



**PORT AUTHORITY OF NEW SOUTH WALES**

# **White Bay Cruise Terminal Shore Power**

## **Addendum Review of Environmental Factors - Seawater Cooling System**

Document no. Rev 0



17 June 2025

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**PROJECT 311015-00727: White Bay Cruise Terminal Shore Power - Addendum Review of Environmental Factors - Seawater Cooling System**

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## Certification

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This Addendum Review of Environmental Factors (REF) has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act), the *Environmental Planning and Assessment Regulation 2021* (NSW) (EP&A Regulation) and the Guidelines approved under section 170 of the EP&A Regulation; the information in this document is neither false nor misleading.

Signed: 

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Date: 17 June 2025

## Certification

I certify that I have reviewed and endorsed the contents of this Addendum REF document, and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation, and the Guidelines approved under section 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

Signed:   
Signed by:  
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Date: 26-06-2025 | 3:23 PM AEST



## Terms and Acronyms

Acronym/term	Definition
Approved activity	The proposed works described in the determined REF, being Stage 1 Work packages 2 & 3 at White Bay Cruise Terminal (WBCT)
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BC SEPP	State Environmental Planning Policy (Biodiversity and Conservation) 2021
the Contractor	Company to be engaged by Port Authority to undertake construction of the proposed works
CEMP	Construction Environmental Management Plan
CFD	Computational Fluid Dynamics
DPIRD	Department of Primary Industries and Regional Development (NSW)
DCCEEW (NSW)	Department of Climate Change, Energy, the Environment and Water (NSW)
Eastern Harbour City SEPP	State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021
ESD	Ecologically Sustainable Development
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning &amp; Assessment Act 1979 (NSW)</i>
EPA	Environment Protection Authority (NSW)
EP&A Regulation	Environmental Planning & Assessment Regulation 2000 (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
HDPE	High-density polyethylene
LAT	Lowest astronomical tide
MNES	Matter of National Environmental Significance
OPS	Onshore Power Supply
PE	Polyethylene
Port Authority	Port Authority of New South Wales
PoEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
(the) Precinct	The Bays Port Precinct
Project	Bays Port Shore Power Project, including Stages 1 & 2
PS SEPP	State Environmental Planning Policy (Planning Systems) 2021
REF	Review of Environmental Factors
RH SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
SEPP	State Environmental Planning Policy
System	Seawater cooling system
TI SEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021
WBCT	White Bay Cruise Terminal



# 1. Introduction

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## 1.1 Background

Port Authority of New South Wales (Port Authority) is carrying out the Bays Port Shore Power Project – White Bay Cruise Terminal (WBCT) (the approved activity). A Review of Environmental Factors (REF) was prepared by Worley Consulting Pty Ltd, dated 29 August 2024. The scope of works for the approved activity relates to Stage 1: WBCT Shore Power, Work Packages 2 and 3 only:

- Work Package 2: Shore power equipment supply and installation for WBCT berth (including design of internal electrical distribution network).
- Work Package 3: Internal network civil works to support Stage 1 infrastructure.

The activity was determined by Port Authority on 2 September 2024 under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approved activity included mention of the seawater cooling system (the system), however, did not include the full details or assess the potential marine environmental impacts as the system was at the early development stage at the time of the REF approval. The system is intrinsic to the WBCT Onshore Power Supply (OPS) design. The system regulates electrical equipment temperature within the OPS modules, significantly reducing the operational noise as no conventional cooling, such as external fans, are utilised for cooling and ventilation purposes. As further information on the construction and operation of the system has now been provided as part of detailed design, the Addendum REF provides an assessment of the potential impacts of the system. The location of the system is in Figure 1-1 and Figure 1-2.



Figure 1-1 Indicative location of the Seawater cooling system (Source: Port Authority, 2024)



Figure 1-2 Indicative location of the Seawater cooling system and components at WBCT (Source: Worley, 2023)

## 1.2 Purpose of the Addendum REF

This Addendum REF has been prepared by Worley Services Pty Ltd (Worley) on behalf of Port Authority. For the purposes of these works, Port Authority is the proponent and the determining authority under Division 5.1 of the EP&A Act.

This Addendum REF is to be read in conjunction with the REF. The purpose of this Addendum REF is to describe the system, to document and assess the likely impacts of the system on the environment, and to detail mitigation and management measures to be implemented.

The description of the system and assessment of associated environmental impacts has been undertaken in context of Section 171 and 171A of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the Addendum REF helps to fulfil the requirements of Section 5.5 of the EP&A Act including that Port Authority examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.



## 2. Need and Options Considered

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### 2.1 Strategic Need for the Activity

Section 2.1 of the REF addressed the strategic need for the activity, its objectives and the options that were considered. The system as described and assessed in this Addendum REF is consistent with the strategic need for the activity. The Addendum REF is needed to define and assess the impacts relating to the construction methodology and operation of the seawater cooling system for the approved activity.

### 2.2 Alternatives and Options Considered

Port Authority is responsible for the construction of the OPS at WBCT (also known as White Bay 5) which will allow vessels to connect to shore power while alongside the berth. The system will include a heat exchanger and control module which will be located at the OPS, pump and filter pits to be constructed on the wharf-side, and intake and outlet pipes that facilitate a constant flow of seawater for cooling of critical electrical equipment during the OPS operations. Port Authority has evaluated the feasibility of two proposed sites in relation to the construction and operation of the wharf-side components of the seawater cooling system:

- Site 1 (White Bay 5): This location was chosen in the original approved design and involves excavation of trenches and pits on the caisson for installation of pipework, pumps and filter pits. The excavation will extend beneath the concrete surface to depths below the lowest tide mark, resulting in water ingress into the pits and requiring the temporary installation of sheet piling. Divers will undertake coring through the seawall either from inside or outside the caisson to enable the installation of pipework.
- Site 2 (White Bay 6): An alternate location suggested by tender submissions requires trenching work out to White Bay 6 where intake and outlet pipework could be installed using slide rails over the existing rock revetment. As there is no seawall and caisson berth at the White Bay 6 location, this proposal would not require excavation or sheet piling below the low tide level on the land ward side.

### 2.3 Selection of Preferred Site

The choice between White Bay 5 and White Bay 6 must balance constructability with system performance, environmental risk, and the ability to support future expansion. A discussion on environmental, construction, feasibility and operational considerations is provided below.

#### **Environmental considerations**

A Specialist Assessment report evaluating the ecology, water quality and hydrodynamics of the two sites is provided in Appendix A. A summary of the findings is provided below:

Site 1 would require less mitigation effort due to its artificial substrate supporting low-value ecological communities. The environmental characteristics of this site minimise the potential for significant impacts during construction or operation.



Site 2 requires more comprehensive mitigation strategies to address risks associated with its:

- Diverse macroalgae habitats.
- Conservative classification as a Type 2 key fish habitat.
- Possible presence of protected species.
- Broader thermal effects from system operation.

**Constructability feasibility and operational considerations**

Constructability Considerations:

Constructing the pump and filter pits, as well as the inlet and discharge lines, at White Bay 5 is more complex due to:

- The presence of a caisson structure, which limits available space and construction access.
- Proximity to active berths at White Bay 4 and 5, requiring coordination to avoid disruption to vessel movements and berth operations.

In contrast, White Bay 6 offers a less constrained construction environment with fewer immediate operational conflicts. However, the long-term performance and adaptability of the system at White Bay 6 are compromised due to less favourable hydrodynamic conditions.

Operational and Environmental Performance:

Hydrodynamic modelling clearly demonstrates that White Bay 5 provides more favourable conditions for the system operation and regulatory compliance as the:

- The thermal plume is well-contained.
- Maximum plume width is 7.5 metres (m), with no interaction with vessels or infrastructure.
- No short-circuiting between outfall and intake.
- The plume dissipates within the nearfield zone.

Future-Proofing and Strategic Flexibility:

Installing the infrastructure at White Bay 5 can support future expansion, including:

- Potential shore power connections at White Bay 4 and other berths.
- More efficient integration of additional cooling demand without reworking major infrastructure.
- Avoidance of performance limitations observed in the confined waters of White Bay 6.



In summary, despite its higher construction complexity, White Bay 5 is the preferred location for the system infrastructure due to its enhanced operational performance, compliance with water quality criteria, reduced environmental risk and ability to accommodate future system growth. Further, the modelling supports that performance and operational risks are significantly lower at White Bay 5 compared to White Bay 6, making it the more sustainable and resilient long-term option.



## 3. Description of the System

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### 3.1 Overview of the System

The REF identified as part of the scope of work the excavation and installation of a closed seawater cooling system for the OPS equipment at WBCT for the purpose of reducing potential operational noise impacts at nearby sensitive receivers and improving sustainability outcomes by minimising electricity consumption and using a renewable water source instead of potable water.

Seawater cooling involves the use of seawater to act as a heat exchange, transferring heat from the electrical system to seawater. Seawater is to be drawn from the adjacent White Bay and will continually circulate, cooling the system. Seawater is drawn directly through an intake pipe at the berth. The seawater is then pumped into the system, absorbing heat as it circulates to and from the OPS, and is discharged back into White Bay through an outtake pipe. The discharged water will be cooled as it mixes in the wider body of water, ensuring that water intake is constantly cooled. The location of the outtake pipe is around 10 m from the seawater intake pipe to reduce thermal plume impacts.

The system comprises the following components with the proposed layout shown in Figure 3-1:

1. Seawater cooling module – module located inside the WBCT OPS that is designed to house the heat exchanger, pumps and control system. The inlet and outlet seawater lines feed from the wharf to the OPS via the pump and filter pits.
2. Pump and filter pits located at the wharf side near White Bay 5. A combined pump and filter pit is proposed which is to around 1 m below the lowest astronomical tide (LAT).
3. Inlet and discharge lines to connect to the pump and filter pits. Two 400 mm diameter pipes are to be installed through the seawall connecting into each filter pit chamber.

During operation, the landside cooling process will discharge water at temperatures approximately 3°C (and up to a maximum of 5°C) above ambient seawater temperatures.

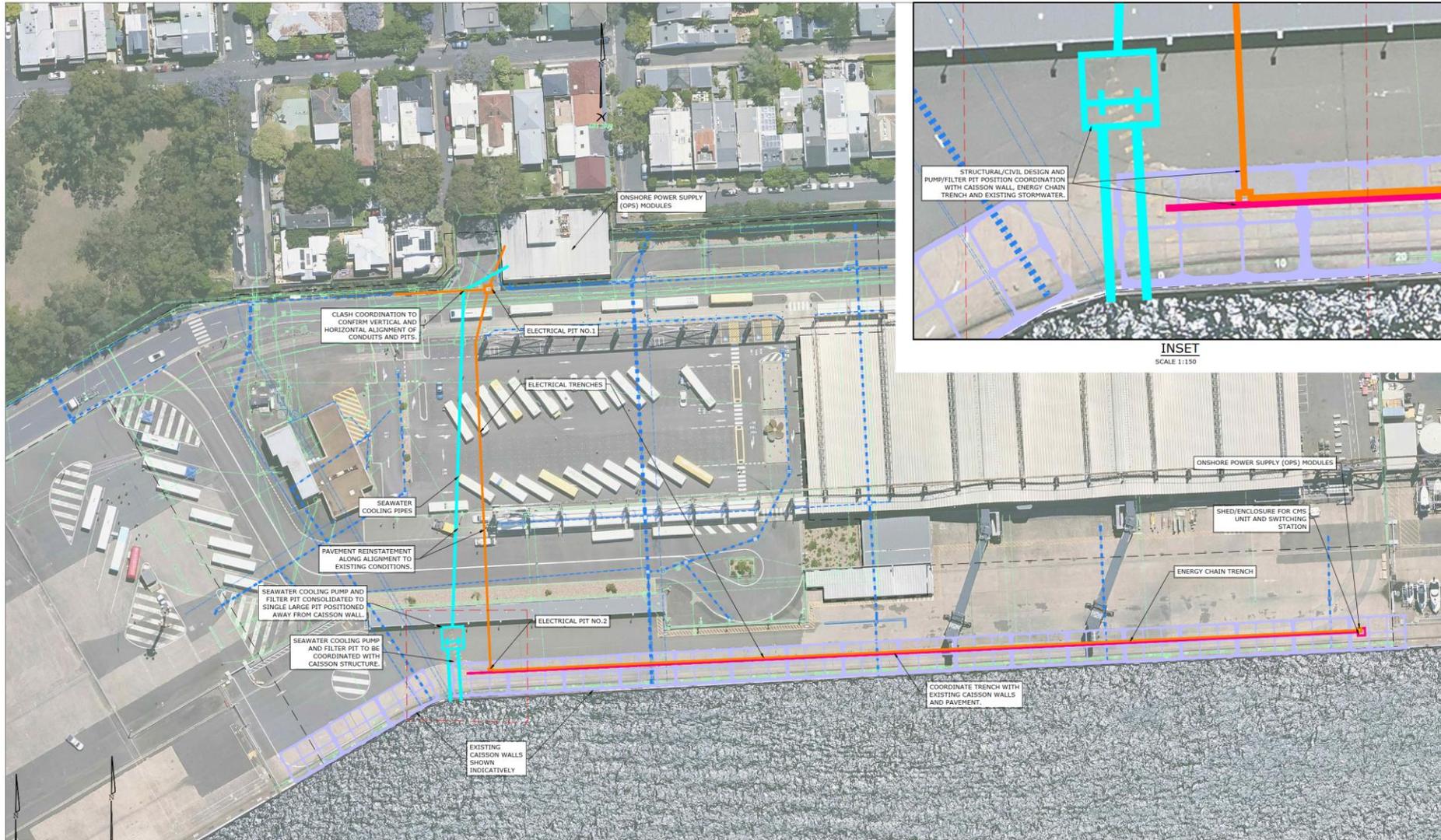


Figure 3-1 Proposed layout for the system, subject to detailed design (Source: information supplied by Port Authority)



## 3.2 Construction Activities

### 3.2.1 Overview

Construction of the system is to be undertaken by the appointed Contractor in accordance with the final design specifications and a site-specific Construction Environmental Management Plan (CEMP), covering all aspects of environmental management and performance, including all commitments and mitigation measures in this Addendum REF.

Hence, the works is to comprise the following staging and activities:

- Site establishment.
- Demolition of existing pavement, concrete and flexible, for system infrastructure installation.
- Install erosion and sedimentation controls.
- Construction of temporary works to support system excavation in the tidal zone using sheet piles.
- Install system including pipework, pits and associated accessories.
- Install system pipework through existing seawall.
- Install electrical infrastructure to power the seawater cooling pumps.
- Install control system to operate and monitor the seawater cooling infrastructure.
- Disposal of surplus material.
- Commissioning of the system.
- Restoration of pavement, garden beds, retaining walls and other minor concrete structures.
- Site demobilisation.

### 3.2.2 Work Methodology

Further details on the anticipated work methodology are provided below.

#### **Temporary works – pump and filter pits construction**

The pipe work between the filter pits and seawall (harbour side) is required to be below LAT level. Due to this design constraint, the seawater cooling filter pit, pump pit and associated pipework may require temporary works to undertake the works safely. The excavation is within the tidal zone and dewatering is not considered an effective method in this location. Therefore, it is proposed to install sheet piles to remove the risk of material collapsing in during construction works with scaffold stairs connected to the sheet piles, to allow for the safe entry and exit of the excavation.



### **Excavation and pump and filter pit foundational material**

On completion of the sheet piling works, all material from underside of concrete pavement to base of excavation is to be removed. The material within the tidal zone will be excavated under the guidance of divers. Material placed under water cannot be compacted. The material must also allow for the tidal water to flow through it without impacting on its performance. For this reason, imported oversized gabion rock and smaller aggregate wrapped in geofabric will be used as foundation material. The smaller aggregate allows for the material to be levelled for the pit to be placed on.

### **Construction of pump and filter pits**

It is proposed to combine the pump and filter pits. Due to the overall size and weight of the pit, staging is required for construction. The base and walls will be precast onsite. The walls are to be constructed approximately 2 m in height or above the high tide level. Once in position, sealed from tidal water and backfilled, the external and internal walls are to be constructed in-situ. Internal walls will be constructed to maintain separation and the design intention. The lid will be pre-cast and lifted into position by a crane. Due to the overall size of the pit, additional internal supports will be required for the lid and appropriate access is needed for operation and maintenance activities.

### **Installation of combined pipework**

Pipe connections and joints will be a combination of mechanical and electrofusion. Typically for works in the tidal zone and where the area cannot be kept dry, mechanical connection is required, thus dry section electrofusion welding will be used. Two No. DN400 pipes are to be installed through the seawall connecting into each filter pit chamber. Four No. DN150 pipes are to be installed in the cast in-situ internal walls. One No. DN250 pipe is to be installed from pump pit to the OPS. Prior to placing the combined pit, pipe stubs are to be installed with mechanical connections for future connections with the DN250 and DN400 pipework. During the placement of the pit, the pipe stubs will be sealed off using plates bolted to the mechanical connection.

### **Seawall works**

The connection through the seawall will be completed primarily using divers. Divers will undertake coring through the seawall either from inside or outside the caisson to enable the installation of pipework. Works will be completed once the combined pump and filter pit has been installed and placed. The following method will be undertaken to complete this section of the works:

- Remove existing concrete pavement above the caisson wall. The crane rail (no longer in use) will need to be worked around during this activity. The concrete pavement is required to be removed to an extent which allows for sand to be benched down.
- Removal of sand to a depth of 2 m is to be completed and transported to stockpile.
- Specifically for each section of pipework, shoring boxes are to be installed to 500mm below pipe invert level.



- Divers will cut penetrations through each section of the caisson wall using a ring saw.
- Pipework is to be installed through each of the penetrations below the LAT level.
- Pipework will be temporarily sealed using mechanical fittings and connected into the pipe stub previously installed with the combined pit.
- Caisson wall penetrations will be formed up and reinstated using underwater grout.
- The excavated sand will be re-used to backfill the caisson seawall back to level.

### **Backfill of pump and filter pits and pavement restoration**

For sections within the tidal zone, sand will be placed to support installed infrastructure. Sand placed in a tidal zone does not require compaction. Once out of the tidal zone, geofabric is to be placed and general fill placed and compacted to underside of pavement level. All general fill should be placed and compacted in 300 mm layers with geotechnical testing confirming the specification has been met.

### **System infrastructure between combined pit and OPS**

This component of the works is to be completed in 50 m sections to minimise the disruption to Port operations. Demolition and restoration works will be carried out progressively. Polyethylene (PE) pipework will be used with pipe lengths welded together using electrofusion. Contained within the trench will be two No. DN250 pipe, each pipe taking sea water to and from the OPS. The pipe allocated for discharging of sea water is to be installed through the caisson seawall above the high tide level. This pipe will flow under gravity from the OPS to the seawall and thus laid on a grade.

### **System pumps, filters, fittings, sensors and indicators**

Two Southern Cross full stainless steel pumps will be installed. Two No. 10mm stainless steel filter screens are to be bolted and installed on the pit walls. Filter screens have been allowed to cover the DN400 inlet pipes to prevent debris and the like entering the system.

PN16 high-density polyethylene (HDPE) pipe will be used for the system pipework other than inside the pump pit, which will be stainless steel. Valves will be stainless steel. HDPE fittings will be mechanical where required within the tidal zone and electrofusion where the work area is dry. Stainless steel pipework will be a combination of welded and fabricated offsite and bolted connections onsite.

Sensors and indicators are to be installed linking to the OPS. Dual controllers with variable speed drives, power connection for sump pump and pit level sensor are to be installed and commissioned as part of the overall system.

### **System commissioning**

Prior to commissioning, all installed infrastructure is to be flushed, and pressure tested. Pressure testing confirms that all joints are sound with no leaks. Typically, pipework is pressure tested to 1.5 times the design pressure the pipes will be under during operation. This process involves the pipework being filled with water using a pump with a pressure gauge.



Once the required pressure is reached it is required to be held for up to 5 hours to ensure soundness. All electrical works will be checked and tested and confirmed ready for commissioning.

### **3.2.3 Plant and Equipment**

Section 4.2.2 of the REF provided an indicative plant and equipment list, with final selection to be determined by the appointed Contractor during construction planning.

### **3.2.4 Construction Duration and Hours**

Construction of the system will take approximately three months and is expected to commence in mid-2025. Works will be undertaken outside of peak Cruise season (Cruise season is normally September to April) where possible and when ships are not at berth.

Standard working hours are proposed for the construction phase:

- Monday to Friday: 7am – 6pm.
- Saturday: 8am – 1pm.
- Sunday and Public Holidays: No works.

For any required out of hours work, the Contractor is required to prepare an application, including consideration of potential noise and vibration impacts and appropriate mitigations for approval by Port Authority.

### **3.2.5 Ancillary Facilities**

Section 4.2.4 of the REF described the areas that can be utilised by the Contractor for laydown and storage of equipment, as well as for workers' car park. There are no changes to the locations of ancillary facilities.

### **3.2.6 Traffic Management and Access**

Section 4.2.5 of the REF described traffic management and access. There are no changes to traffic management and access arrangements.

## **3.3 Operation**

While the shore power infrastructure is designed to support two berths, only the facility at WBCT is scheduled for operation at the outset. During operation, the cooling process will discharge water at temperatures approximately 3°C (and up to a maximum of 5°C) above ambient seawater temperatures. For the currently proposed single berth usage, the OPS will serve approximately 100–120 ships annually, averaging one vessel every three days for a 12-hour period during daytime hours (if all calls were to be by shore power capable ships).

Operation, including maintenance, of all shore power plant and equipment within Bays Port will be by Port Authority (or a suitably qualified contractor as nominated by Port Authority) as per existing White Bay operations.



## 4. Statutory Planning Framework

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### 4.1 Commonwealth Legislation and Regulations

#### 4.1.1 Environment Protection and Biodiversity Conservation Act 1999

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on Matters of National Environmental Significance (MNES) or the environment of Commonwealth land. The proposed system will not have a significant impact on any MNES or Commonwealth land. Therefore, a referral is not required.

#### 4.1.2 Other Commonwealth Legislation and Regulations

The proposed system will not trigger any other relevant Commonwealth legislation and regulations.

### 4.2 NSW Legislation and Regulations

#### 4.2.1 Environmental Planning and Assessment Act 1979

Section 5.5 of the EP&A Act requires determining authorities, when assessing an 'activity' under Part 5, to "examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity".

Section 6 of the Addendum REF contains an assessment of the system against the requirements of Section 5.5.

#### 4.2.2 Environmental Planning and Assessment Regulation 2021

Part 8, Section 171 of the EP&A Regulation provides that the determining authority "must take into account the environmental factors specified in the environmental factors guidelines that apply to the activity" for the purposes of Part 5 of the EP&A Act. These requirements are considered in Table 4-1.

Section 171A of the EP&A Regulation requires:

*"(1) When considering the likely impact on the environment of an activity proposed to be carried out in a regulated catchment, a determining authority must take into account—*

*(a) the matters a consent authority must consider under State Environmental Planning Policy (Biodiversity and Conservation) 2021, sections 6.6(1), 6.7(1), 6.8(1) and 6.9(1), and*

*(b) the matters of which a consent authority must be satisfied under State Environmental Planning Policy (Biodiversity and Conservation) 2021, sections 6.6(2), 6.7(2), 6.8(2) and 6.9(2).*



4) *When considering the likely impact on the environment of an activity proposed to be carried out in the Sydney Harbour Catchment, the determining authority must, in addition to the matters referred to in subsection (1), take into account the matters a consent authority must consider under State Environmental Planning Policy (Biodiversity and Conservation) 2021, section 6.28(1)."*

The site is located within the Sydney Harbour Catchment which is a regulated catchment. Section 4.3.4 of this Addendum REF provides an assessment of the system in accordance with the abovementioned sections of the BC SEPP.

Table 4-1 Section 171 of EP&A Regulation considerations

Factor	Impacts
(a) the environmental impact on a community	The system is not anticipated to cause any adverse environmental impact upon its community and surrounds. All minor impacts can be reasonably mitigated provided the mitigation measures contained herein and any other relevant environmental management plan/s are implemented.
(b) the transformation of the locality	There will be a minor transformation of the locality through the construction and installation of the system. The system, a component of the broader approved activity, is considered to promote a net positive environmental benefit to the locality through the minimisation of fumes, allowing cruise ships and other vessels with the technology to cut their diesel generators while docked and draw power from the shore power equipment, powered by 100% certified renewable energy.
(c) the environmental impact on the ecosystem of the locality	As noted above, the system is considered to promote a net positive environmental benefit to the ecosystem of the locality.  Potential direct and indirect impacts to marine ecology have been identified in Section 6.1 and each mitigation measure in Section 7 is tailored to reduce the likelihood and/or severity of impacts for each impact.
(d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality	Construction of the system will see a temporary reduction in the aesthetic quality including construction of temporary works, and presence of construction equipment and fencing around the construction site near the WBCT.
(e) the effects on any locality, place or building that has – (i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or (ii) other special value for present or future generations	The approved activity is considered to have a positive socio-economic benefit for both present and future generations in the region and also aligns with the ecologically sustainable development (ESD) principles.  The system will generally not affect the cultural heritage significance of White Bay, and significance of heritage items, heritage conservation areas and historical archaeological potential located in the vicinity during construction and operation.
(f) the impact on the habitat of protected animal, plant or other	Potential direct and indirect impacts to marine ecology have been identified in Section 6.1 and each mitigation



Factor	Impacts
form of life, whether living on land, in water or in the air	measure in Section 7 is tailored to reduce the likelihood and/or severity of impacts for each impact.
(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air	The construction and operation of the system will not result in the endangering any species present at the site.
(h) long-term effects on the environment	The system is considered to have a positive long-term benefit to the environment through the reduction of local air and noise emissions from cruise ships and vessels whilst docked.
(i) degradation of the quality of the environment	Results for construction noise modelling conducted for the REF showed compliance with the relevant project trigger noise levels. Best use practices and high-quality tools and equipment are recommended to alleviate any potential temporary noise impacts to nearby sensitive receivers in accordance with the Interim Construction Noise Guideline. There will be no operational impacts that degrade the quality of the environment.
(j) risk to the safety of the environment	The system is unlikely to cause any safety risks to the environment provided the adoption and implementation of safe work practices and the provisions of the proposed CEMP and any mitigation measures outlined herein are adopted.
(k) reduction in the range of beneficial uses of the environment	Nil.
(l) pollution of the environment	The system is unlikely to generate any significant pollution risks to the environment including from temporary works occurring in the tidal zone.
(m) environmental problems associated with the disposal of waste	The system is unlikely to cause any adverse environmental impacts associated with the disposal of waste. A Waste Management Plan is to be prepared prior to commencement of works to regulate waste management processes. All waste is to be disposed of thoughtfully and at an appropriately licensed waste facility.
(n) increased demands on natural or other resources that are, or are likely to become, in short supply	Nil.
(o) the cumulative environmental effect with other existing or likely future activities	There is potential for cumulative environmental impacts between the approved activity and any future projects associated with the Bays Precinct, particularly in relation to noise, traffic and transport impacts. However, the potential for these impacts is largely unknown at this stage, as it will depend on when and if these projects are granted approval and subsequently the timing of construction and operation works for these projects.



Factor	Impacts
(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions	Nil. The system is not anticipated to have any significant impacts to coastal processes and coastal hazards, including those under projected climate change conditions.
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	<p>The Greater Cities Commission was officially dissolved on 1 January 2024.</p> <p>Regardless, the proposal is consistent with the Eastern City District Plan (Greater Sydney Commission, March 2018) (Plan), which states that the port precinct is critical to the bulk construction supply chain for concrete, the cruise industry and the provision of essential services to the harbour economy. The Plan also states that port functions at Glebe Island and White Bay need to be retained and expanded.</p> <p>As per Section 3.9 of the EP&amp;A Act, the Inner West Local Strategic Planning Statement (20 March 2020) must be consistent with the Eastern City District Plan. Bays Port is within the Inner West LGA, but is not subject to any Council planning controls.</p>
(r) other relevant environmental factors	Nil.

The EP&A Regulation (Section 171(4)) requires publication of a REF for activities with:

- An estimated development cost of more than \$5 million or,
- An approval or permit for activity that requires approval under:
  - *Fisheries Management Act 1994* (NSW) sections 144, 201, 205 or 219, or
  - *Heritage Act 1977* (NSW) section 57, or
  - *National Parks and Wildlife Act 1974* (NSW) section 90 or
  - *Protection of the Environment Operations Act 1997* (NSW) sections 47-49 or 122, or
- That is being carried out under the TI SEPP, section 2.61A or 3.37A, or
- If the determining authority considers it to be in the public interest.

The determined REF was published by Port Authority as it has an estimated development cost of more than \$5 million and it is in the public interest. The Addendum REF will also be published on Port Authority’s website.



### 4.2.3 Other Relevant NSW Legislation

Table 4-2 considers other relevant NSW legislation and regulations.

Table 4-2 Other relevant NSW legislation considerations

Applicable Legislation	Considerations
<i>Biodiversity Conservation Act 2016</i>	The location for the system does not contain suitable habitat for any listed threatened species or community and is unlikely to have a significant impact on any threatened species or community.
<i>Contaminated Land Management Act 1997</i>	The location for the system has not been declared under the Act as being significantly contaminated.
<i>Fisheries Management Act 1994 (FM Act)</i>	Construction of the system will not involve any dredging or reclamation work, will not block fish passage nor harm any marine vegetation. No permits are required under the FM Act.
<i>Heritage Act 1977</i>	Due to the highly disturbed nature and history of earthworks around White Bay, it is considered highly unlikely that any relics exist within the location of the system. No approvals or permits are required.
<i>National Parks and Wildlife Act 1974</i>	The proposal is unlikely to disturb any Aboriginal objects due to the works being on reclaimed land.
<i>Protection of the Environment Operations Act 1997 (PoEO Act)</i>	<p>Construction and operation of the system does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required.</p> <p>Under Section 120 of the PoEO Act, the pollution of waters is prohibited. Schedule 5 of the Protection of the Environment Operations (General) Regulation 2022 defines the following: "(j) <i>thermal waste, being liquid which, after being used in or in connection with an activity, is more than 2 degrees Celsius hotter or colder than the water into which it is discharged</i>". The results of the hydrodynamic modelling for operation of the system indicate that water temperatures are expected to be within 2°C of ambient temperatures in the nearfield zone.</p> <p>In accordance with Part 5.7 of the PoEO Act, Port Authority will notify the NSW Environment Protection Authority of any pollution incidents that occur onsite. This will be managed in the CEMP to be prepared and implemented by the Contractor.</p>
<i>Water Management Act 2000</i>	Construction of the system is exempt from the requirement to obtain a 'controlled activity' approval under Clause 41 of the <i>Water Management (General) Regulation 2018</i> for work on waterfront land as it is being conducted by a public authority.
<i>Waste Avoidance and Resource Recovery Act 2001</i>	The hierarchy under the Act will be applied when devising and implementing waste management procedures using the principles of waste avoidance, waste reduction and waste re-use or waste recycling.



## 4.3 State Environmental Planning Policies

### 4.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP)

The TI SEPP aims to facilitate the effective delivery of infrastructure across the State. Part 2.3, Sections 2.44 and 2.80 of the TI SEPP allows for development without consent for the purposes of "electricity transmission or distribution network" and "port facilities", respectively. This includes the undertaking of "construction works" such as demolition and temporary structures and other ancillary works such as temporary signage when in connection with development for the above purposes. It is noted that a change of an existing sign is classified as exempt development under Schedule 1 for Chapter 2 of TI SEPP.

The approved activity is characterised as development for the purposes of "electricity transmission or distribution network" and "port facilities" and is to be carried out by Port Authority, it can be assessed under Division 5.1 of the EP&A Act. Consequently, development consent is not required. In accordance with Section 2.7 of the TI SEPP, in the event of any inconsistency between the TI SEPP and any other environmental planning instrument (EPI), the provisions of TI SEPP prevail to the extent of the inconsistency.

Part 2.2 of the TI SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by TI SEPP (where applicable), is discussed in Section 5 of this REF.

### 4.3.2 State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021 (Eastern Harbour City SEPP)

In 2022, the Bays West Stage 1 master planning and rezoning was completed (White Bay Power Station (and Metro) Sub-Precinct, adjacent to the Glebe Island Silos). The rezoning outlines planning controls to guide the development of a new centre for Bays West around the future Bays Metro station and White Bay Power Station. The new planning controls are included in Appendix 8 Stage 1 Bays West Precinct to the Eastern Harbour City SEPP. The proposed modification is consistent with the relevant Aims of Appendix 8.

The location of the system is zoned PAE Port and Employment under the Eastern Harbour City SEPP. The approved activity proposal is consistent with the objectives of this zone. The approved activity is permissible without consent as per Sections 2.44 and 2.80 of the TI SEPP, as identified in Section 4.3.1 above.

### 4.3.3 State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP)

The system is located within a "coastal use area" and "coastal environment area". However, under Section 2.10(3) and Section 2.11 (2) of the RH SEPP, the development requirements for the coastal environment and coastal use area do not apply to land within the Foreshores and Waterways Area within the meaning of the BC SEPP.



In accordance with Chapter 4 of the RH SEPP, a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated and, if the land is contaminated, it is satisfied that the land is suitable in its contaminated state for the purpose for which the development is proposed to be carried out. A Preliminary Site Investigation was prepared for the REF which concluded that the location of the approved activity can be made suitable, subject to the implementation of the recommended mitigation measures.



### 4.3.4 State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP)

Part 6.2 of the BC SEPP applies to development in regulated catchments including the Sydney Harbour Catchment and Part 6.3 applies to Sydney Harbour Foreshores and Waterways Area.

Part 6.3 of the BC SEPP covers all the waterways of Sydney Harbour, the foreshores and entire catchment. It also zones the waterways below mean high water mark into nine different zones to suit the differing environmental characteristics and land uses of the harbour and its tributaries. Construction of the system involves interface with the waterway whilst operation will involve discharge of water to White Bay. Table 4-3 considers the relevant sections of the BC SEPP as required by Section 171A of the EP&A Regulation.

Table 4-3 BC SEPP Part 6.2 considerations

BC SEPP Section	Impact
<p><b>6.6 Water quality and quantity</b></p> <p>(1) In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the following—</p> <ul style="list-style-type: none"> <li>(a) whether the development will have a neutral or beneficial effect on the quality of water entering a waterway,</li> <li>(b) whether the development will have an adverse impact on water flow in a natural waterbody,</li> <li>(c) whether the development will increase the amount of stormwater run-off from a site,</li> <li>(d) whether the development will incorporate on-site stormwater retention, infiltration or reuse,</li> <li>(e) the impact of the development on the level and quality of the water table,</li> <li>(f) the cumulative environmental impact of the development on the regulated catchment,</li> <li>(g) whether the development makes adequate provision to protect the quality and quantity of ground water.</li> </ul>	<ul style="list-style-type: none"> <li>(a) The system is unlikely to significantly impact water quality during construction and operation when appropriate mitigation measures in Section 7 are implemented.</li> <li>(b) Construction of the system will not inhibit or impact water flows in White Bay. The operation of the system may alter hydrodynamic conditions near the outfall; however, these impacts are localised and minor.</li> <li>(c) There will not be an increase in stormwater runoff from installation of the system.</li> <li>(d) No site-specific stormwater retention, infiltration or reuse is required.</li> <li>(e) During construction, excavation will extend beneath the concrete surface to depths below the lowest tide mark, resulting in water ingress into the pits and requiring the temporary installation of sheet piling. There are no long-term impacts to the water table during operation.</li> <li>(f) No cumulative impacts are expected.</li> <li>(g) During construction, excavation will extend beneath the concrete surface, requiring the temporary installation of sheet piling, which could intercept with ground water in the construction zone. For sections within the tidal zone, sand will be placed to support installed infrastructure. There are no long-term impacts to ground water during operation.</li> </ul>
<p>(2) Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied the development ensures—</p> <ul style="list-style-type: none"> <li>(a) the effect on the quality of water entering a natural waterbody will be as close as possible to neutral or beneficial, and</li> </ul>	<ul style="list-style-type: none"> <li>(a) The system is unlikely to significantly impact water quality during construction and operation when appropriate mitigation measures in Section 7 are implemented.</li> <li>(b) Construction of the system will not inhibit or impact water flows in White Bay. The operation of the system may alter hydrodynamic conditions near the outfall;</li> </ul>



BC SEPP Section	Impact
<p>(b) the impact on water flow in a natural waterbody will be minimised.</p>	<p>however, these impacts are localised and minor.</p>
<p><b>6.7 Aquatic ecology</b></p>	
<p>(1) In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the following—</p> <p>(a) whether the development will have a direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation,</p> <p>(b) whether the development involves the clearing of riparian vegetation and, if so, whether the development will require—</p> <p>(i) a controlled activity approval under the <i>Water Management Act 2000</i>, or</p> <p>(ii) a permit under the <i>Fisheries Management Act 1994</i>,</p> <p>(c) whether the development will minimise or avoid—</p> <p>(i) the erosion of land abutting a natural waterbody, or</p> <p>(ii) the sedimentation of a natural waterbody,</p> <p>(d) whether the development will have an adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area,</p> <p>(e) whether the development includes adequate safeguards and rehabilitation measures to protect aquatic ecology,</p> <p>(f) if the development site adjoins a natural waterbody—whether additional measures are required to ensure a neutral or beneficial effect on the water quality of the waterbody.</p>	<p>(a) There are no direct, indirect or cumulative impacts expected.</p> <p>(b) No riparian vegetation is to be cleared.</p> <p>(c)(i) The approved activity will have no adverse erosion impacts to adjoining land.</p> <p>(c)(ii) During construction, the installation of pipework through the caisson wall will generate waste material such as excavated sediments and concrete fragments. Given the limited spatial extent of debris deposition and the likely small quantity of material, the consequences of this impact are assessed as minor and highly localised.</p> <p>(d) Not applicable.</p> <p>(e) A site-specific CEMP will be prepared and implemented. Mitigation measures for the construction and operation of the system presented in Section 7 are considered to adequately protect aquatic ecology.</p> <p>(f) A site-specific CEMP will be prepared and implemented. Mitigation measures for the construction and operation of the system presented in Section 7 are considered to adequately protect water quality.</p>
<p>(2) Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied of the following—</p> <p>(a) the direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation will be kept to the minimum necessary for the carrying out of the development,</p> <p>(b) the development will not have a direct, indirect or cumulative adverse impact on aquatic reserves,</p> <p>(c) if a controlled activity approval under the <i>Water Management Act 2000</i> or a permit under the <i>Fisheries Management Act 1994</i> is required in relation to the clearing of riparian vegetation—the approval or permit has been obtained,</p> <p>(d) the erosion of land abutting a natural waterbody or the sedimentation of a natural waterbody will be minimised,</p> <p>(e) the adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area will be minimised.</p>	<p>(a) Potential direct and indirect impacts to marine ecology have been identified in Section 6.1 and each mitigation measure in Section 7 is tailored to reduce the likelihood and/or severity of impacts for each impact.</p> <p>(b) No impacts to aquatic reserves.</p> <p>(c) Not applicable.</p> <p>(d) The approved activity will have no adverse erosion impacts to adjoining land.</p> <p>(e) Not applicable.</p>



BC SEPP Section	Impact
<b>6.8 Flooding</b>	
<p>(1) In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider the likely impact of the development on periodic flooding that benefits wetlands and other riverine ecosystems.</p>	<p>No changes to periodic flooding as a result of the approved activity.</p>
<p>(2) Development consent must not be granted to development on flood liable land in a regulated catchment unless the consent authority is satisfied the development will not—</p> <p>(a) if there is a flood, result in a release of pollutants that may have an adverse impact on the water quality of a natural waterbody, or</p> <p>(b) have an adverse impact on the natural recession of floodwaters into wetlands and other riverine ecosystems.</p>	<p>(a) No adverse impacts on water quality are expected from the proposal.</p> <p>(b) No adverse impacts to wetlands or riverine ecosystems are expected.</p>
<b>6.9 Recreation and public access</b>	
<p>(1) In deciding whether to grant development consent to development on land in a regulated catchment, the consent authority must consider—</p> <p>(a) the likely impact of the development on recreational land uses in the regulated catchment, and</p> <p>(b) whether the development will maintain or improve public access to and around foreshores without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation.</p>	<p>(a) Not applicable.</p> <p>(b) Not applicable.</p>
<p>(2) Development consent must not be granted to development on land in a regulated catchment unless the consent authority is satisfied of the following—</p> <p>(a) the development will maintain or improve public access to and from natural waterbodies for recreational purposes, including fishing, swimming and boating, without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation,</p> <p>(b) new or existing points of public access between natural waterbodies and the site of the development will be stable and safe,</p> <p>(c) if land forming part of the foreshore of a natural waterbody will be made available for public access as a result of the development but is not in public ownership—public access to and use of the land will be safeguarded.</p>	<p>(a) Not applicable.</p> <p>(b) Not applicable.</p> <p>(c) Not applicable.</p>
<b>6.28 General</b>	
<p>(1) In deciding whether to grant development consent to development in the Foreshores and Waterways Area, the consent authority must consider the following—</p> <p>(a) whether the development is consistent with the following principles—</p>	<p>(a) The approved activity is to ensure the provision and supply of electricity to cruise ships, with a commitment to offset the electricity consumption from the use of shore power via renewable electricity.</p> <p>(b) The approved activity does not change existing public access to the Port.</p>



BC SEPP Section	Impact
<p>(i) Sydney Harbour is a public resource, owned by the public, to be protected for the public good,</p> <p>(ii) the public good has precedence over the private good,</p> <p>(iii) the protection of the natural assets of Sydney Harbour has precedence over all other interests,</p> <p>(b) whether the development will promote the equitable use of the Foreshores and Waterways Area, including use by passive recreation craft,</p> <p>(c) whether the development will have an adverse impact on the Foreshores and Waterways Area, including on commercial and recreational uses of the Foreshores and Waterways Area,</p> <p>(d) whether the development promotes water-dependent land uses over other land uses,</p> <p>(e) whether the development will minimise risk to the development from rising sea levels or changing flood patterns as a result of climate change,</p> <p>(f) whether the development will protect or reinstate natural intertidal foreshore areas, natural landforms and native vegetation,</p> <p>(g) whether the development protects or enhances terrestrial and aquatic species, populations and ecological communities, including by avoiding physical damage to or shading of aquatic vegetation,</p> <p>(h) whether the development will protect, maintain or rehabilitate watercourses, wetlands, riparian lands, remnant vegetation and ecological connectivity.</p>	<p>(c) No adverse impacts are expected.</p> <p>(d) The proposed land use is appropriate for the location.</p> <p>(e) The design of the approved activity minimises climate change risks.</p> <p>(f) Natural areas, landforms and vegetation will be protected during construction and operation.</p> <p>(g) Mitigation measures presented in Section 7 are considered to adequately protect the marine ecology of White Bay.</p> <p>(h) Watercourses will be protected during construction and operation.</p>

**4.3.5 State Environmental Planning Policy (Planning Systems) 2021 (PS SEPP)**

The Bays Precinct site is identified in Schedule 2, Clause 2 of the PS SEPP, which outlines development on specified sites that have an estimated development cost of more than \$10 million to be considered State Significant Development. However, the approved activity is deemed to be permissible without consent in accordance with Sections 2.44 and 2.80 of the TI SEPP and, in accordance with Section 2.7 of the TI SEPP, the provisions of the TI SEPP prevail.

The approved activity is not considered to be State Significant Infrastructure under Schedule 3 of the PS SEPP and therefore will not trigger an Environmental Impact Statement (EIS); the system can be assessed under Division 5.1 of the EP&A Act.



## **5. Consultation**

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### **5.1 Consultation Undertaken**

Port Authority is involved in ongoing community engagement and government consultation for the approved activity to address community issues and concerns, and to provide for government coordination in the area, as described in Section 6 of the REF. No targeted consultation has been undertaken in relation to the system for the Addendum REF, however it is recommended that prior to construction, Port Authority notifies Transport for NSW as the landowner of the bed of Sydney Harbour.

### **5.2 Transport and Infrastructure SEPP Consultation**

Part 2.2 General, Division 1 of the TI SEPP prescribes consultation to be undertaken by a public authority prior to the commencement of certain activities. A review of the TI SEPP consultation requirements identified that no consultation is required under this Part.



## 6. Environmental Assessment

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This section of the Addendum REF provides a description of the potential environmental impacts associated with the construction and operation of the system focusing on marine ecology, hydrodynamics and water quality aspects, which was assessed in the Marine Ecology and Water Quality Specialist Assessment (Appendix A) prepared by Worley (2025). A summary of the report is provided below.

The construction and operational impacts of the system requires no additional environmental assessment to that already undertaken in the REF with regard to noise and vibration, visual amenity, non-Aboriginal heritage, Aboriginal heritage, soils, contamination and waste, traffic and access and cumulative impacts.

### 6.1 Marine Ecology

#### 6.1.1 Existing Environment

##### 6.1.1.1 Background Data Review

A background review of existing marine ecological information for the study area was undertaken. A summary of the results of this review are:

- There is no mapped estuarine vegetation (seagrass, mangroves or saltmarsh) on the NSW Fisheries Spatial Data Portal.
- There are no mapped coastal wetlands at or surrounding the site.
- The site is not on land declared Critical Habitat (under the FM Act and EPBC Act) and Areas of Outstanding Biodiversity Value.
- The seawall is not considered key fish habitat under the Guidelines for Fish Habitat Conservation and Management (NSW DPI, 2013).
- Online database searches for threatened and protected fauna listed under the BC Act (via the BioNet Atlas of NSW Wildlife) and the EPBC Act (via the Protected Matters Search Tool) were undertaken on 19 March 2025 and 3 March 2025, respectively. Considering the location of the site, the habitats present in the study area, and the required habitat and conservation status of each of the species listed under the EPBC Act, BC Act and FM Act, the threatened and protected species which are considered to have a moderate to high chance of occurring within or in near vicinity to the site include:
  - White's Seahorse (*Hippocampus whitei*) - endangered species.
  - Black Rockcod (*Epinephelus daemeli*) - vulnerable species.
- Two potential impacts, being the introduction of marine species and injury/fatality caused by marine debris, are both listed as key threatening processes under State and Commonwealth legislation.

### 6.1.1.2 Marine Habitat Survey Results

Results of the marine habitat (seawall and subtidal) surveys conducted at White Bay 5 (Site 1) on 26 February 2025 are presented below. The sample locations are shown in Figure 6-1. These surveys aimed to assess the structural conditions, ecological communities, and benthic habitats, providing baseline data to inform potential impacts of construction and operation of the system.

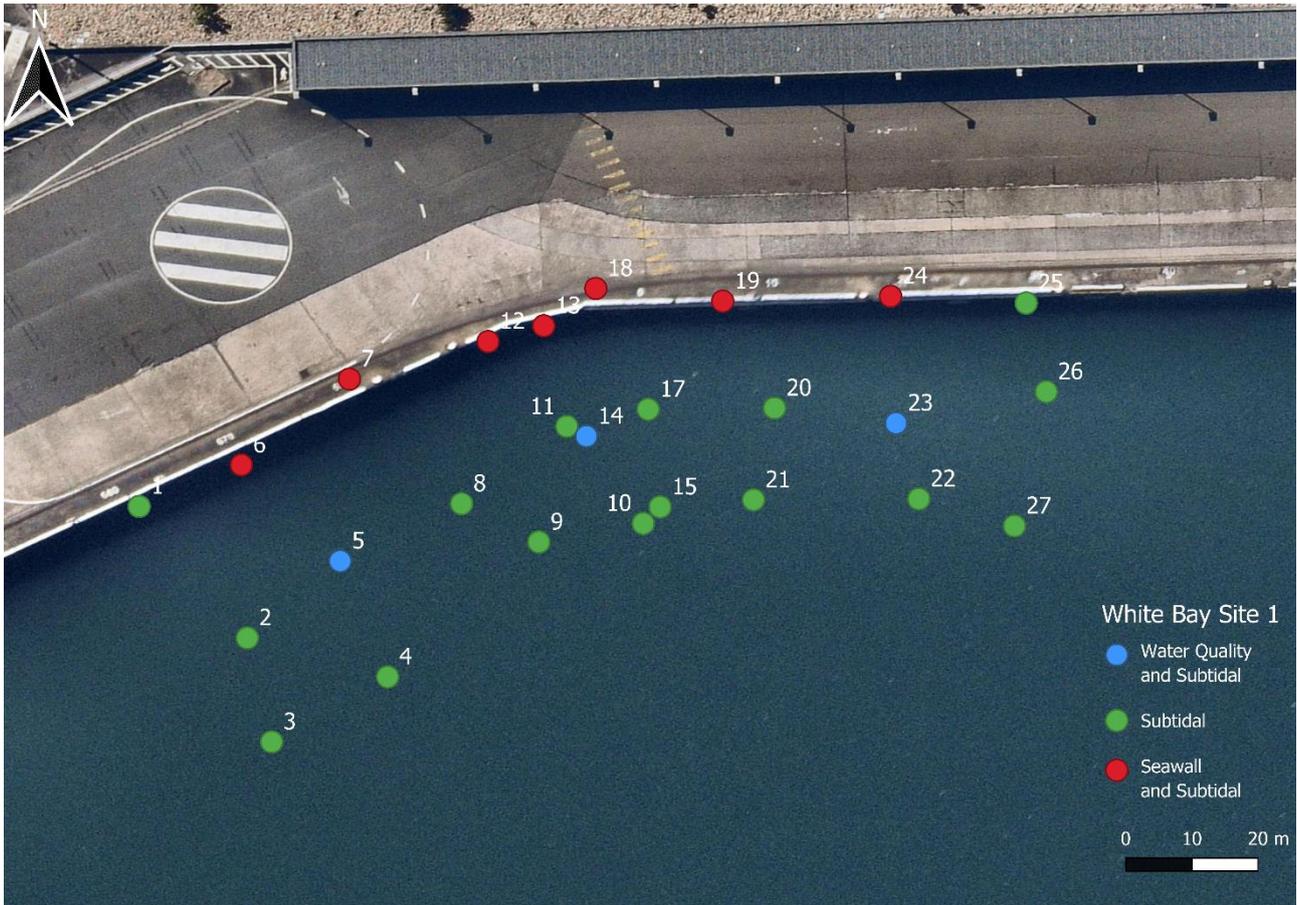


Figure 6-1 Sample locations (Source: Worley, 2025)

#### Seawall Condition

The vertical concrete caisson examined at White Bay 5 exhibits extensive biological colonisation characteristic of established artificial marine infrastructure. The substrate displays significant biofouling with a complex assemblage of marine organisms at various successional stages.

The structural surfaces are almost entirely covered with biological growth, which although extensive, are unlikely to have implications for the integrity of the underlying concrete. The visible portions do not show obvious signs of structural failure such as cracking or displacement, though comprehensive assessment is limited by the dense biological cover.

Sedimentation and algal distribution indicate moderate hydrodynamic forces affecting the structure, due to wave action and tidal currents.



## Seawall Habitat

The marine community at Site 1 is characterised by a diverse assemblage of sessile invertebrates and algae (Figure 6-2). The substrate is dominated by a short vertical carpet of mixed foliose algae, which is present across all transects. This algal community is complemented by two distinct red algae taxa: an articulated form (possibly Order Nemaliales) and a membranous branching form (possibly Order Ceramiales).

The invertebrate community is particularly rich in filter-feeding organisms. Ascidians are well-represented, with a range of colonial and solitary species present, having four distinct morphotypes observed: the introduced ascidian Pleated Sea Squirt (*Styela plicata*; present in all transects), white globular ascidians, white spherical ascidians, and colonial tubular ascidians (both yellow and white forms). Sponges also form a significant component of the community, with encrusting forms (in various colours including yellow, orange, green, brown, and pink), finger-like projections (yellow and orange), tubular forms (yellow, green, and orange), and ball-shaped varieties (yellow and green lobate forms).

Other notable invertebrates include Christmas tree worms (*Spirobranchus corniculatus*), various molluscan bivalves including oysters, and a single observation of a black feather star. The presence of these filter-feeding organisms suggests a nutrient-rich environment with sufficient water flow to support a diverse community.

Fish observations at Site 1 include the ubiquitous Yellowfin bream (*Acanthopagrus australis*) and a single sighting of a school of juvenile Striped catfish (*Plotosus lineatus*).

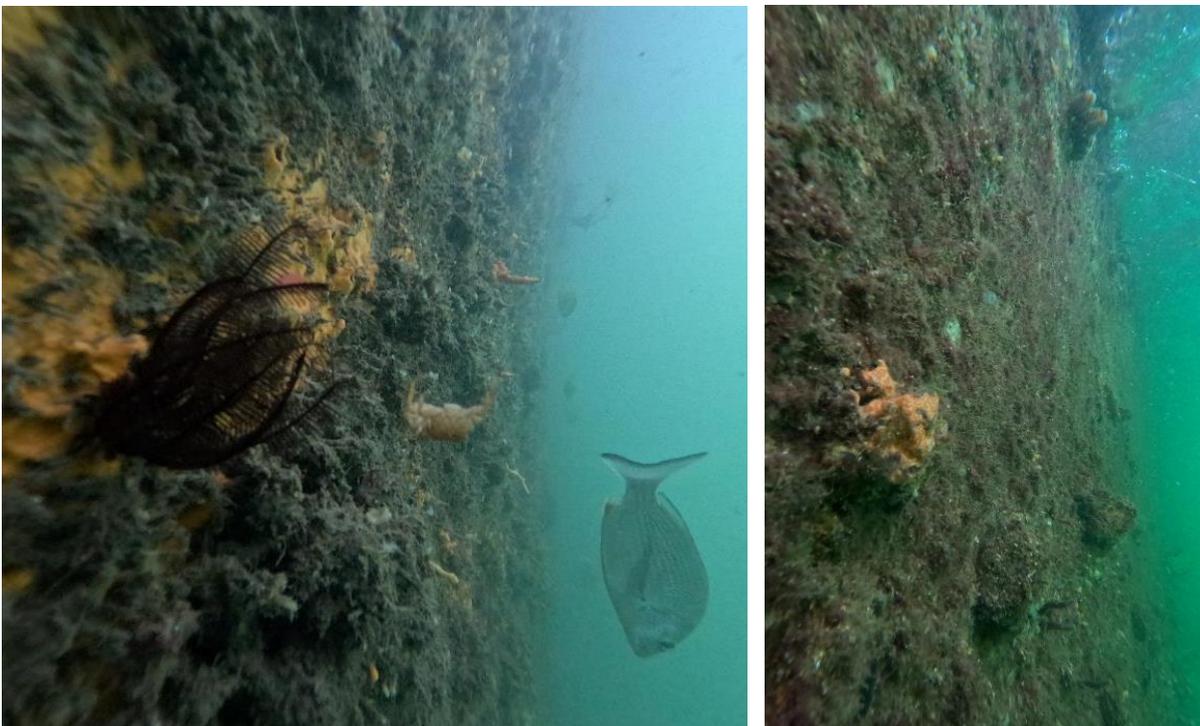


Figure 6-2 Images of the seawall habitat (Source: Worley, 2025)



## **Subtidal Habitat**

Of the nine locations closest to the berth, eight of the drop camera videos revealed some rock, likely part of the base of the revetment which underlies the caisson. The rocks were covered with sediment and appeared unvegetated. Beneath and around the rock was a silty soft sediment bottom. No rock was observed in the other location close to the berth, only sediment. All other drop camera locations revealed a silty soft sediment bottom with some unvegetated rocks at two sample locations (23 and 26).

## **6.1.2 Potential Impacts**

### **6.1.2.1 Construction**

The proposed construction methods for the seawater cooling system at Site 1 could potentially generate several short-term environmental impacts which may affect local marine ecological communities. The impacts differ slightly depending on the construction method used to install pipework through the caisson wall, namely option (1) underwater drilling using divers and (2) drilling from inside the caisson.

The spatial extent of identified impacts depends upon the mechanism of impact and whether the impact is appropriately mitigated. For example, debris from pipework installation would likely only fall within a few metres of the work site, whereas underwater noise from the same task could potentially propagate up to hundreds of metres. Estimates for the spatial extent of impacts are provided for each impact below.

### **Direct Impacts to Biota**

#### *Localised Benthic Invertebrate Mortality*

During installation of pipework, vessels may be required to support diving operations. Anchoring associated with this activity could result in mortality of benthic infauna where anchors and chains contact the seabed. This potential impact area is estimated to be up to 20m radius of the work site. Soft sediment benthic habitats are classified as Type 3 key fish habitat under the FM Act and are therefore considered low value. Once works are complete, infauna communities will likely recolonise anchor scars and fully recover. Additionally, similar benthic habitat is widely available within White Bay and the wider estuary, suggesting that local impacts will be negligible on a broader scale.

#### *Localised Sessile Invertebrate Mortality*

During the preparation of the caisson wall for pipework installation, activities such as surface cleaning, drilling, and excavation will result in the removal of sessile invertebrates attached to the wall. These organisms, including sponges, mollusks, and ascidians, are unable to relocate and will likely suffer mortality due to physical disturbance and habitat loss. The area of surface to be cleaned could be up to 5 m<sup>2</sup>. Artificial structures such as caisson walls are not classified as key fish habitat under the FM Act, and sessile invertebrate communities inhabiting these surfaces are considered to have low ecological value compared to natural habitats. Once construction is complete, recolonisation by sessile invertebrates on newly exposed surfaces is



expected to occur rapidly. Given the availability of similar artificial habitats within White Bay, impacts are likely to be highly localised and negligible at a broader ecological scale.

### **Reduction in Available Marine Habitat**

#### *Removal of Seawall Habitat*

The installation of pipework through the caisson wall will require excavation and drilling activities that reduce the amount of artificial habitat available on the seawall. The reduction in habitat is likely to be less than 2 m<sup>2</sup> given the planned size of the pipework. However, the extent of undisturbed seawall habitat around the installation location is significant, and removal of attached biota is unlikely to impact the overall community. Artificial habitats such as seawalls are not classified as key fish habitat under the FM Act.

### **Adverse Habitat Modification**

#### *Benthic Habitat*

Physical disturbance and increased sedimentation from construction activities, such as anchoring, have the potential to degrade benthic aquatic vegetation, including seagrass or macroalgae beds. These impacts could occur through smothering of vegetation by sediment deposition or reduced light intensity caused by elevated turbidity levels if sustained for longer periods. However, no benthic aquatic vegetation was observed during site inspections or underwater surveys conducted at Site 1, and no such vegetation has been mapped at this site by NSW Department of Primary Industries and Regional Development (DPIRD). Sensitive habitats such as seagrass beds are not present in the vicinity of Site 1, and no impacts on benthic aquatic vegetation are expected.

### **Sediment Quality**

#### *Deposition of Construction Debris*

The installation of pipework through the caisson wall will generate waste material such as excavated sediments and concrete fragments. These materials may contain contaminants like hydrocarbons or heavy metals that could leach into surrounding sediments if not properly managed. The physical presence of debris can smother benthic habitats, reducing biodiversity and altering sediment composition. Soft sediment habitats at Site 1 are classified as Type 3 key fish habitat under the FM Act. Marine debris is identified as a key threatening process for under the EPBC Act. Given the limited spatial extent of debris deposition (less than 5 m of the work site) and the likely small quantity of material, the consequences of this impact are assessed as minor and highly localised.

### **Underwater Noise and Vibration**

#### *Noise Impacts on Marine Fauna*

Construction activities such as drilling and cutting through the caisson wall and sheet piling inside the caisson may generate significant underwater noise. Underwater noise such as this propagates efficiently through water and has the potential to disturb marine fauna over a wide area. Species sensitive to sound pressure, such as fish and marine mammals, may experience



behavioural changes, displacement, or even hearing damage if exposed to high-intensity noise levels for extended periods. Vibrations from construction activities or other mechanical processes within the caisson, can also transmit through the structure into the water column, potentially propagating over large distances. If present, marine mammals such as seals or dolphins may exhibit avoidance behaviours in response to elevated underwater noise levels during construction. Prolonged exposure to high-intensity noise could result in auditory masking, which interferes with their ability to communicate or detect prey. The nature of underwater noise generated during construction could temporarily alter the acoustic environment of White Bay ("soundscape"), potentially affecting marine mammal behaviour. The spatial limits of soundwave propagation are difficult to estimate without sophisticated modelling, but a reasonable estimate would be that sound pressure levels would be damaging to sensitive species within a few meters of the drilling, disturbing within ten meters and audible to marine mammals up to hundreds of meters away. Given the temporary nature of construction activities, the short duration of the noise generating activities, the limited presence of marine mammals and the availability of alternative habitats in White Bay, the consequences of this impact on marine mammals are assessed as minor and localised.

Underwater noise may cause behavioural changes or displacement in endangered species such as White's Seahorse and Black Rock Cod, if present, as both are sensitive to sound pressure. However, neither White's Seahorse nor Black Rock Cod were observed during the marine ecology survey at Site 1, and the habitat in the area is not generally suitable for these species due to the flat seawall structure and lack of macroalgae or complex reef features typically required for shelter and foraging. Given the absence of suitable habitat and the unlikelihood of these species occurring at Site 1, the consequences of this impact are also assessed as negligible.

#### *Release of Microplastics and Chemical Residues*

During construction activities, materials used in the installation of pipework, such as plastic-based components and construction coatings, may inadvertently release microplastics or chemical residues into the marine environment. These pollutants can enter the water column through abrasion, fragmentation, or leaching during construction processes. Microplastics can persist in the ecosystem for extended periods, posing risks to marine organisms through ingestion, which may lead to physical harm or reduced feeding efficiency. Chemical residues, such as biocides from paints or coatings, can introduce toxicity into the environment, potentially affecting aquatic biota at various trophic levels. Marine pollution is listed as a key threatening process under the EPBC Act. Given the persistence and bioaccumulation potential of these pollutants, their long-term consequences could include subtle but widespread impacts on ecosystem health and function. Given the small scale of infrastructure modification on the seaward side of the caisson, with appropriate mitigation the impact of these activities is likely to be very minimal.

#### **Introduced Species**

It is possible that marine infrastructure at Site 1 currently host introduced pest species like the Pacific Oyster (*Crassostrea gigas*) and Pleated sea squirts. According to the planned construction methodology, invasive species could be dispersed during processes such as surface preparation on the seaward side of the caisson, potentially facilitating their spread



within White Bay. Although no pest species were identified in the marine ecology component of the assessment, introduced species are identified as a potential key threatening process. Mitigation measures should be followed to ensure the spread of introduced species within White Bay is limited.

### **Threatened and Protected Species**

Construction activities are not expected to impact threatened or protected species of flora or fauna at Site 1. No aquatic vegetation protected under the FM Act was observed during site inspections or underwater surveys. Two endangered species, White's Seahorse and Black Rock Cod, have the potential to occur in the area. However, the habitat recorded at Site 1, consisting primarily of flat seawall with limited structural complexity and no macroalgae, is deemed unsuitable for both species. Consequently, it is highly unlikely that these species would be present at the site, and no impacts on threatened or protected species are anticipated.

#### **6.1.2.2 Operation**

The operation of the system at Site 1 is expected to generate several environmental impacts, particularly thermal effects on the marine environment. Below is a detailed description of these impacts based on the hydrodynamic modelling results and general considerations:

#### **Direct Impacts to Biota**

##### *Behavioural Changes in Mobile Fauna*

Mobile marine species such as fish may avoid areas affected by elevated temperatures within the thermal plume due to discomfort or altered environmental conditions. The expected temperature differential, however, is small (max 5°C at the outlet and 1°C within 5 m) and does not exceed seasonal variability which can be up to ten degrees. So, temperatures in the thermal plume are likely to be within the tolerance limits of most species in this area. Given the rapid reduction of plume temperature to ambient levels and, the availability of unaffected habitats nearby, displacement effects are expected to be minimal. The consequences of this impact are assessed as minor.

##### *Entrainment of Marine Fauna*

The intake of seawater for cooling operations has the potential to entrain small marine organisms such as fish larvae, plankton, and other juvenile species. Entrainment occurs when these organisms are drawn into the intake system along with seawater, leading to physical injury or mortality due to mechanical stress or exposure to elevated temperatures within the cooling system. The extent of entrainment impacts depends on factors such as intake design and velocity, seasonal variations in biological activity, and proximity to larval production zones or plankton blooms. Larger mobile species typically avoid intake structures; however, smaller or less motile organisms are more vulnerable, which could result in localised reductions in populations of certain species with limited dispersal capacity or high site fidelity. Given these considerations and the localised nature of entrainment impacts, and assuming mitigation measures are in place, consequences are assessed as low and confined to a very small area



near the intake. No threatened or protected species listed under the FM Act are expected to be at risk of entrainment.

### **Adverse Habitat Modification - Thermal Impacts**

#### *Localised Temperature Increase*

The discharge of heated water from the system into the marine environment creates a thermal plume, which results in localised temperature increases. Elevated temperatures within the plume area may affect thermally sensitive marine organisms, including fish, algae, and invertebrates. Impacts could include altered metabolic rates, changes in reproductive cycles, or displacement from preferred habitats. Given the rapid dissipation of heat and the limited spatial extent of the plume, the consequences of this impact are assessed as minor and localised.

#### *Hydrodynamic Effects*

The operation of the cooling system may alter hydrodynamic conditions near the outfall. These changes could influence small-scale hydrodynamic patterns, potentially affecting localised water movement. Given the confined nature of these effects, and the low value habitat provided by the seawall, the consequences are considered minor.

#### *Thermal Stratification*

The discharge of heated water may contribute to temporary thermal stratification in localised areas near Site 1. These changes could influence aquatic ecosystems by altering habitat conditions for certain species or affecting primary productivity rates. However, given that stratification effects are expected to be confined spatially and dissipate rapidly due to hydrodynamic conditions at White Bay, consequences are assessed as minor and localised.

### **Reduction in Available Marine Habitat**

#### *Benthic Habitat*

The thermal plume generated by heated water discharge may indirectly affect benthic habitats and infauna communities by altering water temperature near the seabed. Thermally sensitive benthic organisms could experience stress or reduced diversity due to prolonged exposure to elevated temperatures. However, modelling results (refer to Section 6.2.2.2) indicate that the thermal plume will dissipate rapidly and as temperatures within the plume are higher than ambient, warm water from the outfall will be more buoyant than the surrounding waters. The height of the planned seawater outlet from the seabed also reduces likelihood of the thermal plume coming in to contact with the bottom. Impacts are therefore expected to be localised due to rapid temperature dissipation and minimal interaction with benthic environments. The consequences of this impact are assessed as minor.

#### *Sessile Organisms*

Sessile organisms located near the outfall may be exposed to elevated temperatures for extended periods, which could impact their growth rates or survival. While sessile species are unable to relocate from affected areas, their exposure is limited by the confined spatial extent



of the thermal plume. Given these factors, impacts on sessile organisms are expected to be minor and localised.

### **6.1.3 Conclusion on Significance of Impacts**

With the implementation of the recommended site-specific mitigation measures outlined in this Addendum REF, the system is unlikely to significantly impact marine ecology and would comply with regulatory requirements under the FM Act and EPBC Act.

## **6.2 Water Quality**

### **6.2.1 Existing Environment**

#### **6.2.1.1 Existing Water Quality Data**

Several existing seasonal datasets are available to supplement the baseline data collected for the study, namely:

- 1) An extensive seasonal data set collected by Worley in 2023 and 2024 at two nearby locations in Sydney Harbour.
- 2) Monthly water quality data collected by DCCEEW (NSW) within Zone 15 nearby to the WBCT.

Port Authority (2019) described water quality within White Bay as highly influenced by frequent vessel movements, including tugs to assist with vessel arrival and departure, and the intake of stormwater runoff from the immediate port area and from urban land uses in the surrounding catchment. Turbidity from storm events is also an influence at the site. Stormwater from a catchment area upstream of the port area is primarily discharged into White Bay at White Bay 2, via a large stormwater culvert with minor drains around the port areas. Sediment accumulation in the area is mainly from stormwater influences as well as sediment mobilisation from vessel movements and stormwater discharge from large storm events.

It is likely that sediments within the seabed of White Bay may contain some heavy metals (such as arsenic, copper, lead, zinc and mercury) and trace contaminants (such as Tributyltin) due to historical port and land uses and stormwater generated from the port area and urban land uses in the stormwater catchment. There is also potential for acid sulfate soils to be present. There is the potential for degradation of water quality should contaminated sediments be disturbed.

The potential for mobilising contaminants from the seabed sediments is dependent on the level of contaminants in the seabed that are to be excavated or levelled and the manner in which they are bound to the sediments (that is, loosely bound or tightly bound via organic material bonds). Whilst the nature of the sediment chemistry for the sediments is not known, previous studies for stormwater outfall dredging works at White Bay 2 noted that the inshore sediment contaminants were typical of stormwater discharge contaminants found throughout Sydney Harbour. It was also noted that the stormwater outlet sediments to be moved would be



relocated and placed over sediments with similar contamination profiles downstream of the same stormwater source.

**6.2.1.2 Baseline Water Quality Data Results**

The relevant water quality trigger objectives for NSW Ocean Waters (Sydney Harbour) as they apply to protection of aquatic ecosystems are shown in Table 6-1.

