

MARINE *Life*

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SUPERSIZED SUPERTRAWLER
Supplement



The Supertrawler – coming to a coast near you!



Does it leap tall buildings in a single bound? No, it just catches an awful lot of fish and that has been hitting the news from Hobart, to Amsterdam. This time commercial fishers, recreational fishermen and conservationists are all on the same side.

The F.V. "Margiris" is setting up a fishing base in Devonport, Tasmania, but has a license to fish for small pelagic species [ocean-roaming bait fish] right around the southern coastline of Australia from Townsville to Lancelin in Western Australia. The company has been granted an 18,000 tonne annual quota. They are after schooling bait fish like jack mackerel, blue mackerel and redbait. The catch will be frozen into blocks for export to West Africa and Asia for human consumption. The proponents plan to spend six to eight weeks fishing and return to Devonport five or six times a year, and it will employ 40 local workers.

The Issues

Portland fisherman Nigel Jopson has charged that when trawlers similar to the Margiris were allowed to fish in New Zealand waters, there was a catastrophic effect on baitfish populations. "Governments don't seem to learn from their mistakes," he said. "Icelandic trawlers wiped out New Zealand baitfish five years ago, then were banned. That's why we are so opposed to FV Margiris coming to Australia." A fisherman at Eden has stated that this catch quota could be [theoretically] filled with just two

shots of its 600 metre net, leaving many to question the vessel's long term plans.

Fisheries managers have long looked for a market for small pelagic fish stocks. Here in Australia, small pelagics are 'rubbish fish' of low value for use as fish meal for aquaculture or stock feed, if the schools are running successfully and you manage to catch enough to make it worthwhile. There were big booms and then big busts, and by 2003, just five of the 75 issued licenses were being used, and barely 5000 tonnes were taken in 2002-03.

Concern about the knock-on effects of industrial fishing of small pelagic have previously seen a very cautious approach taken by the Australian Fisheries Management Authority (AFMA). A report by the AFMA in 2003 warned: "*Small pelagic species play a vital predator and prey role in the marine ecosystem and their over-exploitation may cause detrimental population effects on other species. This is an area of uncertainty in the context of full exploitation. There is limited information available on the biology and fisheries ...*". They knocked back a similar supertrawler proposal in 2004. Apparently, that decision has since been the subject of hot debate. Researchers have been sent out to assess spawning patterns for mackerel and redbait in the Great Australian Bight and off the east coast, using fine mesh nets to trap roe. One industry veteran in 2004 said: "*It's a bit hit and miss but gives a reasonable picture of stock numbers.*" One assumes these studies informed the decision to change the quota.

Government policy change

The AFMA position now seems to be to get some economic value out of the fish stock and a big trawler sounds like an efficient way to clean it up in one go. The BRS Fishery Status Reports (2010) said the east and west Blue Mackerel and Jack Mackerels stocks, Australian Sardine and the Redbait east stock have been assessed as not overfished and not

subject to overfishing. Redbait west stock has been assessed as not subject to overfishing but with an uncertain biomass due to lack of information. The Total Allowable Catch (TAC) for 2012-2013 Season has been reset as, Jack Mackerel 15,100 tonnes; Redbait 11,900 tonnes; Blue Mackerel 9,100 tonnes; and Australian Sardine 200 tonnes. The

Margiris will be taking the lion's share of this quota. "We take the ecosystem very directly into consideration when setting limits." AFMA's James Findlay said. *"Less than 10 percent of fish are going to be caught"*. According to AFMA this is "highly precautionary" and "well below" international standards [*Something in my left elbow tells me this is a trial quota? - MJ*].

Tasmanian Fisheries Minister Bryan Green rushed to the company's defense. *"The total quota has increased by 3,800 tonnes overall which doesn't mean that there's been a doubling of the take from both red bait and jack mackerel in the eastern zone," he said. "I'm sure if you talked to the scientists it's been raised based on the sustainability of the fishery"*.

What happens next?

Right now, the 143 metre FV Margiris is on its way from the Netherlands, being pestered by Greenpeace. Meanwhile the campaign is building with petitions, bumper stickers and endorsements from visiting popstars, all appearing within days of the news first breaking. This debate looks like heating up and going international, highlighting how poorly regulated industrial fishing has damaged the industry's standing in the northern hemisphere and whether that could happen here. According to AFMA, *"Before people do protest I'd really encourage them to go and get the facts..."*, so we are going to do our bit to help our readers understand those issues.

There are major concerns about overfishing, mortalities of seals, sea birds and dolphins as a result of this vessel's fishing activities, which are detailed in an environmental group media release included in this issue.

On the other hand, fisheries managers are saying that the activity will be well regulated will have minimal impacts. Emma has researched a piece setting out that side of the argument in great detail.

For my part, I'm going to add a little bit of background history info and critter information. I've also tagged on some twisted cynicism about truth in advertising material and how it's no different for fish product packaging. Please enjoy, and we like feedback, even the respectfully but hostile stuff.



Trawling for Trawler Truths

- just how much of what we hear is true?

[Hi readers – Emma was confident that you had the level of interest in the Supertrawler to manage a very detailed commentary piece, there is certainly plenty of excellent data and thought provoking commentary, sticking with it will provide plenty of conversation items, feedback welcome – Mike JJ]

Commentary by Emma Flukes

Anyone who has met me personally would know that I'm not afraid to have an opinion on things a little bit topical. So when this supertrawler business popped up seemingly out of nowhere on our doorstep, I oiled my armour for battle. Trying to be rational, I sat back for a bit to watch the various arguments around the place play out before I chose which bandwagon to jump on. And that's when I began to realise that a lot of the violent knee-jerk reactions to this large boat seemed just a little bit off... I started to have my email inbox and social media pages spammed with provocative battle cries of "let's stop this monstrosity", "save our fish!", and was battered with demands to sign various online petitions against the fishery. Sensationalistic journalism was of course rife, and I began to notice the huge disparity between the aggressive anti-trawler campaigns and the cool, collected industry spokespersons. I wanted more than anything to **have** an opinion on this one way or the other, but sheer laziness had prevented me from getting my teeth into the issue. It was clear though that something didn't quite add up. It wasn't until *Marine Life* publication time ticked around, and we were (of course) going to run a special on the trawler, that I realised I probably should have at least a vague idea of what people were ranting about. So I started digging, and boy did I dig... the short piece I was going to write on this has somehow turned into a novel of epic proportions. But if you have taken an interest in this debate, I would strongly encourage you take the time to get your head around this. There are some truly fascinating things at play here...

A bit of a background on the trawler and the system

Seafish Tasmania has been fishing in Tasmanian waters for mackerel and redbait for several decades. These fisheries have historically utilised several small boats to make up the quota that has been allocated to them, which has ranged from 16,000t to 25,000t per year depending on biomass stock estimates. The fish are not schooling in coastal waters because the nutrient rich interface of the warm East Australian Current and the cold Southern Ocean current has moved further offshore. This is by no means unusual - small pelagic fish provide the link in the food chain between primary production from the sun and higher trophic predators, so they traditionally follow these nutrient waters (example reference [here](#), original peer-reviewed [here](#)), in this case offshore over the continental shelf and not inshore as has previously occurred. The target fish are in healthy numbers as measured by independent scientific assessments, but have simply shifted their distribution in response to climate change as with many other species. Shifts in species ranges in response to climate change are a well-documented phenomenon – a Google Scholar search for that phrase will pull up a few hundred examples.

Both mackerel and redbait have a high oil content so they need to be gutted and frozen soon after catching in order to maintain a quality fit for human consumption ([ref](#)). Small vessels cannot process fish on board, and during the transit from the fishing grounds back to port, the fish degrades to the extent so that it can only be used for fish oil and fishmeal. Recently, a more efficient way to harvest these small pelagic fish has been identified. Rather than using many small boats, Seafish Tasmania has formed a joint venture with a Dutch company that owns the *SV Margiris*, a 143 m, 9,500t vessel (termed by the public as a 'supertrawler', because it is large in size and its fishing method is trawling). The reason this method of fishing is more effective is twofold: the fuel costs associating with taking this quota are lower as they can be taken by a single boat, and the catch is more economically valuable

as it can be processed on board and hence is human consumption-grade. The target market for these fish is export to Africa and Asia rather than production of fish meal for use in agriculture and aquaculture. It is recognised worldwide that significantly more human food is produced where catch is used directly for human consumption rather than via the fishmeal pathway.

I feel like this is an appropriate time to make this declaration straight up – I am a marine scientist, so I guess there may be an inherent bias that goes along with that. By bias, I mean that if there is rigorous scientific backing for a particular decision, I will always choose to back that over media hyperbole, paranoia or popular public belief. So I've had a trawl (pardon the pun) through a bunch of information from fisheries assessments and other publicly available sources and tried to put together what seem to be the some of the most frequently raised concerns about the fishery.

Target fishery and bycatch

Bycatch is an unfortunate casualty of any and all methods of fishing. Whether you're dropping a handline off the end of a jetty or setting lobster pots, there are always animals caught that aren't the intended target of the fishing. Bycatch is a very real consideration when developing fisheries; historical mistakes with things like leatherback turtles demonstrate how significant its impact can be (see [here](#) for more info). It is also of the most popular angles drilled by anti-fisheries campaigners because of the emotive response it elicits - something that was once best explained to me as the "I love dolphins" bias. The target species of this particular fishery is redbait, blue mackerel and jack mackerel. The fishing *method* of the supertrawler is, unsurprisingly, trawling. So let me explain a little more about this.

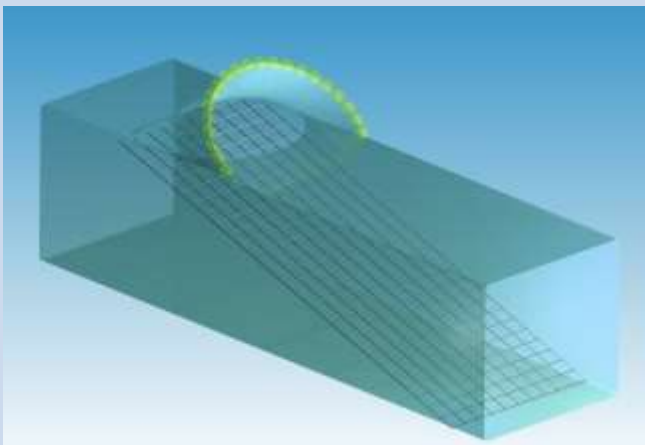
Those of you who have taken an interest in this and other large trawl fisheries may have come across articles detailing the impacts of previous trawlers. A large portion of these have been bottom trawlers.

