SUBMISSION IN RELATION TO A SUPER TRAWLER FISHING AUSTRALIAN WATERS FOR SMALL PELAGIC FISH

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Introduction

The sustainability of the marine environment has been a contentious issue debated for some time. Mathematical models have been employed to try and gain the best understanding of the marine environment. However, there is still debate about the efficacy of various ways to safely determine the bio-mass of a particular species of fish. Alan Longhurst (1) takes a very negative view about the ability of Fisheries Science to properly assess the sustainability of a fishery using Mathematical models, they do not work in his view. Whereas, Schunte (2) takes a more sanguine view, virtually saying that great care needs to be taken in relation to decision making, he says he takes a view somewhere between a "determinist" and "realist" terms he defines in his paper.
The recent paper by Buxton et al (3) gives a clear indication of the variance in Mathematical models that can be employed to measure bio-mass with a disparity in the answers that are obtained. Answers obtained can place the bio-mass being placed in a higher or lower Tier using the same data, depending on the mathematical model used.

Alan Longhurst stated in 2006, in his paper titled "The Sustainability Myth" that "Fishery science, by which I mean the study of the dynamics of exploited fish stocks, may be unique among the scientific disciplines: it produced a corpus of theory that was taught in universities and applied at sea, but which has since proved to be wrong." (4) Longhurst also stated that "The case for the sustainability of the NW Atlantic during the period 1500–1900 may also be overstated, for body length of cod had already started to decline in the coastal populations in the Gulf of Maine during the period of early settlement, and useful species of marine mammals were rapidly destroyed, so that walrus were exterminated along the entire coast from New England to Newfoundland quite early on." 5

James O'Malley is quoted by Schunte as saying "in our attempt to comprehend the oceans . . . mathematics has been elevated to a status which suppresses knowledge and actually detracts from our efforts to acquire knowledge." 6

The references provided give a clear indication that great caution needs to be taken in determining the bio-mass of a particular species of fish. The most cautious result obtained from timely data would provide the safest decision making in relation to calculating a quota. However, of critical importance in assessing a quota issues listed below must be taken into account. The interests of large scale business interests promoting super trawlers must not supercede the needs of the marine environment.

David Ritter (7) provides a European perspective in relation to the use of the heavily subsidised super trawlers when he writes: "The principal cause of Europe's collapsing fish stocks is overcapacity. The EU fleet is simply too big. According to the European Commission, the EU fleet catches two to three times more fish than is sustainable within the continent's waters. The problem

then gets exported, with EU boats ending up in the waters of some of the poorest countries in the world, sending local fish stocks downhill."

The comments and suggestions listed below only relate to a super trawler; they do not reflect on current commercial fishing practises; recreational fishers support small commercial fishers.

1) Fisheries Research 81 (2006) 107–112, Alan Longhurst, "The Sustainability Myth"
2) Electronic Journal of Differential Equations, Conference 12, 2005, J T Schnute pp. 143–158.
3) Institute for Marine and Antarctic Studies, J. Lyle, K. Hartmann, C. Buxton & C. Gardner Re-analysis of mean daily egg production in jack mackerel (not dated, though it would appear to be September 2012)
http://www.afma.gov.au/wp-content/uploads/2012/08/IMAS_reanalysis-of-Neira2011.pdf
4) Fisheries Research 81 (2006) 107–112, Alan Longhurst, "The Sustainability Myth" p 107
5) ibid
6) Electronic Journal of Differential Equations, Conference 12, 2005, J T Schnute p 143-144
7) The Australian, 24th September, http://www.theaustralian.com.au/national-affairs/opinion/super-trawlers-are-feeding-on-eu-fishing-subsidies/story-e6frgd0x-1226479819843

A) Localised Depletion

Localised depletion has been a major matter of concern to the Tuna Club of Tasmania and the peak angling body for recreation fishers in Tasmania, TARFish (see Appendix A). TARFish with the help of CSIRO have posited the view that there are resident small pelagic fish which are resident off the East Coast of Tasmania, these fish remain quite confined to a particular marine area. Professor Jessica Meeuwig has expressed a view that not a lot is known about the movements of adult small pelagic fish, she suggests "there is increasing evidence that the adults of many species are not as mobile as previously thought." http://theconversation.edu.au/one-fish-two-fish-red-fish-blue-fish-science-doesnt-support-the-super-trawler-9143

Hence should this be true, there is no knowing when a population of small pelagic fish will reform over time or whether they are lost forever. The case of a specific East Coast Tasmanian jack mackerel stock which is unique to this area with an unknown stock size, indicates an urgent need for some scientific investigation. This would provide us with research on the stock size and migration patterns to hopefully protect this unique local stock from any overfishing and possible elimination.

