amount that can be absorbed. A list of suppliers of polyacrylate absorbent pads is shown on page A-10. We would like to see the development of these absorbent pads with printing for the seafood industry to show the quantity of water that can be absorbed by each pad.

 Section A.8 of Appendix A shows the methods recommended for manufacturing quality control for expanded polystyrene boxes. These are based on recommendations from the EPS Division of the Plastics and Chemical Industries Association (PACIA) and are known to be in use for the manufacture of some approved boxes

OH14 - compression tester

 Page A-13 shows a compression test rig that can be used to ensure quality control is maintained during the manufacture of EPS boxes.

The last section of Regulations is Appendix B which lists the current approvals given by Ansett and Qantas Engineering Departments for packaging used for each of the packing methods in the Regulations. The current lists have been distributed widely to all freight centres in the airline networks so that acceptance staff can identify the package type that is being presented for shipment.

The lists have been organised by the ten package methods and the approval number appears in order within the section listing packages for a particular method. For example, all the approved EPS boxes with a fibreboard or plastic outer are listed in Section 2.

OH15 - cross reference table

For people that only have the package approval number, there is also a Cross Reference Table to show which Group or packing method a particular approved packaging belongs to. For example, Package Approval 120 is listed in Group 3 (EPS boxes).

OH16 - EPS approvals withdrawn

In Group 3 for EPS boxes, you will also notice that the approvals all have a note through each entry saying "Approval Withdrawn - July 1997". The intention of the Airline Seafood Committee from late last year was to withdraw the approvals of all unsupported EPS boxes in July 1997. The Committee sees this as necessary to eliminate all seafood spills and to encourage the packaging and seafood industry to use a more robust form of packaging.

July 1997 is not far away. We realise that the industry can not change in such a short period of time. These forums had intended to be run earlier in February this year which would have allowed more time for this change. However, this cut-off date can be discussed at the workshops for its suitability.

And that concludes this section of the forum.

At this point, I would like to thank the SeaQual Project for the realisation that there is a need to have a Forum like this and for the people at the PSM Seafood Technologies Consulting Group for making it happen.

I hope that the workshops later this morning will encourage some productive discussion and the brain-storming processes that should result will come up with some common ground for all the industries here to work to.

CROSS REFERENCE TABLE OF PACKAGE APPROVAL NUMBERS

Pack. Appl.	Grp.										
1	1	31	1	61	3	91	1	121	1	151	
2	11	32	1	62	3	92	11	122	7	152	
3	1	33	5	63	3	93	1	123	3	153	
4	2	34	1	64	3	94	3	124	3	154	
5	9	35	3	65	3	95	3	125	3	155	
6	9	36	3	66	3	96	1	126	3	156	
7	9	37	3	67	1	97	7	127	3	157	
8	9	38	3	68	3	98	1	128	3	158	
9	1	39	3	69	3	99	3	129	3	159	
10		40	3	70	3	100	1	130	3	160	
11	1	41	3	71	1	101	5	131	3	161	
12	9	42	3	72	1	102	3	132	3	162	
13	4	43	3	73	3	103	3	133	8	163	
14	1	44	3	74	3	104	3	134		164	
15	2	45	3	75	3	105	1	135		165	
16	2	46	3	76	3	106	1	136		166	
17	2	47	3	77	5	107	1	137		167	
18	3	48	9	78	3	108	3	138		168	
19	3	49	9	79	1	109	3	139		169	
20	3	50	7	80	9	110	3	140	9	170	
21	3	51	1	81	3	111	9	141		171	
22	3	52	3	82	3	112	9	142		172	
23	3	53	3	83	3	113	9	143		173	
24	3	54	3	84	3	114	9	144		174	
25	3	55	1	85	3	115	9	145		175	
26	3	56	3	86	2	116	9	146		176	
27	· 3	57	3.	87	3	117	9	147		177	
28	3	58	1	88	1	118	7	148		178	
29	4	59	1	89	1	119	7	149		179	
30	2	60	7	90	3	120	3	150		180	
A.6.1 External Markings and labelling

The seafood package manufacturer must ensure that packages prepared for air transport are clearly marked with the approval number and the maximum gross weight once the approval number for the package design has been advised.

