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THE EXTINCTION DIET: TASMANIAN ATLANTIC SALMON VERSUS THE MAUGEAN SKATE

John Paull

PhD

University of Tasmania, Hobart, Tasmania, Australia

j.paull@utas.edu.au

If the price of Tasmanian Atlantic Salmon is extinction for the Maugean Skate, is the price too high?

Macquarie Harbour is a tourist destination, a wilderness experience for off-the-beaten-track tourists. This harbour is protected by its remoteness - on the west coast of Tasmania, Australia's island state. Tasmania's protected UNESCO Wilderness World Heritage Area (WHAA) comprises 15,800 sq km, about a quarter of the state [1], and Macquarie Harbour is an aqua-jewel set on its Indian Ocean frontier. The harbour is protected not only by its isolation, but also by Hell's Gate, the narrow (120 m) and shallow entrance; treacherous for shipping and impassable for cruise ships.

Sydney Harbour has been described as "the world's largest ... natural harbour" [2] and it is indeed a massive and magnificent harbour (it is 55 square km), but it is dwarfed by Macquarie Harbour which is six times the size (315 square km).

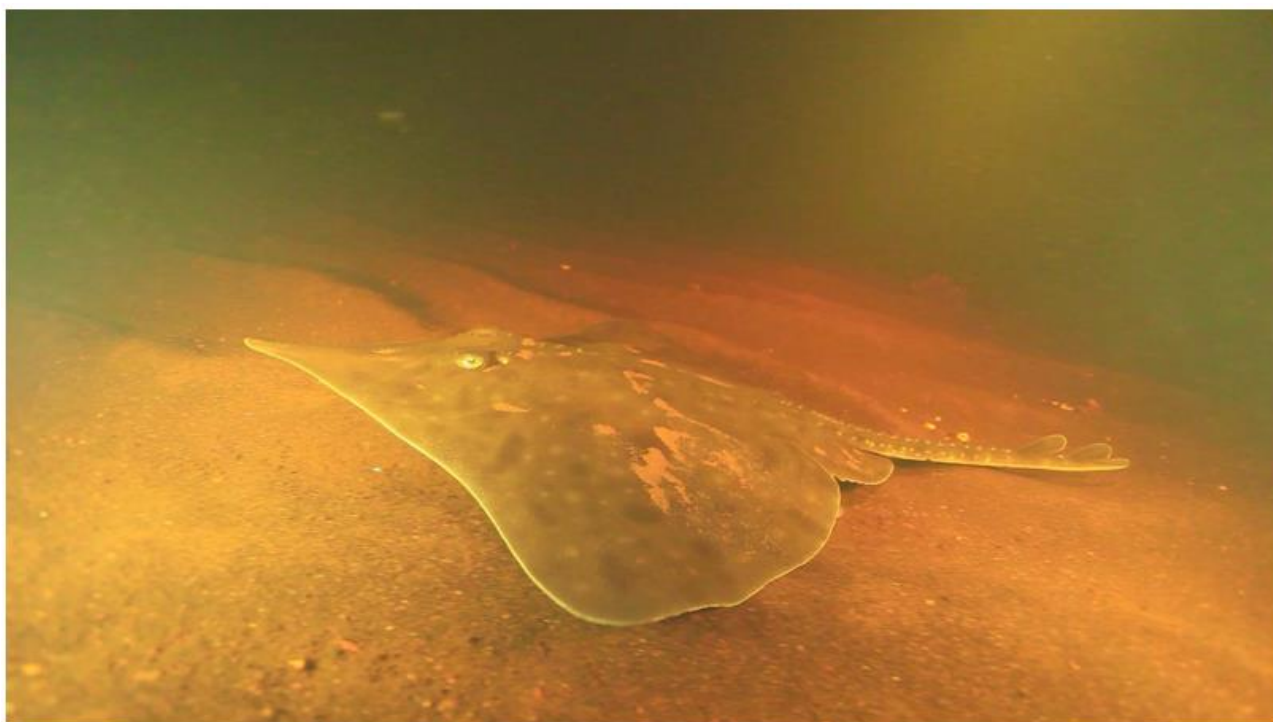


Fig. 1. Maugean Skate in Macquarie Harbour (image: Mick Baron, Eaglehawk Dive Centre)

Macquarie Harbour is home to the Maugean Skate (*Zearaja maugeana*) [3] (Fig.1). This fish is a living fossil, which has been living its life and 'minding its business' for millions of years. Home for the Maugean Skate is Macquarie Harbour, its only home, its home for millennia, and for which it is well adapted.

The Maugean Skate is now classified as threatened and endangered [3]. The main threat to the existence of the Maugean Skate is the introduction of industrial-scale farming of Atlantic salmon. Three multinational companies (Tassal, Huon Aquaculture, Petuna) are overseeing this ecocide.

‘Tasmanian Atlantic Salmon’ is a geographic oxymoron. Tasmania has the Indian Ocean to the west, the Southern Ocean to the south, and the Pacific Ocean to the east; far from the Atlantic Ocean. Macquarie Harbour is about as far from the home range of Atlantic salmon as it is possible to get. A mass fish-kill of 1.35 million Atlantic Salmon in 2018 prompted a call for “a moratorium on all fish farming” and for the fish farms to vacate the harbour [4].

