



Eden-1

Biosecurity Plan 2026

AL21/004 – Disaster Bay, NSW

DOCUMENT DETAILS

Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document Title	Eden-1 Biosecurity Plan 2026
Document Subtitle	AL21/004 – Disaster Bay, NSW
Business	Auskelp Pty Ltd ABN 33 644 315 613
Lease Area	AL21/004
Lease Size	200 ha
Kelp Species	Ecklonia radiata
NSW Case ID	SSD-41680467
Date	13 Feb 2026
Version	1.3
Previous Version	1.2
Prepared By	Christopher Ride
Cover Image Credit	Ecklonia radiata gametophytes, Auskelp, 2025
Disclaimer	The information contained in this document is based on knowledge and understanding at the time of writing (February 2026)
Copyright	© Auskelp Pty Ltd 2026 This document is protected by copyright. You may download, display, print and reproduce this material in an unaltered form only (retaining this notice) for your personal use or for non-commercial use within your organisation.
Project Definition	Kelp Aquaculture Farm

TABLE OF CONTENTS

DOCUMENT DETAILS	2
TABLE OF CONTENTS	3
1.0 Project Details	4
2.0 Purpose and Scope	4
3.0 Biosecurity Risk Context.....	4
4.0 Key Biosecurity Risks	4
5.0 Biosecurity Management Framework	5
6.0 Record Keeping and Surveillance	6
7.0 Staff Training and Responsibilities	6
8.0 Offshore Biosecurity Controls	6
9.0 Hatchery Interface	6
10.0 Equipment, Vessels and Personnel Controls	7
11.0 Waste and Environmental Interaction.....	7
12.0 Emergency Response	7
13.0 Monitoring, Review and Audit.....	7
14.0 Integration with Monitoring and Maintenance Plan.....	7
Appendix BM1: Biosecurity Management Table (AL21/004).....	8
Appendix BC1: Biosecurity Controls – Eden-1 (AL21/004)	10

1.0 Project Details

Eden-1 Kelp Aquaculture Farm

Auskelp Pty Ltd | 2026

- **Aquaculture Location:** Offshore in Disaster Bay
- **Seaweed Type:** Golden Kelp – *Ecklonia radiata*
- **Seedstock Provenance:** Southern NSW

2.0 Purpose and Scope

This Biosecurity Plan (BP) establishes the framework for identifying, managing and mitigating biosecurity risks associated with the Eden-1 offshore kelp aquaculture facility (AL21/004) located in Disaster Bay, NSW. The Plan applies to all aspects of the development, including offshore cultivation infrastructure, hatchery-to-farm seedstock transfer, vessels, equipment, personnel, and biomass handling and transport. This BP is implemented in conjunction with the Eden-1 Monitoring and Maintenance Plan (MMP), with biosecurity controls embedded within day-to-day operational procedures.

The Plan aligns with:

- NSW DPI Fisheries aquaculture biosecurity requirements
- NSW Biosecurity Act 2015
- Eden-1 Environmental Impact Statement (EIS)
- Eden-1 Monitoring and Maintenance Plan

3.0 Biosecurity Risk Context

The Eden-1 project is a non-intensive, extractive aquaculture system characterised by:

- no feed, fertilisers or chemical inputs
- use of locally sourced *Ecklonia radiata* seedstock
- submerged, tensioned longline infrastructure
- operation within an open marine environment with high water exchange

As a result, the biosecurity risk profile is assessed as inherently low. Risks are primarily limited to naturally occurring or operationally introduced factors, including:

- biofouling and epiphyte colonisation
- naturally occurring algal bloom events
- pathogen transfer via equipment, vessels or personnel
- herbivory by native marine species

There is no introduction of non-native species, no nutrient enrichment, and no waste discharge, significantly reducing risk compared to intensive aquaculture systems. The identification, assessment and management of these risks are summarised in the Biosecurity Management Table (Appendix BM1) and implemented through the operational controls outlined in the Biosecurity Management Controls (Appendix BC1).

4.0 Key Biosecurity Risks

The primary biosecurity risks relevant to Eden-1 are summarised below:

4.1 BIOFOULING AND EPIPHYTES

Colonisation of cultivation infrastructure by algae or marine organisms, potentially affecting growth performance, increasing drag, and reducing biomass quality.

4.2 HARMFUL ALGAL BLOOMS (HABS) AND WATER QUALITY

Naturally occurring environmental events, including harmful algal blooms, elevated sea temperatures, or reduced water quality (e.g. turbidity, nutrient pulses or external contamination events), may temporarily impact kelp health and growth performance.

