



SMARTER FISHING FOR INDUSTRY

Annual Report 2005 - 2006

November 2006

SeaNet Annual Report 2005 - 2006

OceanWatch Australia Ltd Locked Bag 247 Pyrmont NSW 2009 AUSTRALIA t 02 9660 2262 f 02 9660 2786 e ocean@oceanwatch.org.au ABN 86 071 195 901 ACN 071 195 901 SEACHER FISHING FOR INDUSTRY TIDE TOTABLE RESTORING AQUATIC HABITAT

www.oceanwatch.org.au

SeaNet Environmental Fisheries Extension Program



©OceanWatch Australia Limited. [2006]

Copyright in the drawings, information and data recorded in this document ("the information") is the property of OceanWatch Australia. This document and the information are solely for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by OceanWatch Australia. OceanWatch Australia makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

Author:	Mel Bradbury
Reviewer:	Anissa Lawrence
Approved by:	Anissa Lawrence
Signed:	
Date:	
Distribution:	



Contents

1.	SeaNet – Who are we and why?		5	
	1.1	Project description - SeaNet in brief	5	
	1.2	Aims of SeaNet	5	
	1.3	Basis for SeaNet	5	
	1.4	How SeaNet operates	6	
	1.5	Current scope of operation	6	
2.	Organisational structure			
	2.1	OceanWatch Australia Board of Directors	7	
	2.2	SeaNet National Steering Committee	7	
		2.2.1 National Steering Committee Terms of Reference	7	
		2.2.2 National Steering Committee members during 2005 – 2006	8	
	2.3	Management and administration	9	
	2.4	SeaNet Extension Officers	9	
	2.5	SeaNet host organisations	9	
	2.6	SeaNet research partners	10	
3.	Projects in 2005 – 2006		11	
	3.1	National projects	11	
	3.2	Projects in Far North Queensland	11	
	3.3	Projects in New South Wales	12	
	3.4	Projects in Victoria	13	
	3.5	Projects in South Australia	14	
	3.6	Projects in Western Australia	16	
	3.7	Projects in the Eastern Tuna and Billfish Fishery (ETBF)	17	
4.	Proj	ect case studies	18	
	4.1	Queensland - Reducing marine mammal interactions in the Gulf of Carpentaria Gillnet Fishery using acoustic alarms and pingers	18	
	4.2	New South Wales - Clyde River Environmental Management System	20	
	4.3	Victoria - Initial trials of the rotated-mesh panel (T90) for use in the South-East Trawl fishery, as a bycatch reduction device.	22	
	4.4	South Australia - Clean up Yorke Peninsula	24	
	4.5	Western Australia - Marine Debris	26	



	4.6	Eastern Tuna and Billfish Fishery - Circle hooks in the ETBF	28
5.	Communication and Promotion		30
	5.1	Nationally	30
	5.2	Queensland	30
	5.3	New South Wales	30
	5.4	Victoria	31
	5.5	South Australia	31
	5.6	Western Australia	32
	5.7	Eastern Tuna and Billfish Fishery	32
6.	Workshops/Conferences/Training		34
	6.1	Nationally	34
	6.2	Queensland	34
	6.3	New South Wales	34
	6.4	Victoria	34
	6.5	South Australia	35
	6.6	Western Australia	35
	6.7	Eastern Tuna and Billfish Fishery	35

Appendices

Appendix A Glossary



1. SeaNet – Who are we and why?

1.1 Project description - SeaNet in brief

The National SeaNet Extension Project is a professional fisheries environmental extension service, funded under the Natural Heritage Trust (NHT) and managed by OceanWatch Australia as part of its Advancing Sustainable Fisheries program that seeks to improve the sustainability of Australian fisheries through working with the fishing industry to develop cost effective and practical solutions to reducing the environmental impacts of professional fishing. The purpose of the SeaNet project is to promote the principles of Ecologically Sustainable Development (ESD) to professional fishers through the extension of improved fishing gear, technology and methods. Initiatives such as assisting with developing and facilitating the uptake of bycatch reduction devices and supporting the development of Environmental Management Systems are currently the central focus of SeaNet's activities.

1.2 Aims of SeaNet

Through facilitating the move to ecologically sustainable fisheries, SeaNet aims to:

- 1. Increase the rate of uptake of improved fishing gears and practices.
- 2. Increase the rate of transfer of fisheries' research relevant to new fishing gear, technology and methods to professional fishers.
- 3. Improve communication between stakeholders in Australia's professional fisheries (ie. fishers, researchers, managers, etc.) to ensure the continued sustainability of the nation's fisheries.
- 4. Provide information, support and advice to fishers and others seeking to make changes to their fishing gears and/or practices.

1.3 Basis for SeaNet

The introduction of extension services into Australia's rural agricultural regions during the late 1980's proved to be the most successful method of making research available to farmers to ensure the continued improvement in farming practices, and hence sustainability of the agricultural sector.





The need for similar extension programs within the professional fishing sector was identified in the Fisheries Research & Development Corporation's (FRDC) Corporate Plan, the Standing Committee on Fisheries and Aquaculture Research Priorities and the draft National Policy on Bycatch.

To fill this need, the SeaNet Environmental Fisheries Extension Program was developed in 1999. In its formulation, SeaNet borrowed from a number of existing and successful entities, including:

- the US Sea Grant Extension Service;
- the Marine and Coastal Community Network; and
- the National Landcare Program.