*Table 6-1 Physicochemical Water Quality guidelines (ANZECC, 2000)*

Water Quality Guideline	Parameter	Guideline Value	NSW Water Quality Objective
Protection of Aquatic Ecosystems – default stressor guidelines- East Coast (ANZECC, 2000)	pH	8.0 - 8.4	--
	Dissolved oxygen	90 - 110 %Sat	--
	Turbidity	0.5 - 10 NTU	0.5-10 NTU
	Temperature	15 - 35 °C	--

Physicochemical water quality parameters were measured to establish baseline conditions. Sampling was conducted at three locations (Samples 5, 14, and 23 as shown on Figure 6-1) across varying depths, with full-depth profiles collected to assess potential stratification. The sampling depths, physicochemical parameter results were within expected ranges for marine environments in the region during late summer.

Temperature profiles indicated no significant stratification in the water column across surveyed depths, with a narrow range of mean values around 23°C. This was confirmed by the depth profile plot which showed temperature decreasing with depth and a mild inflection point around 3m at Site 1. These results depict a typical thermal gradient in the water column, with warmer water near the surface due to solar heating and cooler water at depth. The absence of sharp temperature changes suggests limited thermal stratification.

Turbidity levels varied more significantly between samples and depths but generally remained low (<2 NTU) indicating relatively clear water conditions during sampling. The depth profile plot shows that turbidity increased greatly within a few metres of the bottom as is expected with silty soft sediment environments. The relationship between turbidity, pH and dissolved oxygen is notable; an inflection in the depth profile plot at around 12 m at Site 1 reveals higher turbidity coinciding with lower dissolved oxygen levels, and a lower pH. Re-suspended sediments often contain organic matter, which when decomposed by microbes consumes dissolved oxygen, leading to lower oxygen and pH levels near the bottom. Conductivity varies with depth generally reflecting higher salinity in deeper waters due to limited mixing with less saline surface water.

Overall, the depth profiles suggest a mildly stratified water column where surface processes dominate oxygenation and clarity, while deeper waters are influenced by sediment resuspension, salinity gradients, and decomposition dynamics.



## **6.2.2 Potential Impacts**

### **6.2.2.1 Construction**

#### **Turbidity and Contaminant Release from Sediment Resuspension or Increased Tidal Flux**

Construction activities such as coring through the caisson wall within the caisson, may generate localised short-term increases in turbidity due to sediment resuspension. Additionally, during excavation of material from the caisson, tidal flux may be enhanced due to the sudden availability of empty space on the landward side. If any contamination exists within or around the caisson, it is possible that transport of this contamination could be increased to the surrounding waters.

The disturbance of contaminated sediments can release heavy metals or other pollutants into the water column. Elevated turbidity levels can degrade water quality by reducing light penetration, smothering benthic habitats, and affecting aquatic organisms such as fish, algae, and invertebrates. While the soft sediment bottom at Site 1 is classed as a Type 3 key fish habitat, resuspension of significant sediment contamination could result in localised impacts on aquatic ecology. Given the temporary nature of these activities and the spatially confined extent of potential sediment resuspension, the consequences of this impact are assessed as minor and would likely be localised to within 30 m of the task location.

#### **Pollution from Wastewater Discharges**

Wastewater generated during construction activities, including runoff from equipment cleaning, dewatering processes, and vessel operations, may introduce pollutants such as oils, grease, or suspended solids into White Bay. These discharges can degrade water quality by increasing turbidity and introducing toxins harmful to aquatic organisms. Marine pollution is identified as a key threatening process under the EPBC Act. With appropriate mitigation, pollution caused by wastewater is avoidable.

#### **Pollution from Waste Disposal**

During construction activities, accidental or deliberate disposal of waste, including construction debris or general waste, may result in the introduction of pollutants into the marine environment. Such waste can include plastics, hydrocarbons, or other materials that degrade water quality by increasing turbidity and introducing toxins harmful to aquatic organisms. Marine pollution is identified as a key threatening process under the EPBC Act. Given the potential for these discharges to degrade local water quality and affect aquatic ecosystems, the consequences of this impact are assessed as moderate but with appropriate mitigation, the likelihood of such pollution is very low.

### **6.2.2.2 Operation**

#### **Hydrodynamic Modelling**

The operation of the system was modelled using Computational Fluid Dynamics (CFD) modelling techniques, to assess the dispersion of the heated temperature discharge from the



system outfall. This type of modelling has been shown to accurately predict buoyant flow and heat dissipation. It can account for complex three-dimensional geometry that may obstruct and/or trap flow and heat.

The key objective for the modelling was to determine the impact of the heat exchanger system on the surrounding area as well as whether there would be any potential for short-circuiting between the outflow and intake of the proposed system, which would compromise the operation of the system. A summary of the results and impacts are below.

#### *Localised Temperature Increase*

The discharge of heated water from the system into the marine environment creates a thermal plume, which results in localised temperature increases. Hydrodynamic modelling indicates that the temperature within the plume decreases to 1°C above background levels within 5 m of the outfall, 0.5°C above background levels within 15 m, and 0.2°C above background levels within 45 m. The thermal plume reaches a maximum width of 7.5 m and remains confined, without interacting with surrounding vessels or infrastructure (Figure 6-3). Given the rapid dissipation of heat and the limited spatial extent of the plume, the consequences of this impact are assessed as minor and localised.

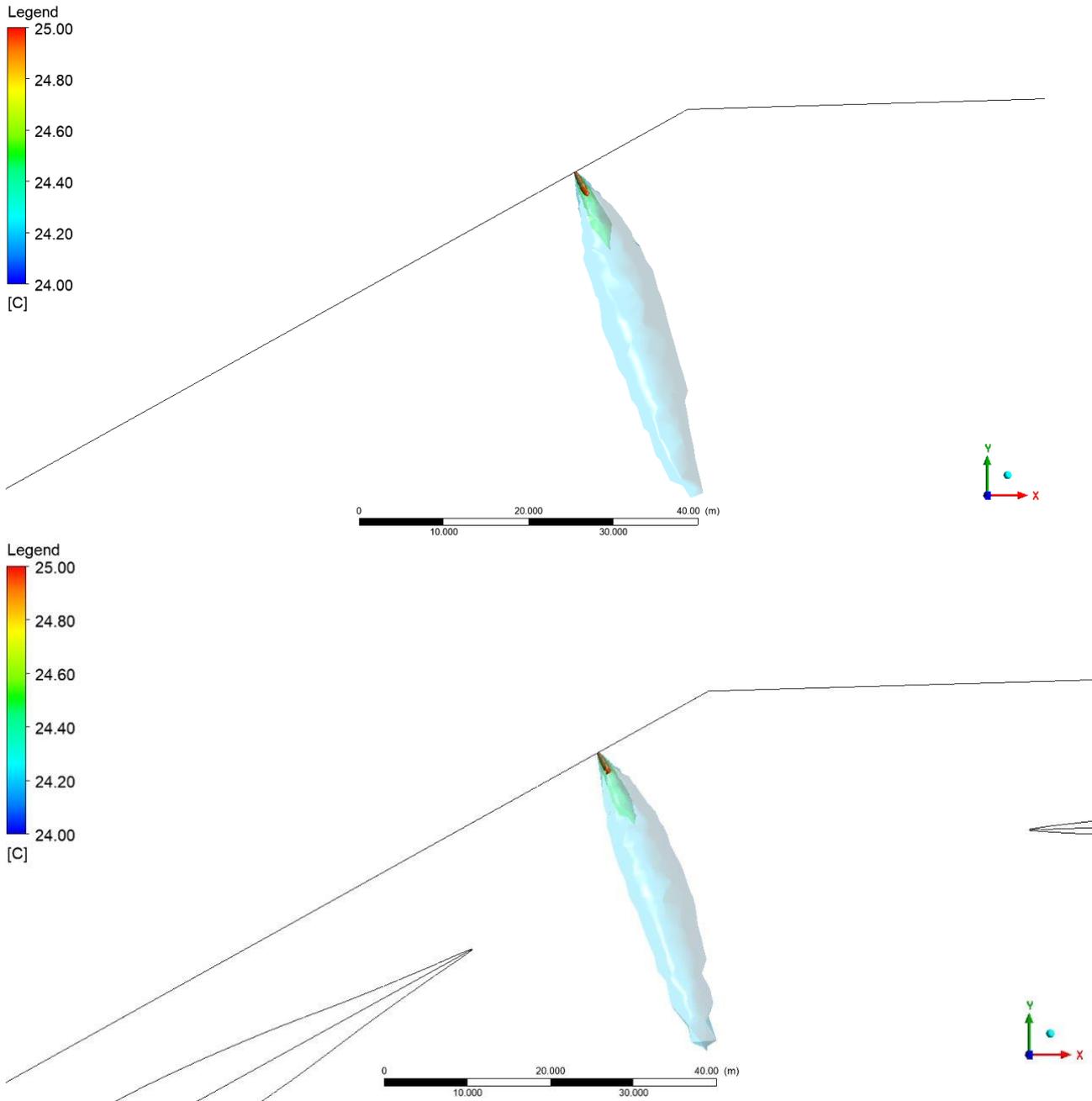


Figure 6-3 Modelled temperature plume output for Site 1, top – without berthed vessel, bottom showing berthing locations of nearby vessels (Source: Worley, 2025)

### Hydrodynamic Effects

The operation of the cooling system may alter hydrodynamic conditions near the outfall. While no short-circuiting between the intake and outfall was detected in hydrodynamic modelling at Site 1, ensuring warm water does not recirculate into the system, localised flow alterations may occur near the outfall due to heated water discharge. These changes could influence small-scale hydrodynamic patterns, potentially affecting localised water movement. Given the confined nature of these effects, the consequences are considered minor.



### *Thermal Stratification*

The discharge of heated water may contribute to temporary thermal stratification in localised areas near Site 1. Stratification can affect dissolved oxygen levels and nutrient cycling by creating distinct temperature layers in the water column that limit vertical mixing. Given that stratification effects are expected to be confined spatially and dissipate rapidly due to hydrodynamic conditions at White Bay, consequences are assessed as minor and localised.

### **Biofouling Impacts**

The operation of a system in Sydney Harbour presents potential for biofouling, particularly due to the region's temperate marine environment, nutrient availability, and the presence of both native and non-native fouling organisms. The accumulation of biological material on submerged infrastructure can significantly affect the hydraulic performance of the system, with implications for efficiency, reliability, and maintenance frequency. The following outlines the key areas where biofouling may impair flow efficiency within the system:

- Inlet screens and grates are at high risk of obstruction due to rapid colonisation by barnacles, mussels, ascidians, and macroalgae. Fouling reduces open flow area, restricts water intake, increases pump load, and can cause complete blockages during bloom events.
- Internal piping is affected by microbial biofilms and hard-fouling organisms like tube worms and bryozoans. These reduce internal diameter and increase friction losses, leading to decreased flow rates and possible microbially induced corrosion (MIC).
- Filters and strainers are prone to clogging from suspended biomass, algae, and jellyfish, resulting in increased backpressure and potential system shutdowns. Frequent cleaning or backflushing is often required to maintain performance.
- Heat exchanger surfaces suffer reduced thermal efficiency due to biofilm formation and calcareous fouling, which insulate surfaces and impair heat transfer. This can lead to overheating, reduced cooling performance, and long-term material degradation.
- Outlet pipes, while less prone to obstruction, can accumulate soft fouling due to warm water discharge, reducing flow velocity and potentially enabling backflow of fouling organisms into the system.

Overall, biofouling in Sydney Harbour poses a risk to the flow efficiency of seawater cooling systems. Key impacts include flow restriction, thermal inefficiency, increased energy use, and higher maintenance frequency—particularly at inlets, filters, and heat exchangers. To minimise the risk of biofouling in a harbour seawater cooling system, mitigation measures relating to applying anti-biofouling coatings, conducting routine inspections and cleaning, incorporating filters and physical barriers, water quality monitoring and optimising system design and operation are recommended.



## **Corrosion Impacts**

The potential for corrosion in marine infrastructure can be evaluated using baseline measurements of key seawater parameters. The likelihood and extent of corrosion in marine environments are strongly influenced by temperature, conductivity, pH, turbidity, salinity, and dissolved oxygen. Elevated temperatures typically accelerate corrosion by increasing the rate of electrochemical reactions at the metal surface. High conductivity, resulting from increased ionic content, enhances the movement of charged particles, promoting faster corrosion processes. A shift in pH toward more acidic conditions can destabilise protective oxide layers on metal surfaces, increasing susceptibility to attack. Turbidity, caused by suspended solids, can lead to under-deposit corrosion by creating localised areas with restricted oxygen flow. Higher salinity levels, particularly the presence of chloride ions, are known to aggressively compromise passive films, encouraging pitting and crevice corrosion. Lastly, dissolved oxygen plays a direct role in cathodic reactions; while moderate oxygen levels sustain corrosion, uneven oxygen distribution can trigger localised corrosion through differential aeration.

Corrosion of marine infrastructure not only threatens structural integrity but also poses a risk to surrounding ecosystems through the release of corrosion-related pollutants. As metallic components degrade, they can leach metals such as iron, zinc, copper, nickel, and chromium into the water column. These metals, especially when present in elevated concentrations or bioavailable forms, can be toxic to marine organisms, affecting processes such as respiration, reproduction, and growth. For example, copper and zinc—commonly used in alloys and anti-fouling coatings—are known to be harmful to phytoplankton and invertebrates at relatively low concentrations. Furthermore, localised corrosion such as pitting or crevice attack can create concentrated plumes of metal ions near the infrastructure, intensifying ecological impacts in benthic and nearshore environments. The potential for pollutant release is influenced by factors such as water chemistry, flow dynamics, and the type of alloy or coating used. Without proper material selection and corrosion control, infrastructure deterioration can act as a chronic source of metal contamination, contributing to long-term environmental degradation in marine systems.

### **6.2.3 Conclusion on Significance of Impacts**

With the implementation of the recommended site-specific mitigation measures outlined in this Addendum REF, the system is unlikely to significantly impact water quality and would comply with regulatory requirements under the FM Act and EPBC Act.



## **7. Summary of Mitigation Measures**

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Section 8 of the REF identified a range of mitigation measures that will be required to minimise the environmental impacts of the approved activity. These mitigation measures from the determined REF are unchanged.

Additional mitigation measures that relate to the assessment carried out for this Addendum REF are provided in Table 7-1.



Table 7-1 Summary of mitigation measures

No.	Impact	Environmental Safeguards	Responsibility	Timing
1	Localised sessile invertebrate mortality	To reduce impacts on sessile invertebrates during caisson wall preparation, construction activities to be limited to the smallest area necessary for pipework installation. Habitat enhancement measures such as installing textured surfaces to promote attachment may be considered as an ecologically positive initiative following construction.	Contractor	Construction
2	Removal of seawall habitat	To mitigate habitat loss from excavation and drilling on the seawall, construction shall avoid unnecessary disturbance to adjacent areas. Post-construction habitat enhancement measures, such as installing artificial reef modules or textured surfaces may be considered as an ecologically positive initiative; this will offset habitat loss and promote recolonisation of sessile organisms.	Contractor	Construction
3	Turbidity and contaminant release from sediment resuspension	Whilst caisson excavation is occurring, if there is a risk of sediment resuspension under the caisson unit, silt curtains shall be deployed around the work area to contain sediment resuspension and prevent contaminants from dispersing into White Bay. Water quality monitoring to be conducted regularly from the wharf during construction to ensure turbidity levels remain within acceptable limits as seen in Table 6-1.	Contractor	Construction
4	Pollution from wastewater discharges	<p>To prevent water quality impacts associated with dewatering or tidal flux within the caisson, several mitigation measures shall be employed. Once caisson excavation has begun, water chemistry testing for hydrocarbons and heavy metals shall be undertaken. If contamination is found above ANZG (2018) guideline values for marine waters, a water treatment unit shall be used to apply filtration, chemical treatment, and oil-water separation as required.</p> <p>If no chemical contamination is detected, prior to discharging water into the harbour, it must still be tested for turbidity and acidity levels to ensure compliance with ANZG (2018) guidelines. If elevated turbidity is detected, filtration will be required prior to returning the water to the harbour.</p> <p>If the water within the caisson is found to have an altered pH during dewatering, mitigation measures shall be implemented to adjust the pH before returning the water to the harbour. A suitable water treatment unit shall be used to adjust the pH. After pH adjustment, treated water to be tested again to verify that it falls within permissible ranges (typically between 6.5 and 8.5 for marine environments). Continuous monitoring during discharge ensures that any deviations are detected promptly and corrected.</p> <p>Monitoring protocols shall be established to continuously assess water quality during dewatering operations, ensuring that any unexpected changes are identified and addressed promptly.</p> <p>Runoff from equipment cleaning shall be collected and treated before discharge into White Bay. Spill kits should be made available on-site, and all contractors must follow strict protocols for handling oils and grease to prevent accidental pollution.</p>	Contractor	Construction



No.	Impact	Environmental Safeguards	Responsibility	Timing
5	Pollution from waste disposal	Construction waste management plans to be implemented to prevent accidental or deliberate disposal of waste into the marine environment. Waste materials must be stored securely on land until properly disposed of at approved facilities. Regular site inspections shall ensure compliance with waste management protocols. Sediments excavated from the caisson should be tested for contamination. If detected, sediments to be removed and disposed of at approved waste management facilities.	Contractor	Construction
6	Deposition of construction debris	During coring of the caisson seawall, external catchment devices such as plates will be used if drilling from the inside. This will prevent debris entering the water column and settling on the seabed. If drilling is occurring from the outside, a submersible suction dredge should be used, if practical, to collect debris. Any matter collected during construction must be disposed of at approved facilities.	Contractor	Construction
7	Noise impacts on marine fauna and marine mammals	To minimise underwater noise impacts during construction activities such as drilling and sheet piling within the caisson, noise-reducing technologies (e.g., mufflers or dampening systems) shall be employed on machinery where feasible. Personnel should monitor for the presence of marine mammals entering the area, and if any sightings are made, noise producing activities will be temporarily halted until the animals have left the area. Where possible a soft start of machinery should be employed to provide mobile fauna the opportunity to move away from the sound source.	Contractor	Construction
8	Release of microplastics and chemical residues	Plastic-based components and coatings used in construction must meet stringent durability standards to reduce fragmentation or leaching into the marine environment. Biocide-free coatings to be prioritised wherever possible. Components to be inspected during installation to ensure that any plastics or chemicals are not being inadvertently abraded into the marine environment.	Contractor	Construction
9	Introduced species	To prevent the spread of invasive species, specific action shall be taken for each species identified as occurring or possibly occurring on the caisson wall. If removal of oysters is required, biological debris to be collected with a submersible suction dredge to prevent dispersion of the Pacific Oyster ( <i>Crassostrea gigas</i> ). Surface preparation activities on the caisson wall to include an inspection for the Pleated Sea Squirt in affected areas. If any are found, they can be removed manually by divers and collected for disposal on land. Surface preparation can then proceed in the usual fashion.	Contractor	Construction
10	Behavioural changes in mobile fauna	To ensure impacts from elevated temperatures within the thermal plume are consistent with expectations, a validation program shall be implemented to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.	Port Authority	Operation
11	Entrainment of marine fauna	Intake structures must include screens or barriers designed to minimise the entrainment of small organisms while maintaining operational efficiency. To comply with NSW Fisheries fish screen best practice guidelines (Boys, 2021), screens should be designed with mesh sizes small enough to prevent juvenile fish, larvae, and plankton from passing through while allowing adequate water flow. The guidelines recommend that approach velocities at the intake should not exceed 0.1–0.15 m/s to ensure that fish can swim away from the screen without becoming impinged or trapped. Additionally,	Contractor / Port Authority	Detailed design / Construction / Operation



No.	Impact	Environmental Safeguards	Responsibility	Timing
		<p>sweeping flows parallel to the screen should be maintained to guide organisms safely past the intake structure, reducing the likelihood of injury or mortality.</p> <p>To further mitigate entrainment impacts, screens shall incorporate self-cleaning mechanisms to prevent debris accumulation, which can hinder performance and increase the risk of impingement. Regular maintenance and monitoring of intake structures are essential to ensure compliance with these standards and to adapt operations based on seasonal variations in biological activity, such as larval production or plankton blooms.</p>		
12	Thermal impacts (localised temperature increase)	To ensure thermal impacts from heated water discharge, are as expected, a validation program shall be implemented when one berth is operating at its peak to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.	Port Authority	Operation
13	Impacts on benthic habitat and sessile organisms	To minimise thermal impacts on benthic habitats and sessile organisms near the outfall, discharge points to be positioned as high as possible to reduce direct contact between warm water plumes and the seabed.	Contractor / Port Authority	Detailed design / Construction / Operation
14	Biofouling impacts	<p>To minimise the risk of biofouling in a harbour seawater cooling system, the following mitigation measures are recommended:</p> <p><b>Apply Anti-Biofouling Coatings</b></p> <ul style="list-style-type: none"> <li>• Use silicone-based foul-release coatings or copper-based antifouling paints on submerged infrastructure.</li> <li>• Target high-risk areas such as intake pipes, screens, and heat exchanger surfaces.</li> <li>• Ensure coatings are environmentally compliant and suitable for local fouling organisms.</li> <li>• Reapply coatings during scheduled maintenance cycles.</li> </ul> <p><b>Conduct Routine Inspections and Cleaning</b></p> <ul style="list-style-type: none"> <li>• Perform regular inspections of intake structures, pipelines, and heat exchangers using divers or ROVs.</li> <li>• Monitor flow rates and differential pressures to detect early fouling.</li> <li>• Use mechanical or chemical cleaning methods (e.g. pigging, hydroblasting, chlorination) as needed.</li> <li>• Dispose of removed biofouling material in a biosecure manner.</li> </ul> <p><b>Incorporate Filters and Physical Barriers</b></p> <ul style="list-style-type: none"> <li>• Install coarse screens or trash racks at the intake to block larger organisms and debris.</li> </ul>	Contractor / Port Authority	Detailed design / Construction / Operation



No.	Impact	Environmental Safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>• Use fine-mesh wedge wire screens or drum filters to intercept larvae and algae.</li> <li>• Add secondary strainers upstream of sensitive equipment.</li> <li>• Design filter cleaning and waste disposal processes to prevent ecological spread.</li> </ul> <p><b>Implement Water Quality Monitoring and Control</b></p> <ul style="list-style-type: none"> <li>• Monitor parameters like temperature, turbidity, and nutrient levels to anticipate biofouling risk.</li> <li>• Apply intermittent chlorination or biocide dosing (if permitted) to control biofilms and larvae.</li> <li>• Consider periodic thermal treatment (hot water flushing) to remove internal fouling.</li> <li>• Use automated systems to detect abnormal flow or pressure changes.</li> </ul> <p><b>Optimise System Design and Operation</b></p> <ul style="list-style-type: none"> <li>• Maintain internal water velocities above 1.5 m/s to discourage settlement.</li> <li>• Design piping with smooth internal surfaces to limit adhesion.</li> <li>• Include redundancy (e.g. multiple intakes) to allow maintenance without shutdown.</li> <li>• Avoid thermal discharge conditions that create favourable environments for fouling.</li> </ul>		
15	Corrosion impacts	<p>To minimise the risk of corrosion in a harbour seawater cooling system, the following mitigation measures are recommended:</p> <p><b>Material Selection</b></p> <ul style="list-style-type: none"> <li>• Use corrosion-resistant materials such as:                             <ul style="list-style-type: none"> <li>○ Duplex stainless steels</li> <li>○ Titanium alloys</li> <li>○ Non-metallic options like high-density polyethylene (HDPE) or polyvinyl chloride (PVC)</li> <li>○ Match material choice to specific environmental conditions (e.g., salinity, temperature, flow rate).</li> </ul> </li> </ul> <p><b>Protective Coatings and Barriers</b></p> <ul style="list-style-type: none"> <li>• Apply coatings to isolate metal surfaces from seawater exposure, such as:                             <ul style="list-style-type: none"> <li>○ Epoxy or polyurethane coatings</li> <li>○ Fusion-bonded epoxy (FBE) for pipelines</li> <li>○ Thermal spray coatings (e.g., aluminum or zinc)</li> <li>○ Use anti-fouling coatings to minimise biofouling-related corrosion.</li> </ul> </li> </ul>	Contractor / Port Authority	Detailed design / Construction / Operation



No.	Impact	Environmental Safeguards	Responsibility	Timing
		<p><b>Cathodic Protection Systems</b></p> <ul style="list-style-type: none"> <li>• Implement sacrificial anode systems (e.g., zinc, magnesium) for passive protection.</li> <li>• Use impressed current cathodic protection (ICCP) for larger or critical structures.</li> </ul> <p><b>Routine Maintenance and Monitoring</b></p> <ul style="list-style-type: none"> <li>• Conduct regular inspections and surface condition assessments.</li> <li>• Perform wall thickness measurements and corrosion rate monitoring (e.g., via probes or coupons).</li> <li>• Monitor key water quality parameters (e.g., pH, salinity, dissolved oxygen) to anticipate changes in corrosion risk.</li> <li>• Keep detailed records of maintenance and inspection results for trend analysis and early intervention.</li> </ul>		



## 8. Conclusion

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This Addendum REF has been prepared in accordance with Section 5.5 of the EP&A Act, Section 171 and 171A of the EP&A Regulation and other relevant legislation, taking into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the selection of the preferred site for the seawater cooling system.

Based on the environmental assessment carried out in Section 6 of this Addendum REF, the potential construction and operation impacts of the system on marine ecology and water quality are considered to be minor. The potential impacts can be reasonably mitigated and managed through adoption of best practices and adherence to accepted industry guidelines and standards, as outlined in Section 7.

The construction and operational impacts of the system requires no additional environmental assessment to that already undertaken in the REF with regard to noise and vibration, visual amenity, non-Aboriginal heritage, Aboriginal heritage, soils, contamination and waste, traffic and access and cumulative impacts.

This Addendum REF has considered and assessed these impacts in accordance with Sections 171 and 171A of the EP&A Regulation and the requirements of the EPBC Act. Based on the assessment contained in this Addendum REF, it is considered that the activity is not likely to have a significant impact upon the environment or any threatened species, populations or communities or their habitats. Accordingly, an Environmental Impact Statement (EIS), or Species Impact Statement and/or Biodiversity Development Assessment Report is not required, nor is the approval of the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.



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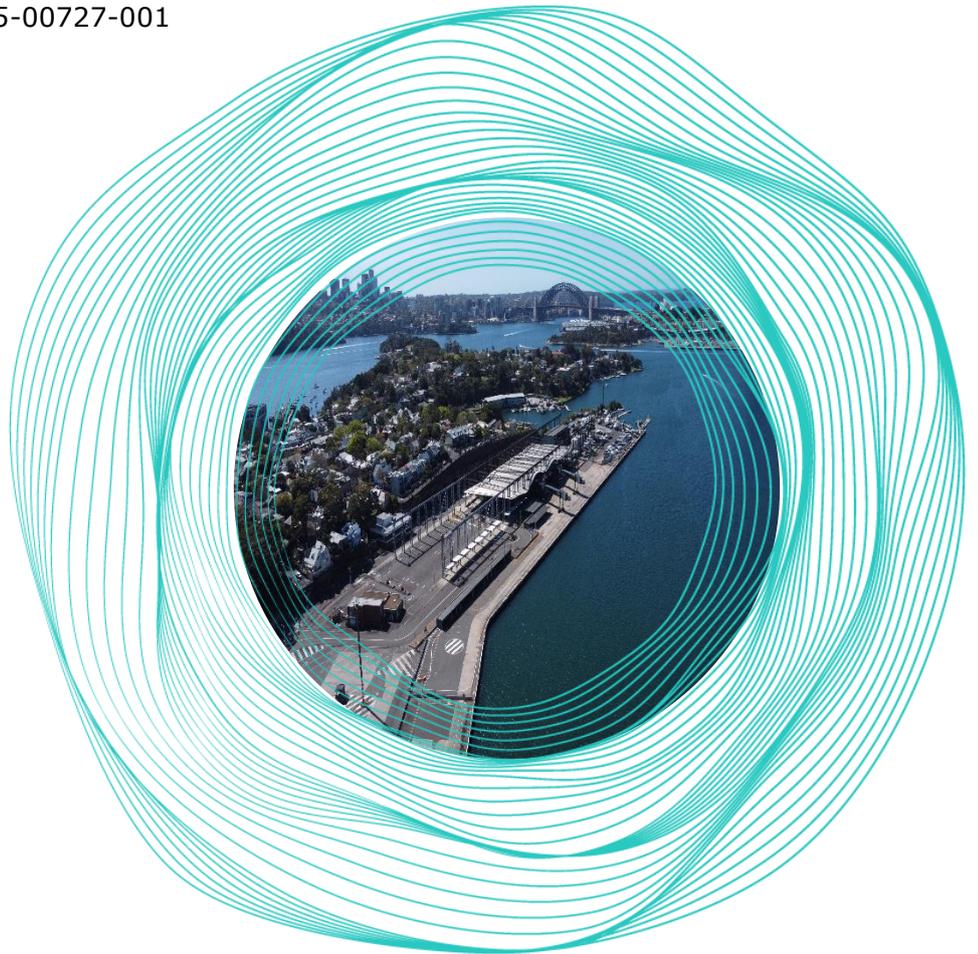
## **Appendix A. Marine Ecology and Water Quality Specialist Assessment**



**PORT AUTHORITY OF NEW SOUTH WALES**

# **White Bay Cruise Terminal Seawater Cooling System Marine Ecology & Water Quality Specialist Assessment**

Document no. Rev 0: 311015-00727-001



17 June 2025

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### PROJECT 311015-00727 - 311015-00727-001: White Bay Cruise Terminal Seawater Cooling System Marine Ecology & Water Quality Specialist Assessment

Rev	Description	Originator	Reviewer	Worley Approver	Revision Date	Customer Approver	Approval Date
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# 1. Introduction

---

Worley Services Pty Ltd (Worley) has been engaged by Port Authority New South Wales (Port Authority) to prepare a Marine Ecology and Water Quality assessment for the Bays Port Shore Power Project – White Bay Cruise Terminal (WBCT) Seawater cooling system (the system). This assessment will accompany an Addendum Review of Environmental Factors (AREF) focussed on the construction and operation of the seawater cooling system. The approved activity included mention of the seawater cooling system, however, did not include the full details or assess the marine environmental impacts. This study provides an assessment of the marine ecology, hydrodynamics, and water quality aspects of the potential impacts of the system at two sites, White Bay 5 and White Bay 6, to enable a preferred site to be chosen and assessed in the Addendum REF.

## 1.1 Site Location

The project is located on the foreshore of Sydney Harbour at Bays Port (White Bay). The project site area is a major port facility in Sydney Harbour and is currently a key facility in the NSW transport and logistics network. The port facility consists of five operational shipping berths at White Bay (2-6) and four berths at Glebe Island (1, 2, 7 and 8), respectively.

The site is characterised as a strategic deep-water working port with existing port infrastructure, including a dedicated cruise terminal (WBCT) and supports imports of cement, sugar, salt and gypsum at nearby Glebe Island. The site also supports the only sustainable marine logistics solution in Sydney Harbour. Glebe Island and adjacent White Bay are the last remaining deep-water wharves in Sydney Harbour capable of handling bulk construction materials and have supported the city's construction supply requirements since the early 1990s. The site has been extensively modified to function as a working port. The topography of the site is characterised by large escarpments reaching up to 18 m (to the north of the WBCT), and flatter transition areas which step down to the port's hardstand level.

The proposed seawater cooling system is expected to be located at either White Bay 5 or White Bay 6 (designated in this report as Site 1 or Site 2 respectively), as depicted in Figure 1-1. Sites 1 and 2 are approximately 500 metres (m) apart. A marine ecology study area was defined for each site based on likely size of the thermal plume nearfield mixing zone and potential impact radius. Study areas are shown in Figure 1-2 and Figure 1-3. Site 1 is located directly on the White Bay 5 berth at WBCT. There are residential plots located north of the site, Birrung Park is also located north of the site. Site 2 is located north of the White Bay 6 Marine Park building. NSW Police Marine Area Command is located north of Site 2 (approximately 100-150 m across the bay). Residential buildings are located to the west (approximately 150 m) and to the north-east (approximately 140 m) of the site.



Figure 1-1 General Site Overview (Nearmap, 2024).

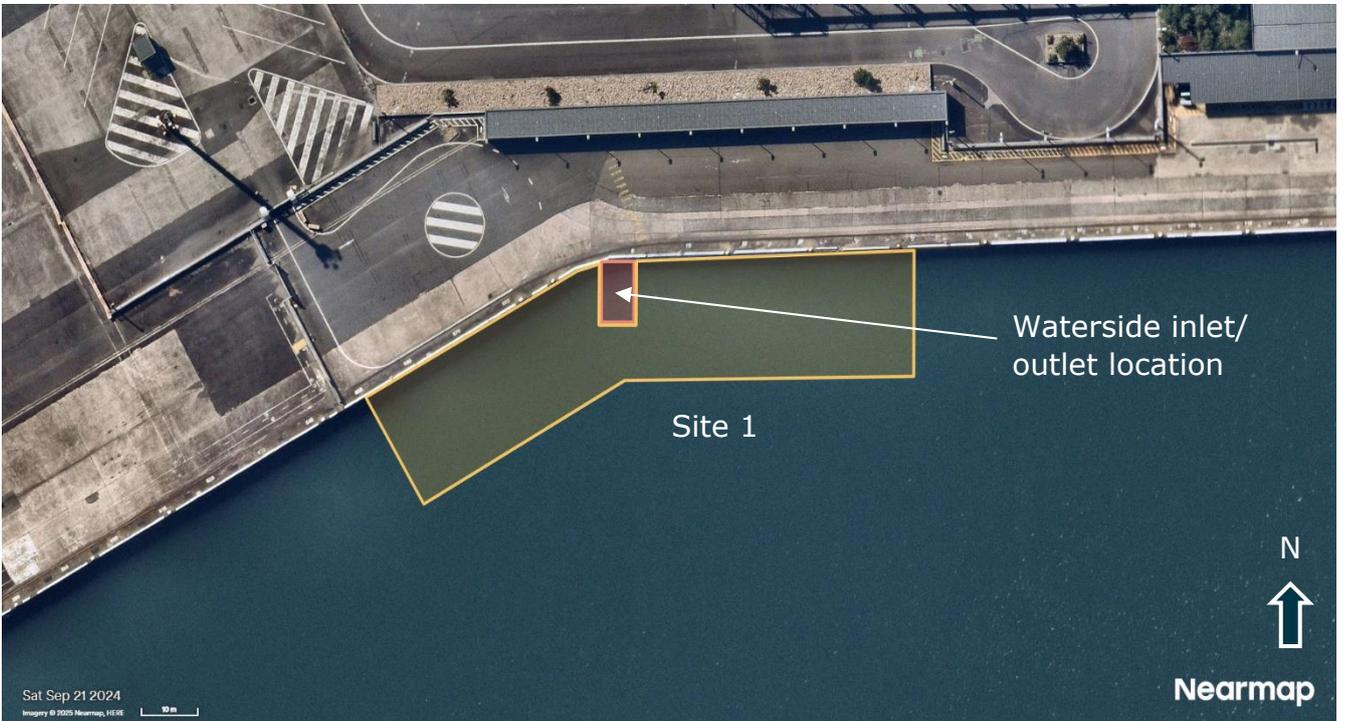


Figure 1-2 Site 1 marine ecology and water quality study area (Nearmap, 2024).



Figure 1-3 Site 2 marine ecology and water quality study area (Nearmap, 2024).

## 1.2 Design Consideration

Port Authority is responsible for the construction of the Onshore Power Supply (OPS) at White Bay Cruise Terminal (WBCT) (also known as White Bay 5) which will allow vessels to connect to shore power while alongside the berth. This report aims to assess the environmental impacts of the system at the two proposed sites (White Bay 5 and White Bay 6) for the construction and operation of a seawater cooling system, specifically in relation to ecology, water quality and hydrodynamics. The cooling system will include intake and outlet pipes that facilitate a constant flow of seawater for cooling during OPS operations.

Two potential sites for the seawater cooling system have been considered:

- Site 1 (White Bay 5): This location was chosen in the original approved project design and involves excavation of trenches and pits on the caisson for installation of pipework, pumps and filter pits. The excavation will extend beneath the concrete surface to depths below the lowest tide mark, resulting in water ingress into the pits and requiring the temporary installation of sheet piling. Divers will undertake coring through the seawall either from inside or outside the caisson to enable the installation of pipework.
- Site 2 (White Bay 6): An alternate location suggested by tender submissions requires trenching work out to White Bay 6 where intake and outlet pipework could be installed using slide rails over the existing rock revetment. As there is no seawall and caisson berth at the White Bay 6 location, this proposal would not require excavation or sheet piling below the low tide level on the land ward side.

Land-based ancillary facilities identified in Section 4.2.4 of the REF (Worley Consulting 2024) will be utilised by contractors during construction.



While the shore power infrastructure is designed to support two berths, only the facility at WBCT is scheduled for operation at the outset, initially limiting system usage. During operation, the cooling process will discharge water at temperatures approximately 3°C (and up to a maximum of 5°C) above ambient seawater temperatures. For the currently proposed single-berth usage, the OPS will serve approximately 100–120 ships annually, averaging one vessel every three days for a 12-hour period during daytime hours.



## 2. Methodology

The methodology for the marine ecology surveys and water quality assessments are described below.

### 2.1 Survey / Sampling Sites

Marine ecological (seawall and subtidal) survey and water quality sampling locations were selected using a grid-pattern which aimed to provide full coverage of the benthic habitat in the study area at each site. The sample locations are shown in Figure 2-1 and Figure 2-2.

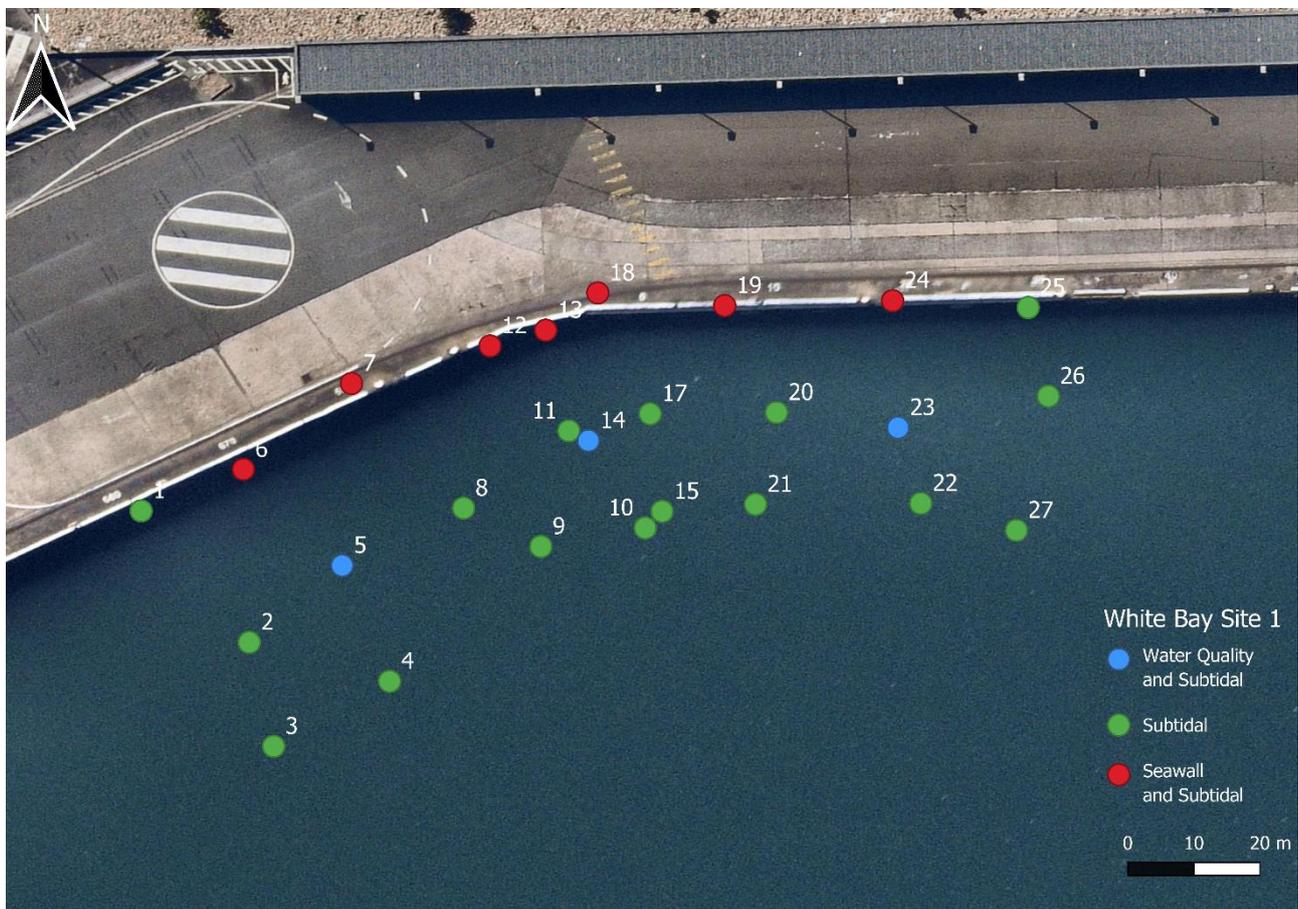


Figure 2-1 Site 1 sample locations (Nearmap, 2024).

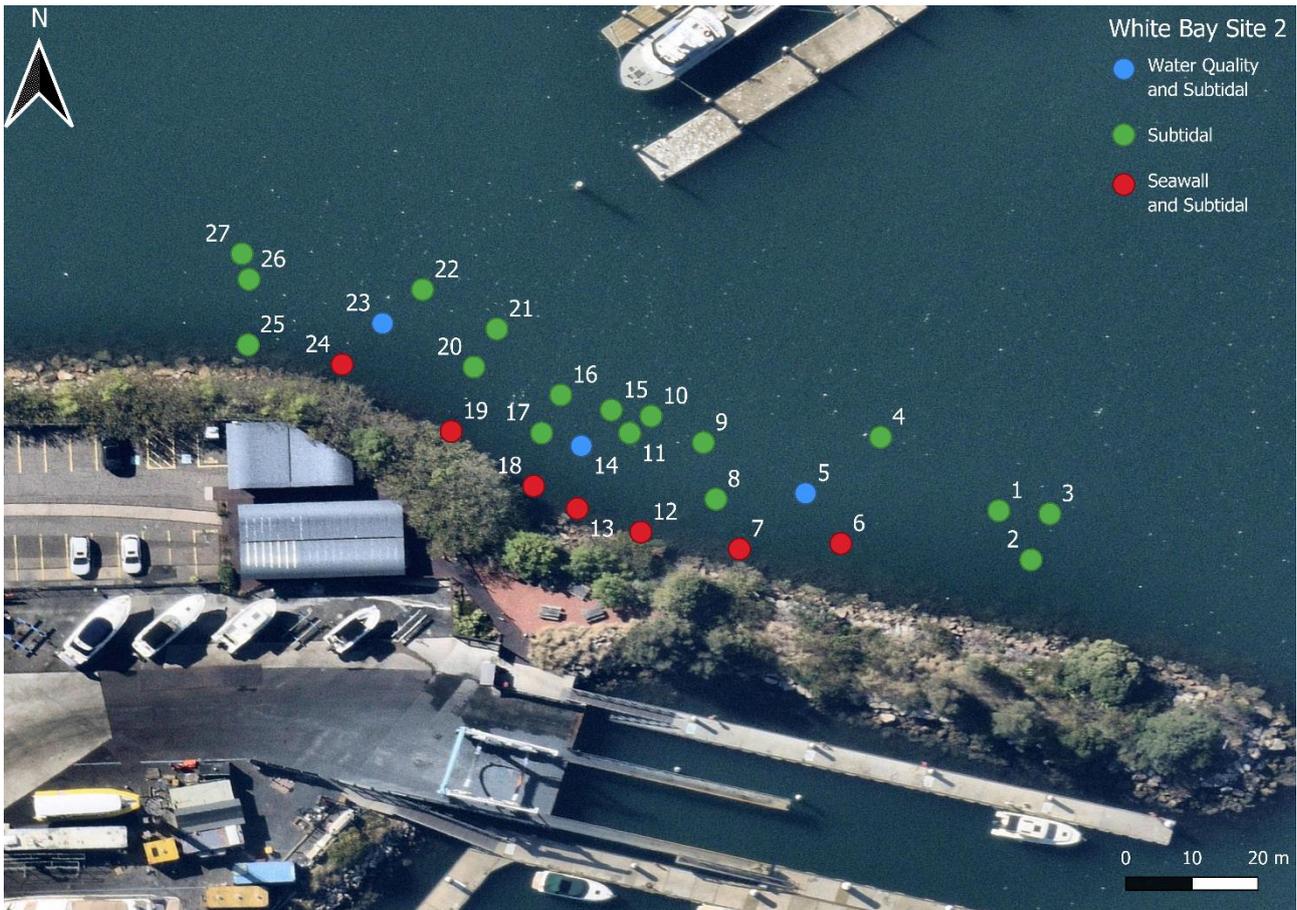


Figure 2-2 Site 2 sample locations (Nearmap, 2024).

## 2.2 Field Methodology

### 2.2.1 Seawall and Subtidal Ecology

#### Seawall habitat surveys

To evaluate the ecological attributes of the seawall and its associated marine benthic communities, diver-based videographic surveys were conducted on 26 February 2025. A total of seven vertical video transects were performed at each site to systematically document the composition and distribution of marine biota, including algae, sponges, mollusks, and other sessile or mobile organisms inhabiting the seawall surface. Concurrently, the structural condition of the seawall was assessed, with particular attention to signs of erosion or degradation that could pose risks to local flora and fauna during construction activities.

#### Subtidal habitat surveys

To investigate the ecological significance of subtidal marine habitat adjacent to the seawall and revetment, drop camera surveys were conducted on the same day. These surveys aimed to capture imagery of underwater habitats, with a focus on identifying seagrass beds, macroalgae assemblages, rocky reefs, and other benthic environments, such as soft sediment habitats. Incidental observations of marine fauna, if present, were to be noted to identify species of



ecological or conservation concern. Additionally, the spatial extent of key habitats and features was evaluated providing baseline data on areas potentially impacted by construction activities or thermal discharges.

### **2.2.2 Water Quality**

Physicochemical water quality parameters were measured at both survey sites on 26 February 2025 to establish baseline conditions in the vicinity of the proposed inlet/outlet and adjacent areas. Sampling involved collecting full-depth profiles of data through the water column to evaluate potential stratification. Measurements were obtained using a handheld water quality meter (YSI ProDSS). The following parameters were recorded:

- Conductivity
- Dissolved oxygen
- pH
- Salinity
- Temperature
- Turbidity.

## **2.3 Data Management and Analysis**

### **2.3.1 Seawall Habitat Surveys**

Video footage from diver-based surveys was analysed to document the presence of prominent taxa on the seawall. Taxa were recorded in a presence/absence matrix to provide a systematic overview of the marine biota observed during the surveys.

### **2.3.2 Subtidal Habitat Surveys**

Video footage from drop camera surveys was analysed to identify and classify benthic habitats. Potential benthic habitat classifications included seagrass beds, macroalgae, rocky reefs, and soft sediment environments. Data from Site 1, sample 16, were unavailable due to a missing drop camera recording.

### **2.3.3 Water Quality**

Water quality data were processed using the R language and environment for statistical computing (R Core Team, 2024). Initial data processing included identifying and addressing outliers or anomalies to ensure accuracy and reliability. Summary statistics were calculated for each physicochemical parameter, and full-depth plots were generated to visualise the vertical distribution of water quality variables through the water column.



## 3. Marine Ecology

---

### 3.1 Background Data Review

A background review of existing marine ecological information for the study area was undertaken and includes the following:

#### Local Marine Environment

- Sydney Harbour - general information
- Key fish habitat mapping (DPIRD, 2025)
- NSW Department of Primary Industries and Regional Development (DPIRD) Waterway and Fish Habitat Classification
- Commonwealth Marine Regions / Bioregions.
- NSW DPIRD estuarine vegetation mapping (seagrass, mangroves and saltmarsh)
- Rocky foreshores and significant seagrasses mapping under Part 6.3 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP)
- NSW DPIRD mapped NSW oyster reefs
- Mapped coastal wetlands and littoral rainforests (under the State Environmental Planning Policy (Resilience and Hazards) 2021)
- Sydney Harbour Foreshores and Waterways Area Development Control Plan 2005 (DCP) and Former Sydney Regional Environment Plan (Sydney Harbour Catchment) 2005 (REP) Maps:
  - Critical Habitat Area Map
  - Sydney Harbour Foreshores and Waterways Area Map
  - Wetlands Protection Area Map
- Existing habitat mapping undertaken in White Bay by Marine Pollution Research Pty Ltd (MPR, 2019) for the Glebe Island 8 seabed levelling and wharf renewal works
- Artificial marine habitats in the immediate study area.

#### Protected Areas

- Marine protected areas (marine parks, aquatic reserves)
- Biologically important areas (BIAs) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- Areas of Critical Habitat listed under the *Fisheries Management Act 1994* (FM Act) and EPBC Act
- Areas of Outstanding Biodiversity Value (AOBVs) listed under the *Biodiversity Conservation Act 2016* (BC Act).



## Marine Fauna

- Threatened and protected marine species - database searches for threatened and protected marine fauna listed under the FM Act, BC Act and EPBC Act
- Marine vertebrates – high level review of available biodiversity data (e.g. SIMS and Australian Museum publications)
- Marine invertebrates – high level review of available biodiversity data (e.g. SIMS and Australian Museum publications).

## Key Threatening Processes

Whether the proposal constitutes a key threatening process (KTP) as listed under the FM Act, BC Act and EPBC Act.

## 3.2 Local Marine Environment

### 3.2.1 Sydney Harbour

Sydney Harbour extends 19 kilometers (km) from the entrance, between North and South Heads, to the most westerly point where the Lane Cove and Parramatta rivers enter. It is a Drowned Valley Estuary which means it was formed because of rising sea levels which flooded existing river valleys. It has a catchment area of 55.7 km<sup>2</sup>, the estuary volume is approximately 376.400 mL with an average depth of 13 m.

NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) has undertaken large scale seabed mapping of the continental shelf seabed habitats of NSW with focus on habitats within NSW state coastal waters (NSW DCCEEW 2019). The site is outside the scope of this mapping project. Port Authority undertakes bathymetry surveys of the seabed of White Bay and Glebe Island. The maximum maintenance dredging depths approved by the Sydney Ports Corporation in 2005 for the White Bay 5 and 6 berth boxes were 11.6 m.

### 3.2.2 Key Fish Habitat and Fish Habitat Classification

One of the objectives of the FM Act is to 'conserve key fish habitats'. To achieve the objectives of the FM Act, DPIRD Fisheries has identified Key Fish Habitat (KFH) as "those marine habitats that are important to the sustainability of the recreational and commercial fishing industries, the maintenance of fish populations generally, and the survival and recovery of threatened marine species".

A policy definition of the term KFH was developed to guide the compilation of maps. Key fish habitat was defined to include all marine and estuarine habitats up to highest astronomical tide level (that reached by 'king' tides) and most permanent and semi-permanent freshwater habitats including rivers, creeks, lakes, lagoons, billabongs, weir pools and impoundments up to the top of the bank. Key fish habitat in the proposal area was mapped using the NSW DPIRD Fisheries Spatial Data Portal. The entire area of Sydney Harbour, including the proposed site is classified as Key Fish Habitat (Figure 3-1).

Under the Policy and Guidelines for Fish Habitat Conservation and Management (NSW DPI 2013) (Table 2 of the Policy, Figure 3-2 below), the waterway of the proposed site could be considered as a CLASS 1 (Major key fish habitat).



Considering the specific attributes of marine habitats in the general study area (as presented in the ensuing sections), all benthic habitat at both sites can be considered Type 3 - Minimally sensitive Key Fish Habitat. The seawall at Site 1 is not considered KFH, however, the rock revetment at Site 2 has been conservatively classified in this study as a Type 2 - Moderately Sensitive Key Fish Habitat. This is because it hosts a diverse macroalgae community with the potential to support endangered species (NSW DPI 2013).



Figure 3-1 Key Fish Habitat of Sydney Harbour (DPIRD, 2025).

Classification	Characteristics of waterway class
<b>CLASS 1</b> Major key fish habitat	Marine or estuarine waterway or permanently flowing or flooded freshwater waterway (e.g. river or major creek), habitat of a threatened or protected fish species or 'critical habitat'.
<b>CLASS 2</b> Moderate key fish habitat	Non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present. TYPE 1 and 2 habitats present.
<b>CLASS 3</b> Minimal key fish habitat	Named or unnamed waterway with intermittent flow and sporadic refuge, breeding or feeding areas for aquatic fauna (e.g. fish, yabbies). Semi-permanent pools form within the waterway or adjacent wetlands after a rain event. Otherwise, any minor waterway that interconnects with wetlands or other CLASS 1-3 fish habitats.
<b>CLASS 4</b> Unlikely key fish habitat	Waterway (generally unnamed) with intermittent flow following rain events only, little or no defined drainage channel, little or no flow or free standing water or pools post rain events (e.g. dry gullies or shallow floodplain depressions with no aquatic flora present).

**Example:** NSW DPI will not approve the permanent obstruction of fish passage on a CLASS 1 or 2 waterway (major or moderate fish habitat) (see Chapter 4).

Figure 3-2 Classification of waterways for fish passage types (NSW DPI, 2013).

**TYPE 1 - Highly sensitive key fish habitat:**

- *Posidonia australis* (strapweed)
- *Zostera*, *Heterozostera*, *Halophila* and *Ruppia* species of seagrass beds >5m<sup>2</sup> in area
- Coastal saltmarsh >5m<sup>2</sup> in area
- Coral communities
- Coastal lakes and lagoons that have a natural opening and closing regime (i.e. are not permanently open or artificially opened or are subject to one off unauthorised openings)
- Marine park, an aquatic reserve or intertidal protected area
- SEPP 14 coastal wetlands, wetlands recognised under international agreements (e.g. Ramsar, JAMBA, CAMBA, ROKAMBA wetlands), wetlands listed in the Directory of Important Wetlands of Australia<sup>2</sup>
- Freshwater habitats that contain in-stream gravel beds, rocks greater than 500 mm in two dimensions, snags greater than 300 mm in diameter or 3 metres in length, or native aquatic plants
- Any known or expected protected or threatened species habitat or area of declared 'critical habitat' under the FM Act
- Mound springs

**TYPE 2 – Moderately sensitive key fish habitat:**

- *Zostera*, *Heterozostera*, *Halophila* and *Ruppia* species of seagrass beds <5m<sup>2</sup> in area
- Mangroves
- Coastal saltmarsh <5m<sup>2</sup> in area
- Marine macroalgae such as *Ecklonia* and *Sargassum* species
- Estuarine and marine rocky reefs
- Coastal lakes and lagoons that are permanently open or subject to artificial opening via agreed management arrangements (e.g. managed in line with an entrance management plan)
- Aquatic habitat within 100 m of a marine park, an aquatic reserve or intertidal protected area
- Stable intertidal sand/mud flats, coastal and estuarine sandy beaches with large populations of in-fauna
- Freshwater habitats and brackish wetlands, lakes and lagoons other than those defined in TYPE 1
- Weir pools and dams up to full supply level where the weir or dam is across a natural waterway

**TYPE 3 – Minimally sensitive key fish habitat may include:**

- Unstable or unvegetated sand or mud substrate, coastal and estuarine sandy beaches with minimal or no in-fauna
- Coastal and freshwater habitats not included in TYPES 1 or 2
- Ephemeral aquatic habitat not supporting native aquatic or wetland vegetation

Notes: For the purposes of these policy and guidelines the following are **not considered key fish habitat**<sup>5</sup>:

- First and second order streams on gaining streams (based on the Strahler method of stream ordering)
- Farm dams on first and second order streams or unmapped gullies
- Agricultural and urban drains
- Urban or other artificial ponds (e.g. evaporation basins, aquaculture ponds)
- Sections of stream that have been concrete-lined or piped (not including a waterway crossing)
- Canal estates

Figure 3-3 Key Fish Habitat and associated sensitivity classification scheme (for assessing potential impacts of certain activities and developments on key fish habitat (NSW DPI, 2013).

### 3.2.3 Commonwealth Regions and Bioregions

Sydney Harbour is located within the Hawkesbury Shelf Marine Bioregion as seen in Figure 3-4 and Figure 3-5. The Hawkesbury Shelf marine bioregion includes the whole of the marine area from Stockton near Newcastle to Shellharbour near Wollongong. This bioregion includes estuaries to the highest astronomical tide, coastal lakes and lagoons, headlands, beaches, and ocean waters out to the end of the continental shelf (NSW Marine Estate Management Authority, 2016). Bioregions provide a national framework for consistent, ecologically based planning of marine protected areas and include all estuarine, coastal and offshore waters to the edge of the continental shelf at the 200 m depth contour (Breen et al. 2005).



Figure 3-4 Marine Bioregions in NSW (MESA, 2010).

### 3.2.4 NSW Marine Protected Areas

NSW marine protected areas include:

- Marine parks – six multiple use marine parks cover around one third (approximately 345,000 hectares) of the NSW marine estate
- Aquatic reserves – 12 aquatic reserves cover around 2,000 hectares of the NSW marine estate
- National parks and nature reserves – include around 20,000 hectares of estuarine and oceanic habitats.

Figure 3-5 below shows the location of all NSW marine parks and aquatic reserves which are located within the Sydney region. The proposal sites are not situated within or close to any marine park or aquatic reserve. The closest aquatic reserve to the site is located approximately 10 km away (North Harbour Aquatic Reserve).

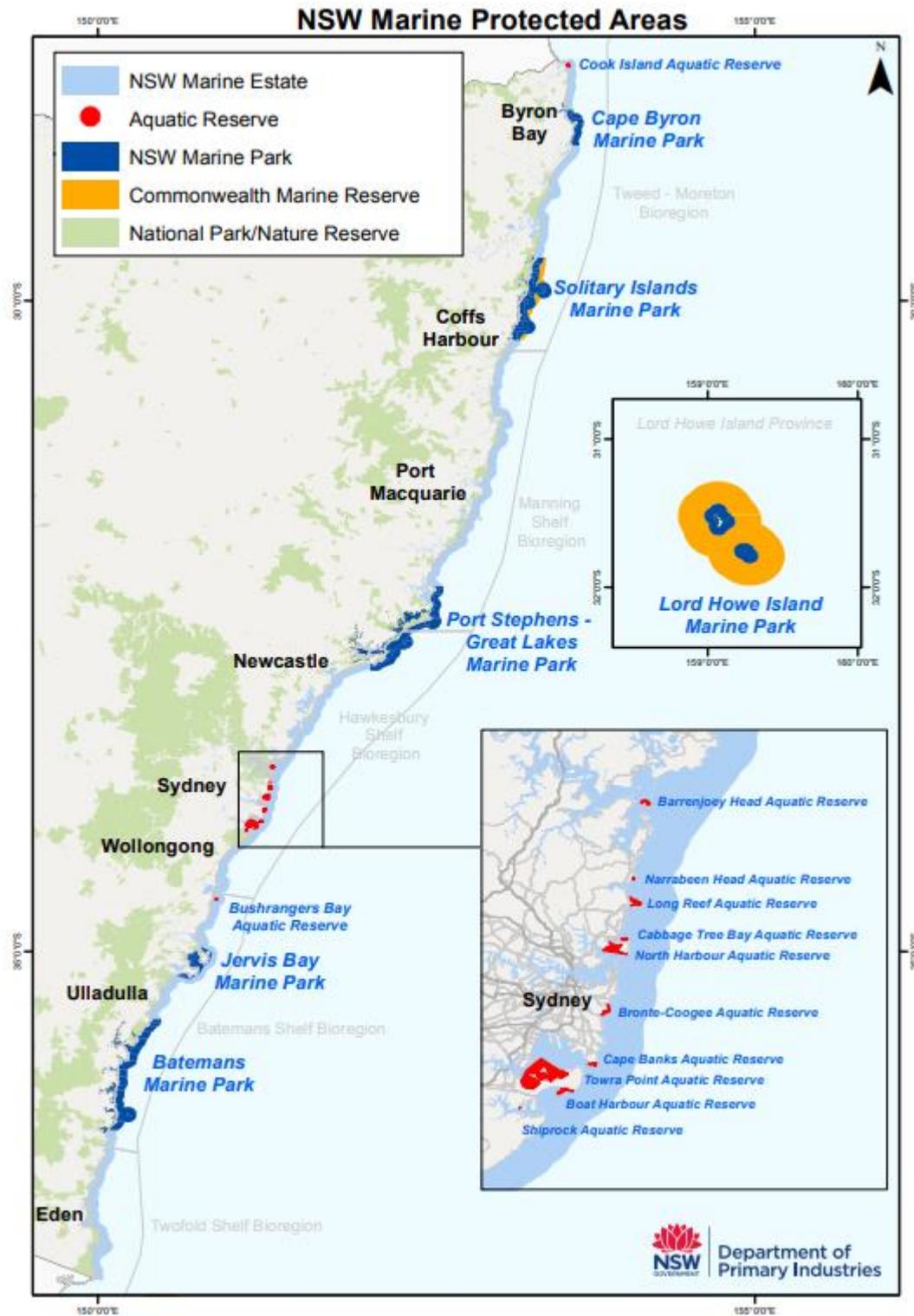


Figure 3-5 NSW marine protected areas map (DPIRD, 2025).

### 3.3 Marine Habitats and Flora

#### 3.3.1 NSW DPIRD estuarine vegetation mapping

A number of marine vegetation types in NSW are protected under the FM Act. Marine vegetation, such as saltmarsh, mangroves, seagrasses, and some macroalgae (such as *Ecklonia radiata*), provides shelter and nursery areas for marine animals, and is an essential component of the food chain in estuarine and coastal environments. Vegetation also stabilises sediments and shorelines and protects water quality in estuaries for recreational users. NSW DPIRD administers legislation, which protects mangroves, seagrasses and seaweeds on public water land and foreshores. Harming or removal of marine vegetation is generally only permissible by permit under Section 205 of the FM Act.

NSW DPIRD Fisheries has mapped estuarine vegetation including seagrass, mangroves and saltmarsh in all NSW estuaries. This mapping is available via the NSW Fisheries Spatial Data Portal. Macroalgae is not included in this estuarine vegetation mapping. A search of the Fisheries NSW Spatial Data Portal indicates no mapped estuarine vegetation (seagrass, mangroves or saltmarsh) at either site. One seagrass species, *Zostera spp*, is mapped approximately 2 km away on the opposite side of the Balmain East peninsula (Figure 3-6). Given the small scale of the proposed works at White Bay it is highly unlikely the works will result in any impact on this mapped seagrass. If any marine vegetation protected under the FM Act is likely to be impacted, a permit would be required for the proposed works.

The marine ecology field survey undertaken for this study confirmed the absence of seagrass, mangroves or saltmarsh at the sites. However, some marine macroalgae, including *Ecklonia radiata* (kelp), was recorded at Site 2 (refer to Section 4).



Figure 3-6 NSW DPIRD Estuarine Vegetation Mapping (DPIRD, 2025).

### 3.3.2 Rocky foreshores and significant seagrasses mapping

Section 6.32 of the BC SEPP includes the Rocky Foreshores and Significant Seagrasses Map. Sites 1 and 2 are not located within the mapped areas as shown in Figure 3-7.



Figure 3-7 Rocky Foreshores and Significant Seagrasses mapping (NSW Planning Portal, 2025).

### 3.3.3 NSW DPIRD mapped oyster reefs

There are no mapped oyster reefs within or near the site. Further, no mapped oyster reefs are shown within Sydney Harbour or the Parramatta River.

### 3.3.4 Mapped coastal wetlands and littoral rainforests

A number of coastal wetlands and littoral rainforests mapped under SEPP (Resilience and Hazards) occur around the foreshores of Sydney Harbour. Mapped coastal wetlands surrounding the site are shown in Figure 3-8. There are no mapped littoral rainforests in the vicinity of the site. The nearest coastal wetland from the site is in the Glebe Foreshore Park area, this is approximately 1.5 km from Site 1 and approximately 1.9 km from site 2 (Figure 3-8). The nearest littoral rainforests found from the site are approximately 5 km or more away from both sites 1 and 2. Due to the distance of any coastal wetland and littoral rainforest from the proposed sites, it is unlikely there will be any impact to them as a result of this proposal during either construction or operation.

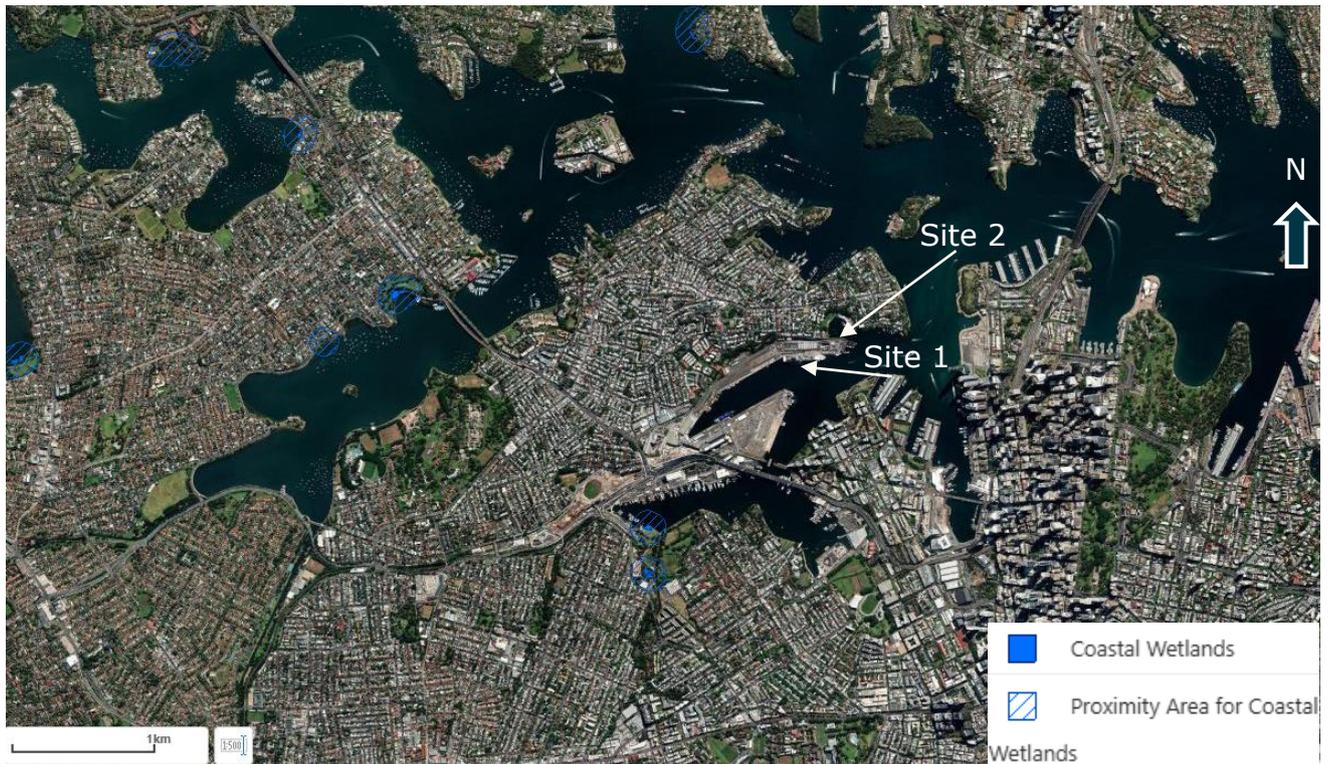


Figure 3-8 NSW DPIRD Coastal Wetlands (DPIRD, 2025).

### 3.3.5 Former DCP and REP Maps

Under the former REP, the following maps were included:

- Critical Habitat Mapping – the sites are not located within the Little Penguin Critical Habitat Map
- Sydney Harbour Foreshores and Waterways Area Map – the sites are located within the Sydney Harbour Foreshores and Waterways Area. This mapping has been carried forward into Part 6.3 of the BC SEPP
- Wetlands Protection Area Map – the sites are not located within the mapped areas, however, this mapped area has now been incorporated into the rocky foreshores/seagrasses mapped located to the north of Site 2 as shown in Figure 3-7.

The aquatic ecological communities known from the location are shown on Map 8 for the DCP, as shown in Figure 3-9. Site 1 does not contain any mapped communities whereas Site 2 contains 'mixed rock intertidal and rock platform habitat'.

