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Submission to the Senate Environment and Communications References Committee Inquiry into the regulation of the fin-fish aquaculture industry in Tasmania.

The Australian Marine Conservation Society (AMCS) appreciates the opportunity to provide comment to the Senate Environment and Communications References Committee regarding the regulation of the fin-fish aquaculture industry in Tasmania.
As Australia's only conservation organisation dedicated to the protection and conservation of Australia's marine environment, the interests of our organisation and the members of the public we represent lie in ensuring the current and future operations of the Tasmanian aquaculture industry do not come at the expense of the marine environment.
AMCS produces *Australia's Sustainable Seafood Guide*, an independent and widely used resource that gives consumers information regarding the environmental costs of seafood production, including farmed seafood. In recent years we have considered the impacts of the aquaculture industry in some depth.
We are familiar with the economic and employment benefits of the aquaculture industry to Tasmania, and believe the industry has an important role to play in the state; however, we believe that the current monitoring and regulatory regime is more geared towards industry expansion, with environmental issues given less credence.

Below we respond to the Inquiry Terms of Reference:

(a) The adequacy and availability of data on waterway health;

Overall, AMCS considers there is limited information that is publicly available and independently collected or reviewed on the health of Tasmanian waterways affected by aquaculture. The salmon farming industry, or those contracted by the industry, is tasked with collection and analysis of indicators of environmental health, which could be perceived to be a conflict of interest.

Fin-fish aquaculture takes place in two ecologically distinctive regions of Tasmania, which will be considered separately.

SOUTH EAST – Huon Estuary and D'Entrecasteaux Channel

The Broadscale Environmental Monitoring Program (BEMP) is the key program for monitoring the environmental impacts of salmon farming in the southeast region. The program commenced in 2009, by which time salmon farming had been active for over 15 years. Although a good step forward in taking a holistic approach is taken to ensuring the cumulative impacts of aquaculture are accounted for, concerns remain about the extent of data that is collected as well as lack of adequate baseline information upon which to base an adaptive management regime.

There is limited information prior to the BEMP that provides stakeholders with confidence that aquaculture impacts have not caused significant environmental effects at levels that could have consequences for marine flora and fauna and overall ecosystem health. As it is, the data recorded since 2009 should not be used as proof of no widespread impacts from aquaculture, but could be used as a reference point for future monitoring.
An alternative to a monitoring program in the absence of good baseline data is to use a reference site to compare industrial impacts between affected and unaffected ecosystems, but the reference site must be of a biologically similar nature to enable comparison. Unfortunately, the conditions at the reference site, Recherche Bay, are fundamentally different to those within the Huon Estuary and D'Entrecasteaux Channel[1].
Overall, there are limited opportunities for identification of significant ecosystem wide impacts that would require mitigation from industry, and action from government.

Salmon farms are situated in dynamic environments, with seemingly a high degree of unknowns regarding the impacts of the industry on marine ecosystems. An adaptive management approach, such as is pursued in Tasmania, would seem to be an essential component of ensuring impacts can be mitigated accordingly. However, the lack of baseline data on which to base an adaptive management regime means managers are unclear on what level of ecosystem health they should be managing to. Such an information void should necessitate at the least that an extremely precautionary approach should be taken to managing the impacts of marine farming, particularly with regard to the expansion of leases. This does not appear to be the case however, with leases being approved with limited data sets on which to base decisions.

Concerns have also been raised about the frequency of monitoring of some parameters, particularly the impact to the benthos from excess fish feed and faeces deposited beneath cages and in nearby areas. The current requirement is for an annual video survey of the benthic environment, although scientists have previously recommended monthly surveys[2] in order to identify impacts in a timelier manner.
Infaunal samples are taken every four years, though it is unclear whether this is a biologically meaningful timeframe. Opportunistic marine fauna can colonise environments more quickly than on a 4-year timescale, so faunal assemblage shifts will not be identified in a timely manner than can enable mitigation if required.

Industry operators are only required to monitor the impacts of fin-fish farming to 35m outside of a lease area. Due to the nature of water movement, effluent from fish farms has a footprint that extends over an arbitrary 35m boundary that escapes any form of monitoring or required mitigation action. 35m would appear to be based more on operational efficiency for leaseholders than having relevance for the marine environment and represents a serious lack of monitoring

[1] Ross, D. J. and Macleod, C. K. (2013). Evaluation of Broadscale Environmental Monitoring Program (BEMP)
[2] Kirkman, H., 2014. Review of Monitoring the Environmental Effects of Salmon Farming in Tasmania. Prepared for Environment Tasmania Inc.

for the wider marine environment.
There is currently no monitoring required for macroalgal and reef communities, although scientific research has identified salmon farming impacts on macroalgal communities hundreds of metres away from farming sites[3]. Given the likelihood of impact and the high probability reef communities could poorly cope with increased nutrient loading and reduced oxygen availability, this is a significant failing of the monitoring regime.