The model finally adopted for SeaNet was also influenced by feedback from researchers and fishers who agreed that such a service was required, if not essential.

1.4 How SeaNet operates

SeaNet Extension Officers are employed by OceanWatch Australia Ltd. on fixed term contracts and hosted by a State Industry Association under an agreed Memorandum of Understanding. Guidance is provided by a National Steering Committee that currently comprises representatives from OceanWatch Australia, the Marine and Coastal Community Network (MCCN), Department of the Environment and Heritage (DEH), the Department of Agriculture, Fisheries and Forestry (DAFF), the Australian Fisheries Management Authority (AFMA) the Australian Government Natural Resource Management Facilitators Network and the Fisheries Research and Development Corporation (FRDC). Each SeaNet officer also works with a State Reference Group who provides direction and state priorities.

1.5 Current scope of operation

SeaNet has been operating since 1999 and is currently working on a broad spectrum of projects with both Commonwealth and State fisheries across Queensland, Victoria, New South Wales, South Australia and Western Australia.





2. Organisational structure

The day to day management and administration of SeaNet is provided by OceanWatch Australia Ltd., a public company limited by guarantee. OceanWatch Australia is a national environmental, not-for-profit company that works to achieve sustainability in the Australian seafood industry by protecting and enhancing fish habitats, improving water quality and advancing the sustainability of fisheries through action based partnerships with the Australian seafood industry, government, natural resource managers, private enterprise and the community. The Chief Executive Officer of OceanWatch Australia reports directly to an independent Board of Directors.

2.1 OceanWatch Australia Board of Directors

Brad Warren (Chair)	Geoff Blackburn
Kerry Strangas	David Pollard
Bruce Standen	John Corkill OAM
Karin Schiller	Craig Aspinall
Peter Neville	Bryan Skepper (Company Secretary)

2.2 SeaNet National Steering Committee

SeaNet's strategic direction is provided by a National Steering Committee.

2.2.1 National Steering Committee Terms of Reference

Currently a seven-person group with broad expertise who provide ongoing policy guidance and strategic direction.

Responsibilities:

- 1. Provide strategic direction on:
 - a. Appropriate Australian Government NRM projects.
 - b. Australian Government coastal and marine priorities.
 - c. Australian Government fisheries management priorities.





SeaNet Environmental Fisheries Extension Program

- d. Advisory and represent SeaNet to other committees, Ministers etc.
- e. Industry and non-government organisation priorities.
- 2. Define the scope of SeaNet's involvement and outcomes in relation to the delivery of steering committee priorities.
- 3. Identify alternative funding opportunities and organizations that SeaNet can partner with.
- 4. Develop and review annually the SeaNet strategic plan and provide feedback on performance.
- 5. Provide opportunities to promote/partner with SeaNet in existing departmental and/or organisational activities.
- 6. Communicate SeaNet's activities within individual and broader networks and across agencies.
- 7. Provide relevant information, material and contacts relating to Australian Government priorities to the SeaNet team.

2.2.2 National Steering Committee members during 2005 – 2006

- Anissa Lawrence OceanWatch Australia.
- Judy Matusiewicz Department of Agriculture Fisheries and Forestry (formerly Tia Flood)
- Tia Flood Department of Environment and Heritage (formerly Melissa Maly)
- Peter Horvat Fisheries Research and Development Corporation
- Justine Johnston Australian Fisheries Management Agency (formerly Paul Ryan)
- Nicole Middleton Australian Government NHT Coastal and Marine Facilitator
- Roberta Dixon Marine and Coastal Community Network (formerly Bill Forster)





2.3 Management and administration

- Anissa Lawrence Chief Executive Officer OceanWatch Australia
- Mel Bradbury Sustainable Fisheries Program and Marketing Manager (formerly Emma Bradshaw)
- Neil Godfrey Administration Officer

2.4 SeaNet Extension Officers

- Denis Ballam Far North Queensland
- Dave Kreutz Eastern Tuna and Billfish Fishery
- Kate Milner (formerly Jim Newman) Victoria
- Louise Smith (formerly Claire van der Geest) South Australia
- Carl Bevilacqua Western Australia
- Dave Cranston New South Wales

2.5 SeaNet host organisations

SeaNet Officers are hosted by industry organisations to ensure effective integration with grass roots fishers.

- South Australia Fishing Industry Council (SAFIC)
- Western Australia Fishing Industry Council (WAFIC)
- NSW Seafood Industry Council (NSWSIC)
- Seafood Industry Victoria (SIV)
- Queensland Seafood Industry Association / ECOfish (QLD)





SeaNet Environmental Fisheries Extension Program

2.6 SeaNet research partners

- Victorian Department of Primary Industries
- South Australia Research and Development Institute (SARDI)
- QLD Department of Primary Industries and Fisheries (QDPI&F)
- CSIRO Marine Laboratories Division of Fisheries
- NSW Department of Primary Industries
- WA Department of Fisheries





3. Projects in 2005 – 2006

A summary of the key projects being undertaken in each region is provided below

3.1 National projects

During 2005/06 a number of projects progressed or were completed that have national application, crossing jurisdictions.

