



smarter fishing for industry



Annual Report – 2003/04



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Executive Summary

Now in its sixth year of operation, SeaNet continues to deliver a valuable environmental extension service to the Australian commercial fishing industry to facilitate the development and adoption of best practice environmental management in commercial fishing operations.

This year has been challenging for commercial fishing driven by market forces, rising fuel costs, a stronger Australian dollar and increases in imports. Commercial fisheries, however, have risen to the challenge to look at better ways to improve their performance and reduce inefficiencies. A key focus area for fisheries has been on improving environmental performance to achieve cost savings, improve efficiencies and seek sustainable fisheries. It is recognised however, that improvements to management approaches and industry practices cannot eventuate without ongoing communication and interaction between fishers, researchers, managers and other stakeholders. SeaNet provides an effective conduit to achieve this interaction and break down communication barriers.

As the environmental arm of the commercial fishing industry in Australia, Ocean Watch has worked to protect aquatic habitats, improve water quality and promote sustainable fishing practices. Having managed the SeaNet project since March 2004, it has been pleasing to see the industry's enthusiastic uptake of improved fishing practices to reduce their environmental impacts. SeaNet continues to attract strong support from industry. In addition, the continued financial support from the Australian Government through the Natural Heritage Trust has allowed SeaNet to establish itself as a recognised critical and effective component in achieving ecologically sustainable fisheries.

During 2004, all commonwealth and state fisheries with an export component undertook an environmental assessment of their management arrangements. This was to ensure they are being managed in an ecologically sustainable way under the *Environment Protection and Biodiversity Conservation Act 1999*. Not only has this raised awareness within the industry of the need for continued improvement in environmental performance, but it has also provided an avenue for directing SeaNet's efforts in the future.

It is with pleasure that I present, in collaboration with the Australian Seafood Industry Council (ASIC), the Australian Marine Conservation Society (AMCS), the Australian Fisheries Management Authority (AFMA), the Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Environment and Heritage (DEH), the 2003/04 SeaNet Annual Report.



Anissa Lawrence
Executive Officer – Ocean Watch Australia

SeaNet – Who We Are and Why

SeaNet is an environmental extension service to the Australian seafood industry and provides information and advice on improved fishing gear, technology and fishing methods. Our primary objective is to work with the commercial fishing industry to minimise the catch of non-target species (bycatch) and encourage environmental best practice for industry. SeaNet Extension Officers (SEO's) work with fishers and researchers to assist in developing and implementing effective and practical solutions to minimise the impact of fishing and improve the sustainability of Australia's commercial fisheries.

SeaNet Extension Officers are employed by Ocean Watch Australia Ltd. and are hosted by an industry organisation within their relevant State or fishery. Through partnerships with fishers, researchers and managers, SeaNet facilitates the development and adoption of fishing gear, technology and methods aimed at minimising bycatch and improving the ecological sustainability of fishing. For fishers, involvement with SeaNet is voluntary, however, SeaNet has developed wide ranging support and cooperation from members of the seafood industry as well as other industry stakeholders.

Since its inception in 1999, SeaNet has continued to expand its network and now has extension officers working in Queensland, NSW, Victoria, South Australia and Western Australia.

Outlined below is a complete list of projects SeaNet has been involved with over the last 12 months.

Projects in 2004

Eastern Tuna and Billfish Fishery

- Monofilament Recycling Education.
- Turtle Education Research Project.
- ARC De-Hooking and Line-Cutting Devices.
- Industry Code of Practice for Responsible Fishing.
- Trials of the 98gm Swivel for Seabird Mitigation.
- Deep Setting Longline Technique for Bycatch Reduction.
- Seabird Education Workshops.

Queensland

- Exotic Pests – Trigger Fish in Cairns Inlet.
- Barnes Hook - Trials with Tropical Reef Fish.
- Northern Prawn Fishery Bycatch Reduction & Turtle Exclusion Devices (BRD's and TED's).
- Reef Line Fishery Management Plan.
- Marine Debris - National Net Collection and Recycling.

- Small Boat Hopper for Bycatch Reduction in the Prawn Trawl Fisheries.
- Great Barrier Reef Marine Park Authority (GBRMPA) Cairns Local Management Advisory Committee (LMAC).
- Cape Grafton to Cardwell Inshore Mesh - Code of Conduct.
- Hinchinbrook Region Crab Fishery - Code of Conduct.
- Underwater Acoustic Alarms – Pingers.
- Evaluation of Hoppers for Bycatch Reduction.
- Wilksch Net for Tilapia Removal.
- Cairns Region Inshore Trawl - Code of Conduct.
- East Coast BRD's and TED's.
- Gulf of Carpentaria Commercial Fishermen's Environmental Management Strategy.
- Marine Mammal Tracking - Towed Acoustic Array.
- Coral Reef Line Fishery - Code of Conduct.
- Sonic Beam BRD for Prawn Trawl Fisheries.

New South Wales

- Extension of Small Prawn Discards/Square Mesh Codend Project (NSW Fisheries).
- EMS for NSW Estuary General Fisheries (funded by FRDC).
- EMS for NSW Estuary Prawn Trawl Fisheries (funded by FRDC).
- EMS for NSW Oyster Farmers (funded by FRDC).

Victoria

- Introduced Marine Pest Awareness in the Seafood Industry.
- Best Practice Extension and Environmental Management Strategy Development for Victorian Bay and Inlets Fishers.
- South East Trawl Gear Development and Bycatch Reduction.
- Advance in Seafood Leadership Development Program;
- Rock Lobster Fishery (Vic) Code of Practice to Minimise Whale Interactions.
- Reducing Seal Bycatch Mortality in Commercial Fisheries.
- Central Zone Abalone Industry Association - Code of Practice.
- Southern Squid Jig Fishery - Code of Practice.
- Scallop Fishery - Code of Practice.

South Australia

- EMS Extension for the Marine Scalefish Fishery.
- Reducing Plastics on Rock Lobster Boats.
- Selectivity Trials in the Marine Scalefish Fishery.
- Oyster Basket Waste Recovery and Recycling.
- Bycatch Monitoring in the Lakes and Coorong Fishery.
- Coffin Bay Cockles.
- Trials of Circle (Barnes) Hooks to Reduce Landing Undersized Catch.
- SA Net Fishers Association Cleans Up Parham Reef.

- Addressing Localised Depletion of Razor Fish in Streaky Bay.
- Management of Waste on Marinas and Recreational Boating (SA EPA) - Code of Practice .
- Correct Handling of Materials on Wharf Facilities - Code of Practice.
- Ecological Assessment in the Southern Zone Rock Lobster Fishery .
- Bycatch Reduction Mitigation in Gulf Saint Vincent Prawn Fishery.
- EMS Prawn and Rock Lobster Fisheries.
- Native Fish Monitoring in the Carp Fishery.

