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Skating over thin evidence: The weaponisation of endangered species laws in the Tasmanian salmon wars

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Foreword

On 25 March 2025, the same day the federal government handed down the 2025-26 budget, the parliament introduced an amendment to the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) that was promoted as resolving litigation harming Tasmanian salmon farmers. The amendment was rushed through parliament and passed both houses the next day.

Because of how the EPBC Act is structured, green groups enjoy a variety of legal privileges to challenge administrative decisions made under the EPBC Act, such as the 2012 decision by the environment minister declaring a proposed expansion of salmon farming in Macquarie Harbour in Tasmania's west coast was not a controlled action requiring further assessment under federal law. Between June and November 2023, the Bob Brown Foundation, the Australia Institute, and the Environmental Defenders Office made requests under section 78A of the EPBC Act for the 2012 decision to be reconsidered as the project was claimed to put at risk a stingray-like fish, the Maugean skate.

Section 78C of the EPBC Act requires the environment minister to, as soon as practicable, reconsider the decision and either confirm the original decision or revoke the decision and substitute a new decision for it. However, by February 2025 the environment minister had not announced the outcome of any reconsideration, plunging the Tasmanian salmon industry into prolonged uncertainty about its future.

The federal government's response, the *Environment Protection and Biodiversity Conservation Amendment (Reconsiderations) Act 2025,* is intended to restrict the power of the federal environment minister to reconsider past decisions in relation to an action ongoing or recurring for at least five years.

However, less than a week after it was introduced, the Bob Brown Foundation went back to the Federal Court to argue the amendment does not 'apply' to the salmon farmers on the basis that their practices had changed in such a way over the years that they could not be regarded as 'ongoing or recurring', and seeking a court order requiring the minister to reconsider the 2012 decision.

Whatever the outcome of this latest challenge, it does expose as inadequate the amendment intended to clamp down on activist litigation when it was itself immediately the subject of a legal challenge by a green activist group.

Reconsideration timelines are not the underlying problem facing salmon farmers and other projects but are the symptom of a complex and burdensome federal regulatory framework that empowers green groups to engage in damaging lawfare. Institute of Public Affairs' research into the EPBC Act has found:

- Between 2000 and 2020, projects with a combined economic value of at least $65 billion were put at risk of cancellation by being held up in court for a cumulative total of 10,100 days due to section 487 of the EPBC Act that enables green groups to challenge administrative decisions under the act.[1]

[1] Kurt Wallace, *Section 487: How activists use red tape to stop development and jobs (2020 update)* (Institute of Public Affairs Research Report, March 2020).

- The number of protected species under the EPBC Act increased by 63 per cent between 1992 and 2016, which expands the scope for activists to delay or cancel development or use of land (the Maugean skate was added in 2004, but was only listed as 'endangered', below 'extinct', 'extinct in the wild', and 'critically endangered').[2]
- The EPBC Act became significantly more complex during the first two decades it was in force, with the number of regulations contained in the legislation and associated regulations increasing by 445 per cent between 2000 and 2020.[3]

Protected species are an important element of the EPBC Act framework: 'listed threatened species and ecological communities' are a 'matter of national environmental significance', or MNES. A minister can decide that any project or 'action' that impacts an MNES is a controlled action requiring further assessment and approval before it can proceed.

A decision of the minister in general circumstances is able to be challenged under the *Administrative Decisions (Judicial Review) Act 1975* by a 'person aggrieved' whose 'interests are adversely affected by the decision'. However, section 487 of the EPBC Act extends the definition of 'person aggrieved' to include organisations or associations which are engaged in activities 'for the protection or conservation of, or research into, the environment'. Yet as the Tasmanian salmon farming case shows, the right of green groups to intervene can extend to demanding the minister reconsider their decision that a project does not require further assessment for up to five years after the project has been operating.

Professor Aynsley Kellow's case study of the Maugean skate detailed in this working paper reveals the one-sided process that allows green groups to throw up numerous hurdles in front of legitimate economic projects. While it is unproven that the Maugean skate and salmon farming cannot co-exist, green groups merely need to assert that there is an issue and a project can be subject to further regulatory action and thrown into doubt.

Australia is bestowed with enviable natural resources, the use of which is intrinsically tied to our national prosperity. The default setting of too many modern governments, and the effect of federal environmental laws, is to lock up our potential. The revelation that the federal government is resurrecting the nature positive plan, which has as its objective placing 30 per cent of Australia's landmass and 30 per cent of Australia's marine areas under conservation, illustrates this 'lock up' tendency that is shrouding the Australian economy in uncertainty.

This is not sustainable. Governments must commit to fundamental structural reform of Australia's environmental regulatory framework to reduce complexity and close the door on green groups using our courts and laws to pursue their own political agenda at the expense of the wellbeing of the country.

