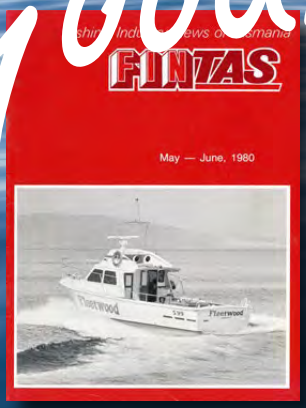
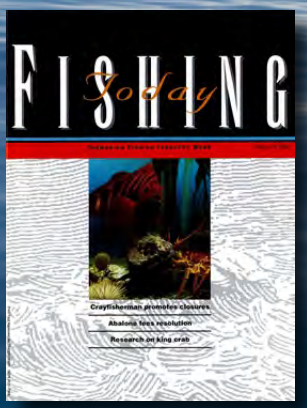
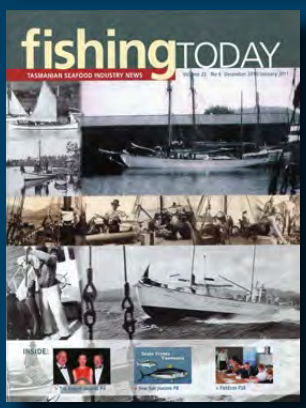
FISHING TODAY

TASMANIAN SEAFOOD INDUSTRY NEWS

Goodbye







Volume 29 No 3 June / July 2016

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FISHING TODAY

TASMANIAN SEAFOOD INDUSTRY NEWS

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IN THIS ISSUE

Advertising Index

From the PRESIDENT

It is with some regret that I welcome you all to this the last issue of *Fishing Today*. On behalf of the current and previous TSIC Board and staff, I would like to thank all those who contributed to the production of the magazine during its 28 years of print.

I am sincerely grateful to our industry, government and research stakeholders who have all contributed to the content of *Fishing Today*. It is because of your contribution that the *Fishing Today* magazine was so interesting and enjoyable.

Although TSIC would prefer the continued publication of this magazine, the reality is that budget constraints have forced the State Government to not continue its share of the publication costs. Regardless, TSIC will soon welcome a new institution in TSIC communication with members and broader stakeholders in the form of the *Tasmanian Seafood Industry News*. Working within a more constrained budget, the publication will not be as large or glossy, however, it will still contain key information and articles of interest to the Tasmanian seafood industry.

More detail about the future Seafood Industry News publication is available on page 3.

For those who keep up with the latest media, you would be aware that the unprecedented warming of the marine waters around Tasmania is now being referred to as a 'marine heatwave'. To some, an increase in average water temperature of 4.4°C may not seem like much, but for our marine environment and the animals it supports, this change is extreme. The consequences for the seafood industry have been dire, with reports of abalone mortalities, oyster mortalities related to POMS, continued and new harmful algal blooms and reduced growth rates in salmon are just some of the associated issues.

Although we are a resilient industry, that will use advancements in technology and improved harvest and management strategies to deal such issues, the seafood industry's reputation continues to take a pounding from misinformed environmental groups and individuals. As an example, I have just read a comment in the local media associated with an article about Tasmania's lake levels and power capacity which reads:

"If it's not power, its wilderness, we're trashing our abalone, mussel, oyster, crayfish and fishing industries and trying to replace them with farmed fish that are eating us out of home"

Such statements should highlight that we are ONE seafood industry. If something happens within one sector we are ALL implicated. This letter was from one individual, who has taken on board snippets from the media and made an incorrect judgement concerning our seafood industry's sustainability. We must UNITE as an industry, join forces and tell a unified story of sustainability. A story of world's best science feeding in to contemporary and world's best ecosystem management. A system that will not allow the extinction of any marine species. A system that manages our marine resources for now and the future. All sectors use the same scientific institution and same management organisation. We must all stand up for each other, as there is protection in numbers.

Yes, there are hiccups, such as unprecedented water temperatures, but like all industries (including the tourism industry) as long as there are systems in place to identify and mitigate negative issues or impacts then irreversible damage will not be done.

An effective mechanism to promote the seafood industry's proud past and exciting sustainable future of the Tasmanian seafood industry is the Australian Wooden Boat Festival. The 2017 event, to be held over the 10 – 13 February, promises to be the biggest and best seafood display ever. We will have a larger marquee and a more prominent location. Pot making (thanks to Greg 'Ringer' Shea and Joe Oakley), a dedicated food theatre, promotional display area, tour of boats and lots of industry representatives to talk about our industry and its credentials, and hopefully our scientific partners IMAS will all be part of our show. If you are interested in being involved get in touch with your sector association or TSIC.

Lindsay Newman

Chief Executive's Report

The rise of a new TSIC communication platform

As many of you are aware, this is the last ever issue of the *Fishing Today* magazine. In acknowledging that communication with our members is a vital part of TSIC operations, the TSIC Board and staff are currently considering options for the future efficient and effective communication of key information to our members and broader stakeholders. This is no easy task, as we must balance the needs of our members with the current communication technologies available. Although the final business model for the new communication platform is yet to be endorsed by the TSIC Board, I thought it only fair to provide an insight into the main option being considered.

Publication name

One fault with the *Fishing Today* magazine is the title itself. The term 'fishing' is generally associated with wild catch fishing operations, and as we all know, TSIC has represented wild catch, marine farming and seafood processing sectors since the beginning of TFIC in 1986. Subsequently, it is proposed that the new communication platform would simply be known as *Tasmanian Seafood Industry News.*

Hard copy or digital

After much discussion and debate, it has been decided to (well at least initially) maintain a hard copy delivery platform, with the option of digital (email) delivery upon request. In making this decision, we acknowledged the need to maintain a level of confidence that our members were seeing and reading a communication from TSIC. Given the diversity within the TSIC membership, it was deemed that a digital news platform would provide less confidence that people would see an email, open up the attachment and then read the content of a *Tasmanian Seafood Industry News* magazine. In making this, we have acknowledged an increased production cost to maintain a hard print magazine.

Content

Given that the proposed *Tasmanian Seafood Industry News* media would be 100% funded from the TSIC budget, it is proposed that the content would primarily deliver information concerning TSIC operations. Content would include the traditional Presidents Report, CE Report, updates on key TSIC projects and activities, and general seafood-related stories and information of relevance to the TSIC membership. Tasmanian seafood sector groups would continue to be provided the opportunity to utilise the communication platform to distribute information to their own members, other sectors and broader stakeholders. Instead of collating these reports within the *Industry Wide* section of *Fishing Today*, it is proposed that contributing sectors would have their own dedicated standalone reports.

There is also the opportunity for other seafood stakeholders who currently contribute to the *Fishing Today* magazine, such as DPIPWE and IMAS, to continue to provide content to *Tasmanian Seafood Industry News.* Noting that the new publication will be fully funded and production facilitated through the TSIC office, it is proposed there would be a cost involved for other stakeholders to utilise space within the Tasmanian *Seafood Industry News*. This will allow TSIC to keep publication costs within budget.

Frequency, length and distribution

The *Tasmanian Seafood Industry News* would be produced bimonthly, with six issues per year. The length of the publication would be smaller than the current version and the final length would ultimately be dependent on the amount of content from other stakeholder organisations and advertisers. Although the *Tasmanian Seafood Industry News magazine* will not be as 'glossy' or feature on high quality paper, the layout and content will still be of professional standard.

The magazine's primary distribution would be to TSIC members, with one hard copy print being mailed to all holders of a Fishing Licence Personal and the nominated person against a Marine Farm or Processor licence. Upon request, TSIC members can receive a digital copy instead of a hard copy version.

Subscription options

The *Fishing Today* magazine is distributed to a far wider audience than just TSIC members. Non-TSIC members that currently receive the *Fishing Today* magazine who wish to continue receiving the *Tasmanian Seafood Industry News* will need to subscribe to either a hard copy or digital copy subscription. Details of how to subscribe will be provided at a later date.

Advertising

Given the primary guaranteed distribution of the *Tasmanian Seafood Industry News* magazine is to all wild catch fishers, marine farmers and seafood processors involved with the Tasmanian seafood industry (TSIC members), there is still considerable merit for advertisers to continue their involvement with the *Tasmanian Seafood Industry News.* An advertising prospectus, including advertising rates, will be sent to all recent advertisers for their consideration sometime in the near future. This information will also be available on the TSIC website. It is hoped that our advertisers will continue to support TSIC and the Tasmanian seafood industry through continued advertising in the *Tasmanian Seafood Industry News.*

TSIC staff changes

The current TSIC Project Manager, Cassandra Price, has recently announced her intentions to leave the TSIC staff. Cas started at TSIC in September 2015, and since this time she has attempted to balance her study and personal life, together with the four day a week TSIC position. The workload, however, has proven challenging, and subsequently, Cas has made the decision to focus more time and effort to her PhD at IMAS. Cas has agreed to remain within the TSIC office until mid-September to accommodate other staff leave agreements.

On behalf of the TSIC Board and Staff, I would like to thank Cas for her dedication to the Project Manager role. We wish you all the best with future studies. On a personal note, I would like to thank Cas for agreeing to take on the role of Project Manager as her presence in the TSIC office certainly helped aid my transition into the role of CE.

By the time this publication comes to print, the process for selecting a new TSIC PM (advertising and interview process) will have commenced.

Federal Election

With a Federal Election now upon us, TSIC has delivered a *2016 Federal Election — Tasmanian Seafood Industry Policy Priorities* document to key federal politicians and candidates. The key priorities where consideration and/or funding has been requested are detailed below.

Biotoxin/disease testing capacity and capability

With a multitude of Tasmanian seafood being impacted by PST and other diseases, there is a strong business case for Tasmania to obtain the capacity (equipment) and capability (expertise) to conduct PST and other disease testing within a local specialised testing laboratory. Such testing capacity and capability would allow quicker turnaround from sample submission to test result confirmation. This decreased turnaround would provide industry with much greater confidence to send product to market, and a significantly decreased potential for local or export product recall. The Mt Pleasant Laboratory upgrade provides the foundation for facilitating such testing.

DPIPWE database development

Technological advancements make it possible for fisheries management agencies to accept data and other fishery related information via digital platforms. The benefits of transitioning to an online submission system are numerous, and include the capacity for science and management to manipulate real time catch and effort data (current delays for manual entry of such data) and in turn make more robust decisions concerning the management of our marine resources. Furthermore, the capacity for real time, online quota trading will provide flexibility to small business operations within the seafood industry.

Seafood House

The Tasmanian seafood industry, in partnership with multiple seafood industry stakeholder groups and organisations, wishes to establish a Tasmanian Seafood House, a one-stop shop for all Tasmanian seafood industry related issues. Organisations who have shown an interest in partnering in this concept include TSIC, Tasmanian Rock Lobster Fishermen's Association, Oysters Tasmania, Tasmanian Salmonid Growers Association, Tasmanian Abalone Council, Tasmanian Association for Recreational Fishers, Seafood Training Tasmania and regional employees with the Australian Maritime Safety Authority. TSIC is seeking financial support to purchase a suitable facility.

Research, development and extension

TSIC calls for increased government investment in RD&E. It is only with independent research and development that continued long term environmental sustainability of our marine resources can occur.

Government Policy

The TSIC submission also referred to issues concerning Federal Government Policy, including:

- Regulatory Reform — with a request for reduction in the complexity, duplication and cost of regulation
- Resource assess and allocation — with a request that the Government continue to utilise world's leading science, fisheries harvest strategy and economic stimulus to make decisions concerning access and allocation of our marine resources and NOT to make decisions based on social media campaigns and political vote getting
- Biosecurity — commitment and support to maintain a strong science-based regime to ensure continued protection of Tasmania's marine resources.

Julian Harrington

TSIC Member Meet and Greet

The TSIC Board invites all TSIC members to a meet and greet session.

Where: Mersey Yacht Club, Devonport

When: Friday 24 June 7.00 pm – 9.00 pm

RSVP: TSIC Office ph (03) 6224 2332 by COB Friday 17 June

What's happening at **TSIC**

2016 WORKING ON WATER PROGRAM

TSIC is in the process of developing this year's Working on Water (WoW) program. The program is a 'hands on' career pathway program that will introduce Year 9 and 10 students to a diverse range of careers available on, in and around the marine environment, including jobs within the seafood industry, marine sciences and tourism industries.

TSIC is responsible for the organisation of the WoW program agenda and organises where to go, who to meet, and what to taste. TSIC relies on a diverse range of industry stakeholders to provide the funding and in-kind support needed to run the program.

If you are interested in supporting the program, please contact the Project Manager by emailing projectmanager@tsic.org.au or phoning (03) 6224 2332.

www.tsic.org.au

AMSA — NATIONAL SYSTEM FOR DOMESTIC COMMERCIAL VESSELS

Under the new National System for Domestic Commercial Vessel (DCVs) Safety regulations, it will be a requirement for all commercial fishing vessels to have an AMSA accepted Safety Management System (SMS) for their vessel and its operations by 1 July 2016.

According to AMSA, an SMS is a systematic way to identify hazards and control risks while assuring that the risks controls are effective. It is also the process in which a company, or you as an individual proactively identify and manage risks, and develop a safety culture in your operation.

As stated by AMSA, The National Law gives effect to the National Standards for Commercial Vessels (NSCV), which recognises standards for the design, construction, and equipment, operational and crewing requirements of DCVs. NSCV Part E identifies the minimum operational requirements for the safe operation of DCVs. Compliance with the NSCV Part E is separate and additional requirement to the obligation to implement and maintain a SMS.

As part of an FRDC-funded project, TSIC has completed a template Safety Management System (SMS).

The templates produced take in requirements of Part E and are to be used as a guide. Owners/skippers will be required to complete the templates to suit their operation and vessel.

These templates are available to all TSIC members, and are available on the TSIC webpage www.tsic.org.au/index.php?target=groups.