Bycatch reduction

- Acoustic devices to reduce marine mammal interactions: A possible solution is being investigated for reducing dolphin interaction using sophisticated acoustic devices across fisheries including the Pilbara Fish Trawl, WA Pilchards, SA Pilchards, South East Trawl, and Tuna Longline fisheries.
- Popeye fishbox: The Popeye fishbox is a bycatch reduction device (BRD) for trawl fisheries. This BRD recently achieved 52% reduction in bycatch in a trial in the Northern Prawn Fishery. This result was achieved with the BRD set at 70 meshes from the codend drawstrings.

Reducing environmental impacts

- Rollout of the National system for the prevention and management of Introduced marine pests: As part of the rollout of the National System, a number of fishers were Interviewed from different sectors to establish introduced pests control methods that are already in general use and finalise the development of voluntary best practice guidelines relating to biofouling for the Australian professional fishing industry. These guidelines will be rolled out to industry in 2007.
- Alternative fuels: Options for alternative fuels for the trawl fishery are being reviewed to identify suitable solutions for the industry. Hydrogen blended fuels appear to be feasible at reducing emissions and providing fuel savings. Steps are underway to progress the trial of alternative fuels by the industry.

3.2 Projects in Far North Queensland

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed in Far North Queensland during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.





Bycatch reduction

- Manufacture, distribution and maintenance of acoustic alarms in the Gulf of Carpentaria (Pingers) (funded by NHT): The Pinger project will provide 93 gillnet fishers in the Gulf of Carpentaria with 12 underwater alarms each to reduce the possible interaction with marine mammals.
- Extension of FRDC project 2005/054 The development and adaptation of square mesh codends in select prawn and scallop trawl fisheries in Queensland: SeaNet provided extension services to the inshore trawl broodstock fishery. All operators were participating however, Cyclone Larry severely impacted the fleet.
- Extension of FRDC project 2005/053 Reducing the impact of QueensaInd's trawl fisheries on protected sea snakes: The SeaNet officer resides on the Steering Committee and provides some extension services for the researchers.
- Hoppers in trawl fisheries: The Queensland Government has pledged \$4million to implement hoppers on trawlers on the Queensland east coast by providing up to \$20,000 incentive payment per boat. SeaNet have previously been involved in trialling hoppers and will be working with fishers and the government to progress this commitment.

Reducing environmental impacts

• **Ghost nets:** The Gulf of Carpentaria Ghost Net Project aims to remove mostly international abandoned nets from the beaches of the Gulf. The SeaNet officer is a key participant in facilitating industry involvement in this project.

Environmental management systems

 Marine Aquarium Fishery: The SeaNet Officer is facilitating the development of an Environmental Management System for Cairns based marine aquarium divers.

3.3 Projects in New South Wales

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed in New South Wales during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.

Bycatch reduction

Extension of FRDC project 2005/056 Maximizing the survival of bycatch released from professional estuarine fishing gears in NSW: Involvement with research component throughout the life of the project (3years) so comprehensive knowledge of all processes and results is gained prior to the extension component.



Extension of FRDC project 2001/027 Life history, reproductive biology, habitat use and fishery status of eastern sea garfish (*Hyporhamphus australis*) and river garfish (*H. regularis ardelio*) in NSW waters: The project was completed by NSW Department of Primary Industries in conjunction with the University of Wollongong. The SeaNet Officer is extending the results of the research to fishers.

Reducing environmental impacts

A review of Environmental Factors was undertaken by the SeaNet Officer for the NSW South Coast Cockle Fishery as part of the commonwealth EPBC assessment process.

Environmental management systems

A number of Environmental Management Systems (EMS) were completed or are progressing for individual fishers, collective fishers in a region or estuary or a fishery. All EMS's document the techniques used and identify actions with scheduled targets to improve the sustainability of the fishery. In some cases EMSs have gone out for public consultation. The SeaNet Officer is also facilitating those operating under an EMS to access the Commonwealth EMS incentive scheme to assist in implementation.

- Wallis Lake Estuary General Fishery
- Pambula Lake Oyster Growers
- An individual fisher operating from Crowdy Head in the Ocean Trap and Line Fishery
- Clyde River Oyster Growers
- Region 3 Estuary General fishers
- Numerous individual Estuary General fishers and oyster growers

3.4 Projects in Victoria

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed in Victoria during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.

Bycatch reduction

 T90 (rotated-mesh) panel selectivity trials - At sea trials on board the Australian Maritime College *FTV Bluefin*, to test the selectivity of this by-catch reduction device for the South-East trawl fishery.





- Initial stages for Danish Seine selectivity Project and Gear Trials Development of an extension plan to provide services to fishers, throughout the duration of the proposed FRDC project.
- By-catch Reduction Device Workshop Attendance at the workshop in Cairns to gain an insight into trawl fisheries from northern Australia and assess possible devices and ideas that may be relevant to southern Australian trawl fisheries.

Reducing environmental impacts

- Re-development of the Victorian Abalone Divers Association Code of Practice -Assisting with the review of the current Code of Practice and also addition of biosecurity information.
- Development of a bio-security tool kit for Victorian Abalone divers An onboard kit for abalone divers to assist in the reporting of possible bio-security threats.
- Further development of a Scallop Code of Practice Increasing the scope of a current Victorian draft code of practice to include Tasmanian and Commonwealth based fishers.
- International Youth Coastal Conference steering committee Aimed at coastal and inshore marine issues, with a focus on kids teaching kids.

3.5 Projects in South Australia

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed in South Australia during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.