Morgan Begg

Director of Research

April 2025

[2] Morgan Begg, Darcy Allen, and Daniel Wild, *Decentralising the protection of Australian threatened species* (Institute of Public Affairs Research Report, October 2017).

[3] Cian Hussey, *The growth and complexity of environmental regulation* (Institute of Public Affairs Research Report, April 2020).

Introduction

A hot current political issue involves the responses of the major parties to the threat salmon farming in Macquarie Harbour on the west coast of Tasmania poses to an endangered species, the Maugean skate.

The Environment Minister, Tanya Plibersek, has so far declined to act. Opposition Leader Peter Dutton has promised to save salmon farming, and Prime Minister Anthony Albanese has been making noises about saving the jobs of the employees of the industry, but the only definitive action as of writing is to introduce into parliament a bill which would address the issue, the details of which had reportedly not been released publicly or shared with industry groups or the opposition (Denholm, 2025). He is caught in a cleft stick, between the workers in a marginal electorate and likely Green voters in urban electorates, supported by the recently emerged bespoke group the Business Alliance for the Maugean Skate.

The conflict over salmon farming has been raging for some years, but the current situation has become focused on the fate of the Maugean skate, a remnant species left over from Gondwana which has been on the IUCN Red List as endangered since 2000. The threat of salmon farming was not an issue then, nor was it when the problem really took off politically in 2016, but endangered species make for useful weapons because the law attempts to ensure their protection.

The aquaculture industry emphasises that their activities occupy a mere 2 per cent of Macquarie Harbour. The harbour has continuing issues with oxygenation, ironically because of occasional storms pushing in oxygenated water which has the effect of displacing upwards water that is relatively deoxygenated. This impacts aquaculture—perhaps even more than the skate, and it has taken some time to fine-tune stocking levels. The Maugean skate has a marginal existence, with considerable uncertainty over its numbers, but it has made a useful weapon for the opponents of salmon farming, who commenced their campaigns largely outside Macquarie Harbour, with concerns other than the survival of the skate.

Finfish farming has been the subject of a parliamentary inquiry and the Tasmanian government has responded to its recommendations with management and skate conservation measures. However, the presence of an endangered species and the proximity of the World Heritage Area provide the Commonwealth government with *compétence* (or ability jurisdiction) to decide the issue against the preferences of Tasmania if need be (see Begg, Allen & Wild, 2017).

This paper suggests that it is not clear that aquaculture and the skate cannot coexist, and even if salmon farming in Macquarie Harbour were to be prohibited, that would not guarantee the survival of a species with highly limited population numbers and habitat.

How activists use endangered species to block development

In a Brisbane Club Lecture in 2008 (Kellow, 2008: 2) I proposed Kellow's Law of Endangered Species: that sightings of endangered species are clustered around the sites of proposed developments. This, I suggested, reflects both the cynical use of endangered species for political purposes, and partly the more genuine fact that research for environmental

assessments frequently finds species not known to be there because the site had never previously been surveyed.

I based this observation primarily on some examples from the United States, where the *Endangered Species Act* elevated the presence of an endangered species to essentially veto status after the notable case of the Snail Darter was used to block The Tennessee Valley Authority's Tellico Dam project. While the decision was upheld by the courts, Congress adopted a law to exempt Tellico from the provisions of the Act.

This Act encouraged the use of endangered species by environmental activists to block developments, some of which I documented in my 2007 book *Science and Public Policy* (Kellow, 2007).

The Ivory-billed Woodpecker, long thought extinct, was 'rediscovered' with a possible sighting 14 miles from the Army Corps of Engineers' $320 million Grand Prairie irrigation project—close enough for a US federal judge to stop work on the project in 2006. US Federal Fish and Wildlife Department officers went a step further and reportedly planted fur from the endangered Canadian lynx in Wenatchee and Gifford Pinchot National Forests in the Pacific North-west in 2002, with critics suspecting that the samples had been planted in an effort to protect the national forests from logging, mining and recreation.

A campaign by Earth First! to prevent logging of old-growth forests in the Pacific North-west was able to invoke the threat this would pose to the Northern Spotted Owl. A 'scientific' paper was produced on demand by Russell Lande, who had apparently never seen a Spotted Owl, but was able to apply a mathematical model derived from the effects of pesticide on insect populations to the Spotted Owl problem (Chase, 1995). Subsequent research found that the owl was more numerous and preferred regrowth forests because the less dense canopy provided greater hunting opportunities. Nevertheless, the Spotted Owl achieved the objectives of the campaign, which was supported by the Surdna Foundation, the 'charitable' vehicle of the Andrus family which also had private forestry holdings which benefited from the efforts of environmental groups.