Western Australia

- Western Tuna and Billfish Fishery - Code of Practice.
- EMS/ESD Brochure - Information for the Commercial Fishing Industry.
- De-hooker and Line-cutter Trials in the WTBF.
- Development of an Alternative De-hooker.
- South Coast Purse Seine - Code of Practice.
- Northern Shark Fisheries - Code of Practice.
- Turtle Handling and Conservation Workshops.
- Lake Argyle Bycatch Action Plan.
- Seal Excluders in Rock Lobster Pots.
- Fish Oil as a Seabird Deterrent in the Kalbarri Line Fishery.
- Barnes Hooks in the Shark Bay Snapper Industry.
- Interactions with Protected Species - Identification Resources and Reporting Protocols for State Fishers.

Organisational Structure

The day to day management and administration of SeaNet is provided by Ocean Watch Australia Ltd., a public company limited by guarantee. Ocean Watch is an environmental non-government organisation committed to the conservation of marine and estuarine environments. The Executive Officer of Ocean Watch reports directly to an independent Board of Directors.

Ocean Watch Board

- | | |
|-------------------------------------|----------------------------|
| ▪ John Corkill OAM (Chair) | ▪ Peter Doyle OAM (Patron) |
| ▪ Philip March | ▪ John Mangos |
| ▪ Kerry Strangas | ▪ Bruce Standen |
| ▪ Lindon Coombes | ▪ Allan Broadhurst |
| ▪ Bryan Skepper (Company Secretary) | ▪ David Pollard |
| ▪ Brad Warren | |

SeaNet Steering Committee

- Stan Jarzynski (DAFF)
- Simone Retif (DEH)
- Russ Neal (ASIC)
- Anissa Lawrence (Ocean Watch)
- Craig Bohm (AMCS)
- Peter Horvat (FRDC)
- Cliff Lloyd (AFMA)

National Office Staff

- Anissa Lawrence - Executive Officer (Ocean Watch).
- Emma Bradshaw - National Program Manager.
- Emma Brunsdon/Neil Godfrey - Administration Officer, *part time*.

SeaNet Extension Officers

- Denis Ballam - Queensland (Cairns).
- Elton Robinson - Eastern Tuna and Billfish Fishery (Mooloolaba).
- Jim Newman – Victoria (Melbourne).
- Claire van der Geest - South Australia (Adelaide).
- Carl Bevilacqua – Western Australia (Perth).

SeaNet Host Organisations

- NSW Seafood Industry Council (NSWSIC).
- East Coast Tuna Boat Owners' Association (ECTBOA) replaced by Mooloolah River Fishers.
- QLD Seafood Industry Association (QSIA).
- ECOfish.
- Seafood Council South Australia (SCSA).
- Seafood Industry Victoria (SIV).
- WA Fishing Industry Council (WAFIC).

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.

Milestones & Performance Indicators

M1. Appointment of staff to the SeaNet program and continued work development.

PI 1. Total number of SeaNet positions.

- Emma Bradshaw – National Program Manager (Sydney).
- Emma Brunsdon/Neil Godfrey – Administration Officer (Sydney), *part time*.
- Denis Ballam – Queensland Extension Officer (Cairns).
- Elton Robinson – Eastern Tuna and Billfish Fishery Extension Officer (Mooloolaba).
- Jim Newman – Victoria Extension Officer (Melbourne).
- Claire van der Geest – South Australia Extension Officer (Adelaide).
- Carl Bevilacqua – Western Australia Officer (Perth).

PI 2. Number of new contacts and number of total contacts involved with SeaNet.

Throughout the SeaNet 4 round of funding (October 2003 - September 2004), SeaNet Extension Officers have worked in close collaboration with members of industry, research and management. This year the service established 1157 new contacts and a total of 3927, not including the hundreds of contacts made through public displays at trade shows, conferences etc. This close and ever expanding affiliation continues to enhance the level of cooperation between stakeholders and open new and stronger channels of communication for the transmission of information, ideas and improvements to gear and methods of operation.

M2. Determination and review of priority issues for each State and fishery.

PI 1: Level of communication (i.e. number of meetings, field days, etc.) with state and national steering committees, industry and researchers.

SeaNet Extension Officers are in daily contact with their host industries. Regular meetings with industry, managers and grass-roots fishers are imperative for projects to develop in a mutually beneficial direction. All stakeholders are kept up-to-date with the progress of SeaNet projects through the quarterly SeaNet Newsletter which covers project, funding and staff developments. SeaNet Officers employ a variety of communication approaches including port visits, participation in workshops and attending industry and management authority meetings. The national SeaNet Steering Committee meets annually and SeaNet Officers attend meetings with their local steering committee members on an as-needs basis. Specific examples include, but are not limited to:

- 261 meetings with industry, researchers, managers and other stakeholders;
- Two national steering committee meetings;
- One week training course with national NRM and EMS Officers and updates from DEH, DAFF and AFMA;
- 21 port visits;
- DEH, DAFF and AFMA policy update - all SeaNet staff attended;
- 9 fishing trips;
- One boat launch;
- 24 workshops/forums; and
- 5 wharf walks.

PI 2: Documentation of work plans for each extension officer.

SeaNet Extension Officers continually refine and prioritise their work-plans in consultation with host organisations, research partners and Ocean Watch Australia. The Executive Officer of Ocean Watch and the SeaNet Program Manager continually audit staff training needs on both an individual and team basis.

This year, SeaNet training activities have included:

- Advance in seafood leadership development program;
- Practical extension and media training;
- Environmental management system training; and
- Natural resource management government processes and structures.

M3. Provision of progress reports to funding bodies and national steering committee.

PI 1: Reconciliation of financial income and expenditure in line with reporting requirements.

With submission of each quarterly report, each SEO provides the Program Manager/ Administration Officer with a full breakdown of all financial activities for the period. These include:

- Expense claim forms;
- In-kind contributions by each industry organisation;
- Credit card reconciliations; and
- Project funding expenditure.

PI 2: Submission of quarterly reports and project progress reports.

Each SeaNet Officer submits project progress reports to the Program Manager which detail each Officers activities and project developments. These are collated and incorporated into a quarterly SeaNet progress report submitted to the Department of Agriculture Forests and Fisheries (DAFF), in accordance with reporting requirements.

M4. Actions taken to secure alternative sources of funding for the SeaNet Program.

PI 1: Level of communication and negotiation with 'other' stakeholders with respect to seeking contribution of funds to SeaNet.

