

Considered objections to SSD-41680467 Eden1 Aquaculture Farm.

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Introduction

I strongly object to the proposed Eden1 200 Ha *Eklonia* kelp farm, situated in pristine Disaster Bay.

I am a Wonboyn ratepayer and part-time resident, a biologist and naturalist, with a PhD in aquatic biology and over 50 research publications. I have known this area intimately for over 50 years.

I have examined the EIS and attachments.

I am concerned that these documents employ numerous statements that are misleading, demonstrably untrue, scientifically baseless, or constitute errors of omission, to justify this project.

- The 200 Ha size and location of Eden1 in this pristine wilderness is not justified.
- It compromises the integrity of unique and irreplaceable wilderness values of Nadgee Nature Reserve and Disaster Bay
- It presents significant risks of entanglement for whales and other wild fauna.
- It creates large-scale artificial habitat, promoting species **characteristic of kelp farms**, rather than adjacent wild communities
- It displaces the habitat of wild communities, including resting whales
- It provides habitat for biofouling organisms
- It fails to assess risks to wild golden kelp beds, situated on rocky reefs at Greenglades and Merrica River mouth
- It introduces microplastic and macroplastic pollution to pristine waters of coastal wilderness
- Its EIS lacks genuine input from Traditional Owners. Aboriginal Communities have not been appropriately consulted
- Its EIS assesses all identified risks as 'low' or 'negligible'. As the first industrial-scale kelp farm in Australia, located in some of our country's most pristine waters, these assessments are speculative and unsubstantiated.

The 200 Ha size and location of Eden1 is not justified in this pristine wilderness.

Eden1 proposes to situate **a large-scale kelp farm** in the pristine waters of Disaster Bay, 1.1 to 3.1 km offshore from Greenglades Beach, abutting Nadgee Nature Reserve. The pristine

qualities of Disaster Bay exist precisely because of its location. It is not subjected to agricultural and wastewater runoff, aquaculture such as fish farming, or other industrial activities that negatively impact marine water quality.

Nadgee Nature Reserve is the only declared coastal wilderness in NSW. Disaster Bay is inseparable from the Nadgee wilderness, if not circumscribed by it. Threatened and protected species inhabit the waters Eden1 proposes to commercialise. Merrica River in the Nadgee is one of Australia's most pristine waterways.

Eden1 claims to be a 'state significant development' but risks sabotaging the undeniable National and State significance of Nadgee Nature Reserve and its waters. The wilderness values of Disaster Bay and Nadgee Nature Reserve are unique and inestimable.

The EIS assesses **all** identified risks to wilderness values as "low" or "negligible".

As the **first industrial-scale** kelp farm in Australia, risk assessment rests on speculation, extrapolating from other, small-scale aquaculture (e.g. mussel farms). Mitigation strategies are untested and of unproven efficacy in Disaster Bay. **Some risks are unforeseeable** in this uniquely pristine and sensitive location.

A recent review (Campbell et al. 2019, *Front. Mar. Sci.* 6: 379461) refers to high levels of uncertainty about the true extent of environmental changes due to kelp farms. It notes that **large-scale cultivation requires conservative risk rankings.**

At 200 Ha, Eden1 is one of the world's largest industrial kelp farms. China's larger kelp farms are situated in polluted waters. In cleaner waters, Europe and the Americas reduce environmental risks by imposing strict size limits (e.g. Norway, a 10 Ha limit; Maine USA, a 40 Ha limit; Grebe et al, 2019, *Aquac. Rep.* 15,100215).

Moving from small to large-scale kelp cultivation requires understanding of "scale dependent changes to balance environmental risks with the benefits that seaweed cultivation projects can offer" (Campbell et al. 2019).

The EIS fails to demonstrate such understanding. Without it, the risks of situating the first industrial-scale Australian kelp farm in pristine Disaster Bay, abutting the Nadgee Nature Reserve (including Merrica River), outweigh whatever benefits the Eden1 commercial kelp farm might bring.

Significant entanglement risks for marine fauna.

This pristine and undisturbed marine area is rich in species, including at least 2 critically endangered, 12 endangered, and 13 vulnerable species.