More recently it has been found that the Spotted Owl population has been diminished by competition from the Barred Owl, an 'invasive' species from the East, with some culling of the invader to assist the 'native' species—exemplifying problems with ecological science. Ecological science is replete with value terms like 'alien', 'colonize', 'community', 'competition', 'contest', 'disturbance', 'efficiency', 'enemy', 'invasive', 'native', 'stability' and 'territory' (Chew and Laubichler, 2003). The Audubon Society found itself on the horns of a dilemma, and neither supported nor opposed the culling of the Barred Owl, but absent any evidence of human agency in introducing the 'alien' still managed to implicate development by claiming that old-growth forestry had heightened competition between the two.

Implicating human activity is important, despite the obvious point that competition between species and even the extinction of species is possible without human agency. The very identification of species is also problematic. Ironically, the Snail Darter that halted Tellico has recently been found to not be genetically distinct from another population and is no longer considered endangered.

Australian Examples

The *Environment Protection and Biodiversity Conservation Act 1999* provides for the listing of threatened species (s178) and specifies requirements for decisions about threatened species and endangered communities (s139), but it does not provide quite the trump card that is found in the US *Endangered Species Act.*

There have nevertheless been some cases in Australia of invoking protection of endangered species to oppose developments. The endangered Swift Parrot seems to make regular appearances whenever the old-growth forest it needs for nesting is threatened, and the migratory Orange-bellied Parrot had earlier been used to oppose the proposed move of the Coode Island chemical storage facility to Point Lillias in Victoria after one individual parrot was seen feeding near the site (Kellow, 2005).

A sighting of the Orange-bellied Parrot near the site of the Bald Hills wind farm proposal was the basis for the (Coalition) Commonwealth minister blocking the proposal to appease voters, but it was approved under the ALP Rudd government and construction commenced in August 2012 (it was later the subject of a successful claim for damages by residents on the basis of noise).

In other cases, the Pebble Mound Mouse was used by conservationists to try to stop an iron ore mine at Marandoo in Western Australia, until 21 studies by 60 scientists found the only reason it had been thought extinct was that nobody had been looking for it. Coxens' Fig Parrot, after no confirmed sightings since the 1980s, was reportedly sighted in the catchment of a proposed dam in Queensland. Parks and Wildlife Service spent almost $1 million on a recovery programme to save it from extinction and was convinced it was still extant, but an ornithological consultant engaged in the 1990s to search for the parrot (without success) considered the 30 or so unconfirmed sightings to be 'dodgy' and 'politically motivated'.

The case of the Maugean skate

All of which brings us to the current controversy over salmon farming in Macquarie Harbour and the endangered Maugean skate, the very existence of which opponents of the aquaculture industry claim is at risk through its environmental impact.

The Maugean skate, *Dipturus maugeanus* (previously known as *Zearaja maugeana*), is named in honour of René Maugé, a zoologist on the French expedition of Nicolas Baudin, who died of dysentery at Maria Island off South-east Tasmania (where he is interred) in February1802 (Last & Gledhill, 2007).

It was unknown to science until 1988, when zoologist Dr Graham Edgar caught one using a gill net in Bathurst Harbour, an inlet off Port Davey in the remote South-west Tasmanian wilderness. Dr Edgar discarded the specimen, but he returned the next year and kept the next one, and it received the common name of 'Port Davey skate'. This name is no longer used, with 'Maugean skate' now preferred.

Bathurst Harbour, an inlet off Port Davey, lies in the middle of the 1.4 million ha Tasmanian Wilderness World Heritage Area, about 150km south of Macquarie Harbour. It is unusual, in that it has high tannin loadings from runoff over button-grass plains that reduce light in

shallow depths. It shares some superficial affinities with the fiords of Patagonia and southern New Zealand, and the unusual long nosed skate is thought to be a vestige of Gondwana because similar skates are to be found in those regions. As skates are not adept at crossing vast areas of open ocean (the Maugean skate has never been found in open water), it is thought the Tasmanian example evolved after Gondwana split and the natural features of Antarctica did not favour the evolution of a species there. The Maugean skate is unusual in that it occupies an estuarine, silty habitat with brackish waters.

The Maugean skate appears to be very rare, and probably extinct in the habitat for which it is named, with avoiding the earlier name diverting attention from its likely extinction in Port Davey. There have been only four confirmed observations of the species in Bathurst Harbour, with the last in 1992. Several surveys were conducted between 1992 and 2022, but they failed to verify the presence of the remnant species. DNA samples collected in 2022 detected only minimal amounts of Maugean skate DNA, suggesting it might be 'locally extinct'.

The lack of evidence of existence in Bathurst Harbour since 1992 was curious, because it was thought that 'The isolation of Bathurst Harbour, which is situated in the heart of large terrestrial and marine parks in southwestern Tasmania, affords partial protection for this species' (Last & Gledhill, 2007: 61). As Last and Gledhill pointed out in 2007, the small populations and the geographically restricted distribution of this species presented significant conservation challenges.

