An Industry-Based Program to Monitor Seal Interactions in the Commonwealth Trawl Sector of the Southern and Eastern Scalefish and Shark Fishery

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AN INDUSTRY-BASED PROGRAM TO MONITOR SEAL INTERACTIONS IN THE COMMONWEALTH TRAWL SECTOR OF THE SOUTHERN AND EASTERN SCALEFISH AND SHARK FISHERY

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1. NON TECHNICAL SUMMARY

2005/049 An industry-based program to monitor seal interactions in the Commonwealth Trawl sector of the Southern and Eastern Scalefish and Shark Fishery

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1.1 OBJECTIVES

1. To provide fishers with relevant information on the biology and conservation of seals to help raise industry awareness and encourage increased reporting of seal–fishery interactions.

2. To ensure that industry is familiar with and applies the Code of Practice to Minimise Interactions with Seals (2007).

3. To establish a robust industry-based monitoring program that provides spatial and temporal information on the level of seal–fishery interactions of Southern and Eastern Scalefish and Shark Fishery (SESSF) trawl vessels.

4. To develop and trial options to validate the robustness/reasonableness of the data collection and reporting system in order to quantify the extent of seal interactions, and report on the potential uptake by fishers, and the extent of effectiveness of each option in meeting the relevant strategic assessment requirements of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999).
1.2 OUTCOMES ACHIEVED TO DATE

First, as a direct result of this project and its associated outputs (including a workshop, booklet, DVD/video, poster, collection kit, articles in industry newsletters and reports), fishers in the wet boat component of the Commonwealth Trawl sector of the SESSF are now well informed about: the identification, biology and conservation of seals; the potential impact of seal–fishery interactions; the importance and need to record seal interactions; and the correct way to fill in the appropriate forms in their Australian Fisheries Management Authority (AFMA) logbooks when they interact with seals.

Second, as part of this project the South East Trawl Fishing Industry Association (SETFIA) compiled an *Industry Code of Practice to Minimise Interactions with Seals* in 2007. All wet boats in the Commonwealth Trawl sector of the SESSF have a copy on board to ensure that skippers and crew have access to information on how to minimise seal bycatch and seal mortalities.

Third, this project has successfully established an industry-based monitoring and data collection program that resulted in: a significant increase in fishers reporting seal–fisheries interactions in their AFMA logbooks; and fishers collecting samples from drowned seals.

Fourth, this project provided validation options that can be used by industry to enhance the robustness of reported seal interactions. Although the level of reporting during the project increased significantly, the current level of reporting (as from June 2007) is not considered to be robust. It is expected that there will be a further improvement in the levels of reporting and data collection from skippers remaining in the fishery subsequent to the Commonwealth Structural Adjustment Package.

Through increased reporting and satisfactory validation of the industry-based monitoring program, industry will better meet the data collection and reporting standards for seal
interactions required under the *EPBC Act 1999* and the SESSF Bycatch Action Plan. Validation of reporting and spatial and temporal information on the level of seal–fisheries interactions shall be analysed in 2009/10 once sufficient data has been collected. Biological samples collected from drowned seals should also be analysed to determine species, sex and estimated age of animals interacting with the fishery.

Finally, stakeholder and community perceptions relating to seal bycatch in the fishery can now be improved by informing the public that: (i) fishers are reporting interactions with seals, and (ii) fishers have been provided with information to minimise interactions that may result in injury to, or death of seals.

### 1.3 PLANNED OUTCOMES

This industry-based monitoring and data collection program will continue to assist in achieving the following outcomes:

- more accurate and regular reporting of seal–fisheries interactions by fishers in their AFMA logbooks;
- understanding of the nature of interactions, specifically information on: the species, sex and estimated age of seals interacting with the fishery; and spatial and temporal distribution of interactions. This information shall be used by the fishing industry and government to help develop effective measures to reduce the interactions.

When this project was initiated, there was no alternative ‘cost-effective’ means of obtaining extensive information on seal–fisheries interactions other than what is capable through an industry-based project that has wide industry support. Alternatives such as independent observer coverage, and/or video coverage, come at a significant cost to industry. That being said, there will always be a need for independent observer coverage and/or video surveillance to provide some level of audit of the information collected by industry. The
level of audit coverage might well be determined by the consistency between the audit and industry data, thereby providing incentive for industry to widely and accurately record their interactions.

Furthermore, the project will continue to validate the robustness/reasonableness of the data collection and reporting system. This is necessary in order to quantify the extent of seal interactions and report on the potential uptake by fishers of each option and the extent of effectiveness of each option in meeting the relevant strategic assessment requirements Part 13 of the *EPBC Act 1999*. Spatial and temporal information of seal–fisheries interactions and information about the animals (seal species, sex and estimated age) interacting with the fishery, shall be analysed in 2009/10 once sufficient data is available.

The Southern and Eastern Scalefish and Shark Fishery (SESSF) is a multi-species multi-gear fishery situated off the south-east coast of Australia and comprises trawl and non-trawl sectors. The trawl sector of the SESSF is Australia’s largest scalefish fishery, landing around 20,000 tonnes of fish annually, which mostly provides fresh fish to domestic markets. In 2006/07, the Commonwealth Trawl landed around 16 328 tonne worth AUD$54.5 million (ABARE, pers. comm.). Most of the vessels in the fishery are ‘wet boats’ (fishing vessels that store fresh fish on ice or brine) that use demersal trawl methods; however, a small number of factory boats using midwater trawls operate as well.

There is considerable overlap between the operation of trawl vessels in the SESSF and the foraging area of Australian and New Zealand fur seals. Some of the prey species eaten by fur seals are of commercial importance, and fur seals recognise fishing vessels as a source of food and frequently feed on fish caught in the nets. They also feed on offal and fish discarded from wet boats.
Protected under legislation since 1975, many Australian and New Zealand fur seal populations are now recovering from over-harvesting during the late 18th to early 20th centuries. A combination of increasing fur seal numbers in some areas and an overlap between the feeding ranges of fur seals and the operation of trawl vessels in the SESSF has created potential for more frequent interactions between fishers and fur seals. Seals are charismatic creatures, and reports of them being injured or killed arouse public concern. As they are also protected species; seal mortalities resulting from interactions with fishing operations can have negative political and socio-economic impacts on the industry. Such mortalities may also affect seal populations, and large losses of these predators at the top of the food chain could impact on marine ecosystems (Stewardson et al. 2008).

In 2002, an estimated average of 720 seals were captured annually in the wet boat component of the Commonwealth Trawl of which about one third were released alive (Knuckey et al. 2002, ISMP data collected from 1996 to 2001). Although seal captures in the wet boat component of the Commonwealth Trawl appear to be highly variable, this estimate raised significant concerns for management. Little other work has been conducted in the wet boat sector on which to base an assessment of the nature and extent of the issue or to develop appropriate mitigation measures. Clearly, very limited progress will be made on the assessment of the issue, the development of management targets, and application of mitigation strategies, unless accurate information becomes available.