If you would like to discuss tailoring a Safety Management System to your vessel and contribute to risk assessment templates, please contact the Project Manager by emailing projectmanager@tsic.org.au or phoning (03) 6224 2332.

By Catch

Marine heatwave hits the coast of Tasmania

Off the coast of Tasmania, above average ocean temperatures have been recorded from December and have persisted through into April. The marine heatwave has caused a temperature increase of 4.5° C above average. These increased temperatures have affected the oyster, salmon and abalone industries.

Dr Alistair Hobday CSIRO's senior principal research scientist, states in an article from *The Guardian* (see http://www.theguardian.com/australia-news/2016/apr/22/tasmania-marine-heatwave-salmon-global-warming-climate-change) "that some of the marine heatwave could be attributed to El Niño weather event, which is the negative stage of the El Niño -Southern Oscillation. These events are sustained warmer-than-usual SSTs across the central and eastern tropical Pacific Ocean. He further explained that "part of the warming we just can't explain as being down to something other than global warming, In about four months — we are doing that work now — we will be able to say that 60% of it is due to climate change and 40% is due to El Niño."

The effect of the heatwave on local marine species is still being studied, but the higher temperatures have been linked to abalone mortality and a decline in the salmon harvest, as well as contributing to the mass death of oysters from Pacific Oyster Mortality Syndrome (POMS), which had never been reported in the State before.

For further information on the El Niño -Southern Oscillation see http://www.bom.gov.au/climate/glossary/elnino.shtml.

For more information on the heatwave see TRLFA article on pages 18-19.

Energy use of fishing vessels in Tasmania

A research project that helps fishing vessel operators identify ways to reduce their fuel consumption and greenhouse gas emissions has been recognised. Australian Maritime College Bachelor of Engineering graduate Alex Bishop was awarded the Royal Institution of Naval Architects (RINA) Samuel Baxter Prize for a joint paper with Dr Christopher Chin and Professor Giles Thomas titled *Energy use of fishing vessels in Tasmania*.

Mr Bishop's study assessed the quantity of fuel that vessels consumed to land target catch in southern rock lobster, south eastern shark and scalefish fisheries. A survey was distributed to fishermen to gather information on their fuel consumption which was used to investigate the vessel efficiency. "The research aimed to provide fishermen with options to increase their vessel's efficiency and maximise their profit margins," Alex said. "Also, by reducing the fuel consumption of the fishing fleet, emissions of carbon dioxide and nitrous oxides can be decreased."

The prize was presented to the authors at RINA's annual general meeting. Since graduating in 2012, Alex has worked as a naval architect in Queensland and Tasmania.

AFMA prosecutes more illegal fishers

Seven foreign fishermen were convicted in the Darwin Magistrates Court for illegally fishing in Australian waters. Their vessels were confiscated and destroyed. Fines totalling $7000 and good behaviour bonds were issued to the fishermen.

On 26 March 2016, the Australian Border Force (ABF) and the Australian Fisheries Management Authority (AFMA), apprehended two Vietnamese vessels which were sighted by Queensland Police within 23 miles of the Australian mainland, near Lockhart River. The vessels was boarded and fishing gear and approximately 8.7 tonnes of bêche-de-mer were discovered.

Mr Peter Venslovas, AFMA's General Manager of Operations, stated that these convictions were a warning to those

seeking to do the wrong thing. "If you do the wrong thing, you will be caught and face the penalties for illegal fishing," he said.

More information on how Australia is working to combat illegal fishing can be found at afma.gov.au.

Chinese invest in Kaillis Bros

The Chinese conglomerate, Legend Holdings, has invested in Kailis Bros, one of Australia's largest seafood processing, wholesale and export businesses. The new joint venture called KB Foods will be 90% owned by Legend and 10% owned by the Kailis family. Legend Holdings is known for its IT business, which encompasses one of the world's successful computer brands, Lenovo, as well as Joyvio, one of China's largest fruit companies.

Kailis CEO, Matthew Kailis, said that the company had long held ambitions to grow its Australian and international businesses and that greater access to capital would assist in this process. "Legend is a significant company with an outstanding international reputation," he said.

The terms of the contract have remained confidential, the Legend Holdings-Kailis Bros agreement was subject to approval by Australia's Foreign Investment Review Board, which was granted earlier this year.

National Seafood Industry Leadership Program

Five Tasmanians have been selected to participate in this year's National Seafood Industry Leadership program (NSILP). The participates come from a diverse range of backgrounds: Heidi Hansen — Environmental Certification and Sustainability Officer at Tassal; Paul Jordan — second generation commercial fisherman and skipper; Dale Maschette — Fisheries Biologist at the Australian Antarctic Division; John Richey — third generation commercial fisherman and Director of Roaring 40s Seafood; and Laura Smith — Project Manager at Marine Solutions.

The NSILP is the only national industry-specific leadership program and is designed for people wishing to take up leadership roles within the seafood industry. The key objective of the program is for participants to develop an understanding and gain skills which can be utilised to influence constructively, resulting in positive outcomes for the seafood industry at a national level.

There are over 100 graduates from the NSILP, from different sectors of the industry including skippers, marketing, processing, wild catch and aquaculture sectors, to name a few. Graduates from the program have gone on to apply their skills to a wide variety of areas, including regional network development, regional and State industry association boards, reference committees and effective business management. The program funding to deliver the National Seafood Industry Leadership Program is provided by Fisheries Research and Development Corporation on behalf of the Australian Government.

The inaugural Australian Food Awards to launch in 2016

The Royal Agricultural Society of Victoria (RASV) has announced a new opportunity for Australian food producers with the launch of the Australian Food Awards. Commencing in 2016, the Australian Food Awards celebrates excellence and recognises the best producers of fine food in Australia. Building on the success of RASV's Royal Melbourne Fine Food Awards, the Australian Food Awards will offer broader opportunities to Australian producers to leverage their success locally and internationally with the Australian Food Awards' national brand seal of excellence.

Entries opened in May and more than 100 leading industry experts will judge the categories from 7 to 22 July. Medal-winning producers will be eligible to win major awards presented at the Australian Food Awards Gala Presentation Dinner in September, including new trophies for overall Category Champions, Champion Organic Produce/Product, overall Small, Medium and Large Champion Producer and the prestigious Champion Australian Produce/Product award. Products that are consistently awarded a gold medal for three years or more will also be eligible to receive a Consistency of Excellence Medal. Award-winning producers will be provided with a marketing kit which includes artwork for the Australian Food Awards national brand seal of excellence that can be incorporated into brand packaging. There will also be exclusive opportunities for award-winning producers to market their brand locally at the Royal Melbourne Show and through the international export development program. Entries for the 2016 Australian Food Awards opened on 24 May, with producers encouraged to enter online via http://food.rasv.com.au. For more information about Australian Food Awards, please visit http://food.rasv.com.au.

BANDED MORWONG FISHERY 2016/2017 SEASON

The commercial banded morwong fishing season opened on 1 May 2016.

The DPIPWE revised the Commercial Banded Morwong Quota Docket (the quota docket) for use from 1 May 2016 in line with the movement of the banded morwong fishery from a numbers to weight based quota management system under the *Fisheries (Scalefish) Rules 2015* (the Rules). This included the requirement for a fisher to weigh banded morwong at the place of landing before transporting to the processor.

Completing this quota docket is mandatory for fisher's landing of **all** banded morwong, whether taken from inside or outside the TAC area.

Just prior to the commencement of the 2016 season, the DPIPWE received representation from some fishers that the weighing off of fish at the place of landing would place an impost on those fishers who transport their catch directly to processors and additionally, the extra handling can increase the stress to a species that is already susceptible to mortality in transit.

From the DPIPWE's perspective the integrity of the quota management system for banded morwong is paramount — particularly as this fishery has been assessed as '*transitional depleting*' for a number of years. It is critical that either the weight or fish numbers recorded in Part A by the fisher can be 'verified' by the weight or fish numbers recorded in Part B by the processor.

In the interim — while the DPIPWE consults further with industry to clarify the arrangements to apply into the future — an exemption order has been made to allow a fisher who transports their fish to the processor to delay completing the weight section in Part A of the quota docket until after the weight has been recorded in Part B by a fish processor as required in Part B of the quota docket. All other instructions are to be followed as described in the quota docket book.

Meanwhile the new telephone movement report (BM4) questions relating to Rule 75(b) for fishers who transport their fish to a processor has now been activated with the reporting requirement coming into force on 4 June 2016. All banded morwong fishers who transport their catch from the landing area to a processor are required to make a movement report before they leave the landing area.

Please ensure that any supervisors operating under your licence are aware of these requirements. More information on the Banded Morwong Fishery can be found on the DPIPWE website at http://agencyweb.dpipwe.tas.gov.au/sea-fishing-aquaculture/commercial-fishing/scalefish-fishery/banded-morwong-fishery.

If you have any questions please contact the Wild Fisheries Management Branch at Frances.Seaborn@dpipwe.tas.gov.au.

CONVICTIONS

REPORT ILLEGAL FISHING
FISH WATCH 0427 655 557

RECREATIONAL EXCESS AND UNDERSIZE ABALONE CONVICTION

On 8 May 2015, Mr Tyson Donald Katsineris was convicted on his pleas of guilty in the Hobart Magistrates Court of taking undersize abalone, failing to carry a measuring device while taking abalone, failing to immediately replace undersize abalone and taking more than ten abalone.

On 16 November 2014, Tasmanian Marine Police Officers were conducting routine marine patrols in the Orford area. Police observed two persons in a runabout anchored near the shoreline and a third person surfacing with a catch bag containing abalone.

Police determined that Mr Katsineris was the sole diver and that he was in possession of 16 abalone, ten of which were found to be under the legal size limit of 138 mm. Police also ascertained that Mr Katsineris was not carrying a measuring device whilst diving.

Mr Katsineris received fines and special penalties totalling $1960.

UNLICENSED EXCESS ABALONE CONVICTION

On 8 May 2015, Mr Adrian Robert Wickham was convicted on his pleas of guilty in the Launceston Magistrates court of possessing excess abalone.

On 20 April 2012, Tasmania Police Officers executed a search warrant at a private residence in Launceston. During the search, Police located 47 greenlip and 21 blacklip (68 in total) frozen abalone meats. Mr Wickham was not the holder of any relevant licence at the time.

Mr Wickham received fines and special penalties totalling $13,820.

RECREATIONAL EXCESS AND UNDERSIZE ABALONE CONVICTION

On 17 August 2015, Mr Geoffrey Boon Leong Koh was convicted on his pleas of guilty in the Launceston Magistrates Court of taking undersize abalone, possessing undersize abalone, failing to carry a measuring device while taking abalone, failing to immediately replace undersize abalone and unlawfully taking more than ten abalone.

On 24 February 2015, a member of the public alerted Tasmania Marine Police Officers that he had witnessed a person taking what appeared to be undersize abalone in the vicinity of the Low Head Lighthouse.

The witness had located a grey plastic bag containing 35 undersize abalone secreted in bushes close to a walking track near the lighthouse car park. The witness also provided a description of the person who took the abalone and of the vehicle used by the person.

Acting on the information received, Police intercepted the vehicle on the East Tamar Highway near Bell Bay and a search resulted in 80 undersize abalone being located in a fish bin in the back of the vehicle.

Mr Koh, who held a recreational abalone licence, admitted to taking all the abalone, including the 35 abalone found earlier by the witness.

Mr Koh received fines and special penalties totalling $17,600.

Without the timely report to Police these offences probably would not have been detected and demonstrates the effectiveness of members of the community being vigilant and prepared to immediately report what appears to be illegal fishing activity to Police.

UNLICENSED EXCESS ABALONE - UNLICENCED UNDERSIZED ROCK LOBSTER CONVICTION

On 17 February 2016, Mr Joshua George Filgate was convicted on his pleas of guilty in the Hobart Magistrates Court of charges of trafficking in fish (abalone), taking rock lobster for non-commercial purposes without authority, and taking and possessing undersize male rock lobster.

On 29 March 2015, police intercepted a vehicle on the Huon Highway at Dover driven by Mr Filgate. Following an unsuccessful attempt by Mr Filgate to avoid his vehicle being searched, police located 143 abalone meats and two rock lobster. One of the rock lobster was less than the prescribed minimum length for male rock lobster. A quantity of dive equipment was also seized.

Mr Filgate was also convicted of motor vehicle offences and assaulting and resisting a police officer, offences which were committed at the time he was intercepted by police.

At the relevant time, Mr Filgate was not the holder of any commercial or recreational fishing licences.

Mr Filgate received a community service order to perform 100 hours of work and fines and special penalties totalling $21,000. The dive equipment seized was forfeited to the Crown.

Steve Withers
Manager
Fisheries Compliance and Licensing

Safety management systems: What is 'reasonably practicable'?

Developing a safety management system (SMS) for your domestic commercial vessel operation is about identifying the risks and hazards associated with your vessel and its operation and then determining what measures you will put in place to manage those risks and hazards.

An SMS is not a fixed system, and you should review it frequently, while working with your crew to continually improve your safety culture.

In essence, an SMS is a system that is established to identify what could go wrong with your commercial operations and the things that you do to:

- stop it from happening in the first place
- reduce the chance of it happening
- reduce the harm or damage that it causes if it does happen.

In deciding how you will manage your risks, the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (the National Law) requires owners and masters to ensure the safety of their vessels, its marine safety equipment and its operations 'so far as is reasonably practicable'.

So what does 'so far as is reasonably practicable' mean?