Significantly, the skate does not appear to have ever been plentiful in Macquarie Harbour, and it is not clear how a species adapted to a shallow, brackish estuary, and ill-suited to oceanic migration made its way from one harbour to the other through the turbulent waters of western Tasmania, where there are no other calm inlets between them. And it is a little curious that these two remnant populations, separated from other skates of Gondwana when that continent broke up 66 to 23 million years ago, did not evolve into distinct species, as the IUCN suspected at one point they might be.

Last and Gledhill reported in (2007: 61): '*Zearaja maugeana* is also caught *occasionally* by recreational gill netting in Macquarie Harbour' (emphasis added). This was some 20 years after the first, limited salmon farming activity in 1987, and before the expansion of aquaculture could have had much impact. (Tassal established there in 2003, Huon Aquaculture in 2008, and Petuna around 2011). Indeed, Last and Gledhill (2007: 61) did not identify aquaculture as a threat to the skate, noting that the Port Davey and Macquarie Harbour populations were 'in otherwise scenic and important recreational areas facing increasing pressure from ecotourism'.

This points to a curiosity. Port Davey lies in a wilderness area (with little ecotourism activity), which was thought to offer some protection to the species. Yet the skate was found, 'occasionally', in Macquarie Harbour—a commercial fishing port with a much more significant ecotourism industry, compared with Port Davey, where it operates on a fly-in (or walk-in) basis. Moreover, Macquarie Harbour is an estuary heavily polluted by mining discharges and affected by hydroelectric operations.

The King River, considered to be Australia's most polluted river, discharged toxic mining waste into the harbor from the 1880s until 1995, fed by tailings and other waste from the Mt Lyell copper mine into the Queen River, a tributary of the King. Since 1992 the King River

has also been regulated by the Crotty Dam, generating hydroelectric power and changing the flow regime in the King River (Taylor, 1996). The Gordon River also discharges into Macquarie Harbour, after passing through the Gordon Power Station, and while hydroelectric energy generates few pollutants, it can result in deoxygenation in water discharged from deep storages.

Macquarie Harbour has three stratified layers. The surface water (0–10 m deep) results mostly from the river inflows, is fresh and buoyant, usually with high levels of oxygen, and is rapidly discharged to the sea through the harbour entrance. The sub-surface layers are older and are retained in the harbour for much longer, and as a result, are depleted of oxygen because of respiration and biological processes by benthic organisms. Oxygen in the mid-water layer can be lower in concentration than in the bottom layer, below 20m (CSIRO, 2018).

The Maugean skate is unusual in that it seems to prefer shallow brackish estuarine waters that are stained with tannin washed in from the catchments, though its eggs are often found at the bottom of deeper water.

The salmon wars

As noted above, substantial salmon farming in Macquarie Harbour commenced with the arrival of Tassal in 2003, followed by Huon Aquaculture in 2008, and Petuna around 2011. Previously, salmon farming had been concentrated at Dover and near Bruny Island, commencing in 1984 (Harrison, n.d.). This activity eventually led to concern from residents overlooking aquaculture leases, but the campaign eventually expanded to take in Macquarie Harbour and the endangered skate.

The first real shots fired in the salmon wars came from Graeme Wood, who was cashed up from his sale for $220m of Wotif.com, the internet accommodation service he had founded. Wood had purchased the former Gunn's woodchip mill at Triabunna in 2011 for $10m, initially with Jan Cameron, founder of Kathmandu, the clothing and outdoor equipment company, before buying her out. They controversially immediately removed much of the plant to prevent it from being restarted as a woodchip mill. He had plans for a hotel, conference room, restaurant and unit complex at the site, which was opened in 2022.

In August 2014 Tassal researched conditions near Triabunna and in February 2016 announced an aquaculture proposal (subsequently approved) for a salmon farm off Okehampton Bay, adjacent to Wood's development site, alongside an existing mussel lease. This was to be an 'Integrated multi-trophic farm'—which Tassal described in August 2017 as Australia's first eco-aquaculture site—incorporating seaweed to absorb nutrients.

The campaign against salmon farming began in earnest in April 2016, after the Liberal government had increased the limit on biomass in farming operations in Macquarie Harbour to 21,500 tonnes from 1 July that year.[1] The group Environment Tasmania (Glumac, 2016) announced on 29 April 2016 that it would fight the increase, a shift in priorities as it had not

[1] The limit was later cut after some evidence that a 'dead zone' underneath a Tassel lease had encroached into that part of the harbor that was within the World Heritage Area, but had been increased after further review.

flagged a campaign against salmon farming in its strategic plan. Environment Tasmania made no mention of the Maugean skate in its announcement.

The announcement from Environment Tasmania followed closely the announcement by Tassal in February 2016 that it would establish salmon farming off Okehamption Bay. In 2017, Wood donated $100,000 to the Bob Brown Foundation that has led the anti-salmon campaign, and joined with the Foundation in attempting legal action to try to block the Okehampton proposal.

