

# Yumbah Nyamat Response to Works Approval Submissions

Dr Jacqueline Gorski

Lead Environmental Consultant

PhD Topic – Abalone ecotoxicology

Ex EPA South West

# Environment Themes

1. Air Quality – Dust
2. Air Quality – Odour
3. Biosecurity and Disease
4. Coastal Seawall
5. Construction
6. Discharge water
7. Marine ecology – seagrass, whales
8. Noise and Vibration
9. Pipes and pumping infrastructure
10. Site conditions – Groundwater, drainage and soils
11. Whales

# 1. Air Quality - Dust

- Risk assessment of RCS indicates silica dust is unlikely to be generated as high impact activities such as sand blasting, grinding will not occur.
- Construction management top priority to eliminate offsite dust  
CEMP
- Dust monitoring
- Objective to avoid any offsite dust.
  - Eliminate risks to drinking water
- Yumbah has significant experience in construction of sandy coastal environments

## 2. Air Quality - Odour

- Abalone farms are not generators of offsite odour
- Abalone farms are not seafood processors
- Only odour sources are:
  1. Dead abalone – removed and placed immediately into chillers
  2. Waterbirds visiting lagoons – all lagoons will be netted to avoid birds
  3. Sediment – frequently removed and dried before anoxic
- There will be no offsite odour generated from Yumbah Nyamat

### 3. Biosecurity and disease

- Yumbah has strict biosecurity protocols to protect the farm from disease
- Disease is detrimental to abalone farms
- Accredited with Abalone Health Accreditation Program (AHAP)
- Work with Fisheries Victoria
- Annual audit by aquatic veterinarian
- Recirculation reservoirs to isolate farm

HEALTH IS VITAL TO SUCCESS OF ABALONE

## 4. Coastal Seawall



- Yumbah is intimately aware of the importance of the seawall
- Established a seawall at Narrawong to protect the coastline
- Existing seawall needs maintenance and replacement
- New seawall will be engineered to a higher standard
- Construction – Yumbah will demolish seawall in small sections and rebuild it
  - ❖ Temporary wall will be constructed to protect area from storm surges
  - ❖ The wall will not be demolished if weather conditions predict high waves
- Coastal engineer has confirmed that the impact to adjacent sections will not be compromised.

# 5. Construction

	Works	Estimated time to completion
Construction Phase 1	Site mobilisation	2 weeks
	Establishment works, power, reticulated water, security, roads	4 weeks
	Office and amenity buildings, workshops, storage, harvest depot, feed storage	6-9 months
	Pump pit construction	2-3 months
	Install ocean inlet pipes	3-4 weeks
	Level Site & earthworks (Pad 1, roads and drainage, nursery, hatchery)	3 months
Construction Phase 2	Construction of sediment treatment system	6 months
	Deploy and install outlet pipes	2-3 weeks per pipe easement
	Commission pump system	2 months
	Nursery expansion	2 months
Construction Phase 3	Shadecloth Structure	3 months
	Tank Fit-out for first 100 tanks (under shadecloth)	4 months
	Commission and stocking tanks	3 months
Construction Phase 4	Ancillary Solar Power Plant	3 months

## Construction Environmental Management Plan

- CEMP will be a condition of approvals
- Scrutinised by EPA, DELWP and Council

1. Air Quality
2. Water quality, stormwater
3. Marine ecology
4. Seawall
5. Noise and vibration
6. Waste
7. Fuels and chemicals
8. Flora and fauna
9. Cultural heritage