The National Law defines 'reasonably practicable' as *that which is, or was at a particular time, reasonably able to be done in relation to ensuring safety, taking into account and weighing up all relevant matters, including:*

(a) the likelihood of the hazard or risk concerned eventuating

(b) the degree of harm that might result from the hazard or risk concerned eventuating

(c) what the person concerned knows, or ought reasonably to know, about:

(i) the hazard or the risk concerned; and

(ii) ways of eliminating or minimising the hazard or risk concerned

(d) the availability and suitability of ways to eliminate or minimise the hazard or risk concerned

(e) after assessing the extent of the hazard or risk concerned and the available ways of eliminating or minimising the hazard or risk concerned, the cost associated with available ways of eliminating or minimising the hazard or risk concerned, including whether the cost is grossly disproportionate to the hazard or risk concerned.

There are two elements to what is 'reasonably practicable'. You must first consider *what can be done* — that is, what is possible in the circumstances for ensuring safety. You then need to consider whether it is *reasonable, in the circumstances* to do all that is possible. Essentially it means doing what is **effective** and **possible** to ensure the health and safety of workers and others.

For instance, the greater the likelihood of a risk or hazard eventuating, the greater the significance this will have when weighing up all matters and determining what is reasonably practicable. If harm is more likely to occur, then it may be reasonable to expect more to be done to eliminate or minimise the risk or hazard.

What is 'reasonably practicable' is determined objectively and not by reference to your capacity to pay or other particular circumstances. This means that you must meet the standard of behaviour expected of a reasonable person in your position (e.g., a person in the same industry) who is required to comply with the same duty.

What 'can be done' 'should be done' to manage a safety risk unless it is reasonable in the circumstances for you to do something less. Choosing a low-cost option that less effectively addresses a risk or hazard simply because it is cheaper is unlikely to result in you having ensured the safety of your vessel and its operations 'so far as reasonably practicable'.

When you are developing your SMS, consider what you already have in place to manage the risks and hazards of your operation and whether you should be putting in place any other controls.

For example, if you cannot eliminate a risk, consider whether you can minimise the risk by substitution or isolation through an engineering solution (such as a machinery guard); what administrative or training controls should be put in place (such as standard operating procedures, emergency plans and procedures and ensuring that crew members are trained and competent); and what personal protective equipment could be used (such as lifejackets, personal locator beacons, gloves, boots).

When you put your SMS into practice, it should reflect what you do every day on your vessel, including the way crew are inducted and trained, the way the vessel is maintained, how daily work is carried out by everyone on board and how improvements are made to the safety practices. A documented SMS provides clear evidence that you are meeting your general safety duties under the National Law to ensure the safety of the vessel and its operation.

AMSA has a range of resources available on their website at www.amsa.gov.au/domestic under 'Operations', to assist you develop your SMS. You can also contact Claire Cunningham, AMSA Liaison Officer for Tasmania, for assistance on 0439 406 436 or by emailing claire.cunningham@amsa.gov.au.

What is reasonably practicable is also the standard applied in Australian workplace health and safety legislation. Safe Work Australia has further guidance available on its website at www.safeworkaustralia.gov.au.

Goodbye FISHING TODAY

By Mary Brewer

Late last year Minister Rockliff informed TSIC that the Tasmanian Government is no longer in a financial position to continue to support the publication of *Fishing Today* as of 30 June 2016, so this is the last edition as we know it. With the demise of *Fishing Today* in its present format it is timely to look back at its history, the changes that have occurred and at some of the personalities who have brought the magazine to life.

The medium of communication of the Tasmanian seafood industry was originally called *FinTas*, which was in a very different format to what we have today. Vol 1 No 1 appeared in July/August 1978 and boasted it was the official journal of the Tasmanian Fisheries Development Authority (TFDA), the Professional Fishermen's Association of Tasmania (PFAT), the Australian Fishing Industry Council (AFIC) and the Tasmanian Fish Processors and Exporters Association. The coordination and preparation was done by the TFDA, with typesetting by Davies Brothers Ltd (who published The Mercury) and it was printed by Mercury-Walch in Hobart.

Back then *FinTas* cost a mere 80 cents! And was a bi-monthly magazine which continued through to *Fishing Today*. As well as a general news section and sector group news, it carried articles by the TFDA, Marine Police, the Fishing Industry Training Board (FITB) and CSIRO. It always carried a profile of one of the industry's characters as well as a recipe or two. This is one consistent theme that has been carried through to today and over the years there have been some memorable profiles. Here we reflect back on two of these profiles from *FinTas*:

In September 1986 Dale Bryan was appointed the first executive manager of the newly formed Tasmanian Fishing Industry Council (TFIC), which was formed to put an end to the disunity that had previously characterised the Tasmanian industry. Dale was introduced to the fishermen in *FinTas,* and used the platform to keep fisher communication open with fishers.

In December 1987 Max Hardy had just launched his new boat the Ada Hardy built by Bernard Wilson. Max was ecstatic about the future and described a trip on a former boat the *Rhona H* in 1947 when he had first installed an echo sounder. "My first trip with it aboard, we caught an incredible number of crays. I had them stacked everywhere - in the wings, in the dinghy. When we got back to port everyone who saw them decided they should rush out and buy an echo sounder. Truth was I hadn't used the sounder at all. Didn't know how to!"

It becomes quite apparent when flicking back through the old *FinTas* that many of the issues that plague industry now were problems back then too: bureaucratic red tape, reductions in catch or pot allowances, algal blooms in the Channel, licence fee increases, exploding seal numbers, concerns regarding large trawlers, and the uncounted amateur catches and the need for marketing bodies.

However, by the end of 1987 *FinTas* had had its day, quoting Dale Bryan as he introduced the first edition of *Fishing Today*: "*FinTas* needed a revamp. It was not timely enough, not carrying enough current information to keep you informed. Presentation was also, let's face it, a bit dull...Fishing is a people industry. *Fishing Today* is a people magazine - full of news views and personalities." The last *FinTas* was Vol 10 No 4 (December 1987), which reported that major exports topped $63m for 1986/87. (See page 20 of *Fishing Today* April/May 2016 for a comparison with the latest statistics).

The first edition of *Fishing Today* Vol 1 No 1 was published by Turtle Press in April/May 1988 and has been a bi-monthly, slightly smaller than A4 size, produced both by TFIC (TSIC) and DSF (DPIPWE) ever since, although there have been changes to its content and format over the years.

With sections for commodity group and general industry news, there were also features from the Department of Sea Fisheries (DSF), TFIC and Tasmanian Aquaculture and Fisheries Institute (TAFI) - later the Institute for Marine and Antarctic Studies (IMAS). Articles

from organisations such as the Marine Board of Hobart (later Tasports), Marine and Safety Tasmania, (MAST) and the Fishing Industry Training Board (FIBT) - later Seafood Training Tasmania- were included.

The first edition announced a major restructuring of the Department of Sea Fisheries as well as a federal inquiry into Commonwealth fisheries management. TFIC was about to mount a legal challenge to prevent the Commonwealth cancelling fisher's "right" to catch small numbers of Bluefin Tuna. The Professional Fishermen's Association (PFAT) also had some strong things to say about the then Navigation and Survey Authority, which sound very similar to the discussions around present day concerns.

The Publishers

There have also been some memorable personalities behind the scenes of the production.

Bob Lister said "When I joined TFIC in May, 1994 as the Chief Executive *Fishing Today* had already been produced every two months for six years and was considered one of the best fishing industry communication pieces in Australia. The writer/editor was Tim Walker from Turtle Press who did a great job under often fairly trying circumstances." Megan Farrer and the late Graham Ristow also worked for Turtle Press, with Megan collating and Graham organising the layout. TFIC's Executive Secretary, the late Anne Gay would type up Bob's articles and ensure that all TFIC articles and advertising were forwarded to Turtle Press. Anne worked on the magazine for 19 years before retiring in 2005.

In late 2004 when the publishing contract was up for review and funding had become even tighter Bob Lister sat down with Craig Midgley at DPIPWE and identified changes they desired and called for tenders to produce *Fishing Today* for at least the next three years. Bob says: "Fortunately the good people, including Yvonne Buckley, at Artemis Publishing Consultants were interested and with their support we first produced the full colour magazine and returned to the format of a new cover every edition from June/July 2005 (Vol 18 No 3). This new format was very well received and strengthened the communication links with all sectors of the commercial fishing and aquaculture industries and was certainly more modern and appealing to the expanded readership."

Later Julie Podmore and then Mary Brewer became regular contributors, doing profiles and a recipe/restaurant review segment, book reviews as well as covering conferences, international news and other significant issues of the day. In 2013, Sue Wendell-Smith bought Artemis Publishing Consultants and continued publishing *Fishing Today*.

Artemis Publishing Consultants discussing their first issue of Fishing Today. From left front, Yvonne Buckley and Anna Housego; at back Pip Cubitt, Anne Shield, Guy Anderson and Garth Morley

Photos

An integral part of the development of *Fishing Today* has been the photos. In the early days Tim Walker sourced these himself. Some may remember that for eleven years, April/May 1994 to April/May 2005 the front cover was exactly the same upsetting many fishermen. However, pre 1994 the cover colour photo was changed for each issue, although the content remained in black and white. When Artemis revamped the magazine in 2005 a feature of the cover became the full colour photo. TSIC used the creative resources of contributing photographers, which included Hugh Pederson, Mary Brewer, Sam Ibbott and Dean Lisson as well as many others.

Advertisers

Then of course there are the advertisers: without their support there would have been fewer pages and less content. The rates were very cheap with classifieds costing all of $2.50 per column centimetre! Dale Bryan's wife Daphne was responsible for the advertising in the early days of *Fishing Today*

After *Fishing Today* was revamped in 1994 Julie Martin took responsibility for the advertising. In January 2006 Mary Brewer joined the team and began co-ordinating and writing articles, as well as organizing the advertising. One of the original advertisers has been Sutherland Marine who has been a loyal supporter of TSIC not just in *Fishing Today* but also with sponsorship of awards. Other long running advertisers still advertising are Baily Marine, RASS Marine, Fletcher Pumps, Glasgow Engineering, Oceanpower Marine Brokers and Tasports.

Contributors

The Presidents of TFIC/TSIC: Wayne Baker, the late Steve Gasparinatos, Stuart Richey, Neville Perryman, Neil Stump, Rodney Behrens, and most recently Lindsay Newman always had a great deal to say about the direction the industry was taking.

The April/May 1994 Vol 7 No 2 issue introduced the new TFIC Board after the first elections were held. As President the late Steve Gasparinatos made the comment: "we need to shake off the shackles of apathy and cynicism and get involved in creating and maintaining a TFIC to look after our rights and improve and preserve our livelihoods."

Another still topical issue was raised in October/November 2006 Vol 19 No 5 by President, Rodney Behrens, who said "members of the fishing industry are concerned about the possibility that (Tasports) services will be scaled back. Users also wish to know, if the level of service presently provided to Hobart port users is reduced, will the cost structure be open for renegotiation?"

Each of the Chief Executives at TFIC/TSIC, from Dale Bryan through Bob Lister, the late Andrew Febey, Neil Stump and now Julian Harrington all took a strong role in the direction of *Fishing Today*.

The late Andrew Febey joined TFIC as Chief Executive in July 2005 and stated in August/September 2005 *Fishing Today* Vol 18 No 4: "Together with other councils, associations and sector groups we will work to protect and further the interests of all those involved in the commercial fishing and aquaculture industries in such a way as to enhance the industry's contribution to the social, economic and environmental future of Tasmania. My first impression of *Fishing Today*, particularly

the new improved version, is that it provides valuable and current information to a wide variety of people involved across and allied to the commercial fishing industry, at a state and national level. All those currently involved in its production, including myself in my new role, are committed to maintaining and wherever possible improving on each edition."

Over the years there have been many Project Officers/Managers at the organisation and they too have had a role writing articles for the magazine. Ralph Mitchell certainly made his mark, bringing sound scientific discipline to a wide variety of issues addressed by TFIC. The late Ed Smith, Shane Fava, Emily Ogier nee Stoddart, Sarah Reinhart, Darci Wallis, Julian Harrington and Cassandra Price have also made valuable contributions.

Others who were based at TSIC and were part of the contributing team were Fiona Ewing and Anita Paulsen as consecutive SeaNet Extension Officers for OceanWatch and Jennifer Hemer, Aidan McClure and Cassandra Price as Project Officers for the Seafood Industry Partnerships in Schools Program.

Other long running contributors include Malcolm Riley from the Bureau of Meteorology, who's informative and amusing articles always made people think about the weather. Gwyn Alway from MAST also made fishers think about conditions and safety issues as well as giving an update on infrastructure problems. The Hobart Marine Board, which became Tasports, has also had consistent reporting over the years. Seafood Training Tasmania (STT), appearing in almost every edition written by Rory Byrne or James Garde, their articles included course details and the achievements of graduates.

Sector Groups

Naturally the Sector Groups or Commodity Groups always had a vocal voice with some strong opinions about how industry and its governing bodies should behave that were not always at one with TFIC/TSIC.

A clear standout was CEO of the TRLFA, Rodney Treloggen, who highlighted that Tasmania is the premium lobster-producing state with the best tasting lobster in the world. More recently former TRLFA President John Sansom has taken over as a contributor in his role as Chief Executive Officer.

Bob Lister after resigning from TFIC in July 2005 took on the role of EO with the scallop industry so he has been writing articles for *Fishing Today* every two months for around 22 years (11 years with TFIC and the last 11 years for the TSFA/SFAT). His views have always been very considered and incorporative and he has achieved considerable success in representing the scallop industry.

Over the years there have been many other sector group representatives all of whom have taught the rest of the industry a great deal and who no doubt have themselves grown considerably from the roles they undertook.

Issues of the Day

It is remarkable how many issues have recurred over the years perhaps as a reflection of their importance, or that they have been impossible to resolve. Just a few of them are mentioned here.

One of the most substantial issues that caused considerable angst over the years was the creation of marine reserves. In 1991 four no take marine reserves were established around Tasmania and yet by 1998 there was a bill before Parliament to expand this number to ten. At the time Chief Executive Bob Lister said: "The commercial industry is already managed under biologically sustainable management plans including total allowable catches and we take the view that any further increase in no take marine reserves may put unsustainable pressure on the remaining fishing grounds."

