TASMANIAN INDEPENDENT SCIENCE COUNCIL RESPONSE TO 15 APRIL 2025 EPA LETTER ON LONG BAY
Including review of the 2022/23 Broadscale Monitoring Program and Oct 2024 Rapid Visual Assessment of Rocky Reef report

Thank-you for letter of 15 April, in response to our queries of 18 January 2025, along with links to the missing reports, specifically the BEMP 2022/23 and RVA 2024. The additional water quality data is also welcome, as, we didn't realise the EPA was continuing to monitor the Long Bay/Port Arthur area on a monthly basis. Unfortunately, this is not in a format that can be readily reviewed (45,000 lines of raw data). Has the EPA reviewed and analysed this data, and is there a summary report available?

The TISC has reviewed the reports provided and considered the comments in your letter. Based on the information provided, however, we remain concerned about the continued use of Long Bay for salmon farming and are concerned that the monitoring and reporting as currently undertaken, and interpreted, does not clearly document the adverse impacts. Our reasons for this are outlined below:

BEMP Reports

The ***extended delays*** (18+ months) between when BEMPs are submitted to the EPA (e.g. Sept 2023) and when they are released (e.g. April 2025) is a real problem, as this makes comparison with recent observations impossible, and there is no opportunity to review/respond before the lease is restocked (Oct/Nov). Furthermore, there does not seem to be any ***comparison between the BEMP results and the independent monitoring by the EPA***.

Comments on 2022/23 BEMP

It is disappointing that only one additional site (PA-5) has been added to the Long Bay water quality monitoring program. ***At least one additional site is needed*** directly to the north of the lease to reflect conditions in the most poorly flushed area of Long Bay.

Periodic mid- and far-field water and sediment monitoring is unlikely to be particularly diagnostic with respect to observable impacts from fish farming operations. With respect to sediment sampling , ***results of the annual video compliance monitoring*** at 35m from the lease boundary is likely to be more relevant and should be included in BEMP reporting, or in another publicly available format.

As regards water quality monitoring, bioavailable nutrients tend to be rapidly taken up by algae/sediment processes (particularly in shallow bays), and dissolved oxygen (DO) concentrations vary diurnally. Low DO events – as have been previously recorded by the EPA in Long Bay using sensors – typically occur at night or early morning – and would not be picked up during monthly, day-time surveys. For this reason, the TISC requests that the ***previous continuous sensor be re-installed*** in Long Bay to monitor both DO and key bioavailable nutrients, and how these vary when the lease is stocked.

PA-2 is unlikely to be a suitable compliance site, as pollutants from the lease are likely to be diluted or taken up by algae well before they travel the 1+ km distance to this point. Furthermore PA-2 is likely to be influenced by other nutrient sources (e.g. the Port Arthur sewage outfall, local septic systems, agricultural run-off and, potentially, cruise ship discharges). Monitoring sites within closer proximity to the lease (e.g. PA-1 and PA-5) would provide a more meaningful reflection of water quality impacts. The implication of setting a compliance target at PA-2, is that water quality could be significantly impaired throughout Long Bay and the northern end of Port Arthur, without triggering a non-compliance.

Furthermore, the ***basis for the compliance targets needs to be clarified and justified***. Were these derived from the regional Default Guideline Values that were previously established by the EPA, or is this specific to data collected at PA-2? In any case, ***rolling annual medians are not appropriate*** for the Long Bay fish farm, where operations typically occur over a 6 to 8-month period largely during summer. Compliance targets should reflect the same time period - and not include winter – when nutrient levels are typically much higher due to Southern Ocean influence.

Seagrass surveys

The ***drastic loss of seagrass at the transects within Long Bay over the past 4 years is very concerning and should not be dismissed***/justified on the basis of this being either a regional phenomenon, or because seagrass cover and condition is highly variable by nature. There have been no sustained periods of recovery of Long Bay seagrass beds during the past four years of monitoring, and – while relatively resilient – the obvious crash in 2022/23 suggests that the limited storage reserves in the root systems have likely been exhausted. The 'reference site' (a single transect in Carnarvon Bay) is clearly not a suitable comparison, as is acknowledged in the report itself.