Published reviews (e.g. Forbes et al. 2022, *J. Appl Phycol.* 34.6: 3059-3067) identify entanglement as a significant species-level negative impact of kelp farms globally. According to the Biodiversity Conservation Act 2016 (NSW) and Environment Protection and Biodiversity Conservation Act 1999, entanglement in infrastructure presents significant risk.

Yet AusKelp's assessment of 'low' risk of entanglement for all marine fauna is based on speculative extrapolation from different types of smaller-scale aquaculture. Mitigation strategies include 'taut rope policy', 'thick visible ropes', and Approved Management Strategies (regular inspections by vessel, or by drone from Greenglades Beach). Low risk is inferred from a lack of recorded whale entanglements in other small-scale aquaculture operations (e.g. in Jervis Bay), and in kelp farms globally. However, globally, kelp farms are not located in whale migration routes.

Risks to Migrating Whales

AusKelp's own template for risk assessment of (a hypothetical) 200 Ha kelp farm (Kelly, J, 'Marine Seaweed aquaculture risk assessment' Table 5; Eden 1 Ann. Rep. FY24), specifies that the location must "avoid known whale migration routes".

The EIS claims that Eden1 is not within a whale migratory route (but acknowledges it 'may serve as resting habitat'). **This claim is disingenuous.**

Eden1 in Disaster Bay abuts and includes **a significant part of the humpback whale migratory route**. Even as a resting embayment, this 200 Ha of ocean is contiguous with the migratory route. I have personally watched humpback whales, sometimes with calves, breaching in the waters off Greenglades, in the vicinity of the proposed Eden1 site. Endangered Southern Right Whales, listed as endangered (EPBC Act 1999) also transit Disaster Bay.

Hard data supports my personal observations. The organisation 'Protecting Blue Corridors' (BlueCorridors.org), a global collaboration of experts in marine mammal science, conservation, policy, and technology, provides 31 years of data tracking whale migratory movements.

Their interactive map clearly shows that **Disaster Bay is within a 'blue corridor', a humpback whale migratory superhighway.**

An estimated 40, 000 humpback whales make their northerly migration between May and November. As humpback numbers increase, so have entanglements. NPWS leads the dangerous rescue efforts and historically, fewer than half can be saved.

The infrastructure of an industrial scale kelp farm disturbs a formerly safe resting haven and transforms it into one fraught with entanglement risks.

Entanglements in infrastructure lost to the ocean

Wild seas during storms and East Coast Lows increase the likelihood of infrastructure loss to the ocean (e.g. nylon ropes, buoys). It is local knowledge that the small AusKelp test site lost buoys during a recent storm.

Entanglement in such marine debris is a globally significant cause of death in marine megafauna (e.g., marine mammals, turtles, sharks, rays, seabirds, and large bony fish). Marine debris from Eden1 creates significant entanglement risks, outside the lease, where proposed mitigation strategies do not apply.

The basis for ‘low risk’ assessment is not demonstrated.

Risks to dolphins, seals and seabirds

Dolphin pods traverse the proposed Eden1 area, sometimes daily, despite the EIS claim that dolphins only visit “from time to time” (p.212). These bottle nose dolphins have protected status (EPBC Act 1999), as do fur seals that also traverse the Eden1 area, sometimes daily. Fur seals are notorious for interacting with aquaculture infrastructure, especially if chasing fish. The EIS claims that its infrastructure supports “increased local fish abundance and biodiversity”. If true, this increases entanglement risks for fur seals, dolphins, and diving seabirds.

Little Penguins, albatrosses, shearwaters, and marine turtles inhabit the bay. Diving seabirds and raptors are so abundant in, and above, the kelp farm site, they attract professional bird photographers. Critically endangered Grey Nurse Sharks visit sandy-bottomed gutters in Disaster Bay.

As a scientist I do not accept deceptive business language (“continued monitoring and adaptive management” p. 218; “Marine fauna interactions—including with seals, dolphins, and whales—have been evaluated through established mitigation measures as the basis for a low risk assessment of entanglement” p.46) as a genuine basis for an assessment of low entanglement risk.

Vague and misleading mitigation strategies

Mitigation of risk is predicated on rope and infrastructure policies that are **untested and unproven**, since it is the first commercial-scale kelp farm in Australia. Situations involving smaller scale aquaculture elsewhere (e.g. Jervis Bay) are not directly transferable to the unique characteristics of Disaster Bay.