Rodney Treloggen

Marine Protected Areas (MPAs) returned with a "bang" in mid-December 2005 and followed on from the Commonwealth's announcement of a major restructuring of the South-East Region fishery with a package of $220 million offered to reduce those working in the area by half. Initially, the restructuring package did not seem unreasonable until it was linked with the proposed MPAs. Many questions were being asked.

The response of the Tasmanian seafood industry was one of disbelief. Clearly the proposed MPAs were going to affect their livelihood and in some cases cause extreme financial hardship with some even facing the threat of bankruptcy. The industry plunged into uncertainty, particularly when it was realised the

single most important issue determining the location and shape of MPAs was the need to work around existing and prospective oil, gas and mineral exploration leases in Commonwealth waters around Tasmania. (p4 February/ March 2006 Vol 19 No 1)

An independent Impact Assessment Team was established under the leadership of TAFI Director, Professor Colin Buxton at the University of Tasmania and included Associate Professor Malcolm Hadden and Dr Matthew Bradshaw. Their report entitled *Regional Impact Assessment for the Marine Protected Areas Proposed for the South-East Region* demonstrated the socioeconomic impact of the proposed MPAs with recommendations of how, through alterations to the various boundaries and zonations within individual MPAs, potential negative effects could be reduced considerably if not completely, and that the TACs and viability of a number of important fisheries be maintained. Of special importance the report identified other areas of increased value from the perspective of conservation of biodiversity and was therefore hailed as a "shining example of industry, both tiers of government and their respective bureaucracies and those with conservation interests working in a cooperative way to achieve a mutually desirable outcome."

On the 5 May 2006, DEH announced the final network of MPAs with the estimated impacts to the seafood industry reduced by over 90%. From a conservation point of view, the total area encompassed was over 20% greater than the original proposal with over 80% of seamounts being protected. By February/March 2007 Vol 20 No 1 the second round of the tender process has just been completed and the number of concessions purchased from Tasmanian-based licences finalized, with 70 fishing concessions purchased from 42 operators. Concerns were still expressed: "What have not clearly been quantified are the flow-on effects from the buyback process. For instance, what has been the effect on Tasmanian fish processors? What has been the effect on businesses that supply goods and services to the fishing industry? While the Commonwealth Government has recognised that businesses that support the fishing industry will be impacted by the reduction in the number of operators, and hence vessels, the exact nature of the impacts can be difficult to determine."

Professor Colin Buxton, TFIC Project Officer, (the late) Ed Smith, and Associate Professor Malcolm Haddon look over the final report

Impacts of Recreational Fishing

When Neil Stump was President of TRLFA in 1998 he expressed the view that "The commercial fishery cannot claim the resource as a whole is being managed in a sustainable manner unless a realistic attempt is made to quantify and constrain the catch of other groups that have access to the resource" October/November 1998 Vol 11 No 5. This view has been upheld many times by other commentators who have felt that the commercial sector takes the entire onus for environmental responsibility.

Seals

The increase in seal numbers causing substantial damage to fishing gear and taking fish was discussed at length in December/January 1998/99 Vol 11 No 6 with Bruce Cripps commenting that the large number of seals in the Tamar were causing major problems. Since then there have been increasing problems with both the damage they do and the threat to human health documented in the magazine.

Future Directions

Prior to 2005 many commentators noted that the Tasmanian seafood industry was not currently aligned in any state or national partnership agreements, had no clear strategic framework at a state or national level and no overarching strategy for growth, based on sound economic, social and ecological principles. As such, the seafood industry operated in a reactive environment responding to external influences rather than through well-developed strategic frameworks. 'Future Directions – Tasmanian seafood industry' marked the first stage of a process aimed at developing a set of high-level strategic goals that can be used by the Tasmanian seafood industry to chart a strategic direction.

In *Fishing Today* December/January 2005/6 Vol 18 No 6 President Neil Stump described the strategic planning underway with Future Directions: "Now more than ever, there is a clear need for the Tasmanian seafood industry to look to the future and adopt a strategic approach to the many issues and challenges that face our industry. ...a key element of this process is to determine how to implement the plan once it is developed. It must not be just another document gathering dust on the bookshelves of those involved in its development."

Gunn's Pulp mill proposal for Bell Bay

TFIC engaged Associate Professor Barbara Nowak to conduct an external review of Ecotox's report, *Toxicity Assessment of a Pulp Mill Effluent for Proposed Tasmanian Pulp Mill* that had formed part of the Gunn's integrated impact statement when it attempted to start a pulp mill in the Tamar River. This review also identified deficiencies in the status of any proposed monitoring programs as there were none available for assessment, and the lack of detail about the effects of dredging in the Tamar River

during the proposed mill's construction phase. Concerns were expressed in *Fishing Today* October/November 2006 Vol 19 No 5 as to potential damage to local fisheries caused by effluent dispersal questions regarding to what standard any monitoring programs will be conducted, and if they would include penalties for breaches of standards; as well as the potential for contaminants to leach from the mill site into the river.

The demise of ASIC and the need for a new peak body

During 2006 the national peak industry body ASIC came to an end, bedeviled by the lack of resources, principally due to a totally inadequate funding structure. Neil Stump commented in his first report as Chief Executive in *Fishing Today* August/September 2006 Vol 19 No 4: "It is indeed a sad situation when the seafood industry, which contributes in excess of 2 billion dollars annually to the Australian economy, cannot find the wherewithal to properly resource a national peak body to represent the interests of industry at a federal level. Industry members often question the value they receive from our national body. If one single issue can highlight the value of ASIC, it would be the maintenance of the diesel fuel rebate. With the escalating price of fuel, where would industry be without the subsidy? In 2006, representatives from a wide cross section of the industry stakeholders are planning to meet with the aim of developing a model for a new peak body that will be properly funded, have visible presence and will be recognised as the voice of the Australian seafood industry at a national level." Ironically ten years later this situation is still not resolved.

National Standard for Commercial Vessels (NSCV)

It was predicted in the August/September 2006 Vol 19 No 4 edition of *Fishing Today* that some of the proposals canvassed in the discussion paper could have far reaching impacts on the seafood industry and this has certainly proven correct, with ongoing issues yet to be finalised ten years later.

Festival and Conference Participation

The biennial Seafood Directions Conference was hosted for the first time by TFIC in 2007 at the Hotel Grand Chancellor in Hobart. It was a huge success, showcasing local industry and products and the themes of 'embracing change' with panel discussions; and workshops on alternative fuels, sustainability, succession planning and reducing fishing vessel operating costs. TFIC staff were certainly thrown in the deep end for this one as they also had to host the Australian Seafood Awards, a huge learning curve for all involved.

TFIC's participation in the Australian Wooden Boat Festival (AWBF) began in 2007 with a unique experience of Tasmanian seafood, the Seataste. This event was a new component offering education and promotional activities including live produce in tanks, children's activities, fishing and cooking demonstrations and tips. Since then other events have included the Seafarers Festival and a continuing and expanding presence at AWBF among others. As TSIC's inventory of marketing products has grown so have the opportunities to showcase our industry, garnering more publicity with articles in *Fishing Today*.

Shellfish Futures, the oyster industry's annual conference and AGM has been held all around the State, with some memorable dinners and attending speakers being reported in *Fishing Today*.

Seafood Recipes

Barbara Blomberg was the DSF Home Economist and was responsible for the Ship's Galley in early *Fishing Todays*, giving tips on how to cook fish and offering simple recipes. Julie Podmore began writing Seafood Selections in February/March 2007, which was continued by Mary Brewer from 2008 until the magazine was reduced in size to 32 pages in 2011. She also put together special recipe sections for distribution on special occasions such as the AWBF or Seafood Directions.

Will Mure (left) presented the Seafood Industry Icon Award 2007 to Colin Dyke (centre) with Neil Stump

Infrastructure

Another ongoing theme is TSIC's concern at the lack of commitment to a structured infrastructure program that provides for the ongoing dredging of our ports that have barway entrances, particularly Bridport, St Helens and Dunalley/Marion Bay. Jetties and slipways as well as other structures have also come under a fair degree of scrutiny in the magazine over many years.

Export Market Development

Delegations from different sector groups often went overseas to market their product, particularly to China with these trips now bearing fruit with the signing of the China Free Trade Agreement. However, reports came to *Fishing Today* from many other venues including Brussels and the US as well as Vietnam and other SE Asian destinations.

Water Quality and Other Environmental Issues

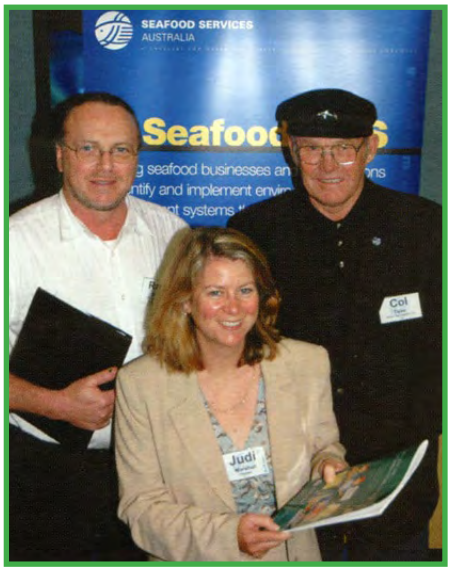
Often looking to value add to TSIC member's dollar, grant money was used to roll out programs to help with environmental issues or water quality such as the EMS systems.

Climate Change

In the early days of *Fishing Today* climate change was seldom spoken about and if it was it was going to happen to other people. In spite of the warnings and the disbelievers the summer of 2015-16 has probably broken the belief of the hardiest sceptic, with Tasmania experiencing the highest sea temperatures ever. This has of course had its own consequences as below.

Pests and Diseases

Biotoxins have been a recurring problem around Tasmania, closing fishing areas consistently when conditions are ripe for a bloom. In the Huon and Channel areas this seemed to occur around May each year when temperature and nutrient conditions were just right. *Dinoflagellates* from the ballast water of Japanese



From left: Ralph Mitchell, Judi Marshall and Colin Dyke at the Seafood EMS Summit, appreciating the second edition of the EMS Chooser. June/July 2005

woodchip carriers, which can lie dormant for 20-30 years, have been blamed. These vessels were also responsible for the carriage of *Undaria pinnatifida* to Tasmania. A serious pest it also is now being harvested for its beneficial qualities.

Farming operations and commercial and recreational fishing for rock lobster, scallops and abalone on the East Coast were often interrupted over the years since 2012 by a newly identified biotoxin *Alexandrium tamarense*.

Denudation of kelp beds on the East Coast was discussed in very early *Fishing Todays* with concerns expressed by rock lobster fishers over its harvesting. The continued sojourn south of the *Centrostephanus rodgersii* is now known to be responsible for the barrens noted then. Another pest has also made incursions due to escaping ballast water, the Northern Pacific Seastar (*Asterias amurensis*) population has become a major marine pest that has proven impossible to eradicate and is now having serious impacts on fishing activities and native species in the Derwent Estuary. The introduced starfish is a voracious predator of mussels and scallops and has spread from the Derwent and Huon Rivers to Great Oyster Bay on the East Coast, and to Port Phillip Bay in Victoria.

Abalone viral ganglioneuritis (AVG) discovered in wild abalone in Victoria caused panic in December 2005. Widely discussed measures for containing the disease were discussed in *Fishing Today* so that when infected abalone were found in Tasmania two years later mitigation systems were put in place immediately, confining the outbreak to two processors premises.

Pacific Oyster Mortality Syndrome (POMS) had been detected in NSW causing considerable damage to the industry, but it was only detected in Tasmania in January 2016. The consequences of this has yet to be assessed, although so far appear to be devastating.

So many important issues have been raised by *Fishing Today* over the years and we have only explored a few, there was also ecolabelling of food, beach prices for abalone and rock lobster, freight costs and delays, education and training, and the endless process of consultation and reviews.

There were so many wonderful men and women profiled who had given an enormous amount into the developments of various facets of the industry from the boat builders to the businessmen that I cannot begin to mention them. The contributors always strived to ensure the standard of reporting was very high with expectations that the readers would be

better informed and encouraged to ask questions.

This summary would not be complete without acknowledging the contribution made by the former TAFI now IMAS. Adding a scientific perspective to the magazine has given it credence and informed the readership of important research, which has then explained management decisions. Many fishers participated in scientific surveys and assisted with research so the feedback from IMAS scientists has also been valued.

Neil Stump summarised the primary purpose of *Fishing Today* "is to ensure that all those with an interest in the Tasmanian seafood industry are kept well informed of a seemingly never-ending stream of issues that have the potential to impact directly on them at an individual, family, business or organisational level". February/March 2006 Vol 19 No 1

In April/May 2006 Vol 19 No 2 Andrew Febey commented: "To most of us, the world seems to be a smaller, more competitive, less friendly place than we remember or would want. However, nature tells us that if we want to survive and prosper then we must adapt to change. Therefore, the challenge for all facets of the Tasmanian seafood industry is to be innovative and clever, strive to contain the cost of production and work hard to maintain existing markets and identify new opportunities – ideally at the premium product end of the spectrum."

Assessing scallop numbers and their condition during a pre-season survey onboard a scallop vessel

"If I have learnt anything in my short period of involvement with the industry, it is that the best way to meet this challenge and be successful is to develop a cooperative approach. When each person or sector works in only their own interests then they squander valuable human and financial resources, as everyone seeks to reinvent the wheel! We can all learn from each other's successes and failures."

As the longest running columnist it is fitting to give Bob Lister the last word: "*Fishing Today* has advised and informed the Tasmanian fishing industry for a very long time and it will be sad to see it go but time moves on and there are now many different ways to communicate with industry members and others so from June we will move to the next phase in industry communication."