Adequate funding for project development is a constant priority for SeaNet and therefore actively seeking alternative sources plays a large role in the organisation's activities. Numerous funding applications have been prepared throughout the year for the opportunity to collaborate with research and management organisations in appropriate projects. SeaNet also explores opportunities to incorporate our extension services with numerous project proposals developed by other stakeholder groups and gain funding to further develop and diversify successful SeaNet projects. Examples this year include:

- Developed and submitted two National Landcare Program Innovation Grant Applications: Circle hook trials – commercial and charter boat operators association and modified bunt design trials.

- Letter to Senator Ian Macdonald regarding additional funds to proceed with trialing of a 98gm weighted swivel in the Eastern tuna and billfish fishery (ETBF) to reduce the bycatch of seabirds. Funding approved to a maximum of \$10,000.
- Nature Foundation of South Australia approached to assist funding of the “Plastics off rock lobster bait cartons” project. \$4,000 secured.
- Funding secured from FRDC to trial and modify prototype tuna pingers.
- FRDC application submitted to study the effects of haul seining on seagrass beds and net selectivity on target and bycatch species in the SA marine scalefish fishery.
- Funding application submitted to FRDC for small boat hopper development project.
- Successful application to Threatened Species Network for extension of the dehooker and linecutter project to include the Western tuna and billfish fishery (WTBF).
- Successful funding application to NHT for the development of protected species ID flip-cards for use by commercial fishers.
- Meeting with Fisheries Western Australia (FWA) regarding Senator McDonalds request for State fisheries departments to contribute financially to the SeaNet program – funding secured.
- Funding approved by FRDC for SeaNet’s involvement in the project “New deep setting longline technique for bycatch mitigation.
- Application to NHT Envirofund for extension of best practice in trials of seabird mitigation devices in the ETBF.

PI 2: Number of projects and activities involving SeaNet generated from ‘other’ sources.

This year, a total of twenty six projects are in various stages of implementation with funding provided by outside agencies (i.e. not NHT funded). These include:

- Small prawn bycatch extension - Department of Primary Industries;
- NSW environmental management strategy for estuarine general and estuarine prawn trawl fisheries - FRDC;
- Protected Species Handling Manual - Environmental Trust;
- Extension of line-cutters and de-hookers (ETBF and WTBF) - WWF Threatened Species Network;
- Towed acoustic array (QLD) - FRDC;
- Pingers to reduce marine mammal interactions - FRDC;
- New deep setting longline technique for bycatch mitigation in the ETBF, co-investigators with the Secretariat of the Pacific Community (SPC) - FRDC;
- National hopper project - FRDC;
- Collaboration with WWF, QDPI (Northern Fisheries Centre) and SIMRAD marine electronics to investigate a sonic beam BRD that deters fish from the path of prawn trawls;
- Small boat hopper – FRDC;
- Turtle Educational Workshop for Long-Line Fisheries - FRDC;
- Monofilament recycling education brochure - Aust Monofil;

- Advance in seafood leadership development program (VIC and ETBF SEO's) - FRDC, DAFF and Seafood Council SA;
- WA EMS/ESD brochure - Diversity Pty Ltd, Bailey's Marine Fuels Australia and Kasa Environmental;
- WA trial of target snapper (Barnes) hooks - Paul's Fishing Kites (NZ), Paul Barnes inventor;
- Investigation of the NRM process to seek funding for further pinger development by coordinating the NFC and ECOfish as partners with SeaNet in the funding applications - underwater acoustic alarms;
- Mesh selectivity trials in the SA marine scalefish fishery - FRDC;
- Bycatch monitoring in the Lakes and Coorong fishery - FRDC;
- Recreational fishing line recovery program - Noosa Shire Council;
- Lake Argyle trap development project and catch/bycatch collection - IDU;
- Development of a brochure on the outcomes of the Plastics off Rock Lobster Boats project - Nature Foundation;
- Support from the Nth Gulf NRM for bycatch reduction as a priority for funding. As of September, costs and timelines are being developed for funding application - underwater acoustic array;
- Two FRDC application via the SFC: seasnakes and square mesh panels, extension by SeaNet;
- Mechanical whale mitigation devices - FRDC;
- Weighted swivels for bird bycatch mitigation - AFMA.

M5. Facilitating the adoption of bycatch mitigation measures by fishers.

PI 1: Level of involvement with industry relevant to identifying and using bycatch mitigation measures.

A fundamental role of the SeaNet extension service is to work closely with fishers in developing their own bycatch mitigation measures which benefit their particular fishery and/or local conditions. This incorporates the trialing of methods developed by researchers and their modification, where necessary, to best suit specific requirements. Numerous projects in 2004 have worked with industry in this capacity, resulting in the development and adoption of more sustainable gears and fishing practices. Examples include, but are not limited to:

- Three sea turtle workshops demonstrating the use of line-cutters and de-hookers to industry.
- Line-cutter and de-hooker trials in the WTBF.
- Implementation and extension of the ETBF and WTBF Code of Practice.
- Volunteers engaged to undertake pinger trials.
- Boat trip to assist SARDI with monitoring bycatch in Lakes and Coorong Fishery;
- Bycatch reduction in bay and inlets fisheries (VIC) - communication with EMS trainers and facilitation of links with grass roots fishers;
- Organisation and hosting of the USA TED assessment team in Cairns to evaluate the trawl fleet and net makers for compliance with USA TED regulations;

- Development of partnership with major Cairns net maker for development of the fishbox – Northern Prawn Fishery BRD’s and TED’s;
- Seven day trip on board the FV Angelica (Eden) to demonstrate and encourage the use of line-cutting and de-hooking devices;
- Distribution and explanation of the use of de-hooking and line-cutting devices to 30 fishers and turtle research kits to 10 fishers;
- VIC SEO liaison with squid industry members and manager to collaborate and coordinate input into draft Code of Practice;
- VIC SEO liaison with rock lobster fishery manager to discuss Code of Practice for minimising whale interactions;
- Barnes hook trials to reduce the bycatch of juvenile Pink Snapper in WA about to get underway;
- Worked with Channel 7 and other researchers to produce a news story on the efforts of ETBF fishers to reduce their impact on turtles;
- Distributed an instructional video to fishers on more ‘advanced’ use of dehookers;
- Distributed and explained the use of turtle research equipment to fishers. Forwarded samples and reports from fishers to the principal investigator;
- Strong support from all stakeholders to develop a research program to quantitatively address bycatch in the Lakes and Coorong fishery;
- Fishing trip in SA with industry representatives to determine the type of bycatch landed in the Gulf Saint Vincent Prawn Fishery – as part of the project “Bycatch Reduction Mitigation in Gulf Saint Vincent Prawn Fishery”;
- Draft Gulf of Carpentaria, commercial fisherman EMS circulated to stakeholders and researchers.
- Discussions with fishers of the Lakes and Coorong Fishery regarding their most pressing issues and management priorities;
- Meeting with Port Wakefield industry members to gather information on previous efforts and to gauge their support for selectivity trials in the Marine Scalefish Fishery;
- Met with MSF fishers in Ceduna to discuss a range of issues including bycatch mitigation;
- On-going industry/agency liaison regarding seal excluders;
- EMS/ESD Brochure – completed, on-going distribution and extension;
- Delivery of modified codends to fishers in the South East Trawl Fishery for trials. Feedback on effectiveness later sought from trial vessels;
- Gulf of Carpentaria commercial fishermen’s draft EMS circulated to all stakeholders;
- Discussions with fishers using fish oil and acoustic devices to deter seabirds to determine effectiveness of these methods;
- Distributed, encouraged and explained documentation on the use of de-hooking and line-cutting devices to fishers;
- Sought industry advice regarding funding the purchase of de-hookers and line-cutters;
- Informed stakeholders (including fishers) of the appropriateness of turtle mitigation methods used in the USA for the ETBF;
- Presentation at sea turtle workshops to fishers on sea turtle handling and the use of de-hooking and line-cutting devices;
- Contacted fishers regarding future trials of fish oil for seabird mitigation;