Fish farming of Atlantic Salmon in Macquarie Harbour expanded rapidly in 2016 [4] (Fig.2). This coincided with the rapid decline in the the Maugean Skate population, from c.3,200 individuals in 2016 to a 47% decline by 2021 [3]. The present population may be down to 1,000 individuals.

For the Tasmanian ecosystem, Atlantic salmon is an alien invasive species. The fact of this invasive species being crammed into sea-cages for fast fattening makes them no less invasive. Tonnes of fish-feed pellets are tossed into Macquarie Harbour on a daily basis (>10,000 tonnes pa). Blanketing the harbour floor under the cages is fish-food waste (pellets not consumed as they sink), along with tonnes of fish faeces. This putrid blanket of muck sucks oxygen from the water and creates dead zones. The Australian Government has identified: “The primary threat to the Maugean skate is habitat degradation resulting from sustained reduction of dissolved oxygen ... the most important anthropogenic contributor to the oxygen debt in Macquarie Harbour is ongoing salmonid aquaculture” [3, p.14].



Fig.2. Fish cages in Macquarie Harbour (image: J. Paull)

The fish feed pellets used are extruded from a mash-up of chicken waste, fish waste, and grains. Added to the mash are antibiotics (will make the fish grow fatter faster), synthetic colouring Astaxanthin [5] (will make the flesh artificially pink, not grey), and preservative. Wild Atlantic Salmon have pink flesh because of their natural diet of crustaceans; the farmed fish are fed synthetic colouring to mimic their wild counterparts. The EU-banned antioxidant Ethoxyquin is also reported in the flesh of Tasmanian Atlantic Salmon [6]. It is added to the fish feed as a preservative [7].

The proverbial ‘canary in the coal mine’ is not primarily about the canary, it is about the healthy state (or not) of the mine. The Maugean Skate is the ‘canary’ for Macquarie Harbour, a sentinel species. The Skate being in jeopardy for its continued existence reveals that the broader ecosystem of Macquarie Harbour is in existential jeopardy. What is bad for the Maugean Skate is bad for the natural ecosystem of the Harbour, and what is bad for Macquarie Harbour is industrial scale aquaculture.

The industry-serving proposals of captive breeding for the Maugean Skate (there is no history of success) and “injecting oxygen into the harbour” (Luke Martin, CEO of Salmon

Tasmania, ABC Hobart Radio, 7/9/23) is so much green-wash, unproven, untested, and fail to address the cause. An observer could be excused for thinking these proposals are a cynical ploy to maintain 'business as usual' and 'profit as usual' while diverting attention from the pollution and ecological degradation of industrial scale fish farming, and the ready-to-hand remedy, namely, the cessation of Atlantic Salmon fish farming in the Harbour.

It is past time for the Tasmanian Atlantic Salmon industry to depart Macquarie Harbour. Whether that is achieved by an EPA ruling, a Federal government ruling (e.g. invoking the Environmental Protection and Biodiversity Conservation (EPBC) Act), a UNESCO intervention, a consumer boycott of Tasmanian Atlantic salmon, a restaurant boycott (following the lead of MONA [8]), retailers destocking, or a social media campaign (or all or some of these), remains to be seen. In the meantime the Maugean Skate is threatened and endangered.

Tasmania's Environmental Protection Agency (EPA) is monitoring the demise of the Macquarie Harbour ecosystem. It has been dubbed a "toothless tiger" [9] and is regarded by some as captured by the industrial fish farming industry [10] .

Tasmania has form for extinction. The Tasmanian Tiger (the thylacine, *Thylacinus cynocephalus*) is a protected species in Tasmania. In a remarkable example of the post-cautionary principle, the species was protected in 1936 just as the last of the species died of neglect in captivity in 1936. This outcome was the tail-end of a bounty scheme whereby the Tasmanian Government paid for every dead thylacine presented [11]. It is a shameful eco-crime, the genocide of a species. The Tasmanian ecosystem continues to suffer the loss of its apex predator.

If the canary in the coal-mine dies, the consuming issue is not to settle the funeral rites for the departed canary, but rather to detoxify the mine. In the case of the Maugean Skate in Macquarie Harbour, this fish being in strife (after millennia) flags the ecosystem of the Harbour being in strife. The proximate cause of the decline of the Maugean Skate is the rapid expansion of industrial-scale fish farming. The proximate solution is the rapid contraction of industrial-scale fish farming, with the view to immanent cessation.

The maxim that applies for the present circumstances of the Maugean Skate and Macquarie Harbour is: "To know and not to do is really not to know at all" (Gurumayi Chidvilasananda). The extinction of the Maugean Skate would be a shameful outcome for the the lack of sound environmental governance, for the pursuit of a 'handful of shekels' by foreign-owned multinational corporations, and for the production of cage fish fed a most unnatural diet of dry pellets of chicken offal, beaks and feet, wild fish from Peru, antibiotics and synthetic colouring and preservative. This concoction bears no resemblance to the diet of wild Atlantic Salmon.

There are already sufficient data and concerns for the Maugean Skate in its own right, and, as a sentinel species, for the ecosystem of Macquarie Harbour. Tasmania's Minister for Primary Industries, Jo Palmer, "admitted that the big salmon companies had lost their social licence with the public over the past years" [8].

Invasive and non-native species are known to cause economic loss, ecosystem degradation, and drive extinctions [12, 13]. The time has come to shut down the industrial fish farms of Macquarie Harbour, for the survival of the Maugean Skate and for the health of the ecosystem of the Harbour.

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