Earlier annual capture records from the Tuna Club of Tasmania have shown that localised depletion has occurred in the past when purse seine trawling occurred off the East Coast of Tasmania earlier this century. Trawling occurred until the major commercial business stalled its operation in 2008 because of economic conditions; at this time Game Fishing capture numbers appeared to escalate over time as a result of the commercial fishing operation ceasing. Jack mackerel and redbait numbers appear to be the main food chain of the pelagics which have increased dramatically on the East Coast of Tasmania; being supported by the number of captured fish caught by the Game Fishermen in this Region.

There is no experience of how a Super Trawler will operate within Australian waters, it has the ability to virtually deplete a whole school of pelagic fish without having to go back to Port through needing to unload, obtain extra supplies, or to refuel.

There are known hot spots along the Eastern Coast of Tasmania where small pelagic fish and their larger predators congregate from off Flinders Island; and they then move south down to Pedra Branca as the season progresses. A super trawler following such a normal procession would do untold damage for recreational fishing people, small commercial fishers, charter boat game fishing operators, and tourist boat operators.
Northern game fish like yellow fin tuna, striped marlin and sail fish are some of these pelagics that are following these warmer currents down the East Coast of Australia to the Tasmanian East Coast and appearing in hot spots such as St Helens, Coles Bay, Eaglehawk Neck and Pedra Branca in the South.

Predators are highly dependent on the level of bio-mass; numbers within species of predators can be at a threatened species level, and this needs to be taken into account when setting a quota. That is, the marine environment needs to be taken into account as a whole.

B) By Catch

There are several species which can become by catch for a super trawler including fairy penguins, sardines, sharks, rays, dolphins, porpoises, sea lions, seals, tuna, marlin, swordfish, mahi mahi, australian salmon, tailer, various bird species, and any other commercial or recreational gamefish. To ensure that dolphins, seals and sea lions are safe any exclusion devices must be tested to be completely safe.

Some species have a threatened status and their protection must be paramount. While there were move on arrangements made for the Margiris; it is strongly believed that a value of possible by catch numbers needs to be formulated for the various species. Once the numbers are exceeded; then no more trawling is to take place at all.
Overseas there is an acknowledgement by catch is a matter that needs to be urgently addressed as species where a licence is not held, are simply discarded.
http://www.anglingtrust.net/

To ensure as much care is taken in relation to by catch, it is suggested that the weight of any by catch caught is deducted from the allowable quota.

C) Quota

To formulate a fairer quota Daily Egg Production Method surveys need to be carried out from a number of sites; surveys should be completed from waters of each State from where a super trawler will operate from. In such a way an individual quota can be set for each State. The DEPM calculations employed should utilize the lowest bio-mass calculated to take into account any objective concerns that are not readily identifiable. This provision can be seen to be the precautionary principle in action. . The actual DEPM survey could give a different result if carried out in the warmer waters off Northern NSW in comparison to the cooler water off Southern Tasmania.
DEPM surveys need to be done in a timely manner; there should be no more than a two year period elapse since a survey has been completed, to calculate a suitable quota. Any DEPM survey completed needs to be peer reviewed.
Once a quota has been met for a particular species there should be no further targeting of any small pelagic fish species. The basis for this recommendation is that within a school of fish there can be a number of different species; for example, jack mackerel with red bait. In this way by catch and exceeding quota does not become an issue and is a protective feature for the small pelagic fishery.

D) Spawning

To protect bio-mass; the spawning season when the various species within the small pelagic fish grouping spawn needs to be taken into account to determine where and when a super trawler might fish. Consideration should be considered to stop; or at least, reduce trawling in the height of the spawning season to further protect future stock numbers.

E) Marine Parks

Fishing by Commercial mid water trawling should not occur in any Commonwealth Marine Parks or Marine Reserves. Recreation Fishing Zones should be implemented where commercial trawling cannot take place within a 10 kilometre Exclusion Zone.

F) Cost Benefit Analysis

A cost benefit analysis needs to be undertaken to assess the impact of a super trawler on existing businesses that rely on recreational fishing people and commercial fishing people; tackle shops, boating chandleries and marine outlets, restaurants, and accommodation providers. Localised depletion being a disincentive to visit sea side communities that fishing people would normally frequent provided there are sporting fish to catch. There are also charter boat operators who take tourists to environmentally interesting locations where seals and/ or bird rookeries might be significant points of interest. Small pelagic fish being part of the food chain for the creatures that provide pleasure for those that join charter boat trips.

There is an increasing strong argument that supports the view that small pelagic fish swimming about unhampered are worth more than to exploit them. This assertion has been made by:
http://www.lenfestocean.org/sites/default/files/the_economic_value_of_forage_fish.pdf
Such a concept provides security for businesses already directly or indirectly involved with the small pelagic fishery; it also provides an avenue for expansion in the future, creating employment prospects in a number of areas. It has been stated that the commercial fishing industry provides something like 300 million dollars; whereas, the recreational fishing industry brings in an estimated six billion dollars a year of revenue to Australian businesses; a sizeable proportion of this can be attributable to small pelagic fish stocks.