The waters of Disaster Bay are notoriously rough, unpredictable and subject to frequent gale force winds. Extreme weather, such as East Coast Lows (~10 times a year according to the BOM) can produce 8m swells and 10m waves. The waters off Green Cape are famously treacherous, due to the East Australian Current, and subject to thick frequent fogs.

‘Low risk’ is also predicated on regular inspection by vessel. Eden1 vessels intend to navigate up to **3 daily trips** between Edrom Pentarch wharf, through treacherous waters off Green Cape, to Disaster Bay and back, equating to thousands of trips annually.

There is no evidence that this scenario is realistic or has been tested. The north-bound trip will be most treacherous. The EIS presents **no evidence** that vessel visits can mitigate entanglements, not only of whales, but of other fauna, including dolphins, fur seals and diving seabirds.

If seas are heavy, AusKelp proposes to launch drones from Greenglades Beach. The EIS refers to “occasional visual observation following extreme storm events” and estimates, without evidence, drone use “fewer than 12 times a year”.

Not only does intrusive drone technology risk becoming a regular feature of the formerly undisturbed and wild Greenglades beach, negatively impacting its wilderness values, but the use of drones for commercial purposes in waters off Nadgee Nature Reserve is unprecedented.

Drones are prohibited in Nadgee Nature Reserve, to preserve the privacy of human visitors and prevent disruptions to wildlife. Permission must be obtained from NPWS. Drones must be at least 100m away from marine mammals.

If an entanglement is discovered, NPWS is to be notified (Appendix B1), and a vessel dispatched to make the treacherous journey to affect a rescue. Attempting to free an entangled 40 tonne whale is a difficult and dangerous task for NPWS, especially in these wild waters. Whilst an entangled whale will certainly present bad publicity for AusKelp, it is unclear that Eden1 can or will apply the same vigilance and rigor to an entangled dolphin, fur seal, diving seabird, shark, ray, or other large fish attracted to or caught in the artificial infrastructure.

Noise impacts on whales, dolphins and seals

Anthropogenic noise generated by vessel engines, machinery (installation, maintenance, seeding and harvesting) negatively impacts marine mammals. In the case of whales, it disrupts communication and displaces resting habitat. Risk may be low with small-scale operations but increases with industrial-scale operations. An industrial-scale kelp farm “**will require additional consideration during the consenting process**” (Campbell et al. 2019, *Front. Mar. Sci.* 6: 379461).

Although “change in noise is negligible if **there are already other commercial or recreational vessels using the area**” (Kelly, J, ‘Marine Seaweed aquaculture risk assessment’ Table 5; Eden 1 Ann. Rep. FY24), vessel traffic in Disaster Bay is currently negligible.

This undermines the claim of ‘low risk’. With a baseline of negligible vessel traffic, a schedule of 3-6 daily vessel visits (thousands of trips annually) in fact increases anthropogenic noise by ~100%.

Impacts on critically endangered shorebirds

A 200 Ha seaweed farm should be “located away from **critical shorebird breeding areas**” (Kelly, J, ‘Marine Seaweed aquaculture risk assessment’ Table 5; Eden 1 Ann. Rep. FY24).

The EIS dismisses shorebirds (“It is considered that excluding land-based species is appropriate for offshore aquaculture operations” p.96). Yet, NPWS recently protected the nesting site of critically endangered Hooded Plovers, adjacent to Snake Creek on Wonboyn Beach. Snake Creek is not ‘dry’, as claimed in the EIS, but frequently opens to Disaster Bay, receiving beach-cast seaweed and other flotsam and jetsam from incoming waves, with potential negative impacts on critically endangered shorebird habitat.

Risks of introducing a large-scale artificial habitat

The EIS claims that the kelp farm will “enhance rather than displace existing habitat”. It even claims, “the infrastructure enhances local habitat complexity” and “improves marine biodiversity” (p.24).

Risks associated with introduction of artificial habitat and habitat loss are assessed as ‘low’ and ‘negligible’ in this pristine natural environment without any rigorous evidence to support the claim. **Potentially, the opposite is true.**

First, the species assemblage of an artificial kelp farm habitat is “characteristic of the kelp farm rather than adjacent communities or natural analogues” (Forbes et al. 2022, *J. Appl Phycol.* 34.6: 3059-3067). The farm introduces an artificial community to this natural environment.