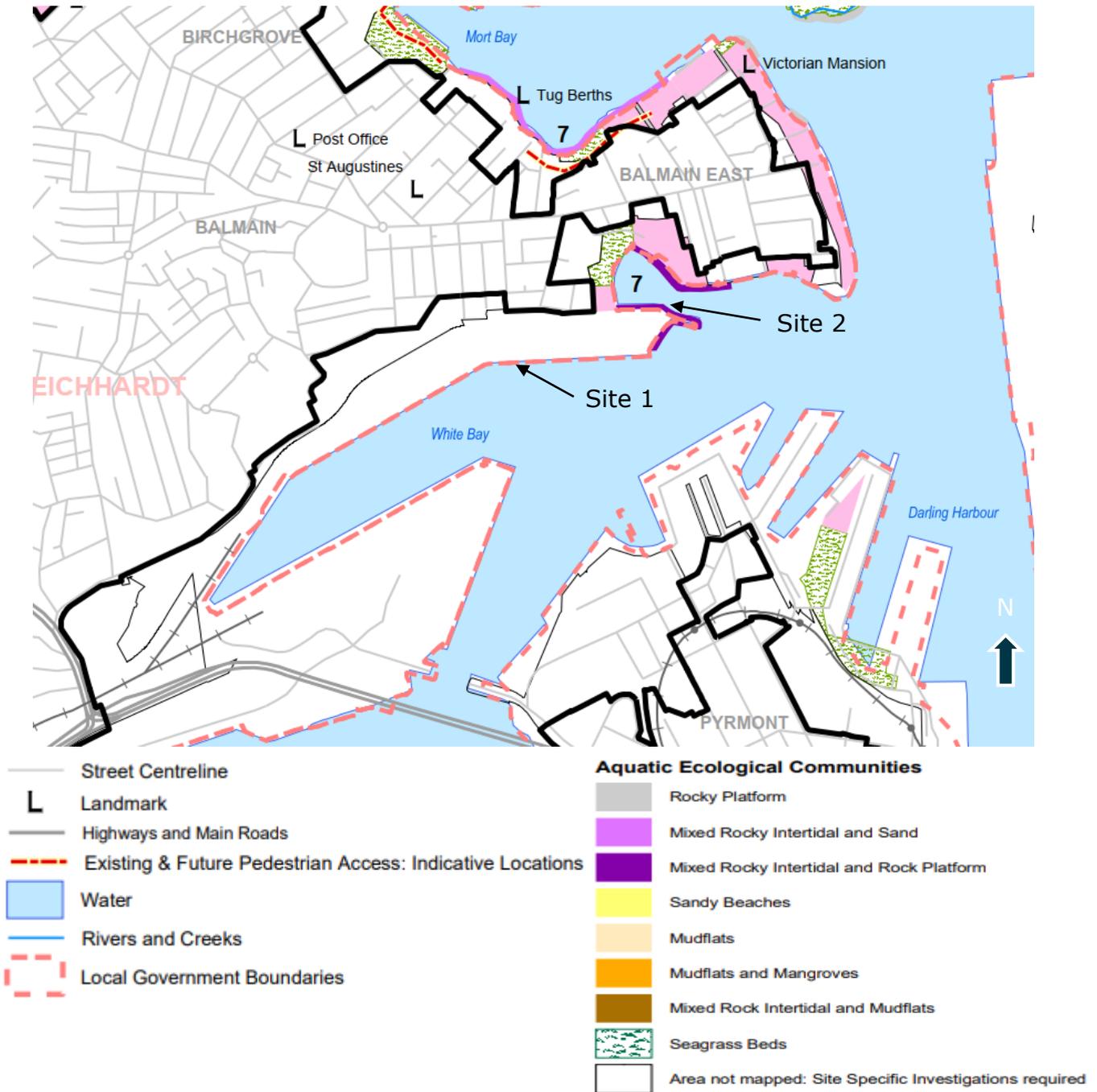


Figure 3-9 Portion of the DCP Map 8 for Johnstons and White Bay showing 'rock intertidal and rock platform' habitat (dark purple) at Site 2 in Camerons Cove (DIPNR, 2005).

### 3.3.6 Previous projects in White Bay and surrounding areas

An Aquatic Ecology Assessment was undertaken by Marine Pollution Research Pty Ltd (MPR, 2019) for the Glebe Island 8 seabed levelling and wharf renewal works. Glebe Island 8 is located about 700 m south-west of the WBCT. A diver based aquatic ecology survey included the Wharf 8 below deck concrete wall and sloping riprap boulder revetments habitats, the pile habitats and the seabed immediately offshore of the wharf, and the shallow seabed area and exposed rip-rap rock rubble revetment to the south-west of this wharf.

Four main areas of aquatic habitat were identified based on the survey (Figure 3-10):

- Wetted intertidal surface area of the concrete seawall under the Wharf 8 deck
- Rock rubble intertidal and shallow subtidal rip-rap revetment habitat, both shaded under Wharf 8 and exposed to sunlight beyond Wharf 8
- Wetted surfaces of piles under Wharf 8
- Soft sediment habitat offshore from the revetment in Berth 8 and beyond in White Bay.



Figure 3-10 Aquatic habitats in the vicinity of Glebe Island 8 (excluding pile habitats) based on survey (MPR, 2019).

MPR (2019) described the main fish habitats identified as including:

- The shaded concrete wall under Wharf 8 is located in the intertidal with the base and step to the sloping revetment which supports a thin cover of green macroalgae and a very limited variety of intertidal animals; a few littorinid snails (*Bembicium nanum*) plus encrusting barnacles (*Elminius sp.*).
- Whilst the lower shaded revetment boulder habitats do not support any biota due to silt smothering there were a few yellow sponges noted on rock edges that were less silted.
- The seabed at the toe of the Wharf 8 revetment wall is soft silty-sand becoming progressively muddier with depth away from the wall. The presence of burrows confirms that the soft substratum seabed supports a variety of benthic infauna (animals that live in the sediments) and the composition of the benthic infauna assemblages is expected to be similar to that described for nearby Johnstons Bay. There were no plants encountered on the seabed and none were expected at these depths. In particular there



was no *Caulerpa taxifolia*, a listed pest algae species known to occur to the east of the Harbour Bridge.

- With the exception of the line of outer wharf piles, for the most part the shaded piles under the wharf support a limited variety of attached biota with no algae.
- Shaded piles have some small barnacles and few oysters on the pile intertidal areas whilst front piles support luxuriant oyster growth.
- The outer piles in the shallow sub-tidal, support a variety of brown macro-algae (mainly Sargassum with some kelp), a variety of smaller macro algae (Dictyota, Padina and smaller frondose algae), molluscs including mussels, several limpet and false limpet species (Cellana and Montfortula) plus a variety of encrusting and attached fauna - bryozoa, sponges and tunicates.
- Damaged and broken outer piles, particularly where the damaged portions are in the shallow sub-tidal provide a greater habitat complexity for colonising species and they are characterised by an overall more diverse assemblage of biota. The combined increase in physical topographical complexity plus the diversity of biota combines to provide suitable shelter and feeding habitat for the support of juvenile fish and cryptic species such as seahorses, including the endangered White's Seahorse (Figure 3-11).
- Whilst wharf piles with the above combination of complexity have been observed in other parts of the harbour, the possibility of cryptic species and the use as juvenile fish habitat by these habitats is also dependent on the availability of connecting habitats such as rock rubble reefs. In the case of Wharf 8 this habitat is immediately available to the south of the wharf where the unshaded rocky revetment provides ample habitat to support a dense brown macrophyte bed of mixed Sargassum and kelp.
- Fish species observed were: Eastern hulafish, puffer fish, bream, luderick, mullet, glassy sprat, black-fish, bat-fish, fan belly leatherjacket, pygmy leatherjacket, oyster blennies and gobies. There was also a school of king fish noted in the locality.



*Figure 3-11 The complex habitats created in damaged piles at Glebe Island 8 provide suitable habitat for cryptic species such as White's Seahorse (MPR, 2019).*

MPR (2019) noted that whilst there have not been any surveys of the benthic (burrowing seabed fauna) of White Bay, WorleyParsons (2010) undertook surveys of the surface sediments and of the assemblages of biota (benthos) in the marine sediments of Johnstons Bay, Snails Bay and Berrys Bay in May 2010. At each location they collected three replicate samples from each of four sites (depths between -9m and -13m LAT) using a 100 mm diameter by 20 cm long corer. They also measured water salinity, temperature, dissolved oxygen and turbidity for each sampling site at two depths; surface and -6 m:

- The measured water quality at all three sites was typical of a sub-tropical south-eastern Australian estuary, with all measured parameters within the general acceptable ANZECC/ARMCANZ 2000 ranges.
- Whilst there were no statistical significant differences between the sediment composition for the three locations, Berrys Bay sediment samples had the highest silt content of the three sites (mean 45%) and clay plus sand fractions were higher at Johnstons and Snails Bays respectively.
- A diverse range of benthic marine organisms were identified in sediments from the three locations including polychaete worms, amphipods (e.g. yabbies and shrimps), crustaceans (e.g. crabs, shrimps, isopods), ascidians (sea squirts), cnidarians (polyps found), brittle stars, bivalves (e.g. clams) and gastropods (marine slugs) and whilst there were no statistical differences between the three locations or between sites, regression analysis indicated that as sediment size increased, benthic species diversity and abundance both decreased.



### 3.3.7 Artificial marine habitats in the immediate study area

Sydney Harbour supports many different types of artificial marine habitats, including concrete and sandstone block seawalls, jetties and pontoons, wharf piles, rock revetments, concrete boat ramps etc. Artificial structures at the site include a seawall at Site 1 and a Rock Revetment at Site 2, as shown in Figure 3-12.

In recent times, the ecological value of these artificial structures that often provide little ecological complexity, and thus low biodiversity value, have been enhanced using methods such as 'living seawalls' and artificial rock pools (Figure 3-13 and Figure 3-14).



Figure 3-12 Seawall Habitat at Site 1 (left) and Rock Revetment habitat at Site 2 (right) (Worley, 2025).



Figure 3-13 Example of a 'Living Seawall' (Living seawalls, 2025).

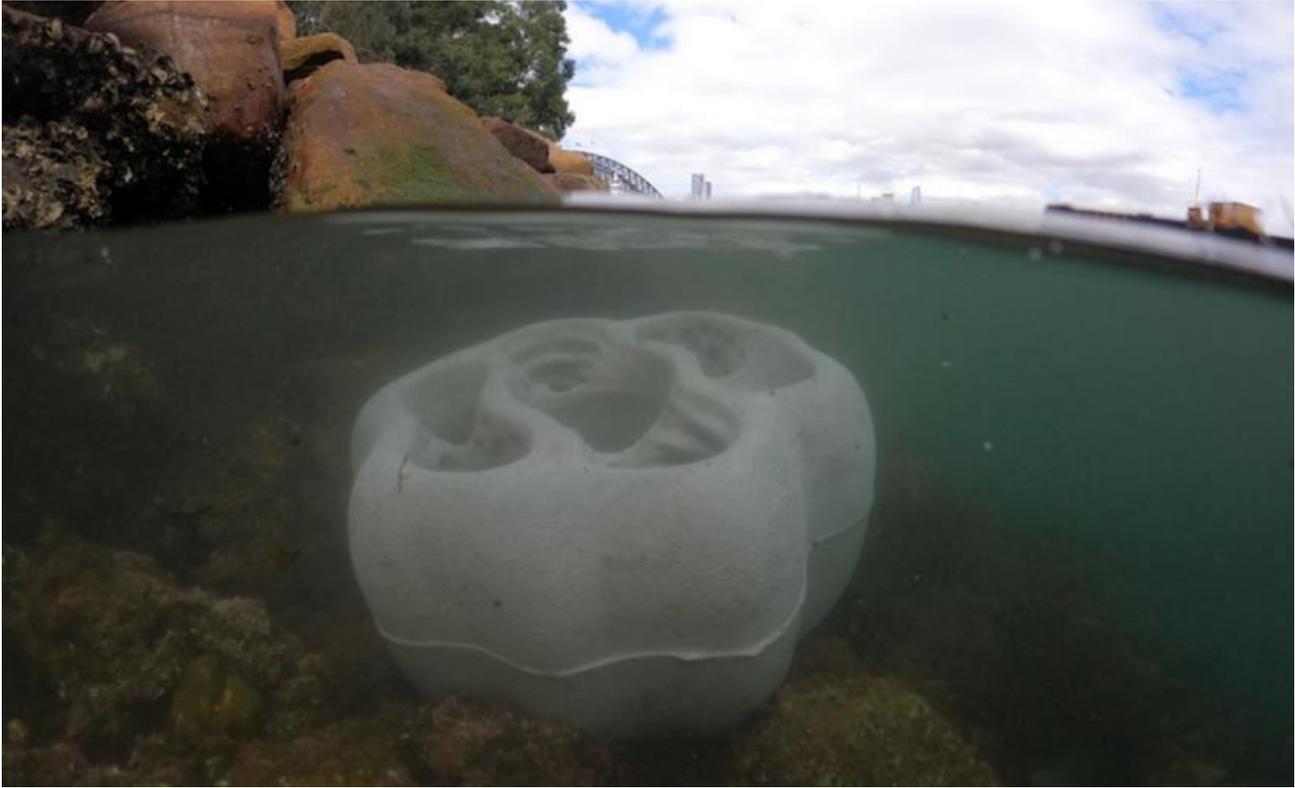


Figure 3-14 Artificial Rock pool in Lavender Bay (Aria Lee, 2023).

### 3.3.8 Biologically important areas (BIAs)

Biologically Important Areas (BIA) are areas used by protected marine species for carrying out critical functions like foraging or breeding. BIAs are designated for marine species protected under the EPBC Act.

A Protected Matters Search was conducted on 3rd March 2025, the search included both sites within the search zone and included a 0.5 km buffer, this smaller buffer zone was selected as the proposed works would be minimal and extremely unlikely to have a large effect in a wide area. The zone and buffer can be seen in Figure 3 15.

Table 3-1 Below shows the BIAs recorded in the Protected Matters Search. BIAs for breeding and foraging respectively are recorded for the Indo-pacific/Bottlenose dolphin and the grey nurse shark. However, results show that the site is in the buffer area of these BIAs only.

Table 3-1 BIAs in or near the proposed sites (PMST, 2025).

Name	Behaviour	Presence	Buffer Status
<i>Tursiops aduncus</i> (Indo-pacific/bottlenose dolphin)	Breeding	Likely to occur	In buffer area only
<i>Carcharias taurus</i> (Grey nurse shark)	Foraging	Known to occur	In buffer area only



Whilst the listed Grey Nurse sharks could conceivably visit the locality, it is considered highly unlikely given the lack of typical deeper rocky reef habitat and commercial nature of the site. It is expected that they would only be found in the locality if in pursuit of mobile prey species from other parts of the outer harbour. They would not make use of any of the habitats available in the locality. Similarly, due to the busy commercial nature of the site and limited prey availability, the likelihood of bottlenose dolphins occurring in this part of Sydney Harbour would be low. The likelihood of these species occurring is low and none were observed during field surveys for this or previous studies (MPR, 2019).

Further, various listed cetaceans (whales and dolphins), marine mammals (seals and sea lions), marine reptiles (turtles and sea-snakes) and sea-birds (migratory ocean birds and waders) are known to occur in the outer Sydney Harbour and may occur within the main harbour to and beyond the site, albeit rarely (MPR, 2019).

### **3.3.9 Critical Habitats/Areas of Outstanding Biodiversity Value (AOBVs)**

This section identifies land declared as Critical Habitat (under the FM Act and EPBC Act) and Areas of Outstanding Biodiversity Value (AOBVs) (under the BC Act) located within the study area.

#### **NSW Fisheries Management Act 1994**

Critical Habitat is defined under the FM Act and 'the whole or any part of the habitat of an endangered species, population or ecological community that is critical to the survival of the species, population or ecological community'. The Register of Critical Habitat under the FM Act includes:

**Grey Nurse Shark Critical Habitat** – various locations in NSW are listed, with the closest area to White Bay being Magic Point to the East of Maroubra, the description of the site is as follows:

The waters below the mean high water mark and within 200 m of the shore between a line extending due east of the southern end of Maroubra Beach and a line extending due east from the most eastern point of Magic Point, being the waters in the area shown shaded dark grey and stippled in Figure 3-15. Due to the distance from the site and the small scale of the proposed work it is unexpected any impacts will occur to this habitat.

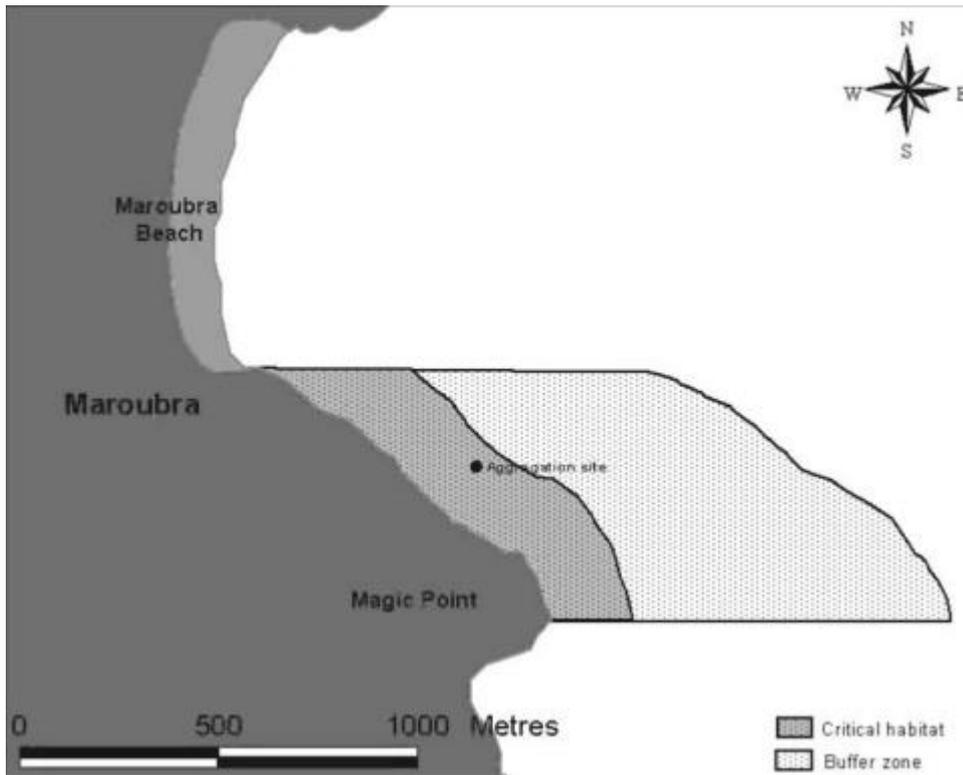


Figure 3-15 Magic Point (DPI, 2002).

### NSW Biodiversity Conservation Act 2016

The BC Act gives the Minister for the Environment the power to declare Areas of Outstanding Biodiversity Value (AOBVs). AOBVs are special areas that contain irreplaceable biodiversity values that are important to the whole of NSW, Australia or globally. AOBVs in NSW include:

1. Cabbage Tree Islands, Port Stephens, NSW – Critical Habitat for Gould’s petrel (*Pterodroma leucoptera*).
2. Manly, Sydney Harbour, NSW – Critical Habitat for Little Penguin (*Eudyptula minor*).
3. Stotts Island Nature Reserve, NSW – Critical Habitat for Mitchell’s Rainforest Snail (*Thersites mitchellae*).
4. Wollemi National Park, NSW – Critical Habitat for the Wollemi Pine (*Wollemia nobilis*).

No AOBVs are located within the study area and will not be impacted by the proposal.

Register of AOBVs - <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value/area-of-outstanding-biodiversity-value-register>

### Environment Protection and Biodiversity Conservation Act 1999

The Register of Critical Habitat for species listed under the EPBC Act indicates that no areas of listed Critical Habitat under this Act occur within the study area (DCCEE 2024) (<https://www.environment.gov.au/cgi-bin/sprat/public/publicregisterofcriticalhabitat.pl>).



Areas of Critical Habitat identified under the EPBC Act include:

1. *Diomedea exulans* (Wandering Albatross) – Macquarie Island, TAS.
2. *Lepidium ginninderrense* (Ginninderra Peppercross) – Northwest corner Belconnen Naval Transmission Station, ACT.
3. *Manorina melanotis* (Black-eared Miner) – Gluepot Reserve, Taylorville Station and Calperum Station, excluding the area of Calperum Station south and east of Main Wentworth Road.
4. *Thalassarche cauta* (Shy Albatross) – Albatross Island, The Mewstone, *Pedra Branca*, TAS.
5. *Thalassarche chrysostoma* (Grey-headed Albatross) – Macquarie Island, TAS.

### 3.4 Matters of National Environmental Significance

A Protected Matters Search was conducted on 3<sup>rd</sup> March 2025 to identify Matters of National Environmental Significance (MNES) in the study area (Appendix A). The search included both sites within the search zone and included a 0.5 km buffer, this smaller buffer zone was selected as the proposed works would be minimal and extremely unlikely to have a large effect in a wide area. The zone (shown in green) and buffer (shown in white) can be seen in Figure 3-16. Terrestrial species of flora and fauna have not been assessed for this study due to the focus on marine environments.

Within the report, there are 3 categories of output, 'Matters of National Environmental Significance (MNES)', 'Other Matters Protected by the EPBC Act' and 'Extra Information'. Results which fall under MNES are key environmental matters which are specifically protected under the EPBC Act, any action that could have a significant impact on these matters must be referred to the relevant authority for assessment. Other Matters Protected by the EPBC Act are matters which are also protected under the EPBC Act but are not classified as MNES, they may still require environmental approvals however, the significance test and assessment requirement will differ. The reasoning as to why species are placed in the two different categories is decided by their level of conservation priority and legal protection under the EPBC Act. Species may be found in both 'levels' as they serve different legal purposes and protection, typically speaking, the 'Other Matters Protected by the EPBC Act' provides additional baseline protections, particularly in cases where a proposed action does not meet the threshold for a MNES referral.



Figure 3-16 Protected Matters Search Tool Primary (green) and Buffer Zones (white) (DCCEEW, 2025).

The results are as follows:

- No World Heritage Properties in or near the site
- Two National Heritage Places found within the buffer zone; these are both on-land areas which would not be impacted by the proposal
- No Wetlands of International Importance in or near the site
- The Great Barrier Reef Marine Park does not occur in or near the site
- No Commonwealth Marine Areas in or near the site
- Six Listed Threatened Ecological Communities
- Ninety-five Listed Threatened Species
- Sixty-five Listed Migratory Species
- Other Matters Protected by the EPBC Act related to the marine environment include:
  - Ninety-four Listed Marine Species
  - Nine Whales and Other Cetaceans
  - No Critical Habitats
  - No Commonwealth Reserves (Terrestrial)
  - No Australian Marine Parks



- No Habitat critical to the survival of marine turtles
- No Nationally Important Wetlands
- No Key Ecological Features
- Two Biologically Important Areas (BIAs) (refer to Section 3.3.8).

### 3.5 Threatened and Protected Marine Fauna

This section identifies threatened and protected marine fauna listed under State and Commonwealth legislation which are known to occur or have the potential to occur in the proposal area.

#### 3.5.1 Biodiversity Conservation Act 2016 (NSW) & Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

Online database searches for threatened and protected fauna listed under the BC Act (via the BioNet Atlas of NSW Wildlife) and the EPBC Act (via the Protected Matters Search Tool) were undertaken on 19<sup>th</sup> March and 3<sup>rd</sup> March 2025, respectively. The Protected Matters Search Results are provided in Appendix A and a list of the threatened and protected marine species listed under the BC Act is provided in Appendix B.

Table 3-2 Threatened and protected marine species listed under the BC Act 2016 and the EPBC Act 1999 with the potential to occur in the proposal area.

Common Name	Species Name	BC Act	EPBC Act	Likelihood of Occurrence (EPBC Act)
<b>Fish</b>				
Black Rockcod	<i>Epinephelus daemeli</i>	-	V	Species or species habitat likely to occur within area
White’s Seahorse	<i>Hippocampus whitei</i>	-	E	Species or species habitat likely to occur within area
Macquarie Perch	<i>Macquaria australasica</i>	-	E	Species or species habitat may occur within area
Australian Grayling	<i>Prototroctes maraena</i>	-	V	Species of species habitat likely to occur within area
Blue Warehou	<i>Seriolella brama</i>	-	CD	Species or species habitat known to occur within area
<b>Marine Mammals</b>				
Blue Whale	<i>Balaenoptera musculus</i>	-	E	Species or species habitat may occur within area
Southern Right Whale	<i>Eubalaena australis</i>	E1, P	E	Species or species habitat likely to occur within area
Humpback Whale	<i>Megaptera novaeangliae</i>	P	-	Unlikely to occur in area due to size
Common Dolphin	<i>Delphinus delphis</i>	P	-	Species or species habitat may occur within area



Common Name	Species Name	BC Act	EPBC Act	Likelihood of Occurrence (EPBC Act)
Indo-Pacific Bottlenose Dolphin	<i>Tursiops aduncus</i>	P	-	Species or species habitat likely to occur within area
Bottlenose Dolphin	<i>Tursiops truncatus</i>	P	-	Species or species habitat may occur within area
New Zealand Fur-seal	<i>Arctocephalus sp.</i>	V, P	-	Species or species habitat may occur within area
Australian Fur-seal	<i>Arctocephalus pusillus doriferus</i>	V, P	-	Species or species habitat may occur within area
Australian Sea-lion	<i>Neophoca cinerea</i>	P	-	Unlikely to occur within area
Leopard Seal	<i>Hydrurga leptonyx</i>	P	-	Unlikely to occur within area
Southern Elephant Seal	<i>Mirounga leonina</i>	P	-	Unlikely to occur within area
<b>Marine Reptiles</b>				
Loggerhead Turtle	<i>Caretta caretta</i>	E1, P	E	Species or species habitat known to occur within area
Green Turtle	<i>Chelonia mydas</i>	V, P	V	Species or species habitat known to occur within area
Leatherback Turtle	<i>Dermochelys coriacea</i>	E1, P	E	Species or species habitat known to occur within area
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	-	V	Species of species habitat known to occur within area
Flatback Turtle	<i>Natator depressus</i>	P	V	Species of species habitat known to occur within area
Green Turtle	<i>Chelonia mydas</i>	V, P	V	Species or species habitat known to occur within area
Eastern Snake-necked Turtle	<i>Chelodina sp.</i>	P	-	
<b>Shark</b>				
Grey Nurse Shark	<i>Carcharias taurus</i>	-	CE	Foraging, feeding or related behaviour likely to occur within the area
White Shark	<i>Carcharodon carcharias</i>	-	V	Species or species habitat known to occur within area
School Shark	<i>Galeorhinus galeus</i>	-	CD	Species or species habitat may occur within area
Whale Shark	<i>Rhincodon typus</i>	-	V	Species or species habitat likely to occur within area
Scalloped Hammerhead	<i>Sphyrna lewini</i>	-	CD	Species or species habitat likely to occur within area



### 3.5.2 Fisheries Management Act 1994

Threatened and protected marine species listed under Schedules 4 to 5 of the FM Act were reviewed in order to satisfy requirements of the Policy and Guidelines for Fish Habitat Conservation and Management (NSW DPI 2013). The relevant schedules are provided in Appendix C. Marine species, populations and ecological communities currently listed as endangered, critically endangered and/or vulnerable (i.e. Schedule 4, 4A and 5) under the FM Act with the potential to occur in Sydney Harbour are listed below.

#### *Schedule 4: Endangered Species, Populations and Ecological Communities*

- White's Seahorse (*Hippocampus whitei*) - endangered species
- Scalloped Hammerhead Shark (*Sphyrna lewini*) - endangered species
- Southern Bluefin Tuna (*Thunnus maccoyii*) - endangered species
- Marine Worm (*Hadrachaeta aspeta*) - species presumed extinct
- Green Sawfish (*Pristis zijsron*) - species presumed extinct
- Bennetts Seaweed (*Vanvoorstia bennettiana*) - species presumed extinct.

#### *Schedule 4A: Critically Endangered Species and Ecological Communities*

- Grey Nurse Shark (*Carcharius taurus*) - critically endangered species
- Marine Slug (*Smeagol hilaris*) - critically endangered species
- Marine Brown Algae (*Nereia lophocladia*) - critically endangered species.

#### *Schedule 5: Vulnerable Species and Ecological Communities*

- Great White Shark (*Carcharodon carcharias*) - vulnerable species
- Black Rockcod (*Epinephelus daemeli*) - vulnerable species
- Great Hammerhead Shark (*Sphyrna mokarran*) - vulnerable species.

#### *Protected Species*

- All species of the families 'Syngnathidae', 'Solenostomidae' and 'Pegasidae' (i.e. seahorses, sea dragons, pipefishes, pipehorses)
- Ballina Angelfish, *Chaetodontoplus ballinae*
- Bluefish, *Girella cyanea*
- Eastern Blue Devil Fish, *Paraplesiops bleekeri*
- Elegant Wrasse, *Anampses elegans*
- Estuary Cod, *Epinephelus coioides*
- Giant Queensland Groper, *Epinephelus lanceolatus*
- Herbsts Nurse Shark, *Odontaspis ferox*.

Considering the location of the site, the habitats present in the study area, and the required habitat and conservation status of each of the species listed under the FM Act, the threatened and protected species which are considered to have a moderate to high chance of occurring within or in near vicinity to Site 1 or Site 2 include:

- White's Seahorse (*Hippocampus whitei*) - endangered species
- Black Rockcod (*Epinephelus daemeli*) - vulnerable species.



## 3.6 Key Threatening Processes

The proposal was assessed in terms of being a KTP in accordance with the listings in the BC Act, FM Act and EPBC Act below.

### 3.6.1 Biodiversity Conservation Act 2016

A threat may be listed as a KTP under the BC Act if it "adversely affects threatened species, populations or ecological communities, or may cause species, populations or ecological communities to become threatened". A full list of KTP listed under the BC Act can be found at: <https://www.environment.nsw.gov.au/threatenedSpeciesApp/threats.aspx>

Of the listed KTPs under the BC Act the only one with the potential to apply to the proposal is:

- Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments.

Further detail on this KTP can be found at:

<https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20013>

### 3.6.2 Fisheries Management Act 1994

KTPs are listed under Schedule 6 of the FM Act and are defined as "processes that, in the opinion of the Fisheries Scientific Committee, adversely affect threatened species populations or ecological communities, or could cause species, populations or ecological communities that are not threatened to become threatened" (NSW DPI 2021)

([http://www.austlii.edu.au/au/legis/nsw/consol\\_act/fma1994193/sch6.html](http://www.austlii.edu.au/au/legis/nsw/consol_act/fma1994193/sch6.html)).

Of the KTPs listed under the FM Act the only KTP with the potential to be associated with the proposal is:

- Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales.

### 3.6.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides for the identification and listing of KTPs. A threatening process is defined as a KTP under this Act if it threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community (DCCEE 2021).

A process can be listed as a KTP under the EPBC Act if it could:

- Cause a native species or ecological community to become eligible for inclusion in a threatened list (other than the conservation dependent category)
- Cause an already listed threatened species or threatened ecological community to become more endangered
- Adversely affect two or more listed threatened species or threatened ecological communities.



The full list of KTP under the EPBC Act can be found at <http://www.environment.gov.au/cgi-bin/sprat/public/publicgetkeythreats.pl> (DCCEEW 2022).

Of the listed KTPs under the EPBC Act the following have the potential to apply to the project:

1. Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris
2. Novel biota and their impact on biodiversity.

### **3.6.4 Is the proposal a Key Threatening Process?**

In summary, the proposal is not considered to be a KTP as listed under any of the above Acts (specifically in relation to the marine environment). However, two potential impacts of construction and operation relating to the proposal, being the introduction of marine species and injury/fatality caused by marine debris, are both listed as KTPs under State and Commonwealth legislation.



## 4. Marine Habitat Survey Results

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Results of the marine habitat surveys conducted at White Bay 5 (Site 1) and White Bay 6 (Site 2) on 26 February 2025 are presented below. These surveys aimed to assess the structural conditions, ecological communities, and benthic habitats of the study sites, providing baseline data to inform potential impacts of construction and operation of the seawater cooling system.

### 4.1.1 Seawall condition

#### Site 1 – White Bay 5

The vertical concrete caisson examined at White Bay 5 exhibits extensive biological colonisation characteristic of established artificial marine infrastructure. The substrate displays significant biofouling with a complex assemblage of marine organisms at various successional stages.

The structural surfaces are almost entirely covered with biological growth, which although extensive, are unlikely to have implications for the integrity of the underlying concrete. The visible portions do not show obvious signs of structural failure such as cracking or displacement, though comprehensive assessment is limited by the dense biological cover.

Sedimentation and algal distribution indicate moderate hydrodynamic forces affecting the structure, due to wave action and tidal currents.

#### Site 2 – White Bay 6

The rock revetment at White Bay 6 exhibits extensive biological colonisation with rock surfaces supporting significant epibiotic coverage. The epifloral community is predominantly comprised of dense macroalgae, which is particularly diverse higher on the slope. This level of biological colonisation suggests the revetment has been in place for a considerable period. While comprehensive structural assessment is partially obscured by the biological coverage, the survey found:

- Maintenance of intended slope geometry at shallower depths
- No visible sedimentation buildup that would compromise structural performance
- Some displacement of major armour stones at deeper depths. This has led to void spaces at the base of the slope that could potentially facilitate undermining.

Visual inspection indicated the rock revetment exhibits no overt signs of structural compromise; however, given the displacement of some larger armour stones at the base, a geotechnical and engineering evaluation would be recommended to verify load-bearing capacity and long-term stability before undertaking any significant modifications. It should be noted that for the minor works proposed for this project, no such assessment would be necessary.



### 4.1.2 Seawall habitat

Vertical video transects were undertaken by divers at both sites with analysis resulting in a catalog of the predominant taxa. The results revealed disparate ecological communities based on the underlying physical habitat structure. Within each site, transects displayed limited variability, most taxa observed at a site were found across all samples. Marine taxa identified included a variety of micro and macroalgae, ascidians, sponges, and fish. Indicative taxa are shown in Figure 4-1. Presence absence data of identified taxa/species for each site are presented in Table 4-1.



Figure 4-1 Selection of taxa recorded on the seawall during video transects including micro and macroalgae, ascidians, fish and sponges (see Appendix D for full catalog) (Worley, 2025).

Table 4-1 Presence-absence matrix for taxa recorded during seawall habitat surveys at both sites.

Taxa	White Bay 5	White Bay 6
Algae ( <i>Corallina officinalis</i> )		X
Algae ( <i>Ecklonia radiata</i> )		X
Algae (mixed foliose)	X	X
Algae ( <i>Padina spp.</i> )		X
Algae (red; articulated)	X	
Algae (red; membranous)	X	



Taxa	White Bay 5	White Bay 6
Algae ( <i>Sargassum spp.</i> )		X
Ascidian ( <i>Styela plicata</i> )	X	
Ascidian (white; globula)	X	
Ascidian (white; sphere)	X	
Ascidian (tubular; colonial)	X	
Christmas tree worm ( <i>Spirobranchus corniculatus</i> )	X	
Feather star (black; <i>Colobometra perspinosa</i> )	X	
Fish (Eastern hulafish - <i>Trachinops taeniatus</i> )		X
Fish (Striped catfish - <i>Plotosus lineatus</i> ; juvenile)	X	
Fish (Yellowfin bream - <i>Acanthopagrus australis</i> )	X	X
Molluscan bivalve (other)	X	
Molluscan bivalve (oyster)	X	X
Sponge (encrusting)	X	X
Sponge (finger)	X	
Sponge (tubular)	X	
Sponge (ball)	X	

**Site 1 – White Bay 5**

The marine community at Site 1 is characterised by a diverse assemblage of sessile invertebrates and algae. The substrate is dominated by a short vertical carpet of mixed foliose algae, which is present across all transects. This algal community is complemented by two distinct red algae taxa: an articulated form (possibly Order Nemaliales) and a membranous branching form (possibly Order Ceramiales).

The invertebrate community is particularly rich in filter-feeding organisms. Ascidians are well-represented, with a range of colonial and solitary species present, having four distinct morphotypes observed: the introduced ascidian Pleated Sea Squirt (*Styela plicata*; present in all transects), white globular ascidians, white spherical ascidians, and colonial tubular ascidians (both yellow and white forms). Sponges also form a significant component of the community, with encrusting forms (in various colors including yellow, orange, green, brown, and pink), finger-like projections (yellow and orange), tubular forms (yellow, green, and orange), and ball-shaped varieties (yellow and green lobate forms).

Other notable invertebrates include Christmas tree worms (*Spirobranchus corniculatus*), various molluscan bivalves including oysters, and a single observation of a black feather star. The presence of these filter-feeding organisms suggests a nutrient-rich environment with sufficient water flow to support a diverse community.

Fish observations at Site 1 include the ubiquitous Yellowfin bream (*Acanthopagrus australis*) and a single sighting of a school of juvenile Striped catfish (*Plotosus lineatus*).

**Site 2 – White Bay 6**

The marine community at Site 2 is distinguished by a more diverse algal assemblage and the presence of large habitat-forming kelp. The substrate is covered by mixed foliose algae, like Site 1, but also supports larger macroalgae species. These include the kelp *Ecklonia radiata*,



*Sargassum spp.*, *Padina spp.*, and the articulated coralline alga *Corallina officinalis*. The presence of these larger algae species provides significant structural complexity to the habitat.

The invertebrate community at Site 2 appears less diverse than at Site 1, with fewer types of ascidians and sponges recorded. However, encrusting sponges (observed on deep rocks) and oysters (on the intertidal rocks) are still present, indicating some similarity in the filter-feeding community between the two sites.

Fish observations at Site 2 include the Yellowfin bream, as seen at Site 1, but also feature schools of Eastern hulafish (*Trachinops taeniatus*), which were not observed at Site 1.

### Site comparison

The marine communities at Site 1 and Site 2 show distinct differences, due to the contrasting physical characteristics of the habitats:

1. Algal diversity: Site 2 supports a more diverse macroalgal community, including large habitat-forming species like *Ecklonia radiata* and *Sargassum spp.* This is likely due to the sloping nature of the revetment, which provides varied light conditions and potentially more stable substrate for attachment.
2. Invertebrate composition: Site 1 exhibits a higher diversity of sessile invertebrates, particularly ascidians and sponges. This may be attributed to the vertical orientation of the concrete wall, which can reduce sedimentation and provide more space for filter-feeders to colonise without competition from large algae.
3. Fish assemblages: While both sites are frequented by Yellowfin bream, Site 2 uniquely hosts schools of Eastern hulafish. This difference could be related to the presence of kelp forests at Site 2, which provide shelter and feeding grounds for these fish.
4. Substrate influence: The vertical concrete wall at Site 1 appears to favor a community dominated by encrusting and small erect organisms, while the natural rock substrate at Site 2, which has more complexity, supports a more diverse algal community. This difference may be due to variations in surface texture, microhabitats, pH, and settlement cues between concrete and natural rock.

The sloping rock revetment at Site 2 supports a more structurally complex algal community, while the vertical concrete wall at Site 1 hosts a more diverse assemblage of sessile invertebrates.

#### 4.1.3 Subtidal habitat

Drop camera surveys were performed at 27 subtidal sample locations at each site to determine benthic habitat types. Analysis of the video footage revealed that the predominant habitat type at both sites is an unvegetated silty mud bottom (Figure 4-2). This is characterised by fine-grained, cohesive sediments primarily composed of silt and clay particles. These sediments are enriched with organic matter and are relatively stable due to limited tidal flushing which allows for the accumulation of fine particles. The sediment surface often displays numerous burrow openings and holes (bioturbation), which are indicative of the presence and behavior of various mobile benthic organisms such as crustaceans, polychaetes, shrimps, and lugworms.



Water movement disturbing the upper layers of the sediment frequently causes agitation leading to increased turbidity within a few meters of the bottom. This was observed in the water quality results with turbidity increasing to many times higher than that at the surface (see Section 5.3). The increase in turbidity, combined with light attenuation with depth (most of the study area at Site 1 is greater than 10 m) reduces light penetration at the bottom significantly. The lack of light reduces the ability for marine plants such as algae to survive. No algae were observed at either site away from the seawall or revetment and no seagrass was observed anywhere in the study area.



*Figure 4-2 Typical silty soft sediment benthic habitat (Worley, 2025).*

### **Site 1 – White Bay 5**

Of the nine locations closest to the berth, eight of the drop camera videos revealed some rock, likely part of the base of the revetment which underlies the caisson. The rocks were covered with sediment and appeared unvegetated. Beneath and around the rock was a silty soft sediment bottom. No rock was observed in the other location close to the berth, only sediment. All other drop camera locations revealed a silty soft sediment bottom with some unvegetated rocks at two sample locations (23 and 26; Figure 2-1).

### **Site 2 – White Bay 6**

All nine sample locations closest to the revetment displayed diverse macroalgae communities at depths down to around 6 meters. Macroalgae was also observed at four of the nine locations in the middle distance from the revetment (8, 14, 17, 23; Figure 2-2) along with a combination of rock and soft sediment. The remaining five samples in the middle distance, and all nine samples at the furthest distance, revealed the typical soft sediment bottom observed elsewhere.



#### 4.1.4 Key fish habitat assessment

Under the FM Act, habitats are classified as "key fish habitats" if they provide essential ecological functions that support the life cycles of fish, including feeding, breeding, or sheltering. The term "key fish habitat" is not explicitly defined in the FM Act but is described in guidelines by the NSW DPI (2013) as habitats crucial to the survival of native fish stocks. These typically include natural environments like wetlands, seagrasses, mangroves, and natural reefs, while explicitly excluding man-made structures such as agricultural drains and off-stream dams.

Artificial maritime infrastructure such as wharves and piles are generally not classified as key fish habitat. However, artificial structures can provide some ecological value by offering shelter or attachment sites for marine organisms and increasing species richness in areas with limited natural habitat. Despite these benefits, they are not considered equivalent to natural habitats and are not categorized as key fish habitat under the FM Act.

The FM Act focuses on conserving natural fish habitats and regulating activities that may impact them. Artificial structures are managed differently and are often subject to specific development approvals or permits to ensure they do not negatively affect natural ecosystems or fish passage.

The vertical concrete seawall at Site 1 is not considered a key fish habitat despite the diverse invertebrate and algal community. The substrate is artificial, and the community itself lacks significant habitat-forming structure due to the smooth, homogeneous surface of the concrete, which provides limited physical complexity. Unlike natural habitats such as rocky reefs or mangroves, which feature crevices, overhangs, and varied textures that offer refuge for marine organisms, the seawall's uniformity restricts its ability to support a diverse range of species. Additionally, artificial substrates like concrete often favor colonization by non-native species over native ones, further reducing their ecological value compared to natural habitats.

Rock revetments with extensive macroalgae coverage, such as the one at Site 2, could potentially be considered key fish habitat under the framework as they closely mimic the arrangements of a natural rocky reef. Macroalgae provide structural complexity and serve as a critical resource for many marine organisms, such as small fish and invertebrates, by offering food and refuge from predators. However, whether this specific rock revetment is classified as a key fish habitat would depend on its ecological value and the presence of species that rely on it. While artificial structures like rock revetments are not always explicitly recognised as key habitats, their ecological importance increases when they support diverse communities of macroalgae and associated marine species.

The seawall habitat survey at Site 2 revealed a highly diverse algal community but, due to the location was heavily impacted by sedimentation, particularly in the subtidal zone. The limited number of fish species observed at this location (two species) also suggests that the habitat does not support a diverse community of associated marine species.

Despite these caveats, the rock revetment at Site 2 should be conservatively classified as a Type 2 key fish habitat under the FM Act due to its ecological characteristics and potential to support endangered species. Type 2 habitats are defined as providing important ecological functions for fish, including feeding, sheltering, or breeding, but are not considered *critical* habitats. The rock revetment at Site 2 contains structural complexity and extensive



macroalgae coverage, which are known to provide suitable habitat for marine species such as the endangered Black Rock Cod and White's Seahorse. While these species were not observed during the marine ecology survey, their presence cannot be ruled out due to the availability of suitable shelter and foraging resources within the revetment.

As a precautionary measure in the absence of definitive evidence to the contrary, classifying this location as Type 2 key fish habitat ensures that its potential ecological value is protected. This conservative approach aligns with best practices for managing habitats that may support vulnerable or endangered species, particularly those listed under the FM Act. By adopting this classification, additional safeguards can be implemented to minimise impacts from construction or operational activities at Site 2. Further investigation could be undertaken to validate the ecological value and confirm the presence or absence of the two endangered species identified above, Black rock cod and White's Seahorse.

The soft sediment benthic habitat at both sites is classified as an unambiguous Type 3 key fish habitat as it consists of an unvegetated mud substrate, despite the sporadic presence of benthic macroalgae at Site 2.



## 5. Water Quality

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A single round of baseline water quality sampling was undertaken with the intention to build a seasonal profile by supplementing with publicly available water quality data and data previously collected by Worley in the vicinity. The justification for this strategy was based on the small scale of the proposed works and its expected localised influence.

The baseline sampling provided site-specific data on local water quality and if required, could be validated against available seasonal water quality data from other locations such as Darling Harbour and Balmain. This comparative approach would validate the applicability of external datasets as supplementary baseline information, reducing the need for long-term monitoring while maintaining a scientifically robust assessment.

### 5.1 Existing Water Quality Data

Several existing seasonal datasets are available to supplement the baseline data collected for this study, namely:

- 1) An extensive seasonal data set collected by Worley in 2023 and 2024 at two nearby locations in Sydney Harbour
- 2) Monthly water quality data collected by DCCEEW (NSW) within Zone 15 nearby to the WBCT.

Port Authority (2019) described water quality within White Bay as highly influenced by frequent vessel movements, including tugs to assist with vessel arrival and departure, and the intake of stormwater runoff from the immediate port area and from urban land uses in the surrounding catchment. Turbidity from storm events is also an influence at the site. Stormwater from a catchment area upstream of the port area is primarily discharged into White Bay at White Bay 2, via a large stormwater culvert with minor drains around the port areas. Sediment accumulation in the area is mainly from stormwater influences as well as sediment mobilisation from vessel movements and stormwater discharge from large storm events.

It is likely that sediments within the seabed of White Bay may contain some heavy metals (such as arsenic, copper, lead, zinc and mercury) and trace contaminants (such as Tributyltin) due to historical port and land uses and stormwater generated from the port area and urban land uses in the stormwater catchment. There is also potential for acid sulfate soils to be present. There is the potential for degradation of water quality should contaminated sediments be disturbed.

The potential for mobilising contaminants from the seabed sediments is dependent on the level of contaminants in the seabed that are to be excavated or levelled and the manner in which they are bound to the sediments (that is, loosely bound or tightly bound via organic material bonds). Whilst the nature of the sediment chemistry for the sediments is not known, previous studies for stormwater outfall dredging works at White Bay 2 noted that the inshore sediment contaminants were typical of stormwater discharge contaminants found throughout Sydney Harbour. It was also noted that the stormwater outlet sediments to be moved would be



relocated and placed over sediments with similar contamination profiles downstream of the same stormwater source.

## 5.2 ANZG Water Quality Guidelines

The ANZG (2018) Water Quality Guidelines provide high-level guidance on the management context, ecological descriptions, biological indicator selection and other advice for five of Australia’s six marine planning regions as well as for the Great Barrier Reef Marine Park. Default guideline values (DGVs) for a range of physical and chemical stressors are provided. DGVs are also provided for many toxicants in freshwater, marine waters and sediment.

<https://www.waterquality.gov.au/anz-guidelines/guideline-values/default>

Physical and chemical stressor DGVs are provided for different levels of protection, depending on the current or desired ecosystem condition. Under the ANZG (2018), Sydney Harbour would be classed as slightly to moderately disturbed system. Slightly to moderately disturbed systems need DGVs based on either 80th or 20th percentiles of minimally impacted reference-site data.

The following water quality guidelines are applicable to the site:

- NSW Department of Environment and Conservation – Marine Water Quality Objectives for NSW Ocean Waters (2005).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000) –Default Guideline Values for Physical and Chemical Stressors, East Coast Australia.

The relevant water quality trigger objectives for NSW Ocean Waters (Sydney Harbour) as they apply to protection of aquatic ecosystems are shown in Table 5-1.

Table 5-1 Physicochemical Water Quality guidelines (ANZECC, 2000).

Water Quality Guideline	Parameter	Guideline Value	NSW Water Quality Objective
<b>Protection of Aquatic Ecosystems – default stressor guidelines- East Coast (ANZECC, 2000)</b>	pH	8.0 - 8.4	--
	Dissolved oxygen	90 – 110 %Sat	--
	Turbidity	0.5 – 10 NTU	0.5-10 NTU
	Temperature	15 – 35 °C	--

## 5.3 Baseline Water Quality Results

Physicochemical water quality parameters were measured at both sites to establish baseline conditions. Sampling was conducted at three locations within each site (Samples 5, 14, and 23) across varying depths, with full-depth profiles collected to assess potential stratification.



Across both survey sites and sampling depths, physicochemical parameter results were within expected ranges for marine environments in the region during late summer (Table 5-2).

Temperature profiles indicated no significant stratification in the water column across surveyed depths at either site, with a narrow range of mean values around 23°C. This was confirmed by the depth profile plot which showed temperature decreasing with depth and a mild inflection point around 3 m at Site 1 (Figure 5-1). The shallower depths at Site 2 led to a marginally higher mean temperature compared to Site 1 but a similar maximum temperature. These results depict a typical thermal gradient in the water column, with warmer water near the surface due to solar heating and cooler water at depth. The absence of sharp temperature changes suggests limited thermal stratification.

Turbidity levels varied more significantly between samples and depths but generally remained low (<2 NTU) indicating relatively clear water conditions during sampling. The depth profile plot shows that turbidity increased greatly within a few metres of the bottom as is expected with silty soft sediment environments. The relationship between turbidity, pH and dissolved oxygen is notable; an inflection in the depth profile plot at around 12 m at Site 1 reveals higher turbidity coinciding with lower dissolved oxygen levels, and a lower pH. Re-suspended sediments often contain organic matter, which when decomposed by microbes consumes dissolved oxygen, leading to lower oxygen and pH levels near the bottom. Conductivity varies with depth across both sites generally reflecting higher salinity in deeper waters due to limited mixing with less saline surface water.

Overall, the depth profiles suggest a mildly stratified water column where surface processes dominate oxygenation and clarity, while deeper waters are influenced by sediment resuspension, salinity gradients, and decomposition dynamics.



Table 5-2 Water quality summary statistics. Measurements were recorded from surface to seabed with summary statistics calculated for the entire depth profile. Sampling was performed at three locations at each site.

**Physico-Chemical Summary Statistics - 2025-02-26**

Summary statistics for each parameter by site

	Outliers	N	Mean	Median	Std Dev	Min	Max
<b>Site 1 - Sample 5 (max depth 12 m)</b>							
Conductivity (µS/cm)	0	292	50053	50090	123	49817	50192
Dissolved Oxygen (% sat)	0	292	74	75	12	48	87
pH	0	292	8.0	8.0	0.0	7.9	8.0
Salinity (PSU)	0	292	34.0	34.1	0.3	33.6	34.4
Temperature (°C)	0	292	23.32	23.27	0.30	22.91	23.71
Turbidity (NTU)	1	291	2.0	0.6	6.2	0.1	70.2
<b>Site 1 - Sample 14 (max depth 12 m)</b>							
Conductivity (µS/cm)	0	304	50073	50107	110	49835	50183
Dissolved Oxygen (% sat)	0	304	76	76	8	53	88
pH	0	304	8.0	8.0	0.0	8.0	8.0
Salinity (PSU)	0	304	34.0	34.1	0.3	33.6	34.3
Temperature (°C)	0	304	23.35	23.39	0.28	22.92	23.72
Turbidity (NTU)	0	304	0.9	0.6	1.3	0.1	15.1
<b>Site 1 - Sample 23 (max depth 12 m)</b>							
Conductivity (µS/cm)	0	313	50090	50112	88	49840	50174
Dissolved Oxygen (% sat)	0	313	75	74	8	50	91
pH	0	313	8.0	8.0	0.0	7.9	8.0
Salinity (PSU)	0	313	34.1	34.2	0.2	33.6	34.4
Temperature (°C)	0	313	23.29	23.22	0.25	22.89	23.73
Turbidity (NTU)	1	312	1.0	0.7	2.4	0.1	41.2
<b>Site 2 - Sample 5 (max depth 6 m)</b>							
Conductivity (µS/cm)	0	198	50044	50062	119	49818	50176
Dissolved Oxygen (% sat)	0	198	80	80	3	72	84
pH	0	198	8.0	8.0	0.0	8.0	8.0
Salinity (PSU)	0	198	33.8	33.8	0.2	33.6	34.1
Temperature (°C)	0	198	23.56	23.61	0.15	23.30	23.84
Turbidity (NTU)	0	198	0.7	0.4	1.0	0.1	12.0
<b>Site 2 - Sample 14 (max depth 6 m)</b>							
Conductivity (µS/cm)	0	320	50058	50138	122	49807	50158
Dissolved Oxygen (% sat)	0	320	79	77	4	72	87
pH	0	320	8.0	8.0	0.0	8.0	8.0
Salinity (PSU)	0	320	33.9	33.9	0.2	33.6	34.1
Temperature (°C)	0	320	23.53	23.57	0.17	23.26	23.88
Turbidity (NTU)	0	320	0.6	0.5	0.5	0.1	3.1
<b>Site 2 - Sample 23 (max depth 3 m)</b>							
Conductivity (µS/cm)	0	158	50036	50053	120	49813	50178
Dissolved Oxygen (% sat)	0	158	80	81	3	74	83
pH	0	158	8.0	8.0	0.0	8.0	8.0
Salinity (PSU)	0	158	33.8	33.7	0.2	33.6	34.1
Temperature (°C)	0	158	23.61	23.63	0.13	23.41	23.86
Turbidity (NTU)	1	157	1.6	0.3	8.0	0.0	77.7

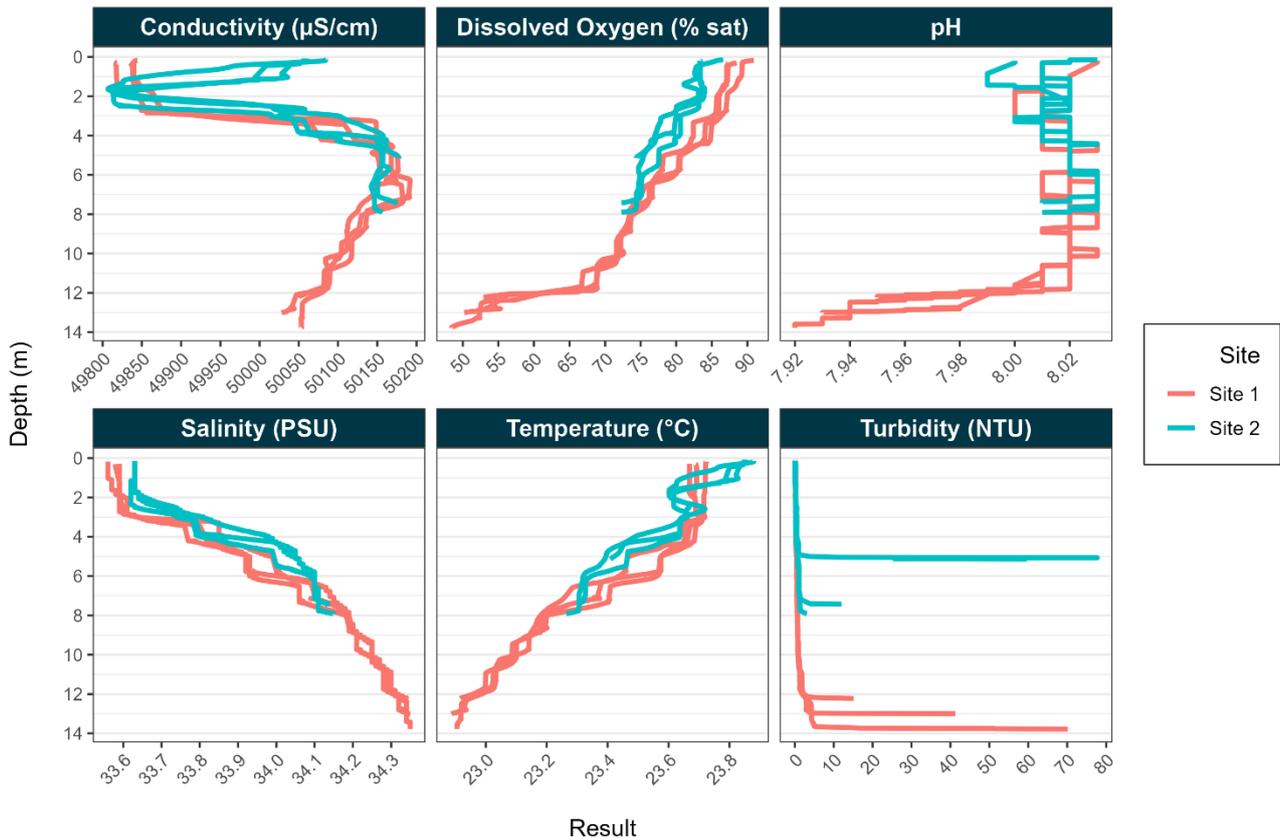


Figure 5-1 Physico-chemical depth profile plots presenting results from three samples at each site.

## 5.4 Hydrodynamic Modelling

The operation of the seawater cooling system was modelled using Computational Fluid Dynamics (CFD) modelling techniques, to assess the dispersion of the heated temperature discharge from the system outfall at both Site 1 and Site 2. This type of modelling has been shown to accurately predict buoyant flow and heat dissipation. It can account for complex three-dimensional geometry that may obstruct and/or trap flow and heat.

The key objective for the modelling was to determine the impact of the heat exchanger system on the surrounding area as well as whether there would be any potential for short-circuiting between the outflow and intake of the proposed system, which would compromise the operation of the system.

### 5.4.1 Model Setup

The CFD model includes the complex 3D flow interactions with the surrounding cruise vessels, which have been included in the model as an obstruction at Site 1. The 3D geometry of the model for Site 1 was created from the supplied drawings of the seawall, with the receiving water bathymetry derived from drawing and local bathymetric charts of the area. The outfall arrangement was developed based on the information provided by Port Authority, with the system setup for Site 1 shown in Figure 5-2 and the setup for Site 2 shown in Figure 5-3 and Figure 5-4.



Figure 5-2 Indicative arrangement for seawater cooling system for Site 1 (White Bay 5).

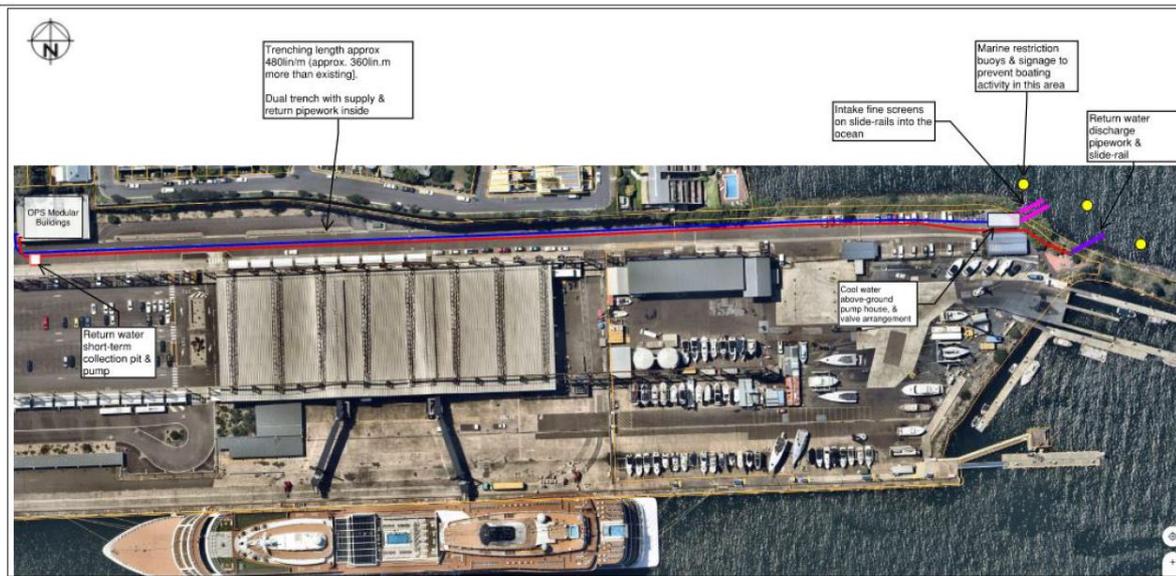


Figure 7-1 Alternative strategy for seawater cooling to eliminate interface with existing caisson (indicative concept)

Figure 5-3 Indicative arrangement for seawater cooling system for Site 2 (White Bay 6).

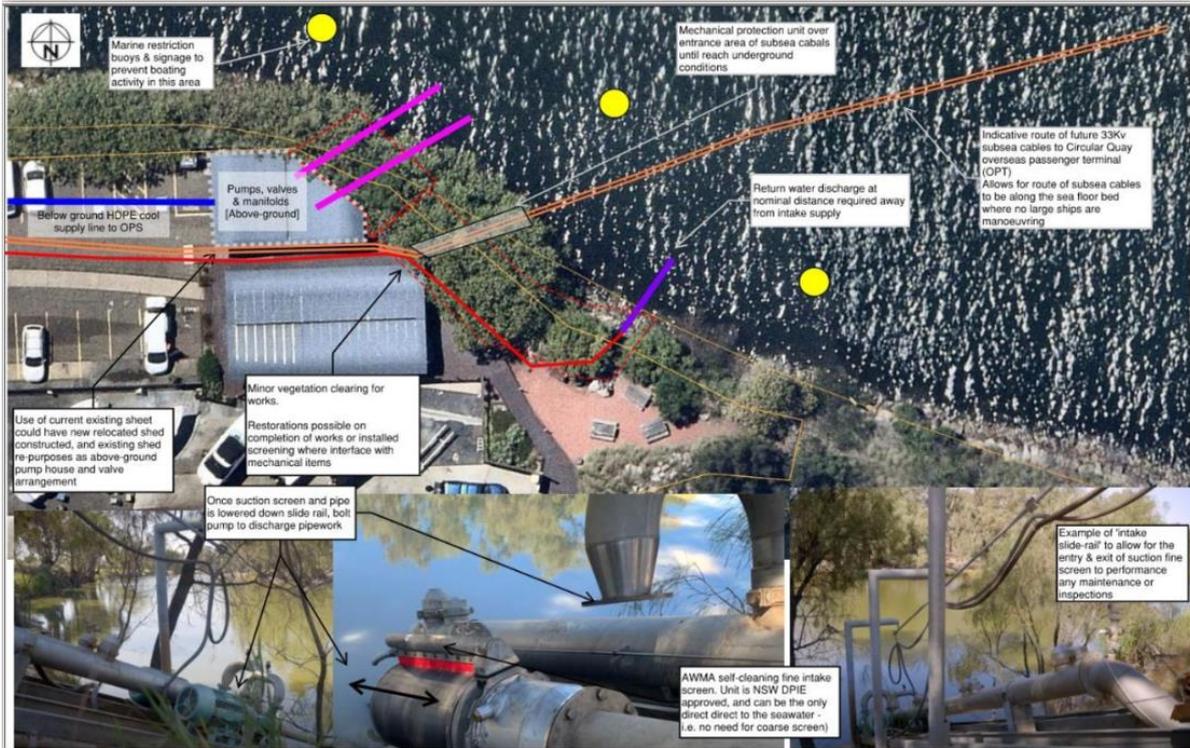


Figure 5-4 Proposed system setup for Site 2.

The bathymetry of the area used in the model is shown in Figure 5-5.

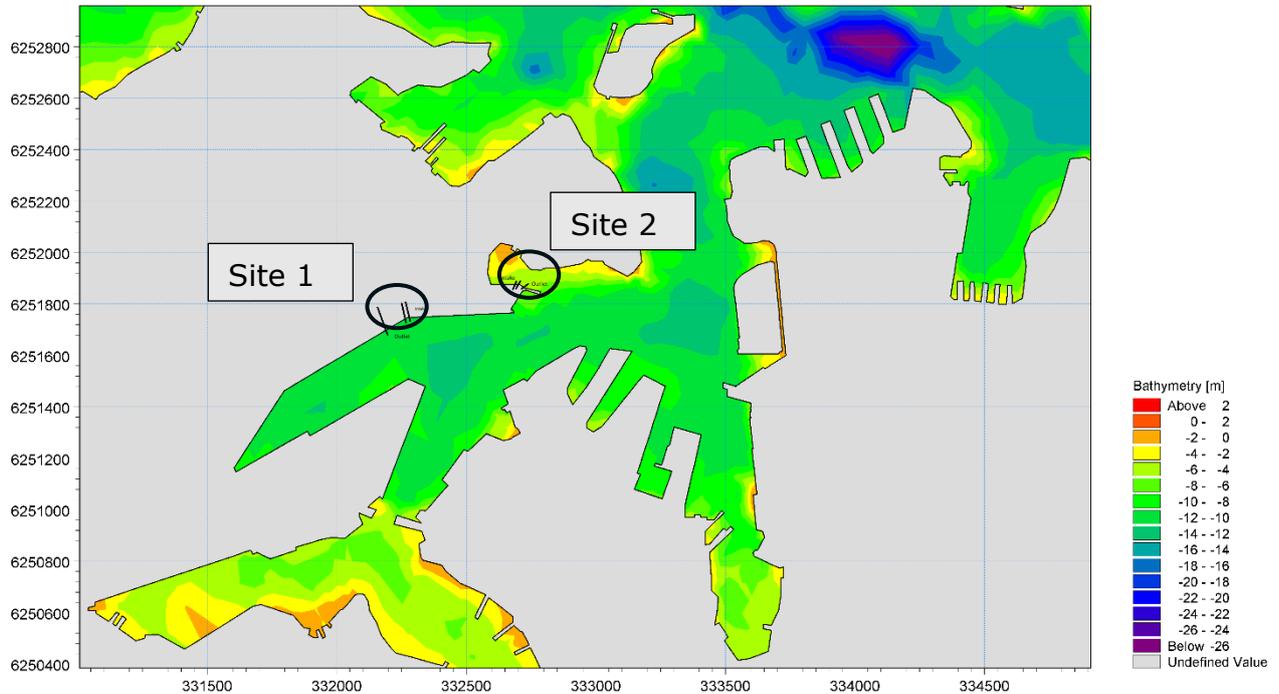


Figure 5-5 Model bathymetry (m AHD).



The 3D geometry model was imported into the modelling software ANSYS|CFX, meshed and assigned appropriate fluid properties, initial conditions, and boundary conditions. Each analysis case was then run until a steady state solution was obtained. For Site 1, the outfall was assumed to be flush with the vertical seawall; at Site 2, the sloping rock revetment was schematised in the model, with the outfall discharging through the slope. The model setup is shown in Figure 5-6.



Figure 5-6 CFD Model Setup, Top overall model extent, bottom, detail view with inclusion of vessel at Site 1.

#### 5.4.2 Modelling Assumptions

As the system is currently at a concept level of development, the system parameters are not known precisely. However, conservative assumptions have been used to model the system, such that a “worst case scenario” with the maximum anticipated impact would be assessed. The following assumptions (as supplied by Port Authority) have been used to set up the model:



1. The seawater outlets will be:
  - a. Between 280 mm and 400 mm diameter. The 400 mm diameter outlet has been assumed in the model, together with the intake which was assumed to comprise 2 x 250 mm pipes.
  - b. Around 1 m below the lowest astronomical tide (LAT).
  - c. Located around 10m – 25 m away from the seawater intake for both options.
2. Seawater discharge will have the following characteristics:
  - a. Minimum flow rate of 2 m<sup>3</sup>/min.
  - b. Maximum flow rate of 120 m<sup>3</sup>/min for a 16MVA system.

Notes:

  - Maximum flow rate may be required when running the White Bay Cruise Terminal (WBCT) Shore Power system at full capacity (i.e., 16MVA).
  - It is not anticipated that the system will operate at full capacity based on the type and size of vessels capable to pass under the Sydney Harbour Bridge to berth at WBCT and in alignment of the current cruise schedule ([Sydney Cruise Schedule | Port Authority New South Wales](#)).
  - The largest vessel that can connect to WBCT Shore Power has a power requirement of approximately 10MVA.
  - c. Temperature at the outlet of 3°C – 5°C (max) above the inlet temperature. (Note: The assumptions above are also applicable for the estimated operating temperature). 5°C was used for the analysis.
3. Vessel thrusters are typically not in operation whilst at berth. However, it is expected that there are some impacts of the prior cruise ship movements before berthing to the seawater intake.

Background water temperature was assumed to be 24.0°C, corresponding to the measured background temperature for summer as measured by Worley in 2024 at nearby Balmain East. Water levels were assumed to be at LAT.

Heat exchange between water and air as well as water and seabed are assumed to be negligible. This is a conservative assumption. Typical surface roughness was assigned to the seawalls and seabed.

Background currents were modelled using Worley's two-dimensional hydrodynamic model of Sydney Harbour for a range of measured winds and tidal scenarios, to provide the expected operational range of currents in the vicinity of the two sites. The modelling found that depth averaged ebb tidal and wind currents in the vicinity of the two sites are very low, as indicated in Figure 5-7.