- Liaison with various stakeholders (including fishers) regarding approaches to the trial swivel line weighting.

PI 2: Number of fishers associated with SeaNet developing, using or adopting improved practices and/or gears.

In 2004, 900 fishers from around the country have been involved with the development, use and adoption of improved fishing practices and gears (refer to the SeaNet 4 Progress Reports, 1 - 4).

M6. Contributing to improved fishing practices and methods.

PI 1: Number and type of feedback and communication mechanisms used by SeaNet to improve links between fishers, researchers and other stakeholders (newsletters, workshops, fishing trips etc.).

SeaNet is pro-active in promoting effective communication networks between the broad range of stakeholder groups involved in developing sustainable fisheries. Utilising a range of methods of communication ensures the message is received and understood by every audience. Examples include, but are not limited to:

- Fifty three articles for industry publications;
- Seven fishing trips;
- Distribution of three instructional CD's and one video;
- Twenty workshops;
- The Eastern Tuna and Billfish Fishery Code of Practice affirmation forms;
- SeaNet newsletter distributed to over 380 stakeholders nationwide;
- SeaNet/Ocean Watch web site;
- Six conferences;
- Six media releases/launches;
- Promotion of SeaNet through displays at nine fishing/seafood expos;
- Development of promotional stickers for boats in the ETBF using line-cutters and de-hookers for bycatch mitigation;
- One television and two radio interviews;
- Attendance at, and presentations to, numerous MAC meetings and fisheries working groups and
- Continual and regular personal liaison between SEOs, fishers and other stakeholders.

PI 2: Number of SeaNet facilitated EMS's prepared, implemented or reviewed by the commercial fishing sector.

During 2004, SeaNet was involved in nine Codes of Practice, three Environmental Management Strategies, three Codes of Conduct, one management plan and an industry best practice project "plastics off rock lobster boats".

M7. Documented examples of industry testing and working with new innovations and technologies.

PI 1: Number of fishers (individual or associations) involved with SeaNet in designing, testing or implementing bycatch reduction innovations and technologies.

Two hundred and sixty three fishers and six organisations during 2004.

PI 2: Number of projects/reports involving SeaNet relevant to the designing, testing or implementing of bycatch reduction innovations and technologies.

Twenty projects.

Project Profiles

Eastern Tuna and Billfish Fishery

OFFICER: *Elton Robinson*

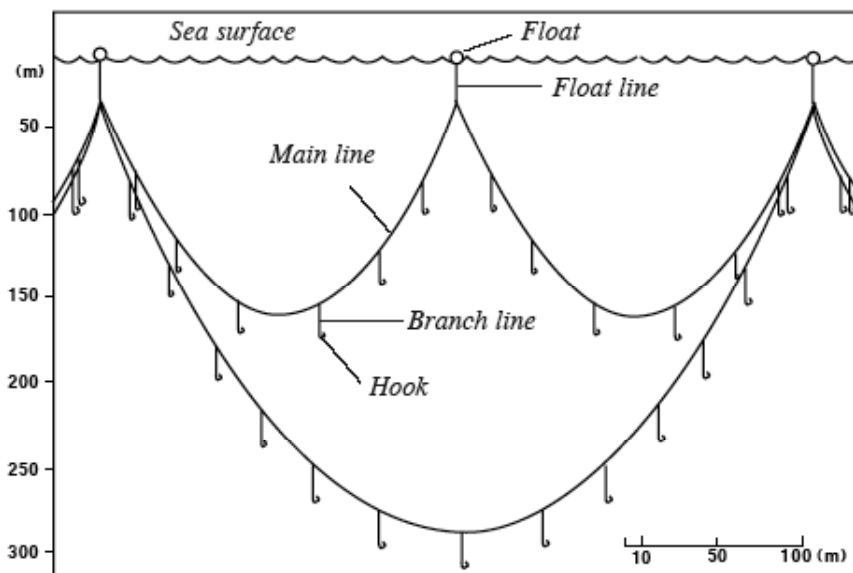
INDUSTRY HOST: *Mooloolah River Fishers, March – December 2004, East Coast Tuna Boats Association (ECTBOA), March 2002 - March 2004*

LOCATION: *Mooloolabah*

TITLE: *New Longline Deep Setting Technique for Bycatch Mitigation*

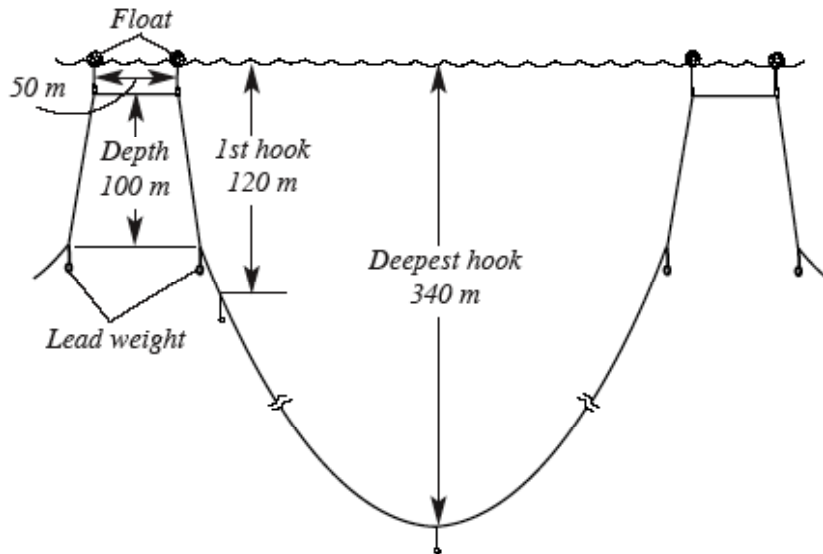
SeaNet Extension Officer for the Eastern Tuna and Billfish Fishery (ETBF) Elton Robinson has been working with Steve Beverly, Fisheries Development Officer of the Secretariat of the Pacific Community (SPC), New Caledonia and operators of the ETBF on the project: *New deep setting longline technique for bycatch mitigation*. The project aims to increase effective targeting of deep-swimming market species while reducing the likelihood of taking shallow water bycatch. A study conducted in Hawaii on turtle dive-depth distribution revealed that loggerhead turtles spend most of their time in waters less than 100 m. The incidental catch of turtles occurs in pelagic longline fishing when turtles encounter baited hooks or when they become entangled in mainlines or floatlines.