The impact of these is not surprising – these vessels use a fishing system that essentially drags heavy nets along the seafloor and indiscriminately removes benthic fish (those living on the seafloor), semi-pelagic species (such as squid, shrimp and rockfish), inflicts damage upon structuring components of seabed communities (deep water corals, seamount surfaces) and can resuspend plumes of ocean sediment. Mid-water trawlers have certainly also had their share of impact. Commonly cited casualties the Atlantic herring fishery ([see more](#)) and northwest cod fishery ([see more](#)). It's important to make the distinction here that these impacted species were the *target* of the fishery rather than some unfortunate bycatch component – this was wholly to do with the fisheries management side of things rather than the fishing method... more on this later. The difference between benthic (seafloor) and midwater (pelagic) trawling is that the second method, the one employed by the *Margiris*, is highly specific for its target species. The potential bycatch casualties are exceptionally low because of the highly selective nature of the fishing. Seafish Tasmania's track record for bycatch as measured by independent scientific observers is less than 1%. Compare this with something like a prawn trawl fishery, which can have up to 15kg of bycatch per landed kg of target species, or **1,500% bycatch**. This makes 1% on par with the lowest bycatch levels of any global fishery ([see more](#)).



The only scalefish species that may be realistically caught as bycatch by the *Margiris* are barracouta and spotted wahoo, both of which are in high numbers in the targeted trawl area. Quotas will need to be purchased for any wahoo bycatch, and hence are accounted for in ecosystem models. Concerns have also been raised for the welfare of seabirds that may become entangled in nets. A seabird management

plan is being developed for the fishery to minimise the rare seabird interactions, and no processing of fish other than freezing will occur (i.e. no fish guts will be discharged into the ocean). The other two animals whose welfare has been questioned are seals and dolphins, again species that are in extremely high numbers in Australian waters. This is a legitimate concern, as both seals and dolphins are known to enter these nets to feed on the trawled fish within them. However something that should also be considered is the scaling of this issue: an IMAS report details that, based on independent observers situated on trawlers in Tasmania's small pelagic fishery between 2004-2007, a total of 5 isolated dolphin incidences, and 3 identified seal incidences resulting in death occurred (ref [here](#)). Individual estimates place the mortality at around 25 dolphins and up to 55 seals. The result of this was development of what is known as "seal and dolphin exclusion devices" to attempt to further reduce these exceptionally low levels of mammal bycatch. The current devices that will be employed by the *Margiris* operate on the principle of creating an inclined grid that leads marine mammals to an escape hatch on the upper panel of the net. See [here](#) for video footage demonstrating a seal escaping through the device. Criticism has been spread because of the degree of uncertainty surrounding this piece of equipment, as it has not previously been used on this particular net. However, the excluder devices have been developed and tested on similar fishing gear in southern Australian conditions and have been demonstrated to be highly effective. I must also admit that I am confused as to how a bycatch exclusion device can be formally tested in any way *other* than



by use in fishing and excluding bycatch. Further to the seal and dolphin exclusion devices, the *Margiris* is required to move 50 nautical miles from wherever dolphins are sighted before resuming fishing. The fact remains that, due to the charismatic nature of these animals, in the unlikely event of unacceptable levels of bycatch, new controls will be promptly implemented to resolve the issue. Essentially, the bycatch associated with midwater trawling is exceptionally low. It's kind of like saying we shouldn't drive vehicles at night because we know there is an associated risk of wildlife mortality. But we do drive at night, with no controls put in place in an attempt to curb wildlife deaths, and nobody is lynched for that. Here we have a situation where a fishing method is associated with very, very low risks of accidentally killing a handful of very, very numerous marine mammals. Controls have been repeatedly developed and refined to ensure this is maintained at what is deemed to be an acceptably low standard. Seemingly in the eyes of cetacean campaigners though, the only possible solution is to say no. Dolphins are [nasty aggressive rapists anyway](#), I don't know why people like them so much...

Back to the real science... who makes the quotas?

All fisheries in Australian waters are regulated by a body called the Australian Fisheries Management Authority (AFMA). This is a government-run body, but it does receive a portion of its funding from the commercial sector. This does not mean that it is run *by* fishermen; rather a proportion of the profits on each kg of landed fish is directed towards management of the fishery. This has attracted some criticism because the body's funding is tied to the amount of fish caught. Basically, the alternative to this is to have a fully government-funded authority, which essentially means we all pay a lot more tax. An industry-funded regulatory body is by no means an unusual situation: nearly every sector contributes funds to regulatory bodies to help regulate their industries. It is, after all, in the best interests of fishermen to have a sustainable fishery. Funding source aside, AFMA receives recommendations and advice from world-class fisheries

scientists, and uses these to formulate their own catch limits. While fisheries have a long and checkered history of being poorly managed, AFMA is recognized as one of the world's leaders in sustainable fisheries management.

What are the quotas? How do they work?

There exists a body, known as the Marine Stewardship Council, which is an international accreditation body for sustainable fishery management. A tick of approval from the MSC represents the international "gold label" for a sustainably managed fishery, and provides some degree of transparency for consumers in making informed choices with the fish products they buy. This organisation has recently set more precautionary requirements for the management of low trophic level species (such as redbait, jack mackerel, blue mackerel and sardines) because they recognise the critical importance of lower trophic species in a healthy food web. The global requirements of the MSC for small pelagics is that stocks must be maintained at least 75% of the unfished level (ie, **no more than 25% of total stocks may be taken**).

AFMA has voluntarily developed and adopted something known as The Harvest Policy, which is a more precautionary quota system than that dictated by the MSC. They have set the Total Allowable Catches (TACs) of small pelagics at **17.5%**, i.e. **7.5% less than the maximum level required for "sustainability" as recommended by the international governing body**. The species breakdown quotas are available [here](#).

The total quota allocated to Seafish Tasmania for mackerel and redbait for 2012-13 is 17,800t across the different species. Arguments have stemmed from the recreational fishery with regards to the disparity between the recreational limits being 30 fish vs 17,800t of fish. The overall commercial fishery quota has not changed with regards to the introduction of the *Margiris*, nor have the recreational fishing limits. This point is no more relevant than it was 1, 2, 5, 10(? I can't find recy

limits back this far, apologies if incorrect) years ago. **Additional quota is not being allocated to this boat; rather a single boat will simply be taking a greater proportion of the TAC that would have otherwise be caught by multiple smaller vessels.**



How are the quotas set?

1. Egg surveys are conducted, the current method for jack mackerel is known as the "Daily Egg Production Method (more on this technique [here](#)).
2. Data is analysed by scientist and an estimate of total spawning biomass of the species is put forward.
3. Scientific results are reviewed by the Small Pelagic Resource Assessment Group ([here](#)). This group is governed by the "Small Pelagic Fishery Harvest Strategy" rules for determining the Total Allowable Catch, or TAC, for a fishery. The Harvest Strategy sets out the management actions (ie quotas, restricted fishing methods etc) that are needed to achieve specific defined biological and economic objectives for a single fish species, or a bunch of different species (more info [here](#)).

4. These Harvest Strategy rules are applied to each species in its particular zone of the fishery to formulate a recommended TAC on the basis of the scientific findings.
5. The TAC recommendation is passed onto the Southeast Management Advisory Committee – a section of AFMA ([here](#)). Here it is again reviewed and scrutinised, and synthesised into a single regulatory document known as the Small Pelagic Fishery Statutory Management Plan ([here](#)). Assessment Groups and Advisory Committees include representatives from fishing industry, conservation and recreational bodies, and fisheries scientists.
6. AFMA scrutinises the plan and, if satisfied, obtains signatures from the Ministers of Fisheries and Environment. Once passed through Federal Parliament, the Statutory Management Plan becomes Australian Law

I heard that these stock assessments are outdated. How can we harvest a fishery we know so little about?

An ongoing topic of debate with regards to the *Margiris* has been that fisheries management has been using 'old' data in setting the catch limits for some species. This is indeed the case for the eastern sector of jack mackerel – egg counts and stock assessments were carried out in 2004, but due to lack of government funding the data wasn't analysed until 2011. One of the standout features of the AFMA Harvest Policy is its explicit recognition that small pelagics are an important component of the wider ecosystem. The way the Harvest Policy works is to restrict the TAC of each species to a maximum of 17.5% of its estimated spawning stock, and drop this harvest rate by 2.5% every year following the last stock assessment to a base level of 7.5% until another survey is conducted. Up until recently, very little was known about the jack mackerel fishery, so the TAC was set to 5,000t (or 7.5% of what an unknown biomass might be). When the 2003 assessment was finally analysed, it showed the spawning biomass to be estimated at 144,000t. In other words, during this period of population assessment stasis, the

fishery has been taking less than 4% of the spawning biomass. To put this in perspective, had the results been analysed promptly, the TAC would have been set at 17.5%, or 25,200t per year. As a result, the TAC for jack mackerel in eastern waters has recently been increased to 10,100t (still less than 7.5% of the estimated biomass) for 2012-13. This is the whole basis of the Harvest Strategy – the older the information, the lower the TACs. *[As a side note, keep in mind that the fishery could be taking 36,000t and still be given the tick of approval by the Marine Stewardship Council, the highest international sustainable fishing rating and "best global practice" available.]* Claims such as "AFMA has doubled the quota for small pelagics to accommodate the vessel" are, quite simply, untrue. AFMA is following the guidelines of their Harvest Strategy, something that would have occurred regardless of the arrival of the *Margiris* in Tasmanian waters. It's important to recognise here that **lack of adherence to policy** has been the source of problems in the past – my personal feeling is that seeing fisheries management sticking to regulations that have been set down by scientists inspires a lot of confidence. It's also important to note that quotas constantly shift and change as new stock assessments are conducted for species. Biological ecosystems are dynamic, and quotas reflect that. This is the fundamental basis of how management works.

If this boat is so big, won't it cause localised overdepletion?

Another concern is that, due to the large size of the boat (200 m long trawl net, capacity to process 275 tonnes of fish per day, with a cargo hold of 4,500 tonnes, see KL 749 [here](#)), intensive fishing concentrated over small areas could cause localised depletion of fish stocks. The size of the vessel itself is actually one of the things that is likely to *reduce* the likelihood of depletion relative to the structure of the current fishery. More below:

- 1) Fishing is restricted to areas beyond 3 nm of the shore. Unlike smaller fishing boats that are limited to fishing close to ports, the size of the *Margiris* enables it to spread its fishing effort over a much wider area. The large freezer capacity of the vessel means

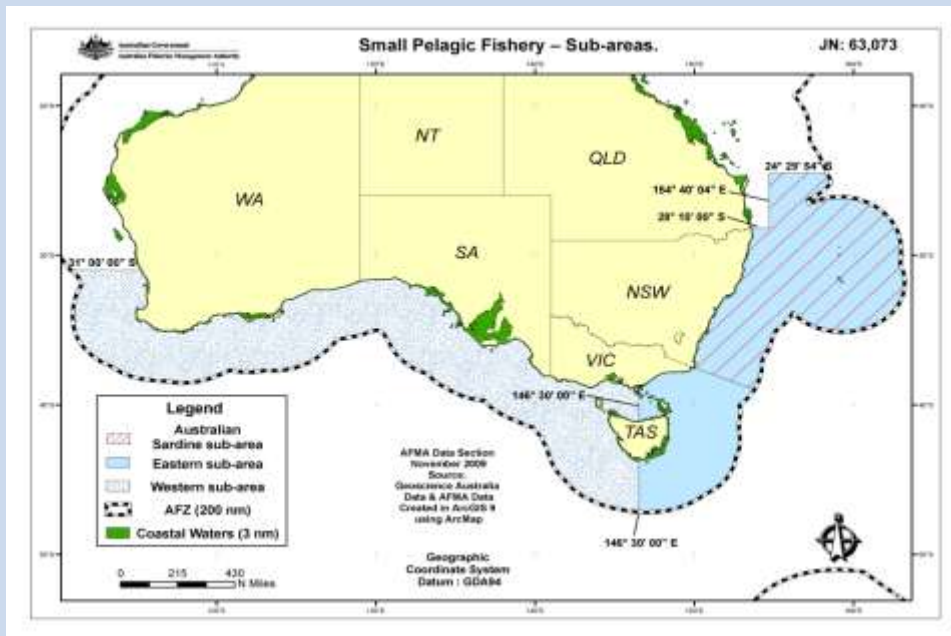
it can stay at sea for longer periods and fish offshore rather than concentrating its effort around processing centres.