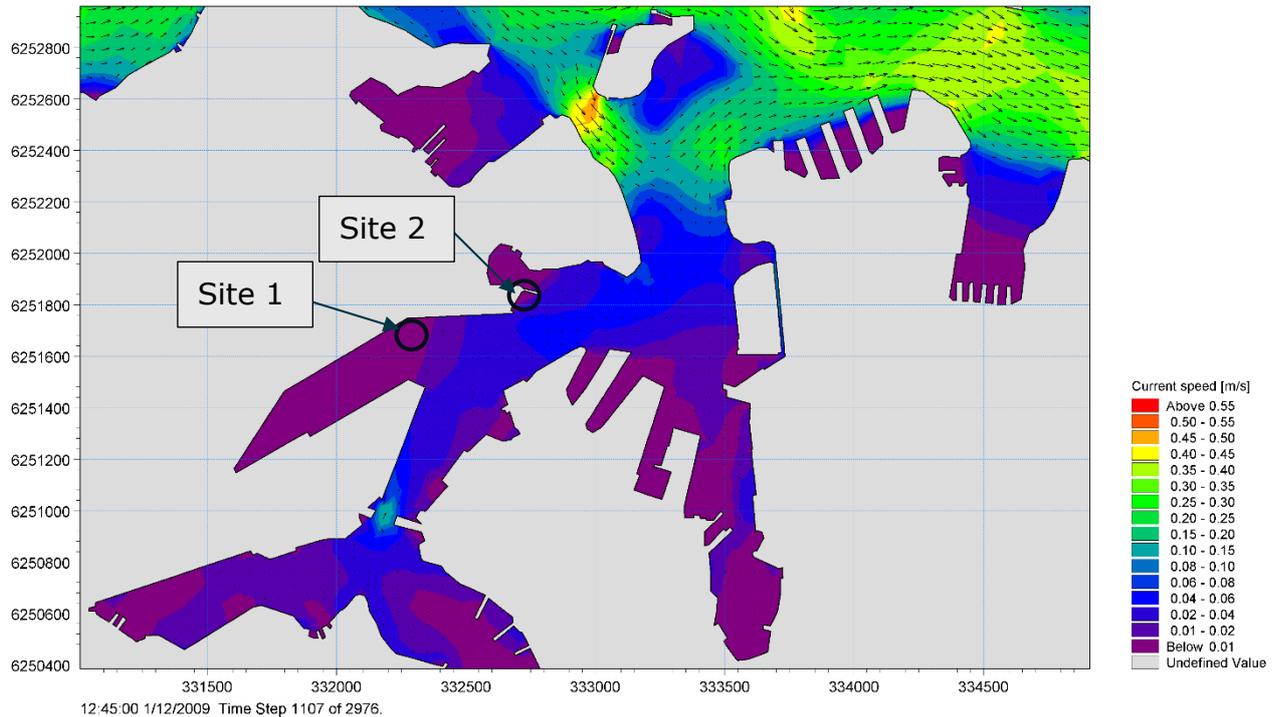


Figure 5-7 Depth averaged ebb tidal and wind currents as modelled by Worley at Sites 1 and 2.

Wind waves were also assessed for the two sites, together with vessel-generated waves, to determine the typical wave conditions in the area. It was found that under typical operating conditions with wind speeds less than 15 m/s, *significant* wave height (the average wave height of the highest one-third of waves in a typical wave train) would be less than 0.25 m, and vessel generated waves from passing ferries would be less than 0.15 m at the two sites, due to the distance of the sites from the vessel sailing lines.

From the above, assessment of currents and waves, background currents were assumed to be zero in the model at both sites. This represents a conservative scenario, as background currents would tend to aid the dispersion of heat from the outfalls.

### 5.4.3 Model Results

#### Site 1 – White Bay 5

At Site 1, for the scenario modelled, the model found that:

- Temperature within the outfall plume reached 1°C above background within 5 m of the outfall, 0.5°C above background levels within 15 m of the outfall and 0.2°C above background levels within 45 m of the outfall.
- The heated water plume reaches a maximum width of 7.5 m and does not interact with any of the surrounding vessels or infrastructure.
- No short-circuiting between the outfall and intake was detected in the model.



The result is illustrated in Figure 5-8, and the plume size from the model are shown in Table 5-3. This shows that the plume would fully dissipate within the nearfield zone. This would likely meet the ANZG Water Quality criteria, which require that water temperatures within the nearfield (<15 m from the HRS) are within 2°C of ambient temperatures, and median temperatures in the nearfield would be likely to be within the 80<sup>th</sup> percentile of the reference site data collected under similar sampling conditions.

*Table 5-3 Plume Size at Site 1.*

Temperature [°C]	Site 1		Site 1 with Vessel	
	Length [m]	Width [m]	Length [m]	Width [m]
<b>24.2</b>	38.5	7.3	41.2	7.6
<b>24.5</b>	9.5	2.3	10.1	2.4
<b>25</b>	3	0.8	3.4	0.9

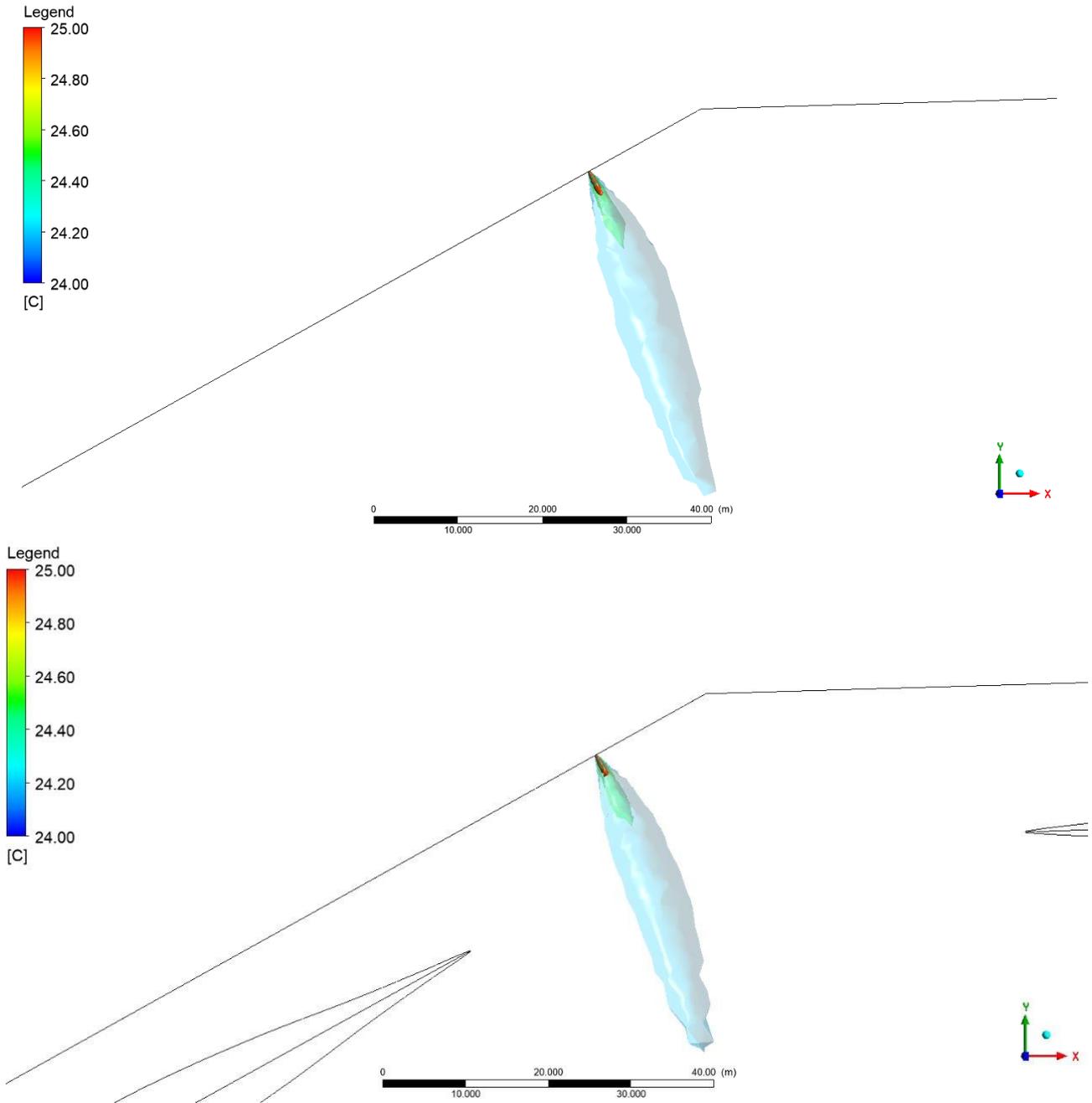


Figure 5-8 Modelled temperature plume output for Site 1, top – without berthed vessel, bottom showing berthing locations of nearby vessels.

## Site 2 – White Bay 6

At Site 2, the model found that:

- Temperature within the outfall plume reached 1°C above background within 10 m of the outfall, but the 0.5°C above background contour extended 40 m away from the outfall. Over a single tidal cycle, the heated water plume would circulate throughout the bay to the west of the outfall, raising the temperature of the bay by between 0.2 to 0.5°C.



- Some short-circuiting between the outfall and intake was detected in the model (Figure 5-10), which would affect the operation of the system. As such, the system would need to run at a higher capacity to compensate for the increased background temperature within the bay.

The result is illustrated in Figure 5-9 and the plume size from the model are shown in Table 5-4. As the tidal prism of the small bay over a single tidal cycle where the outfall is located is smaller than the maximum discharge from the system over that same timeframe, there is the potential for accumulation of heated water within the bay if the outfall is placed in the proposed location. This potential would be exacerbated if the system capacity is increased in the future compared to what has been modelled.

It should be noted that the modelling assumptions used are conservative, and design enhancements may be possible (e.g. relocating the outfall further east closer to the tip of the breakwater) to improve the operation of the system.

Table 5-4 Plume Size at Site 2.

Temperature [°C]	Case 2	
	Length [m]	Width [m]
<b>24.2</b>	*	*
<b>24.5</b>	38	3.8
<b>25</b>	7.9	1.4

\*The plume extends fully within the sheltered bay

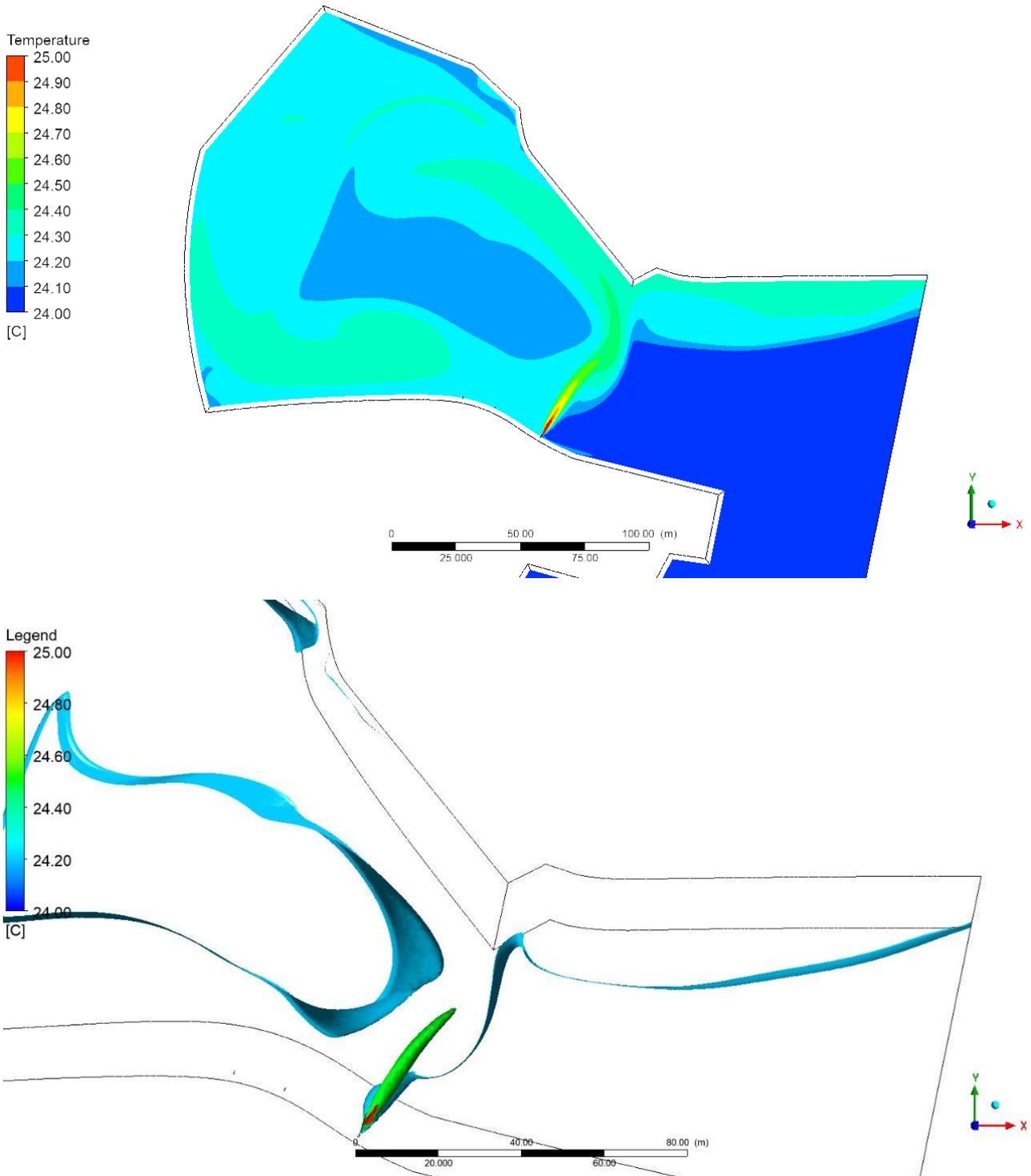


Figure 5-9 Modelled temperature contour (top) and plume output (bottom) for Site 2.

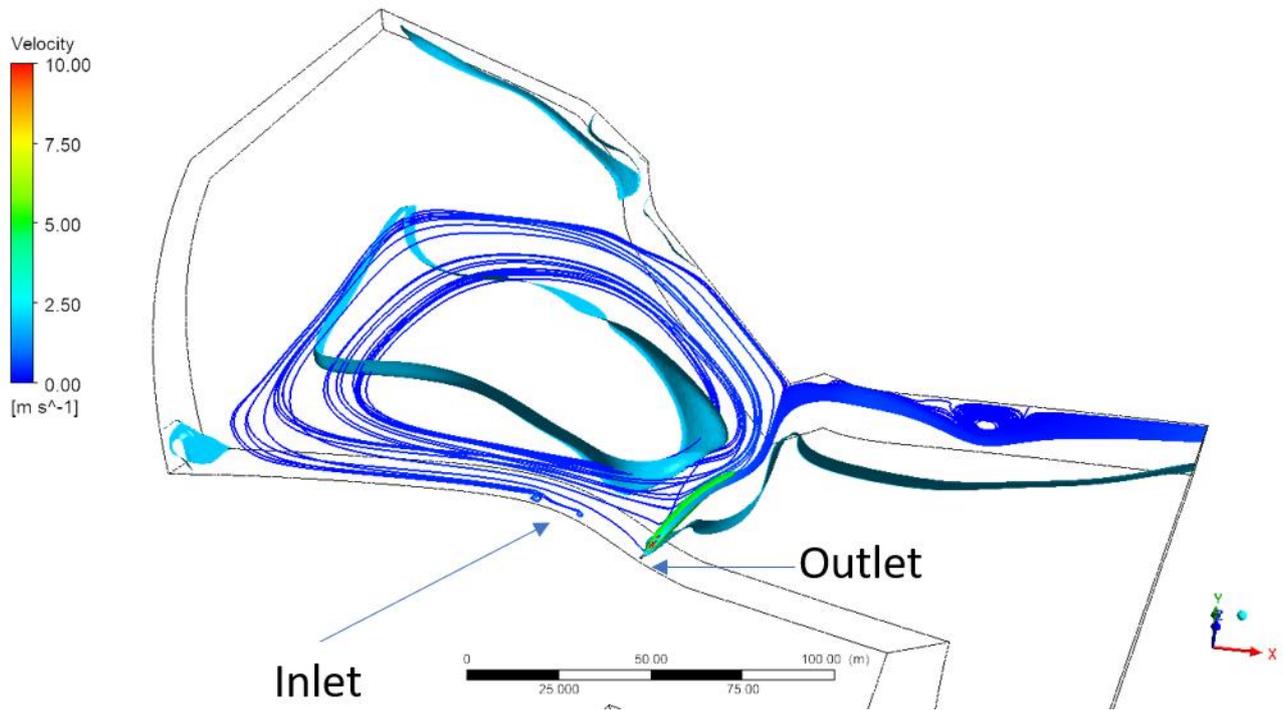


Figure 5-10 Modelled Streamlines for Site 2.



## 6. Biofouling Risk Assessment

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Biofouling on vessels occurs when organisms such as seaweeds (algae), barnacles, mussels, or other small animals attach themselves to submerged parts of vessels. Biofouling can be found on vessel hulls, propellers, internal seawater systems, ropes, buckets and anchors (DPI, 2023).

Vessel biofouling is a key pathway for non-native marine species and diseases entering and spreading in Australian waters. Non-native marine species that enter NSW can cause considerable degradation to the economy, industries, communities and the environment through pest and disease impacts (DPI, 2023).

Biofouling begins when slime and algae grow on the vessel's sub-surfaces, which is known as microfouling, or the 'slime layer.' As biofouling intensifies over time, larger organisms may foul the vessel, including barnacles, crabs, kelp, sea stars and mussels. Known as macrofouling, this includes all organisms that can be seen with the naked eye (DPI, 2023).

### 6.1 Biofouling Impacts

Sydney Harbour is an at-risk location for biofouling due to the temperate climate, high biodiversity, extensive maritime activity, and the presence of both native and non-native invasive species. Biofouling occurs when there is an accumulation of unwanted species, therefore, the below list contains both invasive and non-invasive species known to occur, or with the potential to occur, in Sydney Harbour.

Sessile Invertebrates (Hard Fouling):

- Acorn Barnacle (*Balanus trigonus*): Commonly found on submerged structures in Sydney Harbour, contributing to hard fouling communities.
- Blue Mussel (*Mytilus planulatus*): Known to form dense colonies on artificial substrates, impacting marine infrastructure.
- Tube Worm (*Hydroides elegans*): Frequently colonizes submerged surfaces, forming calcareous tubes that contribute to biofouling.
- Star Ascidian (*Botryllus schlosseri*): Forms encrusting colonies on various substrates, including ship hulls and piers.
- Transparent Ascidian (*Didemnum perlucidum*): Recognized as an invasive species in Australian waters, forming extensive mats on submerged surfaces.
- Clubbed Tunicate (*Styela clava*): Identified as an invasive species capable of forming dense aggregations on marine structures.
- Pleated sea squirt (*Styela plicata*): Identified as an invasive species that competes with native marine organisms for space and resources, potentially altering local ecosystems.
- Vase Tunicate (*Ciona intestinalis*): Commonly found in fouling communities, attaching to various submerged surfaces.
- Red-rust Bryozoan (*Watersipora subtorquata*): Known for its tolerance to antifouling measures and rapid colonization of submerged structures.



#### Algae (Soft Fouling):

- Sea Lettuce (*Ulva spp.*): Rapidly colonizes available surfaces in nutrient-rich waters, contributing to soft fouling layers.
- Red Algae (*Polysiphonia spp.*): Commonly found in fouling communities, attaching to various submerged surfaces.
- Brown Filamentous Algae (*Ectocarpus spp.*): Forms tufts on submerged structures, particularly in nutrient-rich environments.

#### Microbial Biofilms:

- Bacteria (*Pseudomonas spp.*, *Vibrio spp.*, *Shewanella spp.*): These bacteria are known to form biofilms on submerged surfaces, initiating the biofouling process.
- Diatoms (*Navicula*, *Amphora*): Common early colonizers that form biofilms, providing a foundation for more complex fouling communities.

#### Other Fouling Organisms:

- Australian Spotted Jellyfish (*Phyllorhiza punctata*): Known to occur in Australian waters, including areas around Sydney.
- Skeleton Shrimp and other Crustaceans (*Caprella spp.*): Commonly found in fouling communities, attaching to various submerged surfaces.

The operation of a seawater cooling system in Sydney Harbour presents potential for biofouling, particularly due to the region's temperate marine environment, nutrient availability, and the presence of both native and non-native fouling organisms. The accumulation of biological material on submerged infrastructure can significantly affect the hydraulic performance of the system, with implications for efficiency, reliability, and maintenance frequency. The following outlines the key areas where biofouling may impair flow efficiency within the system:

- Inlet screens and grates are at high risk of obstruction due to rapid colonisation by barnacles, mussels, ascidians, and macroalgae. Fouling reduces open flow area, restricts water intake, increases pump load, and can cause complete blockages during bloom events.
- Internal piping is affected by microbial biofilms and hard-fouling organisms like tube worms and bryozoans. These reduce internal diameter and increase friction losses, leading to decreased flow rates and possible microbially induced corrosion (MIC).
- Filters and strainers are prone to clogging from suspended biomass, algae, and jellyfish, resulting in increased backpressure and potential system shutdowns. Frequent cleaning or backflushing is often required to maintain performance.
- Heat exchanger surfaces suffer reduced thermal efficiency due to biofilm formation and calcareous fouling, which insulate surfaces and impair heat transfer. This can lead to overheating, reduced cooling performance, and long-term material degradation.
- Outlet pipes, while less prone to obstruction, can accumulate soft fouling due to warm water discharge, reducing flow velocity and potentially enabling backflow of fouling organisms into the system.

Overall, biofouling in Sydney Harbour poses a risk to the flow efficiency of seawater cooling systems. Key impacts include flow restriction, thermal inefficiency, increased energy use, and higher maintenance frequency—particularly at inlets, filters, and heat exchangers.



Sydney Harbour is a well-connected and heavily trafficked marine environment, increasing the risk of both introducing new biofouling species and exporting existing ones to nearby coastal ecosystems. The movement of vessels, floating infrastructure, and water through industrial system can serve as effective vectors for the dispersal of marine organisms, including invasive or opportunistic biofouling species (DPI, 2023).

Inward transport of non-native species occurs primarily via hull fouling and ballast water discharge from domestic and international vessels entering the harbour. Once established on hard infrastructure—such as intake pipes, screens, and pilings—these species can rapidly colonise and become part of the local fouling community. Species such as the Pleated sea squirt, clubbed tunicate, colonial ascidian, and vase tunicate have already been introduced to Australian waters and are well-established in Sydney Harbour. Their continued dispersal is likely if suitable substrates and hydrological conditions are present (Pollard & Pethebridge 2002).

Outward transport of fouling organisms from Sydney Harbour is also a significant concern. Fouling biomass dislodged during maintenance, or larvae released from established biofouling communities, may be dispersed by tidal currents or vessel movement into adjacent estuarine or coastal systems. This poses ecological risks, including competition with native species, habitat modification, and disruption of trophic dynamics. Mobile or reproductive stages of invasive ascidians, bryozoans, or macroalgae may settle in previously unaffected areas, accelerating regional spread.

Industrial systems such as seawater cooling infrastructure may unintentionally facilitate this risk. For example, biofouled material flushed during maintenance can introduce propagules into the receiving environment. Likewise, thermal discharge zones may create favourable conditions (e.g., elevated temperature, reduced predation) that promote the survival and proliferation of invasive or cryptogenic species. These thermal microhabitats may act as stepping stones for further colonisation, especially in nearby marinas, aquaculture facilities, and natural reefs.

## 6.2 Biofouling Mitigation

To minimise the risk of biofouling in a harbour seawater cooling system the following mitigation measures are recommended:

### Apply Anti-Biofouling Coatings

- Use silicone-based foul-release coatings or copper-based antifouling paints on submerged infrastructure.
- Target high-risk areas such as intake pipes, screens, and heat exchanger surfaces.
- Ensure coatings are environmentally compliant and suitable for local fouling organisms.
- Reapply coatings during scheduled maintenance cycles.



### Conduct Routine Inspections and Cleaning

- Perform regular inspections of intake structures, pipelines, and heat exchangers using divers or ROVs.
- Monitor flow rates and differential pressures to detect early fouling.
- Use mechanical or chemical cleaning methods (e.g. pigging, hydroblasting, chlorination) as needed.
- Dispose of removed biofouling material in a biosecure manner.

### Incorporate Filters and Physical Barriers

- Install coarse screens or trash racks at the intake to block larger organisms and debris.
- Use fine-mesh wedge wire screens or drum filters to intercept larvae and algae.
- Add secondary strainers upstream of sensitive equipment.
- Design filter cleaning and waste disposal processes to prevent ecological spread.

### Implement Water Quality Monitoring and Control

- Monitor parameters like temperature, turbidity, and nutrient levels to anticipate biofouling risk.
- Apply intermittent chlorination or biocide dosing (if permitted) to control biofilms and larvae.
- Consider periodic thermal treatment (hot water flushing) to remove internal fouling.
- Use automated systems to detect abnormal flow or pressure changes.

### Optimise System Design and Operation

- Maintain internal water velocities above 1.5 m/s to discourage settlement.
- Design piping with smooth internal surfaces to limit adhesion.
- Include redundancy (e.g. multiple intakes) to allow maintenance without shutdown.
- Avoid thermal discharge conditions that create favourable environments for fouling.



## 7. Corrosion Risk Assessment

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Corrosion is a concern for marine infrastructure due to the aggressive chemical and electrochemical nature of seawater. When metallic systems such as pipelines, pumps, or structural supports are exposed to seawater, electrochemical reactions can occur at the metal surface, leading to material degradation. This degradation not only threatens the mechanical integrity and operational reliability of the infrastructure but can also impact water quality by introducing dissolved metals and particulates into the system (Melchers & Jeffrey, 2005).

The corrosion process in marine environments is influenced by several factors, including oxygen availability, water salinity, flow rate, temperature, and biofouling. One particularly severe form of degradation is microbiologically influenced corrosion (MIC), which occurs when microorganisms such as sulfate-reducing bacteria accelerate localised corrosion processes. MIC can lead to pitting and crevice corrosion, which are challenging to detect and mitigate using standard inspection methods (Little & Lee, 2007). In addition, material-environment interactions—especially under conditions of cyclic wetting, oxygen gradients, and varying water chemistry—can further amplify the corrosion rate (Shifler, 2005).

### 7.1 Corrosion Impacts

The potential for corrosion in marine infrastructure can be evaluated using baseline measurements of key seawater parameters. The likelihood and extent of corrosion in marine environments are strongly influenced by temperature, conductivity, pH, turbidity, salinity, and dissolved oxygen. Elevated temperatures typically accelerate corrosion by increasing the rate of electrochemical reactions at the metal surface. High conductivity, resulting from increased ionic content, enhances the movement of charged particles, promoting faster corrosion processes. A shift in pH toward more acidic conditions can destabilise protective oxide layers on metal surfaces, increasing susceptibility to attack. Turbidity, caused by suspended solids, can lead to under-deposit corrosion by creating localised areas with restricted oxygen flow. Higher salinity levels, particularly the presence of chloride ions, are known to aggressively compromise passive films, encouraging pitting and crevice corrosion. Lastly, dissolved oxygen plays a direct role in cathodic reactions; while moderate oxygen levels sustain corrosion, uneven oxygen distribution can trigger localised corrosion through differential aeration.

Corrosion of marine infrastructure not only threatens structural integrity but also poses a risk to surrounding ecosystems through the release of corrosion-related pollutants. As metallic components degrade, they can leach metals such as iron, zinc, copper, nickel, and chromium into the water column. These metals, especially when present in elevated concentrations or bioavailable forms, can be toxic to marine organisms, affecting processes such as respiration, reproduction, and growth. For example, copper and zinc—commonly used in alloys and anti-fouling coatings—are known to be harmful to phytoplankton and invertebrates at relatively low concentrations. Furthermore, localised corrosion such as pitting or crevice attack can create concentrated plumes of metal ions near the infrastructure, intensifying ecological impacts in benthic and nearshore environments. The potential for pollutant release is influenced by factors such as water chemistry, flow dynamics, and the type of alloy or coating used. Without proper material selection and corrosion control, infrastructure deterioration can act as a



chronic source of metal contamination, contributing to long-term environmental degradation in marine systems.

## 7.2 Corrosion Mitigation

To minimise the risk of corrosion in a harbour seawater cooling system the following mitigation measures are recommended:

### Material Selection

Use corrosion-resistant materials such as:

- Duplex stainless steels
- Titanium alloys
- Non-metallic options like high-density polyethylene (HDPE) or polyvinyl chloride (PVC)
- Match material choice to specific environmental conditions (e.g., salinity, temperature, flow rate).

### Protective Coatings and Barriers

Apply coatings to isolate metal surfaces from seawater exposure, such as:

- Epoxy or polyurethane coatings
- Fusion-bonded epoxy (FBE) for pipelines
- Thermal spray coatings (e.g., aluminum or zinc)
- Use anti-fouling coatings to minimise biofouling-related corrosion.

### Cathodic Protection Systems

- Implement sacrificial anode systems (e.g., zinc, magnesium) for passive protection.
- Use impressed current cathodic protection (ICCP) for larger or critical structures.

### Routine Maintenance and Monitoring

- Conduct regular inspections and surface condition assessments.
- Perform wall thickness measurements and corrosion rate monitoring (e.g., via probes or coupons).
- Monitor key water quality parameters (e.g., pH, salinity, dissolved oxygen) to anticipate changes in corrosion risk.
- Keep detailed records of maintenance and inspection results for trend analysis and early intervention.



## 8. Environmental Impacts and Mitigations

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The methods which are most likely to be used in the construction of the seawater cooling system have been outlined in Section 1.2. The following impact assessment is based on the general impacts of the proposed construction methods.

The spatial extent of identified impacts depends upon the mechanism of impact and whether the impact is appropriately mitigated. For example, debris from pipework installation would likely only fall within a few metres of the work site, whereas underwater noise from the same task could potentially propagate up to hundreds of metres. Estimates for the spatial extent of impacts are provided for each impact below.

### 8.1 Site 1 – White Bay 5

#### 8.1.1 Construction

The proposed construction methods for the seawater cooling system at Site 1 could potentially generate several short-term environmental impacts which may affect local marine ecological communities. The impacts differ slightly depending on the construction method used to install pipework through the caisson wall, namely option (1) underwater drilling using divers and (2) drilling from inside the caisson.

Where appropriate, mitigation measures are discussed in Section 8.1.3. Potential impacts include:

#### **Direct Impacts to Biota**

##### Localised Benthic Invertebrate Mortality

During installation of pipework, vessels may be required to support diving operations. Anchoring associated with this activity could result in mortality of benthic infauna where anchors and chains contact the seabed. This potential impact area is estimated to be up to 20 m radius of the work site. Soft sediment benthic habitats are classified as Type 3 key fish habitat under the FM Act and are therefore considered low value. Once works are complete, infauna communities will likely recolonise anchor scars and fully recover. Additionally, similar benthic habitat is widely available within White Bay and the wider estuary, suggesting that local impacts will be negligible on a broader scale.

##### Localised Sessile Invertebrate Mortality

During the preparation of the caisson wall for pipework installation, activities such as surface cleaning, drilling, and excavation will result in the removal of sessile invertebrates attached to the wall. These organisms, including sponges, mollusks, and ascidians, are unable to relocate and will likely suffer mortality due to physical disturbance and habitat loss. The area of surface to be cleaned could be up to 5 m<sup>2</sup>. Artificial structures such as caisson walls are not classified as key fish habitat under the FM Act, and sessile invertebrate communities inhabiting these surfaces are considered to have low ecological value compared to natural habitats. Once construction is complete, recolonisation by sessile invertebrates on newly exposed surfaces is



expected to occur rapidly. Given the availability of similar artificial habitats within White Bay, impacts are likely to be highly localised and negligible at a broader ecological scale.

## **Reduction in Available Marine Habitat**

### **Removal of Seawall Habitat**

The installation of pipework through the caisson wall will require excavation and drilling activities that reduce the amount of artificial habitat available on the seawall. The reduction in habitat is likely to be less than 2 m<sup>2</sup> given the planned size of the pipework. However, the extent of undisturbed seawall habitat around the installation location is significant, and removal of attached biota is unlikely to impact the overall community. Artificial habitats such as seawalls are not classified as key fish habitat under the FM Act.

## **Adverse Habitat Modification**

### **Benthic habitat**

Physical disturbance and increased sedimentation from construction activities, such as anchoring, have the potential to degrade benthic aquatic vegetation, including seagrass or macroalgae beds. These impacts could occur through smothering of vegetation by sediment deposition or reduced light intensity caused by elevated turbidity levels if sustained for longer periods. However, no benthic aquatic vegetation was observed during site inspections or underwater surveys conducted at Site 1, and no such vegetation has been mapped at this site by NSW DPIRD. Sensitive habitats such as seagrass beds are not present in the vicinity of Site 1, and no impacts on benthic aquatic vegetation are expected.

### **Water Quality**

#### *Turbidity and Contaminant Release from Sediment Resuspension or Increased Tidal Flux*

Construction activities such as coring through the caisson wall, may generate localised short-term increases in turbidity due to sediment resuspension. Additionally, during excavation of material from the caisson, tidal flux may be enhanced due to the sudden availability of empty space on the landward side. If any contamination exists within or around the caisson, it is possible that transport of this contamination could be increased to the surrounding waters.

The disturbance of contaminated sediments can release heavy metals or other pollutants into the water column. Elevated turbidity levels can degrade water quality by reducing light penetration, smothering benthic habitats, and affecting aquatic organisms such as fish, algae, and invertebrates. While the soft sediment bottom at Site 1 is classed as a Type 3 key fish habitat, resuspension of significant sediment contamination could result in localised impacts on aquatic ecology. Given the temporary nature of these activities and the spatially confined extent of potential sediment resuspension, the consequences of this impact are assessed as minor and would likely be localised to within 30 m of the task location.



### *Pollution from Wastewater Discharges*

Wastewater generated during construction activities, including runoff from equipment cleaning, dewatering processes, and vessel operations, may introduce pollutants such as oils, grease, or suspended solids into White Bay. These discharges can degrade water quality by increasing turbidity and introducing toxins harmful to aquatic organisms. Marine pollution is identified as a key threatening process under the EPBC Act. With appropriate mitigation, pollution caused by wastewater is avoidable.

### *Pollution from Waste Disposal*

During construction activities, accidental or deliberate disposal of waste, including construction debris or general waste, may result in the introduction of pollutants into the marine environment. Such waste can include plastics, hydrocarbons, or other materials that degrade water quality by increasing turbidity and introducing toxins harmful to aquatic organisms. Marine pollution is identified as a key threatening process under the EPBC Act. Given the potential for these discharges to degrade local water quality and affect aquatic ecosystems, the consequences of this impact are assessed as moderate but with appropriate mitigation, the likelihood of such pollution is very low.

## Sediment Quality

### *Deposition of Construction Debris*

The installation of pipework through the caisson wall will generate waste material such as excavated sediments and concrete fragments. These materials may contain contaminants like hydrocarbons or heavy metals that could leach into surrounding sediments if not properly managed. The physical presence of debris can smother benthic habitats, reducing biodiversity and altering sediment composition. Soft sediment habitats at Site 1 are classified as Type 3 key fish habitat under the FM Act. Marine debris is identified as a key threatening process for this project under the EPBC Act (see Section 3.6.4). Given the limited spatial extent of debris deposition (less than 5 m of the work site) and the likely small quantity of material, the consequences of this impact are assessed as minor and highly localised.

## Underwater Noise and Vibration

### *Noise Impacts on Marine Fauna*

Construction activities such as drilling and cutting through the caisson wall and sheet piling inside the caisson may generate significant underwater noise. Underwater noise such as this propagates efficiently through water and has the potential to disturb marine fauna over a wide area. Species sensitive to sound pressure, such as fish and marine mammals, may experience behavioural changes, displacement, or even hearing damage if exposed to high-intensity noise levels for extended periods. Vibrations from construction activities or other mechanical processes within the caisson, can also transmit through the structure into the water column, potentially propagating over large distances. If present, marine mammals such as seals or dolphins may exhibit avoidance behaviours in response to elevated underwater noise levels during construction. Prolonged exposure to high-intensity noise could result in auditory masking, which interferes with their ability to communicate or detect prey. The nature of



underwater noise generated during construction could temporarily alter the acoustic environment of White Bay ("soundscape"), potentially affecting marine mammal behaviour. The spatial limits of soundwave propagation are difficult to estimate without sophisticated modelling, but a reasonable estimate would be that sound pressure levels would be damaging to sensitive species within a few meters of the drilling, disturbing within ten meters and audible to marine mammals up to hundreds of meters away. Given the temporary nature of construction activities, the short duration of the noise generating activities, the limited presence of marine mammals and the availability of alternative habitats in White Bay, the consequences of this impact on marine mammals are assessed as minor and localised.

Underwater noise may cause behavioural changes or displacement in endangered species such as White's Seahorse and Black Rock Cod, if present, as both are sensitive to sound pressure. However, neither White's Seahorse nor Black Rock Cod were observed during the marine ecology survey at Site 1, and the habitat in the area is not generally suitable for these species due to the flat seawall structure and lack of macroalgae or complex reef features typically required for shelter and foraging. Given the absence of suitable habitat and the unlikelihood of these species occurring at Site 1, the consequences of this impact are also assessed as negligible.

### Release of Microplastics and Chemical Residues

During construction activities, materials used in the installation of pipework, such as plastic-based components and construction coatings, may inadvertently release microplastics or chemical residues into the marine environment. These pollutants can enter the water column through abrasion, fragmentation, or leaching during construction processes. Microplastics can persist in the ecosystem for extended periods, posing risks to marine organisms through ingestion, which may lead to physical harm or reduced feeding efficiency. Chemical residues, such as biocides from paints or coatings, can introduce toxicity into the environment, potentially affecting aquatic biota at various trophic levels. Marine pollution is listed as a key threatening process under the EPBC Act. Given the persistence and bioaccumulation potential of these pollutants, their long-term consequences could include subtle but widespread impacts on ecosystem health and function. Given the small scale of infrastructure modification on the seaward side of the caisson, with appropriate mitigation the impact of these activities is likely to be very minimal.

### Introduced Species

It is possible that marine infrastructure at Site 1 currently host introduced pest species like the Pacific Oyster (*Crassostrea gigas*) and Pleated sea squirts. According to the planned construction methodology, invasive species could be dispersed during processes such as surface preparation on the seaward side of the caisson, potentially facilitating their spread within White Bay. Although no pest species were identified in the marine ecology component of this study, Section 3.6.4 identifies introduced species as a potential key threatening process for this project. Mitigation measures should be followed to ensure the spread of introduced species within White Bay is limited.



## Threatened and Protected Species

Construction activities are not expected to impact threatened or protected species of flora or fauna at Site 1. No aquatic vegetation protected under the FM Act was observed during site inspections or underwater surveys. Two endangered species, White's Seahorse and Black Rock Cod, have the potential to occur in the area. However, the habitat recorded at Site 1, consisting primarily of flat seawall with limited structural complexity and no macroalgae, is deemed unsuitable for both species. Consequently, it is highly unlikely that these species would be present at the site, and no impacts on threatened or protected species are anticipated.

### 8.1.2 Operation

The operation of the seawater cooling system at Site 1 in White Bay is expected to generate several environmental impacts, particularly thermal effects on the marine environment. Below is a detailed description of these impacts based on the hydrodynamic modeling results and general considerations:

#### Direct Impacts to Biota

##### Behavioural Changes in Mobile Fauna

Mobile marine species such as fish may avoid areas affected by elevated temperatures within the thermal plume due to discomfort or altered environmental conditions. The expected temperature differential, however, is small (max 5°C at the outlet and 1°C within 5 metres) and does not exceed seasonal variability which can be up to ten degrees. So, temperatures in the thermal plume are likely to be within the tolerance limits of most species in this area. Given the rapid reduction of plume temperature to ambient levels and, the availability of unaffected habitats nearby, displacement effects are expected to be minimal. The consequences of this impact are assessed as minor.

##### Entrainment of Marine Fauna

The intake of seawater for cooling operations has the potential to entrain small marine organisms such as fish larvae, plankton, and other juvenile species. Entrainment occurs when these organisms are drawn into the intake system along with seawater, leading to physical injury or mortality due to mechanical stress or exposure to elevated temperatures within the cooling system. The extent of entrainment impacts depends on factors such as intake design and velocity, seasonal variations in biological activity, and proximity to larval production zones or plankton blooms. Larger mobile species typically avoid intake structures; however, smaller or less motile organisms are more vulnerable, which could result in localised reductions in populations of certain species with limited dispersal capacity or high site fidelity. Given these considerations and the localised nature of entrainment impacts, and assuming mitigation measures are in place, consequences are assessed as low and confined to a very small area near the intake. No threatened or protected species listed under the FM Act are expected to be at risk of entrainment.



## **Adverse Habitat Modification**

### Thermal Impacts

#### *Localised Temperature Increase*

The discharge of heated water from the seawater cooling system into the marine environment creates a thermal plume, which results in localised temperature increases. Hydrodynamic modelling indicates that the temperature within the plume decreases to 1°C above background levels within 5 m of the outfall, 0.5°C above background levels within 15 m, and 0.2°C above background levels within 45 m. The thermal plume reaches a maximum width of 7.5 m and remains confined, without interacting with surrounding vessels or infrastructure. Elevated temperatures within the plume area may affect thermally sensitive marine organisms, including fish, algae, and invertebrates. Impacts could include altered metabolic rates, changes in reproductive cycles, or displacement from preferred habitats. Given the rapid dissipation of heat and the limited spatial extent of the plume, the consequences of this impact are assessed as minor and localised.

#### *Hydrodynamic Effects*

The operation of the cooling system may alter hydrodynamic conditions near the outfall. While no short-circuiting between the intake and outfall was detected in hydrodynamic modelling at Site 1, ensuring warm water does not recirculate into the system, localised flow alterations may occur near the outfall due to heated water discharge. These changes could influence small-scale hydrodynamic patterns, potentially affecting localised water movement. Given the confined nature of these effects, and the low value habitat provided by the seawall, the consequences are considered minor.

#### *Thermal Stratification*

The discharge of heated water may contribute to temporary thermal stratification in localised areas near Site 1. Stratification can affect dissolved oxygen levels and nutrient cycling by creating distinct temperature layers in the water column that limit vertical mixing. These changes could influence aquatic ecosystems by altering habitat conditions for certain species or affecting primary productivity rates. However, given that stratification effects are expected to be confined spatially and dissipate rapidly due to hydrodynamic conditions at White Bay, consequences are assessed as minor and localised.

## **Reduction in Available Marine Habitat**

### Benthic Habitat

The thermal plume generated by heated water discharge may indirectly affect benthic habitats and infauna communities by altering water temperature near the seabed. Thermally sensitive benthic organisms could experience stress or reduced diversity due to prolonged exposure to elevated temperatures. However, modelling results indicate that the thermal plume will dissipate rapidly and as temperatures within the plume are higher than ambient, warm water from the outfall will be more buoyant than the surrounding waters. The height of the planned seawater outlet from the seabed also reduces likelihood of the thermal plume coming in to



contact with the bottom. Impacts are therefore expected to be localised due to rapid temperature dissipation and minimal interaction with benthic environments. The consequences of this impact are assessed as minor.

### Sessile Organisms

Sessile organisms located near the outfall may be exposed to elevated temperatures for extended periods, which could impact their growth rates or survival. While sessile species are unable to relocate from affected areas, their exposure is limited by the confined spatial extent of the thermal plume. Given these factors, impacts on sessile organisms are expected to be minor and localised.

### 8.1.3 Mitigations

Below is a comprehensive mitigation plan to address the potential impacts identified during the construction and operational phases at Site 1. Each mitigation measure is tailored to reduce the likelihood and/or severity of impacts for each impact pathway.

#### Construction Phase

##### Direct Impacts to Biota

###### *Localised Sessile Invertebrate Mortality*

To reduce impacts on sessile invertebrates during caisson wall preparation, construction activities should be limited to the smallest area necessary for pipework installation. Habitat enhancement measures such as installing textured surfaces to promote attachment may be considered as an ecologically positive initiative following construction.

##### Reduction in Available Marine Habitat

###### *Removal of Seawall Habitat*

To mitigate habitat loss from excavation and drilling on the seawall, construction should avoid unnecessary disturbance to adjacent areas. Post-construction habitat enhancement measures, such as installing artificial reef modules or textured surfaces, may be considered as an ecologically positive initiative, this could offset habitat loss and promote recolonisation of sessile organisms.

##### Adverse Habitat Modification

###### *Turbidity and Contaminant Release from Sediment Resuspension*

Whilst caisson excavation is occurring, if there is a risk of sediment resuspension under the caisson unit, silt curtains should be deployed around the work area to contain sediment resuspension and prevent contaminants from dispersing into White Bay. Water quality monitoring should be conducted regularly from the wharf during construction to ensure turbidity levels remain within acceptable limits as seen in Table 5-1.



### *Pollution from Wastewater Discharges*

To prevent water quality impacts associated with dewatering or tidal flux within the caisson, several mitigation measures should be employed. Once caisson excavation has begun, water chemistry testing for hydrocarbons and heavy metals should be undertaken. If contamination is found above ANZG (2018) guideline values for marine waters, a water treatment unit should be used to apply filtration, chemical treatment, and oil-water separation as required.

If no chemical contamination is detected, prior to discharging water into the harbour, it must still be tested for turbidity and acidity levels to ensure compliance with ANZG (2018) guidelines. If elevated turbidity is detected, filtration will be required prior to returning the water to the harbour.

If the water within the caisson is found to have an altered pH during dewatering, mitigation measures should be implemented to adjust the pH before returning the water to the harbour. A suitable water treatment unit should be used to adjust the pH. After pH adjustment, treated water should be tested again to verify that it falls within permissible ranges (typically between 6.5 and 8.5 for marine environments). Continuous monitoring during discharge ensures that any deviations are detected promptly and corrected.

Monitoring protocols should be established to continuously assess water quality during dewatering operations, ensuring that any unexpected changes are identified and addressed promptly.

Runoff from equipment cleaning should be collected and treated before discharge into White Bay. Spill kits should be made available on-site, and all contractors must follow strict protocols for handling oils and grease to prevent accidental pollution.

### *Pollution from Waste Disposal*

Construction waste management plans should be implemented to prevent accidental or deliberate disposal of waste into the marine environment. Waste materials must be stored securely on land until properly disposed of at approved facilities. Regular site inspections should ensure compliance with waste management protocols. Sediments excavated from the caisson should be tested for contamination. If detected, sediments should be removed and disposed of at approved waste management facilities.

### *Deposition of Construction Debris*

During coring of the caisson seawall, external catchment devices such as plates should be used if drilling from the inside. This will prevent debris entering the water column and settling on the seabed. If drilling is occurring from the outside, a submersible suction dredge should be used, if practical, to collect debris. Any matter collected during construction must be disposed of at approved facilities.



## Underwater Noise and Vibration

### *Noise Impacts on Marine Fauna and Marine Mammals*

To minimise underwater noise impacts during construction activities such as drilling and sheet piling within the caisson, noise-reducing technologies (e.g., mufflers or dampening systems) should be employed on machinery where feasible. Personnel should monitor for the presence of marine mammals entering the area, and if any sightings are made, noise producing activities should be temporarily halted until the animals have left the area. Where possible a soft start of machinery should be employed to provide mobile fauna the opportunity to move away from the sound source.

### *Release of Microplastics and Chemical Residues*

Plastic-based components and coatings used in construction must meet stringent durability standards to reduce fragmentation or leaching into the marine environment. Biocide-free coatings should be prioritised wherever possible. Components should be inspected during installation to ensure that any plastics or chemicals are not being inadvertently abraded into the marine environment.

## Introduced Species

To prevent the spread of invasive species, specific action should be taken for each species identified as occurring or possibly occurring on the caisson wall. If removal of oysters is required, biological debris should be collected with a submersible suction dredge to prevent dispersion of the Pacific Oyster (*Crassostrea gigas*). Surface preparation activities on the caisson wall should include an inspection for the Pleated Sea Squirt in affected areas. If any are found, they can be removed manually by divers and collected for disposal on land. Surface preparation can then proceed in the usual fashion.

## Operational Phase

### Direct Impacts to Biota

#### *Behavioural Changes in Mobile Fauna*

To ensure impacts from elevated temperatures within the thermal plume are consistent with expectations, a validation program should be implemented to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.

#### *Entrainment of Marine Fauna*

Intake structures must include screens or barriers designed to minimise the entrainment of small organisms while maintaining operational efficiency. To comply with NSW Fisheries fish screen best practice guidelines (Boys, 2021), screens should be designed with mesh sizes small enough to prevent juvenile fish, larvae, and plankton from passing through while allowing adequate water flow. The guidelines recommend that approach velocities at the intake should not exceed 0.1–0.15 m/s to ensure that fish can swim away from the screen without becoming impinged or trapped. Additionally, sweeping flows parallel to the screen should be



maintained to guide organisms safely past the intake structure, reducing the likelihood of injury or mortality.

To further mitigate entrainment impacts, screens should incorporate self-cleaning mechanisms to prevent debris accumulation, which can hinder performance and increase the risk of impingement. Regular maintenance and monitoring of intake structures are essential to ensure compliance with these standards and to adapt operations based on seasonal variations in biological activity, such as larval production or plankton blooms.

## Adverse Habitat Modification

### *Thermal Impacts (Localised Temperature Increase)*

To ensure thermal impacts from heated water discharge, are as expected, a validation program should be implemented when one berth is operating at its peak to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.

## Reduction in Available Marine Habitat

### *Impacts on Benthic Habitat and Sessile Organisms*

To minimise thermal impacts on benthic habitats and sessile organisms near the outfall, discharge points should be positioned as high as possible to reduce direct contact between warm water plumes and the seabed.

## 8.2 Site 2 – White Bay 6

### 8.2.1 Construction

#### **Direct Impacts to Biota**

##### **White's Seahorse Mortality**

Construction activities at Site 2, including drilling and pipe installation, have the potential to impact White's Seahorses if they are present within the construction footprint. While marine ecology surveys did not confirm their presence, the structural complexity of the rock revetment and extensive macroalgae coverage provide suitable habitat for this endangered species. Physical disturbance during construction could result in mortality or displacement of individuals due to habitat removal or direct interaction with construction equipment. Additionally, noise and vibration generated during drilling may cause stress or behavioural changes in White's Seahorses, potentially affecting their ability to feed or reproduce. Given the ecological importance of this species and its reliance on structurally complex habitats, construction activities pose a risk of localised reduction in White's Seahorse populations if they occur within the footprint. As this species is endangered and protected under the EPBC Act, mitigation measures must be followed to prevent the occurrence of this serious potential impact.



### Localised Sessile Invertebrate Mortality

During the installation of the slide rail and associated intake and outlet pipework, physical disturbance to the rock revetment may result in the removal or destruction of sessile invertebrates attached to the substrate. These organisms, including oysters and encrusting sponges, are unable to relocate and will likely suffer mortality due to drilling, excavation, and pipe placement activities. The rock revetment at Site 2 is classified as Type 2 key fish habitat under the FM Act, highlighting its ecological importance. Due to the small footprint of piping and slide rail infrastructure, sessile invertebrate communities are expected to recolonise the disturbed patches areas over time. Their loss during construction represents only a very minor localised impact on the intertidal community.

### Localised Macroalgae Loss

The installation works will also disturb macroalgae communities, including habitat-forming species such as *Ecklonia radiata* and *Sargassum spp.* These species provide structural complexity and shelter for marine fauna, including fish such as Eastern hulafish. Removal or damage to macroalgae during construction activities will temporarily reduce habitat availability for dependent species. Given the extensive macroalgae coverage across the rock revetment, impacts are expected to be spatially confined and recolonisation would be rapid.

## Reduction in Available Marine Habitat

### Removal of Rock Revetment Habitat

The physical installation of the intake and outlet pipes will require drilling into the rock revetment, resulting in permanent removal of small sections of habitat. This habitat supports diverse epibiotic communities and provides shelter for fish species such as Yellowfin Bream and Eastern hulafish. While the extent of habitat removal is limited to the small pipe installation zones, it represents a permanent reduction in available habitat within a Type 2 key fish habitat.

## Adverse Habitat Modification

### Water Quality

#### *Turbidity from Sediment Resuspension*

Drilling into the rock revetment and positioning pipework will disturb sediments trapped within crevices, generating localised increases in turbidity. Elevated turbidity levels can degrade water quality by reducing light penetration, smothering nearby macroalgae, and affecting filter-feeding organisms such as oysters and sponges. Sediment resuspension may also release contaminants into the water column if pollutants are present within trapped sediments.

#### *Pollution from Wastewater Discharges*

Wastewater generated during construction activities, including runoff from equipment cleaning, has the potential to introduce pollutants such as oils, grease, or suspended solids into the



marine environment. These discharges can degrade water quality by increasing turbidity and introducing toxins harmful to aquatic organisms.

## **Underwater Noise and Vibration**

### **Noise Impacts on Marine Fauna**

Construction activities such as drilling into the rock revetment generate significant underwater noise that propagates efficiently through water. Species sensitive to sound pressure, such as fish and potentially present endangered species like Black Rock Cod or White's Seahorse, may experience behavioural changes or displacement due to elevated noise levels. Vibrations transmitted through the substrate may also stress sessile organisms unable to escape affected areas. While impacts are expected to be temporary during construction, they could alter local species distributions over short periods.

### **Introduced Species**

Construction activities on the rock revetment may facilitate the spread of invasive species potentially present at Site 2, such as Pacific Oyster. Surface preparation works could dislodge invasive organisms attached to rocks, dispersing them into surrounding waters where they may colonise new areas.

### **Threatened and Protected Species**

Construction activities at Site 2 are not expected to significantly impact threatened or protected species of flora or fauna. Macroalgae observed at Site 2, including *Ecklonia radiata* and *Sargassum spp.*, are not individually protected under the FM Act. Nevertheless, the habitat has been conservatively classified as a Type 2 key fish habitat due to its ecological significance and potential to support threatened species. This precautionary approach ensures that any potential impacts are adequately managed and mitigated. While the rock revetment provides suitable habitat for the two identified endangered species namely, White's Seahorse and Black Rock Cod, neither species was observed during the marine ecology surveys. Their presence at Site 2 is therefore speculative but possible. Mitigation measures should be followed to reduce the potential for impacts on these species.

## **8.2.2 Operation**

### **Direct Impacts to Biota**

#### **Behavioural Changes in Mobile Fauna**

The operation of the seawater cooling system at Site 2 will discharge heated water into the marine environment, creating a thermal plume that may alter habitat conditions for mobile marine species such as Yellowfin Bream, Eastern hulafish and potentially, if present, White's Seahorse and Black Rock Cod. Hydrodynamic modelling indicates that the temperature within the plume reaches 1°C above background levels within 10 m of the outfall, with the 0.5°C above background contour extending up to 40 m away. Over a single tidal cycle, the heated water plume circulates throughout the bay to the west of the outfall, raising the temperature



of the bay by between 0.2°C and 0.5°C. Additionally, some short-circuiting between the outfall and intake was detected, resulting in elevated background temperatures that require the system to operate at higher capacity to compensate, further contributing to thermal accumulation within the bay.

The limited tidal prism of the bay, combined with the discharge volume exceeding tidal exchange capacity over a single tidal cycle, increases the potential for accumulation of heated water. This effect could be exacerbated if system capacity is increased in the future compared to what has been modelled. Elevated temperatures throughout the bay may disrupt behavioural patterns of mobile fauna, including avoidance behaviours or displacement from preferred habitats due to discomfort or altered environmental conditions. While alternative habitats are available nearby, prolonged exposure to elevated temperatures could lead to reduced habitat suitability for some species. Consequently, this impact is assessed as moderate and spatially extensive.

### Entrainment of Marine Fauna

The intake of seawater has the potential to entrain small marine organisms such as fish larvae, plankton, and other juvenile species. Entrainment occurs when these organisms are drawn into the intake system along with seawater, leading to physical injury or mortality due to mechanical stress or exposure to elevated temperatures within the cooling system. The extent of entrainment impacts depends on factors such as intake design and velocity, seasonal variations in biological activity, and proximity to larval production zones or plankton blooms. Larger mobile species typically avoid intake structures; however, smaller or less motile organisms are more vulnerable, which could result in localised reductions in populations of certain species with limited dispersal capacity or high site fidelity. Given these considerations and the localised nature of entrainment impacts, consequences are assessed as moderate but limited in scale.

## Reduction in Available Marine Habitat

### Impacts on Macroalgae Communities

The thermal plume generated by heated water discharge may indirectly affect macroalgae communities near the outfall by altering water temperature. Habitat-forming species such as *Ecklonia radiata* and *Sargassum spp.* may experience stress or reduced growth rates due to prolonged exposure to elevated temperatures. These macroalgae provide structural complexity and ecological functions for dependent marine fauna. While impacts are expected to be very localised due to plume trajectory, they could temporarily reduce habitat quality for associated species. The consequences of this impact are assessed as minor.



## Adverse Habitat Modification

### Thermal Impacts

#### *Localised Temperature Increase*

The discharge of heated water from the seawater cooling system at Site 2 creates a thermal plume that results in localized and broader temperature increases within the marine environment. Unlike Site 1, where thermal impacts are confined to a small area near the outfall, Site 2 experiences broader thermal effects due to limited tidal exchange within the bay. Elevated temperatures may affect thermally sensitive marine organisms such as fish, algae, and invertebrates by altering metabolic rates, reproductive cycles, or habitat suitability. Given these broader thermal effects and potential for accumulation within the bay, consequences are assessed as moderate and spatially extensive.

### Hydrodynamic Effects

#### *Localised Flow Alterations*

The discharge of heated water at Site 2 creates localized changes in hydrodynamic patterns near the outfall and throughout the bay. Modelling indicates that tidal exchange within the bay is insufficient to fully disperse discharged water over a single tidal cycle, leading to accumulation of heated water within this confined area. Short-circuiting between the intake and outfall further disrupts hydrodynamic balance by increasing background temperatures and potentially altering flow dynamics around both structures. These hydrodynamic changes may impact benthic habitats or nearby macroalgae communities by modifying local water movement patterns. Given these cumulative effects on flow dynamics and habitat conditions, consequences are assessed as moderate and spatially significant.

### Water Quality

#### *Thermal Stratification*

The discharge may contribute to temporary thermal stratification in localised areas near Site 2 by creating distinct temperature layers in the water column that limit vertical mixing. Such stratification can affect dissolved oxygen levels and nutrient cycling, potentially influencing aquatic ecosystems by altering habitat conditions for certain species or affecting primary productivity rates. Despite relatively shallow depths, stratification effects are expected to dissipate rapidly due to hydrodynamic conditions, consequences are therefore assessed as minor.

## 8.2.3 Mitigations

Below is a detailed mitigation plan to address the potential construction and operational impacts on the marine environment at Site 2. Each mitigation measure is tailored to reduce the likelihood and/or severity of impacts for each impact pathway.



## Construction Phase

### Direct Impacts to Biota

#### *White's Seahorse Mortality*

To ensure the protection of any White's Seahorses potentially present within the construction footprint, several mitigation measures should be implemented. Pre-construction surveys must be conducted by qualified marine ecologists to confirm the presence or absence of White's Seahorses in the area. These surveys should focus on areas of high structural complexity within the construction area, as these habitats are most likely to support this species. If White's Seahorses are detected, construction activities, such as drilling and pipe installation, should be timed to avoid sensitive periods for White's Seahorses, such as breeding seasons (October to March). Contractors should receive training on identifying White's Seahorses and understanding their ecological importance to ensure compliance with protection measures.

At the commencement of construction activities, marine ecologists are required to carefully relocate any White's Seahorses from the construction footprint to nearby suitable habitats outside the construction zone. This task should be performed on each day of marine construction, immediately prior to the commencement of works. Relocation should follow the methodology utilised in other successful initiatives such as the Eden Safe Harbour Project and the North Sydney Wharf Upgrade (Transport for NSW, 2022). A section 37 permit will be required under the FM Act for activities involving the collection, relocation, or possession of fish species which includes seahorses.

Post-construction monitoring should be conducted by a marine ecologist to assess the success of relocation efforts and detect any potential impacts to the local population.

#### *Localised Sessile Invertebrate Mortality*

To minimise mortality of sessile invertebrates during installation of the slide rail and associated pipework, construction activities should be confined to the smallest area necessary. Pre-construction surveys undertaken by marine ecologists should identify areas of high ecological value, allowing avoidance of particularly dense invertebrate communities, these surveys would be conducted prior to CEMP submission. Post-construction monitoring should assess recolonisation rates, and habitat enhancement measures (e.g., installing artificial substrates) could be implemented if recolonisation has not returned to pre-construction levels within 12 months.

#### *Localised Macroalgae Loss*

To reduce impacts on macroalgae communities, construction timing should avoid peak growth or reproductive periods for key species such as *Sargassum spp.* (late winter – spring). Physical disturbance should be minimised by using precision equipment during drilling and pipe placement. Any macroalgae removed during construction should be quantified by a qualified marine ecologist and compared with post-construction macroalgae recolonisation surveys. Post-construction monitoring should evaluate macroalgae recovery, and habitat restoration efforts may be considered if recovery is delayed.



## Reduction in Available Marine Habitat

### *Removal of Rock Revetment Habitat*

To mitigate the permanent loss of habitat caused by drilling into the rock revetment, habitat offsets could be implemented. This may include installing artificial reef structures or enhancing adjacent areas of the revetment to provide additional habitat complexity for marine organisms as an ecologically positive initiative. The extent of habitat loss should be minimised by optimising pipe and slide rail placement to reduce the footprint of construction activities.

## Adverse Habitat Modification

### *Turbidity from Sediment Resuspension*

To control sediment resuspension during drilling and pipe installation, submersible suction dredges should be deployed around the work area. Turbidity levels should be monitored regularly during construction to ensure they remain within acceptable limits as seen in Table 5-1. If elevated turbidity is detected as a result of the activities, activities must pause until conditions stabilise. Any sediments collected during construction must be disposed of at approved facilities.

### *Pollution from Wastewater Discharges*

Runoff from equipment cleaning should be collected and treated before discharge into White Bay. Spill kits should be made available on-site, and all contractors must follow strict protocols for handling oils and grease to prevent accidental pollution.

## Underwater Noise and Vibration

### *Noise Impacts on Marine Fauna and Marine Mammals*

To minimise underwater noise impacts during drilling, noise-reducing technologies (e.g., dampeners or mufflers) should be used on equipment where feasible. Personnel should monitor for the presence of marine mammals entering the area, and if any sightings are made, noise producing activities should be temporarily halted until the animals have left the area. Where possible a soft start of machinery should be employed to provide mobile fauna the opportunity to move away from the sound source.

Construction schedules should also avoid periods when sensitive species like Black Rockcod or White's Seahorse are most susceptible to disturbance (e.g., breeding seasons). Breeding seasons for Black Rockcod are not well documented. White's Seahorse breeding periods occur from September to February (DPIRD, 2025).

## Introduced Species

### *Spread of Invasive Species*

To prevent the spread of invasive species such as Pacific Oyster, surface preparation activities on the revetment must include containment measures to prevent dispersal of invasive



organisms into surrounding waters. This could include the use of submersible suction dredges, or other appropriate system, to collect biological debris.

## **Operational Phase**

### Direct Impacts to Biota

#### *Behavioural Changes in Mobile Fauna*

To ensure impacts from elevated temperatures within the thermal plume are consistent with expectations, a validation program should be implemented to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.

#### *Entrainment of Marine Fauna*

Intake structures must include screens or barriers designed to minimise the entrainment of small organisms while maintaining operational efficiency. To comply with NSW Fisheries fish screen best practice guidelines (Boys, 2021), screens should be designed with mesh sizes small enough to prevent juvenile fish, larvae, and plankton from passing through while allowing adequate water flow. The guidelines recommend that approach velocities at the intake should not exceed 0.1–0.15 m/s to ensure that fish can swim away from the screen without becoming impinged or trapped. Additionally, sweeping flows parallel to the screen should be maintained to guide organisms safely past the intake structure, reducing the likelihood of injury or mortality.

To further mitigate entrainment impacts, screens should incorporate self-cleaning mechanisms to prevent debris accumulation, which can hinder performance and increase the risk of impingement. Regular maintenance and monitoring of intake structures are essential to ensure compliance with these standards and to adapt operations based on seasonal variations in biological activity, such as larval production or plankton blooms.

### Reduction in Available Marine Habitat

#### *Impacts on Macroalgae Communities*

To minimise thermal impacts on macroalgae communities near the outfall, discharge points should be positioned at depths that reduce direct contact between warm water plumes and algal beds. Monitoring programs should track changes in macroalgae health over time, and habitat restoration efforts may be implemented if significant declines are observed.

### Adverse Habitat Modification

#### *Thermal Impacts (Localized Temperature Increase)*

To mitigate thermal accumulation within the bay due to limited tidal exchange, operational adjustments may include reducing discharge volumes during periods of low tidal flow or implementing alternative cooling methods that generate less heat output. To ensure thermal impacts from heated water discharge are as expected, a validation program should be



implemented when one berth is operating at its peak to assess plume dimensions and ensure concurrence with hydrodynamic modelling predictions.

*Hydrodynamic Effects (Localized Flow Alterations)*

Outfall designs must incorporate features that minimise disruption to local hydrodynamic patterns (e.g., angled discharge points). Hydrodynamic modelling updates can verify that flow alterations remain confined spatially as predicted.

*Thermal Stratification*

Discharge configurations that promote vertical mixing can help mitigate thermal stratification effects near Site 2. Monitoring dissolved oxygen levels and nutrient cycling should be undertaken for at least one season of operation to provide early detection of stratification-related impacts.



## 9. Discussion

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The assessment of construction and operational impacts at Site 1 (White Bay 5) and Site 2 (White Bay 6) has identified significant differences in ecological characteristics, hydrodynamic conditions, and the potential for environmental impacts. Based on the ecological survey results, hydrodynamic modelling, and impact assessments, Site 1 is recommended as the preferred location for the seawater cooling system. This recommendation is supported by several key considerations outlined below.

### 9.1 Ecological Characteristics and Habitat Value

The marine habitat surveys revealed distinct ecological differences between the two sites. Site 1 is characterised by a vertical concrete caisson with extensive biofouling, dominated by sessile invertebrates such as ascidians, sponges, and mollusks. These communities are typical of artificial substrates and are considered to have low ecological value compared to natural habitats. Importantly, no aquatic vegetation or seagrass protected under the FM Act was observed at Site 1, and the flat seawall structure lacks the complexity required to support endangered species such as White's Seahorse or Black Rock Cod. Consequently, the potential for significant ecological impacts at Site 1 is minimal.

In contrast, Site 2 features a sloping rock revetment with extensive macroalgae coverage, including habitat-forming species such as *Ecklonia radiata* and *Sargassum spp.* This habitat provides greater structural complexity and supports a more diverse algal community compared to Site 1. The rock revetment has been conservatively classified as a Type 2 key fish habitat under the FM Act due to its potential to support endangered species and its ecological importance for fish feeding, sheltering, and breeding. This classification necessitates additional safeguards during construction and operation to protect its ecological value.

### 9.2 Hydrodynamic Modelling Results

Hydrodynamic modelling results further support the selection of Site 1. At this site, the thermal plume generated by heated water discharge dissipates rapidly within the nearfield zone (<15 m from the outfall), with temperatures decreasing to 1°C above ambient within 5 m of the outfall and 0.5°C above ambient within 15 m. The plume remains confined spatially and does not interact with surrounding vessels or infrastructure. No short-circuiting between the intake and outfall was detected, ensuring efficient system operation without recirculation of heated water. These findings indicate that thermal impacts at Site 1 are minor and localised.

In contrast, modelling at Site 2 revealed more extensive thermal effects due to limited tidal exchange within the small bay west of the outfall. The thermal plume reaches 1°C above ambient within 10 m of the outfall but extends up to 40 m at 0.5°C above ambient. Over a single tidal cycle, heated water circulates throughout the bay, raising background temperatures by 0.2–0.5°C. Additionally, short-circuiting between the intake and outfall was detected, requiring higher system capacity to compensate for elevated background temperatures. The limited tidal prism of the bay increases the risk of thermal accumulation over time, particularly if system capacity is expanded in the future. These broader thermal



effects could disrupt local ecosystems and reduce habitat suitability for thermally sensitive species.

### 9.3 Construction Impacts

Construction activities at both sites would involve similar processes such as drilling, pipe installation, and sediment disturbance; however, their potential impacts differ due to site-specific characteristics:

The vertical concrete caisson at Site 1 supports sessile invertebrate communities of low ecological value that are expected to recolonise rapidly post-construction. No macroalgae or sensitive habitats were observed at this site, reducing the likelihood of significant impacts on benthic or aquatic vegetation. Additionally, construction impacts can be effectively mitigated through measures such as silt curtains to control turbidity and submersible suction dredges to capture debris during drilling.

Construction at Site 2 poses greater risks due to its diverse macroalgae communities and classification as a Type 2 key fish habitat. Habitat-forming algae such as *Ecklonia radiata* provide critical shelter for species like Eastern hulafish. Physical disturbance during pipe installation could result in localised loss of these habitats. Moreover, sediment resuspension during drilling may be less easily controlled and release contaminants trapped within crevices.

### 9.4 Operational Impacts

Operational impacts also differ significantly between sites:

The confined thermal plume at Site 1 poses minimal risk to marine fauna or benthic habitats due to its rapid dissipation and limited spatial extent. Entrainment impacts are also expected to be minor given the absence of sensitive species in the area.

At Site 2, operational impacts are more pronounced due to broader thermal effects from heated water discharge and short-circuiting between intake and outfall structures. Elevated background temperatures could disrupt behavioural patterns in mobile fauna such as Yellowfin Bream or Eastern hulafish while reducing habitat quality for macroalgae communities near the outfall.