Wood was instrumental in establishing a bespoke group, Let's Grow Tasmania's Future (LGTF) (Beavis, 2017), seemingly solely for the purpose of opposing Tassal's proposal, because having served its purpose and failed (inasmuch as the development was eventually approved) it has seemingly ceased to exist. Its Facebook page has not seen a posting since 12 January 2018.

In late December 2017, LGTF began a social media and television campaign depicting a fisherman defecating over the side of a boat, claiming 'farming 800,000 salmon in Okehampton Bay is about the same as 10,000 people taking a dump in the bay every day'. The Australian Workers' Union responded with a rally in support of salmon farming that was attended by politicians from both sides of Parliament (O'Connor, 2017).

The ABC's *Four Corners* reporting of the conflict over Okehampton Bay moved on to the problems in Macquarie Harbour. Significantly, the report was silent on the Maugean skate, focusing instead on the continuing problems with biomass limits and oxygen levels, with the former being adjusted by regulatory authorities in response to concerns with the latter. Perhaps surprising was the participation in the program of the head of Huon Aquaculture, Frances Bender, who was critical of practices in the Harbour. The presenter, Caro Meldrum-Hanna, led off with 'This is Macquarie Harbour. The birthplace of intensive salmon farming in Australia...', seemingly unaware that the first of the big three companies commenced salmon farming there only in 2003, and earlier activity was concentrated at Dover and Bruny Island in the Derwent Estuary.

The problems in Macquarie Harbour largely centred on setting the appropriate stocking levels for the industry. In 2005 there was 2,000 tonnes a year of fish production and it increased until 2012, when the Labor state and federal governments agreed to permit a near doubling in farming area, based on scientific advice that the Harbour could support 29,500 tonnes of fish.

By late 2016 stocks of about 16,000 tonnes were in the water, but environmental problems emerged. A decline in environmental health included a 'dead zone' that reportedly had spread from a Tassal-owned lease into the World Heritage Area. These mats of bacteria, *Beggiatoa*, result from nutrient enrichment under low oxygen availability. The Environment Protection Authority ordered that lease to be shut down and reduced the biomass limit to 14,000 tonnes. Four months later it was scaled down again to 12,000 tonnes, although Tassal was later allowed to exceed its cap after introducing a waste-catching system underneath its salmon pens.

A statement to the market by Tassal in April 2017 highlighted that the attribution of *Beggiatoa* to aquaculture was perhaps not always accurate. They reported on April survey data which showed no *Beggiatoa* was detected in the World Heritage Area until close to the mouth of the Gordon River, over 11km from the centre of the farming region. This suggested the *Beggiatoa* could be a result of other external influences in the Harbour, from organic matter enrichment in general, rather than just aquaculture, and mat formations could disappear as oxygen levels naturally changed throughout the Macquarie Harbour system.

Conditions in the Harbour were dynamic and, especially with the stratified water conditions, could change markedly. In May 2015 a storm surge through the narrow heads (known as Devils Gate) pushed water that was lower in oxygen towards the surface of the harbour, resulting in the death of an estimated 85,000 salmon in the lease of Petuna, the smallest of the three producers.

Bender's participation in the *Four Corners* program marked a widening divergence between Huon on the one hand and Tassal and Petuna on the other. This was further apparent in 2018 when Bender accused Tassal of exacerbating the risk of pilchard orthomyxovirus, a naturally occurring disease harmless to humans but without a cure in salmon, which had broken out in the pens of all three salmon producers (Morton, 2018) through farming salmon of different ages in the same pens and mixing salmon and ocean trout, when some were more vulnerable than others. Bender wrote to Tassal and to the government warning that there was a risk not just to Tassal, but to all three companies whose pens were in close proximity. Tassal denied that it was responsible.

The conflict between Huon and the others took on the reality of classic regulatory politics. However, in May 2017, the EPA granted Tassal consent to exceed its cap and changed the allocation process from the equal 'tonnes per hectare' allocated to each company to a 'percentage of current stock'. This favoured Tassal.

Huon unsuccessfully took the issue to the Federal Court, arguing that the Tasmanian government or the EPA failed to comply with the Commonwealth's conditions by allowing salmon stock levels to rise to greater levels than Macquarie Harbour could support. A second Federal Court challenge focused on the technicalities of the EPA's decision to grant Tassal a higher biomass allocation. Petuna and Tassal joined as parties to the case, and supported the decision. In May 2018, Tassal established a joint venture with Petuna to farm in Macquarie Harbour. The goal was to improve stocking strategies, biosecurity, and allow longer fallowing periods to protect the environment.

In the proceedings of the cases, counsel for Tassal and Petuna argued that Huon had consistently complained about the allocation of stock in the harbour since 2012, and considered it had been discriminated against, to the financial benefit of Tassal. Frances Bender said she accepted the suggestion, but claimed she had also raised concerns about high stock levels and the negative effects on the harbour's oxygen levels. Counsel, Mr McElwaine, suggested the legal action had been initiated under the guise of environmental concerns, but was motivated by profits—a classic Bootlegger and Baptist coalition.