- 2) Localised depletion is considered by the Small Pelagic Fishery Resource Assessment Group every year before setting annual catch limits, in this case extremely conservative ones.
- 3) The allowable quota is broadly spatially zoned by splitting catches between eastern and western stocks, and fishing is excluded from all Commonwealth Marine Reserves. Tassie waters constitute just a fraction of the vessel's fishing grounds – these extend from WA up to NSW. There is provision to immediately adopt spatial closures and other conservation measures if any undesirable impact is detected on the fished stocks.

(link [here](#)). Over a 4 year period, the taskforce reviewed every major marine ecosystem and forage fishery in the world. Particular focus was paid to where undesirable impacts had occurred previously, and modern ecosystem models were designed to identify modifications to fisheries management that would protect the ecosystem. These requirements were designed in a way that, if followed, **all of the known food webs and ecosystems in the world would have been protected**. A summary of the report can be found [here](#), with the full report available [here](#). The approach to setting quotas recommended by the Lenfest Report is specifically designed to prevent localised depletion impacting on predator populations. The approach taken by AFMA and handed down to Seafish Tasmania is more conservative than this again.]

If these quotas are apparently rigorous and sustainable, why is everything I read so overwhelmingly negative?

If you've ever kept up to date with anything that's vaguely environmentally topical, you'll understand that the public has a tendency to be polarised very easily, and the majority will fall over each other to pack tightly onto one side of the fence. Hence there is always an overwhelming media bias towards one particular viewpoint because of the need to stoke whatever fire is powering the bandwagon [the realists amongst you will recognise that "balanced media" is about as common as unicorns]. Independent scientific fisheries experts commenting on the proposal have (to my knowledge) unanimously supported the recommendation of AFMA's fisheries management sector. A few conspicuous examples include Dr Bob Kearney, Emeritus professor in Fisheries Management at the Uni of Canberra, Professor Ray Hilborn, Uni of Washington, recognised as one of the best fisheries biologists in the world, Professor Colin Buxton, Director of Fisheries at Tassie's Institute for Marine and Antarctic Studies, Professor Keith Sainsbury, also of IMAS. All have come forward to clearly support AFMA's position that the fishery is being managed in a sustainable and precautionary way **based on the best available science**. As with all Australian-managed fisheries quotas, these have been approved at a



[**Interesting side note:** There exists a project known as the Lenfest Forage Fish Task Force, part of the Lenfest Ocean Program (a US conservation foundation) involving 13 eminent marine scientists, amongst them world experts in conservation and fisheries scientists

fisheries council and an AFMA level by independently-commissioned scientists under the guidance of the Australian Fisheries Management Act 1991, which was created to ensure sustainable fisheries practices cannot be interfered with by individual parties with hidden agendas.

Isn't AFMA the same body that regulated the orange roughy fishery? And look what happened to that...



The orange roughy is one of several species that has experienced a massive collapse due to some very bad fisheries management in the past. Essentially, one of the big mistakes here was a grossly inadequate understanding of the biology of the fished

species. Orange roughy live at depths of 700-1200m and are slow developing fish, taking 20-40 years to reach sexual maturity and living up to 150 years. When spawning aggregations were discovered off St Helens, heavy depletion had already occurred off the continental shelf and scientists were expressing concerns about the likelihood that the species was long-lived, slow growing with highly variable spawning success. The error was in allowing a fishery to proceed given these early warning signs, and established management targets were abandoned in the face of pressure from fishers. A detailed account of the factors involved in the collapse is an interesting read, and is available in manuscript form [here](#). Since this excessive fishing prior to the mid-1990s, management of the orange roughy has been extremely restrictive. The current TAC in Australia is less than 1% the level it was at in the period when overfishing was allowed to occur, and over 95% of its known distribution area is completely closed to fishing.

The orange roughy fishery was just one of many global examples of outstanding fisheries management mistakes. There's no question about that. However, while it is definitely a good example of a poorly managed fishery, it is also a good example of a currently excellently managed fishery, demonstrating the effects of restrictive and rigorous management to remove a fishing threat. What's important to recognise is that there are a number of fundamental differences between the orange roughy system and the current proposed small pelagic fishery. Firstly, small pelagics are fast growing and short lived species, with massive spawning rates and sexual maturity reached very quickly. Their population biology lends itself to harvesting because of their rapid turnover. Secondly, the whole structure of AFMA as a management body has improved by the development and implementation of Harvest Strategies and the Fisheries Management Act which are designed to prevent the interference of interested parties with established scientific recommendations. There really is no excuse for sidestepping science due to pressure from fishers and politicians. Possibly most importantly though is that the marine ecosystem off SE Australia, in particular eastern Tasmania, is very well understood by world standards and has been extensively modeled by CSIRO. AFMA also has considerable experience managing very similar Australian fisheries, notably the sardine fishery off southern Australia that has operated for over 10 years using a similar method of catch management.

I heard the supertrawler is only here because it got kicked out of African waters

For those of you who haven't come across this one yet, another claim is that the *Margiris*, as with most supertrawlers, have spent the last decade busily ravaging West African fisheries and now need a new hunting ground. While I'm clearly now an expert on Australian fisheries, international stocks are something I'm still a little hazy on. My solution was, hey you guessed it, do some research. So a brief examination of stats from the FAO (a sect of the United Nations, [here](#)) for sardinellas and jack mackerel, the target species in the Mauritanian fishery,

indicate that this so-called “devastation” may be more than a little overstated.

Catches for 2003 were 1.993 million tonnes (sardinella 1.833 mt, jack mackerel 0.16 mt). After 6 years of ‘intense ravaging’, 2009 catches were 2.067 million tonnes (sardinella 1.8 mt, jack mackerel 0.266 mt). The same applies to European pelagic fisheries on mackerel, jack mackerel, herring and blue whiting. The take-home message is simple: all of the TACs for these species are either increasing or stable. The metric that these stats *don’t* take into account, however, is the “catch per unit effort”. The number of boats fishing these waters is likely to have, over these 6 years, increased dramatically. The particular figure is difficult to arrive at because many of these boats fall under different management regimes, and a proportion are participating in illegal unmonitored fishing activities. If the combined fishing effort has increased and total catch has remained stable, then this suggests a degree of biomass decline. It is important to realise though that quoting these figures as evidence for “fisheries decimation” is just as dangerous as quoting it as evidence of “stable fisheries”. Speculating on data that is presented in this way is like comparing apples with oranges; oranges that might actually be apples, but could equally turn out to be watermelons. Something that can be said from this though is that if the *Margiris* came from a previous life of destroying West African fisheries, she must have been pretty ordinary at it.

Where is the accountability? What’s to stop this boat ruining our fishery?

One of the perks of having one of the world’s strictest fisheries management bodies in the world is the high degree of accountability that the vessels are subject to. As with all vessels in the Commonwealth fleet, the *Margiris* would be fitted with an electronic vessel monitoring system. AFMA has also unequivocally stated that the *Margiris* would have 100% coverage by independent fisheries observers. Penalties for any breach are covered by the *Fisheries Management Act 1991*, but

include ordering the vessel to return immediately to port; suspending or cancelling its fishing concession; fines of up to \$275,000; temporary or permanent seizure of vessel, equipment and catch; and up to 12 months imprisonment if any individual should fail to comply with the directions of a fisheries officer ([ref](#)). If a vessel violates the international Marine Stewardship Council’s regulations (remember, these are the 25% quotas), they lose their environmental accreditation (link [here](#)). It goes beyond this though – individual fines of up to 1 million pounds have previously been issued. It’s not an idle threat – these penalties are very real (link [here](#), [here](#), [here](#)). Far more than this, however, is that it is quite simply ***in the best interests of the vessel to adhere to the AFMA regulations for a sustainable fishery***. Massive amounts of money can be made off fisheries, but rapid short-term decimation is far less profitable than sustained long-term harvesting. If that doesn’t convince you, consider this: if a boat wants to enter a nationally-managed fishery, completely disregard federal laws and overfish its quotas, the last destination it will choose is a country with one of the tightest fisheries regulation bodies in the world. By virtue of the high profile nature of the fishery alone, any illegal activity would be cracked down on so hard and so fast the *Margiris* would be at the bottom of the ocean (figuratively of course) faster than it takes a handful of social media junkies to mass share an online petition.

If you still have doubts surrounding this “how can we trust them” thing, I can only think they could stem from two main arguments: 1) That the Commonwealth is deliberately overstacking quotas in order to destroy its fisheries; or 2) That the Commonwealth is legitimate, but Seafish Tasmania are a bunch of rogues and will just go ahead and ignore the set quotas. Both of these smell a little too strongly of conspiracy theories for my liking. So the question remains, are we really condemning Australia's ability, as one of the best run fisheries in the world, to effectively manage a fishery in the same way that it has been successfully doing so for several decades?

What if the science is wrong?

And here it is: the only thing in this whole bloodthirsty debate that I do really struggle with. Science, as much as I love it and have sold my soul to it, CAN be wrong. Unfortunately we make mistakes – it's one of those irritating human quirks. The way I see it though is this: if someone wants advice on how to improve their health they go to a doctor. If the doctor says "don't worry Derpina, I think you would really benefit from doing derpily derp, here let me prescribe you some Derpadene Derp"; you can choose to say "nah, Doc is wrong, what would he know?" and completely ignore the medical advice given to you. OR you can accept that the doctor who's been doing this for 40 years knows a hell of a lot more about medicine than you do, as a bank teller who has devoted their life to fondling banknotes. You can ask questions of him and enquire about the reasoning behind his recommendations, but ultimately he is far better informed than anyone to make these decisions. It is his job, and something that he has devoted a lifetime to. I am willing to put my trust in the scientists who manage this fishery alongside the scientists who modelled this ecosystem. Because the point is, these fishery regulations are precautionary based on *the best available science we have*. If we start choosing to selectively trust our scientists and the recommendations made by our regulatory bodies; and if the popularity response becomes a deciding factor in making these decisions then the future for science is grim.