The need for this project was driven primarily by the EPBC Act 1999 and by Ministerial recommendations following the Strategic Assessment of the Commonwealth Trawl. These recommendations included the need for AFMA, in consultation with industry, the Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA), researchers and other stakeholders, to further assess and reduce the extent of interactions of
seals (and other wildlife) across all sectors of the SESSF, and the need to satisfy the general community that the activities of the Commonwealth are not significantly affecting seals.

Full (100 percent) independent monitoring of seal interactions in the fishery would cost industry many millions of dollars annually. In contract, if even half of the industry accurately recorded their interactions with seals, it would provide a level of monitoring of seal bycatch that would be considerably more powerful than the current AFMA observer program (formerly the Integrated Scientific Monitoring Program—ISMP), which monitors only about 3 percent of trawl shots.

Outputs from the project included: 1) the appointment of a Project Liaison Officer who spoke with industry members about the need for reporting interactions with seals and encouraged industry to support the program; 2) a workshop to introduce the industry-based education and monitoring program, and to provide fishers with information on seal bycatch and guidelines on reporting and data collection; 3) an ‘educational kit’ for fishers that comprised a covering letter from the SETFIA endorsing the program, an information booklet and DVD/video on seal bycatch, and an Industry Code of Practice to Minimise Interactions with Seals (2007); and, 4) sampling kits that were distributed through SETFIA to enable selected fishers to collect biological data from dead (drowned) seals incidentally caught in trawl nets.

Through SETFIA, industry has now established a monitoring and data collection program. Levels of reporting have improved substantially, but the program can not yet be described as ‘robust’. It is expected that there will be a further improvement in the levels of reporting and data collection from skippers remaining in the fishery subsequent to the Commonwealth Structural Adjustment Package because they are likely to be much more committed to meeting the long-term sustainability requirements of the fishery with respect to reporting and data collection. The best way to judge the robustness of the program will be to review...
industry’s reporting performance following the conclusion of this project and distribution of the *Code of Conduct to Minimise Interactions with Seals* (say during 2009/10) against independent observer data (i.e. the AFMA observer program data).

An indication of the improvement in reporting, largely as a result of this project, is evident in the figures reported from the AFMA logbooks, which show a substantial increase in reporting. From 2001 to 2003, no seal interactions were reported from the wet boat sector of the Commonwealth Trawl. As a direct consequence of this project, during 2004, 2005 and 2006, wet boat fishers reported 30 (comprising 35 seals), 58 (comprising 85 seals) and 45 (comprising 52 seals) interactions with seals respectively.

Furthermore, following the port visits by the Project Liaison Officer, selected vessels have seal sampling kits, and biological samples are being collected. Samples from 23 seals were collected for the project from the major Commonwealth Trawl ports of Portland, Eden and Lakes Entrance.

### 1.4 KEYWORDS

Seals; South-East Trawl Fishery; Commonwealth Trawl; Bycatch; Industry Reporting; Southern and Eastern Scalefish and Shark Fishery
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The authors would like to thank Mr Joe Puglisi for his commitment to the project and hard work in getting other skippers to realise the importance of recording their interactions with seals. His willingness to step outside his comfort zone and go ‘on camera’ to make the educational DVD/video went beyond the call of duty and was much appreciated. Thanks to SETFIA, especially Gail Richey and Fritz Drenkhahn for their support of the project from the outset, and their willingness to help bring their entire industry behind the project.

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2 BACKGROUND

The Southern and Eastern Scalefish and Shark Fishery (SESSF) is a multi-species multi-gear fishery situated off the south-east coast of Australia (Figure 1). It is Australia’s largest scalefish fishery, providing most of the fresh fish to domestic markets. The fishery has both trawl and non-trawl sectors. The Commonwealth Trawl sector of the SESSF currently has 59 permits (as from June 2007) and landed 16,328 tonnes of fish, worth AUD$54.5 million in 2006/07 (ABARE, pers. comm.). Most of the trawl vessels are ‘wet boats’ (fishing vessels that store fresh fish on ice or brine) that use demersal trawl methods. There are also a few factory vessels that operate in the winter blue grenadier fishery off western Tasmania using midwater trawls.

The Australian fur seal, *Arctocephalus pusillus doriferus*, and New Zealand fur seal, *A forsteri*, are commonly found in south-east Australian waters (Figure 1). There are five breeding colonies of Australian fur seals on the islands of Victoria, and five on the islands of Tasmania. The population was estimated to be around 92,000 in 2002 (Kirkwood *et al.* 2005) and increasing (Kirkwood pers. comm.). The New Zealand fur seals breed in southern Australia, on the coasts of Western Australia, South Australia, New South Wales, Victoria and Tasmania. The population is also increasing and was estimated to be 96,000 in 2007 (Goldsworthy & Page, 2007; Simon Goldsworthy pers. comm.). Despite the increasing populations over recent decades, Australian and New Zealand fur seal numbers are probably smaller than they were prior to sealing. (Shaughnessy, 1999).
Figure 1. Map of the Commonwealth Trawl sector of the Southern and Eastern Scalefish and Shark Fishery in relation to the distribution of breeding and haul-out sites of Australian (*Arctocephalus pusillus doriferus*) and New Zealand (*Arctocephalus forsteri*) fur seals within Australia, excluding external territories. Definitions: (i) breeding colony: has at least 15 pups recorded during at least one survey over the past 20 years; (ii) haul-out with occasional pupping: has 1–14 pups recorded during at least one survey over the past 20 years; and (iii) haul-out site: sites that are frequented by fur seal. Haul-outs exclude man-made infrastructure, e.g. bellboys, oil rigs etc.
There is considerable overlap between the operations of trawl vessels in the SESSF and the foraging area of Australian and New Zealand fur seals (Arnould and Hindell, 2001; Arnould and Kirkwood 2008; Kirkwood et al. 2006). Considering that some of the prey species eaten by fur seals are of commercial importance (Hume et al. 2004; Littnan et al. 2007), it is inevitable that seals and fisheries will interact directly. Furthermore, fur seals recognise fishing vessels as a source of food and frequently feed on fish caught in the nets. They also feed on offal and fish discarded from wet boats. There has been an increasing recognition of interactions with seals in the trawl fishery in recent years (e.g. Tilzey et al. 2006, Hamer 2004, Goldsworthy et al. 2003, Knuckey et al. 2002). Sometimes these interactions result in injury and/or the incidental drowning of seals as they are scavenging around the trawl nets.

Seals are charismatic creatures, and reports of them being injured or killed arouse public concern. As they are also protected species, seal mortalities resulting from interactions with fishing operations can have negative political and socio-economic impacts on the industry. Such mortalities may also affect seal populations and large losses of these predators at the top of the food chain could impact on marine ecosystems (Stewardson et al. 2008).

In response to particularly high levels of incidental captures of seals on factory trawlers working in the blue grenadier fishery in 1999, industry initiated a collaborative project with researchers to reduce seal bycatch in the factory boat component of the Commonwealth Trawl fishery (Tilzey et al. 2006). An Industry Code of Fishing Practice was developed which aimed to: minimise the accidental bycatch of seals and other marine mammals by entrapment or entanglement in commercial trawl fisheries; ensure all processor trawlers operating in this fishery follow this Code; and, ensure compliance with the laws and regulations governing fisheries and bycatch, including encounters with marine mammals. The project also trialled
the use of Seal Exclusion Devices (SEDs) to assess their effectiveness in reducing seal mortalities.