### 9.5 Mitigation Feasibility

Mitigation measures are more easily implemented at Site 1 due to more simplistic ecological characteristics. The vertical concrete caisson at Site 1 supports sessile invertebrate communities of low ecological value and lacks sensitive habitats such as macroalgae or structurally complex environments that could support endangered species. Construction impacts at Site 1 can be effectively managed through standard practices such as limiting disturbance areas, collecting debris, and monitoring water quality. Operational impacts, such as entrainment of marine fauna can be mitigated using established technologies like intake screens and are less likely to impact protected species due to their absence. The only potential risk for mitigation strategies at Site 1 comes from potential contamination of sediments or sea water within the caisson. Monitoring for contamination is essential and if found, filtration during dewatering and sediment removal offsite could be required.



At Site 2, more extensive mitigation efforts would be required due to the ecological complexity of the rock revetment habitat. The revetment supports diverse macroalgae communities, including habitat-forming species such as *Ecklonia radiata* and *Sargassum spp.*, which provide structural complexity and shelter for marine fauna like Eastern hulafish. These communities have been conservatively classified as Type 2 key fish habitat under the FM Act. Construction activities at Site 2 would necessitate targeted measures to protect macroalgae and sessile invertebrates from physical disturbance, sediment resuspension, and turbidity increases. Pre-construction surveys would be essential to identify areas of high ecological value and detect the presence of endangered species such as White's Seahorse or Black Rock Cod. If White's Seahorses are detected within the construction footprint, daily relocation efforts by marine ecologists would need to be conducted prior to commencement of works, following guidelines established by NSW Fisheries.

Operational impacts at Site 2 are more challenging to mitigate due to the broader thermal effects identified in hydrodynamic modelling. The thermal plume circulates throughout the small bay west of the outfall, raising background temperatures by up to 0.5°C over a single tidal cycle. Short-circuiting between the intake and outfall further exacerbates thermal accumulation within the bay, requiring higher system capacity to compensate for elevated background temperatures. These impacts could disrupt behavioural patterns in mobile fauna and reduce habitat suitability for thermally sensitive species such as macroalgae. Mitigation measures would need to include operational adjustments to reduce discharge volumes during periods of low tidal flow and monitoring programs to validate plume dimensions against modelled predictions.

Monitoring requirements at Site 2 would be extensive compared to Site 1. Pre-construction surveys must identify high-value habitats and detect any endangered species within the footprint. Daily monitoring during construction should ensure compliance with mitigation protocols, including turbidity control measures such as suction dredges. Post-construction monitoring should assess recolonisation rates for sessile organisms and macroalgae recovery. Operational monitoring must include assessments of thermal plume dimensions, entrainment rates at intake structures, and bay-wide temperature profiles to detect potential stratification or accumulation effects.

While mitigation is feasible at both sites, the ecological complexity and broader impacts at Site 2 make implementation significantly more challenging compared to Site 1. These factors reinforce the recommendation for constructing the seawater cooling system at Site 1, where impacts are more spatially confined and mitigation measures are more straightforward to implement effectively.

## 9.6 Permitting Requirements

Site 1 would not require any notification to the Minister under Section 199 of the FM Act for reclamation work, nor a permit for harm to marine vegetation under Section 205. Site 2 would require notification under Section 199 for potential reclamation work along the rock revetment and a permit from DPIRD for potential harm to marine vegetation (i.e. macroalgae) under Section 205. Site 2 would also require a Section 37 permit for the relocation of seahorses.



## 10. Conclusions

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Based on ecological characteristics, hydrodynamic modelling results, construction feasibility, and operational considerations, both Site 1 (White Bay 5) and Site 2 (White Bay 6) are viable locations for the seawater cooling system. Each site, however, presents different mitigation challenges.

Site 1 would require less mitigation effort due to its artificial substrate supporting low-value ecological communities. The environmental characteristics of this site minimise the potential for significant impacts during construction or operation.

Site 2 requires more comprehensive mitigation strategies to address risks associated with its

- diverse macroalgae habitats
- conservative classification as a Type 2 key fish habitat
- possible presence of protected species, and
- broader thermal effects from system operation.

With the implementation of the recommended site-specific mitigation measures outlined in this report, either location could be developed while maintaining compliance with regulatory requirements under the FM Act and EPBC Act. This means that the development is unlikely to significantly impact marine ecology and water quality when appropriate mitigation measures are implemented.

From an implementation perspective however, Site 1 (White Bay 5) is recommended as the preferred location for constructing the seawater cooling system due to the lower environmental risk and mitigation complexity involved with construction and operation at that location.



## 11. References

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## **Appendix A. EPBC Act Protected Matters Search Tool**



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 03-Mar-2025

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	2
<a href="#">Wetlands of International Importance (Ramsar)</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	6
<a href="#">Listed Threatened Species:</a>	95
<a href="#">Listed Migratory Species:</a>	65

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Lands:</a>	15
<a href="#">Commonwealth Heritage Places:</a>	2
<a href="#">Listed Marine Species:</a>	94
<a href="#">Whales and Other Cetaceans:</a>	9
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	15
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	2
<a href="#">Bioregional Assessments:</a>	1
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

### National Heritage Places [\[ Resource Information \]](#)

Name	State	Legal Status	Buffer Status
<b>Historic</b>			
<a href="#">Governors' Domain and Civic Precinct</a>	NSW	Listed place	In buffer area only
<a href="#">Sydney Harbour Bridge</a>	NSW	Listed place	In buffer area only

### Listed Threatened Ecological Communities [\[ Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</a>	Endangered	Community may occur	In feature area within area
<a href="#">Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</a>	Endangered	Community may occur	In feature area within area
<a href="#">Coastal Upland Swamps in the Sydney Basin Bioregion</a>	Endangered	Community may occur	In feature area within area
<a href="#">Eastern Suburbs Banksia Scrub of the Sydney Region</a>	Critically Endangered	Community may occur	In feature area within area
<a href="#">River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria</a>	Critically Endangered	Community may occur	In feature area within area
<a href="#">Western Sydney Dry Rainforest and Moist Woodland on Shale</a>	Critically Endangered	Community may occur	In buffer area only within area

### Listed Threatened Species [\[ Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>BIRD</b>			
<a href="#">Anthochaera phrygia</a>			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Ardenna grisea</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Callocephalon fimbriatum</a> Gang-gang Cockatoo [768]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Calyptorhynchus lathami lathami</a> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Climacteris picumnus victoriae</a> Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Dasyornis brachypterus</a> Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Fregetta grallaria grallaria</a> White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Limosa lapponica baueri</a> Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Melanodryas cucullata cucullata</a> South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Pterodroma leucoptera leucoptera</a> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Pterodroma neglecta neglecta</a> Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
<a href="#">Pycnoptilus floccosus</a> Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Stagonopleura guttata</a> Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche bulleri platei</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
<b>FISH</b>			
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Hippocampus whitei</a> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Macquaria australasica</a> Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Prototroctes maraena</a> Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Seriolella brama</a> Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In feature area
<b>FROG</b>			
<a href="#">Heleioporus australiacus</a> Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Litoria aurea</a> Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Mixophyes balbus</a> Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<b>MAMMAL</b>			
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Isoodon obesulus obesulus</a> Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south- eastern) [68050]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Notamacropus parma</a> Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Petauroides volans</a> Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Petaurus australis australis</a> Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pseudomys novaehollandiae</a> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<b>PLANT</b>			
<a href="#">Acacia pubescens</a> Downy Wattle, Hairy Stemmed Wattle [18800]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Acacia terminalis subsp. Eastern Sydney (G.P.Phillips 126) listed as Acacia terminalis subsp. terminalis MS</a> Sunshine Wattle (Sydney region) [91564]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Asterolasia elegans</a> [56780]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Caladenia tessellata</a> Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Eucalyptus camfieldii</a> Camfield's Stringybark [15460]	Vulnerable	Species or species habitat likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Genoplesium baueri</a> Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Melaleuca deanei</a> Deane's Melaleuca [5818]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Persicaria elatior</a> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Pimelea curviflora var. curviflora</a> [4182]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Prostanthera densa</a> Villous Mintbush [12233]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Rhodamnia rubescens</a> Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Rhodomyrtus psidioides</a> Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Syzygium paniculatum</a> Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<b>REPTILE</b>			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Hoplocephalus bungaroides</a> Broad-headed Snake [1182]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area

**SHARK**

<a href="#">Carcharias taurus (east coast population)</a> Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Galeorhinus galeus</a> School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area

**Listed Migratory Species**

[\[ Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text	Buffer Status
<b>Migratory Marine Birds</b>			
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardenna grisea</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat known to occur within area	In feature area
<a href="#">Sternula albifrons</a> Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<b>Migratory Marine Species</b>			
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
<a href="#">Carcharhinus longimanus</a> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
<a href="#">Carcharias taurus</a> Grey Nurse Shark [64469]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Eubalaena australis as Balaena glacialis australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area	In feature area
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<b>Migratory Terrestrial Species</b>			
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
<b>Migratory Wetlands Species</b>			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris pugnax as Philomachus pugnax</a> Ruff [91256]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Species or species habitat known to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Species or species habitat known to occur within area	In feature area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Species or species habitat known to occur within area	In feature area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In feature area

## Other Matters Protected by the EPBC Act

### Commonwealth Lands [\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
<b>Australian National University</b>		
Commonwealth Land - Australian National University [13156]	NSW	In buffer area only
<b>Communications, Information Technology and the Arts - Australian Postal Corporation</b>		
Commonwealth Land - Australian Postal Commission [13164]	NSW	In feature area
Commonwealth Land - Australian Postal Commission [13121]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [15603]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [16021]	NSW	In buffer area only
<b>Communications, Information Technology and the Arts - Telstra Corporation Limited</b>		
Commonwealth Land - Australian & Overseas Telecommunications Corporation [13155]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [13162]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [13157]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [13154]	NSW	In buffer area only
<b>Defence</b>		
Defence - DSTO PYRMONT - (SEE SITE 1177) [10017]	NSW	In feature area
Defence - DSTO PYRMONT - (SEE SITE 1177) [10016]	NSW	In feature area
Defence - DSTO PYRMONT - (SEE SITE 1177) [10015]	NSW	In feature area
Defence - MILLER'S POINT TRAINING DEPOT [11118]	NSW	In buffer area only

### Unknown

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [15670]	NSW	In feature area
Commonwealth Land - [13987]	NSW	In feature area

### Commonwealth Heritage Places [ Resource Information ]

Name	State	Status	Buffer Status
Historic			
<a href="#">General Post Office</a>	NSW	Listed place	In buffer area only
<a href="#">Pyrmont Post Office</a>	NSW	Listed place	In feature area

### Listed Marine Species [ Resource Information ]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Ardena carneipes as Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardena grisea as Puffinus griseus</a> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris pugnax as Philomachus pugnax</a> Ruff [91256]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea antipodensis gibsoni as Diomedea gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area

## SCIENTIFIC NAME

[Haliaeetus leucogaster](#)

White-bellied Sea-Eagle [943]

## Threatened Category

## Presence Text

## Buffer Status

Species or species  
habitat known to  
occur within area

In feature area

[Himantopus himantopus](#)

Pied Stilt, Black-winged Stilt [870]

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Hirundapus caudacutus](#)

White-throated Needletail [682]

Vulnerable

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Lathamus discolor](#)

Swift Parrot [744]

Critically Endangered

Species or species  
habitat likely to occur  
within area overfly  
marine area

In feature area

[Limosa lapponica](#)

Bar-tailed Godwit [844]

Species or species  
habitat known to  
occur within area

In feature area

[Limosa limosa](#)

Black-tailed Godwit [845]

Endangered

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Macronectes giganteus](#)Southern Giant-Petrel, Southern Giant  
Petrel [1060]

Endangered

Species or species  
habitat may occur  
within area

In feature area

[Macronectes halli](#)

Northern Giant Petrel [1061]

Vulnerable

Foraging, feeding or  
related behaviour  
likely to occur within  
area

In feature area

[Merops ornatus](#)

Rainbow Bee-eater [670]

Species or species  
habitat may occur  
within area overfly  
marine area

In feature area

[Monarcha melanopsis](#)

Black-faced Monarch [609]

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

## SCIENTIFIC NAME

## Threatened Category

## Presence Text

## Buffer Status

[Motacilla flava](#)

Yellow Wagtail [644]

Species or species  
habitat likely to occur  
within area overfly  
marine area

In feature area

[Myiagra cyanoleuca](#)

Satin Flycatcher [612]

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Neophema chrysostoma](#)

Blue-winged Parrot [726]

Vulnerable

Species or species  
habitat may occur  
within area overfly  
marine area

In feature area

[Numenius madagascariensis](#)Eastern Curlew, Far Eastern Curlew  
[847]

Critically Endangered

Species or species  
habitat likely to occur  
within area

In feature area

[Numenius phaeopus](#)

Whimbrel [849]

Species or species  
habitat known to  
occur within area

In feature area

[Pachyptila turtur](#)

Fairy Prion [1066]

Species or species  
habitat known to  
occur within area

In feature area

[Pandion haliaetus](#)

Osprey [952]

Species or species  
habitat likely to occur  
within area

In buffer area only

[Phaethon lepturus](#)

White-tailed Tropicbird [1014]

Species or species  
habitat known to  
occur within area

In feature area

[Pluvialis fulva](#)

Pacific Golden Plover [25545]

Species or species  
habitat known to  
occur within area

In feature area

[Pterodroma cervicalis](#)

White-necked Petrel [59642]

Species or species  
habitat may occur  
within area

In feature area

## SCIENTIFIC NAME

## Threatened Category

## Presence Text

## Buffer Status

[Recurvirostra novaehollandiae](#)

Red-necked Avocet [871]

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Rhipidura rufifrons](#)

Rufous Fantail [592]

Species or species  
habitat known to  
occur within area  
overfly marine area

In feature area

[Rostratula australis as Rostratula benghalensis \(sensu lato\)](#)

Australian Painted Snipe [77037]

Endangered

Species or species  
habitat likely to occur  
within area overfly  
marine area

In feature area

[Sterna striata](#)

White-fronted Tern [799]

Migration route may  
occur within area

In feature area

[Sternula albifrons as Sterna albifrons](#)

Little Tern [82849]

Species or species  
habitat may occur  
within area

In buffer area only

[Symposiachrus trivirgatus as Monarcha trivirgatus](#)

Spectacled Monarch [83946]

Species or species  
habitat may occur  
within area overfly  
marine area

In feature area

[Thalassarche bulleri](#)Buller's Albatross, Pacific Albatross  
[64460]

Vulnerable

Species or species  
habitat may occur  
within area

In feature area

[Thalassarche bulleri platei as Thalassarche sp. nov.](#)Northern Buller's Albatross, Pacific  
Albatross [82273]

Vulnerable

Species or species  
habitat may occur  
within area

In feature area

[Thalassarche carteri](#)

Indian Yellow-nosed Albatross [64464]

Vulnerable

Species or species  
habitat likely to occur  
within area

In buffer area only

[Thalassarche cauta](#)

Shy Albatross [89224]

Endangered

Foraging, feeding or  
related behaviour  
likely to occur within  
area

In feature area

SCIENTIFIC NAME	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<a href="#">Tringa brevipes as Heteroscelus brevipes</a> Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In feature area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In feature area
<b>Fish</b>			
<a href="#">Acentronura tentaculata</a> Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
<a href="#">Festucalex cinctus</a> Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only

## SCIENTIFIC NAME

## Threatened Category

## Presence Text

## Buffer Status

[Filicampus tigris](#)

Tiger Pipefish [66217]

Species or species habitat may occur within area

In buffer area only

[Heraldia nocturna](#)

Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]

Species or species habitat may occur within area

In buffer area only

[Hippichthys penicillus](#)

Beady Pipefish, Steep-nosed Pipefish [66231]

Species or species habitat may occur within area

In buffer area only

[Hippocampus abdominalis](#)

Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]

Species or species habitat may occur within area

In buffer area only

[Hippocampus whitei](#)

White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]

Endangered

Species or species habitat likely to occur within area

In buffer area only

[Histiogamphelus briggsii](#)

Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]

Species or species habitat may occur within area

In buffer area only

[Lissocampus runa](#)

Javelin Pipefish [66251]

Species or species habitat may occur within area

In buffer area only

[Maroubra perserrata](#)

Sawtooth Pipefish [66252]

Species or species habitat may occur within area

In buffer area only

[Notiocampus ruber](#)

Red Pipefish [66265]

Species or species habitat may occur within area

In buffer area only

[Phyllopteryx taeniolatus](#)

Common Seadragon, Weedy Seadragon [66268]

Species or species habitat may occur within area

In buffer area only

[Solegnathus spinosissimus](#)

Spiny Pipehorse, Australian Spiny Pipehorse [66275]

Species or species habitat may occur within area

In buffer area only

**SCIENTIFIC NAME****Threatened Category****Presence Text****Buffer Status**[Solenostomus cyanopterus](#)

Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]

Species or species habitat may occur within area

In buffer area only

[Solenostomus paradoxus](#)

Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]

Species or species habitat may occur within area

In buffer area only

[Stigmatopora argus](#)

Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]

Species or species habitat may occur within area

In buffer area only

[Stigmatopora nigra](#)

Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]

Species or species habitat may occur within area

In buffer area only

[Syngnathoides biaculeatus](#)

Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]

Species or species habitat may occur within area

In buffer area only

[Trachyrhamphus bicoarctatus](#)

Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]

Species or species habitat may occur within area

In buffer area only

[Urocampus carinirostris](#)

Hairy Pipefish [66282]

Species or species habitat may occur within area

In buffer area only

[Vanacampus margaritifer](#)

Mother-of-pearl Pipefish [66283]

Species or species habitat may occur within area

In buffer area only

**Mammal**[Arctocephalus forsteri](#)

Long-nosed Fur-seal, New Zealand Fur-seal [20]

Species or species habitat may occur within area

In buffer area only

[Arctocephalus pusillus](#)

Australian Fur-seal, Australo-African Fur-seal [21]

Species or species habitat may occur within area

In buffer area only

**Reptile**[Caretta caretta](#)

Loggerhead Turtle [1763]

Endangered

Species or species habitat known to occur within area

In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Hydrophis platura as Pelamis platurus</a> Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area

**Whales and Other Cetaceans** [ [Resource Information](#) ]

Current Scientific Name	Status	Type of Presence	Buffer Status
<b>Mammal</b>			
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

Protected Area Name	Reserve Type	State	Buffer Status
Sydney Harbour	National Park	NSW	In feature area

### EPBC Act Referrals [\[ Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
<a href="#">Circular Quay Renewal</a>	2023/09727		Assessment	In buffer area only

### Not controlled action

<a href="#">Demolition of Ablutions Block, Snapper Island, NSW</a>	2018/8303	Not Controlled Action	Completed	In buffer area only
<a href="#">Fitout works, 4th Floor, Sydney Customs House, 31 Alfred Street</a>	2004/1449	Not Controlled Action	Completed	In buffer area only
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area
<a href="#">INDIGO Central Submarine Telecommunications Cable</a>	2017/8127	Not Controlled Action	Completed	In feature area
<a href="#">Noxious weed removal and controlled burn</a>	2003/1272	Not Controlled Action	Completed	In buffer area only
<a href="#">Rabbit Control Anzac Rifle Range</a>	2005/1940	Not Controlled Action	Completed	In buffer area only

Reference	Referral Outcome	Assessment Status	Buffer Status	
<b>Not controlled action</b>				
<a href="#">Rehabilitation works of the Coogee Sewer Diversion Submain - Maxwell Avenue, Mar</a>	2004/1683	Not Controlled Action	Completed	In feature area
<a href="#">Remediation of Contaminated Buildings</a>	2005/1983	Not Controlled Action	Completed	In buffer area only
<a href="#">Remediation of Contaminated Soil</a>	2005/1985	Not Controlled Action	Completed	In buffer area only
<a href="#">subdivision and development on the Rhodes Peninsula for residential and commerci</a>	2003/1249	Not Controlled Action	Completed	In buffer area only
<a href="#">Supply of a gigabit ethernet connection with associated trenching, boring and ha</a>	2007/3637	Not Controlled Action	Completed	In buffer area only
<a href="#">Undertake a controlled burn of the Eastern Suburbs Banksia Scrub at Byrne Cresce</a>	2004/1728	Not Controlled Action	Completed	In buffer area only

<b>Not controlled action (particular manner)</b>				
<a href="#">INDIGO Marine Cable Route Survey (INDIGO)</a>	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

<b>Referral decision</b>				
<a href="#">Breeding program for Grey Nurse Sharks</a>	2007/3245	Referral Decision	Completed	In buffer area only

Biologically Important Areas			[ Resource Information ]
Scientific Name	Behaviour	Presence	Buffer Status
<b>Dolphins</b>			
<a href="#">Tursiops aduncus</a>			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
<b>Sharks</b>			
<a href="#">Carcharias taurus</a>			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			[ Resource Information ]
SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	<a href="#">BA website</a>	In feature area

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

## 3 DATA SOURCES

### Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

### Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

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## **Appendix B. NSW Biodiversity Conservation Act 2016 BioNet Search**

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Entities in selected area [North: -33.81 West: 151.14 East: 151.24 South: -33.91] returned a total of 95,551 records of 2,480 species.

Report generated on 19/03/2025 1:22 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Actinopterygii	Anguillidae	T056	<i>Anguilla reinhardtii</i>		longfin eel			5	
Animalia	Actinopterygii	Cyprinidae	T044	<i>Cyprinus carpio</i>	*	Carp			1	
Animalia	Actinopterygii	Eleotridae	T189	<i>Gobiomorphus australis</i>		Striped Gudgeon			1	
Animalia	Actinopterygii	Poeciliidae	T013	<i>Gambusia holbrooki</i>	*	Mosquito Fish			2	
Animalia	Amphibia	Myobatrachidae	3134	<i>Crinia signifera</i>		Common Eastern Froglet	P		327	
Animalia	Amphibia	Myobatrachidae	3116	<i>Pseudophryne australis</i>		Red-crowned Toadlet	V,P		7	
Animalia	Amphibia	Myobatrachidae	3117	<i>Pseudophryne bibronii</i>		Bibron's Toadlet	P		4	
Animalia	Amphibia	Myobatrachidae	T119	<i>Pseudophryne sp.</i>			P		1	
Animalia	Amphibia	Limnodynastidae	3001	<i>Adelotus brevis</i>		Tusked Frog	P		1	
Animalia	Amphibia	Limnodynastidae	3058	<i>Limnodynastes dumerilii</i>		Eastern Banjo Frog	P		1	
Animalia	Amphibia	Limnodynastidae	3061	<i>Limnodynastes peronii</i>		Brown-striped Frog	P		2315	
Animalia	Amphibia	Limnodynastidae	3063	<i>Limnodynastes tasmaniensis</i>		Spotted Grass Frog	P		1	
Animalia	Amphibia	Hylidae	3166	<i>Litoria aurea</i>		Green and Golden Bell Frog	E1,P	V	7	
Animalia	Amphibia	Hylidae	3171	<i>Litoria caerulea</i>		Green Tree Frog	P		85	
Animalia	Amphibia	Hylidae	3180	<i>Litoria dentata</i>		Bleating Tree Frog	P		4	
Animalia	Amphibia	Hylidae	3183	<i>Litoria fallax</i>		Eastern Dwarf Tree Frog	P		252	
Animalia	Amphibia	Hylidae	3187	<i>Litoria gracilentata</i>		Dainty Green Tree Frog	P		3	
Animalia	Amphibia	Hylidae	3190	<i>Litoria jervisiensis</i>		Jervis Bay Tree Frog	P		1	
Animalia	Amphibia	Hylidae	3199	<i>Litoria nasuta</i>		Rocket Frog	P		1	
Animalia	Amphibia	Hylidae	3204	<i>Litoria peronii</i>		Peron's Tree Frog	P		744	
Animalia	Amphibia	Hylidae	3206	<i>Litoria phyllochroa</i>		Leaf-green Tree Frog	P		9	
Animalia	Amphibia	Hylidae	T457	<i>Litoria quiritatus</i>		Screaming Tree Frog	P		15	
Animalia	Amphibia	Hylidae	3214	<i>Litoria tyleri</i>		Tyler's Tree Frog	P		3	
Animalia	Amphibia	Hylidae	3215	<i>Litoria verreauxii</i>		Verreaux's Frog	P		2	
Animalia	Amphibia	Bufo	3269	<i>Rhinella marina</i>	*	Cane Toad			1	
Animalia	Reptilia	Cheloniidae	2004	<i>Caretta caretta</i>		Loggerhead Turtle	E1,P	E	9	
Animalia	Reptilia	Cheloniidae	2007	<i>Chelonia mydas</i>		Green Turtle	V,P	V	1	
Animalia	Reptilia	Cheloniidae	T110	<i>Cheloniidae sp.</i>		unidentified sea turtle	P		3	
Animalia	Reptilia	Cheloniidae	2006	<i>Natator depressus</i>		Flatback Turtle	P		3	
Animalia	Reptilia	Dermochelyidae	2013	<i>Dermochelys coriacea</i>		Leatherback Turtle	E1,P	E	2	
Animalia	Reptilia	Chelidae	2017	<i>Chelodina longicollis</i>		Eastern Snake-necked Turtle	P		137	
Animalia	Reptilia	Chelidae	T900	<i>Chelodina sp.</i>		Long-Necked Turtle Species	P		2	
Animalia	Reptilia	Chelidae	2034	<i>Emydura macquarii</i>		Macquarie Turtle	P		3	
Animalia	Reptilia	Chelidae	2951	<i>Emydura macquarii macquarii</i>		Macquarie River Turtle	P		3	
Animalia	Reptilia	Chelidae	9057	<i>Emydura sp.</i>		Unidentified Emydura	P		7	
Animalia	Reptilia	Emydidae	5120	<i>Trachemys scripta elegans</i>	*	Red-eared Slider			1	
Animalia	Reptilia	Carphodactylidae	2129	<i>Phyllurus platurus</i>		Broad-tailed Gecko	P		34	
Animalia	Reptilia	Carphodactylidae	2687	<i>Saltuarius swaini</i>		Southern Leaf-tailed Gecko	P		19	
Animalia	Reptilia	Carphodactylidae	2138	<i>Underwoodisaurus milii</i>		Thick-tailed Gecko	P		10	
Animalia	Reptilia	Diplodactylidae	2118	<i>Amalosia lesueurii</i>		Lesueur's Velvet Gecko	P		1	
Animalia	Reptilia	Diplodactylidae	2077	<i>Diplodactylus vitta</i>		Wood Gecko	P		10	
Animalia	Reptilia	Pygopodidae	2170	<i>Lialis burtonis</i>		Burton's Snake-lizard	P		17	
Animalia	Reptilia	Pygopodidae	2174	<i>Pygopus lepidopodus</i>		Common Scaly-foot	P		11	
Animalia	Reptilia	Scincidae	2559	<i>Cancinnia tenuis</i>		Barred-sided Skink	P		19	
Animalia	Reptilia	Scincidae	2331	<i>Cryptoblepharus virgatus</i>		Cream-striped Shinning-skink	P		16	
Animalia	Reptilia	Scincidae	2375	<i>Ctenotus robustus</i>		Robust Ctenotus	P		9	
Animalia	Reptilia	Scincidae	2386	<i>Ctenotus taeniolatus</i>		Copper-tailed Skink	P		1	
Animalia	Reptilia	Scincidae	2408	<i>Egernia cunninghami</i>		Cunningham's Skink	P		1	
Animalia	Reptilia	Scincidae	2557	<i>Eulamprus quoyii</i>		Eastern Water-skink	P		69	
Animalia	Reptilia	Scincidae	2450	<i>Lampropholis delicata</i>		Dark-flecked Garden Sunskink	P		94	
Animalia	Reptilia	Scincidae	2451	<i>Lampropholis guichenoti</i>		Pale-flecked Garden Sunskink	P		96	
Animalia	Reptilia	Scincidae	T117	<i>Lampropholis sp.</i>		unidentified grass skink	P		15	
Animalia	Reptilia	Scincidae	2542	<i>Saiphos equalis</i>		Three-toed Skink	P		69	
Animalia	Reptilia	Scincidae	2452	<i>Saproscincus mustelinus</i>		Weasel Skink	P		15	
Animalia	Reptilia	Scincidae	2583	<i>Tiliqua rugosa</i>		Shingle-back	P		6	
Animalia	Reptilia	Scincidae	2580	<i>Tiliqua scincoides</i>		Eastern Blue-tongue	P		713	
Animalia	Reptilia	Scincidae	5056	<i>Tiliqua scincoides scincoides</i>			P		10	
Animalia	Reptilia	Agamidae	2252	<i>Intellagama lesueurii</i>		Eastern Water Dragon	P		267	
Animalia	Reptilia	Agamidae	5075	<i>Intellagama lesueurii lesueurii</i>		Eastern Water Dragon	P		34	
Animalia	Reptilia	Agamidae	2177	<i>Pogona barbata</i>		Bearded Dragon	P		15	
Animalia	Reptilia	Varanidae	2271	<i>Varanus gouldii</i>		Gould's Goanna	P		1	
Animalia	Reptilia	Varanidae	2283	<i>Varanus varius</i>		Lace Monitor	P		17	
Animalia	Reptilia	Typhlopidae	2588	<i>Anilius bituberculatus</i>		Prong-snouted Blind Snake	P		1	
Animalia	Reptilia	Typhlopidae	2599	<i>Anilius nigrescens</i>		Blackish Blind Snake	P		1	

Animalia	Reptilia	Typhlopidae	2603	<i>Anilius proximus</i>	Proximus Blind Snake	P	1
Animalia	Reptilia	Pythonidae	2625	<i>Morelia spilota</i>	Carpet & Diamond Pythons	P	23
Animalia	Reptilia	Pythonidae	5096	<i>Morelia spilota spilota</i>	Diamond Python	P	18
Animalia	Reptilia	Colubridae	2630	<i>Baiga irregularis</i>	Brown Tree Snake	P	5
Animalia	Reptilia	Colubridae	2633	<i>Dendrelaphis punctulatus</i>	Common Tree Snake	P	106
Animalia	Reptilia	Colubridae	T441	<i>Pantherophis guttatus</i>	American Corn Snake	*	2
Animalia	Reptilia	Elapidae	2640	<i>Acanthophis antarcticus</i>	Common Death Adder	P	1
Animalia	Reptilia	Elapidae	2647	<i>Cacophis squamulosus</i>	Golden-crowned Snake	P	84
Animalia	Reptilia	Elapidae	5136	<i>Cryptophis nigrescens</i>	Eastern Small-eyed Snake	P	2
Animalia	Reptilia	Elapidae	2655	<i>Demansia psammophis</i>	Yellow-faced Whip Snake	P	3
Animalia	Reptilia	Elapidae	2669	<i>Furina diadema</i>	Red-naped Snake	P	4
Animalia	Reptilia	Elapidae	2674	<i>Hemiaspis signata</i>	Black-bellied Swamp Snake	P	6
Animalia	Reptilia	Elapidae	2675	<i>Hoplocephalus bitaeniatus</i>	Pale-headed Snake	V,P	1
Animalia	Reptilia	Elapidae	2754	<i>Hydrophis elegans</i>	Elegant Seasnake	P	2
Animalia	Reptilia	Elapidae	2681	<i>Notechis scutatus</i>	Tiger Snake	P	1
Animalia	Reptilia	Elapidae	2693	<i>Pseudechis porphyrocephala</i>	Red-bellied Black Snake	P	175
Animalia	Reptilia	Elapidae	9075	<i>Pseudechis sp.</i>	Unidentified Black Snake	P	1
Animalia	Reptilia	Elapidae	T033	<i>Pseudonaja sp.</i>	Unidentified Brown Snake	P	1
Animalia	Reptilia	Elapidae	2699	<i>Pseudonaja textilis</i>	Eastern Brown Snake	P	18
Animalia	Reptilia	Elapidae	2726	<i>Suta dwyeri</i>	Dwyer's Snake	P	1
Animalia	Reptilia	Elapidae	2734	<i>Vermicella annulata</i>	Bandy-bandy	P	5
Animalia	Aves	Casuariidae	0001	<i>Dromaius novaehollandiae</i>	Emu	P	1
Animalia	Aves	Megapodiidae	0008	<i>Alectura lathami</i>	Australian Brush-turkey	P	1649
Animalia	Aves	Phasianidae	0009	<i>Coturnix pectoralis</i>	Stubble Quail	P	12
Animalia	Aves	Phasianidae	9046	<i>Coturnix sp.</i>	Unidentified Quail	P	96
Animalia	Aves	Phasianidae	0778	<i>Meleagris gallopavo</i>	Wild Turkey	*	3
Animalia	Aves	Phasianidae	0903	<i>Pavo cristatus</i>	Indian Peafowl	*	1
Animalia	Aves	Phasianidae	0950	<i>Phasianus colchicus</i>	Common Pheasant	*	4
Animalia	Aves	Phasianidae	0012	<i>Synoicus chinensis</i>	King Quail	P	8
Animalia	Aves	Phasianidae	0011	<i>Synoicus ypsilophus</i>	Brown Quail	P	33
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>	Magpie Goose	V,P	9
Animalia	Aves	Anatidae	0210	<i>Anas castanea</i>	Chestnut Teal	P	39
Animalia	Aves	Anatidae	0211	<i>Anas gracilis</i>	Grey Teal	P	11
Animalia	Aves	Anatidae	0948	<i>Anas platyrhynchos</i>	Mallard	*	42
Animalia	Aves	Anatidae	0212	<i>Anas rhynchotis</i>	Australasian Shoveler	P	1
Animalia	Aves	Anatidae	0208	<i>Anas superciliosa</i>	Pacific Black Duck	P	466
Animalia	Aves	Anatidae	0816	<i>Anas superciliosa x platyrhynchos</i>	Pacific Black Duck Mallard Hybrid	*	1
Animalia	Aves	Anatidae	T059	<i>Anser anser</i>		*	2
Animalia	Aves	Anatidae	0215	<i>Aythya australis</i>	Hardhead	P	6
Animalia	Aves	Anatidae	0217	<i>Biziura lobata</i>	Musk Duck	P	5
Animalia	Aves	Anatidae	0202	<i>Chenonetta jubata</i>	Australian Wood Duck	P	220
Animalia	Aves	Anatidae	0203	<i>Cygnus atratus</i>	Black Swan	P	129
Animalia	Aves	Anatidae	0906	<i>Cygnus olor</i>	Mute Swan	*	1
Animalia	Aves	Anatidae	0204	<i>Dendrocygna arcuata</i>	Wandering Whistling-Duck	P	77
Animalia	Aves	Anatidae	0213	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	P	1
Animalia	Aves	Anatidae	0200	<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	E1,P	1
Animalia	Aves	Phaethontidae	0108	<i>Phaethon lepturus</i>	White-tailed Tropicbird	P	C,J
Animalia	Aves	Podicipedidae	0060	<i>Podiceps cristatus</i>	Great Crested Grebe	P	1
Animalia	Aves	Podicipedidae	0062	<i>Polioccephalus poliocephalus</i>	Hoary-headed Grebe	P	3
Animalia	Aves	Podicipedidae	0061	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	P	10
Animalia	Aves	Columbidae	0033	<i>Chalcophaps indica</i>	Emerald Dove	P	3
Animalia	Aves	Columbidae	0028	<i>Columba leucomela</i>	White-headed Pigeon	P	15
Animalia	Aves	Columbidae	0957	<i>Columba livia</i>	Rock Dove	*	1123
Animalia	Aves	Columbidae	0031	<i>Geopelia cuneata</i>	Diamond Dove	P	1
Animalia	Aves	Columbidae	0032	<i>Geopelia humeralis</i>	Bar-shouldered Dove	P	9
Animalia	Aves	Columbidae	9931	<i>Geopelia striata</i>	Peaceful Dove	P	12
Animalia	Aves	Columbidae	0044	<i>Leucosarcia melanoleuca</i>	Wonga Pigeon	P	1
Animalia	Aves	Columbidae	0027	<i>Lopholaimus antarcticus</i>	Topknot Pigeon	P	39
Animalia	Aves	Columbidae	0029	<i>Macropygia phasianella</i>	Brown Cuckoo-Dove	P	13
Animalia	Aves	Columbidae	0043	<i>Ocyphaps lophotes</i>	Crested Pigeon	P	575
Animalia	Aves	Columbidae	0034	<i>Phaps chalcoptera</i>	Common Bronzewing	P	6
Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V,P	1
Animalia	Aves	Columbidae	0023	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V,P	10
Animalia	Aves	Columbidae	0989	<i>Spilopelia chinensis</i>	Spotted Turtle-Dove	*	336
Animalia	Aves	Podargidae	0313	<i>Podargus strigoides</i>	Tawny Frogmouth	P	1081
Animalia	Aves	Caprimulgidae	0330	<i>Eurostopodus mystacalis</i>	White-throated Nightjar	P	4
Animalia	Aves	Aegothelidae	0317	<i>Aegothales cristatus</i>	Australian Owllet-nightjar	P	1
Animalia	Aves	Apodidae	0335	<i>Apus pacificus</i>	Fork-tailed Swift	P	C,J,K
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>	White-throated Needletail	V,P	V,C,J,K
Animalia	Aves	Oceanitidae	0065	<i>Pelagodroma marina</i>	White-faced Storm-Petrel	P	3
Animalia	Aves	Diomedidae	0086	<i>Diomedea exulans</i>	Wandering Albatross	E1,P	V
Animalia	Aves	Procellariidae	0070	<i>Ardenna grisea</i>	Sooty Shearwater	P	J

Animalia	Aves	Procellariidae	0069	<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	P	J	15
Animalia	Aves	Procellariidae	0071	<i>Ardenna tenuirostris</i>	Short-tailed Shearwater	P	C,J,K	6
Animalia	Aves	Procellariidae	0083	<i>Pachyptila turtur</i>	Fairy Prion	P		4
Animalia	Aves	Procellariidae	0917	<i>Procellaria parkins</i>	Black Petrel	P		1
Animalia	Aves	Procellariidae	0774	<i>Pterodroma cervic</i>	White-necked Petrel	P		1
Animalia	Aves	Procellariidae	0075	<i>Pterodroma macr</i>	Great-winged Petrel	P		2
Animalia	Aves	Procellariidae	0076	<i>Pterodroma mollis</i>	Soft-plumaged Petrel	P		1
Animalia	Aves	Procellariidae	0068	<i>Puffinus gavia</i>	Fluttering Shearwater	P		2
Animalia	Aves	Spheniscidae	0005	<i>Eudyptula minor</i>	Little Penguin	P		79
Animalia	Aves	Sulidae	0104	<i>Morus serrator</i>	Australasian Gannet	P		3
Animalia	Aves	Anhingidae	8731	<i>Anhinga novaehol</i>	Australasian Darter	P		114
Animalia	Aves	Phalacrocoracidae	0100	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	P		120
Animalia	Aves	Phalacrocoracidae	0096	<i>Phalacrocorax carbo</i>	Great Cormorant	P		40
Animalia	Aves	Phalacrocoracidae	T021	<i>Phalacrocorax sp.</i>	Unidentified Cormorant	P		99
Animalia	Aves	Phalacrocoracidae	0097	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	P		342
Animalia	Aves	Phalacrocoracidae	0099	<i>Phalacrocorax vari</i>	Pied Cormorant	P		187
Animalia	Aves	Pelecanidae	0106	<i>Pelecanus conspic</i>	Australian Pelican	P		229
Animalia	Aves	Ardeidae	0186	<i>Ardea intermedia</i>	Intermediate Egret	P		5
Animalia	Aves	Ardeidae	0189	<i>Ardea pacifica</i>	White-necked Heron	P		13
Animalia	Aves	Ardeidae	T179	<i>Ardea/Egretta sp.</i>	Unidentified Egret	P		4
Animalia	Aves	Ardeidae	0197	<i>Botaurus poiciloptus</i>	Australasian Bittern	E1,P	E	3
Animalia	Aves	Ardeidae	0977	<i>Bubulcus ibis</i>	Cattle Egret	P		4
Animalia	Aves	Ardeidae	0193	<i>Butorides striata</i>	Striated Heron	P		30
Animalia	Aves	Ardeidae	8712	<i>Casmerodius modesta</i>	Eastern Great Egret	P		6
Animalia	Aves	Ardeidae	0185	<i>Egretta garzetta</i>	Little Egret	P		5
Animalia	Aves	Ardeidae	0188	<i>Egretta novaehollandiae</i>	White-faced Heron	P		280
Animalia	Aves	Ardeidae	0191	<i>Egretta sacra</i>	Eastern Reef Egret	P		1
Animalia	Aves	Ardeidae	8703	<i>Ixobrychus dubius</i>	Australian Little Bittern	P		4
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>	Black Bittern	V,P		2
Animalia	Aves	Ardeidae	0192	<i>Nycticorax caledonicus</i>	Nankeen Night Heron	P		12
Animalia	Aves	Threskiornithidae	0182	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	P		1
Animalia	Aves	Threskiornithidae	0181	<i>Platalea regia</i>	Royal Spoonbill	P		6
Animalia	Aves	Threskiornithidae	T029	<i>Platalea sp.</i>	Spoonbill sp	P		1
Animalia	Aves	Threskiornithidae	0179	<i>Threskiornis moluccus</i>	Australian White Ibis	P		2642
Animalia	Aves	Threskiornithidae	0180	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	P		4
Animalia	Aves	Accipitridae	0222	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	P		8
Animalia	Aves	Accipitridae	0221	<i>Accipiter fasciatus</i>	Brown Goshawk	P		31
Animalia	Aves	Accipitridae	0220	<i>Accipiter novaehollandiae</i>	Grey Goshawk	P		2
Animalia	Aves	Accipitridae	T047	<i>Accipiter sp.</i>	Unidentified goshawk	P		3
Animalia	Aves	Accipitridae	0224	<i>Aquila audax</i>	Wedge-tailed Eagle	P		3
Animalia	Aves	Accipitridae	0234	<i>Aviceda subcristata</i>	Pacific Baza	P		15
Animalia	Aves	Accipitridae	0219	<i>Circus approximans</i>	Swamp Harrier	P		2
Animalia	Aves	Accipitridae	0232	<i>Elanus axillaris</i>	Black-shouldered Kite	P		8
Animalia	Aves	Accipitridae	0223	<i>Erythrotriorchis radiatus</i>	Red Goshawk	E1,P,2	E	1
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucog</i>	White-bellied Sea-Eagle	V,P		42
Animalia	Aves	Accipitridae	0228	<i>Haliaeetus sphe</i>	Whistling Kite	P		4
Animalia	Aves	Accipitridae	0225	<i>Hieraetus morphnoides</i>	Little Eagle	V,P		1
Animalia	Aves	Accipitridae	0230	<i>Lophoictinia isura</i>	Square-tailed Kite	V,P,3		1
Animalia	Aves	Accipitridae	8739	<i>Pandion cristatus</i>	Eastern Osprey	V,P,3		2
Animalia	Aves	Falconidae	0240	<i>Falco cenchroides</i>	Nankeen Kestrel	P		38
Animalia	Aves	Falconidae	0235	<i>Falco longipennis</i>	Australian Hobby	P		5
Animalia	Aves	Falconidae	0237	<i>Falco peregrinus</i>	Peregrine Falcon	P		63
Animalia	Aves	Falconidae	9043	<i>Falco sp.</i>	Unidentified Falcon	P		5
Animalia	Aves	Falconidae	9119	<i>Raptor sp.</i>	Unidentified Raptor	P		3
Animalia	Aves	Rallidae	0059	<i>Fulica atra</i>	Eurasian Coot	P		17
Animalia	Aves	Rallidae	0056	<i>Gallinula tenebrosa</i>	Dusky Moorhen	P		49
Animalia	Aves	Rallidae	0046	<i>Hypotaenidia philippensis</i>	Buff-banded Rail	P		29
Animalia	Aves	Rallidae	0045	<i>Lewinia pectoralis</i>	Lewin's Rail	P		2
Animalia	Aves	Rallidae	0058	<i>Porphyrio porphyrio</i>	Purple Swamphen	P		39
Animalia	Aves	Rallidae	0050	<i>Porzana pusilla</i>	Baillon's Crake	P		2
Animalia	Aves	Rallidae	0051	<i>Porzana tabuensis</i>	Spotless Crake	P		3
Animalia	Aves	Burhinidae	0174	<i>Burhinus grallarius</i>	Bush Stone-curlew	E1,P		5
Animalia	Aves	Haematopodidae	0130	<i>Haematopus longi</i>	Pied Oystercatcher	E1,P		3
Animalia	Aves	Recurvirostridae	0146	<i>Himantopus himantopus</i>	Black-winged Stilt	P		4
Animalia	Aves	Charadriidae	0139	<i>Charadrius mongol</i>	Lesser Sand-plover	V,P	E,C,J,K	1
Animalia	Aves	Charadriidae	0143	<i>Charadrius ruficap</i>	Red-capped Plover	P		8
Animalia	Aves	Charadriidae	0144	<i>Elsayornis melanop</i>	Black-fronted Dotterel	P		4
Animalia	Aves	Charadriidae	0132	<i>Erythrogonyx cinct</i>	Red-kneed Dotterel	P		1
Animalia	Aves	Charadriidae	8006	<i>Pluvialis fulva</i>	Pacific Golden Plover	P	C,J,K	3
Animalia	Aves	Charadriidae	0136	<i>Pluvialis squatarol</i>	Grey Plover	P	C,J,K	4
Animalia	Aves	Charadriidae	0133	<i>Vanellus miles</i>	Masked Lapwing	P		1110
Animalia	Aves	Charadriidae	0134	<i>Vanellus miles novaehollandiae</i>	[Spur-winged Plover]	P		1
Animalia	Aves	Charadriidae	0135	<i>Vanellus tricolor</i>	Banded Lapwing	P		5
Animalia	Aves	Scolopacidae	0157	<i>Actitis hypoleucos</i>	Common Sandpiper	P	C,J,K	2
Animalia	Aves	Scolopacidae	0892	<i>Bartramia longica</i>	Upland Sandpiper	P		1

Animalia	Aves	Scolopacidae	0163	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	P	C,J,K	37
Animalia	Aves	Scolopacidae	0161	<i>Calidris ferruginea</i>	Curlew Sandpiper	E4A,P	CE,C,J,K	8
Animalia	Aves	Scolopacidae	0978	<i>Calidris melanotos</i>	Pectoral Sandpiper	P	J,K	1
Animalia	Aves	Scolopacidae	0168	<i>Gallinago hardwickii</i>	Latham's Snipe	V,P	V,J,K	4
Animalia	Aves	Scolopacidae	0153	<i>Limosa lapponica</i>	Bar-tailed Godwit	P	C,J,K	3
Animalia	Aves	Scolopacidae	0151	<i>Numenius minutus</i>	Little Curlew	P	C,J,K	2
Animalia	Aves	Scolopacidae	0158	<i>Tringa nebularia</i>	Common Greenshank	E1,P	E,C,J,K	1
Animalia	Aves	Scolopacidae	0159	<i>Tringa stagnatilis</i>	Marsh Sandpiper	P	C,J,K	1
Animalia	Aves	Turnicidae	0019	<i>Turnix pyrrhorthora</i>	Red-chested Button-quail	P		1
Animalia	Aves	Turnicidae	9037	<i>Turnix sp.</i>	Unidentified Button-quail	P		1
Animalia	Aves	Turnicidae	0014	<i>Turnix varius</i>	Painted Button-quail	P		26
Animalia	Aves	Turnicidae	0018	<i>Turnix velox</i>	Little Button-quail	P		1
Animalia	Aves	Stercorariidae	0945	<i>Stercorarius pomarinus</i>	Pomarine Jaeger	P	C,J,K	2
Animalia	Aves	Laridae	0110	<i>Chlidonias hybrida</i>	Whiskered Tern	P		2
Animalia	Aves	Laridae	0125	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	P		2006
Animalia	Aves	Laridae	0112	<i>Hydroprogne caspia</i>	Caspian Tern	P	J	4
Animalia	Aves	Laridae	0981	<i>Larus dominicanus</i>	Kelp Gull	P		2
Animalia	Aves	Laridae	0126	<i>Larus pacificus</i>	Pacific Gull	P		1
Animalia	Aves	Laridae	0885	<i>Leucophaeus pipixcan</i>	Franklin's Gull	P		2
Animalia	Aves	Laridae	0953	<i>Sterna hirundo</i>	Common Tern	P	C,J,K	12
Animalia	Aves	Laridae	0114	<i>Sterna striata</i>	White-fronted Tern	P		2
Animalia	Aves	Laridae	0117	<i>Sternula albifrons</i>	Little Tern	E1,P	C,J,K	3
Animalia	Aves	Laridae	0115	<i>Thalasseus bergii</i>	Crested Tern	P	J	48
Animalia	Aves	Cacatuidae	0269	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	P		1290
Animalia	Aves	Cacatuidae	0271	<i>Cacatua sanguinea</i>	Little Corella	P		116
Animalia	Aves	Cacatuidae	T187	<i>Cacatua sp.</i>		P		26
Animalia	Aves	Cacatuidae	0272	<i>Cacatua tenuirostris</i>	Long-billed Corella	P		18
Animalia	Aves	Cacatuidae	8862	<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V,P,2	V	4
Animalia	Aves	Cacatuidae	0273	<i>Eolophus roseicapilla</i>	Galah	P		206
Animalia	Aves	Cacatuidae	0274	<i>Nymphicus hollandicus</i>	Cockatiel	P		50
Animalia	Aves	Cacatuidae	0267	<i>Zanda funerea</i>	Yellow-tailed Black-Cockatoo	P		97
Animalia	Aves	Psittacidae	0281	<i>Alisterus scapularis</i>	Australian King-Parrot	P		313
Animalia	Aves	Psittacidae	0280	<i>Aprosmictus erythropterus</i>	Red-winged Parrot	P		1
Animalia	Aves	Psittacidae	0294	<i>Barnardius zonarius</i>	Australian Ringneck	P		7
Animalia	Aves	Psittacidae	0258	<i>Glossopsitta concinna</i>	Musk Lorikeet	P		93
Animalia	Aves	Psittacidae	0309	<i>Lathamus discolor</i>	Swift Parrot	E1,P	CE	6
Animalia	Aves	Psittacidae	0310	<i>Melopsittacus undulatus</i>	Budgerigar	P		39
Animalia	Aves	Psittacidae	0260	<i>Parvipsitta pusilla</i>	Little Lorikeet	V,P		10
Animalia	Aves	Psittacidae	0286	<i>Platycercus adsctus</i>	Pale-headed Rosella	P		1
Animalia	Aves	Psittacidae	0282	<i>Platycercus elegans</i>	Crimson Rosella	P		109
Animalia	Aves	Psittacidae	0283	<i>Platycercus elegans adelaidae</i>	[Adelaide Rosella]	P		1
Animalia	Aves	Psittacidae	0288	<i>Platycercus eximius</i>	Eastern Rosella	P		112
Animalia	Aves	Psittacidae	0289	<i>Platycercus icterotis</i>	Western Rosella	P		1
Animalia	Aves	Psittacidae	T039	<i>Platycercus sp.</i>	Unidentified Rosella	P		112
Animalia	Aves	Psittacidae	0279	<i>Polytelis alexandrae</i>	Princess Parrot	P		2
Animalia	Aves	Psittacidae	0295	<i>Psephotus haematonotus</i>	Red-rumped Parrot	P		9
Animalia	Aves	Psittacidae	0256	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	P		23
Animalia	Aves	Psittacidae	9947	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	P		9441
Animalia	Aves	Psittacidae	8882	<i>Trichoglossus haematodus moluccanus</i>		P		20
Animalia	Aves	Cuculidae	0338	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	P		42
Animalia	Aves	Cuculidae	0339	<i>Cacomantis variolosus</i>	Brush Cuckoo	P		3
Animalia	Aves	Cuculidae	0349	<i>Centropus phasianinus</i>	Pheasant Coucal	P		3
Animalia	Aves	Cuculidae	0342	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	P		6
Animalia	Aves	Cuculidae	0343	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	P		16
Animalia	Aves	Cuculidae	0341	<i>Chalcites osculans</i>	Black-eared Cuckoo	P		1
Animalia	Aves	Cuculidae	0347	<i>Eudynamis orientalis</i>	Eastern Koel	P		271
Animalia	Aves	Cuculidae	8930	<i>Eudynamis orientalis cyanocephala</i>		P		2
Animalia	Aves	Cuculidae	0337	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	P		4
Animalia	Aves	Cuculidae	0348	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	P		469
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>	Barking Owl	V,P,3		3
Animalia	Aves	Strigidae	9922	<i>Ninox novaeseelandiae</i>	Southern Boobook	P		147
Animalia	Aves	Strigidae	0248	<i>Ninox strenua</i>	Powerful Owl	V,P,3		460
Animalia	Aves	Tytonidae	9923	<i>Tyto javanica</i>	Eastern Barn Owl	P		58
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		1
Animalia	Aves	Tytonidae	9924	<i>Tyto tenebricosa</i>	Sooty Owl	V,P,3		1
Animalia	Aves	Alcedinidae	0319	<i>Ceyx azureus</i>	Azure Kingfisher	P		20
Animalia	Aves	Alcedinidae	0322	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	P		1695
Animalia	Aves	Alcedinidae	0324	<i>Todiramphus macleayii</i>	Forest Kingfisher	P		1
Animalia	Aves	Alcedinidae	0326	<i>Todiramphus sanctus</i>	Sacred Kingfisher	P		176
Animalia	Aves	Meropidae	0329	<i>Merops ornatus</i>	Rainbow Bee-eater	P		2
Animalia	Aves	Coraciidae	0318	<i>Eurystomus orientalis</i>	Dollarbird	P		20

Animalia	Aves	Pittidae	0352	<i>Pitta versicolor</i>	Noisy Pitta	P	11
Animalia	Aves	Menuridae	0350	<i>Menura novaehollandiae</i>	Superb Lyrebird	P	13
Animalia	Aves	Climacteridae	0558	<i>Cormobates leucophaea</i>	White-throated Treecreeper	P	7
Animalia	Aves	Ptilonorhynchidae	0676	<i>Ailuroedus crassirostris</i>	Green Catbird	P	1
Animalia	Aves	Ptilonorhynchidae	0679	<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird	P	22
Animalia	Aves	Maluridae	0529	<i>Malurus cyaneus</i>	Superb Fairy-wren	P	344
Animalia	Aves	Maluridae	0536	<i>Malurus lamberti</i>	Variagated Fairy-wren	P	55
Animalia	Aves	Maluridae	9038	<i>Malurus sp.</i>	Unidentified Fairy-wren	P	5
Animalia	Aves	Maluridae	0526	<i>Stipiturus malachurus</i>	Southern Emu-wren	P	1
Animalia	Aves	Acanthizidae	0486	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	P	5
Animalia	Aves	Acanthizidae	0470	<i>Acanthiza lineata</i>	Striated Thornbill	P	1
Animalia	Aves	Acanthizidae	0471	<i>Acanthiza nana</i>	Yellow Thornbill	P	22
Animalia	Aves	Acanthizidae	0475	<i>Acanthiza pusilla</i>	Brown Thornbill	P	37
Animalia	Aves	Acanthizidae	0454	<i>Gerygone mouki</i>	Brown Gerygone	P	23
Animalia	Aves	Acanthizidae	0453	<i>Gerygone olivacea</i>	White-throated Gerygone	P	2
Animalia	Aves	Acanthizidae	0493	<i>Neosericornis citreogularis</i>	Yellow-throated Scrubwren	P	1
Animalia	Aves	Acanthizidae	0488	<i>Sericornis frontalis</i>	White-browed Scrubwren	P	356
Animalia	Aves	Acanthizidae	0494	<i>Sericornis magnirostra</i>	Large-billed Scrubwren	P	2
Animalia	Aves	Acanthizidae	0465	<i>Smicronis brevisrostris</i>	Weebill	P	1
Animalia	Aves	Pardalotidae	0565	<i>Pardalotus punctatus</i>	Spotted Pardalote	P	62
Animalia	Aves	Pardalotidae	T023	<i>Pardalotus sp.</i>	Unidentified Pardalote	P	2
Animalia	Aves	Pardalotidae	0976	<i>Pardalotus striatus</i>	Striated Pardalote	P	1
Animalia	Aves	Meliphagidae	0591	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	P	237
Animalia	Aves	Meliphagidae	0638	<i>Anthochaera carunculata</i>	Red Wattlebird	P	179
Animalia	Aves	Meliphagidae	0710	<i>Anthochaera chrysoptera</i>	Little Wattlebird	P	56
Animalia	Aves	Meliphagidae	0603	<i>Anthochaera phrygia</i>	Regent Honeyeater	E4A,P,2 CE	2
Animalia	Aves	Meliphagidae	T210	<i>Anthochaera sp.</i>	Unidentified Wattlebird	P	129
Animalia	Aves	Meliphagidae	0614	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	P	202
Animalia	Aves	Meliphagidae	0448	<i>Epthianura albifrons</i>	White-fronted Chat population in the Sydney Metropolitan Catchment Management Area	E2,V,P	1
Animalia	Aves	Meliphagidae	0448	<i>Epthianura albifrons</i>	White-fronted Chat	V,P	1
Animalia	Aves	Meliphagidae	0598	<i>Grantiella picta</i>	Painted Honeyeater	V,P V	1
Animalia	Aves	Meliphagidae	0619	<i>Lichenostomus melanops</i>	Yellow-tufted Honeyeater	P	1
Animalia	Aves	Meliphagidae	0597	<i>Lichmera indistincta</i>	Brown Honeyeater	P	3
Animalia	Aves	Meliphagidae	0634	<i>Manorina melanocephala</i>	Noisy Miner	P	3872
Animalia	Aves	Meliphagidae	0633	<i>Manorina melanophrys</i>	Bell Miner	P	4
Animalia	Aves	Meliphagidae	0605	<i>Meliphaga lewinii</i>	Lewin's Honeyeater	P	4
Animalia	Aves	Meliphagidae	8303	<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V,P	1
Animalia	Aves	Meliphagidae	0578	<i>Melithreptus lunatus</i>	White-naped Honeyeater	P	13
Animalia	Aves	Meliphagidae	0586	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	P	5
Animalia	Aves	Meliphagidae	0646	<i>Philemon citreogularis</i>	Little Friarbird	P	1
Animalia	Aves	Meliphagidae	0645	<i>Philemon corniculatus</i>	Noisy Friarbird	P	10
Animalia	Aves	Meliphagidae	T908	<i>Philemon sp.</i>		P	1
Animalia	Aves	Meliphagidae	0632	<i>Phylidonyris niger</i>	White-cheeked Honeyeater	P	203
Animalia	Aves	Meliphagidae	0631	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	P	234
Animalia	Aves	Meliphagidae	0625	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	P	19
Animalia	Aves	Falconculidae	9951	<i>Falculculus frontatus</i>		P	2
Animalia	Aves	Falconculidae	0416	<i>Falculculus frontatus frontatus</i>	Eastern Shrike-tit	P	3
Animalia	Aves	Psophodidae	0421	<i>Psophodes olivaceus</i>	Eastern Whipbird	P	255
Animalia	Aves	Neositidae	0549	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P	1
Animalia	Aves	Campephagidae	0424	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	P	85
Animalia	Aves	Campephagidae	0425	<i>Coracina papuensis</i>	White-bellied Cuckoo-shrike	P	1
Animalia	Aves	Campephagidae	0429	<i>Edolisoma tenuirostris</i>	Cicadabird	P	1
Animalia	Aves	Campephagidae	0430	<i>Lalage sueurii</i>	White-winged Triller	P	2
Animalia	Aves	Pachycephalidae	0408	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	P	9
Animalia	Aves	Pachycephalidae	0398	<i>Pachycephala pectoralis</i>	Golden Whistler	P	36
Animalia	Aves	Pachycephalidae	0401	<i>Pachycephala rufiventris</i>	Rufous Whistler	P	23
Animalia	Aves	Oriolidae	0671	<i>Oriolus sagittatus</i>	Olive-backed Oriole	P	17
Animalia	Aves	Oriolidae	0432	<i>Sphecotheres vieilloti</i>	Australasian Figbird	P	545
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P	3
Animalia	Aves	Artamidae	0543	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	P	3
Animalia	Aves	Artamidae	0544	<i>Artamus personatus</i>	Masked Woodswallow	P	1
Animalia	Aves	Artamidae	0700	<i>Cracticus nigrogularis</i>	Pied Butcherbird	P	44
Animalia	Aves	Artamidae	T022	<i>Cracticus sp.</i>	Unidentified Butcherbird	P	259
Animalia	Aves	Artamidae	0702	<i>Cracticus torquatus</i>	Grey Butcherbird	P	633
Animalia	Aves	Artamidae	0705	<i>Gymnorhina tibicen</i>	Australian Magpie	P	3258
Animalia	Aves	Artamidae	8499	<i>Gymnorhina tibicen tibicen</i>		P	2
Animalia	Aves	Artamidae	0694	<i>Strepera graculina</i>	Pied Currawong	P	1436
Animalia	Aves	Artamidae	T906	<i>Strepera sp.</i>		P	132

Animalia	Aves	Artamidae	0697	<i>Strepera versicolor</i>	Grey Currawong	P		124
Animalia	Aves	Dicruridae	0673	<i>Dicrurus bracteatus</i>	Spangled Drongo	P		24
Animalia	Aves	Rhipiduridae	0361	<i>Rhipidura albiscapa</i>	Grey Fantail	P		40
Animalia	Aves	Rhipiduridae	0364	<i>Rhipidura leucophrys</i>	Willie Wagtail	P		183
Animalia	Aves	Rhipiduridae	0362	<i>Rhipidura rufifrons</i>	Rufous Fantail	P		34
Animalia	Aves	Corvidae	0930	<i>Corvus coronoides</i>	Australian Raven	P		762
Animalia	Aves	Corvidae	0954	<i>Corvus mellori</i>	Little Raven	P		10
Animalia	Aves	Corvidae	9902	<i>Corvus orru</i>	Torresian Crow	P		13
Animalia	Aves	Corvidae	9067	<i>Corvus sp.</i>	Unidentified Corvid	P		115
Animalia	Aves	Monarchidae	0415	<i>Grallina cyanoleuca</i>	Magpie-lark	P		299
Animalia	Aves	Monarchidae	0373	<i>Monarcha melanopsis</i>	Black-faced Monarch	P		38
Animalia	Aves	Monarchidae	0366	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	P		4
Animalia	Aves	Monarchidae	9955	<i>Myiagra inquieta</i>	Restless Flycatcher	P		1
Animalia	Aves	Monarchidae	0365	<i>Myiagra rubecula</i>	Leadend Flycatcher	P		4
Animalia	Aves	Monarchidae	9078	<i>Myiagra sp.</i>	unidentified Flycatcher	P		3
Animalia	Aves	Petroicidae	0392	<i>Eopsaltria australis</i>	Eastern Yellow Robin	P		70
Animalia	Aves	Petroicidae	0377	<i>Microeca fascians</i>	Jacky Winter	P		8
Animalia	Aves	Petroicidae	0384	<i>Petroica rosea</i>	Rose Robin	P		7
Animalia	Aves	Alaudidae	0993	<i>Alauda arvensis</i>	* Eurasian Skylark			1
Animalia	Aves	Cisticolidae	0525	<i>Cisticola exilis</i>	Golden-headed Cisticola	P		2
Animalia	Aves	Acrocephalidae	0524	<i>Acrocephalus australis</i>	Australian Reed-Warbler	P		11
Animalia	Aves	Locustellidae	0522	<i>Poodytes gramineus</i>	Little Grassbird	P		1
Animalia	Aves	Hirundinidae	0357	<i>Hirundo neoxena</i>	Welcome Swallow	P		605
Animalia	Aves	Hirundinidae	0360	<i>Petrochelidon ariel</i>	Fairy Martin	P		11
Animalia	Aves	Hirundinidae	0359	<i>Petrochelidon nigricans</i>	Tree Martin	P		26
Animalia	Aves	Pycnonotidae	0990	<i>Pycnonotus jocosus</i>	* Red-whiskered Bulbul			71
Animalia	Aves	Turdidae	0991	<i>Turdus merula</i>	* Eurasian Blackbird			15
Animalia	Aves	Turdidae	0779	<i>Zoothera lunulata</i>	Bassian Thrush	P		3
Animalia	Aves	Sturnidae	0998	<i>Acridotheres tristis</i>	* Common Myna			593
Animalia	Aves	Sturnidae	0999	<i>Sturnus vulgaris</i>	* Common Starling			121
Animalia	Aves	Zosteropidae	0574	<i>Zosterops lateralis</i>	Silvereye	P		326
Animalia	Aves	Dicaeidae	0564	<i>Dicaeum hirundinaceum</i>	Mistletoebird	P		6
Animalia	Aves	Estrildidae	0657	<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	P		1
Animalia	Aves	Estrildidae	0983	<i>Lonchura punctulata</i>	* Nutmeg Mannikin			4
Animalia	Aves	Estrildidae	0664	<i>Neochmia phaeton</i>	Crimson Finch	P		1
Animalia	Aves	Estrildidae	0662	<i>Neochmia temporalis</i>	Red-browed Finch	P		33
Animalia	Aves	Estrildidae	8621	<i>Neochmia temporalis temporalis</i>		P		2
Animalia	Aves	Estrildidae	0652	<i>Stagonopleura guttata</i>	Diamond Firetail	V,P	V	1
Animalia	Aves	Estrildidae	0655	<i>Stizoptera bichenovii</i>	Double-barred Finch	P		2
Animalia	Aves	Estrildidae	0653	<i>Taeniopygia guttata</i>	Zebra Finch	P		3
Animalia	Aves	Passeridae	0995	<i>Passer domesticus</i>	* House Sparrow			77
Animalia	Aves	Passeridae	0994	<i>Passer montanus</i>	* Eurasian Tree Sparrow			2
Animalia	Aves	Motacillidae	0647	<i>Anthus novaeseelandiae</i>	Australian Pipit	P		2
Animalia	Aves	Fringillidae	0996	<i>Carduelis carduelis</i>	* European Goldfinch			2
Animalia	Aves	Fringillidae	0997	<i>Chloris chloris</i>	* European Greenfinch			5
Animalia	Mammalia	Ornithorhynchidae	1001	<i>Ornithorhynchus anatinus</i>	Platypus	P		2
Animalia	Mammalia	Tachyglossidae	1003	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	P		55
Animalia	Mammalia	Dasyuridae	1956	<i>Antechinus mimetes</i>	Mainland Dusky Antechinus	P		1
Animalia	Mammalia	Dasyuridae	T093	<i>Antechinus sp.</i>	Unidentified Antechinus	P		22
Animalia	Mammalia	Dasyuridae	1674	<i>Antechinus stuartii</i>	Brown Antechinus	P		10
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	7
Animalia	Mammalia	Dasyuridae	1061	<i>Sminthopsis murina</i>	Common Dunnart	P		1
Animalia	Mammalia	Peramelidae	T081	<i>Isoodon/Perameles sp.</i>	unidentified Bandicoot	P		29
Animalia	Mammalia	Peramelidae	1097	<i>Perameles nasuta</i>	Long-nosed Bandicoot	P		1342
Animalia	Mammalia	Peramelidae	1097	<i>Perameles nasuta</i>	Long-nosed Bandicoot population in inner western Svdnev	E2,P		19
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	E1,P	E	13
Animalia	Mammalia	Vombatidae	1165	<i>Vombatus ursinus</i>	Bare-nosed Wombat	P		6
Animalia	Mammalia	Burramyidae	1150	<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V,P		1
Animalia	Mammalia	Petauridae	1138	<i>Petaurus breviceps</i>	Sugar Glider	P		27
Animalia	Mammalia	Pseudocheiridae	1129	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum	P		10486
Animalia	Mammalia	Acrobatidae	1147	<i>Acrobates pygmaeus</i>	Feathertail Glider	P		6
Animalia	Mammalia	Phalangeridae	1736	<i>Trichosurus cunninghami</i>	Mountain Brushtail Possum	P		2
Animalia	Mammalia	Phalangeridae	T082	<i>Trichosurus sp.</i>	brushtail possum	P		653
Animalia	Mammalia	Phalangeridae	1113	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	P		5382
Animalia	Mammalia	Macropodidae	1265	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	P		24
Animalia	Mammalia	Macropodidae	T085	<i>Macropus sp.</i>	kangaroo / wallaby	P		25
Animalia	Mammalia	Macropodidae	1261	<i>Notamacropus rufogriseus</i>	Red-necked Wallaby	P		5
Animalia	Mammalia	Macropodidae	1242	<i>Wallabia bicolor</i>	Swamp Wallaby	P		18
Animalia	Mammalia	Pteropodidae	1282	<i>Pteropus alecto</i>	Black Flying-fox	P		388
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	6047
Animalia	Mammalia	Pteropodidae	1281	<i>Pteropus scapulatus</i>	Little Red Flying-fox	P		7
Animalia	Mammalia	Pteropodidae	T087	<i>Pteropus sp.</i>	Flying-fox	P		1013
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	V,P		10