Bycatch reduction

- Extension of FRDC Project 2005/061 / 2005/029 Lakes and Coorong Fishery Bycatch Study - A quantitative study administered by South Australian Research Development Institute addressing the level, species and survival of bycatch from the Lakes and Coorong fishery to address recommendations from the Environmental Assessment by the Department of Fisheries and the Marine Stewardship Council. SeaNet assisted in the data collection and extension of the results to the rest of industry.
- Circle Hooks (funded by National Landcare Programme) To assess the effectiveness of circle hooks versus traditional "J" hooks at catching and retaining legal sized fish while minimising gut hooking and other injuries incurred to undersized and non-target species.





- Extension of T-Bar Seal excluders throughout the Rock Lobster Fishery -Quantify the current use of T-Bar seal exclusion devices, and feasibility of further extension and uptake.
- Protected Species Interactions Continual improvement and development of bycatch mitigation devices to reduce interactions between threatened, endangered and protected species listed under the EPBC Act with professional fishing activities.

Reducing environmental impacts

- Clean Up Parham Reef (NHT Envirofund) Marine Scalefish Net Fishers Association raising awareness to the dangers and frequency of Marine Dumping and Marine Debris in South Australia's Gulf waters amongst community, government and NGO groups.
- Waste Production on Yorke Peninsula (Landcare Australia Ltd / Coastcare sponsorship funding) - Quantifying the amount and composition of waste produced by fishing industries on Yorke Peninsula in conjunction with Port Vincent Primary Schools Marine Science Program. Investigating the feasibility for recycling infrastructure on the Peninsula.
- Marine Scalefish Fishery Code of Best Practice Development of a Code of Best Practice for bycatch mitigation for long line and handline fishing methods within the Marine Scalefish Fishery.
- Prawn Trawl Fishers Mentoring (SSA) A mentoring program between Prawn Fishers of the Moreton Bay Seafood Industry Association (Qld) and Spencer Gulf & West Coast Prawn Fisherman's Association to exchange knowledge and skills regarding research and development, trade works, product marketing and EMS.
- Cockle Code of Practice An update of the cockle fishers Code of Best Practice for sustainable harvest.
- South Australian car removal projects Initiative driven by SA Fishing Industry Associations to remove car bodies dumped along the Coast of SE SA and in Spencer Gulf.

Environmental management systems

 Marine Scalefish Fishery Environmental Management System (EMS) -Development of an EMS for the Marine Scalefish Fishery





3.6 Projects in Western Australia

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed in Western Australia during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.

Bycatch reduction

- Protected species in the South Coast Purse Seine Managed Fishery (SCPSMF)
 By-catch mitigation in this purse seine managed fishery to minimise interactions with flesh footed shearwaters and dolphins
- Whale Entanglements in the Western Rock Lobster Fishery Code of Practice extension and production of DVD Code of Practice
- Western Tuna and Billfish Fishery Tori Lines and de-hookers
- Lake Argyle Fishery Trap Trials trailing alternative fishing methods to gillnetting.
- Kimberly Gillnet and Barramundi fishery Identifying and reporting interactions with Sawfish

Reducing environmental impacts

- Marine Debris Industry volunteer cleanups, Abrolhos Islands (Easter group), Coronation Beach to Bowes River and Cape to Cape cleanup, Dirk Hartog Island 07.
- Bait Bands Strategies to reduce/eliminate plastic bait bands used in the professional fishing Industry from entering the marine environment
- **Temperate shark fisheries** Code of Practice for Reporting and responding to fur seal and sea lion interaction

Environmental management systems

 EMS - South Coast Estuarine Managed Fishery – involved in the extension of aspects of the EMS particularly solutions to discard issues.





3.7 Projects in the Eastern Tuna and Billfish Fishery (ETBF)

In addition to partaking in the national projects outlined in Section 3.1, a number of projects progressed or were completed specifically for the Eastern Tuna and Billfish Fishery during 2005/06. Where possible, the findings/outcomes from these projects are being rolled out to other relevant fisheries across Australia.

Bycatch reduction

- Dehookers and DVD Threatened Species Network / AFMA / NHT Provision of dehooking equipment and training DVD *Hooks Out and Cut the Line* to all ETBF vessels to increase the survival of unwanted bycatch and threatened species.
- NHT funded Circle Hook project with BRS trialling of Circle hooks in the ETBF.
- Extension of FRDC longline turtle project continued extension of turtle mitigation measures available.
- Whale acoustics project to evaluate mitigation methods against toothed whale interactions with the longline fleet
- ETBF tori pole project Assistance in the structure and delivery to all ETBF vessels of current mitigation methods and individual tailoring of those methods to their vessels to reduce seabird bycatch.

Reducing environmental impacts

- One In a Thousand DVD and education pack FRDC funded children's educational DVD as part of turtle longline project including Ministerial launch by Senator the Honourable Eric Abetz – Minister for Fisheries, Forestry and Conservation on the 2nd August 2006.
- DEH / Belldi Consultancy / AFMA Marine turtle Satellite tracking project providing extension and training to observers and fishers for the deployment of Argos Satellite tracking of shelled marine turtles, in an effort to build a better picture of turtle movements in the ETBF.
- CSIRO sampling program Extension of sample collecting project (sampling stomach contents of pelagic species to determine their diet and foraging habit) to non-observer vessels in Mooloolaba.