An example of the seafood air transport logo that should be used is illustrated below.



Packages must be clearly marked on at least two sides of the container. If there is an associated lid, such as for an EPS box, then it must also be marked. EPS box lids that are approved for more than one base must show all the approval numbers on the lid marking. The lettering size must have a minimum height of 10 mm.

A.6.2 Standardised weights for small packages

Maximum gross weights that can be contained in the package will only be approved at 5,10,15,20 and 23 kilograms

A.6.3 Absorption material

Packaging systems that utilise an expanded polystyrene box as a barrier shall have sufficient absorption pads included in the package to absorb all liquids that could be generated by the product.

Changes to the Regulations

- 1. Reference to Appendix A (page 3)
- 2. 23 Kilogram limit for "one person lift" designs (page 3)
- 3. Comparison with IATA standards (page 4)
- 4. Passengers carrying seafood (page 5)
- 5. Use of absorbent pads (page 6)
- 6. Draining of crustaceans (page 10)
- 7. Thickness of polyethylene / plastic bag material (page 12)
- 8. EPS containers; improved marking, incremental weights (page 13)
- 9. Contrasting tape for ease of identification (page 15)
- 10. Large fish boxes and Prawns packed in sawdust (page 34)
- 11. Acceptance Checklist added (page 37)

<u>Changes</u> to Appendix A - Package Performance Schedule

- 1. Gross mass of test package 10 % greater than the approval weight (page A-1)
- 2. Vertical Impact, Stacking and Low Pressure test the same (page A-2)
- 3. Impact test added (page A-3)
- 4. Substitute load defined (page A-4)
- 5. Added quality criteria reporting (page A-7)
- 6. Independent quality testing (page A-8)
- 7. Marking on lid and sides of container (page A-9)
- 8. Standardised weights on 5, 10, 15, 20 and 23 Kilograms (page A-9)
- 9. Polyacrylate absorption pads (page A-10)
- 10. EPS box manufacturer's Quality Control

4. SPECIFIC PACKING METHODS

The packing methods depicted in this section have been shown through airline experience to be successful for transport of seafood products.

The table below recommends the packing methods that have been found to be suitable for specific seafood products. Shippers may use these packaging methods provided that any packaging used is approved per the performance schedule in Appendix A. A list of approved packaging is provided in Appendix B.

PRODUCT	PACKING METHOD TO BE USED
CRAB (cold water varieties such as Blue Swimmer)	1, 2, 3
LARGE WHOLE FISH (TUNA)	7
LIVE FISH (swimming)	8,9
LIVE MUD CRAB, EEL, LOBSTER	5, 6
CRAYFISH/LOBSTER	1, 2, 3
EEL	1, 2, 3
URCHINS AND BUGS	1, 2, 3,4
FISH FILLETS	1, 2,3
OYSTER/ABALONE/MUSSELS	4
PRAWN, SHRIMP	4,10
SCALLOP, SHELLFISH	4
SQUID, OCTOPUS	1, 2,3,
WHOLE FISH	1, 2,3

4.1 Index of Packaging Methods

- 1. Fibreboard Box
- 2. EPS Box with Fibreboard Outer
- 3. EPS Box
- 4. Rigid Plastic Container
- 5. Fibreboard Boxes for Live Product
- 6. EPS Boxes for Live Product
- 7. Fibre Box (Very Large Whole Fish)
- 8. For Live Aquarium Fish in Water (Gross mass less than 15 Kg)
- 9. Large Box for Live Fish (Gross Mass greater than 30 Kg)
- 10. Live Prawns in sawdust packing

A.2.2 Package Testing

A.2.2.1 Vertical Impact Test:

Vertical impact test in accordance with AS 2582.4 using a drop height of 500 mm and the impact surface perpendicular to the drop direction. Two packages shall be tested, each with an impact on corner 2-3-5 and then an impact on edge 3-6 and then an impact on edge 3-4.