Efforts to reduce seal bycatch in the Commonwealth Trawl sector had mostly concentrated on the factory boat component (targeting blue grenadier) of the Commonwealth Trawl sector through the above project (Tilzey et al. 2006). The factory boat component is a geographically small part of the Commonwealth Trawl and comparatively little work has been conducted in the remainder of the fishery operated by wet boat component.

During 2002, data from the ISMP for the wet boat component of the Commonwealth Trawl, operating from 1996–2001 was examined to access the extent of interactions with seals (Knuckey et al. 2002). This data indicated that seals were caught in about one in every fifty shots, but this incidental catch rate varied greatly across the fishery and in different seasons and depths. Over a five year period it was estimated that seal captures were highly variable but an average of 720 seals were captured annually, of which about one third were released alive (Knuckey et al. 2002). The project provided scientific evidence that the issue of seal bycatch in the wet boat component of the Commonwealth Trawl was significant and required immediate attention.

Apart from this work by Knuckey et al. (2002), little other information was available on the seal–fishery interactions in the wet boat component of the Commonwealth Trawl on which to base an assessment of the nature and extent of the issue or to develop appropriate mitigation measures. Clearly, very limited progress would be made on the assessment of the issue, the development of management targets, and application of mitigation strategies, unless accurate information becomes available.

Industry, government and non government organisations have acknowledged the need to address seal bycatch. The challenge was how to address the issue in a coordinated transparent
manner. In September 2003, AFMA invited stakeholders to attend a Special Southern and Eastern Scalefish and Fishery Ecological Advisory Group (SESSF) meeting dedicated to developing a FRDC project proposal, in consultation with key stakeholder groups. Participants included fishers, representatives from SETFIA and SETMAC, AFMA, Bureau of Rural Sciences (BRS), Marine and Freshwater Resources Institute (MAFRI), CSIRO, DEHWA, World Wildlife Fund for Nature (WWF), SeaNet, National Oceans Office (NOO), Humane Society International (HSI) and various seal researchers. The objectives of this meeting were to:

- review what the Commonwealth Trawl has achieved with respect to reducing seal–fisheries interactions;
- identify the key problem areas;
- determine how these problems should be addressed;
- develop a Fisheries Research and Development Corporation (FRDC) proposal to focus on future methods for reducing seal–fisheries interactions in the Commonwealth Trawl component of the SESSF.

Based on outcomes of this SESSF meeting, a small working group developed a funding proposal which was submitted to FRDC on 1 December 2003 by Carolyn Stewardson of BRS (AFMA and BRS, 2004). A seal-bycatch monitoring program and the trialling of SEDs on wet boats, were key components of the funding proposal. Both industry (SETFIA; GABIA) and non-government organisations (WWF; HSI; IFAW) strongly endorsed this proposal; however, it was not successful in gaining funding. In response, industry commissioned a much smaller project submitted by Ian Knuckey and Carolyn Stewardson (this project FRDC 2005/049) specifically aimed at the development of an industry-based seal monitoring and data collection program.
3 NEED

The immediate need to address seal bycatch in the wet boat component of the Commonwealth Trawl was driven by seven key factors:

1. *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999)*: Under Part 10 and 13 of the *EPBC Act 1999*, commercial fishers are required to operate in a manner that reduces the risk of seal bycatch and mortality.

   ‘Interaction’ means any physical contact an individual has with a protected species. This includes all catching (hooked, netted, entangled) and collisions with an individual of these species. In the context of this definition ‘protected species’ means all listed threatened, migratory and marine species under the *EPBC Act 1999*.

   Under this Act, operators must report interactions with ‘listed species’ including seals. According to the *SESSF Management Plan*, “any operator that interacts with a protected species as listed in Part 13 of the *EPBC Act*, and is acting in accordance with the *SESSF Plan 2003*, will not commit an offence if their operations are consistent with the Plan. Failure to report an interaction with a protected species will be an offence under the *EPBC Act*** (SESSF, “A guide to the 2007 Management Arrangements”, p.29).

   Reporting of an interaction is required within seven days to the Secretary of the DEWHA and is mandatory in all circumstances.

2. *Fisheries Management Act 1991*: This Act requires that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, in particular the need to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine
environment. There are provisions under the Act (s 14) regarding the making of regulations for the conservation of the marine environment, including specific actions to prevent or minimise bycatch (including marine mammals).


4. **The Strategic Assessment Process for the SESSF and Ministerial Direction:** All major Commonwealth fisheries have been assessed under Part 10 of the *EPBC Act 1999*. In addition, all Commonwealth fisheries are required to be assessed to determine whether a fishery should be accredited for the purposes of protected species provisions and wildlife trade provisions under Part 13 and 13A of the *EPBC Act 1999*.

In 2005, under the strategic assessment process for the SESSF, AFMA was directed under legislation by the then Minister for Fisheries, Forestry and Conservation to cease overfishing, recover overfished stocks, avoid further species becoming overfished, and to manage the broader environmental impacts of fishing, including on protected species (Commonwealth of Australia, Special Gazette No. S234, 20 December 2005).

In response to this Ministerial Direction, AFMA (in consultation with industry, DEHWA, researchers and other stakeholders) was required to further assess and reduce the extent of interactions of seals across all sectors of the SESSF (i.e. recommendation 18). Under this process, AFMA was obliged to:
• establish robust data collection and reporting systems to quantify the extent of interactions within 12 months;
• assess, trial and implement, as appropriate, mitigation or avoidance measures, including further trials of bycatch exclusion devices and spatial or temporal closures within 3 years;
• extend across the trawl sectors, management measures assessed as effective to help reduce interactions with seals and sea lions within 18 months.

5. The National Seal Strategy: In February 2003, the Marine and Coastal Committee (MACC) of the Natural Resource Management Standing Committee identified the need to address the growing national issue of human–seal interactions. In turn, the MACC established a small inter-government working group—the National Seal Strategy Group—to initiate the development of a coordinated national approach to human–seal interactions. The objective of the National Seal Strategy is to prevent or minimise adverse interactions between humans and seals through facilitating a nationally coordinated approach to identifying and addressing key issues. In particular, it seeks to assist the commercial fishing and aquaculture industries in understanding the protected nature of seals in Australian waters and aims to guide fishers efforts to reduce seal bycatch.

6. The South-east Regional Marine Plan: This plan was developed by the Australian Government and released in 2004. It identifies two actions relevant to seal bycatch. Action 2.11.1 states that all relevant Commonwealth agencies (Commonwealth and State partnership) are required to investigate management options for all marine industries to minimise seal interactions and mortalities, through the National Seal Strategy Group. Action 2.11.2 states that AFMA is required to support further research and development for the design and use of mitigation methods to avoid seal interactions in the fishing industry.
7. *General Public:* There is a need to satisfy the general community that the activities of the Commonwealth Trawl are not significantly impacting on fur seals.