Oysters Tasmania

Federal Government funding for ASI

In early May Oysters Australia presented the final report from the FRDC funded *A National Industry Response to Pacific Oyster Mortality Syndrome (POMS)* project to the Federal Minister for Agriculture Barnaby Joyce. The key recommendation contained in the report was the need for Federal Government assistance to support the selective breeding program being run through ASI focussing on producing family lines with a high degree of resistance to POMS. This is the number one priority for industry nationally and given the decline in revenue due to the sharp fall in spat sales bridging funding for ASI is urgently required.

Feedback in relation to the report from a number of sources close to the Government is that the report was well received and we are hopeful that Federal Government support will be forthcoming.

POMS Update

There have been no significant mortality events reported by growers since late March. The majority of growers in the impacted growing areas have commenced their stock recovery programs. However, due to the different strategies being employed by growers the full extent of the mortalities from the current POMS event are unlikely to be known for another five to six months.

Up take of the assistance package put forward by the State and Federal Governments was initially fairly slow. However, at the last meeting of the POMS Recovery Steering Committee DPIPWE reported that as more growers commence the stock recovery process requests for assistance have increased.

Industry Meeting Campbell Town

The industry meeting held at Campbell Town on Friday 8 April was attended by over 100 growers, researchers and departmental officials. Feedback from growers was very positive with the general consensus being the meeting provided valuable information and allowed growers to ask a range of questions in relation to Pacific Oyster Mortality Syndrome (POMS).

Shellfish Futures 16

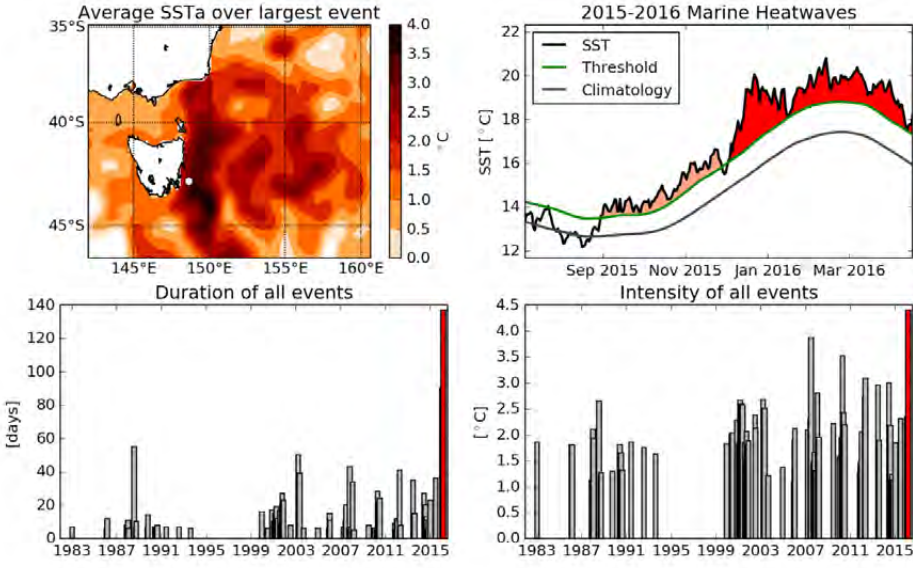
Shellfish Futures 16 is scheduled for Friday 28 and Saturday 29 October. This year's conference is being hosted by the Pittwater growers group. The proposed venue for the conference will be the Sorell Memorial Hall with the traditional Beer & Bivalves and the Gala Dinner to be held at Barilla Bay on the Friday and Saturday evenings.

Further details in relation to the conference program, registration, accommodation options etc. will be circulated during June. Make sure you put the dates in your calendar. It is more important than ever we have a good turnout this year given the uncertainties facing the industry over the coming 12 to 18 months.

Oysters Tasmania Website Update

With the assistance of OT member Ian Whitehouse we have commenced the update of the Oyster Tasmania website. The updated site will include a member's only area and regular news updates. The member's only area will include a Chairman's summary for OT Board meetings. If members have any suggestions in relation to the content on the OT webpage I can be contacted on 0458 601 057.

Neil Stump
Executive Officer
Oysters Tasmania



Anatomy of a marine heatwave. Top left: Summer sea surface temperatures relative to seasonal average. Top right: Ocean temperature over time; red shaded region shows the ongoing heatwave. Bottom panels: Duration (left) and intensity (right) of all recorded heatwaves; the ongoing event is shown in red. (Source E Oliver, UTAS)

Tasmanian Rock Lobster Fishermen's Association

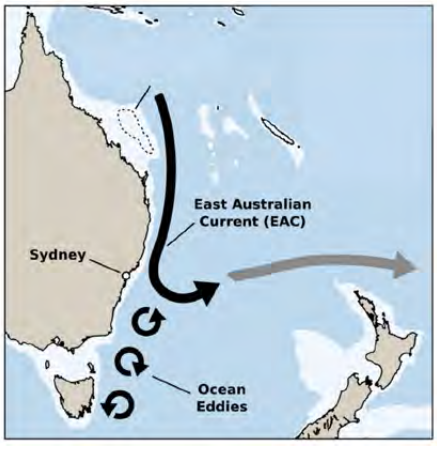
As all rock lobster fishers knew last summer, Tasmania experienced an extended marine heatwave. We now have official confirmation from CSIRO and UTAS that temperatures on the East Coast were 4.4°C above average. The event developed off Eastern Tasmania on 3 December 2015 and was continuing as of 17 April — the longest such event recorded in the State since satellite records began in 1982. During this time there was a strong El Niño event in the Pacific Ocean, a positive Indian Ocean Dipole event and the warm East Australian Current extending southwards creating the right conditions for the event. This follows on from the second

longest marine heatwave on record that lasted from 31 August to 28 November 2015, although that event was less intense.

Cause

The main culprit for the increasing sea surface temperatures in Tasmania is the Eastern Australian Current (EAC). The EAC is nearly 100 km wide and 1.5 km deep at its core and travels at 7 km/h transporting 40 million cubic metres of water every second. Waters in the EAC travel southwards along the East Coast of Australia, with most of it splitting from the coast near Sydney and heading for New Zealand. A part of the current known as the EAC Extension works its way southward, past Victoria and Tasmania. A typical signature in this region are the large eddies, around 200 km across and hundreds of metres deep. The two significant eddies effecting Tasmania have been centred due east of Flinders Island and due east of Maria Island. Over time, the EAC extension has stretched about 350 km further south.

The southward extent of the EAC is controlled by the collective behaviour of the winds between Australia and South America. These winds have changed patterns due to a climate system known as the Southern Annular Mode. A diminishing Ozone Layer and increased carbon dioxide in the atmosphere is expected to strengthen this system resulting in further enhancement of the EAC southwards. The current is also getting stronger, transporting larger volumes of water southward over time.



Effect

The effects so far for the rock lobster fishery are all negative. Measured water temperatures off Tasmania's East Coast have recorded warming of sea surface temperature at more than three times the global average. This has resulted in the southward movement of the long spined sea urchin that has been responsible for the loss of lobster habitat through the formation of barrens. This in turn has reduced the kelp forests that are vital to the marine ecosystem. The continued occurrence of harmful algal blooms has impacted on lobster fishing operations on the East Coast. There have also been some difficulties experienced by some fishers in holding lobsters in areas of warm water. There are strategies and plans in place to assist in coping with these problems however it is apparent that they may be with us for the long-term.

Outlook

The seasonal outlook from the Bureau of Meteorology shows El Niño weakening over the next few months. This typically means cooler weather and more rain. However closer inspection shows sea surface temperatures over coastal Australian waters will very likely remain well above average for the next few months. There are currently signs that surface currents are moving warm El Niño waters from the eastern Pacific towards Australia. There is potential for the EAC to transport the warmth as far south as Tasmania. So for the near future the waters are going to continue to be warm.

A report by the Australian Government Department of Climate Change in 2009 *(The East Coast Tasmanian Rock Lobster Fishery – vulnerability to climate change impacts and adaptation response options)* identified that "climate change is expected to have a significant impact on the ocean environment around Tasmania, particularly on the East Coast. Sea temperatures are rising, currents are changing and impacts are already being seen in species compositions and ecosystems. These changes are expected to continue in the future, and will produce a range of flow on impacts on ocean based industries such as the rock lobster fishery". The report further stated that "the Tasmanian Rock Lobster Fishery is reasonably well placed to adapt to the challenges of climate change". "Management is beginning to integrate the longer term issues associated with climate change with the relatively shorter term responses to current stock trends." "The industry has the capacity to evolve and respond to longer term trends." The main issues identified in the report that needed addressing were:

- significant regional differences in stock abundance, recruitment patterns, growth rates and egg production
- increased pressure on inshore stocks and greater spatial overlap within and between the recreational and commercial lobster fishing sectors
- expansion of sea urchin *(Centrostephanus rogersii)* barrens on the East Coast.

The major industry response to these issues was the introduction of a stock rebuilding strategy for the East Coast that included a catch cap area for the most vulnerable areas. The strategy has seen the desired restriction in commercial catch intended to facilitate stock rebuilding to 20% of virgin biomass in a 10-year period. The stock increase is designed to ensure healthy biomass that is intended to increase egg production, increase recruitment and restrict the spread of urchin barrens. Managing the recreational catch on the East Coast has proven problematic so far with catches actually increasing. Further regulation is being developed to combat the problem. Without both sectors contributing to the management strategy the resilience the fishery needs to mitigate threats may be compromised.

While industry is meeting the challenge currently, there are some developments this season that will need to be noted. The industry is well used to anomalies in differing catches and catch rates around the State that are more the norm than not. Catch rates however on the East Coast from season opening have been less than encouraging. A mere 5.3 tonne catch for the month of March in the East Coast catch cap area is the lowest by a significant margin from the previous two years. The reasons for the low catch have

yet to be established and may well be varied and/or cumulative. Contrary to this result is that catch in the same month from other areas was the highest since 2008. Anecdotal evidence from fishers indicate that warmer waters were in fact experienced statewide last summer and that catches inshore were not as good as expected. Catches in the south and west in the mid to deep water have been well above average.

The marine heatwave just experienced may be an anomaly where circumstances aligned to create the event, or it may be an indication that climate change effects are having an impact right now and we are seeing the implications. What is clear is that we need to continue the adaptation process of management we have to ensure the fishery remains resilient.

John Sansom
Chief Executive Officer
Tasmanian Rock Lobster Fishermen's Association

Scallop Fishermen's Association of Tasmania

An AGM and General Meeting of SFAT members and other scallop industry people was held at the Spring Bay Hotel in Triabunna on Friday 11 March to discuss industry issues.

At the Annual General Meeting, Debbie Wisby was elected unopposed as SFAT President and Greg Shea as Vice President. Jill Hammond remains as Secretary/Treasurer.

At the meeting industry members sincerely thanked John Hammond who has stepped down from the SFAT President position after over 30 years in that role and Karl Krause after over 10 years as Vice President.

The arrangements to undertake pre-season scallop surveys are well underway and again we are hopeful of another successful year in both Tasmanian and Bass Strait waters.

In both jurisdictions there is now the standard requirement that we undertake pre-season surveys to identify the best possible target areas as well as areas that should be protected for harvesting in years to come.

Interestingly Tasmanian and Commonwealth fisheries agencies have different ways of managing their scallop fisheries.

After pre-season surveys Tasmania normally opens defined areas for harvest and closes the rest of the fishery.

In the other jurisdiction the approach by AFMA is to close specific areas and open the rest of Bass Strait for harvest.

As all scallop fishermen are well aware unfortunately there is no one magic solution to managing the highly variable scallop fisheries in SE Australia.

Tasmanian State waters

Following the ScFAC meeting on 4 March, DPIPWE called for expressions of interest to participate in the statewide scallop survey and eventually four vessels were nominated.

The survey period is from 1 April to 16 June with White Rock, Marion Bay and Circular Head identified as priority areas for targeted surveys.

To date only White Rock and Marion Bay have been surveyed with Theo Hairon on Insta-gator undertaking 52 shots around the White Rock area and 25 shots in Marion Bay with IMAS observer Graeme Ewing on board. Approximately 2900 scallop in total were measured.

One concern is that invasive Northern Pacific Seastars have apparently moved south from Great Oyster Bay and are now in large quantities in the upper areas of the traditional White Rock scallop grounds.

The maximum quantities of scallops were taken from both areas meaning that Area 6A (White Rock) and Area 6B (Marion Bay) are now closed for survey purposes.

IMAS will now assess this data for consideration at a planned ScFAC meeting in Hobart on 20 May.

Dependant on the assessment results a season could be declared as early as mid June if shell size, catch rates and meat quality all meet the required standards.

Bass Strait Central Zone

At the ScMAC teleconference on 24 March members considered options on how to proceed with preparations to open the 2016 scallop season.

As a result a TAC will only be considered after a biomass survey has been undertaken and the data assessed rather than the fishery opening under a default option of 150 tonnes.

Should the survey identify one or more scallop beds containing at least 1500 tonnes advice will be sought from ScRAG and ScMAC about the appropriate level of the TAC.

The Harvest Strategy requires that for a Tier 1 management level beds containing at least 1500 tonnes of high density scallops over 85mm must be closed and an initial 1000 tonne TAC can then be established with provisions to increase the TAC level under certain circumstances.

On 13 April AFMA called for expressions of interest from SFR holders and active operators to undertake the biomass survey and three vessel operators indicated their willingness to participate.

A BSCZ Scallop Fishery Industry Co-management Committee teleconference was held on 27 April to consider the methodology of the biomass survey methods and preferred areas to be surveyed.

AFMA put together an expert panel to consider the vessel nominations and the Dell Richey 11 was selected to assist Fishwell Consulting (Dr Ian Knuckey) to carry out the survey and to complete the biomass assessment.