Longline gear is normally set so the gear 'sags' in a catenary curve from float to float (see Figure 1 below), fishing a variety of depths ranging from 50 to ≥ 300 metres. Both the 'normal' shallow and deep set gear illustrated leaves some hooks (those near the floats) above 100 m, where bycatch species occur.



Catenary curves of regular longline gear both shallow and deep-set.

This project tested a new method for setting monofilament longlines that sets all baited hooks at a prescribed range of depths, below 100 m, from the intermediate layer to the thermocline depth. This prevents baited hooks in the mixed layer (the top 50 to 100m) where they are more likely to be encountered by sea turtles and other unwanted bycatch species (Figure 2). This method also aims to increase the catch rate of target species such as bigeye tuna and broadbill swordfish during the day. Generally, longline gear fishing deeper in the water column is more effective at targeting bigeye tuna, probably due to the preference of the species for depths of 350-500 m and 10 – 15°C during the day.



Experimental set configuration with 20 hooks per basket and target depth for shallowest hook of 100m.

In order to set the entire line deep without using very long floatlines, normal floatlines were used in pairs separated by a blank section of mainline with no baited branchlines for a distance of 50 m. The section of mainline that holds the baited branch-lines was suspended directly under these floats and was weighted down at each end by a 3 kg lead weight attached by a snap to the mainline.

The experimental gear was set in conjunction with normal gear. The experimental gear was successfully set at the target depth so that all hooks fished below the mixed layer where bycatch encounters normally occur. As expected, no turtles were caught as encounters in the ETBF are infrequent. However what was discovered, was that all hooks in a longline can be set in the zone outside that in which turtles normally occur. By observation, fish caught on the deeper weighted gear were generally bigger than fish caught on the shallower gear. In any case, the project gear out-fished the normal gear by about 17 % overall, although more work needs to be done to prove the efficacy of this new technique and to show that it can significantly increase the nominal CPUE of deep water target species, especially bigeye tuna.

This project was funded by AFMA and two Mooloolaba longline companies offered their vessels for the trials. This is another example of proactive cooperation of fishers working with other stakeholders to reduce their impact on the ecosystem, ensuring the sustainability of their fishery.

South Australia

OFFICER: *Claire van der Geest*

INDUSTRY HOST: *Seafood Council South Australia (SCSA)*

LOCATION: *Adelaide*

TITLE: *Plastics off Rock Lobster Boats*

The entanglement of New Zealand fur seals (*Neophoca cinerea*) and Australian sea lions (*Arctocephalus forsteri*) continues to concern conservationists and scientists. Seals can become entangled in a range of materials, including netting, and plastics but in a recent Marine Pollution Bulletin paper, scientists have reported that most entanglements occur in plastic packaging straps.

Packaging tape accounts for 30% and 11% of NZ fur seals and Australian sea lions entanglements respectively. Moreover, the entanglement rates at Seal Bay, Kangaroo Island have increased from a single entanglement per year prior to 2000 to 6-9 entanglements per year in more recent years.



The strapless bait carton.

The industry has been aware of the issue for a number of years, and has been involved in other initiatives to try to reduce the number of seals entangled.

The rock lobster fishers already have a 'no plastics on boats' policy and are currently completing an EMS which also requires correct disposal of plastics and other harmful marine debris.

However, the industry felt that more could be done to ensure protection of these mammals. The industry, together with SeaNet and the South Australian Rock Lobster Advisory Council

(SARLAC) have launched a new program aiming to discontinue the use of plastic straps on bait cartons all together.

Cardboard manufactures in Australia have designed a self locking carton, which no longer requires plastic packaging straps to be used. Rock lobster bait processors and suppliers have received the idea positively and the industry has already received shipments of 'strapless cartons' from New Zealand.

It is hoped that other rock lobster fishers and seafood industries will apply pressure to manufactures to ensure that at all parts of the supply chain that the industry is working toward environmental best practice.

Victoria

OFFICER: *Jim Newman*

INDUSTRY HOST: *Seafood Industry Victoria (SIV)*

LOCATION: *Melbourne*

TITLE: *South East Trawl Bycatch Reduction FRDC (98/204)*

The South East Trawl Fishery (SETF) has around 80 licensed fishing vessels targeting fish species including flathead, blue grenadier, pink ling and redfish. SETF vessels use demersal trawl nets with a minimum mesh size of 90 millimetres, catching over 30,000 tonnes of fish annually (valued at around \$70 million). Trawling effort in the SETF is concentrated on shelf and upper slope waters around Australia's south-east coast, with major ports including Eden (NSW), Lakes Entrance and Portland (Vic), and Hobart (Tas).

SeaNet Victoria has provided an extension service to the SETF since 1999, involved through collaborative research projects between the South East Trawl Fishing Industry Association (SETFIA) and the Marine and Freshwater Resources Institute (MAFRI), and funded by the Fisheries Research and Development Corporation (FRDC).

Due to the multi-species nature of catches in the SETF, trawl operations are unable to avoid the take of non-commercial (bycatch) species. Reducing catches of small and unwanted fish is a priority issue being addressed by SETFIA. The area of operation and the type of fish species likely to be encountered are key considerations for industry skippers looking to minimise bycatch.

Trawl nets with alternative mesh codends have been tested and are now being used by skippers working to reduce bycatch in different areas of the SETF. This modified trawl gear was developed during FRDC project 98/204 "Maximising yield and reducing discards in the South East Trawl Fishery through gear development and evaluation".

Currently SETFIA vessels are using a range of modified codends with positive results. Square mesh codends have been employed by skippers working from Lakes Entrance (Vic) and Beachport (SA), while operators in Portland (Vic) are successfully reducing bycatch using larger 100 mm diamond mesh codends.