That the current monitoring regime is inadequate has been recognised by the Marine Farming Planning Review Panel (MFPRP). On consideration of draft amendments, the Panel consistently notes gaps in the BEMP and recommends that industry operators fund an 'enhanced monitoring regime'. This recommendation has been consistently made for over a decade, but has not translated into action. It is unacceptable that failings are recognised, but regulation or industry initiative has not stepped in to address these gaps, with the ultimate impact being on the marine environment.

MACQUARIE HARBOUR

While there is at least a broadscale approach taken to monitoring in the southeast of Tasmania, it does not appear such an approach is taken in Macquarie Harbour. Monitoring requirements are in place, as Conditions on a Marine Farming License, but this would appear to be specific to an individual company's license, rather than an integrated approach taken by all operators.

As with the southeast region, it would appear that minimal data existed prior to the initiation of farming operations, and before the approval of the expansion of farming by the Tasmanian Government in 2012. For example, although it is acknowledged the hydrology of Macquarie Harbour is unique, there is little information on basics such as bottom-water residence times, and limited information publicly as to how this lack of knowledge has been accounted for in precautionary management decisions.

Given the unique hydrology and therefore ecology of Macquarie Harbour, it is arguably more critical to have an effective monitoring regime with well-defined trigger points and public access to information regarding the condition of the Harbour. None of these factors seems to be a requirement of farming. Recent leaked documents reported in the media point to significant concerns from some aquaculture operators regarding the Dissolved Oxygen (DO) content of lease areas. Issues associated with the biological effects of this will be discussed later, but the leaked documents were the first instance the public were made aware that farming activities were significantly impacting the waterways, and that numerous breaches to conditions attached to farming licenses had occurred over recent years.
While data on chemical and biological parameters is clearly being collected by operators, there is no opportunity for independent analysis of the extent of change in critical parameters such as DO, and no transparency in holding operators to account for condition breaches. It remains unclear what action was taken regarding condition breaches, which leaves little public trust in the way the Harbour is being managed.

[3] Oh, E. 2009. Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats.PhD Thesis, University of Tasmania.

(b) The impact on waterway health, including to threatened and endangered species;

As noted in section (a) above, with limited baseline data with which to compare current waterway health, it is challenging to assess what the impact of fin-fish aquaculture is on waterway health. In addition, the limitation of monitoring to 35m outside of the lease area limits investigation of the impact of operations. It is clear that marine farming will alter ecosystem conditions (for example, DO, infaunal and benthic species richness and diversity and nutrient availability), what is less clear is what impact this has on surrounding flora and fauna.

The BEMP is not set up to monitor the impacts of marine farming on threatened and endangered species, a significant problem given the expansion of the industry in recent years and the potential for impact on these species. There is therefore a void in terms of a monitoring regime to adequately assess if these species fall under increased risk due to aquaculture activity, and no mechanisms to limit aquaculture operations should issues be identified.

Aquaculture has the potential to impact the Maugean skate, listed 'Endangered' under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A rare and endemic species only found in Bathurst and Macquarie Harbour, it is uniquely adapted to the low nutrient and low salinity environments found there. There is little information available on the biology and distribution of this species, but range appears to be extremely limited[4]. With recent indications that the DO content of the lease area in Macquarie Harbour has declined, and evidence that this decline is now manifest in the Wilderness World Heritage itself, it is entirely plausible aquaculture is further limiting the range of an endangered species, which warrants immediate investigation.

In 2005, a number of conditions were placed on the Macquarie Harbour expansion proposal by the then Minister for the Environment, Minister Burke, specifically to ensure there are no significant impacts to the Maugean skate. One of the conditions was to:
"*Undertake a baseline environmental survey of all new lease areas and compliance sites prior to commencement of marine farming operations*"
It remains unclear if this was undertaken, or was undertaken but results have not been made public. The relevance of this is that without this information, it will be a challenge to assess how the delicate environment of Macquarie Harbour is being affected, and in turn, how this is impacting threatened species that depend on it.

The spotted handfish, listed 'Critically Endangered' under the EPBC Act, is potentially impacted by farming activity, but again there is limited understanding of the extent of impact due to a lack of monitoring. In the listing advice provided to the Minister for the Environment by the Threatened Species Scientific Committee (TSSC) in 2012, the description of threats includes reference to 'increased nutrient run-off', though does not specifically consider the increased nutrient loading as a result of salmon farming. Again, the impact of salmon farming on this species warrants further and immediate investigation.

Fur seals are listed 'Marine' under the EPBC Act, such that it is an offence to kill, injure, take, trade, keep, or move any member of a listed marine species on Australian Government land or in Commonwealth waters without a permit. Although not an issue in Macquarie Harbour, there have been persistent fur seal deaths due to interaction with aquaculture operations in the southeast region, either through accidental drowning in farming nets, or deliberate killing by operators. While AMCS have been pleased to note improved transparency in communicating

[4] http://www.environment.gov.au/node/16438

seal deaths by the industry, commitment to stop killing 'problem' seals, innovation in net design to reduce accidental deaths and intentions to stop relocating seals, accidental deaths remain an issue, with 16 deaths in 2014[5]. We believe the Australian public would like to see this figure reduced to zero, and we understand this is the intention of industry itself.