It is expected that the survey will get underway in the week commencing 23 May weather permitting and if scientific permit conditions can be prepared in time with the eventual biomass assessment to be considered by ScRAG and ScMAC members in early June. If appropriate a TAC should then be agreed and a season opening date declared.

Bob Lister
Scallop Fishermen's Association of Tasmania

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HOW BEST TO MANAGE OCTOPUS RESOURCES

WHEN VARIETY IS THE SPICE OF THEIR LIFE

By Timothy Emery, Klaas Hartmann and Caleb Gardner

Octopuses can be a difficult resource to manage due to their short life span, rapid growth, high natural mortality and sensitivity to environmental conditions.

Waters surrounding Tasmania are home to three species of octopus: Pale Octopus (*Octopus pallidus*); Gloomy Octopus (*Octopus tetricus*); and Maori Octopus (*Octopus maorum*). *Octopus pallidus* is the target species of a fishery in northern Tasmania that has operated since 1980. This fishery uses unbaited moulded plastic pots set on the seafloor to catch octopus, which are attracted to them for use as a refuge. The pots are usually hauled after a few weeks, with the catch processed on-shore and sold into domestic markets.

Catches increased from 10 tonnes in 2000 to almost 100 tonnes in 2005, then fluctuated around 85 tonnes until 2010, before declining to 42 tonnes in 2011. Since then, annual octopus catches have fluctuated between 70 and 120 tonnes.

Each year the Institute for Marine and Antarctic Studies (IMAS) is tasked by the Tasmanian Department of Primary Industries, Parks, Water and the Environment (DPIPWE) to assess the status of the *Octopus pallidus* stock.

In February of this year, IMAS released the 2014/15 stock assessment for the Tasmanian octopus fishery (https://secure.utas.edu.au/imas/research/fisheries-and-aquaculture/publications-and-resources). In 2014/15, the *Octopus pallidus* resource was classified as *transitional depleting* which means that the current fishing pressure is too high and the biomass is in danger of being lowered to a level that inhibits future recruitment to the fishery. Contributing to this classification was an ongoing decline in the catch rates since 2005, accompanied by a large increase in fishing effort.

The biology of *Octopus pallidus* makes it susceptible to overexploitation. *Octopus pallidus* is a "holobenthic" octopus, which means that it produces only a few hundred large eggs (as opposed to the thousands produced by other octopuses). These large eggs hatch into juveniles that look similar to adults and live on the seafloor immediately after hatching, rather than dispersing as plankton in the ocean. This contrasts to other commercially fished octopuses such as Gloomy and Maori Octopus which produce thousands of planktonic larvae. Consequently, high fishing effort in one location can deplete the area and it will not be recolonised by larvae settling from elsewhere. Furthermore, *Octopus pallidus* are "semelparous", which means they die shortly after reproducing so the fishery is based on the capture of immature animals that have not spawned. This situation occurs famously with Pacific salmon fisheries, so it can be managed, but is more difficult than managing species that can spawn before they are harvested. *Octopus pallidus* only live 12–18 months, which means that generations don't overlap. The presence of overlapping generations within a stock is advantageous because it can create a buffer against years of poor recruitment.

Figure 1: Australian national stock status categories (see: Flood et al., 2012)

STOCK STATUS	DESCRIPTION	POTENTIAL IMPLICATIONS FOR MANAGEMENT OF THE STOCK
SUSTAINABLE	Stock for which biomass (or biomass proxy) is at a level sufficient to ensure that, on average, future levels of recruitment are adequate (i.e. not recruitment overfished) and for which fishing pressure is adequately controlled to avoid the stock becoming recruitment overfished	Appropriate management is in place
TRANSITIONAL-RECOVERING	Recovering stock—biomass is recruitment overfished, but management measures are in place to promote stock recovery, and recovery is occurring	Appropriate management is in place, and the stock biomass is recovering
TRANSITIONAL-DEPLETING	Deteriorating stock—biomass is not yet recruitment overfished, but fishing pressure is too high and moving the stock in the direction of becoming recruitment overfished	Management is needed to reduce fishing pressure and ensure that the biomass does not deplete to an overfished state
OVERFISHED	Stock is recruitment overfished, and current management is not adequate to recover the stock; or adequate management measures have been put in place but have not yet resulted in measurable improvements	Management is needed to recover this stock; if adequate management measures are already in place, more time may be required for them to take effect
UNDEFINED	Not enough information exists to determine stock status	Data required to assess stock status are needed

Given the recent *transitional depleting* classification and the biological complexity of the octopus stock, we reviewed 22 international octopus fisheries across 17 countries, with the aim of determining what management measures succeed and could be applied in the Tasmanian *Octopus pallidus* fishery. The results have recently been published in the *Journal of Ocean and Coastal Management*. We found that most octopus fisheries had very little management due to their low-value catch and a common problem of poor quality data. The most common management measures utilised were minimum size limits (14 out of 22 fisheries) and seasonal closures (12 out of 22 fisheries).

Unfortunately, these easily enforced management tools were unlikely to be effective in the Tasmanian fishery. Seasonal closures don't help address the problem of localised effort depleting areas that then do not recover due to the limited dispersal of the juveniles. Minimum size limits don't help protect reproduction in *Octopus pallidus* because the harvest relies on catching octopus before they spawn, with all individuals dying shortly after spawning. Both these management controls also impact on the economic efficiency of the fishing fleet and can lead to behavioural changes among fishers as they try to compensate for lost opportunities. An example is that fishers could shift their effort to alternative fishing grounds or fish at different times in an attempt to maintain total catch.

More effective management for this species could involve regulated effort rotation plus limits on total allowable effort (TAE). Effort rotation systems were successfully used in some reviewed octopus fisheries to spread effort across the species' range. Effort rotation controls can also improve the economic efficiency of the fishing fleet. The downside however, is that information is still needed to determine the appropriate level of fishing effort for each region.

A limit on total effort (e.g. number of days that could be fished or pots set per annum) relies on fishers shifting their effort in response to declining catch rates, reducing the risk of localised depletion of the biomass. A TAE limit has been successfully used in other Australian fisheries to manage dynamic and environmentally driven stocks, such as prawns and squid. Again, managers need to determine an appropriate level of fishing effort, which requires good information. One solution could be setting precautionary TAE limits based on the historical relationship between effort in one year and catch rates in the succeeding year.

Figure 1: A large female Maugean skate

MAUGEAN SKATE AND IMPLICATIONS FOR FISHING AND AQUACULTURE OPERATIONS IN MACQUARIE HARBOUR

By Jeremy Lyle and Justin Bell

IMAS has recently completed the first major investigation of the biology and ecology of the Maugean skate (*Zearaja maugeana*), the study funded by the Australian government through the Fisheries Research and Development Corporation (project 2013/008).

MAUGEAN SKATE

The species was first identified scientifically in 1988 and is restricted to two west coast estuaries, Macquarie Harbour and Bathurst Harbour. This restricted distribution and an assumed small population size resulted in the species being listed as endangered.

Although Bathurst Harbour is a no-take marine reserve, affording the species a high degree of protection, the status of this population is highly uncertain, with no individuals being recorded for more than two decades in scientific surveys of the area. By contrast, Maugean skate are more abundant in Macquarie Harbour where they are an occasional bycatch in recreational gillnets. The recent major expansion of salmonid aquaculture operations in Macquarie Harbour may also pose a threat to the species. The paucity of information about this unique species coupled with these human pressures provided the impetus for the present study. The specific aims were to determine the distribution, habitat utilisation, reproductive dynamics, feeding habits and population status of the Maugean skate in Macquarie Harbour, to assess the impacts of current and proposed marine farming operations on the population, and to evaluate strategies to reduce risks of bycatch and incidental mortality due to gillnetting.

An extensive array of acoustic receivers was positioned throughout Macquarie Harbour and almost 60 Maugean Skate were acoustically tagged at multiple locations in the harbour. The acoustic tags omit a unique signal which is detected when the tagged individual moves to within about 400 m of an acoustic receiver. Using this technology, individual Maugean skate behaviour could be monitored for up to 12 months. To address the remaining objectives, research fishing was conducted over 15 months and non-destructive techniques used to assess reproductive status and diet. Blood hormone levels and examination using an ultrasound were used to determine reproductive condition while stomach pumping was used to investigate diet. All skate were microchipped prior to release and population size estimated using tag recapture rates.

KEY RESULTS

Maugean skate were widely distributed throughout Macquarie Harbour and displayed a high degree of site fidelity, with home ranges generally <10 km^2 (See Figure 2 on page 24). Many skate did, however, leave their core range for brief periods (days to weeks) with most subsequently returning. There was no evidence to suggest long-term movement of the skate out of the estuary.

Overall, Maugean skate spent 85% of their time at 6–12 m depth, although they were detected from 0.6 m to >55 m, albeit rarely, indicating they are not restricted to their preferred depth range. Depth utilisation appears to be influenced by water chemistry with shallow waters having low salinity and high temperature variability, whereas deeper waters are stable in terms of temperature and salinity but have low concentrations of dissolved oxygen. The intermediate depths, that skate prefer, are relatively stable in terms of salinity, temperature and dissolved oxygen.

Maugean skate were more active during the night and moved into shallower water, which probably represents nocturnal foraging. Their diet was relatively restricted being dominated

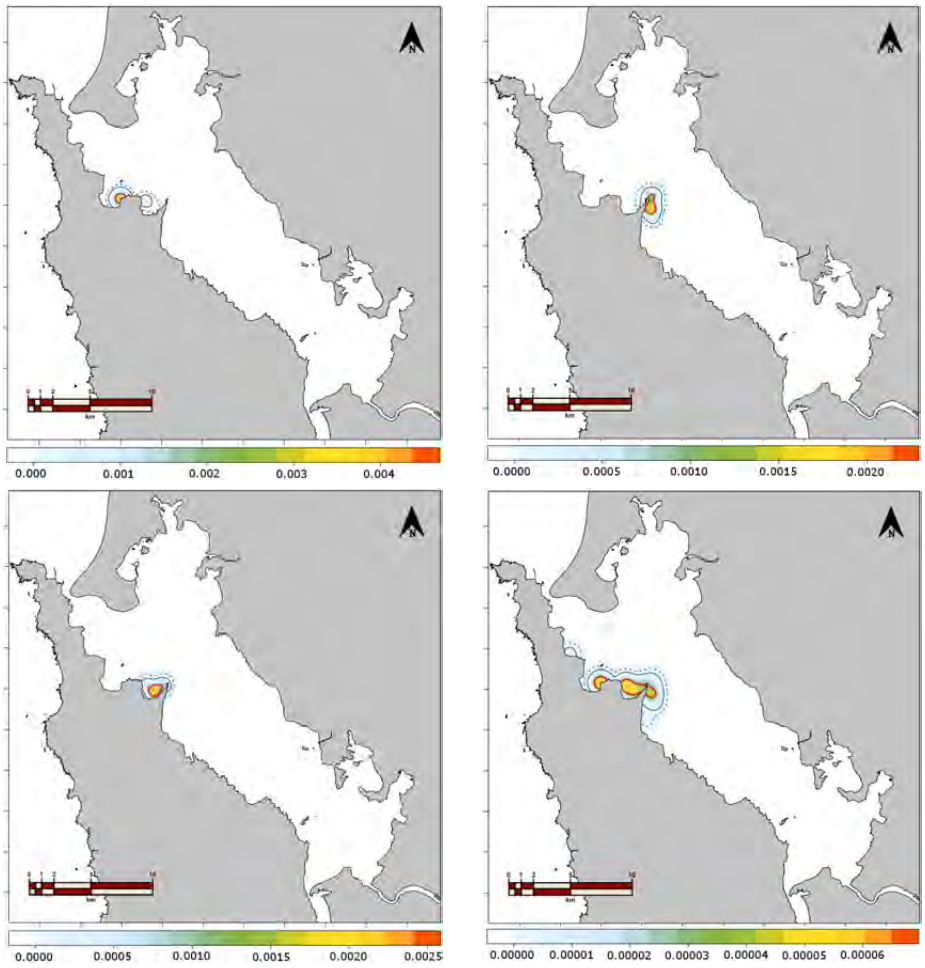


Figure 2: Example distributions for Maugean skate. The core range (50% spatial usage) is encompassed by the red line, the home range (95% spatial usage) is encompassed by the solid black line and the total usage (99% spatial usage) is encompassed by the dashed line.

by crabs and shrimp. While there was no evidence of feeding on aquaculture pellets, this cannot be ruled out due to their small home ranges and the fact that sampling was conducted some distance away from the farm lease sites.

No reproductive seasonality was apparent and a discontinuous cycle means a proportion of the population is reproductively active, while the remainder are in a resting phase, throughout the year.

The population of Maugean skate in Macquarie Harbour was estimated to be about 3200 individuals and is likely one of the smallest of any elasmobranch (shark, skate, ray) species. There are, however, potential biases in this assessment that suggest it may be an underestimate and thus a feasible minimum possible population size. Furthermore, when considered in the context of their preferred habitat (predominantly 6–12 m) Maugean skate quite possibly have the smallest distributions of any elasmobranch.