4. Project case studies

4.1 Queensland - Reducing marine mammal interactions in the Gulf of Carpentaria Gillnet Fishery using acoustic alarms and pingers

The Gulf of Carpentaria Commercial Fishermen's Association (GoCCFA) is maintaining its proactive approach to prevent negative interactions with marine mammals. Accordingly they are engaged in a Northern Gulf NRM sponsored collaborative project with OceanWatch Australia, DPI&F, ECOfish and JCU Electrical Engineering to develop an integrated package of techniques for industry operators to meet biodiversity targets under the EPBC Act.



Eric Lollo with the old model pinger on his net.

The project follows on from a previous NHT project on pingers in Gulf fisheries, incorporating the observed reactions of wild animals to acoustic alarms in Queensland and captive animals in Indonesia. Industry volunteers in the Gulf use the devices to reduce entanglements of dolphins and dugongs when they are detected on fishing grounds. This project intends to improve the fishing industries' capability to do this.

Recent research by Kyoto Uni working with dugongs in Thailand, published in the Journal of the Acoustical Society of America, described the vocalisations of dugong during the day as being negligible, escalating rapidly during the hours of darkness when they move and sound is the main sense available to them. The research also detected feeding sounds only at night implying diurnal differences in feeding behaviour. This research provided further confirmation that healthy animals can hear the acoustic alarms developed for this study, and provided valuable insights for the management of dugongs in fished areas of their habitat as they both vocalise and feed during fishing periods in different locations.





Low frequency acoustic alarms are designed to warn whales and dugongs of the presence of the nets to which they are attached. High frequency acoustic pingers provide the same function while focussing more on the hearing capability of dolphins. Industry will be provided with a combined acoustic alarm and pinger, designed and built in a collaborative effort with FNQ industries to help minimise entanglements of marine mammals.

Vessels will also be provided with a commercial quality hydrophone intended to detect dolphin and dugong sounds. Gillnet operators in attendance with their nets will be able to detect the presence of marine mammals during the hours of darkness and make fishing decisions to avoid entanglement. Larger vessels will be equipped with a Marine Mammal Early Warning System, based on multiple hydrophones and utilising onboard computers and localisation systems.

Construction of the acoustic devices is underway at the Northern Fisheries Centre in Cairns, and roll out to the GoCCFA gillnet fishers should begin in March / April 2007. The SeaNet Officer will be showing the fishers how to deploy them.





4.2 New South Wales - Clyde River Environmental Management System

The oyster farmers on the Clyde River have banded together and are taking a proactive approach to maintaining a sustainable industry. The group has contributed their own money and also received additional funding from the Department of Regional and State Development to develop an Environmental Management System, or EMS.

An EMS is a step-by-step identify process to and environmental manage risks and impacts, opportunities on а continuous basis. It is an industry-based initiative that seeks to contribute to the sustainability of ovster farming, as well as increase community understanding of cultivation methods used and management the and regulations that apply to the industry.

The EMS is being developed by the farmers themselves with the assistance of the



Ashley Suters (left) and Alan Sebbens tend to their oyster lease on the Clyde River. Part of the EMS will document oyster cultivation techniques used on the Clyde River to broaden community understanding of the industry.

SeaNet Officer. The EMS process gives oyster farmers a chance to demonstrate that they are stewards of our estuaries, maintaining the health of these systems is vital to their existence.

The EMS will be based around identifying actions or goals that will improve the environmental performance of the industry and establish scheduled time frames for completion of these tasks. The document will also look at the how the farmers can assist agencies such as the Southern Rivers Catchment Management Authority (SRCMA) in prioritising on-the-ground works for the benefit of the catchment and the community. The SRCMA is currently coordinating a project, which will see \$430,000 invested in protecting and enhancing the high conservation status of the River and its catchment over the next 3 years.





SeaNet Environmental Fisheries Extension Program



Long-line floating bag cultivation is one of the many variances to traditional growing techniques used on the Clyde River. This method does away with fixed infrastructure, reduces seagrass shading and maintains the oysters in the feed column for the duration of the tide cycle.

"We are lucky in that the Clyde has a relatively undeveloped catchment," said Ewan McAsh, a Clyde River oyster farmer. "But it is vital for our industry that it stays that way."

A draft of the document will be circulated amongst the growers in December 2006, and when all parties are satisfied with the content the EMS, a final draft will made available for public comment.





4.3 Victoria - Initial trials of the rotated-mesh panel (T90) for use in the South-East Trawl fishery, as a bycatch reduction device.

The Australian South-East Trawl Fishery (SETF) has in the order of 80 licensed fishing vessels targeting fish species including flathead, blue grenadier, pink ling and redfish. SETF vessels use demersal trawl nets catching over 30,000 tonnes of fish annually (valued at around \$70 million).

The development of more effective bycatch solutions for the south-east trawl sector in Australia is of vital importance, however due to the multi-species nature of catches in the SETF, trawl operations are



Rotated-mesh (T90) on left and standard diamond mesh on right.

unable to avoid the take of non-commercial (bycatch) species. Reducing catches of small and unwanted fish is a priority issue being addressed by South East Trawl Fishing



Victorian SeaNet Extension Officer Kate Milner working on T90 at sea trials.