Furthermore, ISMP observer trips cover less than five percent of trawl shots. As a result, there is considerable uncertainty as to the nature and extent of interactions with seals in this fishery. Power analysis of the ISMP data revealed that to detect even a 50 percent decrease in the interactions with seals would require an observer program more than seven times the current level of coverage (Knuckey *et al.* 2002). This would be likely to cost industry over AUD$4 million dollars annually through levies. Currently, industry can not afford to do anything other than immediately establish its own program to monitor the interactions of trawl vessels with seals. It is envisaged that the current ISMP (now the AFMA Observer program) will be used to audit the industry-based monitoring program.

4 **OBJECTIVES**

1. To provide fishers with relevant information on the biology and conservation of seals to help raise industry awareness and encourage increased reporting of seal–fishery interactions.

2. To ensure that industry is familiar with and applies its *Code of Practice to Minimise Interactions with Seals* (2007) especially in relation to the mitigation of incidental seal bycatch and seal mortality.

3. To establish a robust industry-based monitoring program that provides spatial and temporal information on the level of seal–fishery interactions of SESSF trawl vessels.

4. To develop and trial options to validate the robustness/reasonableness of the data collection and reporting system to quantify the extent of seal interactions and report on the potential uptake by fishers of each option and the extent of effectiveness of each option in meeting the relevant strategic assessment requirements of the *EPBC Act 1999.*
The project was submitted to FRDC in November 2004. The project objectives were revised based on feedback from AFMA, DEWHA and DAFF. Final agreement on the project objectives and outcomes was achieved in May 2005 and the project contracts were agreed and signed in June 2005.

5 METHODS

5.1 SEAL BYCATCH WORKSHOP

An industry workshop was held on 20 June 2005 to introduce the industry-based education and monitoring program, and to provide fishers with information on seal bycatch and guidelines on reporting and data collection. An information booklet (South East Trawl Fishery: Seal Bycatch - Guidelines for reporting and data collection) was launched by industry at this workshop.

5.2 SEAL EDUCATION KIT FOR FISHERS

A seal educational kit was compiled for fishers that comprised a cover letter from the South East Trawl Fishing Industry Association (SETFIA) endorsing the program, information booklet, DVD/video, poster, and revised Industry Code of Practice to Minimise Interactions with Seals (2007).

To ensure that educational material reached the crew of all fishing vessels, the information booklet was mailed-out to all vessel operators in July 2005, and the DVD/video, poster and the Industry Code of Practice to Minimise Interactions with Seals (2007) (DVD and hard copy) were mailed-out in October 2007.

5.3 LIAISON OFFICER

The initial requirement of the project was to select an appropriate Liaison Officer to do the bulk of the hands-on communication work with Commonwealth Trawl fishers. To this end, SETFIA was asked to nominate a suitable person. This person, together with the Principal
Investigator and Co-investigator were to use their extensive industry contacts to educate the wet boat trawl sector regarding the outputs of the project.

The Liaison Officer was employed on a casual part-time basis across all ports in the Commonwealth Trawl. The first job of the Liaison Officer was to educate fishers that, under the new Management Plan, they would not be prosecuted for recording interactions with or capture of seals. This was considered a critical aspect of the project, because it opened the way for industry to begin the collection of robust data on interactions with seals.

Second, the Liaison Officer was required to distribute and explain project education material (Seal education kit for fishers) and data collection kits. A range of port-based one-on-one meetings were held with industry members that provided fishers with relevant information on the biology and conservation of seals to help stimulate interest and encourage industry to be involved in the monitoring and data collection program, i.e. change how fishers perceived seals, and persuade them to report seal interactions and mortalities in AFMA logbooks.

Finally, content in the Industry Code of Practice to Minimise Interactions with Seals (2000) which was compiled for the factory vessels in the Commonwealth Trawl was modified by SETFIA in 2007 to accommodate the needs of the wet boat sector (this project). The role of the Port Liaison Officer was to alert wet boat fishers of this new Code and encourage compliance. The Liaison Officer was to use his personal knowledge of the fishery and his network of industry contacts to provide information relevant to the wet boat sector.

5.4 REPORTING COMPLIANCE

Through the work of the Liaison Officer, select key industry personnel from each Commonwealth Trawl port were encouraged to promote involvement in the project through a ‘lead-by-example’ approach. These port leaders agreed to fully adopt the Code of Practice to Reduce Interactions with Seals (2007) in their fishing operations and be fully compliant with
the *EPBC Act 1999* reporting procedures. The level of incidental seal bycatch recorded by the port leaders was to be used to compare with independent estimates of seal capture rates recorded by the ISMP (current AFMA observer program) and as a measure of the level of compliance of other industry members. AFMA logbooks will be analysed to determine the number of fishers reporting seal interactions.

### 5.5 DATA COLLECTION

Through SETFIA, sampling kits were distributed among selected operators in all of the major South East Trawl ports by the Project Liaison Officer. They were provided with datasheets and sampling equipment that enabled them to correctly identify, record and collect biological samples (remove one ear) from seals that are drowned from capture in nets.

In addition, all port leaders agreed to engage in the data collection program. The Port Liaison Officer collected the biological specimens from fishers and stored them for future DNA analysis (to determine the species and sex of individual seals interacting with the fishery). It was envisaged that the combination of the Liaison Officer and the network of port leaders was appropriate to promote involvement with the data collection program throughout the wet boat sector of the trawl industry.

### 6 RESULTS / DISCUSSION

A summary of the project outputs is provided at **Appendix 3A**.

#### 6.1 SEAL BYCATCH WORKSHOP

An industry workshop was held on 20 June 2005 to introduce the industry-based education and monitoring program, and to provide fishers with information on seal bycatch and guidelines on reporting and data collection.
The workshop was well advertised (Appendix 3B) and attended by over 27 people with 15 industry members. Presenters at the workshop included Ian Knuckey (Principal Investigator, Commonwealth Trawl scientist), Carolyn Stewardson (Co-Investigator, BRS seal scientist), Simon Goldsworthy (SARDI, seal scientist/ecologist), Roger Kirkwood (Philip Island Nature Park, seal biologist), Robert Ferguson (DEH), Cliff Lloyd (AFMA Environment Section) and Joe Puglisi (Project Liaison Officer). The workshop was also attended by the following people: from DEWHA – Robin McCullough and Rob Ferguson; AFMA – Tim Smith, Dave Johnson, Steve Bolton, Matt Piasente, Melissa Brown, Cliff Lloyd; Industry – Ted Jones, Tony Gurnaccia, Fritz Drenkhahn, Gail Richey, Tony Bewley, Michael Thomas, Steve Buckless, Peter Clarke, Tom Bibby, John & Liz Parkhill, Jeff Moore, Christian Pyke, Locky Marshall and David Guillot. The agenda for this workshop is presented in Appendix 3C.