The approach taken by SETFIA skippers targeting redfish in southern NSW has been to adopt a number of 102 mm diamond mesh codends supplied through one of FRDC's projects to reduce trawl bycatch. Using these codends will reduce the potential for growth overfishing of redfish stocks.



The square mesh panel has proven effective in reducing bycatch

Industry skippers using modified codends are benefiting from improved catch quality, reduced catch sorting times and more efficient fuel use, while making a valuable contribution to the long-term sustainability of the industry. SeaNet Victoria's role in the

development and distribution of the project video “Networking: Reducing bycatch in the South East Trawl Fishery” which highlights the findings of FRDC Project 98/204 and a series of project newsletters have been key elements of successful research extension and adoption of modified codends in the South East Trawl Fishery.

Queensland

OFFICER: *Denis Ballam*

INDUSTRY HOST: *Queensland Seafood Industry Association (QSIA), Ecofish,*

LOCATION: *Cairns*

TITLE: *Extension of the Popeye Fish Excluder*



The Popeye fish excluder was developed by Popeye Netmaking and is a variation of the “fish box” trialed in the United States. The BRD consists of an aluminium frame designed to create an area of low water flow. Fish are attracted to the low water flow and swim out through the adjacent escape hole. Prawn loss is eliminated through the use of an accelerator funnel under the escape hole.

The Popeye fish excluder was tested onboard the “Roden Lee” in the area between Cairns and Cooktown in July this year. Thirty shots were completed with the BRD over eight nights. The target species were tiger and endeavour prawns with small quantities of king prawns.

The results were encouraging with a 29% reduction in bycatch. Again, the difference between the two BRD types was far greater than the natural variation, therefore it can be concluded that the reduction resulted from the use of the Popeye fish excluder and not other factors.

During the course of one night of trawling, the BRD reduced bycatch from one net by 121kg. If the BRD was installed in all four nets, this would total 480kg or approximately 12 lug baskets less bycatch that the crew would have to sort.



Bycatch from standard net.



Reduced bycatch from net with fish box installed.

Data analysis shows that the natural variation in prawn catch rates was higher than the difference between the Popeye fish excluder and standard net. This means that there was no difference in prawn catch rates caused by the BRD.

Where To Now?

At the Qld Trawl MAC meeting in December 2004, the fishbox BRD was accepted as a regulated BRD for the Qld trawl fishery. However, the decision must first be progressed through a Regulatory Impact Statement (RIS) before being accepted into legislation. This is not expected to occur before June 2005.

Western Australia

OFFICER: *Carl Bevilacqua*

INDUSTRY HOST: *Western Australia Fishing Industry Council (WAFIC)*

LOCATION: *Perth*

TITLE: *Lake Argyle Bycatch Action Plan*

Background

The only commercial freshwater fishery operating in Western Australia is the Lake Argyle Freshwater Catfish Fishery in the Kimberley. This fishery, currently utilising gillnets, specifically targets the catfish or Silver cobbler (*Arius midgleyi*) and is managed through a set of licensing conditions (*Department of Fisheries State of the Fisheries Report 2002/2003*). There is a two month closure during the wet season breeding period of November and December.

The requirement to develop a Bycatch Action Plan (BAP) for the Western Australia's Lake Argyle Freshwater Catfish Fishery (LAFCF) arises from a series of actions developed through meetings with the Western Australian Department of Fisheries (DOF) the Western Australian Fishing Industry Council (WAFIC), SeaNet Environmental Extension Service (SEES) and Lake Argyle licensed fishers (LALF).

The primary reason for developing this BAP is to 'ensure that direct and indirect impacts on the lakes ecological systems from commercial fishing are taken into account and managed accordingly. The BAP will provide a clear course of action for Lake Argyle fishers to address the State and National Government's obligations for fisheries management. The preparation of this BAP also provides a practical means of moving towards meeting a number of requirements of new Commonwealth and State environmental legislation.

In the day-to-day operations of the LAFCF, a number of protected species can be encountered and incidentally taken or injured. A protected species is a species that, due to



*WA SeaNet Officer, Carl Bevilacqua
with Lake Argyle Catfish.*

its conservation status, has been recognised as requiring protection and has been listed under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) or equivalent State legislation.

There are four groups of protected species specifically addressed in this Bycatch Action Plan: crocodiles, turtles, birds and various finfish species. The focus of actions is to avoid or reduce the likelihood of encounters that may take or injure a protected species.

Aims and Approach

The aims of the Lake Argyle Freshwater Catfish Fishery Bycatch Action Plan are to reduce impacts of fishing on bycatch species and the Lake Argyle environment through:

- reducing, to the greatest extent possible, the interaction and potential for capture of bycatch species;
- reducing, to the greatest extent possible, the mortality and injury of bycatch species
- developing, where appropriate, mechanisms to convert bycatch into by-product.

The aims of this Bycatch Action Plan will be pursued through a focus on 'protected' species and those non-target species that are impacted when fishing for catfish.

The Next Step

The Lake Argyle BAP has recently been completed with trials set to begin in February 2005, continuing for two years. In the interim, prototype traps will be built and transported to Lake Argyle, and a handling manual will be developed including an identification guide for species with which fishers may interact.

Communication and Promotional Activities

- WINSK “From the Vines to the Sea” Conference.
- ASFB Conference.
- Radio interview for ABC Mt Gambier.
- SeaNet presentations at WAFIC regional seminars.
- Affiliated display with Ecofish at the Cairns show.
- Display at the seafood industry race day (Cairns).
- Coastal Zone Asia Pacific (CZAP) conference (Brisbane).
- Launch of the Protected Marine Species Identification Cards by Senator the Hon Ian Campbell, Minister for the Environment and Heritage (Darwin).
- Display at the National Prawn Industry Conference (Cairns), with promotion of the newly released Hoppers in Australian Trawl Fishers – A Handbook for Fishers.
- Crawford Fund Conference (Canberra).
- Nomination of SeaNet for the Minister’s awards for coastal custodians.
- Presentation at the National RSPCA Conference – Animal Welfare Underwater (Canberra).
- Coast to Coast '04 Conference (Hobart).
- Channel 7 news segment on the efforts of ETBF fishers to reduce industry impacts on turtles.
- WIN news segment on the trial fishing line recovery program (Sunshine Coast).
- Public display in affiliation with Mooloolah River on the Eastern Tuna and Billfish Fishery.
- Pt Douglas Seafood Extravaganza.
- SeaNet trailer display at the Eden Whale festival, Central Coast Fishing Expo and Wallis Lake Seafood Expo.
- Prawn boat launch (Port Adelaide).
- SSA function (Glenelg).
- Meeting with the Hon. Warren Truss MP to promote SeaNet.
- Articles in numerous industry and general interest publications.
- Distribution of the SeaNet Newsletter to 380+ stakeholders (quarterly), nationwide and internationally.
- Continual update of the SeaNet/Ocean Watch website.