Few studies have addressed the impacts of kelp aquaculture on existing biodiversity, and there is little research (Forbes et al. 2022, *J. Appl Phycol.* 34.6: 3059-3067). However, a recent study (Bekkby, et al, 2023, *Front. Mar. Sci.* 10 (2023): 1066101) reports lower taxa abundance/richness and lower biodiversity than wild kelp forests—the opposite of claims made in the EIS.

A recent, comprehensive review (Forbes et al. 2022, *J. Appl Phycol.* 34.6: 3059-3067) states, “Assessment of the species that make up kelp farm communities is crucial to interpreting and evaluating the net biodiversity effects of farms, as broad diversity measures may be misleading”.

Yet AusKelp failed to rigorously assess the ‘kelp farm species assemblage’ specific to its own small-scale test site. Being 0.25 Ha in size, the test site is 800 times smaller than the proposed 200 Ha farm, and not linearly scalable anyway (Grebe et al, 2019, *Aquac. Rep.* 15,100215).

AusKelp’s confident claim that Eden1 will enhance existing biodiversity is baseless. The proponents have no idea at all what kind of species assemblage will develop on its infrastructure, nor of its impacts on existing biodiversity.

A 200 Ha monoculture of a kelp species which normally grows on a rocky substrate from ‘the bottom up’, now growing from the ‘top down’ on nylon ropes, inevitably impacts existing ecosystems. One issue noted by Forbes et al. (2022) is that biofouling organisms preferentially colonise kelp farms, posing problems for such farms globally.

Introduction of biofouling organisms: *Electroma* and mussel spat

Wild golden kelp (*Eklonia*) beds grow on rocky reefs off GreenGlades and Merrica River mouth. They are ecologically of high significance.

An artificial habitat that promotes population explosions of biofouling organisms poses risks to these wild golden kelp beds.

One such biofouling organism is the ‘butterfly-shell’ mollusc, *Electroma georgiana*, not mentioned in the EIS.

On the beach directly opposite the 0.25 Ha AusKelp test site, I observed and photographed piles of *Eklonia* kelp heavily encrusted with *Electroma georgiana*, a biofouling mollusc whose populations can explode into massive densities. *Electroma* shells littered the beach, a sight I have not encountered in 50 years of wandering.

Population explosions of *Electroma georgiana* produce large, smothering accumulations on the sea floor, leaving extensive swathes of decomposing matter when they die off (<https://www.dcceew.gov.au/sites/default/files/documents/draft-recovery-plan-three-handfish-species.pdf>).

Electroma can attach to both kelp and artificial substrates, infrastructure and vessel hulls. Eden1 infrastructure provides large-scale artificial habitat for booming *Electroma* populations that pose the risk of spreading to and infesting wild *Eklonia* kelp beds, only 1.1 km away, on rocky reefs out from Greenglades, and Merrica River.

Not only is there a risk of spreading *Electroma* (and other epibionts, plus sea urchins) to wild kelp beds, any disease outbreak facilitated by the artificial conditions in the farm can spread.

Unevaluated risks of disease

The unnatural environment of kelp farms makes them susceptible to outbreaks of disease, including bacterial and viral infections (Sugumaran R, 2022, A Retrospective Review of Global Commercial Seaweed Production-Current Challenges, Biosecurity and Mitigation Measures and Prospects. Int J Environ Res Public Health:7087. doi: 10.3390/ijerph19127087).

Despite this serious risk, the EIS is vague about how Eden1 will detect and mitigate disease. Instead, it makes a disingenuous claim (p.36) that, because *Eklonia* photosynthesises and obtains nitrogen and phosphorus from the waters, it is not susceptible to disease. The EIS attributes this statement to a seminal paper (Campbell et al. 2019).

I have read this paper in detail. **Nowhere is this statement made.** The EIS misrepresents Campbell et al. (2019), who in fact discuss the problems of disease in kelp farms and the need for strong biosecurity measures. For example, kelp farms require “training in quarantine procedures and farm management practices to enhance biosecurity measures, as well as the development of diagnostic techniques to rapidly detect disease to inform management practices” (Campbell et al. 2019, *Front. Mar. Sci.* 6: 379461).