SYNOPSIS

I'm very fortunate in that I have friends and colleagues who have taken an interest in the FV *Margiris*, and I've been able to tap into these resources to be directed towards some excellent starting references (FYI, a media article is not a reference, nor is an online petition or a senator's personal blog). But there were two things that I found incredibly concerning about the whole situation. The first thing is how overwhelmingly difficult it is to locate genuine informative references in a sea of hysteria. Factually-based arguments for and against are publicly available, but it takes a lot of digging and sifting, and the

information tends to be pretty fragmented with no real syntheses available. The second is the blatant disregard for peer-reviewed science and outright untruths being claimed as "facts" by representatives of environmental groups and political leaders. I've traced back the secondary, tertiary, quaternary sources and beyond, and seeing a petition "fact sheet" reference a Greenpeace publication that in turn references a news column piece based on calculations based on footnotes of reports based on minutes of meetings, and does so blatantly incorrectly, is concerning. Not only is this publicly irresponsible, it's one of the most hypocritical components of the whole argument. The elected representatives and leaders for recreational fisherman and conservationist groups were part of the group who voted in favour of the quota increase and sent the revised quotas onto AFMA for final approval. The minutes of these meetings are publicly available [here](#), and the recommendations put forward are [here](#). I guess what I'm saying is I can fully appreciate how difficult it is to be properly informed on this, or just how easy it is to be ill-informed.

I'm going to duck on straight out stating an opinion on the fishery, other than saying "I trust the science". I certainly have my own thoughts and opinions on the great monstertrawler, but sharing them won't (or shouldn't) shape your own views. Anyone who knows me will also confirm that I'm one of the greenest fish fondlers about. But I do recognise that industry, economics and conservation don't have to be, and *can't*, be mutually exclusive. Being opinionated is easy – having an opinion borne of independent research and considered decisions is rare. Why? Because it takes effort. We complain that Tasmania has poor infrastructure, a struggling government, and that it's the dead end of the world for development. The next minute we use every irrational, hypocritical, hysterical argument under the sun to prevent things from happening. As I spouted in a recent Facebook rant (there seem to be an awful lot of them...), saying no to something just because it's *something* doesn't make you someone. The answer is not always no, because it simply can't be. Like it or not, we were all born human, with the

capacity to read and learn and process and understand. Yet despite that, it will be the overwhelming minority who read any of the references, links to policies, or minutes provided within this. We're all busy people and I recognise that most of you have more important things to do, like monitor your coffee going round in the microwave or watch Olympic broadcasts of the synchronised swimming. I'd like to think though that if you have neither the time nor motivation to do a bit of digging of your own into this, then perhaps you'll opt out of passionate campaigning one way or the other.

So what can you, as a responsible consumer who cares on a global scale, do to help? You can start by checking the sustainability rating of seafood you do eat and identify species that are ethically caught and managed. You can make the choice as a consumer to spread your demand across a bunch of different species, starting with the low trophic ones like mackerel. It's choosing to eat the rabbits of the sea instead of the snow leopards. At the end of the day it tastes good and is good for you, why not choose the option that's good for the environment too. Most of the world is covered in ocean and unfortunately the load of our 7+ billion people on earth requires that we spread our rape of the planet's resources fairly by harvesting it to some degree. Not fishing simply isn't an option for the >1 billion people on earth who rely on the ocean as their primary source of protein. Taking a stance that you don't want anyone to take your fish off your doorstep is frankly a western luxury that only demonstrates a blind disregard for the state of the world we live in.

The very last thing I want to do is shoulder some kind of responsibility for or claim of professional expertise in any area of fisheries. But I do feel that a vast majority of the concern surrounding this trawler and its fishery is based on lack of information, or mass hysteria sparked by social media activists, rather than the real state of the situation. I took the time to drill into the core of the issue and I feel that a lot of the information that I came upon has been grossly overlooked – information

that is pivotal to forming an informed decision on this vessel. Clearly not everything can be answered in a "brief" (ok not really, I tried though...) summary of the situation, but the information I've tried to distil here is no different to the resources available to you. The internet is a truly wonderful place for armchair research. If you *do* have any questions, I would love for you to contact me at marinelifetassie@gmail.com. Even if I can't answer your queries, at the very least I may be able to direct you towards references or colleagues who can. Because I'm a firm believer that knowledge, not panic, is power.



USEFUL LINKS

AFMA FAQs <http://www.afma.gov.au/2012/06/super-trawler-faqs/>

Seafish Tasmania <http://seafishpelagic.com.au/>

Stop the Supertrawler petition

<http://www.communityrun.org/petitions/stop-giant-fishing-trawler-in-tasmania/>

Small Pelagic Fishery publications - Management Plan, Harvest Strategy, & Bycatch Action Plan

<http://www.afma.gov.au/managing-our-fisheries/fisheries-a-to-z-index/small-pelagic-fishery/publications/>

Scientific Opinion on the fishery, [PDF download here](#)

This Supertrawler Still Stinks

Commentary by Jon Bryan, Tasmanian Conservation Trust

[We asked Jon, a vocal opposer of the supertrawler in his role with the Tasmanian Conservation Trust, to contribute his thoughts on the issue to offer yet another perspective for our readers to consider. Many thanks to Jon for his substantial contribution.]

There are some interesting points made by supporters of the supertrawler *Magiris*. Unfortunately, none of these points provide much reassurance after any sort of critical evaluation. Previous collapses of small pelagic fisheries in the Tasmanian region and a complete failure to address concerns about localised depletions alone are good reasons to reject the proposal to bring the supertrawler *Magiris* into Australian waters.

There have been two failed small pelagic fisheries in the Tasmanian region in the last 25 years, which adds to concerns about the introduction of a supertrawler and an increase in exploitation rates.

Surface schools of jack mackerel were once a common sight off the east and southeast coast of Tasmania and supported a purse seine fishery operated by a previous incarnation of Seafish Tasmania. I remember going on diving trips to the Tasman Peninsular during the 1980s, and often looking out over Eaglehawk Neck to see huge surface schools of jack mackerel spreading



out across the ocean, out to the Hippolyte Rocks. After just a few years of fishing these surface schools practically disappeared and became so uncommon that the fishery collapsed. While it is likely that climate change and associated changes to food availability played a role, stock structure changes (jack mackerel became younger and smaller) indicate that fishing did have an impact.

While shifts in species distribution in response to environmental factors are to be expected, the actual cause/s of the Tasmanian collapse are yet to be clearly identified, and given that the large surface schools of jack mackerel disappeared over 20 years ago and have not returned, and it is unlikely that science can provide a definite explanation for this fisheries failure.

About 10 years after the failure of the jack mackerel fishery that targeted surface schools, another incarnation of Seafish Tasmania set out to use a mid water trawler to target redbait. It was expected that jack mackerel and other small pelagic species may also be targeted. After just a few years it appeared that the fishery was struggling and by 2010 the midwater trawler was tied up and for sale. Once again a Tasmanian based small pelagic fishery had failed.

The industry explanation for this failure was that warmer water temperatures had driven the schools of redbait to the bottom where they could not be caught in the midwater trawl gear, but no formal evidence has been presented to support this claim. Recreational fishers actually dispute the claim about warmer surface temperatures, and it has to be said that if a supertrawler is going to be operating in waters to the north of Tasmania, warmer surface temperatures are going to be encountered regularly. Without hard scientific evidence to support an alternative reason for the failure of the redbait midwater trawl fishery, overfishing resulting in localised depletions is just as reasonable an explanation for the failure of the redbait fishery in the Tasmanian region. Even if fishing could be excluded as the root cause of

these fishery failures, the changes in fish populations and behaviour must indicate that assumptions about fish movements, fish behaviour and the availability of target species to the fishing industry or other ecosystem components cannot be taken for granted.

I became personally involved in the small pelagic fishery at about the time that the midwater trawl fishery started up. At first there was great support for developing and implementing a fishery independent stock assessment based on the daily egg production method (DEPM). In DEPM assessments, a plankton net is used to collect egg samples, and by working out the density of eggs and using some data on reproductive biology, a reasonable estimate of the spawning biomass can be derived. This was important as small pelagic fisheries have a poor track record and appear to be difficult to manage successfully using traditional methods. Small pelagic fisheries that have collapsed due to fishing pressure include Atlantic Herring, Icelandic Spring Herring, SE Atlantic Pilchard, Peruvian Anchovette, Capelin, Pacific Mackerel, Pacific Sardine.

One of the problems with managing small pelagic fisheries is that stocks can vary markedly over time due to changing environmental variables. The relationship between environmental variables, such as weather patterns, and stock status is generally not understood and cannot be modelled effectively. More traditional fisheries management strategies based on fisheries dependent data (such as catch per unit effort) and the concept of maximum sustainable yield have had a poor record in the past. Stocks may decline due to environmental changes (which are not usually able to be modelled and may not even be easily recognised). If fishing pressure is maintained, the combined pressure may lead to a sudden collapse in fish stocks.

DEPM assessments offer a way to provide much more certainty when estimating stock size. In recent times, the south Australian pilchard fishery has been developed using this form of stock assessment. Regular DEPM assessments were carried out until there was a reasonable understanding of the way stocks changed over time and

responded to fishing pressure. An accurate stock assessment also allowed the fishery to be managed so that fish numbers were maintained at a level that was likely to support ecosystem processes. Rather than use the South Australian model, which has evolved on the basis of an extended period of DEPM assessments, the Australian Fisheries Management Authority (AFMA) has based its management of the Commonwealth small pelagic fishery on a very limited number of DEPM based assessments of target species. For jack mackerel, *Trachurus declivis*, there has been a single DEPM assessment that was just completed (Neira 2011) based on aggregated samples taken in 2002, 2003 and 2004. The DEPM assessment of blue mackerel, *Scomber australasicus*, was done for 2004, redbait, *Emmelichthys nitidus*, in 2005 and 2006, and Australian sardine, *Sardinops sagax*, 2004. Existing



DEPM assessments are based on old data and in any case is available for only a limited period of time. We do not know how fish populations have changed over an extended period of time and we cannot predict how stocks will change in the future.

More significantly, at the current level of exploitation there is no commitment by AFMA to ensure DEPM assessments will continue beyond this year (when assessments for jack mackerel and redbait may be carried out). AFMA manages the small pelagic fishery on the basis of Tiers. Tier 3 is a very low level of exploitation, Tier 2 is moderate (up to 7.5% of estimated biomass with no requirement for ongoing DEPM assessments) and Tier 1 is the highest (up to 17.5% of biomass, but

this is based on ongoing DEPM assessments and degrades with time as the stock assessments get older)(AFMA 2009).

Interestingly, and perhaps to some counter-intuitively, modelling indicates that the lower Tier 2 exploitation rate may pose a greater risk to stocks over time than the higher level at Tier 1 as it does not have to be correlated with fishery independent DEPM assessments so stock estimates may diverge from reality to a marked extent. In the original draft harvest strategy there was actually a requirement that to maintain Tier 2 exploitation levels, regular DEPM assessments had to be carried out. Bizarrely, this essential safeguard was removed at the insistence of industry and AFMA, who claimed it was a typo, in spite of protests by the conservation (myself) and recreational members of the Small Pelagic Fishery Resource Assessment Group and Small Pelagic Fishery Management Advisory Committee, who pointed out that this essential safeguard had been a fundamental safeguard for the fishery and an integral part of the draft harvest strategy during much of the consultation process.