6.2 EDUCATIONAL KIT FOR FISHERS

The following educational material was produced for fishers in the Commonwealth Trawl:

- **Booklet:** *South East Trawl Fishery: Seal Bycatch - Guidelines for reporting and data collection* (2005). *(hard copy and available on the BRS and SETFIA websites).*
  
  - This booklet (Appendix 3D) comprises information about the biology, ecology and identification of seals likely to be encountered by Commonwealth Trawl fishers; how to report interactions with seals; and how to collect biological material. The booklet was launched by SETFIA in June 2005 (at the workshop). Copies of the booklet were mailed-out to all vessel operators in July 2005 and distributed to crew at major Commonwealth Trawl ports by the Port Liaison officer *[The print run was 1,000]*. This component of the project was funded by Natural Heritage Trust (project 44144).
• **Poster**: *Seals of Australia* (2006) (*hard copy and available on the BRS and SETFIA websites*).

  o This poster (*Appendix 3E*) depicts seal species that are commonly found in Australian waters. Information for each species includes a photograph, a pencil sketch and written description of key identifying features. There are two versions of the poster (A3 and large format—A0) both of which are in full colour and splash proof paper.

The poster was launched by the Australian Government in July 2006. Copies were mailed-out to all vessel operators in October 2007 and distributed to crew at major Commonwealth Trawl ports by the Port Liaison officer [*Print run was 20, 000*]. This component of the project was funded by Natural Heritage Trust (project 44144).


  o The first part of this DVD/video (*Appendix 3F*) explains why seal bycatch is of concern to fishers and managers, and provides an overview of measures that have been put in place to address this. Part two explains which seal species Commonwealth Trawl fishers are most likely to interact with and how to identify them. Part three explains the data collection and reporting program.

  DVD/videos have proven to be one of the most valuable forms of information for Commonwealth Trawl fishers, as every vessel has a DVD/video player in the wheelhouse or galley that the skipper and crew regularly watch.

  The DVDs/videos were launched by the Australian Government in July 2006. They were mailed-out to all vessel operators in October 2007 and distributed to
crew at major Commonwealth Trawl ports by the Port Liaison officer [100 DVDs and 100 videos were produced]. This component of the project was funded by Natural Heritage Trust (project 44144).


  o The *Code of Fishing Practice to Minimise Incidental Bycatch of Marine Mammals in the South East Trawl Fishery* was developed in 2000 in response to an unusually high bycatch of seals in the blue grenadier sector in 1999. It is a companion document to the *Code of Conduct for Responsible Fishing in the Commonwealth Trawl*. As a general update, and to support this project, the *Code* was revised in 2007 for wet boats. The revised *Code* (Appendix 3G) aims to minimise accidental bycatch of seals (by entrapment or entanglement in trawl nets) and to ensure all operators comply with the *Code*, and laws and regulations governing fisheries and bycatch.

  Improvements on the 2000 version of the Code included: (i) a clear statement that although the Code is voluntary, there are legal requirements for reporting interactions with all marine mammals under the *EPBC Act 1999*; (ii) clear objectives, notably ‘making fishers aware of relevant legislation and policies governing fisheries, bycatch and protected species’; (iii) a list of relevant legislation and policies; (iv) a summary on reporting requirements under the *EPBC Act (1999)*; (v) clear descriptions and figures of seals Commonwealth Trawl fishers are likely to encounter; (vi) a clear section that encourages fishers to assist in scientific research; and (vii) reference to additional educational resources.
The Code was mailed-out to all vessels operators in October 2007 and distributed to crew at major Commonwealth Trawl ports by the Port Liaison Officer [Print run was 200].

### 6.3 LIAISON OFFICER

SETFIA appointed fisher Mr Joe Puglisi from Ulladulla (NSW) as the Liaison Officer for the project. Mr Puglisi is an experienced Commonwealth Trawl skipper with over 30 years involvement in the fishery and was well-respected across the various Commonwealth Trawl ports. Mr Puglisi proved to be a very capable individual who was dedicated to achieving the project outcomes and, through his wide network of contacts throughout the industry, achieved extensive involvement of the broader industry with the project. Furthermore, Mr Puglisi proved to be a ‘natural’ in front of the camera and his endorsement of the program, notably as depicted in the introductory section of the DVD/video, was a critical factor in the success of the project.

The Liaison Officer visited all of the major Commonwealth Trawl ports during late 2005 and again during 2006. Information booklets were provided to skippers and crew and commitments were made for at least one vessel in each port to begin collecting and reporting information on seal interactions. In reality, more than one vessel in each port gave this commitment.

### 6.4 REPORTING AND DATA COLLECTION

At the time of writing this report, information was made available by AFMA for those interactions involving seals being brought aboard the vessel (dead or alive). Therefore, this report only examines those interactions where seals are brought aboard the vessel. However, many of the fishers have also been completing the comment sections of their logbooks and recording useful information on seal interactions which occurred in the water surrounding the
fishing vessels. This important additional information was not available to be included in the analysis at this time, but will be an important part of subsequent analyses expected to be carried out in 12 months time when a more comprehensive data set is available.

Data provided by AFMA indicated that industry reporting levels in the AFMA logbooks (Appendix 3K) during the term of the project increased considerably (Table 1). For example, in the wet boat component in the Commonwealth Trawl sector of the SESSF, for 2005 there were 17 boats ‘reporting 58 operations where an interaction occurred’, comprising 52 seals (dead and alive). There were no wet boats reporting interactions with seals in 2002 and 2003.

Despite the increase in reporting, it is difficult to determine the level of compliance with the reporting regulations, and success of this project, because it does not take into account the fishing vessels that legitimately did not interact with any seals but would report such an interaction if it occurred. There are some sectors/areas/vessels of the trawl fleet that have continually emphasised that they have not had an interaction with a seal for many years or that interactions are extremely rare. In future, it is recommended that AFMA obtain the names of the vessels that have not reported any interactions in order to determine if this is a result of their fishing operations, or area of fishing, or reflects non-compliance.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. wet boats fishing</th>
<th>No. vessels reporting</th>
<th>Total no. operations reported where interactions occurred</th>
<th>No. seals caught alive</th>
<th>No. seals caught dead</th>
<th>Total no. seals caught dead and alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
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<td>0</td>
<td>0</td>
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<td>24</td>
<td>61</td>
<td>85</td>
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<tr>
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<td>16</td>
<td>45</td>
<td>12</td>
<td>40</td>
<td>52</td>
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<td>8</td>
<td>20</td>
<td>9</td>
<td>14</td>
<td>23</td>
</tr>
</tbody>
</table>

Figure 2. The total number of seal–fishery interactions presented by season in the wet boat component of the Commonwealth Trawl sector of the SESSF: December 2003 to June 2007 (Note: only one month of the 2007 winter season was included in this information). Source: Trawl Daily Fishing Logs.
The seasonal breakdown of seal interactions is shown in Figure 2. The increase in reporting is most evident in the winter season (noting that only one month of the 2007 Winter season was included in this information).

This project suffered considerably during 2006, due to industry involvement in the Commonwealth Structural Adjustment Package. Given the poor financial situation of most SESSF trawl operators over the last few years, many operators (especially east coast NSW) were concentrating mainly on getting out of the fishery through the buyback. Therefore, interest in participating in a seal monitoring program was a very low priority for many fishers. Furthermore, the Liaison Officer was also involved in the Structural Adjustment process and was unable to put much effort into the project during this time. Overall, the Structural Adjustment process was delayed by over four months, but in September 2006 it was announced that over 50 percent of trawl licences had been removed as a result of the Structural Adjustment. Despite this situation, there have been positive results from the project as outlined below.