The EIS demonstrates NO such capacity for rapid detection, diagnostic techniques, or quarantine procedures. At the same time, “Permit and lease conditions ...require adherence to health and disease management protocols. These include mandatory reporting of notifiable diseases and pests listed under Schedule 6B of the FM Act, as well as any unexplained or unusual mortality events” (p.47).

Mussel spat: The EIS acknowledges the inevitability of mussel spat biofouling ropes and infrastructure. The ESD Risk Assessment (Kelly, J, ‘Marine Seaweed aquaculture risk

assessment' Table 5; Eden 1 Ann. Rep. FY24) states that "Seaweed ropes may be periodically **brought to shore** for cleaning between harvests in a land-based facility".

However, the EIS proposes to regularly 'clean using manual methods' aboard service vessels. A9, Benthic Ecology Assessment, indicates that shell material will be disposed of overboard.

A9 comments that the fall of mussel shell may increase the population of predatory echinoderms (e.g. sea stars), with unforeseeable knock-on effects (e.g. endangered and vulnerable marine turtles attracted by an increased sea star population face increased risk of entanglement). Kelps are attractive to other predatory echinoderms, sea-urchins, well-known to devour all in their path and leave 'urchin deserts'. A population explosion of sea-urchins in the kelp farm risks unbalancing the existing sea-urchin population and spreading to nearby wild kelp beds.

Increases in particulate and dissolved organic matter

A rain of material from shed kelp fronds, biofouling organisms, swathes of decomposing *Electroma*, and mussel shells, constitutes particulate organic matter (POM) that alters the balance and composition of local microbial assemblages. Such a risk is low in small-scale farms, but wider ecological implications of industrial-scale projects [such as Eden1] are currently unknown (Campbell et al. 2019, *Front. Mar. Sci.* 6: 379461).

Because this risk to pristine waters of Disaster Bay and its ecosystems is unknown and cannot be assessed, it cannot be assigned to a 'low or negligible risk' category.

Particulate organic material (POM) is however known to drift from large-scale kelp farms, impacting benthic environments outside the farm. Consequences of decomposing materials can include sedimentary anoxia (lack of oxygen) and hypoxia (low oxygen) in bottom waters, together with enhanced sediment nutrient fluxes (Campbell et al. 2019, *Front. Mar. Sci.* 6: 379461).

POM drift has the potential to negatively impact marine environments outside the perimeter of the farm, including the mouth of Merrica River, acknowledged as one of Australia's most undisturbed and pristine waterways.

As a scientist, I do not accept that risks entailed by this artificial habitat are 'low' and 'negligible' as stated in the EIS.

Unforeseen risks cannot be evaluated, except retrospectively, by which time irreversible damage may have occurred to the pristine Disaster Bay waters, adjacent to Nadgee Nature Reserve.

Microplastic Pollution in pristine waters of coastal wilderness.

Eklonia kelp grows naturally on rocky substrates. The kelp farm proposes the use of polypropylene and nylon rope infrastructure, and plastic floats, to support stands of kelp above the sandy substrate in Disaster Bay.

The EIS claims ‘negligible and very low risk’ of plastic pollution, due to the ‘high-flushing open coastal environment’, which it presumes will circulate the materials elsewhere, and ‘strong well-attached ropes’.

On the contrary, this large-scale infrastructure represents a significant addition of plastic material to pristine waters. It is well established that plastics fragment into increasingly small particles (microplastics) when exposed to sunlight and with abrasion (the seas in Disaster Bay being wild and rough).

Microplastics will inevitably be released into waters that the EIS itself designates as ‘pristine and unpolluted’. During rough weather, especially during storms and East Coast Lows (10 per year; BOM), the risk of plastic pollution becomes still more significant.

Release of microplastics into the relatively unstirred ranks of kelp growing on plastic ropes increases the likelihood of microplastic ingestion by multiple levels of the food chain, from zooplankton at the base of the food web, to seabirds and other marine predators. Ingestion of anthropogenic materials (e.g. plastics) is a significant risk (Biodiversity Conservation Act 2016 (NSW); Environment Protection and Biodiversity Conservation Act 1999).

There also exists a significant risk of macroplastic pollution, items such as buoys and broken ropes, cast ashore in the Nadgee, on Wonboyn beach, Merrica River mouth and beach, after stormy weather. If lost into a ‘high flushing’ ocean, these macroplastics significantly increase the entanglement risk for marine animals outside the farm area.