Package Orientation Definition from AS 2582.1

A.2.2.2 Stacking test

The containers used for the vertical impact test must then be subjected to:

Stacking Test in accordance with AS 2582.3 using a stacking height of 1.5 m and a stacking duration of 24 hours. Conditions shall be as for pre-condition per A2.1

As a guide the pad size that should be used for a 20 kg. Gross weight package is:

PRODUCT	ICE	PAD SIZE (for fresh water)
FIN FISH	NO	1 litre
FIN FISH	YES	2 litre
PRAWNS	NO	2 litre
PRAWNS	1 Kg.	3 litre
ATLANTIC SALMON	2 Kg	4 litre
LIVE FISH	NO	10 litre (minimum)

Note: "No ice" can mean no water ice placed directly on the product or an approved gel pack is used for chilling, which will retain all its own fluids.

Suitable Absorption pads may be obtained from:

Thermosorb Pty Ltd.

Unit 1, 33 Onslow Avenue, Campbellfield, Victoria 3061

Ph: 03 9357 1622 FAX: 03 9357 1455

DryPac Pty Ltd. 12 Lindy Court, Warrugul, Victoria 3820 Ph.: 03 5622 3179 FAX 03 5622 3180

Thermo Rite Pty Ltd.P.O. Box 613, Nerang, Queensland, 4211Ph.: 0755 940 300FAX: 0755 940 079

SEAFOOD PACKAGING FORUMS: AIR TRANSPORT

4. Centre for Food Technology Perspective Bruce Goodrick, Senior Food Technologist at the Centre for Food Technology.



Properties to be considered for the "Seafood Box"

- Size / Weight
- Identification ie labels/ orientation etc
- Strength -impact
 - -shear
 - -compression
 - -expansion
- Durability -Water; Handling; Heat; Cold
- Integrity
- Recyclability







and the first

Trials with high In-Transit Temperatures





SHAN

Durability



Integrity





The Solution

 A sealed stainless steel 15kg gross conatiner with the insulation characteristics of a thermos flask

What does our package encounter in transit



What does our package encounter in transit



And when it gets there



There's still further to go!



marth (

And finally you reach your buyer



Some examples of live products



Finally all good things must come to an end!!





SEAFOOD PACKAGING FORUMS: AIR TRANSPORT

5. Food & Packaging CRC Perspective Adrian Panow, Business Manager of the Food and Packaging CRC.



Food & Packaging CRC

- · University of Melbourne
- University of Queensland Swinburne University
- Victoria University
- · CSIRO DMST
- · CSIRO DEST
- Agriculture Victoria
- + HRDC . SIRE

Visy Industries

Goodman Fielder

• ACI

Amott's

Tassal

- **PSL** Industries

WA Airport & Airfreight Export Council - under negotiation



Food & Packaging CRC

MISSION

To develop world-class and relevant technologies that underpin the sustainable growth and international competitiveness of Australia's food & packaging industries



Aims of Package Improvement

Consumers

- Fresher product
- · Safer product

Retailers

- · Improved sales due to higher quality product
- Easier handling

Airlines and Freight Forwarders

- Improved safety
- Better packing efficiency
- Improved temperature and handling tolerances



Aims of Package Improvement

Seafood Exporters

- Able to guarantee consistent quality
- Fresher product
- Improved safety
- · Refrigerant always present
- Enhanced image
- Lowered costs

Box Manufacturers

- · Improved ability to meet customer requirements
- · Reduced environmental impact of packaging
- Increased value





Responsibilities

Seafood Exporter

- · Prime quality product
- Preparation
- Packaging technology
- Meeting transport schedules •

Box Manufacturer

- · Quality manufacture
- Latest technology
- Matching of box to product, handling and destination
- Optimised packaging efficiency

	1
··· 6	ľ
KIN .	
Ų ∽ -	
	1
Cooperative	L
Rosearch	ľ
Gentiefor	
International	
Manufacture me	
Packagate -	l
Science	ľ
	ľ
	l
	İ.
	ľ
- C	1
	li
	ľ
	ľ
- 110	l