(c) The adequacy of current environmental planning and regulatory mechanisms;

The main issues with the adequacy of current environmental planning and regulatory mechanisms are the political nature of the marine planning process, the lack of transparency and accountability in the decision making process, and the primacy of marine farming over land-based activities, meaning a holistic approach to aquaculture is lacking.

The MFPRP, which considers fish farming expansion and new lease applications, can now only make *recommendations* to the Minister for Primary Industries and Water, rather than having the legislative power to refuse applications. The Minister can overrule the recommendations of the independent, scientific body, which presumably assesses the impact of new leases or expansions on the marine environment, with the perception that industry expansion is of greater importance than ensuring the environment that supports it is healthy. It is unclear under what conditions the Minister would need to ignore the recommendations of the independent MFPRP, but the ability to do so remains concerning.
There is also no right of appeal to challenge the Minister's decision, meaning there are limited opportunities for community engagement and government accountability is zero.

Local councils have no meaningful input in marine planning activities, as land and marine developments are separated under the planning process. In effect, marine activities are given primacy over terrestrial ones, with the effect that there is no holistic process that considers the impact of aquaculture at an ecosystem level. Given the inshore nature of aquaculture operations, the location of hatchery activities on land and the inter-connectedness of land and sea, this separatist approach prevents a strategic planning process that incorporates both terrestrial and marine ecosystems.

The Environment Defenders Office of Tasmania (EDO) suggests[6] that giving the Tasmanian Planning Commission oversight of aquaculture development plans would be an appropriate way to ensure a strategic, whole of ecosystem approach to taken to marine farm planning. In general, it is considered that the Commission has greater transparency and is more independent and open than the MFPRP, and if planning were moved under it's jurisdiction, this would enable a consistent approach to planning to be taken across different regions. The advantage of this would be a more environmentally meaningful approach during the planning process, whereby the aquaculture industry can have its growth strategy appropriately considered in the proper context, and environmental sustainability can be holistically and thoroughly assessed.

[5] http://dashboard.huonaqua.com.au
Tassal Sustainability Report 2014

[6] It smells Fish! Tasmania's Marine Farming Regulatory Framework, and how to improve it. An Assessment prepared by Environmental Defenders Office (Tas) inc. 2012.

(d) The interaction of state and federal laws and regulation;

The EPBC Act 1999 is "*the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as matters of national environmental significance*.[7]"
Those matters of national environmental significance include nationally threatened species and ecological communities and World Heritage Properties listed under the Act. With regards to aquaculture in Tasmania, farming activity has the potential to impact upon threatened species, such as the handfish and Maugean skate and the Tasmanian World Heritage Wilderness Area that includes Macquarie Harbour.

As outlined in Section (b) above, it remains unclear as to how the Federal Environment Department is ensuring impacts are within the conditions placed on the expansion of farming in Macquarie Harbour. Given indications in recent leaked documents that the DO content of areas of the Harbour have been reduced, it does not appear that the persons named in the referral of the expansion are meeting the terms of the conditions, in particular, measure 2.c:
"*If the water quality monitoring program identifies that the rolling annual media value for any of the water quality indicators ammonia, nitrate and dissolved oxygen, within the compliance region, exceed the identified limit levels and that this is attributable to marine farming operations, targeted management responses must be implemented within 10 weeks of the most recent quarterly monitoring report;*"
It is unclear at this point what management responses have been undertaken to address the situation and ensure the low DO content is not affecting matters of national environmental significance. There is an expectation that the Federal Department of the Environment would be ensuring the legislative conditions are met, but it is unclear if this is the case.

In addition, the leaked Draft Benthic Effects and Research Overview: Macquarie Harbour Production Status Report contains information on what could be considered breaches of License conditions that are also measures the Department of the Environment has included in the Referral Decision related to Marine Farming Expansion, Macquarie Harbour. For example, measure 1.a of the Referral requires the following:
"*Take measures to prevent substantial benthic visual, physic-chemical or biological changes attributable to marine farming operations at, or extending beyond 35 metres from the boundary of any lease area.*"
However, increased abundance of Dorvellidae (opportunistic polychaete worms, abundance of which are known to increase in stressed or polluted conditions) has been recorded within the World Heritage Area.
It is unclear what actions either the Tasmanian Department of Primary Industries or the Department of the Environment have undertaken to ensure management responses have been enacted and are successful.

[7] http://www.environment.gov.au/epbc

AMCS are not in a position to provide comment on the following Terms of Reference:

(e) The economic impacts and employment profile of the industry; and
(f) Any other relevant matters.

Overall, we believe that while fin-fish farming has a significant role to play in the Tasmanian economy, we remain concerned about the lack of understanding of how the industry is affecting the wider marine environment, as well as impacts on more vulnerable species and Macquarie Harbour in particular. It would appear this need to improve the monitoring regime is widely recognised by stakeholders, but progression has been slow. This Inquiry presents a real opportunity for the industry and government to listen to stakeholder concerns and respond in significant investment in improving the *status quo*.

Yours Sincerely,

Tooni Mahto
Marine Campaigner
Australian Marine Conservation Society