Following the completion of the Structural Adjustment process, the Liaison Officer made a follow-up tour of the Commonwealth Trawl ports to talk to the remaining skippers about involvement in the project and encourage them to continue reporting and data collection. During these visits, he distributed educational material and collected biological samples collected by operators.

Through SETFIA, the trawl industry has now established a monitoring and data collection program. Following the port visits by the Liaison Officer, many vessels now have the seal sampling kits and biological samples are being collected. In June 2007, 23 samples from seals were collected for the project from the major Commonwealth Trawl ports of Portland, Eden and Lakes Entrance.
Whilst it is still too early to claim that Industry has established a ‘robust’ industry-based monitoring and data collection program as a result of this project, the program is well underway and is gaining greater industry involvement with time. It is expected that there will be continued improvement in the levels of reporting and data collection, now that the fishery has ‘settled down’ subsequent to the Structural Adjustment. It is believed that the main reason for this is that operators remaining in the fishery will be committed to meeting the long-term sustainability requirements of the fishery with respect to reporting and monitoring.

Continued education of industry and monitoring of the level of reporting of seal interactions against independent scientific monitoring will be the best way to judge how ‘robust’ the Industry-based monitoring program has become. Compared to before the project when no seal interactions were reported by the wet boat component of the Commonwealth Trawl sector of the SESSF, 153 operations where an interaction occurred were reported, comprising 195 seals (dead and alive), between 2004 and June 2007. Biological samples were collected from a total of 23 seals. This provides a good indication of the potential value of this Industry-based monitoring program.

6.5 PUBLIC RELATIONS

Products produced for this project were officially launched by the Australian Government in July 2006 (Appendix 3H, 3I). Public displays of educational material associated with this project were presented at Seafood Direction 2005 (14 September 2005, Sydney), Bureau of Rural Sciences Expo 2005 (22 June 2005, Parliament House Canberra) and Sharing the Fish 2006 Conference (26 February to 2 March 2006, Perth). Industry was kept informed of project progress largely through efforts of the Port Liaison Officer, various articles in industry newsletters (e.g. Appendix 3J) and regular updates presented at South East Trawl Fishing Industry Association (SETMAC) meetings.
7 BENEFITS AND ADOPTION

The flow of benefits from this project was identified in the project proposal as 100 percent to the commercial sector (AFMA–South East Trawl). In addition, the outcomes of the project will also provide community benefits through the dissemination of project outputs (poster, DVD, booklet) which will inform the community that the issue of seal bycatch in the Commonwealth Trawl component of the SESSF is being addressed.

Through the dissemination of information and educational packages to skippers and crew by the Liaison Officer, the project aimed to have at least one vessel in each major Commonwealth Trawl port actively monitoring and recording seal–fishery interactions in the Commonwealth Trawl. This goal was achieved, and industry is continuing to see increasing numbers of vessels in each port committing to report seal interactions and collect biological information. The logbook data provided by AFMA indicates that industry reporting levels during 2004 to 2006 increased significantly, reflecting the high degree to which the project’s outputs have been adopted.

DEWHA have already indicated that they are looking at using the model outlined in this project to apply to the reporting of interactions with other threatened, endangered or protected species in the SESSF and other fisheries. Furthermore, the project Co-investigator, Dr Carolyn Stewardson, was awarded the prestigious Alison Furbank Award for Communication Excellence for coordinating the development of the ‘Seal Educational Kit for Fishers’ with industry and the relevant Government Departments.

8 FURTHER DEVELOPMENTS

The Commonwealth Structural Adjustment Package process in 2006 drew the focus of many operators who were concentrating mainly on getting out of the fishery. Interest in being involved in a seal monitoring program was a very low priority for these fishers. Now that the
Structural Adjustment process has been finalised, it is expected that operators remaining in the fishery will be more committed to meeting the long-term sustainability requirements of the fishery with respect to reporting and monitoring.

It is expected that this project will lead to the ongoing and improved reporting and monitoring of seal interactions by trawl vessels through their peak body–SETFIA. With a year or two of information available subsequent to the Structural Adjustment Package, it will be possible to begin analysing the detailed reporting information to determine spatial and temporal patterns of interactions so that responses to mitigate these interactions can be implemented whether they are through changed fishing practices or appropriate fishery management. It could also help highlight if particular vessels appear not to be reporting adequately. Biological information shall be examined to determine the species, sex and estimated age group of seals that interact with the wet boat component of the Commonwealth Trawl. The robustness of reporting will also be investigated.

As a result of the understandings gained through this project, the wet boat sector of the Commonwealth Trawl is already looking at alternative mitigation options.

9 PLANNED OUTCOMES

This project and its associated outputs (including a workshop, booklet, DVD/video, poster, collection kit, articles in industry newsletters, Code of Conduct and final report), provides immediate benefits to fishers, scientists, fishery managers and the wider community. These will continue to assist in achieving the following outcomes:

- trawl fishers that are more informed about the role of seals in the ecosystem, and the potential impact of seal–fishery interactions;
- wider and more detailed understanding by all stakeholders of the interactions between trawl vessels and seals and how these interactions might be reduced;
• detailed information on seal interactions recorded in AFMA logbook (including extensive spatial and temporal information)

This last point is emphasised because currently there is virtually no other cost-effective means of obtaining extensive information on what is a relatively infrequent event than what is capable through an industry-based project that has wide industry support. Any alternatives such as extensive independent observer or video coverage typically come at a significant cost to industry. That being said, there will always be a need for independent observers or video surveillance to provide some level of audit of the information collected by industry. The level of audit coverage might well be determined by the consistency between the audit and industry data, thereby providing incentive for industry to widely and accurately record their interactions.

Through increased reporting and satisfactory validation of the industry-based monitoring program, industry will better meet the data collection and reporting standards for seal interactions required under the *EPBC Act 1999*.

### 10 CONCLUSION

The ‘Seal educational kit for fishers’ developed for industry, was a major achievement of the project. Due to this work, trawl fishers are now well informed about the role of seals in the ecosystem, the potential impact of seal–fishery interactions and the importance and need to record any interactions. In addition, community perceptions relating to seal bycatch in the fishery are now able to be improved by informing the public that fishers are addressing the issue.

Through SETFIA, Industry has now established a monitoring and data collection program, including the ability to collect biological samples from seals. AFMA logbooks show a major increase in reporting during 2004, 2005 and 2006, when 30 (35 seals), 58 (85 seals) and 45
(52 seals) ‘reports of seal interactions’ were made respectively, compared to 2002 and 2003 when none were made.

It is expected that the operators remaining in the fishery post Structural Adjustment will continue to improve their commitment to meeting the long-term sustainability requirements of the fishery with respect to seal reporting and monitoring. More detailed analysis of the data collected on seal interactions will highlight improved fishing practices and management solutions to reduce seal interactions.