Industry Association (SETFIA) and the Australian Fisheries Management Authority (AFMA). AFMA has stated in 'Future Operating Environment for Commonwealth Fisheries' that they wish *"to implement measures to significantly reduce by-catch, with a goal to halve it by 2008."*

Rotated-mesh (otherwise known as 'T90') is netting turned 90 degrees to that of standard hung diamond-mesh netting found in fishing nets. The development of the rotated-mesh panel (T90) for use in the SETF is one such measure to achieve the goals outlined by AFMA, however, scientific data is yet to be obtained on its effectiveness to reduce by-catch. Anecdotal evidence from fishers





working in the South-East Trawl suggests that a rotated-mesh panel placed into trawl nets does reduce the amount of bycatch and it is much easier to install, is more robust and is easier to repair while working at sea compared to a square-mesh panel.

Quantitative scientific data on the selectivity of the rotated-mesh panel was collected through trials with a trouser trawl on board the Australian Maritime College *FTV Bluefin*. This project was the culmination of many stakeholder inputs; including OceanWatch Australia, Australian Maritime College (AMC), Department of Primary Industry Victoria (DPI Vic), South East Trawl Fishing Industry Association (SETFIA), Australian Fisheries Management Authority (AFMA) and the Fisheries Research and Development Corporation (FRDC).

Initial data collected indicates that the rotated-mesh panel has the potential to reduce the amount of bycatch from trawl fishing operations, and would be a viable alternative to the use of a square-mesh panel.





4.4 South Australia - Clean up Yorke Peninsula

The marine environment surrounding Yorke Peninsula in South Australia is unique. The east and west coasts border two inverse estuaries, namely Spencer Gulf and Gulf St Vincent. These areas are home to many endemic species; marine endemism is estimated to be in excess of 80% in southern Australia.

This area is also home to highly productive commercial fishing operations. All the regional communities on Yorke Peninsula owe their 150 years of existence to the professional fishing industry. The industry still plays an important role in the economy and social life of the regional centres.

The small resident population of Yorke Peninsula is dominated bv primary industries, agriculture in the interior and professional fishing along the coast. Although it is only а maximum of four hours drive from Adelaide, the area has very limited infrastructure for waste removal, reduction and recycling.

This projects' aim is to complete an inventory of all waste produced by the professional fishing industry



Brian Klingberg, a fisher on Yorke Peninsula, talking to PVPS students about the waste collected from the long-line fishing sector.

on Yorke Peninsula, some of the waste already identified includes plastics, oils and card board.

Following identification of the types and quantity of waste products produced by the professional fishing sector, the long term goal of the project is to implement alternative solutions to reduce the waste generated and for those areas where the waste produced cannot be further reduced, to implement a recycling strategy for the region.

The SeaNet Officer, in conjunction with local fishers from each fishing sector on Yorke Peninsula and the local area schools, Port Vincent Primary School (PVPS), quantified and categorised the different waste produced as a result of fishing practices. This led to the discussion and identification of areas within the region where improved recycling infrastructure is required to improve on current, and develop new waste minimising methods and strategies in reducing, reusing and recycling waste on the Peninsula.





SeaNet Environmental Fisheries Extension Program

One fisher from each fishery present on Yorke Peninsula retained the waste accumulated over a series of fishing trips, which was analysed by students. Students then quantified the waste into different categories, eg: hard plastics, soft plastics, cardboard etc. This highlighted specific areas that need to be improved upon, and ideas are currently being investigated to assess the feasibility of different recycling projects for some of the waste categories such as the calcium content of oyster shells being utilised in the pet birdfeed industry; the recycling of plastics into products currently used in the fishing industry sectors such as bait baskets; and the placement of additional waste oil collection stations for oil recycling.





4.5 Western Australia - Marine Debris

'Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris' has been listed as a key threatening process under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999.

The Western Australian professional fishing industry with the help of the SeaNet Officer have undertaken several coordinated efforts to remove marine debris from beaches along isolated stretches of the WA coast.

There is potential for unintentional loss of gear during most fishing operations and monofilament line, floats, rope and other



fishing related objects pose a hazard through accidental entanglement or ingestion. The removal of debris from these places is a direct industry response and contribution to reducing this problem highlighted by its listing under the EPBC Act and benefits the environment in numerous ways. It eliminates the potential for ingestion or entanglement by both terrestrial and marine species and further eliminates it becoming washed off the beach back into the marine environment.



Since July 2005, SeaNet WA has conducted and facilitated professional fisher involvement in four cleanups, Dirk Hartog Island mystery beach, The Easter group of the Houtman Abrolhos Islands, the Cape to Cape cleanup and Coronation Beach to Bowes River. The Dirk Hartog Island project was a great success, the SeaNet Officer and members of the Lobster Fishery were awarded the "Community

Stewardship" award by the Minister for Fisheries and Department of Fisheries Reward





SeaNet Environmental Fisheries Extension Program

and Recognition Program 2005/06. The SeaNet Officer and the Kalbarri Professional

Fishermen's Association were the recipients of a grant for their efforts. Not only is professional fishing related debris removed, but also the domestically generated component which forms the bulk of the debris. Plans are currently underway to use the grant money to re-visit the site and asses the rerecruitment of debris to this site two years post the initial effort.