While Australia may be a world leader in fisheries management, the bar is pretty low, and there have been many disasters. AFMA itself has been involved in some. For example, there was no excuse for the mismanagement of the orange roughy fishery. This was an uncontrolled boom and bust scenario that saw the collapse of large part of the fishery and major damage to parts of the ecosystem and incredible waste. It is not good enough to just look back and say "well yes that was a mistake but sorry, we just did not know any better". Remember this was the 1980s. It was not that long ago and in fact we did know better. We did know that having overcapitalisation and too many boats exploiting a stock of unknown size with unknown biological characteristics was a very stupid idea. Our scientists, fisheries managers and governments allowed that to happen. Anyone involved in the approvals for this fishery should be ashamed.

It is worth remembering that it was as recently as December 2005 that then Minister Ian Macdonald issued a formal direction to AFMA to implement a range of measures to address overfishing and to prevent overfishing in the future and reduce industry capacity in Commonwealth fisheries (AFMA 2005). This direction included, amongst other things, the instruction that AFMA should:

1. manage fisheries so that fisheries were managed using world's best practice Harvest Strategies and a science based approach to setting total allowable catch levels
2. establish a system of independent surveys to increase the transparency and integrity of catch and effort information
3. enhance monitoring of fishing activity

These should have been basic requirements for any decent fisheries management system operated over the last four decades. It needed an explicit direction from a Minister to get AFMA in 2005 to begin to put these in place, and in my view, in the case of the small pelagic fishery, much remains to be done to get this fishery up to standard.

I have been involved in many statutory fishery advisory committees since the 1990s. Most of the fisheries I have been associated with are currently in the process of recovering or rebuilding stocks after previous excesses that could, and should, have been avoided. There are problems associated with the management of the small pelagic fishery that I have never seen in any other fishery I have been associated with. It is not good enough to just make major assumptions or ignore obvious problems in the hope that they will go away.

The jack mackerel stock is a good illustration. Up until 2011, the quota was not based on science at all. It was originally just a number that some people thought was about right. It was not an outrageous estimation, but it was not justified by any formal fishery assessment. I repeatedly asked for this to be justified and based on science.

Move forward to 2011, when a DEPM assessment (Neira 2011) of jack mackerel was finally carried out. This assessment was based on samples that were fortuitously collected in 2002, 2003 and 2004 for another project. The DEPM survey seemed to justify the previous "best guess" approach, and resulted in an unconditional doubling of the eastern zone jack mackerel quota earlier this year (despite opposition by myself and the recreational fishing member of the SPF RAG).

The report was based on a low number of samples and is based on data which is around 10 years old. There are also questions about the statistical analysis and a suggestion that the size of the stock has been overestimated by a factor of 2.9 (at the time of writing I am currently investigating this but see Dr Andrew Wadsley's comments at posts #5, 13, 25 here: <http://tasmaniantimes.com/index.php?/article/groups-want-action-not-closed-door-negotiations-on-super-trawler/>). In other words, the number of fish may have been overestimated and the actual size of the stock is likely to be just 33% of the estimate, and the current quota of eastern zone jack mackerel should be reduced from 10600 t to around 3500 t.

Neira (2011) points out in his own report that the reported estimates are "largely imprecise" and need to be treated with caution. Problems



leading to this uncertainty include lack of reproductive data for jack mackerel in south-eastern Australia and the absence of a species-specific temperature-dependent incubation model to age eggs, and even uncertainty about identifying jack mackerel eggs. These problems relate directly to the

accuracy of the estimate, while others, to be fair, might be expected to lead to an underestimate of the spawning biomass. And of course the samples used for the 2011 DEPM assessment were collected up to ten years ago, and may reflect a stock size for jack mackerel that is significantly different to that of today.

Despite these admitted uncertainties, the study was used to justify a huge expansion of jack mackerel quota in the eastern zone (from 5000t to 10600t) and in effect gave the green light to the introduction of a supertrawler into the fishery by making it economically viable. It is important to note that it is pointless discussing whether an appropriate exploitation level is 5% or 50% so that we can derive a catch limit if we don't even know what amount of fish are in the stock.

Let's assume that the stock estimate is accurate and stocks have remained pretty much the same since samples were collected. So what then is wrong with a quota fish being caught by a single supertrawler as opposed to a fleet of smaller vessels or people with handlines sitting on jetties? Surely the only important thing is that we know how many fish are out there and that we are only catching a small percentage?

Well that is a very simplistic assessment and apart from anything else, ignores what is perhaps the most fundamental issue surrounding this fishery: localised depletion.

A large supertrawler such as *Magiris* is capable of staying at sea for extended periods of time and catching a lot of fish over an extended period of time. *Magiris* can process 250 tonnes each day and has a capacity to carry at least 4500 tonnes. The aim is to provide whole frozen fish for human consumption in West Africa which will be sold at a price of \$1/kg. At this price, the current value of this fishery at the Tier 2 level of exploitation is in the order of 18 to 25 million dollars, depending on whether Seafish Tasmania relies on its own quota holdings, or buys or leases quota from others who have access to this fishery. The *Magiris* proposal is a joint venture between Seafish

Tasmania and the European ship owners. It is to be expected that much of the money earned from selling the catch will move offshore to pay for the ship operating costs, fuel and the transport of product to West Africa. In any case, the value to Australia of this fishery is very low. In comparison, the Tasmanian wild abalone fishery alone is worth more than \$100 million a year and employs many more people.

In contrast to a series of small vessels, a supertrawler increases the risk of localised depletions by concentrating fishing effort in a small area for an extended period of time. The suggestion that the fishery extends across southern Australia from the Queensland border to southern Western Australia so fishing won't be concentrated is disingenuous, to say the least. In fact fishing will be much more focussed and target fish aggregations which mostly occur at night over the continental shelf in water from around 150 to 250 m deep. There are no regulations that would ensure that a supertrawler has to distribute fishing effort across the area open to fishing. Fuel costs alone are enough to encourage the *Magiris* to operate close to its home port until fish stocks decline to uneconomic levels.

The suggestion made during an ABC television interview earlier this year by a spokesperson from Tasmania's Department of Primary Industries, Parks, Water and Environment, that fishing would not occur close to Tasmania but only off Flinders Island or in the Great Australian Bight is laughable. Under current regulations, a supertrawler would be legally entitled to fish anywhere in Commonwealth waters open to the small pelagic fishery for any length of time. The *Magiris* could fish down stocks off St Helens, then move to the waters off the Tasman Peninsula and so on around the coast of southern Australia, with no mechanism in place to ensure localised depletions did not occur.

In fact AFMA has no meaningful strategy to deal with localised depletion. The fact that the fishery is divided into an eastern and western zone is occasionally proposed as mechanisms to deal with this. The aim of this division was to manage stocks rather than localised



depletion. The dividing line runs through the middle of Tasmanian and it is quite possible for a supertrawler to take all its catch of redbait and jack mackerel from both zones off the southern coast of Tasmania.

The first practical discussion of this issue may occur in during the Harvest Strategy review that is just beginning This does not mean that anything will happen anytime soon, but at least an AFMA process is starting to look at this issue. But it has to be emphasised, AFMA currently has no meaningful strategy that deals with the problem of localised depletions. One

of the problems with dealing with localised depletion is the lack of science. We simply do not have any useful scientific information about how fish move within the stock areas. There is currently no way to predict how long it takes for fish to repopulate depleted areas!

Localised depletion may have severe impacts on local fisheries or local ecological processes. One local scientist (who does not want to be identified due to the concern that speaking out on this issue will make it difficult to get grants) points out that there are big aggregations of small pelagic fish, so called hot spots, that occur off Tasmania's south coast. These schools of fish attract seabirds, seals and dolphins. They also attract the game fish such as tuna that are so important to recreational fishers. These hot spots are also going to be targeted by any rational operator in the small pelagic fishery, focusing fishing effort on arguably the most ecologically significant aggregations.

Localised depletions might occur even if the overall stocks are maintained at a sustainable level. Fish are removed from local areas to the point where predators find it difficult to find food and recreational fisheries suffer as target fish are no longer available. In Tasmania we have an additional problem associated with seals. A large part of the diet of Australian fur seals is normally made up of small pelagic fish. We already have fishing sectors and the aquaculture industry complaining about the level of unwanted interactions with these marine mammals. What is going to happen if the bulk of their diet becomes unavailable in local waters?

It is likely that recreational fishers will be the first to notice a problem if the supertrawler, as the small pelagic disappear and tuna and other game fish fail to turn up. There is anecdotal evidence from recreational fishers that this occurred during the operation of the midwater trawler over the last 10 years.

Localised depletion has been recognised as an issue of concern by just about everyone. Even one of the supporters of the current management process for the small pelagic fishery, Professor Keith Sainsbury, has stated that "... *the possibility of some effect at a very local scale cannot be totally excluded and requires monitoring*" (Sainsbury 2012). Given the lack of information about fish movements within stocks, it seems to me that it is currently impossible to do any sort of meaningful risk assessment at this time. Currently there is also a lack of any formal monitoring process that would identify localised depletion. So while monitoring for localised depletion is mentioned in the harvest strategy, no monitoring process currently exists that would be likely to identify this problem.

Monitoring of fishing activity is also not as straight forward as one might expect. AFAM has a so called Five Boat Policy, which means that due to concerns about commercial in confidence and privacy, data from fishing fleets with fewer than 5 vessels is not available or public scrutiny. If the *Magiris* or some other supertrawler was to fish in Commonwealth waters

under the current AFMA structure, there would be no public scrutiny of where it was fishing or how much it had caught.

Investigations into the pelagic ecosystem of southern Australia and potential ecosystem impacts of this fishery have only just begun. The fear has been that by removing small pelagic fish there will be a hole left in the food chain and larger predator animals such as tuna will suffer. To be fair, initial studies seem to indicate that small pelagic fish may not be as vital to ecosystem process as was once believed (SPF RAG 2011), but concerns remain. It also needs to be remembered that the work that has been done in this areas has mostly been done in the waters off South Australia and may not be applicable across the small pelagic fishery.



One interesting result from these studies is that lanternfish (myctophids) may be even more critical to ecosystem processes than small pelagics, and appear to be a vital food component for many predator species. Unfortunately for the small pelagic fishery this means that there is another issue that needs to be investigated. Lanternfish occur in large numbers in the areas where jack mackerel and rebait are found, and have often been observed going through the midwater trawl gear. They are rarely caught as they are small fish and mostly

seem to escape through the mesh. This may not be as reassuring as it appears. Small pelagic fish such as lanternfish are incredibly delicate. Just touching some fish with your finger is enough to kill them (removing mucous and/or tiny amounts of tissue damage prevent the fish from osmoregulating so it can't maintain salt levels in its tissues and it dies). What this means is that there is a possibility that a midwater trawl might be killing huge numbers of these ecologically important fish without even catching them. There has been no assessment of the incidental mortality of lanternfish due to the small pelagic fishery or the ecological impacts this might have.

Mortalities of other animals are also of concern. Midwater trawls pose a threat to marine mammals such as dolphins and seals. Both seals and dolphins have been killed during midwater trawling by Seafish Tasmania. To their credit, Seafish Tasmania and AFMA have taken steps to address this issue. Strategies to avoid contact with marine mammals and the introduction of a seal exclusion device (SED) have been positive developments.