Animalia	Mammalia	Molossidae	1324	<i>Austronomus austro</i>	White-striped Freetail-bat	P		34
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		23
Animalia	Mammalia	Molossidae	T454	<i>Molossidae sp.</i>	unidentified mastiff bat	P		4
Animalia	Mammalia	Molossidae	1940	<i>Ozimops planiceps</i>	South-eastern Free-tailed Bat			2
Animalia	Mammalia	Molossidae	1938	<i>Ozimops ridei</i>	Eastern Free-tailed Bat	P		100
Animalia	Mammalia	Vespertilionidae	1353	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	E1,P	E	8
Animalia	Mammalia	Vespertilionidae	1349	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	P		233
Animalia	Mammalia	Vespertilionidae	1351	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	P		9
Animalia	Mammalia	Vespertilionidae	T096	<i>Chalinolobus sp.</i>	wattled bat	P		1
Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		5
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		45
Animalia	Mammalia	Vespertilionidae	1335	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	P		6
Animalia	Mammalia	Vespertilionidae	1334	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	P		2
Animalia	Mammalia	Vespertilionidae	T092	<i>Nyctophilus sp.</i>	long-eared bat	P		9
Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		3
Animalia	Mammalia	Vespertilionidae	1365	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	P		14
Animalia	Mammalia	Vespertilionidae	1022	<i>Vespadelus darlingtoni</i>	Large Forest Bat	P		5
Animalia	Mammalia	Vespertilionidae	1377	<i>Vespadelus pumilus</i>	Eastern Forest Bat	P		3
Animalia	Mammalia	Vespertilionidae	1378	<i>Vespadelus regulus</i>	Southern Forest Bat	P		5
Animalia	Mammalia	Vespertilionidae	T088	<i>Vespadelus sp.</i>	Unidentified Eptesicus	P		4
Animalia	Mammalia	Vespertilionidae	1379	<i>Vespadelus vulturinus</i>	Little Forest Bat	P		7
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		95
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		200
Animalia	Mammalia	Muridae	1415	<i>Hydromys chrysogaster</i>	Water-rat	P		9
Animalia	Mammalia	Muridae	1412	<i>Mus musculus</i>	House Mouse			49
Animalia	Mammalia	Muridae	1466	<i>Pseudomys gracilicaudatus</i>	Eastern Chestnut Mouse	V,P		1
Animalia	Mammalia	Muridae	1455	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	1
Animalia	Mammalia	Muridae	1395	<i>Rattus fuscipes</i>	Bush Rat	P		68
Animalia	Mammalia	Muridae	1398	<i>Rattus lutreolus</i>	Swamp Rat	P		2
Animalia	Mammalia	Muridae	1409	<i>Rattus norvegicus</i>	Brown Rat			78
Animalia	Mammalia	Muridae	1408	<i>Rattus rattus</i>	Black Rat			205
Animalia	Mammalia	Muridae	T094	<i>Rattus sp.</i>	rat	P		14
Animalia	Mammalia	Otariidae	1543	<i>Arctocephalus forsteri</i>	New Zealand Fur-seal	V,P		25
Animalia	Mammalia	Otariidae	1882	<i>Arctocephalus pusillus doriferus</i>	Australian Fur-seal	V,P		9
Animalia	Mammalia	Otariidae	T099	<i>Arctocephalus sp.</i>	Unidentified Fur-seal	P		1
Animalia	Mammalia	Otariidae	1539	<i>Neophoca cinerea</i>	Australian Sea-lion	P		4
Animalia	Mammalia	Otariidae	9040	<i>Seal sp.</i>	Unidentified Seal	P		72
Animalia	Mammalia	Phocidae	1549	<i>Hydrurga leptonyx</i>	Leopard Seal	P		5
Animalia	Mammalia	Phocidae	1546	<i>Mirounga leonina</i>	Southern Elephant Seal	P		1
Animalia	Mammalia	Canidae	1905	<i>Canis familiaris</i>	Dog			22
Animalia	Mammalia	Canidae	1531	<i>Canis lupus</i>	Dingo, domestic dog			5
Animalia	Mammalia	Canidae	1904	<i>Canis lupus dingo</i>	Dingo			21
Animalia	Mammalia	Canidae	1532	<i>Vulpes vulpes</i>	Fox			147
Animalia	Mammalia	Felidae	1536	<i>Felis catus</i>	Cat			136
Animalia	Mammalia	Leporidae	1510	<i>Oryctolagus cuniculus</i>	Rabbit			37
Animalia	Mammalia	Suidae	1514	<i>Sus scrofa</i>	Pig			1
Animalia	Mammalia	Bovidae	1518	<i>Bos taurus</i>	European cattle			2
Animalia	Mammalia	Cervidae	9112	<i>Cervus sp.</i>	Unidentified Deer			7
Animalia	Mammalia	Cervidae	1523	<i>Dama dama</i>	Fallow Deer			5
Animalia	Mammalia	Balaenidae	1561	<i>Eubalaena australis</i>	Southern Right Whale	E1,P	E	2
Animalia	Mammalia	Balaenopteridae	1575	<i>Megaptera novaeangliae</i>	Humpback Whale	P		4
Animalia	Mammalia	Delphinidae	1616	<i>Delphinus delphis</i>	Common Dolphin	P		8
Animalia	Mammalia	Delphinidae	9039	<i>Dolphin sp.</i>	Unidentified Dolphin	P		1
Animalia	Mammalia	Delphinidae	1899	<i>Tursiops aduncus</i>	Indo-Pacific Bottlenose Dolphin	P		1
Animalia	Mammalia	Delphinidae	1900	<i>Tursiops truncatus</i>	Bottlenose Dolphin	P		2
Animalia	Arachnida	Araneidae	I203	<i>Argiope keyserlingi</i>	St Andrew's Cross spider			7
Animalia	Arachnida	Lycosidae	I091	<i>Lycosa sp.</i>				1
Animalia	Arachnida	Tetragnathidae	I210	<i>Nephila edulis</i>	Australian Golden Orb-weaving Spider			1
Animalia	Arachnida	Tetragnathidae	I132	<i>Nephila plumipes</i>				3
Animalia	Arachnida	Tetragnathidae	I103	<i>Phonognatha graeffei</i>	leafcurling spider			7
Animalia	Insecta	Chrysomelidae	I175	<i>Lamprolina similima</i>				1
Animalia	Insecta	Scutelleridae	I572	<i>Lamprolicra senator</i>	Green Jewel Bug			2
Animalia	Insecta	Anthophoridae	I013	<i>Amegilla sp.</i>				7
Animalia	Insecta	Apidae	I081	<i>Apis mellifera</i>	honey bee			7
Animalia	Insecta	Apidae	I015	<i>Lasioglossum sp.</i>				2
Animalia	Insecta	Ichneumonidae	I109	<i>Lissopimpla excelsa</i>	Orchid Dupe Wasp			2
Animalia	Insecta	Lycaenidae	I056	<i>Neolucia mathewi</i>	Mathew's blue			1
Animalia	Insecta	Lycaenidae	I076	<i>Zizina labradus labradus</i>	grass blue butterfly			9
Animalia	Insecta	Noctuidae	I549	<i>Cruria synopla</i>				6
Animalia	Insecta	Nymphalidae	I027	<i>Danaus plexippus</i>	Monarch Butterfly			5
Animalia	Insecta	Nymphalidae	I115	<i>Euploea core</i>	Common Crow			65
Animalia	Insecta	Nymphalidae	I032	<i>Junonia villida calybe</i>	Meadow Argus Butterfly			3

Animalia	Insecta	Nymphalidae	1075	<i>Vanessa itea</i>	Australian admiral	7
Animalia	Insecta	Nymphalidae	1062	<i>Vanessa kershawi</i>	Australian painted lady	2
Animalia	Insecta	Papilionidae	1086	<i>Graphium sarpedon choredon</i>	blue triangle	12
Animalia	Insecta	Papilionidae	1030	<i>Papilio aegeus</i>	Large Citrus Butterfly	34
Animalia	Insecta	Pieridae	1087	<i>Eurema hecabe hecabe</i>	common grass yellow	1
Animalia	Insecta	Pieridae	1028	<i>Pieris rapae</i>	* Cabbage White Butterfly	159
Animalia	Insecta	Saturniidae	1036	<i>Opodiphthera eucalypti</i>	Emperor Gum Moth	1
Animalia	Insecta	Petaluridae	1007	<i>Petalura gigantea</i>	Giant Dragonfly	E1 1
Animalia	Unknown	Unknown Fauna	T350	<i>Fauna sp.</i>	Unidentified Fauna	713
Animalia	Unknown	Unknown Fauna	T351	<i>Mammal sp.</i>	Unidentified Mammal	52
Animalia	Unknown	Unknown Fauna	T202	<i>Microchiroptera suborder</i>	Unidentified Microbat	58
Animalia	Unknown	Unknown Fauna	T1049	<i>Possum sp.</i>	unidentified possum	961
Animalia	Unknown	Unknown Fauna	9117	<i>Reptile sp.</i>	Unidentified Reptile	7
Animalia	Insecta	Coenagrionidae	1147	<i>Ischnura heterosticta</i>	common bluetail	1
Animalia	Gastropoda	Athoracophoridae	1204	<i>Triboniophorus graeffei</i>	Red-triangle Slug	1
Animalia	Insecta	Arctiinae	1176	<i>Amata annulata</i>		2
Animalia	Insecta	Arctiinae	1177	<i>Amata nigriceps</i>		4
Animalia	Insecta	Coccinellidae	1569	<i>Orcus bilunulatus</i>		2
Animalia	Insecta	Cicadellidae	1587	<i>Stenocotis depressa</i>	Black Flat-head Leafhopper	2
Plantae	Flora	Acanthaceae	11324	<i>Acanthus mollis</i>	* Bear's Breeches	2
Plantae	Flora	Acanthaceae	10427	<i>Avicennia marina subsp. australasica</i>	Grey Mangrove	6
Plantae	Flora	Acanthaceae	1003	<i>Brunoniella australis</i>	Blue Trumpet	1
Plantae	Flora	Acanthaceae	11241	<i>Hygrophila costata</i>	*	1
Plantae	Flora	Acanthaceae	1010	<i>Pseuderanthemum variabile</i>	Pastel Flower	22
Plantae	Flora	Acanthaceae	12631	<i>Ruellia squarrosa</i>	*	1
Plantae	Flora	Acanthaceae	1012	<i>Thunbergia alata</i>	* Black-eyed Susan	6
Plantae	Flora	Adoxaceae	VIBU	<i>Viburnum spp.</i>	*	4
Plantae	Flora	Adoxaceae	1956	<i>Viburnum suspensum</i>	*	1
Plantae	Flora	Adoxaceae	11676	<i>Viburnum tinus</i>	*	1
Plantae	Flora	Agavaceae	1016	<i>Agave americana</i>	* Century Plant	9
Plantae	Flora	Agavaceae	11669	<i>Agave attenuata</i>	*	4
Plantae	Flora	Agavaceae	AGAV	<i>Agave spp.</i>	*	4
Plantae	Flora	Agavaceae	7893	<i>Furcraea foetida</i>	*	1
Plantae	Flora	Agavaceae	1021	<i>Yucca aloifolia</i>	* Spanish Bayonet	1
Plantae	Flora	Agavaceae	YUCC	<i>Yucca spp.</i>		3
Plantae	Flora	Aizoaceae	1025	<i>Carpobrotus glaucescens</i>	Pigface	2
Plantae	Flora	Aizoaceae	TETR	<i>Tetragonia spp.</i>		1
Plantae	Flora	Aizoaceae	11185	<i>Tetragonia tetragonioides</i>	New Zealand Spinach	17
Plantae	Flora	Alismataceae	1043	<i>Alisma plantago-aquatica</i>	Water Plantain	3
Plantae	Flora	Alismataceae	1046	<i>Sagittaria montevidensis</i>	* Arrowhead	1
Plantae	Flora	Alismataceae	11230	<i>Sagittaria platyphylla</i>	* Sagittaria	3
Plantae	Flora	Alliaceae	11777	<i>Agapanthus africanus</i>	* Lily of the Nile	4
Plantae	Flora	Alliaceae	10418	<i>Agapanthus praecox subsp. orientalis</i>	*	18
Plantae	Flora	Alliaceae	AGAP	<i>Agapanthus spp.</i>	*	11
Plantae	Flora	Alliaceae	3513	<i>Allium triquetrum</i>	* Three-corned Garlic	1
Plantae	Flora	Alliaceae	8963	<i>Nothoscordum borbonicum</i>	* Onion Weed	23
Plantae	Flora	Alstroemeriaceae	6970	<i>Alstroemeria pulchella</i>	* Parrot Alstroemeria	3
Plantae	Flora	Alstroemeriaceae	ALSR	<i>Alstroemeria spp.</i>	*	2
Plantae	Flora	Amaranthaceae	6468	<i>Achyranthes aspera</i>	Chaff Flower	4
Plantae	Flora	Amaranthaceae	6478	<i>Alternanthera denticulata</i>	Lesser Joyweed	3
Plantae	Flora	Amaranthaceae	1050	<i>Alternanthera philoxeroides</i>	* Alligator Weed	2
Plantae	Flora	Amaranthaceae	7191	<i>Alternanthera pungens</i>	* Khaki Weed	2
Plantae	Flora	Amaranthaceae	1051	<i>Amaranthus albus</i>	* Tumbleweed	4
Plantae	Flora	Amaranthaceae	10420	<i>Amaranthus blitum</i>	*	11
Plantae	Flora	Amaranthaceae	1053	<i>Amaranthus deflexus</i>	* Spreading Amaranth	1
Plantae	Flora	Amaranthaceae	1055	<i>Amaranthus hybridus</i>	* Slim Amaranth	6
Plantae	Flora	Amaranthaceae	9092	<i>Amaranthus macrocarpus var. macrocarpus</i>		1
Plantae	Flora	Amaranthaceae	9093	<i>Amaranthus macrocarpus var. pallidus</i>		2
Plantae	Flora	Amaranthaceae	1062	<i>Amaranthus retroflexus</i>	* Redroot Amaranth	1
Plantae	Flora	Amaranthaceae	1064	<i>Amaranthus viridis</i>	* Green Amaranth	13
Plantae	Flora	Amaranthaceae	1066	<i>Froelichia gracilis</i>	*	1
Plantae	Flora	Amaranthaceae	7056	<i>Gomphrena celosioides</i>	* Gomphrena Weed	3
Plantae	Flora	Amaryllidaceae	11699	<i>Clivia miniata</i>	*	12
Plantae	Flora	Amaryllidaceae	CLIV	<i>Clivia spp.</i>	*	2
Plantae	Flora	Amaryllidaceae	3539	<i>Crinum pedunculatum</i>	Swamp Lily	2
Plantae	Flora	Anacardiaceae	9351	<i>Mangifera indica</i>	* Mango	4
Plantae	Flora	Anacardiaceae	9604	<i>Pistacia chinensis</i>	* Chinese Pistachio	2
Plantae	Flora	Anacardiaceae	1086	<i>Schinus areira</i>	* Pepper Tree	5
Plantae	Flora	Anacardiaceae	10918	<i>Schinus terebinthifolius</i>	* Brazilian Pepper Tree	1
Plantae	Flora	Anacardiaceae	10050	<i>Toxicodendron succedaneum</i>	* Rhus Tree	8

Plantae	Flora	Anthericaceae	7333	<i>Caesia parviflora</i> var. <i>vittata</i>		1
Plantae	Flora	Anthericaceae	CAES	<i>Caesia</i> spp.		1
Plantae	Flora	Anthericaceae	3538	<i>Chlorophytum comosum</i>	*	Spider Plant
Plantae	Flora	Anthericaceae	CHLR	<i>Chlorophytum</i> spp.	*	2
Plantae	Flora	Anthericaceae	3556	<i>Laxmannia gracilis</i>		Slender Wire Lily
Plantae	Flora	Anthericaceae	3567	<i>Sowerbaea juncea</i>		Vanilla Plant
Plantae	Flora	Anthericaceae	3572	<i>Thysanotus juncifolius</i>		2
Plantae	Flora	Anthericaceae	7355	<i>Tricoryne elatior</i>		Yellow Autumn-lily
Plantae	Flora	Aphanopetalaceae	2266	<i>Aphanopetalum resinosum</i>		Gum Vine
Plantae	Flora	Apiaceae	1094	<i>Actinotus helianthi</i>		Flannel Flower
Plantae	Flora	Apiaceae	1095	<i>Actinotus minor</i>		P Lesser Flannel Flower
Plantae	Flora	Apiaceae	1101	<i>Apium graveolens</i>	*	Celery
Plantae	Flora	Apiaceae	1104	<i>Apium prostratum</i>		Sea Celery
Plantae	Flora	Apiaceae	1106	<i>Centella asiatica</i>		Indian Pennywort
Plantae	Flora	Apiaceae	8754	<i>Centella cordifolia</i>		1
Plantae	Flora	Apiaceae	1107	<i>Conium maculatum</i>	*	Hemlock
Plantae	Flora	Apiaceae	11064	<i>Coriandrum sativum</i>	*	Coriander
Plantae	Flora	Apiaceae	11195	<i>Cyclospermum leotophyllum</i>	*	Slender Celery
Plantae	Flora	Apiaceae	6453	<i>Eryngium pandanifolium</i>	*	5
Plantae	Flora	Apiaceae	1118	<i>Foeniculum vulgare</i>	*	Fennel
Plantae	Flora	Apiaceae	7959	<i>Hydrocotyle acutiloba</i>		2
Plantae	Flora	Apiaceae	1123	<i>Hydrocotyle bonariensis</i>	*	8
Plantae	Flora	Apiaceae	1128	<i>Hydrocotyle laxiflora</i>		Stinking Pennywort
Plantae	Flora	Apiaceae	7961	<i>Hydrocotyle sibthorpioides</i>		17
Plantae	Flora	Apiaceae	8572	<i>Hydrocotyle</i> sp. aff. <i>acutiloba</i>		2
Plantae	Flora	Apiaceae	HYDR	<i>Hydrocotyle</i> spp.		2
Plantae	Flora	Apiaceae	1144	<i>Platysace lanceolata</i>		Shrubby Platysace
Plantae	Flora	Apiaceae	1145	<i>Platysace linearifolia</i>		7
Plantae	Flora	Apiaceae	1162	<i>Xanthosia pilosa</i>		Woolly Xanthosia
Plantae	Flora	Apiaceae	1163	<i>Xanthosia tridentata</i>		Rock Xanthosia
Plantae	Flora	Apocynaceae	11047	<i>Araujia sericifera</i>	*	Moth Vine
Plantae	Flora	Apocynaceae	1224	<i>Asclepias curassavica</i>	*	Blood Flower
Plantae	Flora	Apocynaceae	1169	<i>Catharanthus roseus</i>	*	Madagascar Periwinkle
Plantae	Flora	Apocynaceae	1227	<i>Gomphocarpus fruticosus</i>	*	Narrow-leaved Cotton Bush
Plantae	Flora	Apocynaceae	1228	<i>Gomphocarpus physocarpus</i>	*	Balloon Cotton Bush
Plantae	Flora	Apocynaceae	GOMH	<i>Gomphocarpus</i> spp.	*	1
Plantae	Flora	Apocynaceae	1231	<i>Marsdenia flavescens</i>		Hairy Milk Vine
Plantae	Flora	Apocynaceae	1234	<i>Marsdenia rostrata</i>		Milk Vine
Plantae	Flora	Apocynaceae	MARS	<i>Marsdenia</i> spp.		1
Plantae	Flora	Apocynaceae	1235	<i>Marsdenia suaveolens</i>		Scented Marsdenia
Plantae	Flora	Apocynaceae	10204	<i>Nerium oleander</i>	*	Oleander
Plantae	Flora	Apocynaceae	PARS	<i>Parsonsia</i> spp.		1
Plantae	Flora	Apocynaceae	1185	<i>Parsonsia straminea</i>		Common Silkpod
Plantae	Flora	Apocynaceae	11702	<i>Plumeria rubra</i>	*	Frangipani
Plantae	Flora	Apocynaceae	PLMR	<i>Plumeria</i> spp.	*	Frangipani
Plantae	Flora	Apocynaceae	11745	<i>Trachelospermum jasminoides</i>	*	3
Plantae	Flora	Apocynaceae	1240	<i>Tylophora barbata</i>		Bearded Tylophora
Plantae	Flora	Araceae	8672	<i>Alocasia brisbanensis</i>		Cunjevoi
Plantae	Flora	Araceae	ALOC	<i>Alocasia</i> spp.		2
Plantae	Flora	Araceae	12671	<i>Alocasia zebrina</i>	*	1
Plantae	Flora	Araceae	1193	<i>Arum italicum</i>	*	Italian Arum
Plantae	Flora	Araceae	1194	<i>Colocasia esculenta</i>	*	Taro
Plantae	Flora	Araceae	1195	<i>Gymnostachys anceps</i>		Settler's Twine
Plantae	Flora	Araceae	12673	<i>Homalomena lauterbachii</i>	*	1
Plantae	Flora	Araceae	11289	<i>Monstera deliciosa</i>	*	Fruit Salad Plant
Plantae	Flora	Araceae	11660	<i>Monstera</i> spp.	*	1
Plantae	Flora	Araceae	11329	<i>Philodendron bipinnatifidum</i>	*	Philodendron
Plantae	Flora	Araceae	PHIO	<i>Philodendron</i> spp.	*	3
Plantae	Flora	Araceae	9308	<i>Pistia stratiotes</i>	*	Water Lettuce
Plantae	Flora	Araceae	1198	<i>Zantedeschia aethiopica</i>	*	Arum Lily
Plantae	Flora	Araliaceae	1201	<i>Astrotricha floccosa</i>		12
Plantae	Flora	Araliaceae	1205	<i>Astrotricha longifolia</i>		2
Plantae	Flora	Araliaceae	1207	<i>Hedera helix</i>	*	English Ivy
Plantae	Flora	Araliaceae	HEDE	<i>Hedera</i> spp.	*	2
Plantae	Flora	Araliaceae	12681	<i>Meryta sinclairii</i>	*	1
Plantae	Flora	Araliaceae	1209	<i>Polyscias elegans</i>		Celery Wood
Plantae	Flora	Araliaceae	1210	<i>Polyscias murrayi</i>		Pencil Cedar
Plantae	Flora	Araliaceae	1211	<i>Polyscias sambucifolia</i>		Elderberry Panax
Plantae	Flora	Araliaceae	12375	<i>Polyscias sambucifolia</i> subsp. <i>decomposita</i>		Ferny Panax
Plantae	Flora	Araliaceae	12373	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>		25

Plantae	Flora	Araliaceae	POLI	<i>Polyscias spp.</i>			1
Plantae	Flora	Araliaceae	8701	<i>Schefflera actinophylla</i>	*	Umbrella Tree	12
Plantae	Flora	Araliaceae	11728	<i>Schefflera arboricola</i>	*		1
Plantae	Flora	Araliaceae	SCHE	<i>Schefflera spp.</i>	*		1
Plantae	Flora	Araliaceae	1154	<i>Trachymene incisa</i>		Trachymene	1
Plantae	Flora	Araliaceae	8785	<i>Trachymene incisa subsp. incisa</i>			2
Plantae	Flora	Araliaceae	12682	<i>Trevesia palmata</i>	*		2
Plantae	Flora	Araucariaceae	11321	<i>Araucaria bidwillii</i>	*	Bunya Pine	4
Plantae	Flora	Araucariaceae	1214	<i>Araucaria heterophylla</i>	*	Norfolk Island Pine	8
Plantae	Flora	Araucariaceae	12683	<i>Araucaria scopulorum</i>	*		1
Plantae	Flora	Arecaceae	11435	<i>Archontophoenix alexandrae</i>	*	Alexandra Palm	5
Plantae	Flora	Arecaceae	6458	<i>Archontophoenix cunninghamiana</i>		Bangalow Palm	P 13
Plantae	Flora	Arecaceae	13702	<i>Archontophoenix spp.</i>			P 1
Plantae	Flora	Arecaceae	11671	<i>Dypsis lutescens</i>	*	Yellow Butterfly Palm	2
Plantae	Flora	Arecaceae	1218	<i>Howea forsteriana</i>		Kentia Palm	P 4
Plantae	Flora	Arecaceae	1221	<i>Livistona australis</i>		Cabbage Palm	P 31
Plantae	Flora	Arecaceae	13829	<i>Livistona chinensis</i>	*	Chinese fan palm	2
Plantae	Flora	Arecaceae	11354	<i>Phoenix canariensis</i>	*	Canary Island Date Palm	40
Plantae	Flora	Arecaceae	11781	<i>Phoenix spp.</i>	*		1
Plantae	Flora	Arecaceae	11731	<i>Syagrus romanzoffiana</i>	*	Cocos Palm	16
Plantae	Flora	Arecaceae	11597	<i>Washingtonia robusta</i>	*	Washington Fan Palm	2
Plantae	Flora	Asparagaceae	11784	<i>Asparagus aethiopicus</i>	*	Asparagus Fern	90
Plantae	Flora	Asparagaceae	12136	<i>Asparagus africanus</i>	*		1
Plantae	Flora	Asparagaceae	3519	<i>Asparagus asparagoides</i>	*	Bridal Creeper	8
Plantae	Flora	Asparagaceae	3521	<i>Asparagus officinalis</i>	*	Asparagus	3
Plantae	Flora	Asparagaceae	11785	<i>Asparagus plumosus</i>	*	Climbing Asparagus Fern	7
Plantae	Flora	Asparagaceae	3522	<i>Asparagus scandens</i>	*	Asparagus Fern	1
Plantae	Flora	Asparagaceae	13703	<i>Dracaena spp.</i>	*		2
Plantae	Flora	Asparagaceae	8984	<i>Sansevieria trifasciata</i>	*	Mother-in-law's Tongue	2
Plantae	Flora	Asphodelaceae	7831	<i>Aloe maculata</i>	*	Common Soap Aloe	1
Plantae	Flora	Asphodelaceae	ALOE	<i>Aloe spp.</i>	*		2
Plantae	Flora	Asphodelaceae	11778	<i>Aloe vera</i>	*		1
Plantae	Flora	Asphodelaceae	3524	<i>Asphodelus fistulosus</i>	*	Onion Weed	1
Plantae	Flora	Asphodelaceae	3540	<i>Dianella caerulea</i>		Blue Flax-lily	93
Plantae	Flora	Asphodelaceae	6700	<i>Dianella caerulea var. caerulea</i>			4
Plantae	Flora	Asphodelaceae	7337	<i>Dianella caerulea var. producta</i>			64
Plantae	Flora	Asphodelaceae	7864	<i>Dianella congesta</i>			1
Plantae	Flora	Asphodelaceae	7783	<i>Dianella longifolia</i>		Blueberry Lily	5
Plantae	Flora	Asphodelaceae	3542	<i>Dianella revoluta</i>		Blueberry Lily	36
Plantae	Flora	Asphodelaceae	7580	<i>Dianella revoluta var. revoluta</i>			3
Plantae	Flora	Asphodelaceae	DIAN	<i>Dianella spp.</i>			4
Plantae	Flora	Aspleniaceae	8031	<i>Asplenium australasicum</i>		Bird's Nest Fern	P 23
Plantae	Flora	Aspleniaceae	8033	<i>Asplenium flabellifolium</i>		Necklace Fern	17
Plantae	Flora	Aspleniaceae	ASPL	<i>Asplenium spp.</i>			1
Plantae	Flora	Asteliaceae	11423	<i>Cordylina australis</i>	*	Cabbage Tree	3
Plantae	Flora	Asteliaceae	CORD	<i>Cordylina spp.</i>			4
Plantae	Flora	Asteliaceae	1018	<i>Cordylina stricta</i>		Narrow-leaved Palm Lily	P 3
Plantae	Flora	Asteraceae	1249	<i>Achillea distans</i>	*	Tansyleaf Milfoil	1
Plantae	Flora	Asteraceae	1255	<i>Ageratina adenophora</i>	*	Crofton Weed	42
Plantae	Flora	Asteraceae	1256	<i>Ageratina riparia</i>	*	Mistflower	6
Plantae	Flora	Asteraceae	1258	<i>Ageratum houstonianum</i>	*		1
Plantae	Flora	Asteraceae	1259	<i>Ambrosia artemisiifolia</i>	*	Annual Ragweed	4
Plantae	Flora	Asteraceae	1261	<i>Ambrosia psilostachya</i>	*	Perennial Ragweed	1
Plantae	Flora	Asteraceae	1262	<i>Ambrosia tenuifolia</i>	*	Lacy Ragweed	4
Plantae	Flora	Asteraceae	1270	<i>Anthemis cotula</i>	*	Stinking Mayweed	2
Plantae	Flora	Asteraceae	1273	<i>Arctotheca calendula</i>	*	Capeweed	3
Plantae	Flora	Asteraceae	7619	<i>Artemisia verlotiorum</i>	*	Chinese Wormwood	1
Plantae	Flora	Asteraceae	1279	<i>Aster novi-belgii</i>	*	Michaelmas Daisy	1
Plantae	Flora	Asteraceae	ASER	<i>Aster spp.</i>	*		1
Plantae	Flora	Asteraceae	1280	<i>Aster subulatus</i>	*	Wild Aster	11
Plantae	Flora	Asteraceae	1283	<i>Bidens pilosa</i>	*	Cobbler's Pegs	92
Plantae	Flora	Asteraceae	BIDE	<i>Bidens spp.</i>	*		2
Plantae	Flora	Asteraceae	1284	<i>Bidens subalternans</i>	*	Greater Beggar's Ticks	1
Plantae	Flora	Asteraceae	1285	<i>Bidens tripartita</i>	*	Burr Marigold	1
Plantae	Flora	Asteraceae	6891	<i>Brachyscome graminea</i>			1
Plantae	Flora	Asteraceae	1337	<i>Calotis cuneifolia</i>		Purple Burr-Daisy	2
Plantae	Flora	Asteraceae	1339	<i>Calotis dentex</i>		Burr-daisy	1
Plantae	Flora	Asteraceae	9734	<i>Carduus nutans subsp. nutans</i>	*	Nodding Thistle	1
Plantae	Flora	Asteraceae	CARD	<i>Carduus spp.</i>	*		2
Plantae	Flora	Asteraceae	1360	<i>Cassinia aculeata</i>		Dolly Bush	1
Plantae	Flora	Asteraceae	1363	<i>Cassinia aureonitens</i>			P 1
Plantae	Flora	Asteraceae	1369	<i>Cassinia longifolia</i>			1

Plantae	Flora	Asteraceae	14946	<i>Cassinia sifton</i>			1
Plantae	Flora	Asteraceae	1374	<i>Cassinia trinerva</i>			1
Plantae	Flora	Asteraceae	1375	<i>Cassinia uncata</i>		Sticky Cassinia	1
Plantae	Flora	Asteraceae	1378	<i>Centaurea calcitra</i>	*	Star Thistle	1
Plantae	Flora	Asteraceae	1392	<i>Chrysanthemoides monilifera</i>	*		1
Plantae	Flora	Asteraceae	9400	<i>Chrysanthemoides monilifera subsp. monilifera</i>	*	Boneseed	3
Plantae	Flora	Asteraceae	8559	<i>Chrysocephalum apiculatum</i>		Common Everlasting	3
Plantae	Flora	Asteraceae	1397	<i>Cichorium intybus</i>	*	Chicory	5
Plantae	Flora	Asteraceae	10754	<i>Cineraria lyratiformis</i>	*	African Marigold	1
Plantae	Flora	Asteraceae	1400	<i>Cirsium vulgare</i>	*	Spear Thistle	11
Plantae	Flora	Asteraceae	1404	<i>Conyza bonariensis</i>	*	Flaxleaf Fleabane	43
Plantae	Flora	Asteraceae	10138	<i>Conyza canadensis var. canadensis</i>	*	Canadian Fleabane	1
Plantae	Flora	Asteraceae	CONY	<i>Conyza spp.</i>	*		21
Plantae	Flora	Asteraceae	10442	<i>Conyza sumatrensis</i>	*	Tall fleabane	20
Plantae	Flora	Asteraceae	1409	<i>Coreopsis lanceolata</i>	*	Coreopsis	3
Plantae	Flora	Asteraceae	13836	<i>Coronidium scorpioides</i>		Button Everlasting	1
Plantae	Flora	Asteraceae	1410	<i>Cosmos bipinnatus</i>	*		1
Plantae	Flora	Asteraceae	1412	<i>Cotula australis</i>		Common Cotula	10
Plantae	Flora	Asteraceae	1414	<i>Cotula coronopifolia</i>	*	Water Buttons	4
Plantae	Flora	Asteraceae	COTU	<i>Cotula spp.</i>			3
Plantae	Flora	Asteraceae	9139	<i>Craspedia canens</i>		Grey Billy-buttons	P 1
Plantae	Flora	Asteraceae	8634	<i>Craspedia variabilis</i>		Common Billy-buttons	P 1
Plantae	Flora	Asteraceae	1421	<i>Crassocephalum crepidioides</i>	*	Thickhead	10
Plantae	Flora	Asteraceae	1423	<i>Crepis capillaris</i>	*	Smooth Hawksbeard	3
Plantae	Flora	Asteraceae	1426	<i>Cymbonotus lawsonianus</i>		Bear's Ear	1
Plantae	Flora	Asteraceae	6454	<i>Delairea odorata</i>	*	Cape Ivy	6
Plantae	Flora	Asteraceae	14577	<i>Dimorphotheca ecklonis</i>	*	Cape Daisy	2
Plantae	Flora	Asteraceae	1433	<i>Dittrichia graveolens</i>	*	Stinkwort	1
Plantae	Flora	Asteraceae	7425	<i>Epaltes australis</i>		Spreading Nut-heads	2
Plantae	Flora	Asteraceae	1439	<i>Erechtites valerianifolia</i>	*	Brazilian Fireweed	2
Plantae	Flora	Asteraceae	1441	<i>Erigeron karvinskianus</i>	*	Bony-tip Fleabane	6
Plantae	Flora	Asteraceae	9904	<i>Euchiton involucratus</i>		Star Cudweed	1
Plantae	Flora	Asteraceae	11439	<i>Euchiton japonicus</i>			3
Plantae	Flora	Asteraceae	6553	<i>Euryops chrysanthemoides</i>	*		1
Plantae	Flora	Asteraceae	1449	<i>Facelis retusa</i>	*		1
Plantae	Flora	Asteraceae	1450	<i>Galinsoga parviflora</i>	*	Potato Weed	15
Plantae	Flora	Asteraceae	12039	<i>Gamochaeta antillana</i>	*		1
Plantae	Flora	Asteraceae	10142	<i>Gamochaeta calviceps</i>	*	Cudweed	2
Plantae	Flora	Asteraceae	14493	<i>Gamochaeta coarctata</i>	*		2
Plantae	Flora	Asteraceae	10143	<i>Gamochaeta pensylvanica</i>	*	Cudweed	7
Plantae	Flora	Asteraceae	12748	<i>Gamochaeta purpurea</i>	*	Purple Cudweed	8
Plantae	Flora	Asteraceae	11722	<i>Gamochaeta spp.</i>	*		2
Plantae	Flora	Asteraceae	12749	<i>Gazania linearis</i>	*		1
Plantae	Flora	Asteraceae	9111	<i>Gazania rigens</i>	*		1
Plantae	Flora	Asteraceae	1502	<i>Helichrysum rutidolepis</i>		Pale Everlasting	2
Plantae	Flora	Asteraceae	9778	<i>Helminthotheca echioides</i>	*	Ox-tongue	1
Plantae	Flora	Asteraceae	15124	<i>Hypochaeris albiflora</i>	*	White Flatweed	1
Plantae	Flora	Asteraceae	1540	<i>Hypochaeris glabra</i>	*	Smooth Catsear	7
Plantae	Flora	Asteraceae	8788	<i>Hypochaeris radicata</i>	*	Catsear	41
Plantae	Flora	Asteraceae	HYPC	<i>Hypochaeris spp.</i>	*		3
Plantae	Flora	Asteraceae	1549	<i>Lactuca saligna</i>	*	Willow-leaved Lettuce	2
Plantae	Flora	Asteraceae	1550	<i>Lactuca serriola</i>	*	Prickly Lettuce	4
Plantae	Flora	Asteraceae	LACT	<i>Lactuca spp.</i>	*		1
Plantae	Flora	Asteraceae	1590	<i>Olearia elliptica</i>		Sticky Daisy-bush	2
Plantae	Flora	Asteraceae	1601	<i>Olearia microphylla</i>			6
Plantae	Flora	Asteraceae	1617	<i>Olearia tomentosa</i>		Toothed Daisy-bush	1
Plantae	Flora	Asteraceae	1618	<i>Olearia viscidula</i>		Wallaby Weed	1
Plantae	Flora	Asteraceae	8884	<i>Onopordum acanthium subsp. acanthium</i>	*	Scotch Thistle	4
Plantae	Flora	Asteraceae	10178	<i>Onopordum illyricum subsp. illyricum</i>	*	Illyrian Thistle	1
Plantae	Flora	Asteraceae	ONOP	<i>Onopordum spp.</i>	*		1
Plantae	Flora	Asteraceae	13708	<i>Osteospermum fruticosum</i>	*		1
Plantae	Flora	Asteraceae	8557	<i>Ozothamnus diosmifolius</i>		White Dogwood	28
Plantae	Flora	Asteraceae	8885	<i>Ozothamnus ferrugineus</i>		Tree Everlasting	1
Plantae	Flora	Asteraceae	OZOT	<i>Ozothamnus spp.</i>			1
Plantae	Flora	Asteraceae	10682	<i>Picris altissima</i>	*		1
Plantae	Flora	Asteraceae	1633	<i>Podolepis jaceoides</i>		Showy Copper-wire Daisy	2
Plantae	Flora	Asteraceae	7780	<i>Pseudognaphalium luteoalbum</i>		Jersey Cudweed	2
Plantae	Flora	Asteraceae	7914	<i>Senecio diaschides</i>			2

Plantae	Flora	Asteraceae	11162	<i>Senecio glastifolius</i>	*	Holly-leaved Senecio	1
Plantae	Flora	Asteraceae	1660	<i>Senecio glomeratus</i>			3
Plantae	Flora	Asteraceae	1664	<i>Senecio hispidulus</i>		Hill Fireweed	3
Plantae	Flora	Asteraceae	11163	<i>Senecio macroglossus</i>	*	Natal Ivy	1
Plantae	Flora	Asteraceae	6465	<i>Senecio madagascariensis</i>	*	Fireweed	16
Plantae	Flora	Asteraceae	1671	<i>Senecio minimus</i>			2
Plantae	Flora	Asteraceae	12811	<i>Senecio pinnatifolius</i> var. <i>pinnatifolius</i>			1
Plantae	Flora	Asteraceae	SENE	<i>Senecio</i> spp.		Groundsel, Fireweed	1
Plantae	Flora	Asteraceae	1681	<i>Senecio vulgaris</i>	*		4
Plantae	Flora	Asteraceae	8789	<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>		Indian Weed	4
Plantae	Flora	Asteraceae	SIGE	<i>Sigesbeckia</i> spp.			1
Plantae	Flora	Asteraceae	1684	<i>Silybum marianum</i>	*	Variegated Thistle	1
Plantae	Flora	Asteraceae	8253	<i>Solenogyne bellioides</i>		Solenogyne	2
Plantae	Flora	Asteraceae	7454	<i>Solenogyne dominii</i>			1
Plantae	Flora	Asteraceae	1686	<i>Soliva anthemifolia</i>	*	Dwarf Jo-jo	7
Plantae	Flora	Asteraceae	7851	<i>Soliva sessilis</i>	*	Bindyi	17
Plantae	Flora	Asteraceae	1689	<i>Sonchus asper</i>	*	Prickly Sowthistle	2
Plantae	Flora	Asteraceae	1690	<i>Sonchus oleraceus</i>	*	Common Sowthistle	54
Plantae	Flora	Asteraceae	SONC	<i>Sonchus</i> spp.		Sowthistle	3
Plantae	Flora	Asteraceae	1695	<i>Tagetes minuta</i>	*	Stinking Roger	4
Plantae	Flora	Asteraceae	TAGE	<i>Tagetes</i> spp.	*		1
Plantae	Flora	Asteraceae	1697	<i>Tanacetum vulgare</i>	*	Tansy	1
Plantae	Flora	Asteraceae	1698	<i>Taraxacum officinale</i>	*	Dandelion	32
Plantae	Flora	Asteraceae	TARA	<i>Taraxacum</i> spp.		Dandelion	1
Plantae	Flora	Asteraceae	14051	<i>Tragopogon porrifolius</i> subsp. <i>porrifolius</i>	*	Salsify	1
Plantae	Flora	Asteraceae	1707	<i>Vellereophyton dealbatum</i>	*	White Cudweed	1
Plantae	Flora	Asteraceae	7130	<i>Xanthium occidentale</i>	*	Noogoora Burr	2
Plantae	Flora	Asteraceae	1729	<i>Xanthium spinosum</i>	*	Bathurst Burr	6
Plantae	Flora	Asteraceae	1730	<i>Youngia japonica</i>			7
Plantae	Flora	Athyriaceae	10702	<i>Deparia petersenii</i> subsp. <i>conarua</i>			1
Plantae	Flora	Azollaceae	8049	<i>Azolla pinnata</i>			2
Plantae	Flora	Balsaminaceae	11431	<i>Impatiens balsamina</i>	*	Spotted snapweed	1
Plantae	Flora	Balsaminaceae	IMPA	<i>Impatiens</i> spp.	*		1
Plantae	Flora	Balsaminaceae	9112	<i>Impatiens walleriana</i>	*		2
Plantae	Flora	Basellaceae	1733	<i>Anredera cordifolia</i>	*	Madeira Vine	35
Plantae	Flora	Begoniaceae	BEGO	<i>Begonia</i> spp.	*		2
Plantae	Flora	Betulaceae	11739	<i>Alnus acuminata</i>	*		2
Plantae	Flora	Betulaceae	11591	<i>Betula pendula</i>	*	European White Birch	1
Plantae	Flora	Bignoniaceae	14658	<i>Dolichandra unguis-cati</i>	*		5
Plantae	Flora	Bignoniaceae	8688	<i>Jacaranda mimosifolia</i>	*	Jacaranda	41
Plantae	Flora	Bignoniaceae	JACA	<i>Jacaranda</i> spp.	*		2
Plantae	Flora	Bignoniaceae	1739	<i>Pandorea jasminoides</i>		Bower Vine	3
Plantae	Flora	Bignoniaceae	1740	<i>Pandorea pandorana</i>		Wonga Wonga Vine	62
Plantae	Flora	Bignoniaceae	10485	<i>Pandorea pandorana</i> subsp. <i>pandorana</i>		Wonga Wonga Vine	4
Plantae	Flora	Bignoniaceae	PAND	<i>Pandorea</i> spp.			1
Plantae	Flora	Bignoniaceae	11140	<i>Pithecoctenium cyanochoides</i>	*	White Trumpet Vine	2
Plantae	Flora	Bignoniaceae	1741	<i>Pyrostegia venusta</i>	*	Golden Shower	2
Plantae	Flora	Bignoniaceae	10205	<i>Tecoma capensis</i>	*	Cape Honeysuckle	1
Plantae	Flora	Blandfordiaceae	3528	<i>Blandfordia grandiflora</i>		Christmas Bells	P 1
Plantae	Flora	Blandfordiaceae	3529	<i>Blandfordia nobilis</i>		Christmas Bells	P 1
Plantae	Flora	Blechnaceae	8050	<i>Blechnum ambiguum</i>			10
Plantae	Flora	Blechnaceae	8052	<i>Blechnum cartilagineum</i>		Gristle Fern	19
Plantae	Flora	Blechnaceae	14900	<i>Blechnum neohollickii</i>			9
Plantae	Flora	Blechnaceae	8058	<i>Blechnum nudum</i>		Fishbone Water Fern	1
Plantae	Flora	Blechnaceae	14901	<i>Blechnum spinulosum</i>		Small Rasp Fern	9
Plantae	Flora	Blechnaceae	8063	<i>Blechnum wattsii</i>		Hard Water Fern	1
Plantae	Flora	Blechnaceae	DOOD	<i>Doodia</i> spp.			2
Plantae	Flora	Blechnaceae	14930	<i>Telmatoblechnum indicum</i>		Swamp Water Fern	4
Plantae	Flora	Boraginaceae	1743	<i>Amsinckia intermedia</i>	*	Common Fiddleneck	1
Plantae	Flora	Boraginaceae	1746	<i>Borago officinalis</i>	*	Borage	1
Plantae	Flora	Boraginaceae	8707	<i>Buglossoides arvensis</i>	*	Sheepweed	2
Plantae	Flora	Boraginaceae	1751	<i>Echium plantagineum</i>	*	Patterson's Curse	2
Plantae	Flora	Boraginaceae	7370	<i>Ehretia acuminata</i> var. <i>acuminata</i>		Koda	1
Plantae	Flora	Boraginaceae	EHRE	<i>Ehretia</i> spp.			1
Plantae	Flora	Boraginaceae	1758	<i>Heliotropium amplexicaule</i>	*	Blue Heliotrope	2
Plantae	Flora	Boraginaceae	1761	<i>Heliotropium europaeum</i>	*	Potato Weed	1
Plantae	Flora	Boraginaceae	12841	<i>Nonea lutea</i>	*		1
Plantae	Flora	Brassicaceae	1786	<i>Brassica fruticulosa</i>	*	Twiggy Turnip	4
Plantae	Flora	Brassicaceae	1787	<i>Brassica juncea</i>	*	Indian Mustard	1

Plantae	Flora	Brassicaceae	6762	<i>Brassica oleracea</i>	*	Collards				1
Plantae	Flora	Brassicaceae	14753	<i>Brassica rapa subsp. campestris</i>	*	Turnip				3
Plantae	Flora	Brassicaceae	BRAS	<i>Brassica spp.</i>	*	Brassica				11
Plantae	Flora	Brassicaceae	1790	<i>Brassica tournefortii</i>	*	Mediterranean Turnip				1
Plantae	Flora	Brassicaceae	1794	<i>Capsella bursa-pastoris</i>	*	Shepherd's Purse				7
Plantae	Flora	Brassicaceae	7410	<i>Cardamine flexuosa</i>	*	Wood Bittercress				2
Plantae	Flora	Brassicaceae	1795	<i>Cardamine hirsuta</i>	*	Common Bittercress				14
Plantae	Flora	Brassicaceae	7746	<i>Cardamine paucijuga</i>						1
Plantae	Flora	Brassicaceae	1815	<i>Lepidium africanum</i>	*	Common Peppergrass				4
Plantae	Flora	Brassicaceae	1817	<i>Lepidium bonariense</i>	*	Argentine Peppergrass				3
Plantae	Flora	Brassicaceae	14924	<i>Lepidium didymum</i>	*	Lesser Swinegrass				9
Plantae	Flora	Brassicaceae	LEPI	<i>Lepidium spp.</i>						1
Plantae	Flora	Brassicaceae	1833	<i>Labularia maritima</i>	*	Sweet Alyssum				4
Plantae	Flora	Brassicaceae	1839	<i>Raphanus raphanistrum</i>	*	Wild Radish				1
Plantae	Flora	Brassicaceae	1840	<i>Raphanus sativus</i>	*	Radish				1
Plantae	Flora	Brassicaceae	1854	<i>Sisymbrium officinale</i>	*	Hedge Mustard				1
Plantae	Flora	Brassicaceae	1855	<i>Sisymbrium orientale</i>	*	Indian Hedge Mustard				4
Plantae	Flora	Bromeliaceae	11214	<i>Tillandsia usneoides</i>	*					1
Plantae	Flora	Buxaceae	11688	<i>Buxus microphylla</i>	*					1
Plantae	Flora	Cabombaceae	1867	<i>Cabomba caroliniana</i>	*	Cabomba				1
Plantae	Flora	Cactaceae	11223	<i>Opuntia monacantha</i>	*	Drooping Pear				2
Plantae	Flora	Cactaceae	OPUN	<i>Opuntia spp.</i>	*					2
Plantae	Flora	Cactaceae	1875	<i>Opuntia stricta</i>	*	Common Prickly Pear				3
Plantae	Flora	Callitrichaceae	1909	<i>Callitriche stagnalis</i>	*	Common Starwort				4
Plantae	Flora	Campanulaceae	7965	<i>Isotoma fluviatilis subsp. borealis</i>						3
Plantae	Flora	Campanulaceae	10465	<i>Lobelia anceps</i>						10
Plantae	Flora	Campanulaceae	14464	<i>Lobelia andrewsii</i>		Trailing Lobelia				2
Plantae	Flora	Campanulaceae	1917	<i>Lobelia gibbosa</i>		Tall Lobelia				1
Plantae	Flora	Campanulaceae	14415	<i>Lobelia purpurascens</i>		whiteroot				15
Plantae	Flora	Campanulaceae	13182	<i>Monopsis debilis var. depressa</i>	*					2
Plantae	Flora	Campanulaceae	1934	<i>Wahlenbergia gracilis</i>		Sprawling Bluebell				28
Plantae	Flora	Campanulaceae	WAHL	<i>Wahlenbergia spp.</i>		Bluebell				5
Plantae	Flora	Cannabaceae	1939	<i>Cannabis sativa</i>	*	Indian Hemp				6
Plantae	Flora	Cannaceae	1941	<i>Canna indica</i>	*	Tous-les-mois Arrowroot				12
Plantae	Flora	Cannaceae	CANN	<i>Canna spp.</i>	*					1
Plantae	Flora	Caprifoliaceae	10755	<i>Abelia x grandiflora</i>	*					3
Plantae	Flora	Caprifoliaceae	1952	<i>Lonicera japonica</i>	*	Japanese Honeysuckle				18
Plantae	Flora	Cardiopteridaceae	3275	<i>Citronella moorei</i>						1
Plantae	Flora	Caryophyllaceae	1960	<i>Cerastium glomeratum</i>	*	Mouse-ear Chickweed				9
Plantae	Flora	Caryophyllaceae	1974	<i>Paronychia brasiliana</i>	*	Chilean Whitlow Wort, Brazilian Whitlow				4
Plantae	Flora	Caryophyllaceae	13845	<i>Petrorhagia dubia</i>	*					2
Plantae	Flora	Caryophyllaceae	7584	<i>Petrorhagia nanteuillii</i>	*	Proliferous Pink				2
Plantae	Flora	Caryophyllaceae	1979	<i>Polycarpon tetraphyllum</i>	*	Four-leaved Allseed				10
Plantae	Flora	Caryophyllaceae	1980	<i>Sagina apetala</i>	*	Annual Pearlwort				2
Plantae	Flora	Caryophyllaceae	1981	<i>Sagina procumbens</i>	*	Spreading Pearlwort				4
Plantae	Flora	Caryophyllaceae	1984	<i>Scleranthus annuus</i>	*					1
Plantae	Flora	Caryophyllaceae	7020	<i>Silene gallica var. gallica</i>	*	French Catchfly				6
Plantae	Flora	Caryophyllaceae	7021	<i>Silene gallica var. quinquevulnera</i>	*	Five-wounded Catchfly				3
Plantae	Flora	Caryophyllaceae	1996	<i>Spergularia arvensis</i>	*	Corn Spurry				3
Plantae	Flora	Caryophyllaceae	11170	<i>Spergularia bocconeii</i>	*	Bocconi's Sand-spurrey				1
Plantae	Flora	Caryophyllaceae	2000	<i>Spergularia marina</i>		Lesser Sea-spurrey				1
Plantae	Flora	Caryophyllaceae	14621	<i>Spergularia tasmanica</i>						1
Plantae	Flora	Caryophyllaceae	2006	<i>Stellaria media</i>	*	Common Chickweed				17
Plantae	Flora	Casuarinaceae	9009	<i>Allocasuarina diminuta subsp. mimica</i>						2
Plantae	Flora	Casuarinaceae	2010	<i>Allocasuarina distyla</i>						11
Plantae	Flora	Casuarinaceae	8551	<i>Allocasuarina gymnanthera</i>						1
Plantae	Flora	Casuarinaceae	2012	<i>Allocasuarina litto</i>		Black She-Oak				62
Plantae	Flora	Casuarinaceae	8321	<i>Allocasuarina portuensis</i>		Nielsen Park She-oak	E1,3	E		5
Plantae	Flora	Casuarinaceae	ALLC	<i>Allocasuarina spp.</i>						2
Plantae	Flora	Casuarinaceae	2017	<i>Allocasuarina torulosa</i>		Forest Oak				10
Plantae	Flora	Casuarinaceae	9006	<i>Casuarina cunninghamiana subsp. cunninghamiana</i>		River Oak				21
Plantae	Flora	Casuarinaceae	2022	<i>Casuarina glauca</i>		Swamp Oak				61
Plantae	Flora	Casuarinaceae	CASU	<i>Casuarina spp.</i>						2
Plantae	Flora	Celastraceae	14670	<i>Denhamia silvestris</i>		Narrow-leaved Orangebark				1
Plantae	Flora	Celastraceae	12523	<i>Elaeodendron australe var. australe</i>						1
Plantae	Flora	Centrolepidaceae	2038	<i>Centrolepis fascicularis</i>						6
Plantae	Flora	Centrolepidaceae	8807	<i>Centrolepis strigosa subsp. striosa</i>						2
Plantae	Flora	Ceratophyllaceae	2042	<i>Ceratophyllum demersum</i>		Hornwort				2

Plantae	Flora	Characeae	11408	<i>Chara spp.</i>		Chara	1
Plantae	Flora	Chenopodiaceae	2046	<i>Atriplex australasica</i>			2
Plantae	Flora	Chenopodiaceae	9614	<i>Atriplex prostrata</i>	*		3
Plantae	Flora	Chenopodiaceae	2070	<i>Atriplex semibaccata</i>		Creeping Saltbush	1
Plantae	Flora	Chenopodiaceae	ATRI	<i>Atriplex spp.</i>			1
Plantae	Flora	Chenopodiaceae	2084	<i>Chenopodium album</i>	*	Fat Hen	14
Plantae	Flora	Chenopodiaceae	2097	<i>Chenopodium murale</i>	*	Nettle-leaf Goosefoot	3
Plantae	Flora	Chenopodiaceae	CHEN	<i>Chenopodium spp.</i>		Goosefoot, Crumbweed	1
Plantae	Flora	Chenopodiaceae	15347	<i>Dysphania ambrosioides</i>	*	Mexican Tea, Wormseed	12
Plantae	Flora	Chenopodiaceae	15125	<i>Dysphania carinata</i>		Keeled Goosefoot	1
Plantae	Flora	Chenopodiaceae	15348	<i>Dysphania multifida</i>	*	Scented Goosefoot	4
Plantae	Flora	Chenopodiaceae	2110	<i>Einadia hastata</i>		Berry Saltbush	4
Plantae	Flora	Chenopodiaceae	2111	<i>Einadia nutans</i>		Climbing Saltbush	1
Plantae	Flora	Chenopodiaceae	EINA	<i>Einadia spp.</i>			1
Plantae	Flora	Chenopodiaceae	7193	<i>Einadia trigonos subsp. triaonos</i>			2
Plantae	Flora	Chenopodiaceae	9423	<i>Sarcocornia quinqueflora subsp. quinqueflora</i>			4
Plantae	Flora	Chenopodiaceae	2172	<i>Sclerolaena calcarata</i>		Redburr	1
Plantae	Flora	Chenopodiaceae	2200	<i>Suaeda australis</i>			7
Plantae	Flora	Clusiaceae	7240	<i>Hypericum gramineum</i>		Small St John's Wort	3
Plantae	Flora	Colchicaceae	3548	<i>Gloriosa superba</i>	*	Glory Lily	1
Plantae	Flora	Commelinaceae	10305	<i>Commelina africana</i>	*		3
Plantae	Flora	Commelinaceae	2209	<i>Commelina cyanea</i>		Native Wandering Jew	99
Plantae	Flora	Commelinaceae	COMM	<i>Commelina spp.</i>			2
Plantae	Flora	Commelinaceae	12216	<i>Murdannia keisak</i>	*	Marsh Dewflower	1
Plantae	Flora	Commelinaceae	POLL	<i>Pollia spp.</i>			1
Plantae	Flora	Commelinaceae	10508	<i>Tradescantia fluminensis</i>	*	Wandering Jew	72
Plantae	Flora	Commelinaceae	TRAD	<i>Tradescantia spp.</i>	*		4
Plantae	Flora	Commelinaceae	8969	<i>Tradescantia zebrina</i>	*	Silvery Inch Plant	2
Plantae	Flora	Convallariaceae	11328	<i>Ophiopogon japonicus</i>	*	Dwarf lilyturf	2
Plantae	Flora	Convallariaceae	OPHO	<i>Ophiopogon spp.</i>	*		1
Plantae	Flora	Convolvulaceae	2217	<i>Calystegia silvatica</i>	*		3
Plantae	Flora	Convolvulaceae	2220	<i>Convolvulus erubescens</i>		Pink Bindweed	2
Plantae	Flora	Convolvulaceae	2222	<i>Dichondra repens</i>		Kidney Weed	35
Plantae	Flora	Convolvulaceae	15127	<i>Dichondra sp. Inglewood</i>			2
Plantae	Flora	Convolvulaceae	DICN	<i>Dichondra spp.</i>			1
Plantae	Flora	Convolvulaceae	2224	<i>Ipomoea alba</i>	*		1
Plantae	Flora	Convolvulaceae	2225	<i>Ipomoea cairica</i>	*		16
Plantae	Flora	Convolvulaceae	2227	<i>Ipomoea indica</i>	*	Morning Glory	36
Plantae	Flora	Convolvulaceae	2229	<i>Ipomoea purpurea</i>	*	Common Morning Glory	5
Plantae	Flora	Convolvulaceae	IPOM	<i>Ipomoea spp.</i>			1
Plantae	Flora	Convolvulaceae	2231	<i>Polymeria calycina</i>			2
Plantae	Flora	Crassulaceae	9935	<i>Bryophyllum daiaremontianum</i>	*		1
Plantae	Flora	Crassulaceae	8813	<i>Bryophyllum delagoense</i>	*	Mother of millions	5
Plantae	Flora	Crassulaceae	6827	<i>Bryophyllum pinnatum</i>	*	Resurrection Plant	3
Plantae	Flora	Crassulaceae	7745	<i>Crassula decumbens var. decumbens</i>		Spreading Stonecrop	2
Plantae	Flora	Crassulaceae	11780	<i>Crassula ovata</i>	*	Jade Plant	2
Plantae	Flora	Crassulaceae	2242	<i>Crassula sieberiana</i>		Australian Stonecrop	5
Plantae	Flora	Crassulaceae	CRAS	<i>Crassula spp.</i>		Stonecrop	1
Plantae	Flora	Crassulaceae	12424	<i>Crassula tetramera</i>			1
Plantae	Flora	Crassulaceae	KALA	<i>Kalanchoe spp.</i>	*		1
Plantae	Flora	Cucurbitaceae	2255	<i>Cucurbita maxima</i>	*	Ironbark Pumpkin	1
Plantae	Flora	Cucurbitaceae	2260	<i>Sechium edule</i>	*	Choko	1
Plantae	Flora	Cunoniaceae	7219	<i>Bauera microphylla</i>			1
Plantae	Flora	Cunoniaceae	2268	<i>Bauera rubioides</i>		River Rose	4
Plantae	Flora	Cunoniaceae	2270	<i>Callicoma serratifolia</i>		Black Wattle	29
Plantae	Flora	Cunoniaceae	2271	<i>Ceratopetalum apetalum</i>		Coachwood	17
Plantae	Flora	Cunoniaceae	2272	<i>Ceratopetalum aummiferum</i>		Christmas Bush	29
Plantae	Flora	Cunoniaceae	2275	<i>Schizomeria ovata</i>		Crabapple	2
Plantae	Flora	Cupressaceae	6379	<i>Callitris glaucophylla</i>		White Cypress Pine	1
Plantae	Flora	Cupressaceae	2282	<i>Callitris muelleri</i>			5
Plantae	Flora	Cupressaceae	2285	<i>Callitris rhomboidea</i>		Port Jackson Pine	4
Plantae	Flora	Cupressaceae	13763	<i>Chamaecyparis obtusa</i>	*	hinoki false cypress	1
Plantae	Flora	Cupressaceae	11358	<i>Cupressus macrocarpa</i>	*	Monterey Cypress	2
Plantae	Flora	Cupressaceae	11359	<i>Cupressus sempervirens</i>	*	Italian Cypress	5
Plantae	Flora	Cupressaceae	11428	<i>Cupressus spp.</i>	*		7
Plantae	Flora	Cupressaceae	11361	<i>Juniperus spp.</i>	*	Juniper	1
Plantae	Flora	Cyatheaceae	8074	<i>Cyathea australis</i>		Rough Treefern	P 23
Plantae	Flora	Cyatheaceae	8076	<i>Cyathea cooperi</i>		Straw Treefern	P 29
Plantae	Flora	Cyatheaceae	8079	<i>Cyathea leichhardtiana</i>		Prickly Treefern	P 1
Plantae	Flora	Cyatheaceae	CYAT	<i>Cyathea spp.</i>			P 3
Plantae	Flora	Cycadaceae	11751	<i>Cycas revoluta</i>	*		2
Plantae	Flora	Cycadaceae	CYCA	<i>Cycas spp.</i>	*	Cycad	1
Plantae	Flora	Cyperaceae	2306	<i>Bolboschoenus flu</i>		Marsh Club-rush	1

Plantae	Flora	Cyperaceae	2310	<i>Carex appressa</i>	Tall Sedge		3
Plantae	Flora	Cyperaceae	2327	<i>Carex inversa</i>	Knob Sedge		5
Plantae	Flora	Cyperaceae	2331	<i>Carex longebrachiata</i>			1
Plantae	Flora	Cyperaceae	CARE	<i>Carex spp.</i>			1
Plantae	Flora	Cyperaceae	2341	<i>Caustis flexuosa</i>	Curly Wig	P	6
Plantae	Flora	Cyperaceae	10330	<i>Caustis recurvata</i> var. <i>hirsuta</i>		P	1
Plantae	Flora	Cyperaceae	2344	<i>Chorizandra cymbaria</i>			1
Plantae	Flora	Cyperaceae	2345	<i>Chorizandra sphaerocephala</i>	Roundhead Bristle-sedge		4
Plantae	Flora	Cyperaceae	2347	<i>Cyathochaeta diandra</i>			9
Plantae	Flora	Cyperaceae	8845	<i>Cyperus aggregatus</i>		*	4
Plantae	Flora	Cyperaceae	2348	<i>Cyperus albostrigatus</i>		*	5
Plantae	Flora	Cyperaceae	2352	<i>Cyperus bowmannii</i>			1
Plantae	Flora	Cyperaceae	2353	<i>Cyperus brevifolius</i>		*	16
Plantae	Flora	Cyperaceae	2358	<i>Cyperus congestus</i>		*	6
Plantae	Flora	Cyperaceae	7143	<i>Cyperus difformis</i>	Dirty Dora		3
Plantae	Flora	Cyperaceae	2364	<i>Cyperus eragrostis</i>	Umbrella Sedge	*	18
Plantae	Flora	Cyperaceae	2365	<i>Cyperus esculentus</i>	Yellow Nutgrass	*	3
Plantae	Flora	Cyperaceae	2374	<i>Cyperus gracilis</i>	Slender Flat-sedge		14
Plantae	Flora	Cyperaceae	2377	<i>Cyperus imbecillis</i>			4
Plantae	Flora	Cyperaceae	2378	<i>Cyperus involucreatus</i>	Umbrella Plant	*	3
Plantae	Flora	Cyperaceae	2380	<i>Cyperus laevis</i>			3
Plantae	Flora	Cyperaceae	2383	<i>Cyperus lucidus</i>	Leafy Flat Sedge		1
Plantae	Flora	Cyperaceae	2384	<i>Cyperus mirus</i>			4
Plantae	Flora	Cyperaceae	2386	<i>Cyperus papyrus</i>		*	5
Plantae	Flora	Cyperaceae	8483	<i>Cyperus polystachyos</i>			9
Plantae	Flora	Cyperaceae	7862	<i>Cyperus rigens</i>		*	1
Plantae	Flora	Cyperaceae	2393	<i>Cyperus rotundus</i>	Nutgrass	*	14
Plantae	Flora	Cyperaceae	2395	<i>Cyperus sanguinolentus</i>			6
Plantae	Flora	Cyperaceae	2398	<i>Cyperus sesquiflorus</i>		*	8
Plantae	Flora	Cyperaceae	CYPE	<i>Cyperus spp.</i>			5
Plantae	Flora	Cyperaceae	10333	<i>Cyperus vorsteri</i>		*	3
Plantae	Flora	Cyperaceae	2408	<i>Eleocharis acuta</i>			5
Plantae	Flora	Cyperaceae	2412	<i>Eleocharis dietrichiana</i>			1
Plantae	Flora	Cyperaceae	2415	<i>Eleocharis minuta</i>		*	5
Plantae	Flora	Cyperaceae	2417	<i>Eleocharis pachycarpa</i>		*	6
Plantae	Flora	Cyperaceae	6988	<i>Eleocharis sphacelata</i>	Tall Spike Rush		1
Plantae	Flora	Cyperaceae	12416	<i>Ficinia nodosa</i>	Knobby Club-rush		14
Plantae	Flora	Cyperaceae	2426	<i>Fimbristylis bisumbellata</i>			1
Plantae	Flora	Cyperaceae	7435	<i>Fimbristylis dichotoma</i>	Common Fringe-sedge		4
Plantae	Flora	Cyperaceae	2429	<i>Fimbristylis velata</i>			10
Plantae	Flora	Cyperaceae	2431	<i>Gahnia aspera</i>	Rough Saw-sedge		3
Plantae	Flora	Cyperaceae	2432	<i>Gahnia clarkei</i>	Tall Saw-sedge		7
Plantae	Flora	Cyperaceae	2433	<i>Gahnia erythrocarpa</i>			1
Plantae	Flora	Cyperaceae	2439	<i>Gahnia melanocarpa</i>	Black Fruit Saw-sedge		4
Plantae	Flora	Cyperaceae	2442	<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge	P	12
Plantae	Flora	Cyperaceae	GAHN	<i>Gahnia spp.</i>			6
Plantae	Flora	Cyperaceae	2445	<i>Gymnoschoenus sphaerocephalus</i>	Button Grass		4
Plantae	Flora	Cyperaceae	2454	<i>Isolepis inundata</i>	Club-rush		5
Plantae	Flora	Cyperaceae	14940	<i>Isolepis levynsiana</i>		*	6
Plantae	Flora	Cyperaceae	2458	<i>Isolepis platycarpa</i>			1
Plantae	Flora	Cyperaceae	2459	<i>Isolepis producta</i>			1
Plantae	Flora	Cyperaceae	2460	<i>Isolepis proflifera</i>		*	7
Plantae	Flora	Cyperaceae	6455	<i>Isolepis sepulcralis</i>		*	5
Plantae	Flora	Cyperaceae	8380	<i>Lepidosperma concavum</i>			4
Plantae	Flora	Cyperaceae	2465	<i>Lepidosperma filiforme</i>			3
Plantae	Flora	Cyperaceae	2467	<i>Lepidosperma forsythii</i>			4
Plantae	Flora	Cyperaceae	8749	<i>Lepidosperma gunnii</i>			1
Plantae	Flora	Cyperaceae	9313	<i>Lepidosperma latens</i>			1
Plantae	Flora	Cyperaceae	6402	<i>Lepidosperma laterale</i>	Variable Sword-sedge		60
Plantae	Flora	Cyperaceae	2471	<i>Lepidosperma neesii</i>			5
Plantae	Flora	Cyperaceae	14850	<i>Lepidosperma sieberi</i>			5
Plantae	Flora	Cyperaceae	LEPD	<i>Lepidosperma spp.</i>			1
Plantae	Flora	Cyperaceae	2475	<i>Lepidosperma urophorum</i>			1
Plantae	Flora	Cyperaceae	11028	<i>Lepidosperma viscidum</i>			1
Plantae	Flora	Cyperaceae	6742	<i>Lipocarpa microcephala</i>	Button Rush		2
Plantae	Flora	Cyperaceae	15318	<i>Machaerina acuta</i>	Pale Twig-rush		8
Plantae	Flora	Cyperaceae	15319	<i>Machaerina arthropphylla</i>			2
Plantae	Flora	Cyperaceae	15321	<i>Machaerina gunnii</i>			1
Plantae	Flora	Cyperaceae	15323	<i>Machaerina juncea</i>	Bare Twig-rush		2
Plantae	Flora	Cyperaceae	15325	<i>Machaerina nuda</i>			6
Plantae	Flora	Cyperaceae	15327	<i>Machaerina rubiginosa</i>			5
Plantae	Flora	Cyperaceae	MACH	<i>Machaerina spp.</i>			2
Plantae	Flora	Cyperaceae	15328	<i>Machaerina teretifolia</i>			3
Plantae	Flora	Cyperaceae	8956	<i>Ptilothrix deusta</i>			3
Plantae	Flora	Cyperaceae	2486	<i>Schoenoplectus erectus</i>		*	1