A breakdown of the debris removed;

- Dirk Hartog Island: Excluding 666 recycled floats was 1372kg;
- Easter group, Houtman Abrolhos Islands: 30 cubic meters;
- Cape to Cape cleanup (Sugar Loaf Rock to "The Moon" beach): 13 large fertilizer bags (approximately 200kg); and
- Coronation Beach to Bowes River: 187 large fertilizer bags.







4.6 Eastern Tuna and Billfish Fishery - Circle hooks in the ETBF

A Natural Heritage Trust (NHT) project is trialling circle hooks in the Eastern Tuna and Billfish Fishery (ETBF). The project team includes officers from the Bureau of Rural Sciences (BRS), Belldi Consultancy and Australian Bureau of Resource (ABARE), Economics and OceanWatch Australia (SeaNet Officer) and it has received support from the Australian Fisheries Management Authority (AFMA) and the professional fishing industry operators.



Circles hooks labelled showing a selection of sizes and styles of circle hooks compared to Japanese tuna hooks.

Over the last twelve months there has been a substantial voluntary uptake of circle hooks in the ETBF, particularly in the albacore sector of the fishery. This is partly as a result of information provided to operators during port visits. Other sectors, however; are still hesitant to adopt these hooks, fearing that this may negatively impact on their catch rates, in particular broadbill swordfish.



Wshop photo of - Anton Caffarel (ETBF fisher (L) John Lagrange (Hawaii longline fishery) and Dave Kreutz SeaNet Officer for ETBF discussing circle hook selection at the Mooloolaba workshop.

The aim of this project is to build on the information base provided by the 2005 pilot project that identified areas investigation requiring of greater scrutiny. The project also considers combinations mitigation of bycatch measures, also including bait type, weighted swivels and wire leaders. This suite of measures have been proposed or implemented to reduce the longline bycatch of threatened endangered and protected (TEP) species, such as marine turtles,





seabirds and sharks.

Fishers participating in the trials will be supplied with a set of longline branch lines (or snoods) rigged with circle hooks suitable for the target catch in that sector of the fishery. These snoods will then be fished in paired combination with existing tuna hooks. Data on catch rates, life-status and fish size will be collected for non-target and target species by AFMA observers and analysis will also be conducted on the differences in economic value of the catches by hook type.

The role of the SeaNet Officer is to coordinate fisher participation, gear acquisition and assembly, facilitate workshops, conduct pre and post fishing briefings and dissemination the results of the study to industry members, management officers and scientists.

In November 2006, a master fisherman from Hawaii, Mr John LaGrange, participated in an industry workshop in Mooloolaba. Mr LaGrange talked of his experiences with circle hooks in the Californian and Hawaiian longline fisheries. This first stage of the project will be followed by a number of vessels trialling circle hooks during regular fishing operations in the coming months.





5. Communication and Promotion

5.1 Nationally

SeaNet is promoted on the OceanWatch Australia website and through a quarterly newsletter.

During the year numerous presentations were made about OceanWatch Australia and its programs including SeaNet to a wide range of stakeholders.

SeaNet promotional merchandise (T-shirts, hats, stubby coolers etc.) is distributed to professional fishers during extension activities and face-to-face communication.

5.2 Queensland

The following activities were undertaken to promote SeaNet in Queensland:

- Cairns show, ECOfish stand display;
- Trawl bycatch innovations workshop;
- WWF smart gear entry for the Popeye fishbox BRD;
- Noxious fish steering committee;
- Ghost nets steering committee;
- Seasnake project steering committee;
- Nth Gulf NRM meetings;
- FNQ NRM meetings;
- NQ climate alliance to establish and investigate alternative fuels;
- Mooloolaba Seafood Festival; and
- Moreton Bay Seafood Festival.

5.3 New South Wales

The following educational trailer displays were undertaken to promote SeaNet in New South Wales:





- Eden Whale Festival October 2005;
- Coffs Harbour Show May 2006;
- Moreton Bay Seafood Festival June 2006;
- Sydney Fish Market Open Day August 2006; and
- Coldstream Festival (Yamba) October 2006.

5.4 Victoria

The following activities were undertaken to promote SeaNet in Victoria:

- King George Whiting Management Assessment Workshop;
- Corner Inlet Environmental Management System (EMS) Workshop;
- International Youth Coastal Conference;
- Mentoring students from Melbourne Girls College Assisting students with learning outcomes based on specific knowledge of Australian fisheries and the seafood industry;
- Advance in Seafood Leadership Program Graduate A program aimed at developing leadership skills and networks within the Australian seafood industry;
- Women's Industry Network Seafood Community (WINSC) Dinner Attended the annual workshop dinner; and
- By-catch Reduction Device Workshop Attendance at the workshop in Cairns to gain an insight into trawl fisheries from northern Australia and assess possible devices and ideas that may be relevant to southern Australian trawl fisheries.

5.5 South Australia

The following activities were undertaken to promote SeaNet in South Australia:

- SARDI Aquatic Sciences Open Day;
- SA Conservation Council dinner;
- SAFIC board meetings;
- NRM Coast & Marine networking luncheons;
- Marine Scalefish Net Fishers Association general meetings;





- SA FRDC R&D workshop;
- SA WIN board meeting;
- Marine Scalefish industry working group AGM; and
- Southern Fisherman's Association general meetings.