G) Decision Making Processes

The SPFRAG, if continued, it needs to have a greater representation of recreation fishers, small commercial fishers, and there should continue to be a representative with a marine conservation viewpoint. Currently too much influence is within the ambit of powerful fishing barons with vested interests. . AFMA have shown

that their decision making has had a proven bias to Commercial Fishing and to Commercial Fishing Quota Owners. To maintain a level playing field and a true representation, Recreational Fishing must have equal representation in the decision making and the overall management of the Australian Fisheries. The Funding of these processes must be fairer and not be totally from the Commercial Sector. The Government must develop a funding model which maintains a balance to all sectors; which may involve Recreational Game Fishing licenses.

H) Secondment to a Super Trawler

There has been no practical experience of how super trawlers operate; consequently, it is suggested that a suitably qualified person be seconded to a super trawler operating overseas. Such a measure provides experience in relation to by catch; it would provide evidence as to whether the up facing escape routes for dolphins, sea lions and seals actually work. A person in such a position would also be able to interview relevant fishing people where the trawler is operating about the positives and negatives of having such a vessel target their waters. Much of the information that is available here in Australia is that super trawlers cause decimation and atrocious damage to fisheries situated off First World and Third World countries.

I)Boundaries

While currently it is possible for any commercial vessel owning a Australian quota to come within three nautical miles of a States coastline, it is recommended that the boundary is extended to twenty five nautical miles or to a depth of 250 metres so there is no interference with recreational fishers. Similarly it is recommended that a super trawler must remain a minimum of fifty nautical miles from recognised coastal boat ramps. Coastal boat ramps are often placed near recognised hot spots for recreational fishers.

Appendix A

TARFish is the independent, government recognised peak body looking after the interests of recreational marine fishers in Tasmania.

Media Statement released on 24th August 2012

Significant Questions Remain Unanswered

Federal Fisheries Minister Joe Ludwig established a Working Group in late July comprising the Australian Fisheries Management Authority (AFMA), Department of Agriculture, Fisheries and Forestry (DAFF), Recreational Fishing representatives and Super Trawler proponent Seafish Tasmania. The purpose of the Working Group was to try to find a way forward in addressing recreational fishers concerns about the risks on local fish stocks of industrial scale fishing operations in the Small Pelagic Fishery (SPF) announced by Seafish Tasmania in May.

TARFish entered the Working Group in good faith, representing the interests of state and national recreational fishers as the delegated representative for the Australian Recreational Fishing Foundation (ARFF) and Recfish Australia. The Working Group was provided with an independent scientific reference source from CSIRO to assist with questions surrounding the science used within the Small Pelagic Fishery. Recreational fisher representatives decided to exit Minister Ludwig's Working Group due to a lack of detailed scientific knowledge surrounding;

1. The extent and rates of movement of each species of small pelagic fish.
2. The amount of time it would take for local populations of small pelagic fish to recover from intensive localized fishing.
3. The size of the resident population of Jack Mackerel on the East Coast of Tasmania.

TARFish CEO, Mark Nikolai, said "upon exiting the Working Group on the 17th August we presented Minister Ludwig with the attached detailed listing of questions that could not be answered through the Working Group process. It is most disappointing that we have yet to receive a response to our detailed case submitted to Minister Ludwig considering the MV Margiris is, according to the proponent Seafish Tasmania, due to arrive in Tasmanian waters by the end of August".

Recreational fishers call on Minister Ludwig to not allow industrial scale fishing operations to occur in the Small Pelagic Fishery and address the significant public concerns surrounding the risks of local area depletion on fish stocks.

Contact Mark Nikolai, Chief Executive Officer on 0403 868 004 for further information.

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Questions extracted from the report "Management zones from small pelagic fish species stock structure in southern Australian waters", CSIRO March 2008.

In the western region, from west of Tasmania, through the Great Australian Bight to Western Australia, there is insufficient data to determine how many stocks of any of the Small Pelagic Fishery species might occur. Page vi

Has this lack of knowledge on stocks been addressed?

There is an urgent need to ensure that the spatial structure of the management arrangements in the Commonwealth-managed Small Pelagics Fishery matches the ecology of the species taken. Present fishery zoning is essentially jurisdictional, whereas spatial management arrangements need to be both based on whatever biological information exists, and reflect appropriate precaution for uncertainties. Consequently, there is a need to gather the best information about the spatial structure of small pelagic fish species taken in the fishery to both inform a precautionary approach to spatial management and identify the most appropriate research for improving spatial management and reducing the reliance on precaution. Page 3

Other than East/West Zones what spatial management measures are available?