Through increased reporting and satisfactory validation of the industry-based monitoring program, industry will better meet the data collection and reporting standards for seal interactions required under the EPBC Act 1999.

11 REFERENCES


12 ACRONYMS

**ABARE**: The Australian Bureau of Agricultural and Resource Economics

**AFMA**: The Australian Fisheries Management Authority

**BRS**: Bureau of Rural Sciences

**CSIRO**: Commonwealth Scientific and Industrial Research Organisation

**DEWHA**: Australian Government Department of the Environment, Water, Heritage and the Arts

**EPBC Act 1999**: *Environment Protection and Biodiversity Conservation Act 1999*

**FRDC**: Fisheries Research and Development Corporation

**GABIA**: Great Australian Bight Industry Association

**HSI**: Humane Society International

**IFAW**: International Fund for Animal Welfare

**ISMP**: Integrated Scientific Monitoring Program

**MAFRI**: Marine and Freshwater Resources Institute

**NGO**: Non-government organisation

**NOO**: National Oceans Office

**SED**: Seal Exclusion Device

**SESF**: Southern and Eastern Scalefish and Shark Fishery

**SESSFEAG**: Southern and Eastern Scalefish and Shark Fishery Ecological Advisory Group

**SET**: South East Trawl. This is the trawl sector of the Southern and Eastern Scalefish and Shark Fishery, which has recently been renamed the Commonwealth Trawl Fishery

**SETFIA**: South East Trawl Fishing Industry Association

**SETMAC**: South East Trawl Management Advisory Committee

**WWF**: World Wildlife Fund for Nature
APPENDIX 1  INTELLECTUAL PROPERTY

The seal bycatch booklet produced by the project is cited as:


The seal bycatch DVD/video produced by the project is cited as:


The seal identification poster produced by this project is cited as:


The Industry Code of Conduct to Minimise Interactions with Seals produced by this project is cited as:


APPENDIX 2       PROJECT STAFF

Dr. Ian Knuckey: Principal Investigator

Dr. Carolyn Stewardson: Co-Investigator

Mr. Joe Puglisi: Liaison Officer
APPENDIX 3A  PROJECT OUTPUTS

WORKSHOP

Title: SEFT Seal Bycatch Workshop: Guidelines for Reporting and Data Collection
Date: 20 June 2005
Aim: Provide industry with information on seal biology, population trends, reducing fishery interactions and reporting requirements.

Appendix 3B: Invitation to the initial Seal Bycatch Workshop, Canberra 20 June 2005
Appendix 3C: South East Trawl Fishery: Seal Bycatch Workshop Agenda, Canberra, 20 June 2005

SEAL BYCATCH BOOKLET

Aim: Provide industry with information on seal biology, population trends, reducing fishery interactions and reporting requirements.
Appendix 3D: Front cover of the Seal Bycatch Booklet prepared for the Seal Bycatch Workshop 2005 and ‘Seal Educational Kit for Fishers’
Funding: Additional funding sourced from the Natural Heritage Trust (Project No. 44144).

SEAL IDENTIFICATION POSTER

Citation: Bureau of Rural Sciences (2006). Poster: Seals of Australia. Natural Heritage Trust Project No. 44144, Canberra.
Aim: An identification guide dedicated to the ten species of seals found in Australian waters suitable for everyday use by fishers and aquaculture operators, i.e. a splash proof, compact poster summarising key features of each species including a line diagram and photograph of each species.
Appendix 3E: Seal Identification Poster prepared for the ‘Seal Education Kit for Fishers’
Funding: Additional funding sourced from the Natural Heritage Trust (Project No. 44144).

COLLECTION KIT

Kit: Each esky comprised 12 vials of preserving liquid, box of gloves, sticky labels, pencil, sharpener and tape measure (project sticker and flammable sticker clearly identified individual eskies).
Aim: Material in each kit was presented to selected fishers providing them with the means to remove one ear from each dead seal (i.e. drowned in trawl net) for subsequent analysis in the laboratory to determine species and sex. The tape measure was provided for recording body length to estimate the age of the seal.
DVD/VIDEO


Aim: Provide industry with information on seal biology, population trends, reducing fishery interactions and reporting requirements.

Appendix 3F: South East Trawl Fishery Seal Bycatch DVD/Video cover prepared for the ‘Seal Education Kit for Fishers’

Funding: Additional funding sourced from the Natural Heritage Trust (Project No. 44144).

SETFIA CODE OF PRACTICE


Aim: Overall objective is to provide specific guidelines to assist South East Trawl fishers to minimise the incidental catch of seals.

Appendix 3G: Front cover of the ‘SETFIA Code of Practice to Minimise Interactions with Seals’ distributed with the ‘Seal Education Kit for Fishers’

PUBLIC RELATIONS

• Ministerial launch/speeches associated with this project (Appendix 3H, I)
• Article in SETFIA newsletter, June 2006 (Appendix 3J)
• Article in FRDC magazine: FISH, 2007
• Public display of educational material associated with this project, e.g. Seafood Direction 2005 (14 September 2005, Sydney); Bureau of Rural Sciences Expo 2005 (22 June 2005, Parliament House Canberra); and Sharing the Fish 2006 Conference (26 February to 2 March 2006, Perth)
• Updates of project progress at various SETMAC meetings
APPENDIX 3B INVITATION TO THE INITIAL SEAL BYCATCH WORKSHOP, CANBERRA 20 JUNE 2005

SEAL WORKSHOP

What a fisherman needs to know:
Seal biology
Population trends
Reducing fishery interactions
Reporting requirements
Data collection

Brassey Hotel - Canberra
Monday 20th June 2005
1.00 – 5.30pm
Refreshments following

To register, contact Ian Knuckey: 0408 581 599, fishwell@datafast.net.au
APPENDIX 3C SOUTH EAST TRAWL FISHERY: SEAL BYCATCH
WORKSHOP AGENDA, CANBERRA 20 JUNE 2005

SOUTH EAST TRAWL FISHERY: SEAL BYCATCH
Guidelines for reporting and data collection

Venue:
Burton Room, Dromana Hotel, Canberra

Time:
Monday 20th June 2005, 1:00–5:00 pm

Lunch at the Dromana Hotel 12:00 onwards

1. Preliminaries
   1.1 Introduction
      Ian Knuckey (Principal Investigator) 1:00–1:10

2. Industry-based education and monitoring program
   2.1 Overview of the industry-based education and monitoring program
      Ian Knuckey 1:10–1:30

3. Seals—biology and population dynamics
   3.1 Seals found in Australian waters (species identification)
      Carolyn Stewardson (Scientist-3RS) 1:30–1:45

   3.2 Abundance and trends of seal numbers in Australian waters
      Roger Trefusis (Seal biologist) 1:45–2:00

   3.3 General biology, diet and foraging behavior of Australian fur seals
      Glenn Boldsworth (Seal biologist) 2:00–2:30

4. Seal–fisheries interactions in the wet boat sector of the SETF
   4.1 Estimates of seal interactions in the wet boat sector of the SETF
      Ian Knuckey 2:30–2:40