5.6 Western Australia

The following activities were undertaken to promote SeaNet in Western Australia:

- Protected species in the South Coast Purse Seine Managed Fishery (SCPSMF) -Seabird and protected species handling workshop. Workshop to develop seabird interaction mitigation strategies;
- Whale Entanglements in the Western Rock Lobster Fishery Code Extension / implementation;
- Marine Debris Media releases for cleanup projects Abrolhos, Capes, and Coronation – Bowes;
- Introduced Marine pests ProWest articles;
- Lake Argyle Bycatch Action Plan and trap trials review;
- EMS South Coast Estuarine EMS Risk Assessment Workshop;
- Temperate shark fisheries Code workshops Esperance, Albany , Fremantle; and
- Working groups:
 - Pilbara trawl dolphin Reference Group;
 - WAFIC Fisheries and Environmental Policy Committee;
 - WAFIC Resource Access;
 - SCPSMF protected species working group.

5.7 Eastern Tuna and Billfish Fishery

The following activities were undertaken to promote SeaNet:

- Mooloolaba Seafood Festival;
- Attend MAC meetings;
- Attend Resource Assessment meetings; and





SeaNet Environmental Fisheries Extension Program

Seabird Conference Hobart.





6. Workshops/Conferences/Training

The following workshops/conferences and training courses were attended by the SeaNet team.

6.1 Nationally

SeaNet Extension Officer's training in January 2006 and again in September 2006.

6.2 Queensland

 International Prawn Trawling Workshop - trawl bycatch innovations (Cairns – November 2006).

6.3 New South Wales

- Seafood Services Environmental Management System peer review committee (Melbourne);
- Australian Prawn Council Meeting (Coffs Harbour February); and
- International Prawn Trawling Workshop trawl bycatch innovations (Cairns November 2006).

6.4 Victoria

- King George Whiting Management Assessment Workshop;
- Corner Inlet Environmental Management System (EMS) Workshop;
- International Youth Coastal Conference;
- Advance in Seafood Leadership Program Graduate;
- Women's Industry Network Seafood Community (WINSC) Dinner / Annual Workshop; and
- International Prawn Trawling Workshop trawl bycatch innovations (Cairns November 2006).





6.5 South Australia

- MCCN Cetacean R&D Conference & Workshop;
- Australian Council of Prawn Fishers Workshop: Public Perception, product positioning, environmental management and fishery management;
- Eyre Peninsula NRM board meeting;
- SeaNet/NRM Marine Debris workshops;
- Community Forum for the National System for the prevention and management of introduced marine pest incursions;
- FarmBiz workshop;
- NRM Coast & Marine workshop;
- Senior First Aid training; and
- Toastmasters 'Speech craft' public speaking.

6.6 Western Australia

- Protected species in the South Coast Purse Seine Managed Fishery (SCPSMF) -Seabird and protected species handling workshop. Workshop to develop seabird interaction mitigation strategies;
- EMS South Coast Estuarine EMS Risk Assessment Workshop; and
- Temperate shark fisheries Code workshops Esperance, Albany, Fremantle.

6.7 Eastern Tuna and Billfish Fishery

- Presentation to AFMA observer training workshop;
- Circle Hook workshop- Sydney/Mooloolaba; and
- Seabird Mitigation workshop Hobart.





Appendix A

Glossary

AFMA	Australian Fisheries Management Authority
AMC	Australian Maritime College
AMCS	Australian Marine Conservation Society
ASIC	Australian Seafood Industry Council
BRD	Bycatch Reduction Device
CoC	Code of Conduct
CoP	Code of Practice
DAFF	Department of Agriculture, Fisheries and Forestry
DEH	Department of Environment and Heritage
EMS	Environmental Management System
ESD	Environmentally Sustainable Development
ETBF	Eastern Tuna and Billfish Fishery
FRDC	Fisheries Research and Development Corporation
GABTF	Great Australian Bight Trawl Fishery
GBRMPA	Great Barrier Reef Marine Park Authority
GoCCFA	Gulf of Carpentaria Commercial Fishermen's Association
IMP	Introduced Marine Pest
LMAC	Local Marine Advisory Committee
MAC	Management Advisory Committee
MCCN	Marine and Coastal Community Network
NGO	Non Government Organisation
NHT	Natural Heritage Trust
NIMPCG	National Introduced Marine Pests Coordination Group
NRM	Natural Resource Management
NSW SIC	NSW Seafood Industry Council
PIRVic	Primary Industries Research Victoria
	AFMA AMCS ASIC BRD COC COP DAFF DAFF DEH EMS ESD ESD ETBF FRDC GABTF GABTF GABTF GABTF GABTF GABTF INF C GABTMPA GOCCFA MAC MAC MAC MAC MAC MAC MAC MAC MAC MA

QDPI&F Queensland Department of Primary Industries and Fisheries

	QSIA	Queensland Seafood Industry Association
	SAFIC	South Australia Fishing Industry Council
	SARDI	South Australia Research and Development Institute
	SEO	SeaNet Extension Officer
	SETF	South East Trawl Fishery
	SETFIA	South East Trawl Fishing Industry Association
	SIV	Seafood Industry Victoria
	SWTBF	Southern and Western Tuna and Billfish Fishery
	TED	Turtle Exclusion Device
	VBIFA	Victorian Bay and Inlet Fisheries Association
	VFLO	Volunteer Fisheries Liaison Officer
	WAFIC	Western Australia Fishing Industry Council
	WRLC	Western Rock Lobster Council
	WRLMF	Western Rock Lobster Managed Fishery