There are no stock structure studies on Redbait. Page79

Has this been addressed?

Jack Mackerel

Jack mackerel are serial spawners although neither the spawning frequency nor the number of batches spawned per season has been determined. Page 38

Do we know the spawning frequency and number of batches spawned per season?

Annual fecundity has also proven indeterminable. Page 38

Do we know the annual fecundity (fertility) of Jack Mackerel?

Jack mackerel are known to spawn around the whole coast of Tasmania and in the Great Australian Bight (GAB). These separate spawning locations represent what is thought to be distinct stocks. In the GAB, jack mackerel spawn in summer. Page 38

Whether there is a distinction between NSW and Tasmanian stocks is unclear. Page38

Overall, the catch data and associated environmental data strongly suggests that the core distribution of jack mackerel lies in Tasmanian and Victorian waters, but it is not limited to those areas Page 74. Without more definitive studies on jack mackerel from western Tasmania and western Victoria, at times when they occur there, we cannot be sure of stock affiliation, i.e. whether the fish belong to a GAB population or an eastern population. Page 80

Have there been any updated studies undertaken to determine stock affiliation? TARFish is the independent, government recognised peak body looking after the interests of recreational marine fishers in Tasmania.

Maxwell presumed that jack mackerel migrated south from NSW in summer following the 17 °C isotherm. However, Jordan et al. noted that there is resident winter population of jack mackerel on the east coast of Tasmanian and that it might only be boosted by a spring migration from the north. Page 38

Do we know the size of the winter population on the East Coast of Tasmania?

What tonnage can be taken from the Jack Mackerel winter population on the East Coast of Tasmania without having a detrimental effect on the local population/ecosystem?

Food Web – page 57

From the proposed food web, the dependencies on the Small Pelagic Fishery species by other commercial species are obvious. Tunas and billfishes are probably the most valuable species. Bluefin tuna eats both redbait and jack mackerel in high proportions i.e. between 30–45% respectively and yellowfin tuna eats yellowtail scad, jack mackerel, blue mackerel and redbait although Engraulidae is the most important prey by volume. Page 57 The Australian fur seal feed heavily on redbait and jack mackerel (25 and 31% respectively) and some seabirds such as shy albatross and the Australasian gannet also feed predominantly on redbait and jack mackerel. Page 58

What is the effect on these predators stocks/movement if the SPF TAC's are caught?

Stock structure of the populations and their management play a role in ecosystem structure and function. Small pelagics have been found to be significant controlling influences within other ecosystems… The implications for ecosystems from fishing pressures then become significant particularly if "fishing down the food web". Fishing in the middle of the food web, on small pelagics, obviously has potentially large consequences for dependent fisheries such as tuna. Page 58

What management measures have been implemented to counter the "potentially large consequences for dependent fisheries such as Tuna" as noted by CSIRO?

The very significant role of the small pelagics in the food webs of most Australian fin-fisheries emphasizes the importance of careful and appropriate management of this fishery for the benefit of all fisheries. Page 84

What management measures have been implemented for the benefit of fisheries other than the SPF fishery?

Recent model-based research into alternative management strategies has suggested that it is unlikely that large fisheries for both demersal and small pelagic fishes would be simultaneously economically viable in southern Australia. This finding was subject to model uncertainty and other relevant factors, such as the realised level of effort compared to potential effort in each fishery, but it highlighted a very real issue within Australian waters. This is the lack of definition of a system level goal state, and consequently, the associated acceptable levels of impact on that system and subsystems and sectors to be supported in the future. An accurate understanding of the stock structures of the small pelagic species and the dynamics of the roles they play within the relevant systems is *TARFish is the independent, government recognised peak body looking after the interests of recreational marine fishers in Tasmania.*

therefore of considerable importance when implementing and imposing ecosystem-based fishery management principles, and determining sustainable fishing targets. Page 59

What is the system level (EBFM) goal state and consequently, the associated acceptable levels of impact on that system and subsystems and sectors to be supported in the future?

One of the key areas of development in modelling population dynamics in recent years is the behaviour related to habitat selection and specifically density-dependent habitat selection, which considers the influence that population size and density has on an individuals' choice of habitat and ultimately, the species' distribution…. While the data we have collated is not adequate to build such models of habitat selectivity for the small pelagic species yet, it is clear that an ecosystem-based approach to fishery management broadly encompasses such exercises.

What EBFM measures have been undertaken, or planned, to address the density-dependent habitat selection deficiencies noted by CSIRO?

Future studies will need to consider the effects of climate change on the distribution of the species resulting from changes in water mass movements and location. Page 85

What studies have been undertaken, or planned, to consider the effects of climate change on the distribution/population dynamics of SPF resulting from changes in water mass movements and location?