4.3 PATHOGENS AND DISEASE

International kelp farming experience indicates that disease risk in non-intensive, open-water seaweed aquaculture systems is low. Potential risks are primarily associated with the transfer of pathogens or contaminants via hatchery operations, equipment, vessels or personnel. These risks are mitigated through controlled hatchery production, the use of locally sourced seedstock, strict hygiene protocols, and routine monitoring of kelp health throughout the cultivation cycle.

4.4 HERBIVORY AND GRAZING

Interaction with native marine species (e.g. fish, turtles, invertebrates), representing a natural ecological process that may result in biomass loss but does not constitute a biosecurity threat.

4.5 INTRODUCED MARINE PESTS (IMPS)

The potential introduction or transfer of non-native marine species via vessels, equipment or infrastructure. This risk is low and managed through localised operations, equipment controls, and monitoring.

4.6 HATCHERY CONTAMINATION OR CULTURE FAILURE

Contamination or loss of integrity of hatchery cultures (e.g. microbial contamination, cross-contamination between batches), which may affect seedstock quality. This risk is mitigated through biosecure hatchery systems, batch separation, controlled propagation conditions, limited to only locally acquired *Ecklonia radiata* seedstock.

4.7 BIOSECURITY TRANSFER VIA EQUIPMENT AND VESSELS

Transfer of biological material (e.g. fouling organisms, pathogens) between locations via vessels, ropes, anchors or equipment. Managed through inspection, cleaning protocols and restricted inter-site movement.

5.0 Biosecurity Management Framework

Biosecurity is managed through an operational framework implemented via the Monitoring and Maintenance Plan (MMP) and supported by this Biosecurity Plan (BP). This document establishes the procedures for prevention, monitoring, incident response and continuous improvement across project activities. The specific controls, responsibilities, timing and implementation measures are defined in the Biosecurity Management Table (Appendix BM1), which provides the operational basis for the application of this Plan.

The framework comprises:

5.1 PREVENTION

- Use of only locally derived, hatchery-controlled seedstock
- Biosecure hatchery production (AK4-A / AK4-B)
- Assessment and control of vessels, equipment and personnel

5.2 MONITORING

- Routine inspection of cultivation lines and biomass
- Recording of growth, health, fouling and mortality
- Environmental monitoring of water conditions

5.3 RESPONSE

- Isolation, relocation or removal of affected lines
- Implementation of corrective actions
- Notification to NSW DPI where required

5.4 Continuous Improvement

- Ongoing review of operational performance
- Integration of research outcomes and regulatory updates
- Periodic revision of management procedures

6.0 Record Keeping and Surveillance

Comprehensive records will be maintained to support traceability and adaptive management, in accordance with the requirements outlined in the Biosecurity Management Table (Appendix BM1), including:

- seedstock transfer from hatchery to farm
- deployment locations and timing
- biomass growth, condition and yield
- monitoring observations and biosecurity incidents

7.0 Staff Training and Responsibilities

Biosecurity responsibilities are clearly defined and implemented through operational procedures, as detailed in the Biosecurity Management Table (Appendix BM1):

The Farm Manager is designated as Biosecurity Lead.

All personnel receive training in:

- biosecurity risks
- hygiene and operational controls
- monitoring and reporting procedures

Training is undertaken at induction and refreshed at regular intervals, with role-specific requirements defined in the OMP.

8.0 Offshore Biosecurity Controls

The Eden-1 facility operates as an open-water aquaculture system. As such, the physical exclusion of marine organisms is not practicable.

Biosecurity is managed through:

- site selection in a high-energy offshore environment
- operational controls and work sequencing
- monitoring and adaptive management

These controls are implemented through the procedures outlined in the Biosecurity Management Table (Appendix BM1). The lease area is defined by navigation markers, establishing a clearly identifiable operational and biosecurity zone.

9.0 Hatchery Interface

Biosecurity is primarily controlled at the hatchery stage prior to offshore deployment. The hatchery and seedbanks are managed in a biosecure environment.

Controls include:

- controlled propagation and culture conditions
- separation and quarantine of seedstock batches
- strict hygiene and access protocols
- verification of seedstock health prior to deployment

Only seedstock of known and acceptable health status is transferred to the offshore farm, consistent with the requirements set out in the Biosecurity Management Table (Appendix BM1).