Insulated Box Performance

Box D	esign	Ice (kg)	Ice Melt Time (hr
Contro	I EPS	4.5	42.5
structu foil line	ally ired EPS & er	4.5	52.5
Corrug board interna & foil I	gated with al structure iner	4.5	39.9
	Cr	ushed ice only - n	o fish
and the second se			

ALA I Day Davis		ico Molt Time (br
Box Desig	n ice (kg)	ice Meit Time (m
erative arch le For national	PS 4.5	37.8
facture and homo structured foil liner	4.0 EPS &	40.3
Corrugated board with internal str	d 4.5	31.6



Responsibilities

Freight Handler

- · Maintain cold chain
- · Sensitive handling (training, operations)
- · Maintain schedules.

Airline

- Define requirements
- + Liaise with exporters, box manufacturers, freight handlers and overseas wholesalers
- Sensitive handling



Insulated Box Performance

Cochi-Fatine	Ambient Temperature (°C)	Ice Melt Time (hrs)
Research Centre For	20	37.8
Food Manufacture and Packaping	21	36.0
Science	22	34.2
	23	32.7
.	24	31.3
	25	30.0
11	EPS Control box 16kg chilled fish	+ 4.5kg crushed ice



Responsibilities

- Overseas Wholesaler
- Sensitive handling

· Maintain cold chain

Retailer & Consumers

- Maintain cold chain
- · Handle hygienically

Researchers

- · Awareness of needs of all steps in chain
- Rigorous, unbiased design & evaluation
- Formal process of technology transfer & educatio
- Awareness of cost hurdles in value-adding chain



Box Design

- Every component must be functional
- strength keep the contents inside the box
- insulation
- aesthetics
- + size
- minimise weight
- minimise cost
- · ease of manufacture
- safe material
- minimise environmental impact





Box Design

Current Designs

- · EPS foam with polyethylene liner
- Corrugated board
 - wax impregnated
 - polyethylene lined
 - thermoformed liner
 - with or without aluminium coating
- Vacuum or controlled atmosphere packaging



ís.

Box Design Innovation

Integrity Weight Waterproofing Insulation

Better use of existing materials

- + EPS
- · Corrugated board
- New materials
 - Polymer / foil laminates
 - Non-EPS foam filling
 - New approaches
 - Pallet wrapping
 - Airfreight container insulation
 Powered boxes and/or pallets
- · I Owered Doxe

SEAFOOD PACKAGING FORUMS: AIR TRANSPORT

Appendix C

WORK GROUP SUMMARIES

1. Melbourne Forum

2. Brisbane Forum

1. Melbourne Forum

Box Design

Key Issues

- Airline packaging regulations should cover all types of boxes and packaging systems.
- Should there be a standard design, and if so, who should provide specifications and how could it be done?
- Box and packaging system design needs to consider the nature of the product being carried and the requirements of the shipper and receiver. Therefore a range of issues must be addressed which would include but not be limited to: include: wet strength; recyclability; waterproofing; internal structures; tape colour; and the use and type of poly ethylene liner bags and absorbents.
- Packaging specifications should be flexible enough to allow new materials and packaging innovations to be used.
- Airlines need to specify performance criteria for packaging systems and agree on the tests and other sources of information which would demonstrate compliance.
- The shape and the size of the aircraft hold must be considered in the design of packaging systems but airlines should investigate methods and mechanisms which make handling easier within the current constraints.
- There was overall support for the airline proposals concerning the identification of box weight capacity and to minimise the range of weights approved to 5, 10, 15, and 23kg.

Key Recommendations

- Absorbent pads should be labelled with capacity information with difference between fresh and salt water capacity specified.
- Coloured tape should be used where possible to assist the ease of determining the correct box orientation.
- Existing knowledge of product needs in relation to packaging, identify gaps and set priorities for research and development including investigation and application (promotion) of new technologies should be documented.
- Airlines should handle live seafood in the same that they handle other live animals.
- Airlines should move towards the introduction of moving carpets as part of airline quality improvement.