**Commissioning Approval will be required prior to operation**

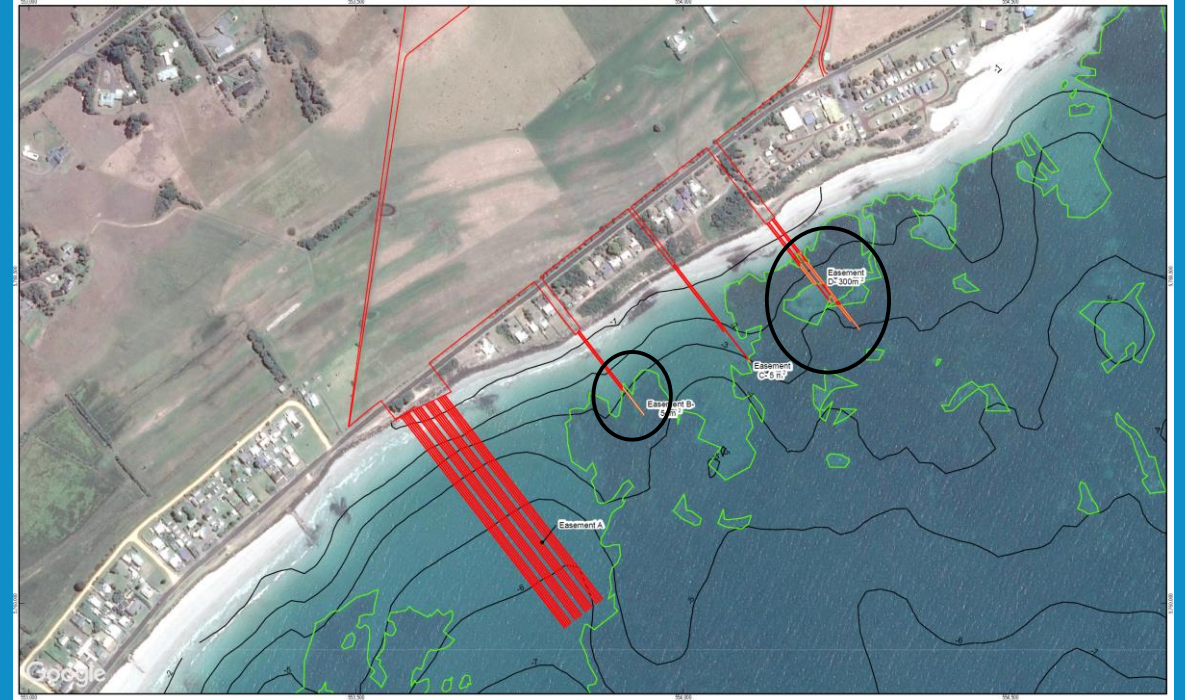
## 6. Discharge water

- Concentrations at Yumbah Narrawong follow background concentrations
- Nutrients discharged in effluent
- Ammonia
  - Acute toxicity to marine organisms 500 ppm
  - Guidelines for aquaculture 100 ppm
  - Narrawong ammonia concentrations 7 ppm
- Water is safe to swim in
- APVMA chemicals approved for use, no impact to marine environment
- Toxic algal blooms are uncommon in marine waters and surf zone will rapidly dilute nutrients



# 7. Marine ecology

- Minerva reef is close to Narrawong. No impact from Narrawong in the 18 years of operation
- Screens on intake pipes will avoid impingement and entrainment
- Humans will not be sucked into the pipes
- Localised impact to seagrass along alignment of pipes.



Seagrass mapping by GHD indicates maximum 359 m<sup>2</sup> will be intersected. Yumbah is consider options to reduce this footprint

# 8. Noise and Vibration

- Comprehensive noise assessment completed
- Assessed construction and operational noise
- Noise compliant at nearest receptor
  - ✓ Normal operational noise
  - ✓ Cumulative noise of generators

## Construction

- Noise comfortably meet daytime noise criteria
- Consideration for noise to construct required for discharge pipe easements, expected to take 2-3 weeks maximum

## NIRV major urban area boundary



Dutton Way is separated by two guidelines

1. NIRV
2. SEPP N1

# 9. Pipes and Pumping

- Pipes will extend offshore.
  - Onshore pumps will extract water – no marine noise
  - Suction will be 0.1 m/s = 1.8km/hr
  - Retention dams will gravity feed discharge water to Portland Bay
  - Intake screens will be at intake pipes
  - Exclusion zones will be in place around the intake pipes

*Biosecurity and vessels*

- Pumps will be contained in bomb-style bunkers.
- Pump and generator noise will not be audible.