Plantae	Flora	Cyperaceae	6707	<i>Schoenoplectus mucronatus</i>					2
Plantae	Flora	Cyperaceae	2490	<i>Schoenoplectus validus</i>					2
Plantae	Flora	Cyperaceae	2491	<i>Schoenus apogon</i>			Fluke Bogrush		8
Plantae	Flora	Cyperaceae	2492	<i>Schoenus brevifolius</i>					6
Plantae	Flora	Cyperaceae	2495	<i>Schoenus ericetorum</i>					1
Plantae	Flora	Cyperaceae	2496	<i>Schoenus imberbis</i>					2
Plantae	Flora	Cyperaceae	9057	<i>Schoenus lepidosperma</i> <i>subsp. pachylepis</i>					1
Plantae	Flora	Cyperaceae	2499	<i>Schoenus maschalinus</i>					3
Plantae	Flora	Cyperaceae	2500	<i>Schoenus melanostachys</i>					11
Plantae	Flora	Cyperaceae	2501	<i>Schoenus moorei</i>					1
Plantae	Flora	Cyperaceae	2516	<i>Tetradia capillaris</i>					5
Plantae	Flora	Cyperaceae	2518	<i>Tricostularia pauciflora</i>					1
Plantae	Flora	Davalliaceae	10647	<i>Davallia solida</i> var. <i>ovoidata</i>			Hare's Foot Fern		3
Plantae	Flora	Davalliaceae	8088	<i>Nephrolepis cordifolia</i>			Fishbone Fern		47
Plantae	Flora	Davalliaceae	NEPH	<i>Nephrolepis</i> spp.					1
Plantae	Flora	Dennstaedtiaceae	7271	<i>Histiopteris incisa</i>			Bat's Wing Fern		22
Plantae	Flora	Dennstaedtiaceae	7749	<i>Hypolepis muelleri</i>			Harsh Ground Fern		25
Plantae	Flora	Dennstaedtiaceae	HYPL	<i>Hypolepis</i> spp.					1
Plantae	Flora	Dennstaedtiaceae	6403	<i>Pteridium esculentum</i>			Bracken		81
Plantae	Flora	Dicksoniaceae	8341	<i>Calochlaena dubia</i>			Rainbow Fern		81
Plantae	Flora	Dicksoniaceae	8082	<i>Dicksonia antarctica</i>			Soft Treefern	P	6
Plantae	Flora	Dilleniaceae	2527	<i>Hibbertia aspera</i>			Rough Guinea Flower		5
Plantae	Flora	Dilleniaceae	2532	<i>Hibbertia dentata</i>			Twining Guinea Flower		29
Plantae	Flora	Dilleniaceae	2539	<i>Hibbertia linearis</i>					2
Plantae	Flora	Dilleniaceae	2540	<i>Hibbertia monogyna</i>					1
Plantae	Flora	Dilleniaceae	11422	<i>Hibbertia puberula</i>				E1	1
Plantae	Flora	Dilleniaceae	7436	<i>Hibbertia salicifolia</i>					1
Plantae	Flora	Dilleniaceae	2548	<i>Hibbertia scandens</i>			Climbing Guinea Flower		13
Plantae	Flora	Dilleniaceae	2550	<i>Hibbertia serpyllifolia</i>			Hairy Guinea Flower		1
Plantae	Flora	Dioscoreaceae	6446	<i>Dioscorea transversa</i>			Native Yam		1
Plantae	Flora	Doryanthaceae	1019	<i>Doryanthes excelsa</i>			Gynea Lily	P	9
Plantae	Flora	Doryanthaceae	1020	<i>Doryanthes palmeri</i>			Giant Spear Lily	V,P	1
Plantae	Flora	Droseraceae	2556	<i>Drosera auriculata</i>					2
Plantae	Flora	Droseraceae	2559	<i>Drosera peltata</i>					1
Plantae	Flora	Droseraceae	DROS	<i>Drosera</i> spp.					1
Plantae	Flora	Dryopteridaceae	12350	<i>Cyrtomium falcatum</i> 'Rochfordii'	*		Holly Fern		2
Plantae	Flora	Ebenaceae	2562	<i>Diospyros australis</i>			Black Plum		1
Plantae	Flora	Ebenaceae	DIOS	<i>Diospyros</i> spp.					1
Plantae	Flora	Elaeocarpaceae	2574	<i>Elaeocarpus reticulatus</i>			Blueberry Ash		105
Plantae	Flora	Elaeocarpaceae	2577	<i>Sloanea woollsii</i>			Yellow Carabeen		1
Plantae	Flora	Elaeocarpaceae	6204	<i>Tetradlea ericifolia</i>					1
Plantae	Flora	Elaeocarpaceae	6205	<i>Tetradlea glandulosa</i>				V	1
Plantae	Flora	Elaeocarpaceae	6206	<i>Tetradlea juncea</i>			Black-eyed Susan	V V	2
Plantae	Flora	Elaeocarpaceae	6211	<i>Tetradlea rupicola</i>					1
Plantae	Flora	Elaeocarpaceae	6214	<i>Tetradlea thymifolia</i>			Black-eyed Susan		1
Plantae	Flora	Elatinaceae	2579	<i>Elatinia gratioloides</i>			Waterwort		2
Plantae	Flora	Ericaceae	2581	<i>Acrotriche divaricata</i>					1
Plantae	Flora	Ericaceae	11592	<i>Arbutus unedo</i>	*		Strawberry Tree		1
Plantae	Flora	Ericaceae	2584	<i>Astroloma humifusum</i>			Native Cranberry		4
Plantae	Flora	Ericaceae	2585	<i>Astroloma pinifolium</i>			Pine Heath		1
Plantae	Flora	Ericaceae	2586	<i>Brachyloma daphnoides</i>			Daphne Heath		2
Plantae	Flora	Ericaceae	2589	<i>Dracophyllum secundatum</i>					2
Plantae	Flora	Ericaceae	DRAC	<i>Dracophyllum</i> spp.					1
Plantae	Flora	Ericaceae	2594	<i>Epacris crassifolia</i>					1
Plantae	Flora	Ericaceae	2598	<i>Epacris longiflora</i>			Fuchsia Heath		15
Plantae	Flora	Ericaceae	2599	<i>Epacris microphylla</i>			Coral Heath		4
Plantae	Flora	Ericaceae	2602	<i>Epacris obtusifolia</i>			Blunt-leaf Heath		2
Plantae	Flora	Ericaceae	2605	<i>Epacris pulchella</i>			Wallum Heath		3
Plantae	Flora	Ericaceae	7752	<i>Epacris purpurascens</i> var. <i>purpurascens</i>				V	6
Plantae	Flora	Ericaceae	2610	<i>Leucopogon amplexicaulis</i>			Beard-heath		3
Plantae	Flora	Ericaceae	2611	<i>Leucopogon appressus</i>					2
Plantae	Flora	Ericaceae	2615	<i>Leucopogon deformis</i>					4
Plantae	Flora	Ericaceae	2616	<i>Leucopogon ericoides</i>			Pink Beard-heath		4
Plantae	Flora	Ericaceae	2617	<i>Leucopogon esquamatus</i>					1
Plantae	Flora	Ericaceae	2623	<i>Leucopogon juniperinus</i>			Prickly Beard-heath		20
Plantae	Flora	Ericaceae	2624	<i>Leucopogon lanceolatus</i>					5
Plantae	Flora	Ericaceae	12935	<i>Leucopogon lanceolatus</i> <i>subsp. group D</i>					1
Plantae	Flora	Ericaceae	12937	<i>Leucopogon lanceolatus</i> <i>subsp. group F</i>					4
Plantae	Flora	Ericaceae	2629	<i>Leucopogon microphyllus</i>					5
Plantae	Flora	Ericaceae	2632	<i>Leucopogon parviflorus</i>			Coastal Beard-heath		2
Plantae	Flora	Ericaceae	2639	<i>Leucopogon virgatus</i>					5

Plantae	Flora	Ericaceae	2641	<i>Lissanthe sapida</i>	Native Cranberry				1
Plantae	Flora	Ericaceae	2642	<i>Lissanthe strigosa</i>	Peach Heath				4
Plantae	Flora	Ericaceae	10713	<i>Lissanthe strigosa subsp. striosa</i>					1
Plantae	Flora	Ericaceae	11108	<i>Lissanthe strigosa subsp. subulata</i>	Peach Heath				1
Plantae	Flora	Ericaceae	2645	<i>Melichrus procumbens</i>	Jam Tarts				2
Plantae	Flora	Ericaceae	2647	<i>Monotoca elliptica</i>	Tree Broom-heath				46
Plantae	Flora	Ericaceae	2649	<i>Monotoca scoparia</i>					4
Plantae	Flora	Ericaceae	RDND	<i>Rhododendron spp.</i>		*			1
Plantae	Flora	Ericaceae	2655	<i>Sprengelia sprengelioides</i>					3
Plantae	Flora	Ericaceae	8962	<i>Styphelia laeta subsp. laeta</i>					1
Plantae	Flora	Ericaceae	2659	<i>Styphelia longifolia</i>					5
Plantae	Flora	Ericaceae	12953	<i>Styphelia triflora subsp. aroup C</i>					1
Plantae	Flora	Ericaceae	2661	<i>Styphelia tubiflora</i>	Red Five-Corner				2
Plantae	Flora	Ericaceae	9227	<i>Styphelia viridis subsp. viridis</i>					5
Plantae	Flora	Ericaceae	2663	<i>Trochocarpa laurina</i>	Tree Heath				2
Plantae	Flora	Ericaceae	2664	<i>Woolisia pungens</i>					7
Plantae	Flora	Eriocaulaceae	2670	<i>Eriocaulon scariosum</i>					4
Plantae	Flora	Euphorbiaceae	9705	<i>Acalypha australis</i>		*			2
Plantae	Flora	Euphorbiaceae	ACAL	<i>Acalypha spp.</i>					1
Plantae	Flora	Euphorbiaceae	9359	<i>Aleurites moluccana</i>		*			1
Plantae	Flora	Euphorbiaceae	2677	<i>Amperea xiphioclada</i>	Candle Nut				1
Plantae	Flora	Euphorbiaceae	9501	<i>Amperea xiphioclada var. pedicellata</i>			E4	X	1
Plantae	Flora	Euphorbiaceae	9713	<i>Amperea xiphioclada var. xiphioclada</i>					4
Plantae	Flora	Euphorbiaceae	2698	<i>Claoxylon australe</i>	Brittlewood				2
Plantae	Flora	Euphorbiaceae	2703	<i>Croton insularis</i>	Silver Croton				1
Plantae	Flora	Euphorbiaceae	2710	<i>Euphorbia dallachyana</i>					1
Plantae	Flora	Euphorbiaceae	9753	<i>Euphorbia depauperata var. pubescens</i>		*			3
Plantae	Flora	Euphorbiaceae	6426	<i>Euphorbia hirta</i>		*			3
Plantae	Flora	Euphorbiaceae	15254	<i>Euphorbia maculata</i>		*			5
Plantae	Flora	Euphorbiaceae	2721	<i>Euphorbia peplus</i>	Spotted Spurge				27
Plantae	Flora	Euphorbiaceae	2723	<i>Euphorbia prostrata</i>	Petty Spurge				5
Plantae	Flora	Euphorbiaceae	11325	<i>Euphorbia pulcherrima</i>	Red Caustic Weed				3
Plantae	Flora	Euphorbiaceae	EUPR	<i>Euphorbia spp.</i>	Poinsettia				1
Plantae	Flora	Euphorbiaceae	11947	<i>Homalanthus populifolius</i>					94
Plantae	Flora	Euphorbiaceae	2738	<i>Monotaxis linifolia</i>					1
Plantae	Flora	Euphorbiaceae	2759	<i>Ricinocarpos pinifolius</i>	Wedding Bush				9
Plantae	Flora	Euphorbiaceae	2761	<i>Ricinus communis</i>	Castor Oil Plant	*			23
Plantae	Flora	Euphorbiaceae	11199	<i>Triadica sebifera</i>	Chinese Tallowood	*			8
Plantae	Flora	Eupomatiaceae	2768	<i>Eupomatia laurina</i>	Bolwarra				6
Plantae	Flora	Fabaceae	BAUH	<i>Bauhinia spp.</i>		*			1
Plantae	Flora	(Caesalpinioideae) Fabaceae	8985	<i>Bauhinia variegata</i>		*			2
Plantae	Flora	(Caesalpinioideae) Fabaceae	1901	<i>Gleditsia triacanthos</i>	Pink Orchid Tree	*			10
Plantae	Flora	(Caesalpinioideae) Fabaceae	14602	<i>Senna barronfieldii</i>	Honey Locust				1
Plantae	Flora	(Caesalpinioideae) Fabaceae	9352	<i>Senna didymobotrya</i>		*			2
Plantae	Flora	(Caesalpinioideae) Fabaceae	7377	<i>Senna pendula var. alabrata</i>		*			39
Plantae	Flora	Fabaceae (Faboideae)	8365	<i>Almaleea incurvata</i>					1
Plantae	Flora	Fabaceae (Faboideae)	8364	<i>Almaleea paludosa</i>					2
Plantae	Flora	Fabaceae (Faboideae)	2780	<i>Bossiaea heterophylla</i>	Variable Bossiaea				4
Plantae	Flora	Fabaceae (Faboideae)	2784	<i>Bossiaea obcordata</i>	Spiny Bossiaea				4
Plantae	Flora	Fabaceae (Faboideae)	2786	<i>Bossiaea prostrata</i>					1
Plantae	Flora	Fabaceae (Faboideae)	2789	<i>Bossiaea scolopendria</i>					10
Plantae	Flora	Fabaceae (Faboideae)	2796	<i>Castanospermum australe</i>	Black Bean				1
Plantae	Flora	Fabaceae (Faboideae)	9737	<i>Chamaecytisus palmensis</i>	Tree Lucerne	*			1
Plantae	Flora	Fabaceae (Faboideae)	11075	<i>Cytisus scoparius subsp. scoparius</i>	English Broom	*			2
Plantae	Flora	Fabaceae (Faboideae)	2822	<i>Daviesia genistifolia</i>	Broom Bitter Pea				1
Plantae	Flora	Fabaceae (Faboideae)	2827	<i>Daviesia ulicifolia</i>	Gorse Bitter Pea				2
Plantae	Flora	Fabaceae (Faboideae)	2843	<i>Dillwynia floribunda</i>					5
Plantae	Flora	Fabaceae (Faboideae)	2844	<i>Dillwynia glaberrima</i>					2

Plantae	Flora	Fabaceae (Faboideae)	2847	<i>Dillwynia parvifolia</i>		1
Plantae	Flora	Fabaceae (Faboideae)	2850	<i>Dillwynia retorta</i>		18
Plantae	Flora	Fabaceae (Faboideae)	8734	<i>Dillwynia sieberi</i>		1
Plantae	Flora	Fabaceae (Faboideae)	2854	<i>Dipogon lignosus</i>	*	Dolichos Pea
Plantae	Flora	Fabaceae (Faboideae)	9357	<i>Erythrina crista-galli</i>	*	Cockspur Coral Tree
Plantae	Flora	Fabaceae (Faboideae)	ERYH	<i>Erythrina spp.</i>		1
Plantae	Flora	Fabaceae (Faboideae)	8689	<i>Erythrina x sykesii</i>	*	Coral tree
Plantae	Flora	Fabaceae (Faboideae)	2856	<i>Genista linifolia</i>	*	Flaxleaf Broom
Plantae	Flora	Fabaceae (Faboideae)	2858	<i>Genista monspessulana</i>	*	Montpellier Broom
Plantae	Flora	Fabaceae (Faboideae)	9756	<i>Genista stenopetala</i>	*	Madeira Broom
Plantae	Flora	Fabaceae (Faboideae)	2860	<i>Glycine clandestina</i>		Twining glycine
Plantae	Flora	Fabaceae (Faboideae)	7208	<i>Glycine microphylla</i>		Small-leaf Glycine
Plantae	Flora	Fabaceae (Faboideae)	2861	<i>Glycine tabacina</i>		Variable Glycine
Plantae	Flora	Fabaceae (Faboideae)	2864	<i>Gompholobium glabratum</i>		Dainty Wedge Pea
Plantae	Flora	Fabaceae (Faboideae)	2865	<i>Gompholobium arandiflorum</i>		Large Wedge Pea
Plantae	Flora	Fabaceae (Faboideae)	2866	<i>Gompholobium latifolium</i>		Golden Glory Pea
Plantae	Flora	Fabaceae (Faboideae)	2867	<i>Gompholobium minus</i>		Dwarf Wedge Pea
Plantae	Flora	Fabaceae (Faboideae)	2868	<i>Gompholobium pinnatum</i>		Pinnate Wedge Pea
Plantae	Flora	Fabaceae (Faboideae)	GOMP	<i>Gompholobium spp.</i>		1
Plantae	Flora	Fabaceae (Faboideae)	15314	<i>Grona varians</i>		2
Plantae	Flora	Fabaceae (Faboideae)	HARD	<i>Hardenbergia spp.</i>		2
Plantae	Flora	Fabaceae (Faboideae)	2873	<i>Hardenbergia violacea</i>		False Sarsaparilla
Plantae	Flora	Fabaceae (Faboideae)	2874	<i>Hovea acutifolia</i>		2
Plantae	Flora	Fabaceae (Faboideae)	2876	<i>Hovea linearis</i>		1
Plantae	Flora	Fabaceae (Faboideae)	2877	<i>Hovea longifolia</i>		Rusty Pods
Plantae	Flora	Fabaceae (Faboideae)	2882	<i>Indigofera australis</i>		Australian Indigo
Plantae	Flora	Fabaceae (Faboideae)	2892	<i>Jacksonia scoparia</i>		Dogwood
Plantae	Flora	Fabaceae (Faboideae)	2896	<i>Kennedia prostrata</i>		Running Postman
Plantae	Flora	Fabaceae (Faboideae)	2898	<i>Kennedia rubicunda</i>		Dusky Coral Pea
Plantae	Flora	Fabaceae (Faboideae)	2900	<i>Labiab purpureus</i>	*	Indian Bean
Plantae	Flora	Fabaceae (Faboideae)	2905	<i>Lotus angustissimus</i>	*	Slender Birds-foot Trefoil
Plantae	Flora	Fabaceae (Faboideae)	LOTU	<i>Lotus spp.</i>		2
Plantae	Flora	Fabaceae (Faboideae)	15369	<i>Maekawaea rhytidophylla</i>		7
Plantae	Flora	Fabaceae (Faboideae)	2916	<i>Medicago arabica</i>	*	Spotted Burr Medic
Plantae	Flora	Fabaceae (Faboideae)	2918	<i>Medicago laciniata</i>	*	Cut-leaved Medic
Plantae	Flora	Fabaceae (Faboideae)	2919	<i>Medicago lupulina</i>	*	Black Medic
Plantae	Flora	Fabaceae (Faboideae)	2920	<i>Medicago minima</i>	*	Woolly Burr Medic
Plantae	Flora	Fabaceae (Faboideae)	2921	<i>Medicago orbicularis</i>	*	Button Medic
Plantae	Flora	Fabaceae (Faboideae)	2922	<i>Medicago polymorpha</i>	*	Burr Medic
Plantae	Flora	Fabaceae (Faboideae)	2924	<i>Medicago sativa</i>	*	Lucerne
Plantae	Flora	Fabaceae (Faboideae)	MEDI	<i>Medicago spp.</i>	*	1
Plantae	Flora	Fabaceae (Faboideae)	2928	<i>Mellilotus indicus</i>	*	Hexham Scent
Plantae	Flora	Fabaceae (Faboideae)	13033	<i>Millettia caffra</i>	*	1
Plantae	Flora	Fabaceae (Faboideae)	2943	<i>Ornithopus compressus</i>	*	Yellow Serradella
Plantae	Flora	Fabaceae (Faboideae)	2949	<i>Oxylobium cordifolium</i>		Heart-leaved Shaggy Pea

Plantae	Flora	Fabaceae (Faboideae)	15128	<i>Oxytes brachypoda</i>		Large Tick-trefoil	1
Plantae	Flora	Fabaceae (Faboideae)	2956	<i>Phyllota grandiflora</i>		Heath Phyllota	1
Plantae	Flora	Fabaceae (Faboideae)	2958	<i>Phyllota phyllicoides</i>		Heath Phyllota	3
Plantae	Flora	Fabaceae (Faboideae)	13706	<i>Phyllota spp.</i>			1
Plantae	Flora	Fabaceae (Faboideae)	2961	<i>Platylobium formosum</i>			8
Plantae	Flora	Fabaceae (Faboideae)	9354	<i>Platylobium formosum subsp. formosum</i>			8
Plantae	Flora	Fabaceae (Faboideae)	14702	<i>Platylobium parviflorum</i>		Small-flowered Flat-pea	2
Plantae	Flora	Fabaceae (Faboideae)	9912	<i>Podolobium ilicifolium</i>		Prickly Shaggy Pea	3
Plantae	Flora	Fabaceae (Faboideae)	2969	<i>Psoralea pinnata</i>	*	African Scurf-pea	2
Plantae	Flora	Fabaceae (Faboideae)	15315	<i>Pullenia gunnii</i>			1
Plantae	Flora	Fabaceae (Faboideae)	2977	<i>Pultenaea blakelyi</i>			1
Plantae	Flora	Fabaceae (Faboideae)	2985	<i>Pultenaea daphnoides</i>		Large-leaf Bush-pea	6
Plantae	Flora	Fabaceae (Faboideae)	2993	<i>Pultenaea flexilis</i>			14
Plantae	Flora	Fabaceae (Faboideae)	3002	<i>Pultenaea linophylla</i>			4
Plantae	Flora	Fabaceae (Faboideae)	11407	<i>Pultenaea mollis</i>			1
Plantae	Flora	Fabaceae (Faboideae)	3005	<i>Pultenaea paleacea</i>		Chaffy Bush-pea	1
Plantae	Flora	Fabaceae (Faboideae)	3014	<i>Pultenaea retusa</i>			5
Plantae	Flora	Fabaceae (Faboideae)	3015	<i>Pultenaea rosmarinifolia</i>			1
Plantae	Flora	Fabaceae (Faboideae)	PULT	<i>Pultenaea spp.</i>			1
Plantae	Flora	Fabaceae (Faboideae)	3018	<i>Pultenaea stipularis</i>			7
Plantae	Flora	Fabaceae (Faboideae)	11386	<i>Pultenaea tuberculata</i>			6
Plantae	Flora	Fabaceae (Faboideae)	3023	<i>Pultenaea villosa</i>		Hairy Bush-pea	2
Plantae	Flora	Fabaceae (Faboideae)	3028	<i>Robinia pseudoacacia</i>	*	Black Locust	3
Plantae	Flora	Fabaceae (Faboideae)	12588	<i>Robinia pseudoacacia f. frisia</i>	*		2
Plantae	Flora	Fabaceae (Faboideae)	3033	<i>Sphaerolobium vimineum</i>			1
Plantae	Flora	Fabaceae (Faboideae)	3067	<i>Tephrosia grandiflora</i>	*		2
Plantae	Flora	Fabaceae (Faboideae)	3072	<i>Trifolium angustifolium</i>	*	Narrow-leaved Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3073	<i>Trifolium arvense</i>	*	Haresfoot Clover	2
Plantae	Flora	Fabaceae (Faboideae)	3074	<i>Trifolium campestre</i>	*	Hop Clover	6
Plantae	Flora	Fabaceae (Faboideae)	3075	<i>Trifolium cernuum</i>	*	Drooping-flowered Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3076	<i>Trifolium dubium</i>	*	Yellow Suckling Clover	3
Plantae	Flora	Fabaceae (Faboideae)	3077	<i>Trifolium fragiferum</i>	*	Strawberry Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3079	<i>Trifolium glomeratum</i>	*	Clustered Clover	6
Plantae	Flora	Fabaceae (Faboideae)	13063	<i>Trifolium hybridum var. hybridum</i>	*		1
Plantae	Flora	Fabaceae (Faboideae)	3082	<i>Trifolium incarnatum</i>	*	Crimson Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3084	<i>Trifolium pratense</i>	*	Red Clover	3
Plantae	Flora	Fabaceae (Faboideae)	3085	<i>Trifolium repens</i>	*	White Clover	27
Plantae	Flora	Fabaceae (Faboideae)	3086	<i>Trifolium resupinatum</i>	*	Shaftal Clover	3
Plantae	Flora	Fabaceae (Faboideae)	TRIF	<i>Trifolium spp.</i>	*		5
Plantae	Flora	Fabaceae (Faboideae)	3088	<i>Trifolium striatum</i>	*	Knotted Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3089	<i>Trifolium subterraneum</i>	*	Subterranean Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3090	<i>Trifolium suffocatum</i>	*	Suffocated Clover	1
Plantae	Flora	Fabaceae (Faboideae)	3091	<i>Trifolium tomentosum</i>	*	Woolly Clover	3
Plantae	Flora	Fabaceae (Faboideae)	3093	<i>Ulex europaeus</i>	*	Gorse	3
Plantae	Flora	Fabaceae (Faboideae)	3095	<i>Vicia hirsuta</i>	*	Hairy Vetch	4

Plantae	Flora	Fabaceae (Faboideae)	3097	<i>Vicia sativa</i>	*	Common vetch			3
Plantae	Flora	Fabaceae (Faboideae)	11703	<i>Vicia sativa subsp. nigra</i>	*	Narrow-leaved Vetch			8
Plantae	Flora	Fabaceae (Faboideae)	8794	<i>Vicia sativa subsp. sativa</i>	*	Common Vetch			1
Plantae	Flora	Fabaceae (Faboideae)	VICI	<i>Vicia spp.</i>	*	Vetch			3
Plantae	Flora	Fabaceae (Faboideae)	3098	<i>Vicia tetrasperma</i>	*	Slender Vetch			3
Plantae	Flora	Fabaceae (Faboideae)	10074	<i>Vicia villosa subsp. eriocarpa</i>	*				1
Plantae	Flora	Fabaceae (Faboideae)	13070	<i>Vigna radiata var. radiata</i>	*				2
Plantae	Flora	Fabaceae (Faboideae)	3105	<i>Viminaria juncea</i>		Native Broom			5
Plantae	Flora	Fabaceae (Faboideae)	11332	<i>Wisteria sinensis</i>	*	Chinese wisteria			6
Plantae	Flora	Fabaceae (Faboideae)	WIST	<i>Wisteria spp.</i>	*				1
Plantae	Flora	Fabaceae (Mimosoideae)	3710	<i>Acacia baileyana</i>		Cootamundra Wattle			4
Plantae	Flora	Fabaceae (Mimosoideae)	7060	<i>Acacia baueri subsp. baueri</i>		Tiny Wattle			3
Plantae	Flora	Fabaceae (Mimosoideae)	3716	<i>Acacia binervata</i>		Two-veined Hickory			4
Plantae	Flora	Fabaceae (Mimosoideae)	3717	<i>Acacia binervia</i>		Coast Myall			6
Plantae	Flora	Fabaceae (Mimosoideae)	3723	<i>Acacia brownii</i>		Heath Wattle			2
Plantae	Flora	Fabaceae (Mimosoideae)	3728	<i>Acacia bynoeana</i>		Bynoe's Wattle	E1	V	2
Plantae	Flora	Fabaceae (Mimosoideae)	13081	<i>Acacia cyclops</i>	*				1
Plantae	Flora	Fabaceae (Mimosoideae)	3758	<i>Acacia dealbata</i>		Silver Wattle			1
Plantae	Flora	Fabaceae (Mimosoideae)	11006	<i>Acacia dealbata subsp. dealbata</i>		Silver Wattle			2
Plantae	Flora	Fabaceae (Mimosoideae)	3762	<i>Acacia decurrens</i>		Black Wattle			16
Plantae	Flora	Fabaceae (Mimosoideae)	3767	<i>Acacia echinula</i>		Hedgehog Wattle			3
Plantae	Flora	Fabaceae (Mimosoideae)	3768	<i>Acacia elata</i>		Mountain Cedar Wattle			4
Plantae	Flora	Fabaceae (Mimosoideae)	3771	<i>Acacia falcata</i>					12
Plantae	Flora	Fabaceae (Mimosoideae)	3772	<i>Acacia falciformis</i>		Broad-leaved Hickory			1
Plantae	Flora	Fabaceae (Mimosoideae)	3773	<i>Acacia filicifolia</i>		Fern-leaved Wattle			1
Plantae	Flora	Fabaceae (Mimosoideae)	3774	<i>Acacia fimbriata</i>		Fringed Wattle			5
Plantae	Flora	Fabaceae (Mimosoideae)	3777	<i>Acacia floribunda</i>		White Sally			13
Plantae	Flora	Fabaceae (Mimosoideae)	3790	<i>Acacia hispidula</i>					3
Plantae	Flora	Fabaceae (Mimosoideae)	3792	<i>Acacia implexa</i>		Hickory Wattle			24
Plantae	Flora	Fabaceae (Mimosoideae)	3794	<i>Acacia irrorata</i>		Green Wattle			2
Plantae	Flora	Fabaceae (Mimosoideae)	6472	<i>Acacia irrorata subsp. irrorata</i>		Green Wattle			4
Plantae	Flora	Fabaceae (Mimosoideae)	9674	<i>Acacia iteaphylla</i>	*	Flinders Range Wattle			1
Plantae	Flora	Fabaceae (Mimosoideae)	3812	<i>Acacia linearifolia</i>		Narrow-leaved Wattle			2
Plantae	Flora	Fabaceae (Mimosoideae)	3814	<i>Acacia linifolia</i>		White Wattle			40
Plantae	Flora	Fabaceae (Mimosoideae)	3816	<i>Acacia longifolia</i>					62
Plantae	Flora	Fabaceae (Mimosoideae)	10790	<i>Acacia longifolia subsp. lonifolia</i>		Sydney Golden Wattle			30
Plantae	Flora	Fabaceae (Mimosoideae)	10791	<i>Acacia longifolia subsp. sophorae</i>		Coastal Wattle			8
Plantae	Flora	Fabaceae (Mimosoideae)	3817	<i>Acacia longissima</i>		Long-leaf Wattle			6
Plantae	Flora	Fabaceae (Mimosoideae)	6748	<i>Acacia lunata</i>		Lunate-leaved Acacia			1
Plantae	Flora	Fabaceae (Mimosoideae)	3821	<i>Acacia maidenii</i>		Maiden's Wattle			2
Plantae	Flora	Fabaceae (Mimosoideae)	3823	<i>Acacia mearnsii</i>		Black Wattle			1
Plantae	Flora	Fabaceae (Mimosoideae)	3824	<i>Acacia melanoxylon</i>		Blackwood			3
Plantae	Flora	Fabaceae (Mimosoideae)	3834	<i>Acacia myrtifolia</i>		Red-stemmed Wattle			4
Plantae	Flora	Fabaceae (Mimosoideae)	3846	<i>Acacia parramattensis</i>		Parramatta Wattle			26
Plantae	Flora	Fabaceae (Mimosoideae)	3853	<i>Acacia podalyriifolia</i>		Queensland Silver Wattle			11

Plantae	Flora	Fabaceae	3857	<i>Acacia prominens</i>		Gosford Wattle				5
Plantae	Flora	(Mimosoideae) Fabaceae	3863	<i>Acacia quadrilateralis</i>						3
Plantae	Flora	(Mimosoideae) Fabaceae	3873	<i>Acacia saligna</i>	*	Golden Wreath Wattle				11
Plantae	Flora	(Mimosoideae) Fabaceae	3874	<i>Acacia schinoides</i>		Green Cedar Wattle				2
Plantae	Flora	(Mimosoideae) Fabaceae	ACAC	<i>Acacia spp.</i>		Wattle				5
Plantae	Flora	(Mimosoideae) Fabaceae	3880	<i>Acacia stricta</i>		Straight Wattle				4
Plantae	Flora	(Mimosoideae) Fabaceae	3881	<i>Acacia suaveolens</i>		Sweet Wattle				56
Plantae	Flora	(Mimosoideae) Fabaceae	3885	<i>Acacia terminalis</i>		Sunshine Wattle				24
Plantae	Flora	(Mimosoideae) Fabaceae	10793	<i>Acacia terminalis subsp. anaustifolia</i>						2
Plantae	Flora	(Mimosoideae) Fabaceae	15210	<i>Acacia terminalis subsp. Eastern Sydney</i>		Sunshine wattle	E1	E		70
Plantae	Flora	(Mimosoideae) Fabaceae	9984	<i>Acacia terminalis subsp. lonaiaxialis</i>						5
Plantae	Flora	(Mimosoideae) Fabaceae	3893	<i>Acacia ulicifolia</i>		Prickly Moses				44
Plantae	Flora	(Mimosoideae) Fabaceae	11224	<i>Paraserianthes lophantha subsp. lophantha</i>	*	Crested Wattle				2
Plantae	Flora	(Mimosoideae) Fabaceae	13108	<i>Serianthes calycina</i>	*					2
Plantae	Flora	(Mimosoideae) Fabaceae	13109	<i>Serianthes sachetae</i>	*					1
Plantae	Flora	Fagaceae	11675	<i>Quercus palustris</i>	*	Pin Oak				1
Plantae	Flora	Fagaceae	11330	<i>Quercus robur</i>	*	English Oak				1
Plantae	Flora	Fagaceae	QUER	<i>Quercus spp.</i>	*					4
Plantae	Flora	Flacourtiaceae	3110	<i>Scolopia braunii</i>		Flintwood				1
Plantae	Flora	Fumariaceae	3124	<i>Fumaria bastardii</i>	*	Bastards Fumitory				1
Plantae	Flora	Fumariaceae	9367	<i>Fumaria muralis subsp. muralis</i>	*	Wall Fumitory				8
Plantae	Flora	Fumariaceae	3129	<i>Fumaria officinalis</i>	*					7
Plantae	Flora	Fumariaceae	FUMA	<i>Fumaria spp.</i>	*	Fumitory				2
Plantae	Flora	Gentianaceae	3131	<i>Centaurium erythraea</i>	*	Common Centaury				5
Plantae	Flora	Gentianaceae	3133	<i>Centaurium tenuiflorum</i>	*	Branched Centaury, Slender centaury				4
Plantae	Flora	Geraniaceae	3139	<i>Erodium botrys</i>	*	Long Storksbill				1
Plantae	Flora	Geraniaceae	3148	<i>Geranium homeanum</i>						18
Plantae	Flora	Geraniaceae	10093	<i>Geranium molle subsp. molle</i>	*	Cranesbill Geranium				1
Plantae	Flora	Geraniaceae	3151	<i>Geranium obtusisepalum</i>						1
Plantae	Flora	Geraniaceae	10097	<i>Geranium purpureum subsp. purpureum</i>	*					1
Plantae	Flora	Geraniaceae	3156	<i>Geranium solanderi</i>		Native Geranium				3
Plantae	Flora	Geraniaceae	GERA	<i>Geranium spp.</i>						4
Plantae	Flora	Geraniaceae	3157	<i>Pelargonium australe</i>		Native Storksbill				1
Plantae	Flora	Geraniaceae	PELA	<i>Pelargonium spp.</i>						3
Plantae	Flora	Ginkgoaceae	11761	<i>Ginkgo biloba</i>	*	Common Ginkgo				2
Plantae	Flora	Gleicheniaceae	11076	<i>Dicranopteris linearis var. linearis</i>			P			1
Plantae	Flora	Gleicheniaceae	7138	<i>Gleichenia dicarpa</i>		Pouched Coral Fern				15
Plantae	Flora	Gleicheniaceae	6708	<i>Gleichenia microphylla</i>		Scrambling Coral Fern				1
Plantae	Flora	Gleicheniaceae	8093	<i>Gleichenia rupestris</i>						7
Plantae	Flora	Gleicheniaceae	GLEI	<i>Gleichenia spp.</i>						2
Plantae	Flora	Gleicheniaceae	11175	<i>Sticherus flabellatus var. flabellatus</i>		Umbrella Fern	P			3
Plantae	Flora	Goodeniaceae	3166	<i>Cooperookia barbata</i>		Purple Goodenia				2
Plantae	Flora	Goodeniaceae	3172	<i>Dampiera purpurea</i>						1
Plantae	Flora	Goodeniaceae	3174	<i>Dampiera stricta</i>						1
Plantae	Flora	Goodeniaceae	3175	<i>Goodenia bellidifolia</i>						1
Plantae	Flora	Goodeniaceae	9078	<i>Goodenia bellidifolia subsp. araeata</i>						1
Plantae	Flora	Goodeniaceae	8711	<i>Goodenia bellidifolia subsp. bellidifolia</i>						2
Plantae	Flora	Goodeniaceae	3188	<i>Goodenia hederacea</i>		Ivy Goodenia				3
Plantae	Flora	Goodeniaceae	9279	<i>Goodenia hederacea subsp. hederacea</i>						1
Plantae	Flora	Goodeniaceae	3190	<i>Goodenia heterophylla</i>						4
Plantae	Flora	Goodeniaceae	10197	<i>Goodenia heterophylla subsp. heterophylla</i>						2
Plantae	Flora	Goodeniaceae	3192	<i>Goodenia ovata</i>		Hop Goodenia				2
Plantae	Flora	Goodeniaceae	7057	<i>Goodenia paniculata</i>						3
Plantae	Flora	Goodeniaceae	GOOD	<i>Goodenia spp.</i>						1
Plantae	Flora	Goodeniaceae	3197	<i>Goodenia stelligera</i>		Spiked Goodenia				1
Plantae	Flora	Goodeniaceae	3202	<i>Scaevola albida</i>		Pale Fan-flower				1
Plantae	Flora	Goodeniaceae	3208	<i>Scaevola ramosissima</i>		Purple Fan-flower				2
Plantae	Flora	Goodeniaceae	3210	<i>Selliera radicans</i>		Swamp Weed				2
Plantae	Flora	Grammitidaceae	10518	<i>Grammitis billardiarei</i>		Finger Fern				1
Plantae	Flora	Haloragaceae	3240	<i>Gonocarpus elatus</i>						1

Plantae	Flora	Haloragaceae	3243	<i>Gonocarpus micranthus</i>		1
Plantae	Flora	Haloragaceae	8649	<i>Gonocarpus micranthus</i> <i>subsp. micranthus</i>		1
Plantae	Flora	Haloragaceae	8648	<i>Gonocarpus micranthus</i> <i>subsp. ramosissimus</i>		2
Plantae	Flora	Haloragaceae	3248	<i>Gonocarpus teucrioides</i>	Germander Raspwort	14
Plantae	Flora	Haloragaceae	3259	<i>Myriophyllum aquaticum</i>	* Parrots Feather	2
Plantae	Flora	Haloragaceae	7456	<i>Myriophyllum gracile</i> var. <i>lineare</i>		10
Plantae	Flora	Haloragaceae	6677	<i>Myriophyllum simulans</i>		2
Plantae	Flora	Hamamelidaceae	11683	<i>Liquidambar</i> spp.	*	1
Plantae	Flora	Hamamelidaceae	11353	<i>Liquidambar styraciflua</i>	* Sweetgum	5
Plantae	Flora	Hydrocharitaceae	3269	<i>Elodea canadensis</i>	* Elodea	1
Plantae	Flora	Hydrocharitaceae	3270	<i>Halophila decipiens</i>		2
Plantae	Flora	Hydrocharitaceae	6772	<i>Hydrilla verticillata</i>	Hydrilla	2
Plantae	Flora	Hydrocharitaceae	14246	<i>Vallisneria australis</i>	Eelweed	1
Fungi	Flora	Hygrophoraceae	F006	<i>Camarophyllopsis kearneyi</i>	E1	2
Fungi	Flora	Hygrophoraceae	F003	<i>Hygrocybe anomala</i> var. <i>ianthinomarinata</i>	V	1
Fungi	Flora	Hygrophoraceae	F004	<i>Hygrocybe aurantipes</i>	V	2
Fungi	Flora	Hygrophoraceae	F001	<i>Hygrocybe austropratensis</i>	E1	2
Fungi	Flora	Hygrophoraceae	F007	<i>Hygrocybe collucera</i>	E1	1
Fungi	Flora	Hygrophoraceae	F008	<i>Hygrocybe griseoramosa</i>	E1	1
Fungi	Flora	Hygrophoraceae	F005	<i>Hygrocybe lanecovensis</i>	E1	30
Fungi	Flora	Hygrophoraceae	F002	<i>Hygrocybe reesiaae</i>	V	4
Fungi	Flora	Hygrophoraceae	F015	<i>Hygrocybe rubronivea</i>	V	1
Plantae	Flora	Hymenophyllaceae	8107	<i>Hymenophyllum</i> <i>cupressiforme</i>	Common Filmy Fern	2
Plantae	Flora	Hypoxidaceae	7859	<i>Hypoxis pratensis</i> var. <i>pratensis</i>		1
Plantae	Flora	Iridaceae	3277	<i>Anomatheca laxa</i>	*	1
Plantae	Flora	Iridaceae	10271	<i>Crococsmia x crocosmiiflora</i>	* Montbretia	1
Plantae	Flora	Iridaceae	11579	<i>Dietes bicolor</i>	*	1
Plantae	Flora	Iridaceae	11690	<i>Dietes grandiflora</i>	*	2
Plantae	Flora	Iridaceae	3283	<i>Dietes robinsoniana</i>	Lord Howe Wedding Lily	1
Plantae	Flora	Iridaceae	DIET	<i>Dietes</i> spp.		3
Plantae	Flora	Iridaceae	10698	<i>Freesia hybrid</i>	* Freesia	3
Plantae	Flora	Iridaceae	GLAD	<i>Gladiolus</i> spp.	*	1
Plantae	Flora	Iridaceae	3289	<i>Gladiolus undulatus</i>	* Wild Gladiolus	1
Plantae	Flora	Iridaceae	10267	<i>Ixia polystachya</i>	* Variable Ixia	1
Plantae	Flora	Iridaceae	3298	<i>Libertia paniculata</i>	Branching Grass-flag	1
Plantae	Flora	Iridaceae	3301	<i>Patersonia glabrata</i>	Leafy Purple-flag	2
Plantae	Flora	Iridaceae	3303	<i>Patersonia sericea</i>	Silky Purple-Flag	2
Plantae	Flora	Iridaceae	7477	<i>Romulea rosea</i> var. <i>australis</i>	* Onion Grass	3
Plantae	Flora	Iridaceae	3306	<i>Sisyrinchium iridifolium</i>	* Blue Pigroot	2
Plantae	Flora	Iridaceae	14929	<i>Sisyrinchium rosulatum</i>	* Scourweed	2
Plantae	Flora	Iridaceae	10270	<i>Sparaxis bulbifera</i>	* Harlequin Flower	1
Plantae	Flora	Iridaceae	WATS	<i>Watsonia</i> spp.	*	2
Plantae	Flora	Juncaceae	9311	<i>Juncus acutus</i> subsp. <i>acutus</i>	* Sharp Rush	2
Plantae	Flora	Juncaceae	3316	<i>Juncus articulatus</i>	*	1
Plantae	Flora	Juncaceae	3318	<i>Juncus bufonius</i>	* Toad Rush	10
Plantae	Flora	Juncaceae	3322	<i>Juncus capensis</i>	*	7
Plantae	Flora	Juncaceae	3323	<i>Juncus capillaceus</i>	*	2
Plantae	Flora	Juncaceae	3325	<i>Juncus cognatus</i>	*	7
Plantae	Flora	Juncaceae	3326	<i>Juncus continuus</i>		18
Plantae	Flora	Juncaceae	8632	<i>Juncus continuus x usitatus</i>		1
Plantae	Flora	Juncaceae	3330	<i>Juncus flavidus</i>		11
Plantae	Flora	Juncaceae	3332	<i>Juncus holoschoenus</i>		1
Plantae	Flora	Juncaceae	3333	<i>Juncus homalocaulis</i>		8
Plantae	Flora	Juncaceae	3334	<i>Juncus imbricatus</i>	*	2
Plantae	Flora	Juncaceae	7430	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Sea Rush	9
Plantae	Flora	Juncaceae	3338	<i>Juncus pallidus</i>		4
Plantae	Flora	Juncaceae	3340	<i>Juncus planifolius</i>		7
Plantae	Flora	Juncaceae	3341	<i>Juncus polyanthemus</i>		1
Plantae	Flora	Juncaceae	3342	<i>Juncus prismatocarpus</i>		2
Plantae	Flora	Juncaceae	JUNC	<i>Juncus</i> spp.		4
Plantae	Flora	Juncaceae	3348	<i>Juncus subsecundus</i>	Finger Rush	4
Plantae	Flora	Juncaceae	3349	<i>Juncus tenuis</i>	*	14
Plantae	Flora	Juncaceae	3350	<i>Juncus usitatus</i>		31
Plantae	Flora	Juncaginaceae	14979	<i>Cynogeton procerum</i>	Water Ribbons	5
Plantae	Flora	Juncaginaceae	3369	<i>Triglochin striata</i>	Streaked Arrowgrass	2
Plantae	Flora	Lamiaceae	6243	<i>Chloanthus stoechadis</i>		1
Plantae	Flora	Lamiaceae	6484	<i>Clerodendrum tomentosum</i>	Hairy Clerodendrum	13

Plantae	Flora	Lamiaceae	3376	<i>Hemigenia purpurea</i>				2
Plantae	Flora	Lamiaceae	3377	<i>Lamium amplexicaule</i>	*	Dead Nettle		1
Plantae	Flora	Lamiaceae	11425	<i>Lavandula spp.</i>	*			1
Plantae	Flora	Lamiaceae	12158	<i>Leonurus japonicus</i>	*			2
Plantae	Flora	Lamiaceae	3381	<i>Marrubium vulgare</i>	*	White Horehound		2
Plantae	Flora	Lamiaceae	3384	<i>Mentha diemenica</i>		Slender Mint		1
Plantae	Flora	Lamiaceae	MENT	<i>Mentha spp.</i>				1
Plantae	Flora	Lamiaceae	10234	<i>Mentha x spicata</i>	*	Spearmint		1
Plantae	Flora	Lamiaceae	7160	<i>Plectranthus ciliatus</i>	*			1
Plantae	Flora	Lamiaceae	3396	<i>Plectranthus graveolens</i>				1
Plantae	Flora	Lamiaceae	3397	<i>Plectranthus parviflorus</i>				10
Plantae	Flora	Lamiaceae	PLEC	<i>Plectranthus spp.</i>				3
Plantae	Flora	Lamiaceae	10230	<i>Plectranthus verticillatus</i>	*			1
Plantae	Flora	Lamiaceae	3405	<i>Prostanthera denticulata</i>		Rough Mint-bush		1
Plantae	Flora	Lamiaceae	3411	<i>Prostanthera howelliae</i>		Prostanthera		1
Plantae	Flora	Lamiaceae	3412	<i>Prostanthera incana</i>		Velvet Mint-bush		1
Plantae	Flora	Lamiaceae	3417	<i>Prostanthera linearis</i>		Narrow-leaved Mint-bush		1
Plantae	Flora	Lamiaceae	3418	<i>Prostanthera marifolia</i>		Seaforth Mintbush	E4A,3 CE	4
Plantae	Flora	Lamiaceae	3423	<i>Prostanthera ovalifolia</i>				2
Plantae	Flora	Lamiaceae	11331	<i>Rosmarinus officinalis</i>	*	Rosemary		2
Plantae	Flora	Lamiaceae	3442	<i>Salvia coccinea</i>	*			1
Plantae	Flora	Lamiaceae	SALA	<i>Salvia spp.</i>				1
Plantae	Flora	Lamiaceae	3449	<i>Scutellaria racemosa</i>	*			1
Plantae	Flora	Lamiaceae	3450	<i>Stachys arvensis</i>	*	Stagger Weed		6
Plantae	Flora	Lamiaceae	13164	<i>Vitex lucens</i>	*			1
Plantae	Flora	Lamiaceae	3459	<i>Westringia fruticosa</i>		Coastal Rosemary		18
Plantae	Flora	Lamiaceae	3461	<i>Westringia longifolia</i>		Long-leaved Westringia		3
Plantae	Flora	Lauraceae	3467	<i>Cassytha glabella</i>				5
Plantae	Flora	Lauraceae	9274	<i>Cassytha glabella f. glabella</i>				2
Plantae	Flora	Lauraceae	3469	<i>Cassytha pubescens</i>		Downy Dodder-laurel		24
Plantae	Flora	Lauraceae	CASY	<i>Cassytha spp.</i>				2
Plantae	Flora	Lauraceae	3471	<i>Cinnamomum camphora</i>	*	Camphor Laurel		87
Plantae	Flora	Lauraceae	3479	<i>Cryptocarya glaucescens</i>		Jackwood		2
Plantae	Flora	Lauraceae	11420	<i>Cryptocarya spp.</i>				1
Plantae	Flora	Lauraceae	13172	<i>Litsea glutinosa</i>	*			1
Plantae	Flora	Lauraceae	3499	<i>Neolitsea dealbata</i>		Hairy-leaved Bolly Gum		1
Plantae	Flora	Lauraceae	9363	<i>Persea americana</i>	*	Avocado		3
Plantae	Flora	Lemnaceae	7689	<i>Spirodela punctata</i>				3
Plantae	Flora	Lentibulariaceae	3507	<i>Utricularia dichotoma</i>		Fairy Aprons		1
Plantae	Flora	Lentibulariaceae	7257	<i>Utricularia uliginosa</i>		Asian Bladderwort		1
Plantae	Flora	Liliaceae	11436	<i>Aspidistra elatior</i>	*			2
Plantae	Flora	Liliaceae	3559	<i>Lilium formosanum</i>	*	Formosan Lily		2
Plantae	Flora	Liliaceae	11842	<i>Liriope muscari</i>	*	big blue lilyturf		3
Plantae	Flora	Liliaceae	13704	<i>Liriope spp.</i>	*			3
Plantae	Flora	Linaceae	3583	<i>Linum marginale</i>		Native Flax		1
Plantae	Flora	Linaceae	3584	<i>Linum trigynum</i>	*	French Flax		1
Plantae	Flora	Linaceae	3585	<i>Linum usitatissimum</i>	*	Flax		1
Plantae	Flora	Lindsaeaceae	6406	<i>Lindsaea linearis</i>		Screw Fern		6
Plantae	Flora	Lindsaeaceae	6401	<i>Lindsaea microphylla</i>		Lacy Wedge Fern		4
Plantae	Flora	Loganiaceae	13183	<i>Chilanthus oleaceus</i>	*			1
Plantae	Flora	Loganiaceae	3588	<i>Logania albiflora</i>				3
Plantae	Flora	Loganiaceae	3592	<i>Mitrasacme paludosa</i>				1
Plantae	Flora	Loganiaceae	3595	<i>Mitrasacme polymorpha</i>				2
Plantae	Flora	Lomandraceae	6296	<i>Lomandra brevis</i>				1
Plantae	Flora	Lomandraceae	6298	<i>Lomandra cylindrica</i>				4
Plantae	Flora	Lomandraceae	6302	<i>Lomandra filiformis</i>		Wattle Mat-rush		2
Plantae	Flora	Lomandraceae	6511	<i>Lomandra filiformis subsp. coriacea</i>		Wattle Mat-rush		1
Plantae	Flora	Lomandraceae	7931	<i>Lomandra filiformis subsp. filiformis</i>				7
Plantae	Flora	Lomandraceae	6304	<i>Lomandra glauca</i>		Pale Mat-rush		3
Plantae	Flora	Lomandraceae	6305	<i>Lomandra gracilis</i>				11
Plantae	Flora	Lomandraceae	6308	<i>Lomandra longifolia</i>		Spiny-headed Mat-rush		190
Plantae	Flora	Lomandraceae	8802	<i>Lomandra multiflora subsp. multiflora</i>		Many-flowered Mat-rush		13
Plantae	Flora	Lomandraceae	6312	<i>Lomandra obliqua</i>				18
Plantae	Flora	Lomandraceae	LOMA	<i>Lomandra spp.</i>		Mat-rush		6
Plantae	Flora	Loranthaceae	3599	<i>Amyema cabbagei</i>		Needle-leaf Mistletoe		1
Plantae	Flora	Loranthaceae	6856	<i>Amyema congener subsp. congener</i>				10
Plantae	Flora	Loranthaceae	3607	<i>Amyema pendula</i>				1
Plantae	Flora	Loranthaceae	3613	<i>Dendrophthoe vitellina</i>				3
Plantae	Flora	Loranthaceae	3619	<i>Muellerina celastroides</i>				14
Plantae	Flora	Loranthaceae	3620	<i>Muellerina eucalyptoides</i>				4
Plantae	Flora	Luzuriagaceae	6015	<i>Eustrephus latifolius</i>		Wombat Berry		51
Plantae	Flora	Luzuriagaceae	6016	<i>Geitonoplesium cymosum</i>		Scrambling Lily		14
Plantae	Flora	Lycopodiaceae	10641	<i>Lycopodiella cernua</i>		Scrambling Clubmoss		2

Plantae	Flora	Lycopodiaceae	9293	<i>Lycopodiella lateralis</i>	Slender Clubmoss		1
Plantae	Flora	Lycopodiaceae	6409	<i>Lycopodium deuterodensum</i>	Bushy Clubmoss	P	1
Plantae	Flora	Lythraceae	11362	<i>Lagerstroemia indica</i>	*		6
Plantae	Flora	Lythraceae	LAGS	<i>Lagerstroemia spp.</i>	*		1
Plantae	Flora	Lythraceae	3623	<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife		1
Plantae	Flora	Magnoliaceae	11593	<i>Liriodendron tulipifera</i>	*	Tulip Poplar	1
Plantae	Flora	Magnoliaceae	11666	<i>Magnolia grandiflora</i>	*	Southern Magnolia	4
Plantae	Flora	Magnoliaceae	MAGN	<i>Magnolia spp.</i>	*		6
Plantae	Flora	Malaceae	5612	<i>Cotoneaster glaucophyllus</i>	*		12
Plantae	Flora	Malaceae	5614	<i>Cotoneaster pannosus</i>	*		4
Plantae	Flora	Malaceae	COTO	<i>Cotoneaster spp.</i>	*		5
Plantae	Flora	Malaceae	5618	<i>Eriobotrya japonica</i>	*	Loquat	11
Plantae	Flora	Malaceae	11355	<i>Photinia glabra</i>	*	Japanese Photinia	1
Plantae	Flora	Malaceae	9939	<i>Photinia serratifolia</i>	*	Chinese Photinia	2
Plantae	Flora	Malaceae	5627	<i>Pyracantha angustifolia</i>	*	Orange Firethorn	2
Plantae	Flora	Malaceae	12465	<i>Pyracantha crenatoserrata</i>	*		1
Plantae	Flora	Malaceae	5631	<i>Rhaphiolepis indica</i>	*	Indian Hawthorn	8
Plantae	Flora	Malaceae	RHAP	<i>Rhaphiolepis spp.</i>	*		1
Plantae	Flora	Malvaceae	3628	<i>Abutilon grandifolium</i>	*		6
Plantae	Flora	Malvaceae	ABUT	<i>Abutilon spp.</i>		Lantern-bush	1
Plantae	Flora	Malvaceae	7802	<i>Alcea rosea</i>	*	Hollyhock	1
Plantae	Flora	Malvaceae	6126	<i>Brachychiton acerifolius</i>		Illawarra Flame Tree	24
Plantae	Flora	Malvaceae	13610	<i>Brachychiton australis</i>	*		1
Plantae	Flora	Malvaceae	6128	<i>Brachychiton populneus</i>		Kurrajong	1
Plantae	Flora	Malvaceae	14590	<i>Commersonia dasyphylla</i>			1
Plantae	Flora	Malvaceae	6130	<i>Commersonia fraseri</i>		Brush Kurrajong	2
Plantae	Flora	Malvaceae	8877	<i>Hibiscus heterophyllus</i> subsp. <i>heterophyllus</i>		Native Rosella	2
Plantae	Flora	Malvaceae	HIBI	<i>Hibiscus spp.</i>			6
Plantae	Flora	Malvaceae	3648	<i>Hibiscus trionum</i>		Flower-of-an-hour	2
Plantae	Flora	Malvaceae	6139	<i>Lasiopetalum ferrugineum</i>			1
Plantae	Flora	Malvaceae	9008	<i>Lasiopetalum ferrugineum</i> var. <i>ferrugineum</i>			6
Plantae	Flora	Malvaceae	6143	<i>Lasiopetalum parviflorum</i>			2
Plantae	Flora	Malvaceae	11113	<i>Malva linnaei</i>	*	Cretan Hollyhock	2
Plantae	Flora	Malvaceae	3655	<i>Malva neglecta</i>	*	Dwarf Mallow	1
Plantae	Flora	Malvaceae	3656	<i>Malva nicaeensis</i>	*	Mallow of Nice	7
Plantae	Flora	Malvaceae	3657	<i>Malva parviflora</i>	*	Small-flowered Mallow	9
Plantae	Flora	Malvaceae	MALV	<i>Malva spp.</i>		Mallow	1
Plantae	Flora	Malvaceae	3658	<i>Malva sylvestris</i>	*	Tall Mallow	2
Plantae	Flora	Malvaceae	3660	<i>Modiola caroliniana</i>	*	Red-flowered Mallow	21
Plantae	Flora	Malvaceae	7267	<i>Pavonia hastata</i>	*		3
Plantae	Flora	Malvaceae	3673	<i>Sida rhombifolia</i>	*	Paddy's Lucerne	56
Plantae	Flora	Malvaceae	SIDA	<i>Sida spp.</i>			2
Plantae	Flora	Malvaceae	6781	<i>Urena lobata</i>	*	Conga Jute	1
Plantae	Flora	Martyniaceae	4653	<i>Proboscidea fragrans</i>	*		1
Plantae	Flora	Martyniaceae	4654	<i>Proboscidea louisianica</i>	*	Purple-flowered Devil's Claw	1
Plantae	Flora	Melastomataceae	3675	<i>Melastoma affine</i>		Blue Tongue	1
Plantae	Flora	Melastomataceae	TIBO	<i>Tibouchina spp.</i>	*		1
Plantae	Flora	Meliaceae	3680	<i>Melia azedarach</i>		White Cedar	25
Plantae	Flora	Meliaceae	11178	<i>Synoum glandulosum</i> subsp. <i>alandulosum</i>		Scentless Rosewood	7
Plantae	Flora	Meliaceae	8839	<i>Toona ciliata</i>		Red Cedar	3
Plantae	Flora	Meliaceae	13215	<i>Turraea obtusifolia</i>	*		1
Plantae	Flora	Menispermaceae	3688	<i>Sarcopetalum harveyanum</i>		Pearl Vine	8
Plantae	Flora	Menispermaceae	3690	<i>Stephania japonica</i>		Snake vine	11
Plantae	Flora	Menispermaceae	8428	<i>Stephania japonica</i> var. <i>discolor</i>		Snake Vine	8
Plantae	Flora	Menyanthaceae	14804	<i>Liparophyllum exaltatum</i>			2
Plantae	Flora	Menyanthaceae	7891	<i>Nymphoides indica</i>		Water Snowflake	2
Plantae	Flora	Monimiaceae	3913	<i>Doryphora sassafras</i>		Sassafras	2
Plantae	Flora	Monimiaceae	3918	<i>Wilkiea huegeliana</i>		Veiny Wilkiea	1
Plantae	Flora	Moraceae	11429	<i>Ficus benjamina</i>	*	Weeping Fig	9
Plantae	Flora	Moraceae	7479	<i>Ficus coronata</i>		Creek Sandpaper Fig	12
Plantae	Flora	Moraceae	8778	<i>Ficus elastica</i>	*		2
Plantae	Flora	Moraceae	3921	<i>Ficus fraseri</i>		Sandpaper Fig	1
Plantae	Flora	Moraceae	3922	<i>Ficus macrophylla</i>			27
Plantae	Flora	Moraceae	8446	<i>Ficus microcarpa</i>	*		9
Plantae	Flora	Moraceae	7301	<i>Ficus obliqua</i>		Small-leaved Fig	3
Plantae	Flora	Moraceae	3923	<i>Ficus pumila</i>	*	Creeping Fig	5
Plantae	Flora	Moraceae	3924	<i>Ficus rubiginosa</i>		Port Jackson Fig	94
Plantae	Flora	Moraceae	11720	<i>Ficus rubiginosa</i> f. <i>rubaiinosa</i>			6
Plantae	Flora	Moraceae	FICU	<i>Ficus spp.</i>			15

Plantae	Flora	Moraceae	3930	<i>Morus alba</i>	*	White Mulberry			20
Plantae	Flora	Moraceae	8693	<i>Morus nigra</i>	*	Black Mulberry			3
Plantae	Flora	Moraceae	3931	<i>Strelbitz brunonianus</i>		Whalebone Tree			1
Plantae	Flora	Musaceae	11327	<i>Musa acuminata</i>	*	Edible banana			3
Plantae	Flora	Musaceae	MUSA	<i>Musa spp.</i>	*	Banana			1
Plantae	Flora	Myrtaceae	3968	<i>Acmena smithii</i>		Lilly Pilly			54
Plantae	Flora	Myrtaceae	11432	<i>Agonis flexuosa</i>	*				19
Plantae	Flora	Myrtaceae	3969	<i>Angophora bakeri</i>		Narrow-leaved Apple			6
Plantae	Flora	Myrtaceae	3970	<i>Angophora costata</i>		Sydney Red Gum			143
Plantae	Flora	Myrtaceae	9012	<i>Angophora crassifolia</i>					1
Plantae	Flora	Myrtaceae	3971	<i>Angophora floribunda</i>		Rough-barked Apple			15
Plantae	Flora	Myrtaceae	3972	<i>Angophora hispida</i>		Dwarf Apple			5
Plantae	Flora	Myrtaceae	ANGO	<i>Angophora spp.</i>					4
Plantae	Flora	Myrtaceae	3982	<i>Austromyrtus tenuifolia</i>					3
Plantae	Flora	Myrtaceae	11750	<i>Backhousia citriodora</i>	*				1
Plantae	Flora	Myrtaceae	3984	<i>Backhousia myrtifolia</i>		Grey Myrtle			15
Plantae	Flora	Myrtaceae	3993	<i>Baeckea diosmifolia</i>		Fringed Baeckea			1
Plantae	Flora	Myrtaceae	3995	<i>Baeckea imbricata</i>					5
Plantae	Flora	Myrtaceae	3997	<i>Baeckea linifolia</i>		Weeping Baeckea	P		1
Plantae	Flora	Myrtaceae	4004	<i>Callistemon citrinus</i>		Crimson Bottlebrush			31
Plantae	Flora	Myrtaceae	4007	<i>Callistemon linearifolius</i>		Netted Bottle Brush	V,3		2
Plantae	Flora	Myrtaceae	4008	<i>Callistemon linearis</i>		Narrow-leaved Bottlebrush			9
Plantae	Flora	Myrtaceae	4009	<i>Callistemon montanus</i>		Mountain Bottlebrush			1
Plantae	Flora	Myrtaceae	4014	<i>Callistemon rigidus</i>		Stiff Bottlebrush			3
Plantae	Flora	Myrtaceae	4015	<i>Callistemon salignus</i>		Willow Bottlebrush			13
Plantae	Flora	Myrtaceae	CALL	<i>Callistemon spp.</i>					16
Plantae	Flora	Myrtaceae	4019	<i>Callistemon viminalis</i>		Weeping Bottlebrush			22
Plantae	Flora	Myrtaceae	4021	<i>Calytrix tetragona</i>		Common Fringe-myrtle			1
Plantae	Flora	Myrtaceae	11748	<i>Corymbia citriodora</i>	*	Lemon-scented Gum			10
Plantae	Flora	Myrtaceae	9743	<i>Corymbia eximia</i>		Yellow Bloodwood			2
Plantae	Flora	Myrtaceae	11752	<i>Corymbia ficifolia</i>	*	Red-flowering Gum			1
Plantae	Flora	Myrtaceae	9687	<i>Corymbia gummifera</i>		Red Bloodwood			39
Plantae	Flora	Myrtaceae	9692	<i>Corymbia maculata</i>		Spotted Gum			24
Plantae	Flora	Myrtaceae	4027	<i>Darwinia fascicularis</i>					1
Plantae	Flora	Myrtaceae	4030	<i>Darwinia lepantha</i>					1
Plantae	Flora	Myrtaceae	7027	<i>Eucalyptus acmenoides</i>		White Mahogany			2
Plantae	Flora	Myrtaceae	4039	<i>Eucalyptus albens</i>		White Box			2
Plantae	Flora	Myrtaceae	8356	<i>Eucalyptus beyeriana</i>					1
Plantae	Flora	Myrtaceae	4057	<i>Eucalyptus blakelyi</i>		Blakely's Red Gum			2
Plantae	Flora	Myrtaceae	4060	<i>Eucalyptus botryoides</i>		Bangalay			22
Plantae	Flora	Myrtaceae	9959	<i>Eucalyptus botryoides</i> <--> <i>saliana</i>					5
Plantae	Flora	Myrtaceae	4067	<i>Eucalyptus camfieldii</i>		Camfield's Stringybark	V	V	4
Plantae	Flora	Myrtaceae	4069	<i>Eucalyptus capitellata</i>		Brown Stringybark			11
Plantae	Flora	Myrtaceae	4074	<i>Eucalyptus crebra</i>		Narrow-leaved Ironbark			6
Plantae	Flora	Myrtaceae	4086	<i>Eucalyptus elata</i>		River Peppermint			3
Plantae	Flora	Myrtaceae	4087	<i>Eucalyptus eugenioides</i>		Thin-leaved Stringybark			2
Plantae	Flora	Myrtaceae	4091	<i>Eucalyptus fibrosa</i>		Red Ironbark			3
Plantae	Flora	Myrtaceae	4097	<i>Eucalyptus globoidea</i>		White Stringybark			6
Plantae	Flora	Myrtaceae	4098	<i>Eucalyptus globulus</i>					1
Plantae	Flora	Myrtaceae	4101	<i>Eucalyptus grandis</i>		Flooded Gum			2
Plantae	Flora	Myrtaceae	4104	<i>Eucalyptus haemastoma</i>		Broad-leaved Scribbly Gum			9
Plantae	Flora	Myrtaceae	4118	<i>Eucalyptus longifolia</i>		Woollybutt			1
Plantae	Flora	Myrtaceae	4125	<i>Eucalyptus melliodora</i>		Yellow Box			2
Plantae	Flora	Myrtaceae	4128	<i>Eucalyptus microcorys</i>		Tallowwood			29
Plantae	Flora	Myrtaceae	4129	<i>Eucalyptus moluccana</i>		Grey Box			9
Plantae	Flora	Myrtaceae	4134	<i>Eucalyptus nicholii</i>		Narrow-leaved Black Peppermint Stringybark	V	V	6
Plantae	Flora	Myrtaceae	4141	<i>Eucalyptus oblonga</i>					1
Plantae	Flora	Myrtaceae	10029	<i>Eucalyptus obstans</i>		Port Jackson Mallee			4
Plantae	Flora	Myrtaceae	4149	<i>Eucalyptus paniculata</i>		Grey Ironbark			9
Plantae	Flora	Myrtaceae	8831	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>					1
Plantae	Flora	Myrtaceae	4155	<i>Eucalyptus pilularis</i>		Blackbutt			84
Plantae	Flora	Myrtaceae	4156	<i>Eucalyptus piperita</i>		Sydney Peppermint			43
Plantae	Flora	Myrtaceae	4158	<i>Eucalyptus polyanthemus</i>		Red Box			1
Plantae	Flora	Myrtaceae	4163	<i>Eucalyptus pulverulenta</i>		Silver-leaved Gum	V	V	1
Plantae	Flora	Myrtaceae	4165	<i>Eucalyptus punctata</i>		Grey Gum			13
Plantae	Flora	Myrtaceae	13276	<i>Eucalyptus punctata</i> subsp. <i>punctata</i>					3
Plantae	Flora	Myrtaceae	13277	<i>Eucalyptus punctata</i> subsp. <i>wianamattica</i>					1
Plantae	Flora	Myrtaceae	4167	<i>Eucalyptus quadrangulata</i>		White-topped Box			1
Plantae	Flora	Myrtaceae	4168	<i>Eucalyptus racemosa</i>		Narrow-leaved Scribbly Gum			13
Plantae	Flora	Myrtaceae	13278	<i>Eucalyptus ravidia</i>	*				2
Plantae	Flora	Myrtaceae	4170	<i>Eucalyptus resinifera</i>		Red Mahogany			27