IMPLICATIONS AND OUTCOMES

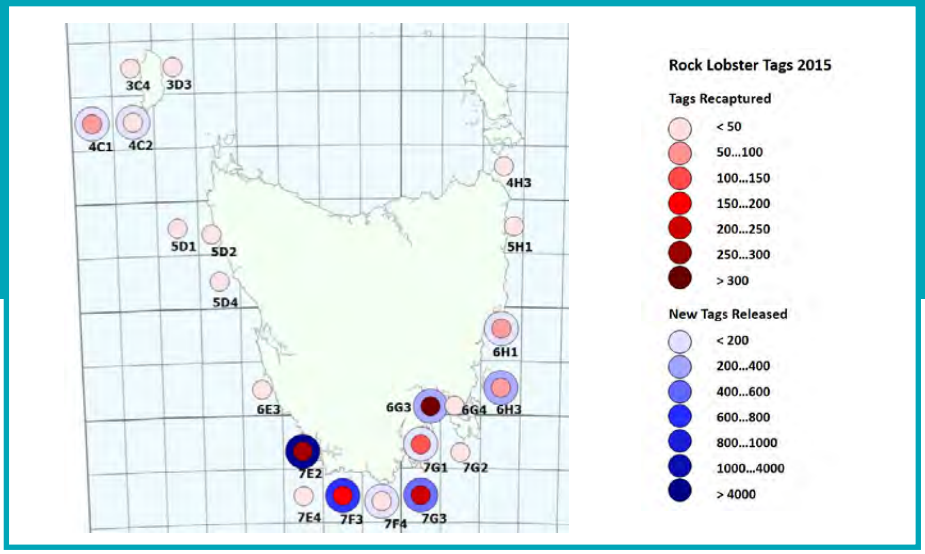
Recognising skate depth preferences and behaviour, several changes to recreational gillnetting in Macquarie Harbour were implemented in late 2015 to reduce the potential for gillnet bycatch. Key amongst these changes include the closure of most waters greater than 5 m and the closure of the Table Head/Liberty Point region to gillnetting. The Table Head/Liberty Point closure is particularly significant since this area contains the highest abundance of Maugean skate and has traditionally been a very popular area for recreational gillnetters targeting escapee salmonids.

In relation to marine farming, direct interactions between Maugean skate and aquaculture operations appear to be limited as most aquaculture leases are located in deep waters outside of the preferred depth range for the species. There may, however, be indirect interactions; for instance the production of organic wastes associated with marine farming acts to reduce dissolved oxygen as well as enriching of the pelagic environment through the excretion of dissolved nutrients (*e.g.* ammonia and nitrate). The aquaculture industry along with other human activities impacting on Macquarie Harbour (mining, hydro-electricity generation [river flows], coastal development) all play a role in shaping the environmental conditions of this unique system. The maintenance of best environmental practices by the aquaculture industry, supported by effective monitoring and environmental management policies, represent essential requirements if industry and Maugean skate populations are to coexist into the future.

The complete project report can be downloaded from the IMAS website at

http://www.imas.utas.edu.au/research/fisheries-and-aquaculture/publications-and-resources.

IMAS
ROCK LOBSTER TAG RECOVERY AND PRIZE LOTTO



The rock lobster tagging program run by IMAS provides a wide range of information used to help manage the commercial and recreational fisheries. Tag-recapture data can be used to estimate the number of lobsters, their movement patterns, growth rates, changes in natural mortality, and recovery rates from damage or injuries. Information about growth is especially important because this affects the productivity of the stock and the amount of lobsters that can be harvested sustainably, plus whether growth is changing through time or how it varies between regions. Together all this information aids in the setting of annual fishing quotas, size limits and fishing seasons.

Evaluation of the rock lobster tagging and tag recovery program for 2015 has shown that 6500 new tags went into the water during the year and just over 1800 tags were recaptured and subsequently reported.

This map shows where the new tags were released (blue) and where tags were recovered (red). There was a concentrated effort of new tags released in the south west of the State, while recoveries were more widespread and predominantly from the south west and south east of the state and the Crayfish Point Marine Reserve.

So far, just over 200 tags have been recaptured and reported in 2016 by 17 different individuals within the community including recreational and commercial fishers, chefs and fish processors. This has been a great response for the start of the year, but we would like to see more reports coming in, so spread the word!

We have also started the new year with many tag reporting lottery winners. Congratulations to all the winners and don't forget that every tag reported gives you a chance to win great prizes!

CONGRATULATIONS TO THE WINNERS OF THE MARCH DRAW:

Mr Randall Harper of Oakdowns — $125 cash, proudly donated by Sunderland Marine Insurance Company, Melbourne.

Mr Bryce Lind of Kingston — $50 gift voucher, proudly donated by Southern Tasmanian Divers, Kingston.

Mr Anthony Tennant of Caboolture — 2 x $20 Mures meal vouchers, proudly donated by Mures, Hobart.

CONGRATULATIONS TO THE WINNERS OF THE MAY DRAW:

Mr Matthew Oakley of Blackmans Bay — $125 cash, proudly donated by Sunderland Marine Insurance Company, Melbourne.

Mr Kent Way of Kingston — $50 gift voucher, proudly donated by Tamar Marine, Launceston.

Mr Gil Payne of Adventure Bay — $50 gift voucher, proudly donated by Southern Tasmanian Divers, Kingston.

We would like to thank our ongoing sponsors Sunderland Marine Insurance Company, Tamar Marine and Mures, and also say welcome and thankyou to our two new sponsors, Southern Tasmanian Divers and Pennicott Wilderness Journeys, for their generous support of the 2016 tag reporting lottery.

Caught a tagged rock lobster?
Please report the size, sex, and location of your tagged rock lobster by one of the methods below. Remember all tags reported receive an entry into the lotto, and every entry received over the year is eligible for the annual grand prize of $500 from Sunderland Marine Insurance.

Phone: (03) 6227 7280

Post: Attn: Crustacean Research, Private Bag 49, Hobart, Tas, 7001

Email: fish.tag@utas.edu.au

IMAS Rock Lobster tag return lotto 2016 is proudly sponsored by

Sunderland Marine

Tasmania Mures

Pennicott Wilderness Journeys

Tamar Marine Pty Ltd Radar go boating

Southern Tasmanian Divers

Another happy fisher, Tom Srodzinski, caught his first yellowtail in late March this year off the Tasman Peninsula (Image: Jonah Yick, Redmap)

What's been spotted on REDMAP in Tasmania lately?

By Yvette Barry

From snapper to eastern king prawns and sea snakes: Tasmanian fishers are spotting marine species uncommon to their local seas!

And it's no wonder given an extended marine heatwave engulfed eastern Tasmania this summer. Scientists from the University of Tasmania and CSIRO recently confirmed water temperatures were up to 4.4°C above average off parts of the East Coast this summer, partly due to the East Australian Current extending further south than usual. Here are just a few of the community sightings logged on Redmap that may have been following these warmer waters south.

This Hoodlum was caught near Cockle Creek in the State's far south and is Redmap's most southern sighting of yellowtail kingfish (Image: Jason Lovell, Redmap).

YELLOWTAIL KINGFISH

(Seriola lalandi)

To the delight of many Tasmanian fishers, more yellowtail kingfish (*Seriola lalandi*) are being caught in Tasmania, and further south than usual. One recent catch of this tasty fish near Cockle Creek was Redmap's most southern sighting of this species. Tasmanian fishers are telling Redmap they've been seeing large schools of kingfish over the past few summers. We wonder if this species is moving its usual marine postcode southwards for good. We need your help to track its distribution: take a snapshot and log any yellowtail kingfish you catch below Maria Island.

These eastern king prawns (Melicertus plebejus) were caught on the East Coast by Andrew Pender from IMAS in April 2016. They are usually found off QLD and NSW and were surprised to find themselves on a Tasmanian BBQ.

EASTERN KING PRAWNS

(Melicertus plebejus)

The eastern king prawn usually calls Queensland and New South Wales home, although it does venture into northern Tasmanian waters. So it was surprising when a few turned up on the East Coast in April this year. Redmap needs more of these sightings to indicate if this important commercial prawn species is shifting its distributions south over the long term — or if they are just visitors who sometimes hitch a ride south on the East Australian Current.

WARMING SEA TEMPERATURES

It's no surprise Tasmanians are catching more fish unusual to their local fishing spots. Tasmania's East Coast is considered a global warming 'hotspot' where seas are warming almost four times faster than the global average. And if that figure doesn't impress, over the past 60 years the East Australian Current (EAC) has shifted more than 350 km further south and Tasmania's average sea surface temperatures rose about 2°C along the East Coast. Fish tend to move with their preferred conditions, like water temperature, so more and more are extending their homes further south to keep pace with the warming waters.

YELLOW-BELLIED SEA SNAKE

(Pelamis platurus)

A yellow-bellied sea snake (*Pelamis platurus*) was observed this summer on a beach at St Helens. The snake

Colin Hughes spotted a yellow-bellied sea snake on a beach in St Helens, and it was still alive. This is the third yellow-bellied sea snake Redmap sighting on a Tasmanian beach.

was still alive "although barely", says Redmap member Colin Hughes. This is an unusual sighting as this species is usually found in tropical and subtropical seas. And it's one mainland guest unlikely to be welcomed by many Tasmanians. According to the Australian Museum, yellow-bellied sea snakes have a dangerous bite: "the fangs are quite short (~ 1.5mm) and only a small dose of venom is usually injected, however this venom is highly toxic and contains potent neurotoxins and myotoxins".

Redmap member Tim Smith was pretty stoked to catch dinner near Hobart.

SNAPPER

(Chrysophrys auratus)

Redmap member Tim Smith was very happy to report to Redmap after catching two snapper for dinner not far from Hobart*: "I hooked both fish within two minutes fishing for flathead using squid," he says. Snapper is historically a mainland fish that sometimes ventured into northern Tasmanian waters. Redmap is now receiving more and more reports and as far south as Blackmans Bay. (*Unless permission is sought, Redmap never shows the exact location of a sighting online — so your favourite fishing spots are not revealed! You get to decide how your sighting is mapped online between a 10 m and 10 km radius).

REDMAP NEEDS YOUR KNOWLEDGE AND EXPERIENCE

Redmap taps into the knowledge Tasmanian fishers have reeled in over many years. Your sightings help scientists map the distributions of marine life that may be moving into new areas, or extending their range, in response to climate change and ocean warming. Or as Redmap likes to say, "moving south when things get too hot at home".

Sightings in the cooler months are especially prized as they indicate if an uncommon species is able to survive further south over the long-term; rather than just visit the Apple Isle seasonally. The project also helps engage fishers and the public with the marine impacts of climate change and helps prepare for changes in the local fish species likely to be caught in the near future.

Visit www.redmap.org.au or download the Redmap App to share your uncommon sightings and photos. Redmap is hosted by the Institute for Marine and Antarctic Studies at the University of Tasmania.

LOG YOUR UNUSUAL SIGHTING AT:

redmap
SPOT. LOG. MAP.
WWW.REDMAP.ORG.AU

OR DOWNLOAD THE REDMAP APP:

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Understanding **EAST COAST** recruitment collapse

Development of pre-recruitment monitoring, simulation of recruitment variation and predicting the impact of climate variation

By Hugh Jones and Craig Mundy

Developing methods to monitor cryptic blacklip abalone (*Haliotis rubra*) as an early indicator of change in recruitment is a key objective of a new study being undertaken by the Institute for Marine and Antarctic Studies (IMAS) supported through the FRDC. The project hopes to track changes in the abundance of juvenile (pre-emergent) cohorts of abalone on reefs across the Tasmanian Eastern seaboard. This type of fishery-independent abundance data can be used directly as a performance measure in Harvest Strategies, and was identified as a high priority activity for the IMAS abalone research program in the recent review of the Tasmanian abalone fishery assessment process.

Blacklip abalone juveniles aren't amenable to measurement in the wild as they inhabit cryptic microhabitats under boulders and deep in rocky crevices, and consequently are inaccessible to sample using normal visual assessment methods. So, IMAS researchers set out to develop techniques for the collection of blacklip juveniles (<100 mm) using artificial habitats that mimic the natural habitat, but provide easy to access sampling units for measurement. The project started in early 2013 as a pilot study with steel square plates connected by chain laid on the seabed at George III Rock, Southport (reported in *Fishing Today* January 2013). The success of this pilot work in establishing that juvenile abalone would use such artificial habitats in low profile reefs led to the current three year project which commenced in March 2015. Key to the project is establishing the performance of a single plate design across the diverse range of rocky reef habitats that occur on the coast of Tasmania. Six locations were selected for the project which incorporated three key rocky reef habitats; large boulder reefs at The Gardens (Bay of Fires), Seymour Point (Bicheno) and Black Reef – Boulder (Southport), mixed low profile bottom at Betsey Island (South Arm) and George III Rock (Southport) and flat slab reef at Black Reef – Slab (Southport). The locations were chosen on the basis of their commercial importance, identified by the geo-referenced spatial data (FRDC 2011/201) or in the case of George III Rock and The Gardens examples of reefs closed to commercial fishing.

Field and tank observations suggested that that juvenile abalone prefer cryptic habitats with relatively narrow spacing. After pilot trials and tank testing at IMAS, the collector design chosen incorporates a 400 mm diameter 12 mm thick HDPE disc (a) with a single central pin securing mechanism (b) and three raisers located on the perimeter which control the collector's elevation above the rock (c). One of the raisers is also used as a keyway (d) to maintain orientation of the plate and provide added security in adverse conditions. Designing a flexible method for setting collector height above the rock surface was key to allowing a single collector design to be usable on the different reefs. The height of the plate above the rock surface is adjusted using the three raisers, and based on evidence of height preference from abalone in the tank testing, this is set to a maximum of 40 mm at one raiser, a maximum of 5 mm on another raiser and the 3rd raiser height being dependent on the surface contour of the rock. This arrangement provides a gradient of heights below the plate establishing different microhabitats that can accommodate the different size animals found in the targeted samples sizes (30–100 mm shell length). The collectors are deployed in two 'strings' of 20 plates connected to a 30 m steel chain (e) via cable tracers (f). This collector 'string' design represents a modification on the system developed during FRDC 2005/029 for attaching abalone larval collectors to rocky reef substrate and allows the divers to follow a single collector line and sample each collector in turn.