10.0 Equipment, Vessels and Personnel Controls

Biosecurity controls relating to equipment, vessels and personnel are implemented in accordance with the Biosecurity Management Table (Appendix BM1) and include:

- assessment of all vessels and equipment prior to use
- application of cleaning and handling protocols where required
- allocation of equipment to operational zones where feasible
- controlled personnel access and hygiene protocols
- management of movement between hatchery and offshore operations

11.0 Waste and Environmental Interaction

The Eden-1 system does not generate operational waste (however, see Auskelp Waste Management Plan for further details). High level factors are as follows:

- no feed inputs
- no effluent discharge
- no chemical use

Any detached kelp biomass is biodegradable and native to the local environment. Where required, biomass may be removed as part of operational management in accordance with the Biosecurity Management Table (Appendix BM1).

12.0 Emergency Response

In the unlikely event of a biosecurity incident, response procedures are defined in the Biosecurity Management Table (Appendix BM1) and Biosecurity Control Table (Appendix BC1) include:

- isolation, relocation or removal of affected cultivation lines
- implementation of corrective actions
- notification to NSW DPI and relevant authorities where required

13.0 Monitoring, Review and Audit

Monitoring, review and audit processes are undertaken in accordance with the Biosecurity Tables (Appendix BM1 and Appendix BC1) and will be reviewed annually.

Additional reviews will be triggered by:

- disease or biosecurity incidents
- regulatory changes
- significant environmental variation

14.0 Integration with Monitoring and Maintenance Plan

This Biosecurity Management Plan is implemented through the Eden-1 Monitoring and Maintenance Plan and the Emergency Response Plan. All monitoring, operational controls, training and response procedures described in this document are operationalised within the MMP and detailed in the Biosecurity Management Tables (Appendix BM1 and Appendix BC1). These documents are all reviewed concurrently to ensure consistency, alignment with regulatory requirements, and continuous improvement of management practices.

Appendix BM1: Biosecurity Management Table (AL21/004)

Guideline	Management Response	Responsibility	When	Resources
Movement records (B1)	Maintain records of seedstock transfer, deployment, movement, harvesting and biomass condition	Farm Manager, Operations Manager	During all operations	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Health monitoring (B2)	Monitor growth, fouling, mortality and environmental conditions	Farm Manager, Technicians	Every site visit	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Biosecurity responsibility (B3)	Farm Manager designated as Biosecurity Lead	Auskelp Management	Ongoing	B5: Biosecurity Plan
Staff training (B4–B5)	Staff trained in biosecurity, hygiene, monitoring and response procedures	Farm Manager, Operations Manager	Induction + annual	B5: Biosecurity Plan, B7: Environmental Management Plan
Defined biosecurity zone (B6)	Lease boundary defined by navigation markers; entry to designated hatchery and seedstock areas	Farm Manager, Operations Manager	Ongoing	B9: Construction Deployment Management Plan, B7: Environmental Management Plan
Assessment of inputs (B7)	All inputs assessed for biosecurity risk prior to entry	Farm Manager	Prior to deployment	B5: Biosecurity Plan, B7: Environmental Management Plan
Production unit identification (B8)	All longlines uniquely identified and tracked	Farm Manager, Vessel Skipper	Deployment and ongoing	B6: Monitoring and Maintenance Plan
Open system acknowledgement (B9)	Offshore system managed through monitoring and adaptive response	Vessel Skipper	Ongoing	B7: Environmental Management Plan
Access control (B10–B11)	Controlled access and visitor induction	Farm Manager, Technical staff	Prior to access	B5: Biosecurity Plan, B7: Environmental Management Plan
Personnel hygiene (B12)	Hygiene protocols including PPE and controlled movement	All Staff	On entry/exit	B5: Biosecurity Plan
Restricted hatchery access (B13)	Hatchery access restricted and controlled	Hatchery Manager	Ongoing	B5: Biosecurity Plan
Zonal management (B14)	Farm operated in modules to limit spread	Farm Manager	Ongoing	B6: Monitoring and Maintenance Plan
Operational sequencing (B15)	Work from high health to low health areas	All Staff	All operations	B6: Monitoring and Maintenance Plan
Seedstock health (B16)	Only local, hatchery-controlled seedstock deployed, no genetic modification	Hatchery + Farm Manager	Prior to deployment	B5: Biosecurity Plan
Hatchery quarantine (B17)	Seedstock batches isolated and controlled	Hatchery Manager	Ongoing	B5: Biosecurity Plan
Backup seedstock (B18)	Maintain protected gametophyte cultures	Hatchery Manager	Ongoing	B5: Biosecurity Plan
Treatment protocols (B19)	Apply treatments only where appropriate and compliant	Farm Manager	As required	B7: Environmental Management Plan
Movement between zones (B20)	Movement minimised; infected lines isolated or relocated	Farm Manager	As required	B6: Monitoring and Maintenance Plan
Isolation of infected lines (B21)	Isolate or remove affected lines	Farm Manager	Upon detection	B6: Monitoring and Maintenance Plan
Removal of biomass (B22)	Remove affected biomass where required	Farm Manager, Hatchery Manager	Upon detection	B8: Waste Management Plan, B6: Monitoring and Maintenance Plan
Open system constraints (B23–B25)	Open-water system; no physical exclusion—managed through monitoring and response	N/A	Ongoing	B7: Environmental Management Plan
Herbivory monitoring (B26)	Monitor grazing impacts and manage if required	Farm Manager	Ongoing	B1: Marine Fauna Interaction Plan, B6: Monitoring and Maintenance Plan
Equipment risk (B27)	Assess all equipment and vessels prior to use	Farm Manager	Prior to use	B5: Biosecurity Plan, B7: Environmental Management Plan
Equipment cleaning (B28)	Cleaning protocols implemented where required, no chemicals used offshore	All Staff	As required	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
Equipment allocation (B30)	Allocate equipment to zones or clean between uses	Farm Manager	Ongoing	B6: Monitoring and Maintenance Plan