As a scientist, I do not accept that plastic pollution presents a “negligible and environmentally very low risk” as stated in the EIS.

Inadequate assessment of risk to benthic assemblages

A benthic ecology survey of the proposed 200 Ha area (A9) was conducted **only once, in late winter**. The timing of the survey coincides precisely with the time of lowest expected biodiversity.

In fact, biodiversity peaks during the **autumn, spring and summer months** when the NSW Coastal Upwelling System brings cold waters rich in nutrients. A scientific assessment must include data from these peak months.

A9 acknowledges this survey is a preliminary snapshot.

Furthermore, the EIS provides no evidence of the impacts of the small (0.25 Ha) AusKelp test site on benthic assemblages. Without comparison between these assemblages and those of natural sites, the statement that Eden1 is “enhancing local habitat diversity rather than displacing existing habitat” is unscientific and baseless.

‘Low risk’ to benthic habitats is simply assumed, because screw anchors will secure longlines, and because, as the EIS falsely claims, there are no biological assemblages present

in the sandy substrate. (“Habitat type beneath longlines = fine to medium grained sand; unvegetated sandy substrate with no biological assemblages” p.129; “no biological assemblages” p.123).

The latter claim is untrue.

There is an existing benthic assemblage, and associated ecosystem, in the site, even in winter.

The lone survey (A9) reports a benthic assemblage of amphipods, trochid and other gastropods, polychaete worms, bivalves, ostracods, isopods, crabs and other crustacea.

In addition, the snapshot survey identifies 74 fauna and 2 algae, including eight bony fish, nine elasmobranchs (sharks and rays), 17 crustaceans, 16 molluscs, 20 annelid worms, four echinoderms, two algae, nematode, calamari squid, and an endangered Big-Belly seahorse.

Without evidence, apart from vague reference to other, unnamed aquaculture projects, the EIS assumes positive impacts of the artificial structures: “the farm introduces habitat without displacing existing reef, seagrass, or sensitive benthic communities”, and “can support increased local fish abundance and biodiversity” (p.201).

These claims cannot be made without adequate supporting scientific evidence. A rigorous scientific appraisal must include surveys across seasons to accurately represent benthic biodiversity that peaks in autumn, spring and summer months.

- Monocultures and artificial habitats are particularly susceptible to invasion and disease. “In the same way that kelp farms can modify their local environment to create habitat for some species, they can also drive major ecosystem changes and negative impacts on biodiversity”. (Forbes et al. 2022, *J. Appl Phycol.* 34.6: 3059-3067).
- Increased populations of biofouling organisms and sea-urchins pose risks to adjacent wild golden kelp beds.
- Particulate organic matter (POM) from the large-scale farm risks shifting the balance between microbial and natural benthic populations, with unpredictable and unknown impact.
- The current benthic assemblages cannot be assessed from a lone survey performed in late winter.
- Without justification, the EIS waves away the possibility of disease and proposes no strategies for detecting and identifying disease outbreaks or any biosecurity measures.

As a scientist, I do not accept that the risk to benthic assemblages is ‘low’ and ‘negligible’, or even adequately assessed, in the pristine Disaster Bay waters adjacent to Nadgee Nature Reserve.

Overstated and unsubstantiated claims

Claim to protect Disaster Bay from dinoflagellate blooms

The EIS makes an unsubstantiated claim (p.206) that Eden1 will protect Disaster Bay from experiencing the tragedy of a *Karenia* dinoflagellate bloom (mid-March 2025-current) that has so catastrophically impacted South Australian waters.

It claims it will do this because “*Ecklonia radiata* are highly efficient at absorbing excess nutrients, particularly nitrogen and phosphorus, from the water column. By assimilating these nutrients, kelp cultivation can potentially reduce the likelihood of eutrophication” (p.206).

Yet, Disaster Bay is **not eutrophic**, not does it suffer excess levels of nitrogen and phosphorus, precisely because **it exists in proximity to declared coastal wilderness**, and is not subject to the agricultural runoff and other human-induced pressures. The EIS elsewhere extols the ‘pristine and unpolluted’ waters of Disaster Bay as ideal qualities for its kelp farm. It cannot have it both ways.