Packaging Approvals

- It is recognised that the primary aim of the packaging regulations is to ensure that there are no seafood related spillage's on airlines. Discussions and negotiations should focus on this aim.
- Packaging systems must meet needs of seafood industry as well as the airlines.
- Seafood producers, packaging manufacturers and others need to understand the process of obtaining an approval, suggesting that there is a need for an easy use guide.

- Packaging performance standards and quality assurance should involve testing procedures.
- All parties should consider the impact of the proposed time frame for new approvals.
- The packaging approvals system must be able to easily introduce new products and technologies (eg absorption materials).
- There is a need implement a formal monitoring and reporting system of box failures. This should identify problems which occur at the acceptance point (ie. potential spillage's which have been averted) as well as actual spillage's. This is essential to achieving commitment from all participants in the airfreight chain as well as to ensure continuous improvement in the system.

Key Recommendations

- Any packaging standard we develop should apply to imported seafood airfreighted to Australia for carriage on domestic airlines.
- Need to develop performance based criteria, based on analysis of packaging system failure data, for approving packaging systems and have the testing of proposed systems undertaken by NATA accredited laboratories.
- Need to ensure that all information collected in the monitoring system is useful.
- Packaging regulations needs to provide rewards for good performance and sanctions for bad performers perhaps through the development of through chain standards and/or agreements.
- Develop a QA through chain approach based on agreed protocols / standards.
- Withdrawal of current unsupported EPS box approvals be delayed until 1 Oct 1997, new approvals to operate from then.
- Investigate the feasibility, in the long term, of having a 3rd party (independent) body issue approvals and maintain audit systems.
- Develop a communication/feedback system between all stakeholders to assist continuous improvement perhaps by establishing a Packaging Seafood For Air Transport Council.
- Improve links with research institutions to ensure system is flexible to accept new technologies and that R&D priorities are appropriate.
- Reduce size of current documentation by 50% and produce information items (eg charts).
- Promote packaging regulations and its existence via an easy to use guide to the system.

Handling Protocols and Training

- Training of all participants in the airfreight chain is essential to developing an appreciation for needs of the product and its packaging.
- Hands on practical training programs need to be developed and implemented by the airlines, freight forwarders and the seafood industry. There is also a need to investigate appropriate delivery mechanisms for the training programs.
- The seafood industry should provide input to the development of appropriate packaging and handling protocols and performance criteria (ie. set minimum

service standards) as well as comply with those parts of the standards for which they are responsible. For example, this may involve using colour taping on boxes to make it easier for the ground handlers to assess box orientation.

- Airlines should work towards establishing facilities and processes which meet the minimum service standards for the maintenance of quality in perishable seafood. Food safety and the maintenance of the cold chain is of paramount concern.
- The development of key performance criteria to assess packaging and handling systems should be based on relevant data. Data requirements include, but is not limited to" value and volume carried; packaging systems rejections at acceptance point; problems at receival point; and spill reports.
- The collection of the data is the responsibility of all stakeholders with each collecting and analysing those parts which are relevant and accessible to them. This information needs to be exchanged on a regular basis and used to identify and implement necessary changes.

Key Recommendations

- Consultation with key stakeholders occur prior to future changes to regulations.
- Specific seafood packaging and handling curricula material should be developed and training workshops and programs should be implemented for all stockholders.
- Hold regular familiarity sessions for industry and airline staff (including acceptance, handling and ramp staff).
- Implementing a customer feedback system to provide information for stakeholders in improving the airfreight system.
- The concept of through chain service agreements should be further developed and promoted between all sectors.
- Data regarding the activities of the airlines and industry, should be analysed and made widely available.
- A register of approved industry clients should be established.
- Incentive systems in airline audit arrangements should be established.

Airline Acceptance Policy

- There are currently too many approved box types. This has situation has occurred because box manufacturers are customer or demand driven and therefore will produce any box that a customer may requests provided it is economic to do so and it attains airline approval. This makes it difficult to ensure compliance with the agreed specifications and complicates the acceptance process.
- According to Ansett, increased scrutiny at the point of acceptance and better communication between the airlines has reduced incidence of spills by 30% over recent years. If Ansett rejects a consignment, Qantas and AIE are informed of the problem so that they will also reject the consignment if it is presented to them.
- Difficulty involved in lifting each box up to check approval numbers. Shippers are concerned about the damage caused to their product as a result of this process.
- If airlines agree that an approved box has been used and packed correctly, then a spill incident is probably due to poor airline handling.