One of the problems associated with SEDs is that if they don't work as expected and prevent injuries and deaths, they may simply act as disposal units and dumping corpses out of the nets before the gear can be hauled to the surface. Seals and dolphins may pass through the SED but may be injured or drowned in the process, and then not detected. The SED that has been developed and introduced underwent an extensive testing process which including monitoring using underwater video, so it seems that it is likely to work although as yet no dolphins have been observed actually going through the SED and the midwater trawl fishery has not been operating for some time.

The *Magiris* will apparently use a similar SED, which is good. Unfortunately it has a different and untested design, utilising a flexible grid in place of the rigid grid in the version used most recently by Seafish Tasmania. This flexible grid allows the trawl gear to be more easily stored on board as it can be wound onto a net reel. The new

design has not been tested and there are no plans to monitor the new design of SED, with underwater video for example, to ensure that it is actually preventing the deaths of marine mammals. It is not unreasonable to expect that the increased fishing activity that will result from the introduction of a vessel the size of *Magiris* will lead to an increase in the numbers of interactions with marine mammals in this fishery.

Some might argue that we should not care about killing seals or dolphins as there are lots of these animals out there. This argument may have some validity with regard to seals, where we have reasonably good information about population levels and population changes over time, but does not apply to dolphins. There is little know about dolphin populations in the area open to the small pelagic fishery, and even small mortalities may have significant implications for local populations. A newly discovered species of dolphin, the Burrunan dolphin, *Tursiops australis*, was first described as recently as 2011. There is limited information about the size of the population, movements or distribution. Information about the populations of other dolphins species, movements and distribution, let alone impacts of mortalities caused by fishing, is lacking in for species found in the waters off southern Australia.

Of course, any discussion about whether a population of marine mammals such as dolphins or seals can sustain rates of incidental mortality as a result of fishing activities ignores an essential consideration of animal welfare. Seals and dolphins killed in mid water trawl gear may be caught up in gear and injure themselves as they try and escape, but most deaths can be expected to result from entrapment and drowning. It is obviously a value judgment, but in my view I don't think it is acceptable to for any fishing operation to drown dolphins or seals as a matter of course. I base this on the view that the level of suffering experienced by drowning mammals is unacceptable. I suggest that most Australians would be concerned about a fishing operation that

killed marine mammals such as seals and dolphins on a matter of course.

Personally, I want fisheries to be managed on a rational and scientific basis. The reality is that often, even in Australia, fisheries are not managed in that way and very strange fisheries related events are permitted to take place, sometimes with disastrous consequences. Even when science takes on a primary role, and scientists are intimately involved in fisheries management decisions, catastrophes can take place. Longhurst's (2006) essay highlights the dangers of focussing on stock modelling and modelling sustainability while ignoring ecosystems impacts.

We have had some very odd fishery management outcomes in recent times here in Tasmania. For example, the Banded Morwong Fishery was managed for some time using a mathematical model that clearly indicated that fishing pressure was leading to a steady decline in the stock and would eventually lead to a collapse of the fishery. This was allowed to persist for a number of years, and the catch has only recently been reduced. This new level of catch does not allow recovery of the stock (which has been under severe pressure due to and overcapitalisation and too many boats that began in the early 1990s) and does not provide a buffer in case unfavourable weather patterns or other environmental factors lead to poor reproduction/recruitment. And now the Tasmanian Government can't actually afford to pay for data entry of fishing records for the banded morwong fishery so we can no longer assess the fishery's status anyway ... but that is another story.

Similarly, we have the Tasmanian rock lobster fishery where we have had concerns for more than 20 years about the overfishing of rock lobster large enough to control *Centrostephanus* urchin numbers, and the formation of urchin barrens, and yet there are currently no management strategies in place that will deal with that issue. For much of the period when it became apparent that *Centrostephanus* urchins were a cause for concern, the Tasmanian Government's primary

fisheries research provider, the Tasmanian Aquaculture and Fisheries Institute (TAFI), played no significant role in investigating what is arguably the greatest threat to Tasmania's reef habitats. It is to be hoped that the new management structure imposed when TAFI became part of the Institute for Marine & Antarctic Studies (IMAS) will lead to better outcomes.



It would be easy to ignore these broad concerns if our fisheries continued to be highly productive and if there were no concerns regarding sustainability or localised depletions, but that is not the case. There are some notable exceptions, but most of the fisheries I have been involved appear to be under pressure, and at best appear to be in a process of stock recovery or rebuilding. We can do a lot better with fisheries management even in Australia.

It might give you a nice warm fuzzy feeling to think that Governments and the fishing industry have our best interests at heart and would never deliberately jeopardise the long term future of any fishery. Surely long term sustainability is a better economic outcome than fishing for short term profits? If that were truly the case we would not have so many examples of fishery collapses.

Unfortunately, history is littered with examples of fishery failures orchestrated by greedy fishing industries and complacent, complicit or incompetent governments. While it must be recognised that many in the fishing industry do take a responsible and long-term view of fisheries management, experience shows that it is not uncommon for industry to focus on short term profits at the expense of long term stock

sustainability. Think orange roughy or Bass Strait Scallops in the 1980s, just for a start.

The Dutch operators of the supertrawler *Magiris* are linked to the European Pelagic Freezer-Trawler Association (PFA). This is an EU taxpayer-subsidized fleet with a history of leaving collapsed fisheries in its wake around the globe. The South Pacific Mackerel Fishery provides a sense of the devastation that results from an unfettered small pelagic fishery (Rosenblum and Cabra 2011).

For some members of the fishing industry, and it appears to be particularly common in industrial scale fisheries such as those that involve supertrawlers, it seems that long term sustainability of fish stocks is not a requirement for their business plan. An economic rationale for some commercial fishers seems to be simply to catch as much as possible, as soon as possible, and then invest the profits in some other fishery or some other venture, or maybe just retire. Participation by an individual in a commercial fishery does not necessarily require that long term sustainability of fish stocks is something to be valued, or even considered.

It is premature to consider allowing a supertrawler such as the *Magiris* to fish in our waters. There are significant issues that must be addressed before this type of vessel is allowed to operate here. As a minimum, there needs to be a clear commitment, by the Australian Government, to address concerns about the lack of ongoing DEPM stock assessments, localised depletions, impacts on marine mammals, ecosystem impacts and the lack of transparency. It must be remembered that this is a fishery with a relatively low gross value that poses a severe risk to other fishers and the marine environment.

Before a supertrawler such as *Magiris* is permitted to operate in the Australian Small Pelagic Fishery, the Australian Government must ensure that:

1. there are regular DEPM assessments of target fish stocks
2. the welfare of dolphins and seals is protected, and new seal exclusion devices are subject to testing and underwater monitoring to ensure that they work
3. a strategy to prevent localised overfishing is developed
4. impacts on lanternfish are assessed and that these are acceptable
5. fishing operations are monitored and open to public scrutiny.

Until these conditions are met, the Australian Government must protect our marine environment, our marine mammals and our recreational fisheries by preventing any supertrawler from operating in the in the Australian small pelagic fishery.

[We regret that due to space limitations, some of this article was cut, including references, let us know if you want a full copy]

Values and the Supertrawler

- by Mike Jacques

Strangely there are many ways to size up the benefits of a particular development activity, and the results change a little depending on where you are standing, and the relative importance you give to each of the criteria. You can get multiple answers, all of which are rational.

What's the Supertrawler worth to us?

Luckily, we can add up the dollars for this, so it's easier to calculate,

- The operator says it has hired 45 staff in northwestern Tasmania for freezing and packaging fish on board.
- Seafish director Gerry Geen says a further 10 positions will be filled as the company recruits crew for the 142-metre vessel.
- "All together, these workers represent \$3 million to \$4 million in wages.
- The quota of 18,000 tonnes of jack mackerel and redbait will create a \$10 million to \$15 million industry based in Devonport.

It may also have some vaguer values, like encouraging further investment, which are more difficult to quantify.

What's an unfished fishery worth?

That's too hard for me to value as it's a bit too subjective. We can put a price on each kilo of by-catch seal meat, they might buy that meat in Japan. We could also ask what you would be willing to pay to know that seabirds are not being affected by the activity, as they did after the Exxon Valdez damages claim, but I find those measures all pretty unsatisfactory. The non-market based aesthetic qualities are worth what you reckon they are worth and that could be high, you might then have to argue hard that they are sufficiently important to outweigh the more easily understood commercial values.

Some other Fishing Statistics

No-one should give up money if they don't need to, but how important an industry will small pelagic trawling be in the scheme of things?

Importance of commercial fishing to Tasmania

Tasmania has the largest share of the gross value of fisheries production (\$563.8 million), accounting for 25 per cent of total Australian fisheries production. It was made up of,

- wild fishery 30%(\$171.6 million) and falling (mostly cray and abalone)
- aquaculture 70%, with Salmon production increasing by 14%

In Tasmania, 2258 people are employed in the sector, only 25 are employed in finfish trawling (though this would rise by 40 or more with the Margiris venture?).

By location, Tasmania accounted for the largest share of the Commonwealth catch (27 per cent). With the loss of forestry earnings, I would say that fishing has increased in relative importance in terms of Tasmanian export earnings.

I like green folding stuff and it seems to be fairly handy income for Tasmania which you would try not to turn away, but you could also easily argue that small pelagic trawling is hardly critical to the State economy.

Importance of fishing to Australia

Our national fishing industry isn't that big. The value of exports and imports of fish products is now equal at \$1.2 billion each with the high dollar hurting exports and encouraging imports. We have always exported luxury fish, eg tuna and crays and imported low value and heavily processed fish, eg, fish fingers.

Employment stats (2006) aren't well separated but hunting and fishing employs 11 431 people nationally, mostly in processing. Prawn and cray fisheries accounted for about 2000 people, and 3785 were employed nationally in the aquaculture sector.

Now let us compare that with some other fishing activity

The same ABARE study states than approximately 90,000 jobs are created by recreational fishing, worth the value of commercial fisheries imports and export combined at \$2.5 billion. \$554 million is spent just in New South Wales and they range down to \$35 million for the NT. Fishing tourists are worth about \$200 million annually. [*this is not a statement that these activities necessarily exclude commercial fishing*] Small pelagics seem like a potentially reasonable sized fishery in terms of the commercial industry overall. Commercial fishing often is the best way to get money from a resource, but you shouldn't make assumptions that it is always the only way to use a resource.

Now some other economic activity

Let's compare fishing exports of \$1.2 billion with other Australian economic activities,

- LNG and LPG gas exports - \$9 billion and growing rapidly including some huge investment activity.
- Coal exports - \$36 billion
- Aluminium - approx. \$7.5 billion
- Wine exports - \$1.9 billion (down 8%)
- Arts industry - incomes \$9.6 Billion
- Education services - incomes \$56 billion, exports \$19.1 billion and rising.

The whole Australian fishing industry is a bit of a non-event in the national economy and it generally has low growth potential, except perhaps in aquaculture and small niche markets.

Summary

It might depend a little on where you live as to the personal importance you place on the economic benefits of this particular fishery. It's a critical issue for Seafish and the unemployed of Devonport, and losing that opportunity would be a blow. I'd suggest about 99.999% of the population either doesn't feel affected, or feel much concern for Seafish or Greenpeace. This view is very rational if you are a mining truck driver from Broome. Even in Tasmania there are actually many things that are more material to most people.