Guideline	Management Response	Responsibility	When	Resources
Environmental monitoring (B31)	Monitor water conditions and environmental indicators	Farm Manager, Vessel Skipper	Ongoing	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Cohort separation (B34)	Group seedstock by planting date and track digitally	Farm Manager	At deployment	B6: Monitoring and Maintenance Plan
No feed inputs (B35–B36)	No feed, fertilisers or nutrient inputs used in the marine environment	N/A	Ongoing	B7: Environmental Management Plan
Waste monitoring (B37)	Monitor detached biomass; no operational waste stream generated	Farm Manager	Ongoing	B8: Waste Management Plan, B6: Monitoring and Maintenance Plan
Waste handling (B38)	Manage biomass removal appropriately	Farm Manager, Vessel Skipper	As required	B8: Waste Management Plan
Incident response (B39)	Implement response procedures and notify authorities	Farm Manager, Vessel Skipper	Upon incident	B3: Emergency Response Plan, B5: Biosecurity Plan
Emergency training (B40)	Staff trained in emergency and incident response	Farm Manager	Induction + refresher	B3: Emergency Response Plan, B7: Environmental Management Plan
Plan review (B41)	Review every 12 months or triggered by events	Management	Annual	B5: Biosecurity Plan
Audit (B42)	Conduct audits in line with NSW DPI guidance	General Manager	Periodically	B5: Biosecurity Plan
B43. Regulatory reporting obligations	Suspected disease, unusual mortality, invasive aquatic species, or other reportable biosecurity incidents will be reported to the relevant NSW authority in accordance with licence conditions and legal obligations.	Farm Manager	Upon detection of a reportable event	B5: Biosecurity Plan, B3: Emergency Response Plan
B44. Surveillance and testing compliance	Any required surveillance, sampling, testing or reporting under permit, lease or regulatory conditions will be undertaken in accordance with those requirements.	Farm Manager	As required by approvals or regulator	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
B45. Licence and permit compliance	Only approved species, infrastructure, and operational practices will be used and maintained in accordance with lease, licence and approval conditions.	Auskelp Management, Farm Manager	Ongoing	B7: Environmental Management Plan, B5: Biosecurity Plan
G46. Introduced marine pest vigilance	Vessels, equipment and farm infrastructure will be monitored for signs of invasive or introduced marine species, with any suspected detections reported and managed promptly.	Farm Manager	Ongoing and prior to deployment/maintenance activities	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
B47. Biofouling management for vessels and equipment	Vessel hulls, ropes, moorings and operational equipment will be managed to minimise transfer of marine pests and nuisance fouling between locations.	Farm Manager	Prior to mobilising to site and during maintenance cycles	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
B48. Record retention and audit trail	Biosecurity records, monitoring records, incident records and corrective actions will be retained in a form that supports audit, review and regulatory verification.	General Manager, Farm Manager	Ongoing	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
B49. Corrective action close-out	Any identified biosecurity non-conformance, incident or monitoring trigger will be documented, assigned corrective actions, and tracked to close-out.	Farm Manager	Following any incident or audit finding	B5: Biosecurity Plan, B3: Emergency Response Plan
B50. Periodic biosecurity risk review	The farm biosecurity risk profile will be reviewed against new research, local observations, emerging pest/pathogen information and regulator guidance, and the Plan updated where required.	General Manager, Farm Manager	Annual review	B5: Biosecurity Plan
B51. Inter-plan consistency review	Biosecurity controls will be reviewed for consistency with the Monitoring and Maintenance Plan, Emergency Response Plan, Environmental Management Plan and Waste Management Plan.	General Manager	At each formal document review	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan, B8: Waste Management Plan