5. Requirements to reduce seal interactions and mortalities
   5.1 Environment Protection and Biodiversity Conservation Act, 1999
      Robert Ferguson (DEW) 2:45–3:00

Afternoon tea 3:00–3:30

6. Reporting seal–fisheries interactions in AFMA logbooks
   6.1 Reporting seal–fisheries interactions in AFMA logbooks
      Curt Lloyd (AFMA) 3:30–3:50

   6.2 Collecting biological material from drowned seals
      Carolyn Stewardson (Scientist-3RS) 3:50–4:00

7. Next steps and general questions
   Joe Pajadi (Industry Liaison Officer) and Ian Knuckey 4:00–4:20

Workshop close 5:00

Details 5:30

Dinner 7:30
Dinner for workshop/project participants (Venus 16)

Knuckey and Stewardson (2008)
APPENDIX 3D FRONT COVER OF THE SEAL BYCATCH BOOKLET PREPARED FOR THE SEAL BYCATCH WORKSHOP 2005 AND ‘SEAL EDUCATIONAL KIT FOR FISHERS’
APPENDIX 3E  SEAL IDENTIFICATION POSTER PREPARED FOR THE ‘SEAL EDUCATION KIT FOR FISHERS’
Appendix 3G: Front cover of the ‘SETFIA Code of Practice to Minimise Interactions with Seals’ distributed with the ‘Seal Education Kit for Fishers’
APPENDIX 3H INVITATION TO THE ‘SEAL EDUCATION KIT FOR FISHERS LAUNCH’, EDEN JULY 2006

An Invitation

The Hon Sussan Ley, Parliamentary Secretary to the Minister Agriculture, Fisheries and Forestry
together with
The Hon Gary Nairn
Special Minister of State
invite
Ms Kylie Paulsen
to the launch of the
Seal Interactions in the South East Trawl Sector of the Southern and Eastern Scalefish and Shark Fishery educational tools.

When: 12.00pm for a 12.30pm start, Friday 7 July 2006
Venue: Eden Killer Whale Museum, Imlay Steet, Eden
Followed by a light lunch at .... [TBC]

RSVP: Tracey Lutton, Bureau of Rural Sciences
Phone 02 6272 3197 or email Tracey.Lutton@brs.gov.au
by 5.00pm Tuesday 4 July 2006
APPENDIX 3I  MEDIA RELEASE - GARY NAIRN LAUNCHES SOUTH EAST TRAWL FISHERY ‘SEAL EDUCATIONAL KIT FOR FISHERS’, 6 JULY 2006

6 July 2006

Gary Nairn launches trawl fishery educational kit

A new educational kit to be launched tomorrow (Friday, 7 July 2006) by Eden-Monaro’s Federal Member Gary Nairn will help fishers gather detailed information on seals in the South East Trawl Fishery (SETF).

Mr Nairn said the kit, which includes a DVD/video and seal identification poster was part of a wider industry-based programme designed to encourage fishers in the SETF to provide regular and more accurate information on their interactions with seals.

‘There’s little information available at the moment on how seals and fishers interact in the ‘wet-boom’ sector of the fishery, making it difficult to assess the nature and extent of the issue or, if there are particular concerns, to develop effective mitigation measures,’ he said.

Mr Nairn said that the educational kit, which will be sent to all fishers in the SETF, will help raise industry awareness by providing the latest information on the biology and conservation status of seals.

‘It sets out, in simple terms, the correct ways of reporting seal interactions and collecting biological material, helping provide us with a clearer picture of the hotspots of interactions, and gender and age make-up of the seals, interacting with this fishery.

‘And the poster, with its full-colour images and descriptions, will help fishers identify particular species. The DVD/video will help fishers become familiar with the new code of conduct, especially in relation to reporting incidental seal by-catch and mortality ratios.

‘The posters will also be distributed in other fisheries, as well as to marine, finfish aquaculture operators, where interactions with seals are also known to take place.’

WHO: The Hon. Gary Nairn MP
WHERE: Killer Whale Museum, Inlay St, Eden
WHEN: 12pm, Friday 7 July 2006

Media Advisor - Megan Magill 02 6277 7600 0417 816 952 megan.magill@finance.gov.au
APPENDIX J3    ARTICLE ON THE SEAL PROJECT AND THE LIAISON OFFICER IN THE SETFIA NEWS, JUNE 2005

The Fisheries Research and Development Corporation (FRDC) has given the go ahead for SETFIA to begin its project on industry-based monitoring of seal interactions in the SETF. The project, lead by Dr Ian Knuckey and Dr Carolyn Stewardson, will run for 18 months and has received funding of $80K from FRDC and $21K from the Natural Heritage Trust.

The program provides trawl fishers with relevant information on the biology and conservation of seals to help raise industry awareness of the issues and to encourage increased reporting of seal-fishery interactions. SETFIA has appointed Joe Puglisi from Uludulla as the industry-based liaison officer to help get the message across to skippers and crews. This one-on-one liaison will be backed up with industry workshops, pamphlets and videos.

The aim of the promotional material is to provide fishers with an understanding of seal biology and population dynamics, encourage reporting of seal interactions, and to develop and promote ways to minimize the interactions.

SETFIA president, Fritz Drenkhahn, sees the advantages in pro-active industry involvement in recording seal interactions. "Although seal captures are not common, if Industry does not report these interactions with seals, we risk higher costs associated with increased observer coverage" Fritz said. "What's more, with seal numbers increasing rapidly, industry is in the best place to provide good information on seal populations".

To start the project off, a half-day workshop is scheduled for the afternoon of Monday 23 June at the Brashley Hotel in Canberra, prior to the June SETFIA meeting.

SETFIA is also looking for at least one skipper in each port to join Joe Puglisi in championing this project. If you are interested in being involved please contact Ian Knuckey 0408 581 599.
APPENDIX 3K  EXAMPLE LISTED MARINE AND THREATENED SPECIES FORM FILLED OUT FOR A SEAL CAPTURE

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</tr>
<tr>
<td>Corresponding genBank No.: 12</td>
<td></td>
</tr>
<tr>
<td>Cleaner or trawl operator: Neil</td>
<td></td>
</tr>
</tbody>
</table>

### Australian Fur Seal

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<th>Number of Specimen</th>
<th>Time at which interaction ceased (GMT)</th>
<th>Latitude/Longitude of Interaction</th>
<th>Caught During</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>Australian Fur Seal</td>
<td>08066</td>
<td>2,71,0.6, 1,5,0,1,29</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Fur Seal</td>
<td>16066</td>
<td>2,71,0,0, 1,5,1,27</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Fur Seal</td>
<td>13066</td>
<td>5,6,1,2,1, 1,4,1,0,3</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comments

Is there anything else that you believe to be important information for example: Female, male, adult, juvenile?

Where was the animal caught (species, depth, length, weight etc.)?

How was the animal released (covered by hand, lowered with a net into the water, out at sea etc.)?

- Adult Male - opening of penis and scrotum evident
  - Testes with scrotum
  - Excreted in codend

- Adult Male - sex unobserved
  - Excreted in codend

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

Certification by Authorised Person: Jimmy Johns

Please provide an estimate of the time taken to complete this form: 4 min.