Workshops

- Turtle handling and conservation workshops in the ETBF and WTBF.
- EMS workshop - SA SEO.
- SeaNet training workshop including: EMS, NRM, media, extension and facilitation theory, Canberra, all SeaNet staff.
- NRM workshops and catchment committee meetings – QLD SEO.
- Broadbill Swordfish workshop – ETBF SEO.
- ETBF SEO presentation to the Eastern Tuna Fishery Assessment Group Workshop.
- Marine Debris TAP Workshops - SA SEO, QLD SEO and Program Manager.
- Ecological Assessment in the Southern Zone Rock Lobster Fishery workshop – SA SEO.
- Cross regional (NRM) workshop in Karumba, the ghost net forum – QLD SEO.
- Seafood industry training package workshop – QLD SEO.
- SA FRAB workshop – SA SEO.
- “Hoppers in Action “ handbook workshop – QLD SEO.
- Spanner crab workshop – QLD SEO.
- Advance in seafood leadership development program; – VIC and ETBF SEO’s.

Appendix I: Outcomes and Activities

The table below identifies the degree to which each SeaNet project has achieved the following Natural Heritage Trust outcomes through specific NHT determined activities.

Outcomes^o

- 1) A reduced environmental impact of commercial fishing activities to assist in ensuring the ecological sustainability of estuarine and marine fisheries in the long term;
- 2) The conservation of the biodiversity of aquatic systems;
- 3) Increased awareness, understanding and support among the fishing industry of the need for sustainable aquatic biodiversity conservation; and
- 4) Increased development and uptake of industry best practice and adoption of Environmental Management Systems within the commercial sector.

Activities[†]

- a) Facilitating the increased uptake of bycatch reduction devices (BRD's) within the commercial fishing industry;
- b) Involvement with commercial fishers to design and implement bycatch reduction innovations;
- c) The encouragement of fishing sectors to identify solutions to their own natural resource management issues;
- d) Increased understanding by the fishing industry of sustainability in an environmental context;
- e) Improved rate of transfer of research generated knowledge about new fishing gears and practices;
- f) Development of feedback mechanisms to ensure stronger links between researchers, managers and fishers;
- g) Education programs to reduce levels of marine pollution/debris from the commercial fishing industry;
- h) Improved commercial fishing practices and methods;
- i) Improved networks between commercial fishers, State environment officers and other stakeholders and;
- j) Development of Environmental Management Plans and Codes of Conduct.

PROJECT	STATUS °	OUTCOMES				ACTIVITIES										
		1	2	3	4	a	b	c	d	e	f	g	h	i	j	
Western Tuna and Billfish Fishery - Code of Practice.	C,E	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
Eastern Tuna and Billfish Fishery - Code of Practice.	C,E	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
EMS/ESD Brochure – Information for the Commercial Fishing Industry.	C,E		◆	◆	◆				◆	◆	◆		◆			◆
De-Hooker and Line-cutter Trials in the WTBF.	U	◆	◆	◆		◆	◆	◆	◆	◆	◆		◆	◆		
Development of an Alternative De-hooker.	U	◆	◆	◆	◆	◆							◆			
South Coast Purse Seine - Code of Practice.	U	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
Northern Shark Fisheries - Code of Practice.	U	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
Turtle Handling and Conservation Workshops.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆		
Lake Argyle Bycatch Action Plan.	U	◆	◆	◆	◆	◆			◆	◆			◆			◆
Seal Excluders in Rock Lobster Pots.	U	◆	◆	◆		◆			◆				◆			
Fish Oil as a Seabird Deterrent in the Kalbarri Line Fishery.	D	◆	◆	◆		◆			◆				◆			
Barnes Hooks in the Shark Bay Snapper Industry (WA).	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Interactions with Protected Species - Identification Resources and Reporting Protocols for State Fishers (WA).	P	◆	◆	◆					◆				◆			
EMS Extension for the Marine Scalefish Fishery.	U	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
Plastics off Rock Lobster Boats.	U	◆	◆	◆	◆				◆			◆	◆			
Selectivity Trials in the Marine Scalefish Fishery.	U	◆		◆		◆				◆			◆			
Oyster Basket Waste Recovery and Recycling.	U	◆	◆						◆			◆				
Bycatch Monitoring in the Lakes and Coorong Fishery.	U	◆	◆	◆		◆		◆					◆	◆		
Coffin Bay Cockles.	D		◆	◆						◆						
Trials of Circle (Barnes) Hooks to Reduce Landing Undersized Catch (SA).	D	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
SA Net Fishers Association Cleans Up Parham Reef.	D		◆	◆				◆	◆			◆				
Addressing Localised Depletion of Razor Fish in Streaky Bay.	D	◆	◆	◆			◆	◆					◆	◆		

PROJECT	STATUS °	OUTCOMES				ACTIVITIES									
		1	2	3	4	a	b	c	d	e	f	g	h	i	j
Management of Waste on Marinas and Recreational Boating (SA EPA) - Code of Practice	U	◆		◆	◆				◆			◆	◆		◆
Correct Handling of Materials on Wharf Facilities - Code of Practice.	U	◆		◆	◆				◆			◆	◆		◆
Ecological Assessment in the Southern Zone Rock Lobster Fishery.	C	◆	◆	◆				◆	◆		◆		◆		
Bycatch Mitigation in Gulf Saint Vincent Prawn Fishery.	C	◆	◆	◆	◆	◆	◆	◆	◆		◆		◆		
EMS Prawn and Rock Lobster Fisheries.	U	◆	◆	◆	◆				◆				◆		◆
Seabird Education Workshops.	D	◆	◆	◆		◆	◆	◆	◆	◆	◆		◆	◆	
Introduced Marine Pest Awareness in the Seafood Industry	U	◆	◆	◆						◆			◆		
Best Practice Extension and Environmental Management Strategy Development for Victorian Bay and Inlets Fishers.	U	◆	◆	◆	◆										◆
South East Trawl Gear Development and Bycatch Reduction.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Advance in Seafood Leadership Development Program;.	C			◆						◆	◆			◆	
Rock Lobster Fishery (Vic) Code of Practice to Minimise Whale Interactions.	U	◆	◆	◆	◆										◆
Reducing Seal Bycatch Mortality in Commercial Fisheries.	U	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆
Central Zone Abalone Industry Association - Code of Practice.	C	◆	◆	◆	◆										◆
Southern Squid Jig Fishery - Code of Practice.	U	◆	◆	◆	◆				◆				◆		◆
Scallop Fishery - Code of Practice.	U	◆	◆	◆	◆				◆				◆		◆
Extension of Small Prawn Discards Project (NSW Fisheries).	C	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Exotic Pests – Triggerfish in Cairns Inlet.	U		◆								◆			◆	
Trials of the 98gm Swivel for Seabird Mitigation.	U	◆	◆	◆		◆	◆		◆	◆			◆		
Deep Setting Longline Technique for Bycatch Reduction.	U	◆	◆	◆		◆	◆	◆	◆	◆			◆		