- If a spill occurs, details of the spill should be discussed with all participants in the export chain.
- It can be difficult to identify the use of second hand boxes at the acceptance point. In the case of domestic shipments, should consignments using second-hand boxes be cancelled at the acceptance point?
- The use of service standards and agreements must incorporate benefits for good performance and penalties for bad performance.

Key Recommendations

- Can the approval numbers be moulded on the side or on the front of the box? The box manufacturers argue that this is difficult and that placing approval numbers on lids is the best compromise.
- Information can be collected at the airline acceptance point and analysed to identify problems and improvements. It is important that this information be conveyed to the shippers and Freight Forwarders.
- The implementation of minimum service standards and through chain service agreements should be encouraged.
- Implement a 'Red Line' and 'Green Line' system. Minimum scrutiny should be required for those operating under a 'green line' system. Should consignments still be subject to visual inspection and random checks? Is there another way of auditing compliance? Could this approach lead to differential freight rates?
- Change the current seafood acceptance checklist to include:
 - box approval no. And method of packaging no
 - specifying non-use of second hand boxes
 - signing by the shipper as a commitment to the airline
 - providing a copy of the seafood checklist with the consignment note

2. Brisbane Forum

Box Design

- A number of issues relate to the size of boxes including: smaller boxes may assist in stacking within curved hold; current EPS platform sizes very similar in many cases (variation 10mm); airlines charge by weight; and smaller boxes more easily handled and may have strength advantages
- Good designs may not be covered by current rigid draft specifications and therefore may not pass
- The aircraft place a number of limitations on the suitability of box design such as: the curvature of the hold; 1/3 of all boxes are stacked in non-flat part of hold; the floor width varies with aircraft type and position within aircraft; and height restrictions in the hold and through loading door which limits palletisation.
- The weight of the boxes is a problem since it is common practice to accept slightly overloaded boxes. It was suggested however, that the major suppliers of boxes have significant safety margins.
- Overseas, more freighter aircraft are used, together with containers. It was suggested * that IATA rules may be inadequate for Australian domestic freight conditions.

- The use of combination packaging is restricted by material cost and the labour costs associated with multi-component packaging. The use of a thermoformed liner within the EPS box may add to puncture strength but has significant cost hurdles. Current regulations need to address design restrictions for particular product types.
- The quality of EPS boxes is known to vary significantly. The proposed new regulations impose quality assurance standards on manufacturers, whereby variations in EPS of greater than 5% in weight may be rejected. It was noted that box quality may change over time "as the box matures" eg strength, weight.
- In respect of the use of ice, two approval types may be required ie for product containing wet ice (also brine ice) and for product containing no ice or gel packs.
- The current and proposed regulations are deficient in that they do not cover wetstrength.
- Strapping can act as "handles" thereby causing damage to EPS inner, so that support of the EPS should be provided by flaps on cardboard or gussets moulded into EPS. Testing is performed on boxes "as shipped" ie strapped or taped.
- It is essential that orientation identification is incorporated into the design of sleeves. The use of coloured lids was noted not to be practical.
- There remains considerable potential for the mismatch of marked lids and bottoms, where higher weight-rated lids can be used on inferior bases. Since it is not practical to mould identification into sides of EPS boxes, stamps could be used.

Key Recommendations

- Approvals should cover standard sizes.
- The relevance of testing wet strength of packaging systems for seafood airfreight should be investigated.
- Airline regulations should cover all designs and should not be prescriptive in terms of material of manufacture.
- Void fillers in aircraft holds may reduce some stacking and design problems.
- The domestic Airlines Seafood Airfreight Committee should establish wholeindustry needs for the development of new packaging solutions.
- The weight of a box should not be used as a quality parameter.
- Regulations should apply similar performance criteria as is done by the meat packaging regulations.
- Regulations should not prescribe the methods for achieving water resistance in fibreboard packaging.
- The regulations should flag potential for damage when strapping is in direct contact with EPS.
- The lid of an EPS box should be secured with coloured tape.
- Methods for labelling and direct printing on the side or end panels of EPS boxes should be investigated.
- New approval codes should be used to identify gross mass.