I cannot restrain myself from commenting that this claim of preventing a *Karenia* bloom amounts to marketing propaganda. The proponent repeated the claim to the Wonboyn community during the community consultation, which I attended, and in my view, it was used to leverage an emotive response and support from an audience who know and love this bay.

The EIS makes further claims that are inapplicable to Disaster Bay. For example, “kelp farming enhances water clarity and oxygenation, creating a more balanced marine environment. Studies have demonstrated that integrating kelp cultivation in eutrophic coastal areas can significantly improve water quality and regulate phytoplankton communities” (p.206).

The waters of Disaster Bay are NOT eutrophic. This is already a balanced marine environment. In fact, as I have argued above, the farm introduces factors, including particulate organic matter and biofouling, that risk polluting these pristine waters.

Claims made for carbon sequestration

Reference is made throughout the EIS to the kelp farm ‘sequestering carbon’ (e.g. “Offshore kelp farming represents one of the few scalable, low-footprint methods of generating high-value biomass while sequestering carbon and restoring marine ecosystems” p.127).

Unless the carbon (carbon dioxide for kelp photosynthesis) is taken out of the carbon cycle for at least 100 years and enters the long-term carbon cycle, it is not sequestered. The proposed uses of the harvested kelp (fresh and dried food-grade kelp, kelp-based animal feeds and soil conditioners, kelp extracts for cosmetics and wellness products, high-grade kelp for nutraceutical development p.191) do not sequester carbon.

In fact, the carbon released by emissions from thousands of vessel trips, harvesting and processing, production and use of plastics, and industrial processing, far exceeds any carbon AusKelp can claim to sequester.

The EIS lacks genuine input from Traditional Owners.

Wonboyn Beach, Baycliff, Greenglades and Disaster Bay are of outstanding cultural significance to Aboriginal people, a significance that spans thousands of years. This area is part of the Bundian way. Evidence of Aboriginal occupation is everywhere. Aboriginal presence in the Nadgee consists of far more than cultural artefacts and middens located at Baycliff and Greenglades.

The EIS claims comprehensive consultation, involving 19 Registered Aboriginal Parties (RAPs).

The EIS claims “completion of a comprehensive Aboriginal Cultural Heritage Assessment Report (ACHAR), ongoing engagement with Registered Aboriginal Parties, and commitments to continued First Nations engagement and future employment”.

This claim is disingenuous.

The supposed comprehensive consultation (Appendix A5) reports only **one response** from a **single person** in a **single registered organisation** (Guntawang Aboriginal Resources Incorporated, Fairfield Government Area, Sydney).

The statement “While no objections were raised concerning the offshore location of the Eden-1 kelp farm, RAPs [Registered Aboriginal Parties] requested to be kept informed of all approvals and notified of any unexpected heritage finds” appears to seek to minimise the fact that consultation with Traditional Owners is deficient.

The EIS contains absolutely NO information concerning the actual insights and responses of relevant Elders and Traditional Owners to the proposal.

Yet, it is essential that the EIS includes the insights of Traditional Owners, whose country this remains.

The risk assessment template (Kelly, J, ‘Marine Seaweed aquaculture risk assessment’ Table 5; Eden 1 Ann. Rep. FY24), specifies that “The impact on Indigenous connection to Sea Country ... be determined by the Indigenous Owners and permissions obtained from the cultural authority”.

In addition, “Obtain cultural authority input and permissions during site selection at a minimum, and ensure engagement with Indigenous stakeholders is inclusive, ongoing and respectful”.

These requisites are not met.

I strongly object to the fact that Traditional Owners have not been appropriately consulted, and their views have not been taken into consideration.

Impacts on the Integrity of the Nadgee Nature Reserve and Associated Waters

This project will inevitably disturb the unique, pristine and tranquil nature of the Nadgee Nature Reserve. Whilst not 'within the conservation area'(p.48) as it is drawn on a map, it impacts the integrity of the Nadgee and its waters as a whole system. Some impacts on the biology of this interconnected system, almost undisturbed by commerce and industry, are anticipated, and others are unforeseeable because this is the first industrial scale project of its kind.

Disaster Bay is not an industrial zone. The EIS fails to accurately assess the high risk to wilderness values of the Nadgee. This declared coastal wilderness and its waters are preserved to be appreciated by all, not as a site for commercial exploitation.