Finding the time to learn about a concern like a small fishery is hard, and we sometimes have little choice but to take a stab at an issue, or rely instead on those we trust.

I think that any exploitative activity in the ocean is something worth investigating in more detail, that scrutiny is as good for fisheries management as it is for fish. If you learn more, then you will have the knowledge to make the choice that's right for you. After all, it's your resource. It doesn't belong to environmental NGOs, fisheries managers, or fishing industry proponents and they shouldn't have to decide for you. Everyone has something worthwhile to contribute to those debates. Lastly, I know people who have heard about "by-catch", or "quota setting" for the first time because of the Supertrawler. For me, that is the best statistic coming out to the proposal, but of course, you can see it differently.

Baitfish Runs

- by Mike Jacques

"In pursuit of the sardines and other small surface fish, the tunny and albacore break the water as they dash after their prey, and the whole surface of the sea seems to boil as they leap. In attendance is a cloud of gulls, which, like Lazarus, are feasting on the crumbs that fall from the rich man's table". - The Mercury, 1938



I often hear that 'the bait fish are running'. It's a flat description totally lacking in detail and is about the blandest way you could describe one of nature's great wildlife spectacles. At times, the entire coast can be a huge pulsating mass of small fish, a feast for any predatory game fish, seabird or mammal. It's also the basis for a hugely popular game fishing industry.

"The East Coastal waters of Tasmania have been found to contain shoals of fish so vast that it is possible to sail most of the day through them without coming to their end. In incredible numbers they swarm in the warm current that rose from the north, and streams down the Tasmanian coast some 30 miles from the land. It is here that the tunny, or tuna, the albacore, and the enormous shoals of sardines on which they feed are found in an abundance that baffles description." - The Mercury, 1938

We have discussed previously how, at the end of each winter, the water is charged with fresh nutrients from upwellings from the sea floor. As the sun warms the surface layer, there is an explosion of plankton. The energy extracted from the sun by tiny phytoplankton is then consumed up the food web. Nothing is better suited to exploit these tiny little life forms than something with a tiny little mouth and bait fish explode in numbers. Without them there would be no gannets, no tuna, no cuta, or shark.

There are so many bait fish that it's tempting to see them as a massive, unconquerable resource. The reality is that their ecology and survival is as delicate as any of the larger species.

Bait runs could be made from many different species, although one generally dominates at a particular time. During different time periods, huge schools of jack mackerel and redbait have occurred in vast streams following the Eastern Australian Current down to Cape Pillar off the east coast of Tasmania.

In shallow-water embayments, schooling bait fish are likely to be a suite of very small species, including Australian anchovy (*Engraulis australis*), whitebait (*Hyperlophus vittatus*) and blue sprat (*Spratelloides robustus*). Some of these are small and vulnerable Tasmanian Galaxids and other species that we more usually associate with fresh water streams and lakes. They spend part of their life cycle in the sea.

Offshore and nearshore Bait Schools

Pilchard, *Sardinops neopilchardus*



Australian Pilchards are commonly found in bays and coastal waters across southern Australia. Large pilchard stocks occur in regions where there have been recent upwellings of nutrient rich water.

Rare in Tasmania, except in Bass Strait, these fish will surface shoal in spring and summer. Victorian pilchards attain mean standard lengths of about 8.0, 10.5, 12.5, 14.0, and 15.5 cm. at the ages of one, two, three, four, and five years respectively. Sexual maturity occurs sometimes at one year of age.

Pilchards support purse-seine fisheries in southern Western Australia, South Australia and Victoria. Ten years ago, the pilchard population was high and they were fished in an unmanaged way.

There have been two major pilchard kills in the last five years. The largest recorded fish kill in Australian history occurred in southern Australia between late 1998 and early 1999. Huge numbers of dead Australian Pilchards were found on the sea surface, sea floor, and along beaches in southern WA. The kill of pilchards on the south coast of WA during early 1999 is estimated to have been at least 28,000t of mature fish. It is estimated that this mass mortality in both SA and WA caused the loss of about 60% of the pilchard stock in both states. It was concluded that it was probably an exotic herpes virus brought into Australia via ballast water, seabirds. or imported baitfish. At that time that more than 10 000t of pilchards were being imported annually from California, Peru, Chile and Japan without quarantine inspection. They were fed to sea-caged Southern Bluefin Tuna near the southern extremity of the Eyre Peninsula in South Australia.



Anchovy, *Engraulis australis*

Although the Australian anchovy is usually found in inshore embayments, when the abundance of sardine in shelf waters of SA was reduced by two mass mortality events in the 1990s, anchovy quickly expanded its distribution and increased its abundance in offshore waters. This change in species composition is similar to the decadal changes in the abundance of anchovy and sardine that have occurred in the Americas and southern Africa.



Redbait *Emmelichthys nitidus nitidus*

Redbait is currently the most likely species to be making up the massive bait fish streams that appear off the Tasmanian coast. Redbait is relatively short-lived, fast growing and is very abundant. It's the main meal for tuna, kingfish and other large fishes, seabirds, fur seals and other fauna. Although the numbers of Redbait are high in some areas, it fluctuates in numbers, behaviour and availability (similar to Jack Mackerel). This might be due to variability in oceanographic conditions, but we don't manage our fishing behaviour to harmonise with these changes.

Arguably until recently, there has been little or no knowledge of the sustainability of the fishing resource. Studies of sexual maturity in Redbait indicated that the netting and trawl fisheries in Tasmania can catch a significant portion of immature fish that haven't yet had a chance to breed. Seals also love Redbait, especially while they are trussed up in a net and there have been some entanglements and deaths of seals.

Redbait may be associated with underwater rises (where food concentrate), which would increase the vulnerability of such aggregations to localised over-fishing. It is notable during the early 2000s, in a draft ecological risk assessment for the Small Pelagic Fishery (the main fishery in which Redbait is taken), "*potential ecological impacts of fishing Redbait were not discussed in detail, nor was the*

potential impact of fishing on Redbait populations". "Continued high fishing levels in the Small Pelagic Fishery, with catches ignoring natural variations in fish abundance, may threaten the resource of these small pelagic species (including Redbait), and pose a threat to the functioning of the ecosystems that rely on them." Recent work has now set a fishing quota, so I don't know to what extent this comment still applies.



Jack mackerel (*Trachurus declivis*)

Jack Mackerel is a pelagic species found in the coastal waters of southern Australia and New Zealand. Dense schools form during spring, summer and

autumn off eastern Tasmania. They can also be seen in inshore bays like Waub's Bay where divers see them extending their mouth parts to filter out food particles. They prey on phytoplankton and zooplankton, and are themselves prey for many species of fish, birds and marine mammals. Mackerel have been a bit of a bonanza for the idle trawlers tied up across Australia after the collapse of other fisheries. A major Australian fishery for jack mackerel operates off Tasmania with landings in other states being relatively small. Almost all of the current catch is processed into fishmeal for the aquaculture industry. The remainder is used as rock lobster bait. The Tasmanian purse seine fishery began in 1985, and landings rose rapidly to a peak of 42,000t in 1986/87. A total allowable catch (TAC) was set. Strangely, that was set at the highest catch level of 42,000t (possibly to avoid upsetting anyone). Since then catches have varied from 9,000 - 38,000t with an average annual catch of around 16,000t.

From 2002, trawling replaced purse-seining as the main method. Jack Mackerel declined for unknown reasons and Redbait now make up more than 70% of the catch. *"To date, no assessment of the size of the resource, or sustainable catch levels on which to base the TAC has been possible. A sound scientific rationale for setting the TAC is a long-term research and management objective."* However, this may be an arguably obsolete comment as a new management plan has recently

been created for Commonwealth waters and they are again to be actively fished.

Is the party over?

Numerous studies throughout the world have shown that small pelagic fishes are particularly sensitive to climate variations. Changes in the strength of the East Australian Current (EAC) would have dramatic effects on the range of a variety of bait fish. They could disappear, or even become more numerous in some cases. In the 1990s the cold-water species jack mackerel was replaced by the East Australian Current species, redbait, which is consistent with the warming of the oceans that has been recorded on the East Coast (The changes could also have been caused by fishing). The range of temperate species such as tailor, Australian salmon, snook and couta, may contract as warm water from the tropics extends further south.

In 1989, we experienced a warm (La Niña) year. The krill, (*N. australis*) disappeared from the shelf ecosystem as did the key predator, jack mackerel. This krill species is a critical food for most Tasmanian animals. Persistent warming of the sea would have a big effect on krill – and that automatically means an effect on fish, squid and seabirds too.

We know that we get more tropical species (and fewer temperate species) in the south when the water is affected by warm currents, but warming also affects the way currents bring food to the surface. Eddies generated by the EAC may be altered, or even increased in some areas. The largest upwelling system in temperate Australia extends from the head of the Great Australian Bight to western Tasmania. There is also a smaller upwelling system on the east coast, in the path of the EAC. Increases in the strength of winds and currents that drive upwellings are likely to increase some species, such as sardines, blue mackerel and redbait. However, the species and location where an increase in abundance is most likely, is sardine off South Australia. That doesn't sound like good news for the other sectors of the fishing industry.

Inshore Bait Schools

- by Mike Jacques

Just to make it completely clear. The Margiris is not fishing these species of baitfish, but just to fill out the picture we will include details of other species you might encounter in bait balls off the coast.

Tasmanian Whitebait (*Lovettia sealii*)



Whitebait is a collective term used throughout the world to describe

small fishes that are collected *en masse* and eaten whole. What you eat as "whitebait" is one of perhaps 6 species.

A long time ago the whitebait run was mostly just one local species, Tasmanian Whitebait. This 'local' has long dominated our rivers and coastal fringe. Then we tried to heavily fish this seemingly infinite resource and the wheels fell off the cart.

This Tasmanian species spends most of its life at sea. When they are ready to breed, huge schools of adult fish migrate upstream into Tasmania's upper estuaries to spawn and die. This occurs in late winter/early spring. Migrating upriver along with adult Tasmanian whitebait are juveniles of other fish like jollytail, galaxids and smelt. The species composition of the runs varies with tide, time and location. High water flows due to winter rains and spring floods tend to hold back and disperse the runs.

Eggs are attached to submerged logs, branches and rocks. The young hatch after 2-3 weeks and are swept downstream to the sea.

A recreational and commercial fishery for whitebait operated in Tasmania from the 1940s until it was closed in 1974. We saw only the huge schools, not that they were fish waiting to breed, and if the breeding failed there would be no next generation. We also built stream barriers preventing migration runs, threw contaminants in the water and allowed introduced fish like Salmon to feed on them. The population crashed.

The species recovered extremely slowly. Since its closure the whitebait fishery has been characterised by poaching, which has slowed the recovery of numbers. Heavy policing was needed although poaching has decreased since the early 1990's. Repeat offenders commit many of these offences which are more frequent in the North West of the State.

A licensed recreational fishery for whitebait was reopened in 1990 but was limited to selected rivers, season and times, and with a restricted catch rate to ensure the sustainability of the fishery.