Packaging Approvals

Key Issues

• Packaging approvals process should not be entirely the airline's responsibility.

- Testing should be done using NATA approved laboratories.
- Need ongoing QA audit ISO or other 3rd party accrediting standard.
- Packaging systems should be suitable for whole distribution line.
- The location of box approval numbers should be on the lid & box base and a minimum sample size should be provided for testing.
- Establish an improved mechanism for box approvals.
- Clear sealing tape should be avoided.
- The development and use of wall charts to maintain standards on packaging should be promoted.

Key Recommendations

- A 'Seafood by air packaging council" should be established.
- A sticker system to mark and recover damaged boxes should be developed and implemented.
- A system should be developed for identifying the plant at which boxes are manufactured.
- Establish an internet home page for entries on box failure through the distribution chain.
- Information and data collected on packaging failures should be collated and reported by an independent agency.

Handling Protocols and Training

- Acceptance procedures need to be simplified and better targeted by reducing approval numbers, better training of acceptance clerks, simplification of checklists, random checking and through-chain training from producers to consumers.
- There is a wide range of information types and sources which need to be identified and utilised including assessing suitability of various training materials (wall posters, newsletters, Internet).
- Training should be nationally based and consistent in its objectives and process so that everyone knows their roles and responsibilities, in particular there is a need to recognise staff movements and the use of temporary or transient staff.
- The nature of the product has to be understood by all those involved in the handling process. Co-operation between different industry R&D organisations and CRCs will be necessary.
- R&D is required in respect of ice replacement, the use of absorbent materials and packaging systems.
- Training curricula should be linked to rejects, tech correct use of packaging systems, explain the regulations and why they exist (eg. That second hand boxes may look good but might be structurally unsound), include familiarisation visits, utilise flip charts, summarise information and teach product needs such as temperature control.
- Information can be disseminated via trade magazines, packaging and airline media.
WORK GROUP SUMMARIES

• A reward system should be in place with penalties for poor performance and rewards for good performance. This is probably best achieved through the use of service agreements.

Key Recommendations

- All packaging failure events should be reported and a formal process be implemented to collate and disseminate information.
- A packaging manual could be written which includes the regulation and information about best practice, where to go for help and/or R&D activity.
- Handling practices could be made easier by incorporating as many visual cues as possible eg. A wall chart at the acceptance counter, coloured tape for box orientation, colour coding absorbency pads etc.
- Packaging suppliers have an important role in assisting adoption of best practice by supplying information on packaging requirements and in designing and getting approval for appropriate packaging systems.
- The use of barcode identification to expedite paperwork, product traceability, packaging data and consignee identification should be investigated.
- Improved communication could occur through the establishment of a national seafood airfreight packaging council which would also set policies, provide a forum to regularly review progress, establish linkages to industry associations etc.
- Develop a key industry contacts list (airlines, packaging manufacturers, seafood industry). Box manufacturers customer data bases would be a good start.

Airline Acceptance Policy

Key Issues

- The acceptance process is in need of streamlining and simplifying, and this could be achieved by establishing service agreements between seafood companies and airlines, implementing a fast-track acceptance system and amending the existing Seafood Checklist.
- Future regulations should be minimised and move towards less prescriptive, more performance based criteria. The packaging industry should be encouraged to sell whole packaging systems.
- More data regarding packaging failures which pinpoints where and why failures occurred, is needed to assist the seafood industry in identifying, assessing and resolving problems.
- The use of second hand boxes needs to be eliminated through the use of service agreements. It is recognised that policing of this is difficult because their use is hard to detect and it is impractical to stamp all boxes at time of acceptance.
- Current domestic regulations are generally suitable for packaging on international flights (although the USA will not accept unsupported EPS on its domestic flights). AQIS and market forces generally ensure high standards for export packaging.
- There is a need for a joint strategy/joint organisation with all sectors being represented (eg National Airfreight Packaging Council) which has conduits to industry peak bodies and can network with airlines, packaging manufacturers, CRCs and R&D Corporations.