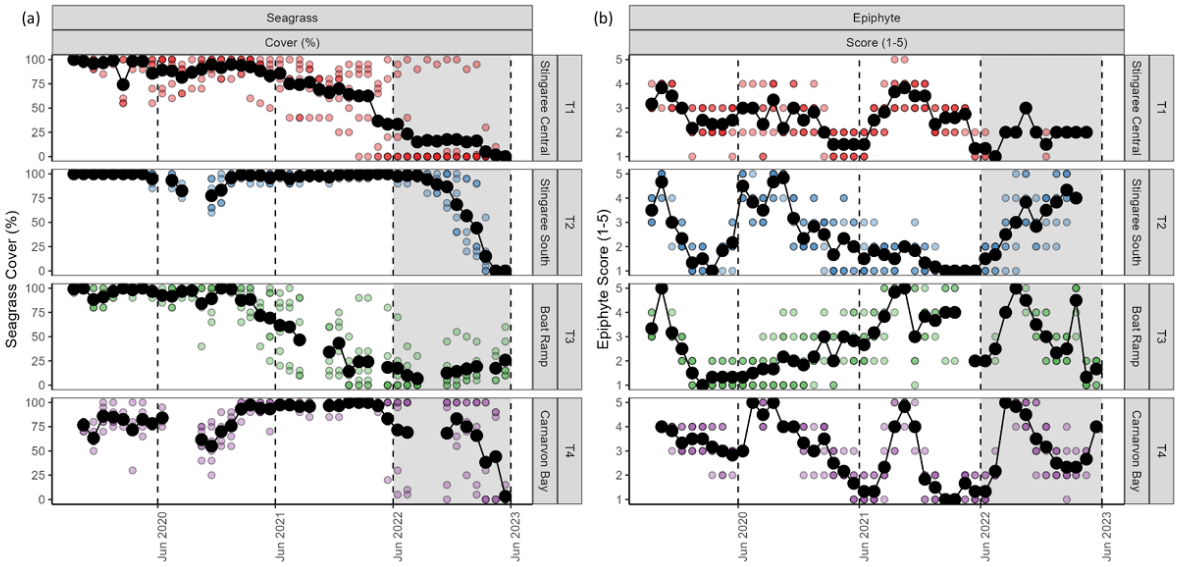


Figure 41: Observed cover of seagrass and epiphytes for six points along each transect (coloured points) and the mean cover for seagrass and epiphytes for each transect (black points) at four survey locations in Port Arthur region. Gaps in seagrass cover coincide with surveys when high epiphytes obscured seagrass cover measurements (see NA, i.e. 'not assessed' in Table 13). Mean epiphyte scores were based on <6 quadrats on occasions when seagrass cover on at least one quadrat was zero (See Table 13). Gaps in mean epiphyte scores coincide with surveys with absent seagrass for the entire transect. No observations were recorded for April 2022 at T3 due to poor visibility. Grey shaded area indicates current reporting period (2022/23).

Source: Aquenal, 2023 (BEMP 2022/23)

Seagrass condition and cover have been used as long-standing indicators of nutrient enrichment around the world and must be taken seriously. Given the high ecological values of these habitats and the increasing number of stressors they face, adding substantial additional nutrients from poorly sited fish-farming operations is clearly risky. This is all the more reason to take a precautionary approach, rather than to imply that the loss is somehow inevitable.

Furthermore, a key point with respect to seagrass ecosystem survival is not the periodic appearance of enrichment or variability in seagrass cover/condition. The problem is when periods of nutrient enrichment and associated nuisance algae and epiphytes persist beyond the capacity of the ecosystems to recover. We urge the EPA to give the Long Bay seagrass beds a much higher level of protection.