All six sites were established by July 2015 and the first abalone recruits were found under the plates on average 58 days post-site deployment. The fastest observed recruitment to the plates took place at George III Rock and Black Reef – Boulder site while Betsey Island appeared to take the longest (Figure 1). Initial data from the first few months of sampling suggests that conditioning of plates and rock is an important prerequisite to recruitment. Fixing of the plates to the rock alters the light available on to the rock face changing the underlying conditions causing an expected change from algae dominated rock coverage to one that is dominated by cryptic fauna and suitable for juvenile abalone. Juvenile abalone have been recorded at each of the three habitats, and there already appears to be differences in abundance within and between sites. Of the three habitats examined, the low profile reef at Betsey Island and the slab habitat at Black Reef so far have seen the highest numbers of recruits under the plates, but formal analysis of the data will require a much longer time series. Importantly as juveniles have been found in each of the three habitats it suggests the method has validity and the next challenge for the program will be to compare how the numbers below the plates relate to the wider environment. Coupled with the deployment of the juvenile collectors, IMAS technical staff (Edward Forbes, Sarah Pyke and Jaime McAllister) have established permanent fixed transects at each of the six sites. These transects will be routinely sampled to provide abalone length-frequency data of the localised abalone population which along with the juvenile collectors will form part of a wider fishery-independent surveys by the IMAS abalone group.

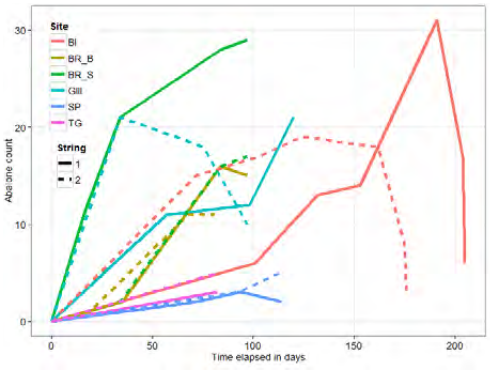

Figure 1: Occupation of juvenile collection plates by blacklip abalone from date of deployment (day 0) at six sites across Tasmania. BI = Betsey Island, BR_B = Black Reef Boulder, BR_S = Black Reef Slab, GIII = George III Rock, SP = Seymour Point, TG = The Gardens. Each location is comprised of two strings.

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FEES

We have obtained permission from Skills Tasmania to waive the fees of any oyster farmer enrolling into a funded course. This is to help those farmers struggling with the POMS outbreak. So if you are an oyster farmer, please check before you enrol as your course may be free!

AMSA MEETINGS

STT met with AMSA representatives Capt. Fuji D'Souza and Mark Eldon-Roberts to discuss how the certification process for near coastal Certificates of Competency will work under the new system. If the proposed process of final assessment is implemented it should not be too onerous for Tasmanian seafarers. We will need to check the fine print before we can say categorically that the new process is as good as the current process!

Starting the day at Tassal Margate. Tasmanian aquaculture boasts one of the largest fleets of vessels in Australia so any change in licensing is of great interest to them!

MEMBERSHIP

The membership of STT has changed in recent months with new members Ian Cameron, Ian Miles and Ian Trotter all joining the Board. So it was an ideal time to get everyone together with staff to look at our Rules of Incorporation, Opportunities and Marketing Plan. While our Strategic and Operational plans are looked at regularly, our opportunities are often not discussed due to lack of time. So we had a workshop to look at what capacity and willingness STT has for new ventures, different methods of delivery both locally and in other states, new courses/qualifications, new partnerships, targeted courses for job seekers and the challenges of new regulations.

Pictured at a recent STT Board meeting, clockwise from the front: John Purser, Adam Main, Loraine Sayers, Jarrod Weaving, Matt Jones, Peter Stegmann, Ian Wakefield, Sam Ibbott, Ben Cameron, Julian Harrington, Martine Gott, Claire Cunningham, Rory Byrne, Genia Caulfield, Michael Roche, Cass Price , Ian Trotter and Ian Miles.

ON THE ROAD

As part of our commitment to regional delivery we have just completed the Deck component of a Coxswain Grade 2 in Strahan.

Students studying for their Coxswain Grade 2 at Strahan in May.

STT frequently runs dogging, crane operation and DMLA courses. If you are interested in training your staff to use this type of equipment, please give STT a call.

Jared Cooper and Rowan Harvey completing Coxswain Deck practicals at Strahan with Fred Van Tuil

Trainee Judd Lovell (left) and Aaron Robinson (right) looking at the theory of temperature control as part of their Certificate III in Aquaculture.

Salmon farm staff using one of the industries larger cranes to load up for a day's work.

UPCOMING COURSES WITH PLACES AVAILABLE

Elements of Shipboard Safety	2–3 June, 21–22 July
Master <35m (NC)	6 June–29 July
Wader Safety	29 July
Coxswain Deck	22–26 August
Master <24m (NC)	1 August–2 September, 26 September–28 October
Marine Engine Driver 3 (NC)	12–23 September
Marine Engine Driver 2 (NC)	7–25 November

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BUREAU
of Meteorology

JET STREAMS

It was known that there were bands of strong winds high in the atmosphere back in 1883, when scientists mapped the ash from the Krakatoa volcano eruption in Indonesia.

They noticed that the smoke and ash from the volcano formed streaks, which they labelled as equatorial smoke streams.

From the 1920s up until World War II, a Japanese meteorologist investigated strong winds above Japan by launching weather balloons. This research was largely ignored by the rest of the world as he published in Esperanto — an international auxiliary language — so his work was not widely read and little known outside of Japan. These bands of strong winds became known as jet streams.

The Japanese military used the jet streams to undertake attacks on the USA during World War II. They released about 9000 balloons that carried explosive devices with a timer that released the payload after three days wherever they were. These balloons were designed to ascend and stay at about 30,000 feet (around ten km) where the jets streams could carry them across the Pacific Ocean and over the USA. However, where the balloons were actually carried by the winds aloft was very hit and miss. Despite the vagaries of the wind some 300 of these balloons are thought to have landed in the USA. Most that did make US shores landed in remote locations and the American authorities kept them secret. As the Japanese did not hear of any results of their bombing campaign they put a stop to the launches. It is interesting to note that within 15 years of these first ineffective and primitive continent hopping weapons Intercontinental Ballistic Missiles with nuclear warheads that could destroy large cities became operational.

The jet streams near Japan are often quite strong. When the American Air Force started to use high altitude B-29

One of the Japanese balloons. This particular balloon was shot down by US Navy aircraft but reinflated for this picture. (Credit: US Federal Govt Public Domain)

bombers to bomb Japan they were operating at levels where the jet streams occur. This was the first major and sustained interaction of jet streams and aviation.

Jet streams are narrow 'rivers' of air flowing at around eleven kilometres high. Jet streams are not a singularly continuous feature around the globe; they start and they stop and change direction. Jet streams form in areas high in the atmosphere where there are large changes in temperature over relatively small areas. In the diagram below the jet streams are just below the tropopause. There are two types of jet streams commonly found in both the northern and southern hemispheres: the subtropical jet is located where warmer tropical air meets cooler temperate air—upper border between the Hadley and Ferrel cells; the polar jet is located where warmer temperate air meets cooler polar air—upper border between the Polar and Ferrel cells.

Fishermen generally understand the wind flow on the surface, however what is going on at the surface is influenced by what is occurring high in the atmosphere. For instance, air flows into a low pressure system at its surface and rises through the centre. If air (mass) is taken away (often by the jet stream) at the top of a low pressure system faster than it can come in at the bottom, the low deepens; pressure at the surface falls and the low becomes more intense. If the inflow at the bottom and the outflow at the top are in balance, the pressure of the low stays the same. If the inflow at the bottom of the system is greater than the outflow at the top, the surface pressure of the low rises and the low begins to decay. Jet streams can steer the direction of movement of these surface lows.

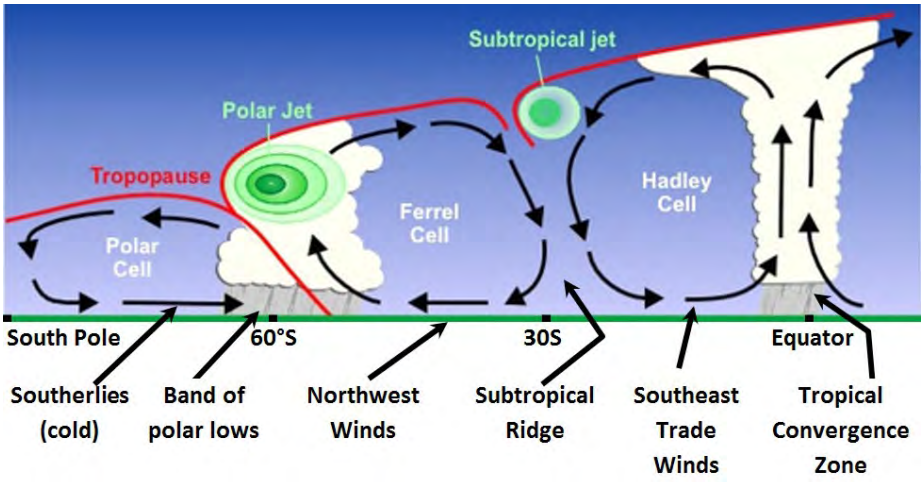
In contrast, with high pressure systems, instead of taking mass away from an area the jet streams actually deposit mass into an area high in the atmosphere. This air then sinks through the area of the high and flows out on the surface and away from the high centre. If mass comes in at the top of the system faster than it flows out at the bottom, the pressure of the high rises. If it flows out at the bottom faster than it comes in at the top, the surface pressure falls and the high weakens.

The southern hemisphere subtropical jet stream is the one that has the most effect on Australia. It forms above the subtropical ridge (STR) where it is very cold. The jet stream promotes subsidence (sinking air) that is linked to the STR. As this subsiding air comes from very high it is very cold and does not hold much moisture; this is why high pressure systems generally bring fine settled weather. If you follow the subtropical ridge around the globe,

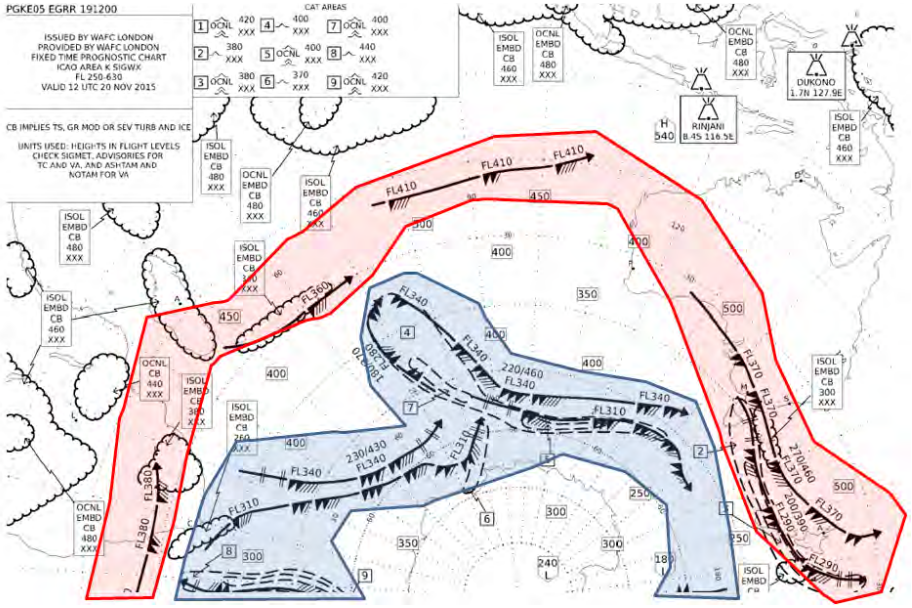
you find the dry areas of the southern hemisphere including large parts of Australia, Namibia and to a lesser extent the Patagonian desert.

The polar jets form in an area of generally rising air where the polar lows that circle Antarctica are more closely connected to surface features than the sub-tropical jet. The subtropical jet often forms around 35,000 feet (near ten kilometres) whereas the polar jet forms between 20,000 and 30,000 feet (six to eight kilometres). Both of the jet streams move around depending on the season. They are generally at lower latitude during winter and higher in the summer. The polar jet is the stronger of the two jet streams with wind speeds of over 200 knots recorded.

To fishermen, knowing the location and strength of a jet stream is of little value other than the knowledge that they play a supporting role in surface weather systems. However, for pilots of commercial airliners, it is vital information to know where they are and how strong. Getting into a jet stream can slash flight times if the jet stream is heading in the same direction as where you want the plane to go. However, this free ride can come at a price; areas near the boundaries of the jet streams can be very turbulent. If you are escaping Sydney or Melbourne during winter, there is often a strong jet stream around South East Queensland. As the plane transits this area it is common for the seatbelt sign to come on and cabin service to be suspended due to the turbulence that can be caused by the jet stream.



Cross section the southern hemisphere atmosphere showing locations of jet streams (Credit: NOAA)



This chart is produced for aviation purposes. The jet streams are the black lines with the wind barbs (see AFLOAT October 2013); a black triangle represents 50 knots and a black line ten knots. The heights of the jet streams are given in flight levels, for example, FL340 is 34,000 feet. The coloured areas (not on the original chart) show the path of the subtropical jet (red) and polar jet (blue). In the area where the polar jet moves to the north and then turns sharply south (middle of the page), a surface low of 995 hectopascals (hPa) was located.

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Australian Government

Australian Fisheries Management Authority (AFMA) www.afma.gov.au

Australian Maritime Safety Authority
www.amsa.gov.au

The Bureau of Meteorology
www.bom.gov.au/marine

CSIRO – Marine and Atmospheric Research
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Food Standards Australia New Zealand (FSANZ)
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OceanWatch
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Seafood Training Australia (STA)
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Women's Industry Network Seafood Community (WINSC)
www.winsc.org.au

State

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www.fishing.tas.gov.au

Institute of Marine and Antarctic Studies (IMAS)
www.imas.utas.edu.au

Marine and Safety Tasmania
www.mast.tas.gov.au/domino/mast/newweb.nsf

Natural Resource Management (NRM)
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