One concern raised by *Four Corners* and others was the use of Astaxanthin, which was frequently described as a chemical used to 'dye' the salmon in order to improve its appearance. In fact, Astaxanthin was added to the feed given to the salmon and was chemically identical to that found in crustacean species that salmon might feed on in the wild. It is an antioxidant that is available for human consumption from pharmacies (without a prescription). But a dietary supplement was not sufficiently alarming, and the Australia Institute (2019), for example referred to the use of synthetic 'pink' dyes to colour the fish.

Ironically, it was reported in August 2016 that Graeme Wood, despite his opposition to salmon farming, had invested in MBD Energy, a company that was making Astaxanthin for the salmon industry from algae (Robins, 2016). Tassal did move away from synthetic Astaxanthin, but apparently switched to product sourced from krill, thus avoiding any future criticisms of using a synthetic product (Denholm, 2023)—though krill harvesting is not without controversy.

The industry came under further attack from author Richard Flanagan, who in 2021 published a book with the provocative title of *Toxic. The Rotting Underbelly of the Tasmanian Salmon Industry,* which sold very well. Flanagan described the fish farms near his shack as having taken the appearance of a heavy industrial site, with huge diesel-engine ships sailing up and down the D'Entrecasteaux Channel at all times of the day and night, sounding like a semi-trailer reversing under your bedroom window. Flanagan wrote that abalone, crayfish, penguins, shellfish and seagrass had disappeared from the area in recent years and the local waters now featured 'bright green slime' and 'strange bubbly brown broth', and were 'now more dead than alive'. Two months after publication, Flanagan put his shack on the market, and it was described in somewhat different terms (Killick, 2021). It was described as 'a place to relish in the serenity and beauty'; to 'wake to the first rays of sun and the sounds of the waves!'; and that it 'promotes a feeling of total calm and peace'.

Enter the skate

While the campaign against salmon farming began with the Okehampton Bay proposal and the reaction of the residents of Bruny Island, it coalesced to centre on the dangers aquaculture in Macquarie harbour posed to the endangered Maugean skate.

What is questionable is whether the skate has really been put at risk by aquaculture. There has been no firm estimate of numbers, and the initial description of the species noted that it was only occasionally been caught by gill netting in the Harbour. Its habitat is brackish waters, made brackish by the inflows from regulated rivers (the King and Franklin) that are known to frequently provide inflows low in oxygen. The Port Davey skate, as it was initially known, has seemingly become extinct in Bathurst Harbour, an inlet off Port Davey. (The IUCN went so far as to suggest at one stage the possibility that they might even be two distinct species).

Species are known to become extinct when they are not capable of adaptation to changing environments, and the Maugean skate is a remnant from the break-up of Gondwana during the Paleogene around 66 to 23 million years ago and is suited only to a small ecological range. But endangered species have political value to those opposing economic activity,

especially because in the Australian federation they deal the Commonwealth into resource management decisions that would otherwise be the preserve of the state.

Attempts to preserve endangered species are noble, but they carry no guarantee of success. Despite the best efforts by both levels of government, the Maugean skate might yet become extinct, as it apparently has in Port Davey. Maugean skate conservation is a worthy cause, but there appears to be no firm evidence of how much its population has declined and what the cause of that decline might be—nor whether conservation efforts will succeed.

But the Maugean skate has provided a useful weapon in the war on salmon farming, which engulfed the industry—ironically—primarily as a campaign elsewhere in Tasmania by those who were concerned initially over the impact of aquaculture and amenity.

The *Four Corners* report in 2016 appeared in response to the threat of planned aquaculture in Okehampton Bay to the amenity of Graeme Wood's tourism development. Similarly, Richard Flanagan's opposition to noise from existing salmon farms off his shack on Bruny Island led to his 2021 book *Toxic.* Motivated by the loss of amenity through noise, both he and Gerard Castles (another Bruny Island activist) then seized upon other impacts such as waste under salmon pens and (inevitably) the use of the 'synthetic dye' Astaxanthin to colour the flesh of the fish.

Coslovich (2021) quotes Castles, an old university friend of Flanagan's, stating quite clearly the motivation and the course of events: '"We spent 15 years trying to reduce the noise, then we started digging and found out what was underneath those cages," Castles says. "What's under there is a sewer".' This is a classic 'whirlpooling' of issues (Henning, 1970), but actively pursued by the protagonists searching for additional factors, might strengthen their case. The Maugean skate as an endangered species was a powerful card to add to their hand, as was the proximity of the salmon leases in Macquarie Harbour to the World Heritage Area.