WORK GROUP SUMMARIES

• A joint approach to training is needed because of extensive overlapping. The packaging industry needs to be more involved in this process. The limited resources available for training is recognised as a major issue.

Key Recommendations

- Quality assurance or service agreements between parties in the distribution chain should be developed and implemented.
- A 'green line' (or fast-track) acceptance process for companies with a service agreement with the airlines should be used.
- Amend the current seafood checklist to accommodate a dual 'green line' 'red line' acceptance procedure. Refer this to the Domestic Airlines Seafood Airfreight Committee for implementation.
- Move towards a performance based testing regime to minimise future amendments to the Seafood Packaging Regulations.
- Co-operate in the collection of data on packaging performance, using sources within the airlines, packaging and seafood industries.
- Establish cross-industry representation on a permanent body (committee or Airfreight Council) for consultation on a range of associated issues.
- Identify resources to assist in the training of airline and seafood industry personnel.



ANSETTAIR FREIGHT

29 August 1997

Hobart Airport Cambridge TAS 7170 Australia

PO Box 233C Hobart TAS 7001

Tel: (002) 48 5278 Fax: (002) 48 5418

Michael White Pacific Domestic Seafood Packaging Committee 51-55 City Rd SOUTH MELBOURNE VIC 3205

Dear Michael

This letter is to confirm our satisfaction at having participated in the recent forums on Packaging Seafood for Air Transport in Melbourne and Brisbane, facilitated by PSM.

We were pleased to receive a copy of the draft recommendations and to have had the opportunity to comment on these prior to the report being finalised.

As you know, our proposal to withdraw all approval's for EPS boxes used for seafood on domestic aircraft, was deferred until after the forums so that we could consider the comments and recommendations of the other industry sectors involved.

Our committee has already acted on some of the recommendations in regard to approval numbers and their location on boxes, approved weights, and the formation of an on-going consultative panel.

We intend giving further consideration to the recommendations at future meetings of the committee, and look forward to these becoming the basis for a significant overall improvement in the air transport of scafood.

Yours faithfully

Graeme Morrisby Chairman - Domestic Seafood Packaging Committee



.

• •

. .. . • • •

... . .

.....

.....

.

...

.

. . . .

.

.....

.

. . . .

.

p a transfer around a * * **** * *** and and to been done to approprie

.------

.....

----• • • • • • • • • • • • • • •

7*_*. * ** * **

BI STATIS BOARD TO LEARNING THE SERVER IN 18 - 1 - 1

..

.

· · · ·

.

• • •

. .

· · · · · · · · ·

Mr Ian Wells National Seafood Centre HAMILTON OLD

Dear Ian

I would like to congratulate PSM Consulting Group on facilitating the recent forums on Packaging Seafood for Air Transport.

This is an important quality issue for the Australian seafood industry and the forum discussions and recommendations will significantly improve the consultative process between the airlines, packaging manufacturers and exporters. I believe they will also assist in the introduction of new technologies, new approaches and improved handling practices.

I was pleased to be able to participate in the workgroup discussions at both forums and to comment on the recommendations prior to the report being finalised. I have also attended meetings of the Domestic Airlines Seafood Airfreight Committee to discuss the recommendations and I believe they are both happy with the outcome and willing to progress the recommendations on which there was broad agreement.

All the industries involved will now have to seriously and urgently consider by what mechanisms future actions will take place - a significant and positive outcome in itself. The SeaQual Steering Committee for its part will consider this issue at its next meeting scheduled for November 1997.

Yours sincerely

Jayne Gallagher

Manager SeaQual 31 August 1997

cc Mr Norm Grant

- - -

· -- · ·

AUSTRALIAN SEAFOOD INDUSTRY COUNCIL