Appendix BC1: Biosecurity Control – Eden-1 (AL21/004)

Guideline	Management Response	Responsibility	When	Resources
Record Keeping and Surveillance				
BC1. Biosecurity incident register	A biosecurity incident register will be maintained to record all observed biosecurity issues, actions taken and outcomes to support traceability and review	Farm Manager	Upon any biosecurity observation or incident	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
BC2. Data integration and review	Monitoring data (growth, fouling, mortality, environmental conditions) will be reviewed periodically to identify trends and emerging risks	Farm Manager	Ongoing and during formal reviews	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Staff Training				
BC3. Biosecurity awareness updates	Staff will be updated on emerging biosecurity risks, new research findings and regulatory changes relevant to seaweed aquaculture	Farm Manager	At least annually or as new information becomes available	B5: Biosecurity Plan, B7: Environmental Management Plan
Property / Site Management				
BC4. Marine navigation and third-party interaction	Interactions with third-party vessels will be minimised and managed through defined navigation markers and awareness of lease boundaries	Farm Manager	Ongoing	B9: Construction Deployment Management Plan, B7: Environmental Management Plan
People				
BC5. High-risk activity declaration	Personnel will declare recent exposure to high biosecurity risk environments (e.g. other aquaculture sites, waterways) prior to accessing hatchery or operations	Farm Manager	Prior to site access	B5: Biosecurity Plan
BC6. Movement between facilities	Movement between hatchery, vessels and offshore operations will be controlled to minimise contamination risk	Farm Manager, Hatchery Manager	Ongoing	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
Seaweed / Stock Management				
BC7. Performance-based stock selection	High-performing and healthy kelp lines will be preferentially selected for propagation and future seeding	Hatchery Manager	During seedstock selection cycles	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
BC8. Early removal thresholds	Trigger thresholds for removal of affected lines (e.g. fouling, deterioration) will be defined and applied consistently	Farm Manager	Upon monitoring trigger	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Equipment, Vehicles and Vessels				
BC9. Vessel biofouling management	Vessel hulls and equipment will be maintained to minimise transfer of marine pests and biofouling organisms	Farm Manager	Prior to mobilisation and periodically	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan
BC10. Inter-site transfer restriction	Equipment and vessels will not be transferred between aquaculture sites without assessment and appropriate cleaning	Farm Manager	Prior to transfer	B5: Biosecurity Plan
Water				
BC11. Harmful algal bloom response	Environmental monitoring will be used to detect bloom conditions and trigger adaptive management actions (e.g. harvest timing, removal)	Farm Manager	Ongoing and during bloom events	B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan
Waste				
BC12. Biomass decomposition monitoring	Detached kelp biomass will be monitored to ensure no localised environmental impact	Farm Manager	Ongoing	B8: Waste Management Plan, B6: Monitoring and Maintenance Plan
Emergency Procedures				
BC13. Multi-plan incident coordination	Biosecurity incidents will be managed in coordination with emergency, environmental and fauna interaction procedures	Farm Manager	Upon incident	B3: Emergency Response Plan, B1: Marine Fauna Interaction Plan, B7: Environmental Management Plan
Monitoring and Audit				
BC14. Continuous improvement and audit integration	Biosecurity controls, incidents and monitoring outcomes will be reviewed, recorded and integrated into ongoing improvement and audit processes	General Manager, Farm Manager	Ongoing and during formal reviews	B5: Biosecurity Plan, B6: Monitoring and Maintenance Plan, B7: Environmental Management Plan

Classification: Commercial in Confidence

Restrictions: Internal Use Only

Copyright © Auskelp 2025

Email: info@auskelp.net

Website: www.auskelp.net