Both these factors had the benefit of dealing the Commonwealth into the conflict. While there were undoubtedly issues with aquaculture in Macquarie Harbour, especially with oxygen levels and waste, the skate hardly featured in the discourse initially and became a much larger component of reasons for opposition later.

Scientists at the University of Tasmania's Institute for Marine and Antarctic Studies (IMAS) have been monitoring environmental conditions in Macquarie Harbour for over a decade. The regulators had varied stocking levels in response to changes in their assessment, particularly in response to dissolved oxygen levels, even before that time. In addition to the stratification noted above, there is seasonal variation, with observed levels declining in Spring. Low levels of dissolved oxygen coincide with limited recharge from the ocean through the narrow heads and higher river inflows, the latter perhaps reflecting (at least partly) releases from hydro dams.

The IMAS research has found the mid-bottom waters of Macquarie Harbour to be naturally low in dissolved oxygen, and that these oxygen levels declined from 2009 to 2013—with aquaculture, natural and regulated river flows and climate change stated to be influencing the dissolved oxygen level.

Levels of fish stocks in Macquarie Harbour have therefore been varied, according to environmental monitoring, in what has been termed 'adaptive management' and recent oxygenation has assisted that process. The conservation of the Maugean skate has been given high priority by both state and Commonwealth governments, the latter being given *compétence* by virtue of the skate's listing as an endangered species (under the EPBC Act) and the intrusion of part of the World Heritage Area into the Harbour.

In July 2023, A National Recovery Team for the Maugean Skate was formed to develop and implement a conservation plan for the skate. The team included representatives from governments, industry, research organisations and members of the community with a strong interest in Maugean skate conservation. As an urgent action to reduce or offset the impacts on dissolved oxygen from salmon farming, the Macquarie Harbour Oxygenation Project (MHOP) was developed to explore the possible use of mechanical oxygenation to help increase the levels of dissolved oxygen. MHOP is a joint initiative of the Australian Government's Fisheries Research and Development Corporation (FRDC) and Salmon Tasmania to support conservation efforts for the Maugean skate.

The MHOP involves: operating the oxygenation plant and delivering oxygen into the water column; measuring the response to oxygenation across nutrient concentrations, metal availability, microbial activity, and sedimentary and mobile fauna; and computer modelling to predict the diffusion of the oxygen plume and spread.

There is no firm estimate of the Maugean skate in Macquarie Harbour prior to the arrival of Tassal in 2003 (followed by Huon and Petuna) and, even today, estimates of population are limited in accuracy. The initial estimate of the population of 'likely to be less than 1000 individuals' reported by Last and Gledhill (2007: 60) was merely based on personal communication. It is certainly at risk because of its small population and very small geographical range (300 km^2—or about six Sydney Harbours), but that risk existed before the arrival of aquaculture and there is no certainty that it was not at risk of extinction earlier. Significantly, the contemporary political focus is on aquaculture, rather than regulated river flows from hydro dams, tourism, or the long history of pollution by mining of the King River.

No population estimate was included in the first IUCN Red List entry in 2000, and passages from the 2016 listing (Last, Gledhill, & Sherman, 2016) underscore the fragmentary nature of data relating to the skate:

> The Maugean Skate appears to be mainly in the upper estuary to freshwater sectors of Macquarie Harbour, however, recent studies have shown that they do move quite extensively throughout the harbour (J. Lyle, pers. comm., 01/04/2015).

And:

> The total population size has previously been estimated at <1,000 individuals (P. Last, pers. obs.). A recent tagging study of the Macquarie Harbour subpopulation (unpublished), combined with reports of the species being commonly captured by recreational and commercial gillnetting, suggests this may be a significant underestimate (N. Barrett, pers. comm. 2015).

In other words, there is heavy reliance on personal observations and personal communications, rather than on research published in peer-reviewed literature.

Professor Jayson Semmens, leader of the captive breeding program at IMAS has been reported as considering the numbers of the wild population to be 'well below 1500' (Denholm, 2024a). Professor Semmens had been a coauthor of the 2016 report estimating the population at 3,200 (Bell et al, 2016) and another suggesting a 47 per cent decline occurred between 2014 and 2021 (Moreno & Semmens, 2023). This population decline between 2014 and 2021 was rounded up by the Commonwealth agency 'by almost 50%'. The main threat to the species was considered by them to be degraded water quality, particularly low levels of dissolved oxygen 'due primarily to salmon farming'. This was deemed to be 'compounded by hydro-electric damming and the impacts of climate change' and threatened further by accidental capture in gillnets (DCCEEW, 2023: 4).

Estimates of numbers had therefore apparently trebled from those originally estimated, and then approximately halved.