PROJECT	STATUS ^o	OUTCOMES				ACTIVITIES									
		1	2	3	4	a	b	c	d	e	f	g	h	i	j
Barnes Hook - trials with tropical reef fish.	P	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Northern Prawn Fishery. BRDs & TEDs.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Reef Line Fishery Management Plan.	C	◆	◆	◆					◆	◆			◆		◆
Marine Debris - National Net Collection and Recycling.	U	◆	◆	◆				◆	◆			◆	◆		
Small Boat Hopper.	C	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Great Barrier Reef Marine Park Authority (GBRMPA) Cairns LMAC.	U			◆				◆	◆	◆	◆			◆	
Cape Grafton to Cardwell Inshore Mesh - Code of Conduct.	C	◆	◆	◆	◆			◆	◆		◆	◆	◆	◆	◆
Hinchinbrook Region Crab Fishery - Code of Conduct.	C	◆	◆	◆	◆			◆	◆		◆	◆	◆	◆	◆
Underwater Acoustic Alarms – Pingers.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆
Evaluation of Hoppers for Bycatch Reduction.	C	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Wilksch Net for Tilapia Removal.	D		◆							◆	◆				
Cairns Region Inshore Trawl - Code of Conduct.	S	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆
East Coast BRD's and TED's.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
Gulf of Carpentaria Commercial Fishermen's Environmental Management Strategy.	U	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Marine Mammal Tracking - Towed Acoustic Array.	U	◆				◆	◆	◆	◆	◆	◆		◆	◆	
Coral Reef Line Fishery - Code of Conduct.	S	◆	◆	◆	◆			◆	◆			◆	◆		◆
Sonic Beam BRD for Prawn Trawl Fisheries.	D	◆	◆			◆	◆	◆	◆	◆	◆		◆		
Monofilament Recycling Education.	C,E	◆		◆				◆	◆	◆		◆	◆	◆	
Turtle Education Research Project.	U	◆	◆	◆		◆	◆	◆	◆	◆	◆		◆	◆	
ARC De-Hooking and Line-Cutting Devices.	U	◆	◆	◆		◆	◆	◆	◆	◆	◆		◆	◆	

^o C = Completed; U = Underway; D = Under Development; S = Suspended; P = Proposed.

Appendix II: Financial Report

Financial Report	SN3	SN4	SN4	SN4	
As at 30 June 2004	30/09/2003	31/12/2003	31/03/2004	30/06/2004	Total
	\$	\$	\$	\$	\$
Income					
Amount Received	0	165,000	132,000	143,000	440,000
Tax Remitted	0	-15,000	-12,000	-13,000	-40,000
Grants Received - SeaNet	0	150,000	120,000	130,000	400,000
Balance brought forward	147,302	101,805	218,368	253,804	147,302
Starting Balance	\$147,302	\$251,805	\$338,368	\$383,804	\$547,302
Expenses					
Advertising and Promotion	9,836	720	665	850	12,071
Accountancy & Audit	0	0	0	1,397	1,397
Bank Fees and Charges	30	14	16	27	87
Conferences & Training Seminars	4,595	0	573	27	5,195
Consultants Fees	2,447	0	5,000	16,500	23,947
Lodgement Fees	0	0	0	0	0
Insurance - General	0	0	0	0	0
Computer Expenses	2,155	773	4,182	5,953	13,062
Post, Print and Stationery	3,298	430	2,091	1,644	7,462
Telephone & Communications	7,395	926	3,641	4,820	16,783
Salaries Permanent	57,899	21,083	47,125	64,529	190,637
Superannuation	5,212	1,898	3,926	6,123	17,159
Workers Compensation Insurance	0	0	0	423	423

Annual Leave Provision	-1,528	4	3,618	-3,236	-1,142
Subscriptions	95	0	10	0	105
Technical Equipment	940	646	47	1,788	3,421
Publications	95	0	0	0	95
Accommodation and Meals	3,453	1,239	3,196	5,502	13,391
Fares	2,608	1,386	3,351	5,067	12,411
Vehicle Hire and Costs	6,468	3,483	6,187	16,762	32,900
Taxis	71	761	255	1,097	2,183
General Travel Costs	1,329	75	681	346	2,432
Employee Training	0	0	0	661	661
Total Expenses	\$106,398.80	\$33,438	\$84,564	\$130,280	\$354,680
Unexpended Grant	\$40,902.70	\$218,368	\$253,804	\$253,524	\$192,621

Notes

* Includes allocated expended funds brought forward from 09/2003 of \$60,902

Appendix III: Glossary

AFMA	Australian Fisheries Management Authority.
AMCS	Australian Marine Conservation Society.
ASFB	Australian Society for Fish Biology
ASIC	Australian Seafood Industry Council.
BRD's	Bycatch Reduction Devices.
CoC	Code of Conduct.
CoP	Code of Practice.
CPUE	Catch Per Unit Effort.
DAFF	Department of Agriculture, Fisheries and Forestry.
DEH	Department of Environment and Heritage.
ECTBOA	East Coast Tuna Boat Owners' Association Ltd.
EMS	Environmental Management Strategy.
ESD	Environmentally Sustainable Development.
ETBF	Eastern Tuna and Billfish Fishery.
FRDC	Fisheries Research and Development Corporation.
FV	Fishing Vessel.
GBRMPA	Great Barrier Reef Marine Park Authority.
IDU	Industry Development Unit.
LMAC	Local Management Advisory Committee.
MAC	Management Advisory Committee.
MAFRI	Marine and Freshwater Resources Institute.
NFC	Northern Fisheries Centre.
NHT	Natural Heritage Trust.
NRM	Natural Resource Management.
QDPI	Queensland Seafood Industry Association.
SA EPA	South Australian Environmental Protection Agency.
SARDI	South Australia Research and Development Institute.
SEO	SeaNet Extension Officer.
SETF	South East Trawl Fishery.
SETFIA	South East Trawl Fishing Industry Association.
TED's	Turtle Exclusion Devices.
WINSC	Women's Industry Network Seafood Community.
WTBF	Western Tuna and Billfish Fishery.
WWF	World Wide Fund for Nature.