Hardyhead *Kestratherina brevirostris*



Short-snout Hardyhead was not recognised as a separate species until recent decades, due to its superficial similarity to the Pikehead Hardyhead. The species has a southeastern Australian distribution, and is known from Tasmania; Bass Strait, Victoria and South Australia. The species is considered to be moderately common in sheltered marine habitats at many localities in Tasmania, but with a patchy distribution.

Hardyhead school in shallow, sheltered coastal bays and clear water estuaries. Examples of locations in Tasmania include the Tamar River estuary, Derwent River estuary, Huon River and Port Esperance region, Macquarie Harbour, and the Bathurst Harbour / Port Davey region. Short-snout Hardyhead grows to around 10cm and are preyed upon by bony fish like Australian Salmon.

Potential threats to populations are habitat damage and decline in water quality, given that the species occurs in shallow estuaries and sheltered coastal bays.

Sprat



The Australian sprat is a schooling species found in coastal waters in deep bays, appearing off Tasmanian shores in large schools (especially in August-November) and often entering estuaries (e.g. of Tamar and Derwent Rivers; said to ascend the former as far as Launceston in March). They can grow to 14 cm. Their depth range is from 0 to 50m.

“Sustainable” Fisheries ?

Commentary by Mike Jacques



Environmentalists tend to be suspicious about claims of “certified sustainable fishing” because it implies the idea of an environmentally harmless fishing activity.

In fact, sustainability measures aren't necessarily measures of pure environmental harm and their certification standards can vary a lot. Fisheries (like all

human activities) always cause some environmental damage, and even if we only focus on environmental harm 'how much is too much' can be a vexed question.

According to the UN, “*sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*”. I interpret that to mean mainly human, not environmental needs. Since then bureaucrats and philosophers have been unsustainably clearing forests to write down their ideas about the intellectually dark corners of “sustainability”. Despite all that heavy brain-wave activity, according to Wikipedia, “*A universally accepted definition of sustainability remains elusive because it is expected to achieve many things*”. It has perhaps become merely what we want it to be. Some groups have also seen something to gain by repeating “sustainability” as an undefined empty phrase. All users abuse the concept equally. I recently saw some vague fluffery earnestly extolling “sustainable” eco- tourism businesses along the Great Ocean Road, with no explanation (or apparent understanding) of what that meant.

Another example comes from a cray exporter's website in my home town, that claims, “*The Tasmanian rock lobster fishery has been sustainably managed for over 120 years*”. This would appear to suggest that we did a really good job in 1892, but it sucked in 1891. I thought cray fishing in Tasmania was largely open-slaughter until quota management was introduced in the early 1990s. He might be right though, according to some definitions, sustainability can refer to a future intention. That would mean that cray fishing became “sustainable” because in 1892 we wanted it to be sustainable and since then have had a vague plan about how to get there. The long gap when we did very little to implement 'the plan' appears to be a secondary concern.

Supermarkets are now putting fisheries under heavy pressure to demonstrate sustainability credentials, especially in Europe and more recently in Australia. One way to meet this need is for fisheries to seek Marine Stewardship Council (MSC) certification, although there is an increasing proliferation of certification bodies. The MSC is a cooperative venture between an environmental entity and industry. It's copped its fair share of criticism, but I'm reassured about its standards by the low number of fisheries that qualify. That could also be because of the price tag, about \$200,000 per fishery for an application. At least for that they get a lot of advertising as the MSC has been trying to push other certifying agencies, like “Clean Green” (which is based on individual fishermen's practices) off the supermarket shelves.

Recently, the Western Australian Rock Lobster fishery was awarded MSC certification, an unusual inclusion considering that they have previously had significant trouble with overfishing, fish lobster in their juvenile stage, and have only recently moved to quota management. However, the MSC's fifteen month certification process was labelled “onerous”, according to West Australian Fishing Industry Council CEO Guy Leyland, but worth it for Australian fisheries aiming to sell in US and UK retail markets.

In Tasmania we prefer the Federal export permit process, "We must be certified every 5 years and if we don't get it, we can't export. It's more far reaching than MSC certification", said Rodney Treloggen, CEO of the Tasmanian Rock Lobster Fisherman's Association. I can see another reason why he might like it, the Australian Government seems to be a bit more "aspirational" about the way it assesses sustainability. It has very lofty sounding "Guidelines for the Ecologically Sustainable Management of Fisheries", requiring industry to satisfy the Australian Government requirements for a "demonstrably ecologically sustainable fishery". Environmental groups have recently protested that they are way too easily satisfied and have threatened a legal challenge. What appears to happen in Tassie is that the latest stock assessment, no matter how bad that might be (and the last few cray assessments have been real stinkers), is stapled to a form. In return the Minister signs off, saying that the regime takes "reasonable steps" to avoid impacts on threatened species. Cray fishing in Tasmania seems to be "sustainable" partly because it doesn't hurt whales.

I suspect I'm not seeing all of the process and maybe it started off with something more rigorous, but that seems to be about the size of it from the materials I can currently locate. The rest of the Guidelines are an interesting read despite their apparent irrelevance, perhaps thanks to the earnestness of some frustrated public servant, *"It is well recognised that many of the world's fisheries are being exploited at, or beyond, their sustainable yield, with many fishing fleets overcapitalised, and the status of many fish stocks unknown. While in general the status of Australian fish stocks is better than that of many countries, some species and fisheries are overfished, many are fully-fished, some are underfished and many have an uncertain status due to inadequate or inappropriate information to form a reliable assessment of status."*

So let me guess, despite the government explicitly stating that "some species and fisheries are overfished" and "many have an uncertain

status due to inadequate or inappropriate information", I bet you they can still be certified "sustainable" when export dollars are involved.

We should acknowledge that methods have improved since 1892 and the job isn't that easy, *"...fisheries agencies nationally, have been committing significant resources to obtaining this information. A difficulty in assessing stock status and the level of impact on other parts of the ecosystem is in part a consequence of the inherent variability in marine systems."* I would also add that almost ANY Australian fresh fish is likely to be a better buy than something imported from a place that experiences no embarrassment at all about a shortfall in "sustainability" blather on its packaging.

So, "sustainability" probably means a half-fulfilled aspirational target, not a state of ecological nirvana. If you find a "sustainability" certification it might be a helpful guide, but you will still need to read more, and ask the question, is this fishery one of the "overfished", "fully-fished", "underfished", or "poorly understood" ones?





Across the Partition – a debating ‘experiment’

– by Mike Jacques

I thought it might be interesting to duplicate one of the many discussions about the “Supertrawler” that occur daily at water coolers, BBQs and workplace partitioning everywhere. The reason for this is that I’m more interested in the way we learn and debate than the content, must be something to do with being involved in a marine education publication.

John is a more mature guy with some background in forestry. It is about the first time he has taken an active interest in a marine issue. He knows that when the Greens got involved, forestry really had to lift its game, but then it went too far. It seems like nobody wants any development anymore. In John’s view the public is really confused at present by all the rhetoric. It all seems emotive and lacking in substance in his opinion. He trusts the scientists and if they say it’s O.K. then the people should be allowed to fish.

On the other hand, he doesn’t like the way Seafish announces they are going to fish from such and such a date when they don’t even have a permit. Sounds like the decision has been made in a backroom already, as if it’s already clear the public is happy about them fishing a public resource. That lack of transparency makes him a little suspicious. He also trusts Andrew Wilkie, and when Andrew raises concerns, he does tend to listen.

At this point Colin jokingly interjects “I don’t care, I raise cows not fish, it isn’t happening in my backyard”.

“Elton”, is pretty green, not so much that cows confuse him for grass, but pretty green. He is critical of the standard of debate. It seems like a lot of new fishing groups are involved who are just motivated by self-interest and not by looking after the environment. No-one seems to recognise that Seafish are catching an additional quota (but he doesn’t seem too sure on that fact himself). He is also really sceptical about the supposed job benefits. Won’t they turn up with their own crew and a lot of the time they are working offshore and travelling to Africa rather than spending money in Devonport? He also wonders why they have waited so long for a permit, if they don’t get one, what a waste of everyone’s time. He worries about by-catch and admits that it was the “super” part of the name that really made him start to worry.

Vaughan skips across lots of things he sees on the TV and in the paper and doesn’t have the time or interest to get involved in the detail of every issue. He assumes if they have set a quota it’s all scientifically O.K., like the way abalone is managed. Asked ‘what if the quota’ is wrong, isn’t that an assumption’ he replies, “I have to assume that it’s right, who am I to question?”

Stuart reckons that the same crowd that managed the Orange Roughy decisions were probably managing this one, so it is bound to be a stuff up. If fishermen have a hand in directing how the quotas are set, how could you assume they are right?

At that point, the need to earn a living interfered.

To follow up, I sent them a copy of both the IMAS stock assessment and Dr Wadsley’s one page critique of it. They all responded to the email, but only two of them read the 43 page IMAS stock assessment.

“Elton” (the ‘green’ person) read it for a total of 5 minutes. He disagreed with its content and preferred the short article. The IMAS report was dated 2011 and “none of it looks current”. “The ocean is not

an endless supply of food (and in this case, most would I think be used for Cat Food?)”.

The next person to read it was Vaughan (who admits he skims over issues). He closed the IMAS report as soon as he saw the length and read the Dr Wadsley report instead. It was pretty concise, so he thought the information in that was pretty good. Col (the farmer) refused to participate “I’m not your guinea pig”.

John (ex forestry) was picked as the person most likely to read the long report, and he finished the executive summary during lunch, but the first sentence put him off straight away, “Phrases like “stock mass currently unknown”, results “highly ambiguous” “largely imprecise” and “lack of data” tells a story!” I don’t know enough about Andrew to form an opinion on his view, however I do agree with some of his comments regarding the report.

None of the guys are dummies, they are all very well educated, but their attention to, and ability to absorb, scientific detail varied a lot. There appears to be a general lack of understanding about how marine science is put together. Brevity and simplicity won out over hard facts every time. They had all tried to follow the issue to the limit of their interest and free time and all had interesting observations to add. Best of all, they were philosophical about it all and are all still pals.

Super Trawler: Shame on all you scientists...

Dr Andrew Wadsley (Courtesy Tasmanian Times article)

“The CEO of AFMA in his response to Andrew Wilkie states that “the fishery is managed in a sustainable and precautionary way, based on the best available science”. This makes me despair of so-called scientific decision making in Australia.

The IMAS-Neira report, on which the total spawning mass is based:

- has not been peer reviewed,
- has not been “clearly supported” by the Director of IMAS in public,
- is not based on data collected for jack mackerel,
- was not carried out for the purpose for which it is being used,
- is based on data 10 years old,
- has not been used as part of a Management Strategy Evaluation (MSE),
- contains no uncertainty statistics,
- is not consistent with the large declines in historical catches of jack mackerel over the past 7 years,
- presents analyses which are demonstrably wrong.

Shame on all you “scientists”, if we can call you that, who support this travesty!”

[Dr Wadsley’s is a mathematician whose main area of study is the oil and gas industry. He has been a prominent critic of the science of such environmental subjects as the pulp mill, Rosebery mine drainage and river contamination. The Neira jack mackerel stock assessment is also available on-line. Google them and make your own appraisal]