The Department noted two events in 2019 that caused skate mortality: a storm pushing more dense, more oxygenated seawater into the harbour that displaced less oxygenated water upwards; and a hot, dry summer that raised the temperature of surface waters, which apparently increased the effects of oxygen depletion in the deeper waters of the harbour. Both these events were natural in origin, though the Department predictably used them to strengthen a claim of climate change. While the skate prefers the shallow waters kept low in salinity (which happen to be not usually low in dissolved oxygen) their laying of eggs in deeper waters should be noted. Ocean intrusions would raise salinity, but bring plenty of oxygenated water.

The question arises as to whether the Maugean skate can be saved from extinction, as has apparently been its fate in Bathurst Harbour. IMAS has commenced successfully a captive breeding program with a grant of $800,000 provided by the Tasmanian government for a purpose-built facility. The aim is to introduce young fish to Macquarie Harbour to reduce extinction risk, but of course if the program is sufficiently successful the skate could be reintroduced to Port Davey where it was first observed and where there is minimal human activity.

While the loss of any species is worth avoiding, there is also a question of at what cost it might be attempted to save the skate—and whether those efforts would be successful. The population in Bathurst Harbour has apparently become extinct without salmon farming or other human agency, so it is not clear that ceasing salmon farming in Macquarie Harbour would ensure its survival there.

There is an additional issue of what the implications of ceasing farming of salmon would be. There are concerns about overfishing of the world's oceans and aquaculture provides some relief there. A reduction in output from aquaculture would undoubtedly lead to greater demand for wild caught fish, with perhaps increases in prices, or increased consumption of farmed red meat—or both.

Expansion of the industry into deeper offshore waters appears to be a viable option with lower impacts, but even the move by Huon into Storm Bay has led to the opposition of the Bob Brown Foundation, which has found contesting salmon farming a useful issue after the relative waning of the campaign against native forest logging.

Salmon farming in Macquarie Harbour has been beset by problems, but much has been learned from 'adaptive management', or (perhaps) 'trial and error'. There is a much better grasp of appropriate stocking levels and the complex dynamics of water in the harbour. Mechanical oxygenation and the captive breeding program have improved the chances of the Maugean skate avoiding extinction—though that probably cannot be guaranteed, even if aquaculture ceased. The latest data point to good news for the skate, with its relative abundance in Macquarie Harbour increasing for the second consecutive year (Moreno et al, 2025).

The employment of endangered species to halt developments can be highly problematic. Congress might have overridden the *Endangered Species Act* in the US to allow the Tellico Dam to proceed, but this avoided what would have been a huge embarrassment. The Snail Darter that was used to stop that dam, albeit temporarily, has just been found to not be a distinct species at all, but rather a subpopulation of the Stargazing Darter, which is not endangered (Ghezelayagh et al, 2025).

Fishy politics

Salmon farming enjoys the support of the Tasmanian government, but it has given rise to some vexed politics for the Commonwealth government. Environment Minister Tanya Plibersek has delayed a decision on protecting the skate for a year, but Prime Minister Albanese, with an eye on the marginal seat of Braddon, had by February 2025 belatedly promised to legislate to protect the salmon industry (Abey, 2025a; Denholm, 2025).

It remains unclear whether the amendments passed by the government to set time limits on the reconsideration of past controlled action decisions will achieve its stated objectives, and it is also unclear what will happen if the incumbent Labor government is only able to form government after the election with the support of the Greens, who are steadfastly opposed to aquaculture.

Agriculture Minister Julie Collins perhaps saw the dangers to her re-election in Franklin, where most of the original opposition is located, when she approved the importation of fresh Chilean salmon, resurrecting an old threat to the industry on the basis of a 1999 import risk assessment (Kellow, Haward & Welch, 2005), which critics pointed out predated some pests and diseases that had emerged since the risk assessment (Killick, 2025a). Collins will be confronted in the election by Peter George, a high-profile opponent of Tasmanian salmon farming near Bruny Island, who is supported by a $30,000 donation from the crowd-funded Climate 200 political campaign group (Abey, 2025).

The linking of salmon farming to the fate of the skate has undoubtedly led to some complex political risks for the government, although it is questionable whether the skate is doomed.

Conclusion

The Maugean skate has been employed in a familiar strategy to oppose the salmon farming industry, which has also been assailed with claims of the use of synthetic chemicals, pollution, loss of amenity, and so on.

While Macquarie Harbour has proven a challenging location for aquaculture, much has been learned by the industry and regulatory authorities about how to operate successfully and sustainably—especially with the oxygenation program and the captive breeding program for the skate. Further expansion of the industry is likely to be more successful in offshore waters, but there appears not to be strong reasons for closing farming in Macquarie Harbour, nor moving away from the present 'adaptive management' regime, with constant monitoring and regulatory adjustment.

The numbers of skate in the Harbour are highly uncertain, with numbers reported to have trebled, and then been halved—largely by natural factors. Closing aquaculture could not be guaranteed to ensure the continued survival of the Maugean skate, a remnant species with limited habitat and which has already seemingly become extinct in one of the two locations where it developed after the fission of Gondwana.

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