Rocky reef condition

The 2024 Rapid Visual Assessment (RVA) report compares winter and summer surveys at established transects with previous surveys carried out by IMAS in 2021 and 2022 and broadly suggests similar findings– i.e. that ***reefs and intertidal habitats in the vicinity of the salmon lease show signs of nutrient stress***. To suggest then that this is acceptable, because the condition has not declined further, is completely missing the point. The whole reason that these surveys were undertaken was due to concerns about their poor condition and the likely role of the fish farms as a key nutrient source. This was demonstrated in the IMAS report, as was the susceptibility of Long Bay to nutrient enrichment. ***The goal here should be to see an improvement, not to maintain the already degraded status quo.***

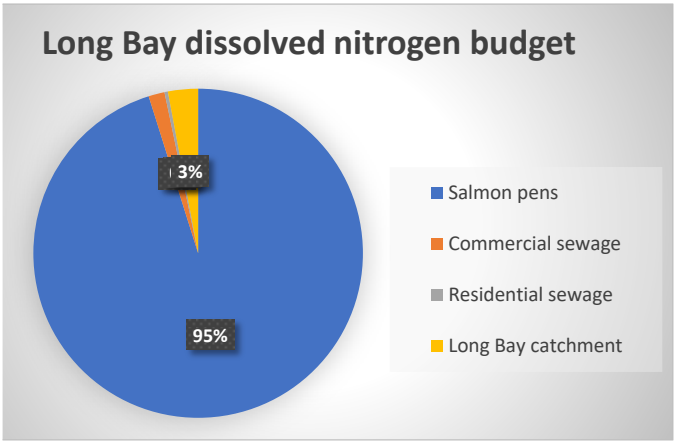
Furthermore, we have ***serious concerns about some of the assumptions behind the survey design, and how the results are analysed and presented***. In particular, the analysis of impacts based

primarily on the distance from the lease is flawed. Instead, the design should reflect how bioavailable nutrients are likely to disperse and persist in the vicinity of the lease. As such, the nutrients that spread to the poorly-flushed northern part of the bay will clearly have a more deleterious effect than those that spread to more exposed regions to the south; and combining data from sites 1000m to the north and to the south of the lease masks any obvious differences. We would suggest that the results for each site be mapped – particularly for nutrient enrichment indicators - for example using circles of relative sizes.

Finally, as further evidence, the EPA letter presents a number of recent visual observations, suggesting either a lack of obvious enrichment within Long Bay (e.g. off Stingaree Bay point, or at the head of Long Bay), or suggesting that other regional sites also show signs of enrichment (e.g. Eaglehawk Neck foreshore). It is important that these observations are taken in context and over an extended period of time. The two sites you describe in Long Bay are indeed largely free of subsurface or intertidal algae. This is because the Stingaree Point reef is both relatively exposed and consequently has a high proportion of crayweed (*P comosa*), which does not tend to accumulate nuisance algae. Similarly, intertidal algae does not occur at the head of Long Bay, because this is an extensive, sandy intertidal flat and lacks the rocky substrate needed for *Ulva* to attach. At a regional level, the extensive mats of persistent, green algae (particularly *Ulva intestinalis*) you describe along the rocky intertidal foreshore at Eaglehawk Neck (e.g Tessaleted Pavements) are localised, and likely due to pollution from a local stream that discharges from an area with multiple septic tanks. These are far less prevalent and do not persist further along the foreshore.

In summary

Based on our own observations, as well as those by the local community, Long Bay is clearly still impacted by high nutrient and organic wastes and has been since salmon farming operations recommenced in 2017. The TISC's nitrogen loading analyses (2023) demonstrated that that about 95% of the dissolved nitrogen load within the Long Bay catchment is derived from the fish farming operations, even if we include the entirety of the Port Arthur sewage emissions to the south.



Seagrass surveys over a period of 4 years demonstrate a drastic crash in seagrass cover and condition in Stingaree Bay, and seagrass beds in other regions of Long Bay are also in poor condition.

The RVA reef surveys also confirm the continued presence of enrichment indicator species on reefs in close proximity to salmon lease, as well as at sites further to the north, with no clear improvement.

Water quality sensors previously installed by the EPA have demonstrated periods of substantial oxygen depletion in areas to the north of the lease.

Based on the above, we reiterate our view that Long Bay is not a suitable location for salmon farming. A lease in this location would not receive approval now, based on spatial marine planning tools, such as those recently developed by IMAS.

When or before the current Environmental License expires on 30 November 2025, we strongly recommend that the License not be renewed (or that the TPDNO cap be reduced to zero), that the pens be removed from the Long Bay lease, and that the Tasman Marine Farm Development Plan be revised to remove finfish farming at this lease as an allowable use.