# 10. Site Conditions

- Hydrogeological assessment conducted.
  - Shallow aquifer
  - Groundwater to be protected on and offsite
  - There is no threat of contamination to groundwater
  - Minimal dewatering during excavation will not impact offsite groundwater
- Portland drinking water supply is extracted from 300 m bg.
- There is no interface with on site groundwater

# 11. Hydrology

- Site is characterised as dry to waterlogged
- Water pools across site
- Drainage will be engineered to manage all stormwater either
  - Swale drains – hard surfaces
  - Stormwater retention dam – roof top surface

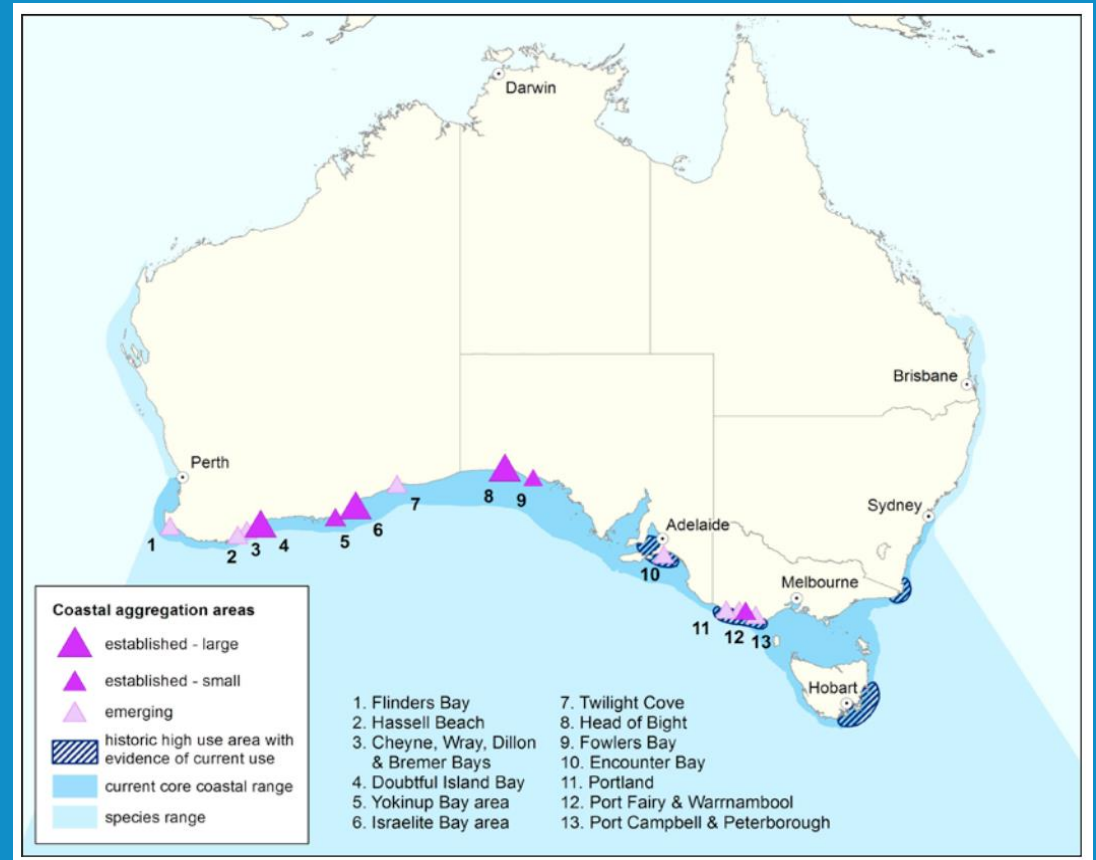
## Acid sulfate soils

- Preliminary geotechnical assessment did not uncover acid sulfate soils
- Localised and limited deep excavation activities
- Acid sulfate soils can be effectively managed through the CEMP



# 11. Whales

- Dr Peter Gill has assessed the impact on SRW
- Working with Mandy Watson DELWP
- Further assessment on the behaviour, habitat preference and potential risks
- Vessels, buoys, nets, pipes, noise and vibration
- Underwater noise and vibration will not impact whales
- Associate Professor Rob McCauley is an authority on the physics of underwater sound



Thank you for  
listening