Plantae	Flora	Myrtaceae	9450	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>					2
Plantae	Flora	Myrtaceae	4171	<i>Eucalyptus robusta</i>	Swamp Mahogany				20
Plantae	Flora	Myrtaceae	4177	<i>Eucalyptus saligna</i>	Sydney Blue Gum				45
Plantae	Flora	Myrtaceae	9953	<i>Eucalyptus scias</i> subsp. <i>scias</i>					1
Plantae	Flora	Myrtaceae	4178	<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum				1
Plantae	Flora	Myrtaceae	4181	<i>Eucalyptus sideroxylon</i>	Mugga Ironbark				5
Plantae	Flora	Myrtaceae	4182	<i>Eucalyptus sieberi</i>	Silvertop Ash				12
Plantae	Flora	Myrtaceae	8353	<i>Eucalyptus sparsifolia</i>	Narrow-leaved Stringybark				1
Plantae	Flora	Myrtaceae	EUCA	<i>Eucalyptus</i> spp.					9
Plantae	Flora	Myrtaceae	4191	<i>Eucalyptus tereticornis</i>	Forest Red Gum				24
Plantae	Flora	Myrtaceae	4196	<i>Eucalyptus umbra</i>	Broad-leaved White Mahogany				3
Plantae	Flora	Myrtaceae	4197	<i>Eucalyptus viminalis</i>	Ribbon Gum				1
Plantae	Flora	Myrtaceae	11218	<i>Euryomyrtus ramosissima</i> subsp. <i>ramosissima</i>					1
Plantae	Flora	Myrtaceae	15650	<i>Gaudium deanei</i>			V	V	1
Plantae	Flora	Myrtaceae	4204	<i>Kunzea ambigua</i>	Tick Bush		P		88
Plantae	Flora	Myrtaceae	4207	<i>Kunzea capitata</i>			P		4
Plantae	Flora	Myrtaceae	KUNZ	<i>Kunzea</i> spp.					1
Plantae	Flora	Myrtaceae	4213	<i>Leptospermum arachnoides</i>					5
Plantae	Flora	Myrtaceae	7970	<i>Leptospermum continentale</i>	Prickly Teatree				1
Plantae	Flora	Myrtaceae	7766	<i>Leptospermum arandifolium</i>	Woolly Teatree				2
Plantae	Flora	Myrtaceae	4221	<i>Leptospermum juniperinum</i>	Prickly Tea-tree				2
Plantae	Flora	Myrtaceae	4222	<i>Leptospermum laevigatum</i>	Coast Teatree				8
Plantae	Flora	Myrtaceae	4233	<i>Leptospermum parvifolium</i>					2
Plantae	Flora	Myrtaceae	4234	<i>Leptospermum petersonii</i>	Lemon-scented Teatree				4
Plantae	Flora	Myrtaceae	7245	<i>Leptospermum polyaalifolium</i>	Tantoon				12
Plantae	Flora	Myrtaceae	8197	<i>Leptospermum polygalifolium</i> subsp. <i>polygalifolium</i>					7
Plantae	Flora	Myrtaceae	LEPT	<i>Leptospermum</i> spp.	Tea-tree				5
Plantae	Flora	Myrtaceae	4239	<i>Leptospermum squarrosum</i>					11
Plantae	Flora	Myrtaceae	8486	<i>Leptospermum trinervium</i>	Slender Tea-tree				11
Plantae	Flora	Myrtaceae	4242	<i>Lophostemon confertus</i>	Brush Box				45
Plantae	Flora	Myrtaceae	11117	<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	Bracelet Honey-myrtle				11
Plantae	Flora	Myrtaceae	4248	<i>Melaleuca deanei</i>	Deane's Paperbark		V	V	5
Plantae	Flora	Myrtaceae	4249	<i>Melaleuca decora</i>					6
Plantae	Flora	Myrtaceae	6391	<i>Melaleuca ericifolia</i>	Swamp Paperbark				5
Plantae	Flora	Myrtaceae	4254	<i>Melaleuca hypericifolia</i>	Hillock bush				4
Plantae	Flora	Myrtaceae	4256	<i>Melaleuca lanceolata</i>	Moonah				1
Plantae	Flora	Myrtaceae	4257	<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark				11
Plantae	Flora	Myrtaceae	4258	<i>Melaleuca nodosa</i>					18
Plantae	Flora	Myrtaceae	4260	<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark				41
Plantae	Flora	Myrtaceae	MELA	<i>Melaleuca</i> spp.					4
Plantae	Flora	Myrtaceae	4262	<i>Melaleuca squamea</i>	Swamp Honey-myrtle				1
Plantae	Flora	Myrtaceae	4264	<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree				18
Plantae	Flora	Myrtaceae	4266	<i>Melaleuca thymifolia</i>	Thyme Honey-myrtle				6
Plantae	Flora	Myrtaceae	11326	<i>Metrosideros excelsa</i>	New Zealand Christmas Bush				2
Plantae	Flora	Myrtaceae	4279	<i>Psidium guajava</i>	Common Guava				1
Plantae	Flora	Myrtaceae	PSID	<i>Psidium</i> spp.					1
Plantae	Flora	Myrtaceae	4283	<i>Rhodamnia rubescens</i>	Scrub Turpentine		E4A	CE	2
Plantae	Flora	Myrtaceae	13751	<i>Sannantha pluriflora</i>					3
Plantae	Flora	Myrtaceae	6688	<i>Syncarpia glomulifera</i>	Turpentine				47
Plantae	Flora	Myrtaceae	10748	<i>Syncarpia glomulifera</i> subsp. <i>alomulifera</i>					6
Plantae	Flora	Myrtaceae	SYNC	<i>Syncarpia</i> spp.					1
Plantae	Flora	Myrtaceae	6778	<i>Syzygium australe</i>	Brush Cherry				8
Plantae	Flora	Myrtaceae	7201	<i>Syzygium oleosum</i>	Blue Lilly Pilly				1
Plantae	Flora	Myrtaceae	4293	<i>Syzygium paniculatum</i>	Magenta Lilly Pilly		V	V	35
Plantae	Flora	Myrtaceae	SYZY	<i>Syzygium</i> spp.					5
Plantae	Flora	Myrtaceae	4295	<i>Tristania neriifolia</i>	Water Gum				1
Plantae	Flora	Myrtaceae	4296	<i>Tristaniaopsis collina</i>	Mountain Water Gum				2
Plantae	Flora	Myrtaceae	4297	<i>Tristaniaopsis laurina</i>	Kanooka				27
Plantae	Flora	Myrtaceae	6799	<i>Waterhousea floribunda</i>	Weeping Lilly Pilly				4
Plantae	Flora	Nandinaaceae	9645	<i>Nandina domestica</i>	Japanese Sacred Bamboo				8
Plantae	Flora	Nandinaaceae	11532	<i>Nandina</i> spp.					1
Plantae	Flora	Nelumbonaceae	13302	<i>Nelumbo nucifera</i>					1
Plantae	Flora	Nyctaginaceae	8468	<i>Bougainvillea glabra</i>					2
Plantae	Flora	Nyctaginaceae	BOUG	<i>Bougainvillea</i> spp.					7
Plantae	Flora	Nyctaginaceae	4300	<i>Mirabilis jalapa</i>	Four-o'clock Flower				2
Plantae	Flora	Nymphaeaceae	4305	<i>Nymphaea mexicana</i>	Yellow Waterlily				2

Plantae	Flora	Nymphaeaceae	13303	<i>Nymphaea nouchali</i>	*			1
Plantae	Flora	Ochnaceae	4306	<i>Ochna serrulata</i>	*	Mickey Mouse Plant		87
Plantae	Flora	Oleaceae	6407	<i>Olex stricta</i>				1
Plantae	Flora	Oleaceae	12177	<i>Fraxinus angustifolia subsp. angustifolia</i>	*	Desert Ash		2
Plantae	Flora	Oleaceae	12579	<i>Fraxinus excelsior</i>	*	European ash		1
Plantae	Flora	Oleaceae	10761	<i>Jasminum mesnyi</i>	*	Primrose Jasmine		1
Plantae	Flora	Oleaceae	10913	<i>Jasminum polyanthum</i>	*	White Jasmine		10
Plantae	Flora	Oleaceae	JASM	<i>Jasminum spp.</i>				3
Plantae	Flora	Oleaceae	4312	<i>Ligustrum lucidum</i>	*	Large-leaved Privet		74
Plantae	Flora	Oleaceae	4313	<i>Ligustrum sinense</i>	*	Small-leaved Privet		62
Plantae	Flora	Oleaceae	4318	<i>Notelaea longifolia</i>		Large Mock-olive		89
Plantae	Flora	Oleaceae	6909	<i>Notelaea longifolia f. intermedia</i>				1
Plantae	Flora	Oleaceae	6423	<i>Notelaea longifolia f. longifolia</i>				13
Plantae	Flora	Oleaceae	4319	<i>Notelaea microcarpa</i>		Native Olive		2
Plantae	Flora	Oleaceae	4321	<i>Notelaea ovata</i>				1
Plantae	Flora	Oleaceae	NOTE	<i>Notelaea spp.</i>				1
Plantae	Flora	Oleaceae	4322	<i>Notelaea venosa</i>		Veined Mock-olive		2
Plantae	Flora	Oleaceae	4324	<i>Olea europaea</i>	*	Common Olive		11
Plantae	Flora	Oleaceae	11220	<i>Olea europaea subsp. cuspidata</i>	*	African Olive		47
Plantae	Flora	Oleaceae	7688	<i>Olea europaea subsp. europaea</i>	*	Olive		4
Plantae	Flora	Onagraceae	4327	<i>Epilobium ciliatum</i>	*			4
Plantae	Flora	Onagraceae	4330	<i>Epilobium hirtigerum</i>				1
Plantae	Flora	Onagraceae	4331	<i>Epilobium pallidiflorum</i>				1
Plantae	Flora	Onagraceae	11110	<i>Ludwigia longifolia</i>	*			2
Plantae	Flora	Onagraceae	7375	<i>Ludwigia peploides subsp. montevidensis</i>		Water Primrose		9
Plantae	Flora	Onagraceae	4338	<i>Ludwigia peruviana</i>	*			4
Plantae	Flora	Onagraceae	7724	<i>Oenothera glazioviana</i>	*			1
Plantae	Flora	Onagraceae	6837	<i>Oenothera indecora subsp. bonariensis</i>	*			1
Plantae	Flora	Onagraceae	4344	<i>Oenothera mollissima</i>	*			1
Plantae	Flora	Ophioglossaceae	8144	<i>Botrychium australe</i>		Parsley Fern		1
Plantae	Flora	Orchidaceae	4351	<i>Acianthus caudatus</i>		Mayfly Orchid	P	6
Plantae	Flora	Orchidaceae	4352	<i>Acianthus exsertus</i>		Mosquito Orchid	P	3
Plantae	Flora	Orchidaceae	4353	<i>Acianthus fornicatus</i>		Pixie Caps	P	4
Plantae	Flora	Orchidaceae	ACIA	<i>Acianthus spp.</i>		Mosquito Orchid	P	5
Plantae	Flora	Orchidaceae	6703	<i>Caladenia catenata</i>		White Caladenia	P	6
Plantae	Flora	Orchidaceae	4389	<i>Caleana major</i>		Large Duck Orchid	P	1
Plantae	Flora	Orchidaceae	4394	<i>Calochilus paludosus</i>		Red Beard Orchid	P	2
Plantae	Flora	Orchidaceae	4395	<i>Calochilus robertsonii</i>		Purplish Beard Orchid	P	4
Plantae	Flora	Orchidaceae	4399	<i>Chiloglottis formicifera</i>		Ant Orchid	P	1
Plantae	Flora	Orchidaceae	4402	<i>Chiloglottis reflexa</i>			P	1
Plantae	Flora	Orchidaceae	4404	<i>Corybas aconitiflorus</i>		Spurred Helmet Orchid	P	1
Plantae	Flora	Orchidaceae	4407	<i>Corybas fimbriatus</i>		Fringed Helmet Orchid	P	1
Plantae	Flora	Orchidaceae	4410	<i>Corybas pruinosus</i>		Toothed Helmet Orchid	P	1
Plantae	Flora	Orchidaceae	CORY	<i>Corybas spp.</i>			P	1
Plantae	Flora	Orchidaceae	4414	<i>Cryptostylis erecta</i>		Tartan Tongue Orchid	P	9
Plantae	Flora	Orchidaceae	CRYT	<i>Cryptostylis spp.</i>			P	4
Plantae	Flora	Orchidaceae	4417	<i>Cryptostylis subulata</i>		Large Tongue Orchid	P	8
Plantae	Flora	Orchidaceae	11228	<i>Cyanicula caerulea</i>		Blue Caladenia	P	2
Plantae	Flora	Orchidaceae	4419	<i>Cymbidium suave</i>		Snake Orchid	P	2
Plantae	Flora	Orchidaceae	6889	<i>Cyrtostylis reniformis</i>		Gnat Orchid	P	2
Plantae	Flora	Orchidaceae	11984	<i>Dendrobium speciosum var. speciosum</i>		Rock Orchid	P	1
Plantae	Flora	Orchidaceae	7887	<i>Dipodium punctatum</i>			P	2
Plantae	Flora	Orchidaceae	DIPO	<i>Dipodium spp.</i>			P	1
Plantae	Flora	Orchidaceae	7888	<i>Dipodium variegatum</i>			P	2
Plantae	Flora	Orchidaceae	4441	<i>Diuris aurea</i>			P	1
Plantae	Flora	Orchidaceae	12238	<i>Epidendrum radicans x secundum hybrid complex</i>	*	Crucifix Orchid		2
Plantae	Flora	Orchidaceae	8949	<i>Erythrorchis cassythoides</i>		Climbing Orchid	P	1
Plantae	Flora	Orchidaceae	4463	<i>Gastrodia sesamoides</i>		Cinnamon Bells	P	1
Plantae	Flora	Orchidaceae	9197	<i>Genoplesium archeri</i>		Variable Midge Orchid	P	1
Plantae	Flora	Orchidaceae	4464	<i>Genoplesium baueri</i>		Bauer's Midge Orchid	E1,P,2 E	2
Plantae	Flora	Orchidaceae	8872	<i>Genoplesium fimbriatum</i>		Fringed Midge Orchid	P	3
Plantae	Flora	Orchidaceae	9544	<i>Genoplesium woollsii</i>			P	1
Plantae	Flora	Orchidaceae	4465	<i>Glossodia major</i>		Waxlip Orchid	P	3
Plantae	Flora	Orchidaceae	4466	<i>Glossodia minor</i>		Small Waxlip Orchid	P	3
Plantae	Flora	Orchidaceae	4472	<i>Lyperanthus suaveolens</i>		Brown Beaks	P	4
Plantae	Flora	Orchidaceae	7622	<i>Microtis parviflora</i>		Slender Onion Orchid	P	1
Plantae	Flora	Orchidaceae	7101	<i>Microtis rara</i>		Scented Onion Orchid	P	2
Plantae	Flora	Orchidaceae	4473	<i>Microtis unifolia</i>		Common Onion Orchid	P	1
Plantae	Flora	Orchidaceae	4476	<i>Orthoceras strictum</i>		Bird's-mouth Orchid	P	2
Plantae	Flora	Orchidaceae	4478	<i>Paracaleana minor</i>		Small Duck Orchid	P	1
Plantae	Flora	Orchidaceae	11839	<i>Petalochilus minor</i>			P	1

Plantae	Flora	Orchidaceae	4497	<i>Prasophyllum elatum</i>	Tall Leek Orchid	P	1
Plantae	Flora	Orchidaceae	4502	<i>Prasophyllum flavum</i>	Yellow Leek Orchid	P	1
Plantae	Flora	Orchidaceae	4517	<i>Prasophyllum patens</i>	Broad-lipped Leek Orchid	P	1
Plantae	Flora	Orchidaceae	4535	<i>Pterostylis acuminata</i>	Pointed Greenhood	P	1
Plantae	Flora	Orchidaceae	4544	<i>Pterostylis concinna</i>	Trim Greenhood	P	1
Plantae	Flora	Orchidaceae	4545	<i>Pterostylis curta</i>	Blunt Greenhood	P	2
Plantae	Flora	Orchidaceae	4546	<i>Pterostylis daintreana</i>		P	2
Plantae	Flora	Orchidaceae	4554	<i>Pterostylis grandiflora</i>	Cobra Greenhood	P	5
Plantae	Flora	Orchidaceae	7616	<i>Pterostylis hispidula</i>	Small Nodding Greenhood	P	1
Plantae	Flora	Orchidaceae	4559	<i>Pterostylis longifolia</i>	Tall Greenhood	P	1
Plantae	Flora	Orchidaceae	4562	<i>Pterostylis nutans</i>	Nodding Greenhood	P	2
Plantae	Flora	Orchidaceae	4566	<i>Pterostylis parviflora</i>	Tiny Greenhood	P	1
Plantae	Flora	Orchidaceae	4573	<i>Pterostylis rufa</i>	Rusty Hood	P	1
Plantae	Flora	Orchidaceae	PTER	<i>Pterostylis spp.</i>	Greenhood	P	5
Plantae	Flora	Orchidaceae	10853	<i>Pyrorchis nigricans</i>		P	4
Plantae	Flora	Orchidaceae	11877	<i>Spiranthes australis</i>	Ladies' Tresses	P	1
Plantae	Flora	Orchidaceae	11449	<i>Thelymitra angustifolia</i>		P	2
Plantae	Flora	Orchidaceae	4592	<i>Thelymitra carnea</i>	Tiny Sun Orchid	P	2
Plantae	Flora	Orchidaceae	8968	<i>Thelymitra ixiooides</i> var. <i>ixiooides</i>	Dotted Sun Orchid	P	1
Plantae	Flora	Orobanchaceae	7739	<i>Euphrasia collina</i> subsp. <i>speciosa</i>			1
Plantae	Flora	Osmundaceae	8151	<i>Todea barbara</i>	King Fern	P	8
Plantae	Flora	Oxalidaceae	4610	<i>Oxalis bowiei</i>		*	1
Plantae	Flora	Oxalidaceae	4611	<i>Oxalis brasiliensis</i>		*	1
Plantae	Flora	Oxalidaceae	4613	<i>Oxalis corniculata</i>	Creeping Oxalis		41
Plantae	Flora	Oxalidaceae	9250	<i>Oxalis debilis</i> var. <i>corymbosa</i>		*	18
Plantae	Flora	Oxalidaceae	4615	<i>Oxalis exilis</i>			5
Plantae	Flora	Oxalidaceae	4617	<i>Oxalis incarnata</i>		*	3
Plantae	Flora	Oxalidaceae	4618	<i>Oxalis latifolia</i>		*	5
Plantae	Flora	Oxalidaceae	4621	<i>Oxalis perennans</i>			5
Plantae	Flora	Oxalidaceae	4622	<i>Oxalis pes-caprae</i>	Soursob	*	10
Plantae	Flora	Oxalidaceae	4623	<i>Oxalis purpurea</i>		*	1
Plantae	Flora	Oxalidaceae	4624	<i>Oxalis radicata</i>			1
Plantae	Flora	Oxalidaceae	4625	<i>Oxalis rubens</i>			3
Plantae	Flora	Oxalidaceae	OXAL	<i>Oxalis spp.</i>			15
Plantae	Flora	Oxalidaceae	9292	<i>Oxalis thompsoniae</i>		*	13
Plantae	Flora	Papaveraceae	7115	<i>Argemone ochroleuca</i> subsp. <i>ochroleuca</i>	Mexican Poppy	*	2
Plantae	Flora	Papaveraceae	9362	<i>Argemone subfusiformis</i> subsp. <i>subfusiformis</i>	American Poppy	*	1
Plantae	Flora	Papaveraceae	4637	<i>Papaver dubium</i>	Longhead Poppy	*	1
Plantae	Flora	Papaveraceae	4638	<i>Papaver hybridum</i>	Rough Poppy	*	5
Plantae	Flora	Papaveraceae	9647	<i>Papaver somniferum</i> subsp. <i>setiaerum</i>		*	1
Plantae	Flora	Passifloraceae	6994	<i>Passiflora caerulea</i>	Blue Passionflower	*	1
Plantae	Flora	Passifloraceae	4643	<i>Passiflora edulis</i>	Common Passionfruit	*	8
Plantae	Flora	Passifloraceae	4646	<i>Passiflora herbertiana</i>			1
Plantae	Flora	Passifloraceae	8886	<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	Native Passionfruit		2
Plantae	Flora	Passifloraceae	PASS	<i>Passiflora spp.</i>			3
Plantae	Flora	Passifloraceae	4649	<i>Passiflora suberosa</i>	Cork Passionfruit	*	4
Plantae	Flora	Passifloraceae	4650	<i>Passiflora subpeltata</i>	White Passionflower	*	2
Plantae	Flora	Phormiaceae	7664	<i>Thelionema caespitosum</i>	Tufted Blue-lily		1
Plantae	Flora	Phormiaceae	6461	<i>Thelionema umbellatum</i>			1
Plantae	Flora	Phyllanthaceae	2695	<i>Bryemia oblongifolia</i>	Coffee Bush		80
Plantae	Flora	Phyllanthaceae	7866	<i>Glochidion ferdinandi</i>	Cheese Tree		52
Plantae	Flora	Phyllanthaceae	9360	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	Cheese Tree		66
Plantae	Flora	Phyllanthaceae	8821	<i>Glochidion ferdinandi</i> var. <i>pubens</i>	Hairy Cheese Tree		14
Plantae	Flora	Phyllanthaceae	2746	<i>Phyllanthus gunnii</i>			1
Plantae	Flora	Phyllanthaceae	8216	<i>Phyllanthus hirtellus</i>	Thyme Spurge		25
Plantae	Flora	Phyllanthaceae	PHYL	<i>Phyllanthus spp.</i>			4
Plantae	Flora	Phyllanthaceae	2751	<i>Phyllanthus tenellus</i>	Hen and Chicken	*	9
Plantae	Flora	Phyllanthaceae	6751	<i>Phyllanthus virgatus</i>	Wiry Spurge		2
Plantae	Flora	Phyllanthaceae	2753	<i>Poranthera corymbosa</i>			1
Plantae	Flora	Phyllanthaceae	2754	<i>Poranthera ericifolia</i>			1
Plantae	Flora	Phyllanthaceae	7395	<i>Poranthera microphylla</i>	Small Poranthera		2
Plantae	Flora	Phytolaccaceae	4658	<i>Phytolacca octandra</i>	Inkweed	*	10
Plantae	Flora	Pinaceae	11357	<i>Cedrus deodara</i>	Deodar Cedar	*	3
Plantae	Flora	Pinaceae	11789	<i>Pinus patula</i>	Patula Pine	*	4
Plantae	Flora	Pinaceae	4661	<i>Pinus radiata</i>	Radiata Pine	*	6
Plantae	Flora	Pinaceae	PINU	<i>Pinus spp.</i>		*	5
Plantae	Flora	Pittosporaceae	4671	<i>Billardiera scandens</i>	Hairy Apple Berry		41
Plantae	Flora	Pittosporaceae	4674	<i>Bursaria spinosa</i>	Native Blackthorn		8
Plantae	Flora	Pittosporaceae	11018	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Native Blackthorn		3
Plantae	Flora	Pittosporaceae	4678	<i>Hymenosporum flavum</i>	Native Frangipani		1

Plantae	Flora	Pittosporaceae	11204	<i>Pittosporum multiflorum</i>	Orange Thorn	2
Plantae	Flora	Pittosporaceae	4683	<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum	39
Plantae	Flora	Pittosporaceae	PITT	<i>Pittosporum spp.</i>		1
Plantae	Flora	Pittosporaceae	11793	<i>Pittosporum tenuifolium</i>	* Tawhiwhi	1
Plantae	Flora	Pittosporaceae	4685	<i>Pittosporum undulatum</i>	Sweet Pittosporum	174
Plantae	Flora	Plantaginaceae	13598	<i>Linaria purpurea</i>	*	1
Plantae	Flora	Plantaginaceae	4689	<i>Plantago coronopus</i>	* Buck's-horn Plantain	1
Plantae	Flora	Plantaginaceae	6586	<i>Plantago coronopus subsp. coronopus</i>	*	2
Plantae	Flora	Plantaginaceae	4691	<i>Plantago debilis</i>	Shade Plantain	2
Plantae	Flora	Plantaginaceae	4699	<i>Plantago lanceolata</i>	* Lamb's Tongues	37
Plantae	Flora	Plantaginaceae	4700	<i>Plantago major</i>	* Large Plantain	12
Plantae	Flora	Plantaginaceae	PLAA	<i>Plantago spp.</i>	Plantain	1
Plantae	Flora	Plantaginaceae	6002	<i>Veronica arvensis</i>	* Wall Speedwell	5
Plantae	Flora	Plantaginaceae	6003	<i>Veronica calycina</i>	Hairy Speedwell	1
Plantae	Flora	Plantaginaceae	13400	<i>Veronica peregrina subsp. xalapensis</i>	*	1
Plantae	Flora	Plantaginaceae	6009	<i>Veronica plebeia</i>	Trailing Speedwell	19
Plantae	Flora	Plantaginaceae	6010	<i>Veronica serpyllifolia</i>	*	1
Plantae	Flora	Platanaceae	14232	<i>Platanus hispanica 'Acerifolia'</i>	* Hybrid Plane	10
Plantae	Flora	Platanaceae	PLAU	<i>Platanus spp.</i>	*	1
Plantae	Flora	Plumbaginaceae	11674	<i>Plumbago auriculata</i>	* Cape leadwort	4
Plantae	Flora	Poaceae	4721	<i>Agrostis capillaris</i>	* Browntop Bent	1
Plantae	Flora	Poaceae	4722	<i>Agrostis gigantea</i>	* Redtop Bent	12
Plantae	Flora	Poaceae	4728	<i>Agrostis stolonifera</i>	* Creeping Bent	1
Plantae	Flora	Poaceae	10360	<i>Agrostis viridis</i>	* Water Bent	1
Plantae	Flora	Poaceae	4730	<i>Aira caryophyllea</i>	* Silvery Hairgrass	2
Plantae	Flora	Poaceae	4731	<i>Aira cupaniana</i>	* Silvery Hairgrass	1
Plantae	Flora	Poaceae	4733	<i>Aira praecox</i>	* Early Hairgrass	1
Plantae	Flora	Poaceae	6842	<i>Amphibromus nervosus</i>	Swamp Wallaby Grass	1
Plantae	Flora	Poaceae	7650	<i>Amphipogon strictus var. strictus</i>	Greybeard Grass	1
Plantae	Flora	Poaceae	4748	<i>Andropogon virginicus</i>	* Whisky Grass	13
Plantae	Flora	Poaceae	4749	<i>Anisopogon avenaceus</i>	Oat Speargrass	2
Plantae	Flora	Poaceae	14896	<i>Anthosachne scabra</i>	Wheatgrass, Common Wheatgrass	2
Plantae	Flora	Poaceae	4750	<i>Anthoxanthum odoratum</i>	* Sweet Vernal Grass	5
Plantae	Flora	Poaceae	4770	<i>Aristida ramosa</i>	Purple Wiregrass	3
Plantae	Flora	Poaceae	ARIS	<i>Aristida spp.</i>		2
Plantae	Flora	Poaceae	4773	<i>Aristida vagans</i>	Threeawn Speargrass	9
Plantae	Flora	Poaceae	4775	<i>Arrhenatherum elatius</i>	* Oatgrass	1
Plantae	Flora	Poaceae	9340	<i>Arrhenatherum elatius var. elatius</i>	* False Oatgrass	1
Plantae	Flora	Poaceae	4777	<i>Arundo donax</i>	* Giant Reed	4
Plantae	Flora	Poaceae	10393	<i>Auistrostipa mollis</i>	Soft Speargrass	6
Plantae	Flora	Poaceae	9603	<i>Auistrostipa pubescens</i>		14
Plantae	Flora	Poaceae	9918	<i>Auistrostipa ramosissima</i>	Stout Bamboo Grass	3
Plantae	Flora	Poaceae	10377	<i>Auistrostipa scabra</i>	Speargrass	1
Plantae	Flora	Poaceae	10371	<i>Auistrostipa verticillata</i>	Slender Bamboo Grass	2
Plantae	Flora	Poaceae	4779	<i>Avena barbata</i>	* Bearded Oats	5
Plantae	Flora	Poaceae	4780	<i>Avena fatua</i>	* Wild Oats	10
Plantae	Flora	Poaceae	4782	<i>Avena sativa</i>	* Oats	1
Plantae	Flora	Poaceae	AVEN	<i>Avena spp.</i>	* Oats	3
Plantae	Flora	Poaceae	11194	<i>Axonopus fissifolius</i>	* Narrow-leafed Carpet Grass	6
Plantae	Flora	Poaceae	10346	<i>Bothriochloa bladhii subsp. bladhii</i>	Forest Bluegrass	1
Plantae	Flora	Poaceae	7559	<i>Bothriochloa decipiens var. decipiens</i>	Pitted Bluegrass	1
Plantae	Flora	Poaceae	4790	<i>Bothriochloa macra</i>	Red Grass	13
Plantae	Flora	Poaceae	BOTH	<i>Bothriochloa spp.</i>	Redgrass, Bluegrass	1
Plantae	Flora	Poaceae	14268	<i>Bouteloua dactyloides</i>	* Buffalo Grass	2
Plantae	Flora	Poaceae	4800	<i>Briza maxima</i>	* Quaking Grass	12
Plantae	Flora	Poaceae	4801	<i>Briza minor</i>	* Shivery Grass	9
Plantae	Flora	Poaceae	BRIZ	<i>Briza spp.</i>	*	1
Plantae	Flora	Poaceae	4802	<i>Briza subaristata</i>	*	3
Plantae	Flora	Poaceae	4804	<i>Bromus arenarius</i>	Sand Brome	1
Plantae	Flora	Poaceae	7813	<i>Bromus catharticus</i>	* Prairie Grass	24
Plantae	Flora	Poaceae	4806	<i>Bromus diandrus</i>	* Great Brome	4
Plantae	Flora	Poaceae	4807	<i>Bromus hordeaceus</i>	* Soft Brome	3
Plantae	Flora	Poaceae	4810	<i>Bromus madritensis</i>	* Madrid Brome	3
Plantae	Flora	Poaceae	BROM	<i>Bromus spp.</i>		3
Plantae	Flora	Poaceae	6413	<i>Cenchrus ciliaris</i>	* Buffel Grass	3
Plantae	Flora	Poaceae	14903	<i>Cenchrus clandestinus</i>	* Kikuyu Grass	51
Plantae	Flora	Poaceae	6890	<i>Cenchrus echinatus</i>	* Mossman River Grass	3
Plantae	Flora	Poaceae	14862	<i>Cenchrus longisetus</i>	* Feathertop, White Foxtail	3
Plantae	Flora	Poaceae	4826	<i>Cenchrus pennisetiformis</i>	* Buffel Grass	4
Plantae	Flora	Poaceae	14952	<i>Cenchrus purpurascens</i>		4
Plantae	Flora	Poaceae	14863	<i>Cenchrus setaceus</i>	* Fountain Grass	15

Plantae	Flora	Poaceae	CENC	<i>Cenchrus spp.</i>					3
Plantae	Flora	Poaceae	13419	<i>Chloris barbata</i>	*				1
Plantae	Flora	Poaceae	4831	<i>Chloris gayana</i>	*		Rhodes Grass		18
Plantae	Flora	Poaceae	CHLO	<i>Chloris spp.</i>					1
Plantae	Flora	Poaceae	4833	<i>Chloris truncata</i>			Windmill Grass		1
Plantae	Flora	Poaceae	4834	<i>Chloris ventricosa</i>			Tall Chloris		2
Plantae	Flora	Poaceae	6655	<i>Chloris virgata</i>	*		Feathertop Rhodes Grass		2
Plantae	Flora	Poaceae	4838	<i>Coix lacryma-jobi</i>	*		Job's Tears		1
Plantae	Flora	Poaceae	4839	<i>Cortaderia selloana</i>	*		Pampas Grass		10
Plantae	Flora	Poaceae	CORT	<i>Cortaderia spp.</i>	*				2
Plantae	Flora	Poaceae	4840	<i>Cymbopogon obtectus</i>			Silky Heads		1
Plantae	Flora	Poaceae	4841	<i>Cymbopogon refractus</i>			Barbed Wire Grass		12
Plantae	Flora	Poaceae	6540	<i>Cynodon dactylon</i>			Common Couch		58
Plantae	Flora	Poaceae	4842	<i>Cynodon incompletus</i>	*				6
Plantae	Flora	Poaceae	4846	<i>Dactylois glomerata</i>	*		Cocksfoot		3
Plantae	Flora	Poaceae	4847	<i>Dactyloctenium australe</i>	*		Durban Grass		3
Plantae	Flora	Poaceae	4881	<i>Deyeuxia decipiens</i>			Devious Bent-grass		3
Plantae	Flora	Poaceae	4886	<i>Deyeuxia mesathera</i>					8
Plantae	Flora	Poaceae	4891	<i>Deyeuxia quadriseta</i>					3
Plantae	Flora	Poaceae	4895	<i>Dichanthium setosum</i>			Bluegrass	V V	1
Plantae	Flora	Poaceae	4897	<i>Dichelachne crinita</i>			Longhair Plumegrass		24
Plantae	Flora	Poaceae	8748	<i>Dichelachne inaequiglumis</i>					1
Plantae	Flora	Poaceae	4898	<i>Dichelachne micrantha</i>			Shorthair Plumegrass		7
Plantae	Flora	Poaceae	8767	<i>Dichelachne parva</i>					1
Plantae	Flora	Poaceae	4899	<i>Dichelachne rara</i>					2
Plantae	Flora	Poaceae	9151	<i>Dichelachne sieberiana</i>					1
Plantae	Flora	Poaceae	DICE	<i>Dichelachne spp.</i>					5
Plantae	Flora	Poaceae	4900	<i>Digitaria aequiglumis</i>	*				8
Plantae	Flora	Poaceae	6554	<i>Digitaria ciliaris</i>	*		Summer Grass		6
Plantae	Flora	Poaceae	4904	<i>Digitaria didactyla</i>			Queensland Blue Couch		20
Plantae	Flora	Poaceae	4905	<i>Digitaria diffusa</i>			Open Summer-grass		3
Plantae	Flora	Poaceae	4907	<i>Digitaria divaricatissima</i>			Umbrella Grass		1
Plantae	Flora	Poaceae	13426	<i>Digitaria eriantha</i>	*		Finger Panic Grass		1
Plantae	Flora	Poaceae	4913	<i>Digitaria parviflora</i>			Small-flowered Finger Grass		21
Plantae	Flora	Poaceae	6937	<i>Digitaria sanguinalis</i>	*		Crab Grass		16
Plantae	Flora	Poaceae	DIGI	<i>Digitaria spp.</i>					2
Plantae	Flora	Poaceae	4918	<i>Digitaria violascens</i>	*				1
Plantae	Flora	Poaceae	4920	<i>Diplachne fusca</i>			Brown Beetle Grass		1
Plantae	Flora	Poaceae	7607	<i>Echinochloa colona</i>			Awnless Barnyard Grass		1
Plantae	Flora	Poaceae	4923	<i>Echinochloa crus-galli</i>	*		Barnyard Grass		4
Plantae	Flora	Poaceae	4924	<i>Echinochloa crus-pavonis</i>	*		South American Barnyard Grass		1
Plantae	Flora	Poaceae	9330	<i>Echinochloa esculenta</i>	*		Japanese Millet		3
Plantae	Flora	Poaceae	4927	<i>Echinochloa telmatophila</i>			Swamp Barnyard Grass		2
Plantae	Flora	Poaceae	4929	<i>Echinopogon caespitosus</i>			Bushy Hedgehog-grass		16
Plantae	Flora	Poaceae	7593	<i>Echinopogon caespitosus</i> <i>var. caespitosus</i>			Tufted Hedgehog Grass		3
Plantae	Flora	Poaceae	4934	<i>Echinopogon ovatus</i>			Forest Hedgehog Grass		5
Plantae	Flora	Poaceae	4937	<i>Ehrharta erecta</i>	*		Panic Veldtgrass		104
Plantae	Flora	Poaceae	4938	<i>Ehrharta longiflora</i>	*		Annual Veldtgrass		3
Plantae	Flora	Poaceae	EHRH	<i>Ehrharta spp.</i>	*		Veldtgrass		1
Plantae	Flora	Poaceae	7196	<i>Eleusine indica</i>	*		Crowsfoot Grass		16
Plantae	Flora	Poaceae	4940	<i>Eleusine tristachya</i>	*		Goose Grass		3
Plantae	Flora	Poaceae	13430	<i>Elymus rectisetus</i>					1
Plantae	Flora	Poaceae	4946	<i>Entolasia marginata</i>			Bordered Panic		61
Plantae	Flora	Poaceae	ENTO	<i>Entolasia spp.</i>					3
Plantae	Flora	Poaceae	4947	<i>Entolasia stricta</i>			Wiry Panic		88
Plantae	Flora	Poaceae	4951	<i>Eragrostis basedowii</i>					1
Plantae	Flora	Poaceae	7921	<i>Eragrostis brownii</i>			Brown's Lovegrass		26
Plantae	Flora	Poaceae	6387	<i>Eragrostis cilianensis</i>	*		Stinkgrass		3
Plantae	Flora	Poaceae	4952	<i>Eragrostis curvula</i>	*		African Lovegrass		18
Plantae	Flora	Poaceae	4955	<i>Eragrostis elongata</i>			Clustered Lovegrass		1
Plantae	Flora	Poaceae	4960	<i>Eragrostis leptostachya</i>			Paddock Lovegrass		6
Plantae	Flora	Poaceae	4962	<i>Eragrostis mexicana</i>	*		Mexican Lovegrass		15
Plantae	Flora	Poaceae	4967	<i>Eragrostis parviflora</i>			Weeping Lovegrass		1
Plantae	Flora	Poaceae	4970	<i>Eragrostis pilosa</i>	*		Soft Lovegrass		1
Plantae	Flora	Poaceae	13440	<i>Eragrostis plana</i>					1
Plantae	Flora	Poaceae	6378	<i>Eragrostis setifolia</i>			Neverfail		1
Plantae	Flora	Poaceae	ERAG	<i>Eragrostis spp.</i>					1
Plantae	Flora	Poaceae	4974	<i>Eragrostis tenuifolia</i>	*		Elastic Grass		3
Plantae	Flora	Poaceae	13444	<i>Eriachne armitii</i>	*				1
Plantae	Flora	Poaceae	7228	<i>Eriochloa procera</i>			Spring Grass		1
Plantae	Flora	Poaceae	8745	<i>Festuca elatior</i>	*		Tall Fescue		5
Plantae	Flora	Poaceae	4993	<i>Festuca pratensis</i>	*		Meadow Fescue		2
Plantae	Flora	Poaceae	10364	<i>Festuca rubra subsp. rubra</i>	*		Red Fescue		1
Plantae	Flora	Poaceae	4996	<i>Glyceria australis</i>			Australian Sweetgrass		1

Plantae	Flora	Poaceae	4999	<i>Glyceria maxima</i>	*	Reed Canegrass	1
Plantae	Flora	Poaceae	5000	<i>Hainardia cylindrica</i>	*	Common Barbrgrass	2
Plantae	Flora	Poaceae	5001	<i>Hemarthria uncinata</i>		Matgrass	2
Plantae	Flora	Poaceae	7871	<i>Hemarthria uncinata</i> var. <i>uncinata</i>			3
Plantae	Flora	Poaceae	5005	<i>Holcus lanatus</i>	*	Yorkshire Fog	4
Plantae	Flora	Poaceae	5008	<i>Hordeum distichon</i>	*	Two Row Barley	1
Plantae	Flora	Poaceae	5016	<i>Hyparrhenia hirta</i>	*	Coolatai Grass	1
Plantae	Flora	Poaceae	6803	<i>Imperata cylindrica</i>		Blady Grass	48
Plantae	Flora	Poaceae	5017	<i>Isachne globosa</i>		Swamp Millet	1
Plantae	Flora	Poaceae	11387	<i>Lachnagrostis billardierei</i> subsp. <i>billardierei</i>			1
Plantae	Flora	Poaceae	11388	<i>Lachnagrostis filiformis</i>			15
Plantae	Flora	Poaceae	13450	<i>Lachnagrostis plebeia</i>	*		1
Plantae	Flora	Poaceae	5022	<i>Lagurus ovatus</i>	*	Hare's Tail Grass	2
Plantae	Flora	Poaceae	14476	<i>Leptochloa asthenes</i>			1
Plantae	Flora	Poaceae	5030	<i>Lolium loliaceum</i>	*	Stiff Ryegrass	8
Plantae	Flora	Poaceae	5031	<i>Lolium multiflorum</i>	*	Italian Ryegrass	1
Plantae	Flora	Poaceae	5032	<i>Lolium perenne</i>	*	Perennial Ryegrass	15
Plantae	Flora	Poaceae	5033	<i>Lolium rigidum</i>	*	Wimmera Ryegrass	6
Plantae	Flora	Poaceae	LOLI	<i>Lolium spp.</i>	*		3
Plantae	Flora	Poaceae	5034	<i>Lolium temulentum</i>	*	Darnel	2
Plantae	Flora	Poaceae	14421	<i>Megathyrsus maximum</i> var. <i>pubialumis</i>	*	green panic	2
Plantae	Flora	Poaceae	14001	<i>Megathyrsus maximus</i>	*		3
Plantae	Flora	Poaceae	12592	<i>Megathyrsus maximus</i> var. <i>maximus</i>	*		2
Plantae	Flora	Poaceae	10904	<i>Melinis repens</i>	*	Red Natal Grass	11
Plantae	Flora	Poaceae	5037	<i>Microlaena stipoides</i>		Weeping Grass	124
Plantae	Flora	Poaceae	7707	<i>Microlaena stipoides</i> var. <i>stipoides</i>		Weeping Grass	20
Plantae	Flora	Poaceae	5041	<i>Nassella trichotoma</i>	*	Serrated Tussock	1
Plantae	Flora	Poaceae	5044	<i>Oplismenus aemulus</i>			76
Plantae	Flora	Poaceae	5045	<i>Oplismenus imbecillis</i>			41
Plantae	Flora	Poaceae	OPLI	<i>Oplismenus spp.</i>			4
Plantae	Flora	Poaceae	5049	<i>Panicum antidotale</i>	*	Giant Panic Grass	3
Plantae	Flora	Poaceae	5053	<i>Panicum capillare</i>	*	Witchgrass	1
Plantae	Flora	Poaceae	6395	<i>Panicum decompositum</i>		Native Millet	1
Plantae	Flora	Poaceae	5055	<i>Panicum effusum</i>		Hairy Panic	1
Plantae	Flora	Poaceae	5059	<i>Panicum miliaceum</i>	*	French Millet	2
Plantae	Flora	Poaceae	5060	<i>Panicum obseptum</i>		White Water Panic	3
Plantae	Flora	Poaceae	5063	<i>Panicum pygmaeum</i>		Pygmy Panic	1
Plantae	Flora	Poaceae	7486	<i>Panicum schinzii</i>	*		1
Plantae	Flora	Poaceae	5066	<i>Panicum simile</i>		Two-colour Panic	6
Plantae	Flora	Poaceae	5070	<i>Parapholis incurva</i>	*	Coast Barb Grass	3
Plantae	Flora	Poaceae	7172	<i>Paspalidium distans</i>			20
Plantae	Flora	Poaceae	5086	<i>Paspalum dilatatum</i>	*	Paspalum	31
Plantae	Flora	Poaceae	5087	<i>Paspalum distichum</i>		Water Couch	4
Plantae	Flora	Poaceae	5088	<i>Paspalum notatum</i>	*	Bahia Grass	1
Plantae	Flora	Poaceae	5089	<i>Paspalum orbiculare</i>		Ditch Millet	1
Plantae	Flora	Poaceae	5092	<i>Paspalum quadrifarium</i>	*	Tussock Paspalum	3
Plantae	Flora	Poaceae	PASP	<i>Paspalum spp.</i>			3
Plantae	Flora	Poaceae	5093	<i>Paspalum urvillei</i>	*	Vasey Grass	13
Plantae	Flora	Poaceae	6563	<i>Paspalum vaginatum</i>		Salt-water Couch	1
Plantae	Flora	Poaceae	5097	<i>Pennisetum macrourum</i>	*	African Feather Grass	7
Plantae	Flora	Poaceae	5098	<i>Pennisetum purpureum</i>	*	Elephant Grass	1
Plantae	Flora	Poaceae	PENN	<i>Pennisetum spp.</i>			4
Plantae	Flora	Poaceae	5105	<i>Phalaris angusta</i>	*		1
Plantae	Flora	Poaceae	5106	<i>Phalaris aquatica</i>	*	Phalaris	1
Plantae	Flora	Poaceae	5108	<i>Phalaris canariensis</i>	*	Canary Grass	1
Plantae	Flora	Poaceae	5110	<i>Phalaris minor</i>	*	Lesser Canary Grass	1
Plantae	Flora	Poaceae	PHAA	<i>Phalaris spp.</i>	*		1
Plantae	Flora	Poaceae	5113	<i>Phragmites australis</i>		Common Reed	7
Plantae	Flora	Poaceae	5114	<i>Phyllostachys aurea</i>	*	Fishpole Bamboo	10
Plantae	Flora	Poaceae	5115	<i>Phyllostachys nigra</i>	*	Black Bamboo	1
Plantae	Flora	Poaceae	PHYO	<i>Phyllostachys spp.</i>	*		3
Plantae	Flora	Poaceae	9118	<i>Piptatherum millacea</i>	*	Rice Millet	1
Plantae	Flora	Poaceae	5120	<i>Poa affinis</i>			40
Plantae	Flora	Poaceae	5121	<i>Poa annua</i>	*	Winter Grass	19
Plantae	Flora	Poaceae	5125	<i>Poa compressa</i>	*	Canada Bluegrass	3
Plantae	Flora	Poaceae	5129	<i>Poa fordeana</i>		Sweet Swamp-grass	1
Plantae	Flora	Poaceae	11196	<i>Poa labillardierei</i> var. <i>labillardierei</i>		Tussock	2
Plantae	Flora	Poaceae	11143	<i>Poa poiiformis</i> var. <i>poiiformis</i>			1
Plantae	Flora	Poaceae	5138	<i>Poa pratensis</i>	*	Kentucky Bluegrass	19
Plantae	Flora	Poaceae	POA	<i>Poa spp.</i>			1
Plantae	Flora	Poaceae	7878	<i>Rostraria cristata</i>	*	Annual Cat's Tail	2

Plantae	Flora	Poaceae	14305	<i>Rytidosperma caespitosum</i>		Ringed Wallaby Grass	1
Plantae	Flora	Poaceae	14309	<i>Rytidosperma fulvum</i>		Wallaby Grass	2
Plantae	Flora	Poaceae	14312	<i>Rytidosperma longifolium</i>		Long-leaved Wallaby Grass	3
Plantae	Flora	Poaceae	14317	<i>Rytidosperma racemosum</i>		Wallaby Grass	2
Plantae	Flora	Poaceae	14318	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>		Wallaby Grass	1
Plantae	Flora	Poaceae	14322	<i>Rytidosperma setaceum</i>		Small-flowered Wallaby-grass	3
Plantae	Flora	Poaceae	RYTI	<i>Rytidosperma</i> spp.			9
Plantae	Flora	Poaceae	14323	<i>Rytidosperma tenuius</i>			18
Plantae	Flora	Poaceae	5155	<i>Sacciolepis indica</i>		Indian Cupscale Grass	6
Plantae	Flora	Poaceae	5159	<i>Secale cereale</i>	*	Cereal Rye	1
Plantae	Flora	Poaceae	5165	<i>Setaria palmifolia</i>	*	Palm Grass	11
Plantae	Flora	Poaceae	13468	<i>Setaria parviflora</i>	*		34
Plantae	Flora	Poaceae	7842	<i>Setaria pumila</i>	*	Pale Pigeon Grass	5
Plantae	Flora	Poaceae	5167	<i>Setaria sphacelata</i>	*	South African Pigeon Grass	3
Plantae	Flora	Poaceae	SETA	<i>Setaria</i> spp.			2
Plantae	Flora	Poaceae	5169	<i>Setaria verticillata</i>	*	Whorled Pigeon Grass	1
Plantae	Flora	Poaceae	5170	<i>Setaria viridis</i>	*	Green Pigeon Grass	5
Plantae	Flora	Poaceae	5171	<i>Sorghum bicolor</i>	*	Sorghum	1
Plantae	Flora	Poaceae	9322	<i>Sorghum bicolor</i> subsp. <i>drummondii</i>	*		1
Plantae	Flora	Poaceae	5176	<i>Sporobolus africanus</i>	*	Parramatta Grass	17
Plantae	Flora	Poaceae	5179	<i>Sporobolus creber</i>		Slender Rat's Tail Grass	3
Plantae	Flora	Poaceae	5181	<i>Sporobolus elongatus</i>		Slender Rat's Tail Grass	2
Plantae	Flora	Poaceae	11172	<i>Sporobolus fertilis</i>	*	Giant Parramatta Grass	2
Plantae	Flora	Poaceae	SPOR	<i>Sporobolus</i> spp.		Rat's Tail Couch	3
Plantae	Flora	Poaceae	5184	<i>Sporobolus virginicus</i>			7
Plantae	Flora	Poaceae	9224	<i>Sporobolus virginicus</i> var. <i>minor</i>		Marine Couch	1
Plantae	Flora	Poaceae	5185	<i>Stenotaphrum secundatum</i>	*	Buffalo Grass	33
Plantae	Flora	Poaceae	5217	<i>Tetrarrhena juncea</i>		Wiry Ricegrass	2
Plantae	Flora	Poaceae	7993	<i>Tetrarrhena turfosa</i>			2
Plantae	Flora	Poaceae	THEM	<i>Themeda</i> spp.			1
Plantae	Flora	Poaceae	7770	<i>Themeda triandra</i>			49
Plantae	Flora	Poaceae	5234	<i>Triticum aestivum</i>	*	Wheat	1
Plantae	Flora	Poaceae	13473	<i>Uniola latifolia</i>	*		2
Plantae	Flora	Poaceae	5237	<i>Urochloa panicoides</i>	*	Urochloa Grass	1
Plantae	Flora	Poaceae	5239	<i>Vulpia bromoides</i>	*	Squirrel Tail Fescue	2
Plantae	Flora	Poaceae	5242	<i>Vulpia myuros</i>	*	Rat's Tail Fescue	7
Plantae	Flora	Poaceae	VULP	<i>Vulpia</i> spp.	*	Rat's-tail Fescue	1
Plantae	Flora	Podocarpaceae	13480	<i>Afrocarpus falcatus</i>	*		4
Plantae	Flora	Podocarpaceae	5246	<i>Podocarpus elatus</i>		Plum Pine	1
Plantae	Flora	Podocarpaceae	5248	<i>Podocarpus spinulosus</i>		Spiny-leaf Podocarp	12
Plantae	Flora	Polygalaceae	5255	<i>Comesperma retusum</i>			1
Plantae	Flora	Polygalaceae	5261	<i>Polygala myrtifolia</i>	*		2
Plantae	Flora	Polygalaceae	POLY	<i>Polygala</i> spp.			1
Plantae	Flora	Polygalaceae	5262	<i>Polygala virgata</i>	*		1
Plantae	Flora	Polygonaceae	5263	<i>Acetosa sagittata</i>	*	Rambling Dock	32
Plantae	Flora	Polygonaceae	5265	<i>Acetosella vulgaris</i>	*	Sheep Sorrel	8
Plantae	Flora	Polygonaceae	5266	<i>Emex australis</i>	*	Spiny Emex	10
Plantae	Flora	Polygonaceae	5278	<i>Persicaria capitata</i>	*		9
Plantae	Flora	Polygonaceae	7568	<i>Persicaria decipiens</i>		Slender Knotweed	26
Plantae	Flora	Polygonaceae	5281	<i>Persicaria hydropiper</i>		Water Pepper	5
Plantae	Flora	Polygonaceae	5282	<i>Persicaria lapathifolia</i>		Pale Knotweed	3
Plantae	Flora	Polygonaceae	7001	<i>Persicaria maculosa</i>	*	Redshank	1
Plantae	Flora	Polygonaceae	5285	<i>Persicaria prostrata</i>		Creeping Knotweed	1
Plantae	Flora	Polygonaceae	PERC	<i>Persicaria</i> spp.		Knotweed	3
Plantae	Flora	Polygonaceae	5286	<i>Persicaria strigosa</i>			1
Plantae	Flora	Polygonaceae	5288	<i>Polygonum aviculare</i>	*	Wireweed	4
Plantae	Flora	Polygonaceae	5296	<i>Rumex brownii</i>		Swamp Dock	16
Plantae	Flora	Polygonaceae	5297	<i>Rumex conglomeratus</i>	*	Clustered Dock	3
Plantae	Flora	Polygonaceae	5298	<i>Rumex crispus</i>	*	Curled Dock	7
Plantae	Flora	Polygonaceae	5302	<i>Rumex obtusifolius</i>	*	Broadleaf Dock	4
Plantae	Flora	Polygonaceae	5303	<i>Rumex pulcher</i>	*	Fiddle Dock	2
Plantae	Flora	Polygonaceae	RUME	<i>Rumex</i> spp.		Dock	5
Plantae	Flora	Polypodiaceae	8159	<i>Platycterium bifurcatum</i>		Elkhorn Fern	P 12
Plantae	Flora	Polypodiaceae	8163	<i>Pyrrosia rupestris</i>		Rock Felt Fern	6
Plantae	Flora	Pontederiaceae	5305	<i>Eichhornia crassipes</i>	*	Water Hyacinth	1
Plantae	Flora	Portulacaceae	5324	<i>Portulaca oleracea</i>		Pigweed	5
Plantae	Flora	Posidoniaceae	5327	<i>Posidonia australis</i>		Seagrass	1
Plantae	Flora	Potamogetonaceae	5330	<i>Potamogeton crispus</i>		Curly Pondweed	1
Plantae	Flora	Potamogetonaceae	5331	<i>Potamogeton ochreatus</i>		Blunt Pondweed	5
Plantae	Flora	Potamogetonaceae	13488	<i>Potamogeton octandrus</i>			7
Plantae	Flora	Potamogetonaceae	5332	<i>Potamogeton pectinatus</i>		Sago Pondweed	3
Plantae	Flora	Potamogetonaceae	5718	<i>Ruppia polycarpa</i>			1
Plantae	Flora	Primulaceae	7459	<i>Aegiceras corniculatum</i>		River Mangrove	2

Plantae	Flora	Primulaceae	10694	<i>Ardisia crenata</i>	*	Coralberry		1
Plantae	Flora	Primulaceae	14614	<i>Lysimachia arvensis</i>	*	Scarlet Pimpernel		15
Plantae	Flora	Primulaceae	11948	<i>Myrsine howittiana</i>		Brush Muttonwood		2
Plantae	Flora	Primulaceae	11953	<i>Myrsine variabilis</i>				30
Plantae	Flora	Primulaceae	5337	<i>Samolus repens</i>		Creeping Brookweed		3
Plantae	Flora	Proteaceae	5339	<i>Banksia aemula</i>		Wallum Banksia		9
Plantae	Flora	Proteaceae	5342	<i>Banksia ericifolia</i>		Heath-leaved Banksia		15
Plantae	Flora	Proteaceae	11049	<i>Banksia ericifolia subsp. ericifolia</i>				4
Plantae	Flora	Proteaceae	5343	<i>Banksia integrifolia</i>		Coast Banksia		55
Plantae	Flora	Proteaceae	6603	<i>Banksia integrifolia subsp. integrifolia</i>		Coastal Banksia		12
Plantae	Flora	Proteaceae	5344	<i>Banksia marginata</i>		Silver Banksia		7
Plantae	Flora	Proteaceae	5345	<i>Banksia oblongifolia</i>		Fern-leaved Banksia		4
Plantae	Flora	Proteaceae	10874	<i>Banksia paludosa subsp. paludosa</i>				4
Plantae	Flora	Proteaceae	5347	<i>Banksia robur</i>		Swamp Banksia		3
Plantae	Flora	Proteaceae	5348	<i>Banksia serrata</i>		Old-man Banksia		33
Plantae	Flora	Proteaceae	5349	<i>Banksia spinulosa</i>		Hairpin Banksia	P	15
Plantae	Flora	Proteaceae	7488	<i>Banksia spinulosa var. spinulosa</i>			P	4
Plantae	Flora	Proteaceae	BANK	<i>Banksia spp.</i>				4
Plantae	Flora	Proteaceae	9976	<i>Conospermum ericifolium</i>				1
Plantae	Flora	Proteaceae	8612	<i>Conospermum longifolium subsp. longifolium</i>				1
Plantae	Flora	Proteaceae	5352	<i>Conospermum taxifolium</i>		Variable Smoke-bush		1
Plantae	Flora	Proteaceae	5364	<i>Grevillea buxifolia</i>		Grey Spider Flower		3
Plantae	Flora	Proteaceae	8409	<i>Grevillea buxifolia subsp. buxifolia</i>				3
Plantae	Flora	Proteaceae	5381	<i>Grevillea linearifolia</i>		Linear-leaf Grevillea		45
Plantae	Flora	Proteaceae	5382	<i>Grevillea longifolia</i>			P	1
Plantae	Flora	Proteaceae	5389	<i>Grevillea parviflora</i>				1
Plantae	Flora	Proteaceae	5396	<i>Grevillea robusta</i>		Silky Oak		19
Plantae	Flora	Proteaceae	5399	<i>Grevillea sericea</i>		Pink Spider Flower		7
Plantae	Flora	Proteaceae	10979	<i>Grevillea sericea subsp. sericea</i>				5
Plantae	Flora	Proteaceae	5401	<i>Grevillea speciosa</i>		Red Spider Flower		4
Plantae	Flora	Proteaceae	5402	<i>Grevillea sphacelata</i>		Grey Spider Flower		1
Plantae	Flora	Proteaceae	GREV	<i>Grevillea spp.</i>				12
Plantae	Flora	Proteaceae	13508	<i>Hakea cucullata</i>	*			1
Plantae	Flora	Proteaceae	5409	<i>Hakea dactyloides</i>		Finger Hakea		34
Plantae	Flora	Proteaceae	5415	<i>Hakea gibbosa</i>				6
Plantae	Flora	Proteaceae	10804	<i>Hakea laevipes subsp. laevipes</i>				1
Plantae	Flora	Proteaceae	5424	<i>Hakea salicifolia</i>		Willow-leaved Hakea		4
Plantae	Flora	Proteaceae	10806	<i>Hakea salicifolia subsp. salicifolia</i>				1
Plantae	Flora	Proteaceae	5425	<i>Hakea sericea</i>		Needlebush		24
Plantae	Flora	Proteaceae	HAKA	<i>Hakea spp.</i>				1
Plantae	Flora	Proteaceae	5427	<i>Hakea teretifolia</i>		Needlebush		4
Plantae	Flora	Proteaceae	13512	<i>Hakea undulata</i>	*			1
Plantae	Flora	Proteaceae	5433	<i>Isopogon anemonifolius</i>		Broad-leaf Drumsticks	P	6
Plantae	Flora	Proteaceae	5440	<i>Lambertia formosa</i>		Mountain Devil		8
Plantae	Flora	Proteaceae	5444	<i>Lomatia myricoides</i>		River Lomatia		2
Plantae	Flora	Proteaceae	5445	<i>Lomatia silaifolia</i>		Crinkle Bush	P	24
Plantae	Flora	Proteaceae	9680	<i>Macadamia integrifolia</i>		Macadamia Nut	V	3
Plantae	Flora	Proteaceae	5458	<i>Persoonia hirsuta</i>		Hairy Geebung	E1,P,3 E	3
Plantae	Flora	Proteaceae	5460	<i>Persoonia lanceolata</i>		Lance Leaf Geebung	P	4
Plantae	Flora	Proteaceae	5461	<i>Persoonia laurina</i>		Laurel Geebung	P	1
Plantae	Flora	Proteaceae	9823	<i>Persoonia laurina subsp. laurina</i>			P	2
Plantae	Flora	Proteaceae	5462	<i>Persoonia levis</i>		Broad-leaved Geebung	P	9
Plantae	Flora	Proteaceae	11756	<i>Persoonia levis x linearis</i>			P	7
Plantae	Flora	Proteaceae	5463	<i>Persoonia linearis</i>		Narrow-leaved Geebung	P	18
Plantae	Flora	Proteaceae	5469	<i>Persoonia pinifolia</i>		Pine-leaved Geebung	P	9
Plantae	Flora	Proteaceae	5479	<i>Petrophile pulchella</i>		Conesticks	P	5
Plantae	Flora	Proteaceae	5480	<i>Petrophile sessilis</i>			P	1
Plantae	Flora	Proteaceae	5481	<i>Stenocarpus salignus</i>		Scrub Beefwood		1
Plantae	Flora	Proteaceae	5482	<i>Stenocarpus sinuatus</i>		Firewheel Tree		3
Plantae	Flora	Proteaceae	5485	<i>Symphionema paludosum</i>				2
Plantae	Flora	Proteaceae	5488	<i>Telopea speciosissima</i>		Waratah	P	1
Plantae	Flora	Proteaceae	5490	<i>Xylomelum pyriforme</i>		Woody Pear	P	3
Plantae	Flora	Psilotaceae	8165	<i>Psilotum nudum</i>		Skeleton Fork-Fern		18
Plantae	Flora	Psilotaceae	8170	<i>Tmesipteris truncata</i>			P	2
Plantae	Flora	Pteridaceae	7997	<i>Adiantum aethiopicum</i>		Common Maidenhair	P	36
Plantae	Flora	Pteridaceae	7999	<i>Adiantum formosum</i>		Giant Maidenhair	P	2
Plantae	Flora	Pteridaceae	8000	<i>Adiantum hispidulum</i>		Rough Maidenhair	P	9
Plantae	Flora	Pteridaceae	11226	<i>Adiantum hispidulum var. hispidulum</i>		Rough Maidenhair	P	1

Plantae	Flora	Pteridaceae	12633	<i>Adiantum hispidulum</i> var. <i>hypoaalucum</i>		P	1
Plantae	Flora	Pteridaceae	ADIA	<i>Adiantum</i> spp.		P	2
Plantae	Flora	Pteridaceae	6382	<i>Cheilanthes distans</i>	Bristly Cloak Fern		3
Plantae	Flora	Pteridaceae	10439	<i>Cheilanthes sieberi</i>	Rock Fern		7
Plantae	Flora	Pteridaceae	8007	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	Rock Fern		7
Plantae	Flora	Pteridaceae	8444	<i>Pellaea falcata</i>	Sickle Fern		5
Plantae	Flora	Pteridaceae	10488	<i>Pellaea nana</i>	Dwarf Sickle Fern		1
Plantae	Flora	Pteridaceae	PELL	<i>Pellaea</i> spp.			1
Plantae	Flora	Pteridaceae	10490	<i>Pellaea viridis</i> var. <i>viridis</i>	* Green Cliff Brake		1
Plantae	Flora	Pteridaceae	8175	<i>Pteris tremula</i>	Tender Brake		13
Plantae	Flora	Pteridaceae	8176	<i>Pteris umbrosa</i>	Jungle Brake		1
Plantae	Flora	Pteridaceae	8177	<i>Pteris vittata</i>	Chinese Brake		9
Fungi	Flora	Pucciniaceae	F044	<i>Uredo rangelii</i>	* Myrtle Rust		2
Plantae	Flora	Ranunculaceae	5493	<i>Clematis aristata</i>	Old Man's Beard		8
Plantae	Flora	Ranunculaceae	5495	<i>Clematis glycinoides</i>	Headache Vine		9
Plantae	Flora	Ranunculaceae	5511	<i>Ranunculus muricatus</i>	* Sharp Buttercup		3
Plantae	Flora	Ranunculaceae	5521	<i>Ranunculus repens</i>	* Creeping Buttercup		3
Plantae	Flora	Ranunculaceae	5524	<i>Ranunculus sceleratus</i>	* Celery Buttercup		2
Plantae	Flora	Restionaceae	10607	<i>Baloskion gracile</i>			3
Plantae	Flora	Restionaceae	10614	<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>	Plume Rush		1
Plantae	Flora	Restionaceae	13527	<i>Chordifex dimorphus</i>			13
Plantae	Flora	Restionaceae	13528	<i>Chordifex fastigiatus</i>			1
Plantae	Flora	Restionaceae	5532	<i>Empodisma minus</i>			3
Plantae	Flora	Restionaceae	10615	<i>Eurychorda complanata</i>			2
Plantae	Flora	Restionaceae	5533	<i>Hypolaena fastigiata</i>			4
Plantae	Flora	Restionaceae	5534	<i>Leptocarpus tenax</i>			7
Plantae	Flora	Restionaceae	5535	<i>Lepyrodia anarthria</i>			7
Plantae	Flora	Restionaceae	5540	<i>Lepyrodia muelleri</i>			1
Plantae	Flora	Restionaceae	5541	<i>Lepyrodia scariosa</i>			4
Plantae	Flora	Restionaceae	LEPY	<i>Lepyrodia</i> spp.			1
Plantae	Flora	Restionaceae	10603	<i>Sporadanthus gracilis</i>			8
Plantae	Flora	Rhamnaceae	7686	<i>Alphitonia excelsa</i>	Red Ash		3
Plantae	Flora	Rhamnaceae	5554	<i>Cryptandra amara</i>	Bitter Cryptandra		1
Plantae	Flora	Rhamnaceae	5562	<i>Cryptandra spinescens</i>			1
Plantae	Flora	Rhamnaceae	5565	<i>Emmenosperma alaphitonioides</i>	Yellow Ash		1
Plantae	Flora	Rhamnaceae	13537	<i>Phylica plumosa</i>	*		1
Plantae	Flora	Rhamnaceae	5577	<i>Pomaderris discolor</i>			2
Plantae	Flora	Rhamnaceae	9868	<i>Pomaderris elliptica</i> subsp. <i>elliptica</i>			1
Plantae	Flora	Rhamnaceae	5579	<i>Pomaderris ferruginea</i>			8
Plantae	Flora	Rhamnaceae	7979	<i>Pomaderris intermedia</i>			2
Plantae	Flora	Rhamnaceae	5581	<i>Pomaderris lanigera</i>	Woolly Pomaderris		4
Plantae	Flora	Rhamnaceae	POMA	<i>Pomaderris</i> spp.			5
Plantae	Flora	Ripogonaceae	6021	<i>Ripogonum fawcettianum</i>	Small Supplejack		1
Plantae	Flora	Rosaceae	5605	<i>Acaena ovina</i>	Acaena		1
Plantae	Flora	Rosaceae	11955	<i>Potentilla indica</i>	* Indian Strawberry		1
Plantae	Flora	Rosaceae	5625	<i>Prunus persica</i>	*		5
Plantae	Flora	Rosaceae	12647	<i>Prunus serrulata</i>	* Japanese Cherry		2
Plantae	Flora	Rosaceae	PRUN	<i>Prunus</i> spp.	*		5
Plantae	Flora	Rosaceae	5635	<i>Rosa rubiginosa</i>	* Sweet Briar		1
Plantae	Flora	Rosaceae	ROSA	<i>Rosa</i> spp.	*		1
Plantae	Flora	Rosaceae	11733	<i>Rubus anglocandicans</i>	* Blackberry		3
Plantae	Flora	Rosaceae	11303	<i>Rubus fruticosus</i> sp. <i>agg.</i>	* Blackberry complex		20
Plantae	Flora	Rosaceae	13549	<i>Rubus laudatus</i>	* Blackberry		1
Plantae	Flora	Rosaceae	5642	<i>Rubus parvifolius</i>	Native Raspberry		2
Plantae	Flora	Rosaceae	RUBU	<i>Rubus</i> spp.			2
Plantae	Flora	Rosaceae	5646	<i>Rubus ulmifolius</i>	* Blackberry		1
Plantae	Flora	Rubiaceae	5653	<i>Asperula conferta</i>	Common Woodruff		1
Plantae	Flora	Rubiaceae	5676	<i>Coprosma repens</i>	* Taupata		3
Plantae	Flora	Rubiaceae	11599	<i>Cyclophyllum longipetalum</i>	Coast Canthium		2
Plantae	Flora	Rubiaceae	5679	<i>Galium aparine</i>	* Goosegrass		5
Plantae	Flora	Rubiaceae	14668	<i>Galium binifolium</i> subsp. <i>binifolium</i>			1
Plantae	Flora	Rubiaceae	5685	<i>Galium liratum</i>			1
Plantae	Flora	Rubiaceae	GARD	<i>Gardenia</i> spp.	*		1
Plantae	Flora	Rubiaceae	14922	<i>Gynochthodes jasminoides</i>	Sweet Morinda		17
Plantae	Flora	Rubiaceae	5697	<i>Opercularia aspera</i>	Coarse Stinkweed		10
Plantae	Flora	Rubiaceae	5701	<i>Opercularia varia</i>	Variable Stinkweed		4
Plantae	Flora	Rubiaceae	5703	<i>Pomax umbellata</i>	Pomax		24
Plantae	Flora	Rubiaceae	5706	<i>Psychotria loniceroides</i>	Hairy Psychotria		1
Plantae	Flora	Rubiaceae	5711	<i>Richardia brasiliensis</i>	* Mexican Clover		1
Plantae	Flora	Rubiaceae	5713	<i>Richardia stellaris</i>	*		2
Plantae	Flora	Rutaceae	5722	<i>Acronychia oblongifolia</i>	White Aspen		2

Plantae	Flora	Rutaceae	12364	<i>Boronia barkeriana</i> subsp. <i>barkeriana</i>		P	1
Plantae	Flora	Rutaceae	5740	<i>Boronia floribunda</i>	Pale-pink Boronia	P	2
Plantae	Flora	Rutaceae	5741	<i>Boronia fraseri</i>		P	2
Plantae	Flora	Rutaceae	5744	<i>Boronia ledifolia</i>	Sydney Boronia	P	3
Plantae	Flora	Rutaceae	5746	<i>Boronia mollis</i>	Soft Boronia	P	1
Plantae	Flora	Rutaceae	5749	<i>Boronia parviflora</i>	Swamp Boronia	P	5
Plantae	Flora	Rutaceae	5750	<i>Boronia pinnata</i>		P	1
Plantae	Flora	Rutaceae	5754	<i>Boronia rigens</i>	Stiff Boronia	P	2
Plantae	Flora	Rutaceae	5756	<i>Boronia rubiginosa</i>		P	1
Plantae	Flora	Rutaceae	5759	<i>Boronia serrulata</i>	Rose Boronia	P	5
Plantae	Flora	Rutaceae	7210	<i>Boronia thujona</i>		P	1
Plantae	Flora	Rutaceae	14241	<i>Calodendrum capense</i>	* Cape Chestnut		1
Plantae	Flora	Rutaceae	11737	<i>Citrus reticulata</i>	* Tangerine, Mandarin		1
Plantae	Flora	Rutaceae	CITU	<i>Citrus</i> spp.			3
Plantae	Flora	Rutaceae	10758	<i>Citrus x taitensis</i>	* Rough Lemon		3
Plantae	Flora	Rutaceae	10046	<i>Correa alba</i> var. <i>alba</i>	White Correa		4
Plantae	Flora	Rutaceae	5772	<i>Correa reflexa</i>	Native Fuschia		7
Plantae	Flora	Rutaceae	8801	<i>Correa reflexa</i> var. <i>reflexa</i>	Native Fuschia		2
Plantae	Flora	Rutaceae	10797	<i>Correa reflexa</i> var. <i>speciosa</i>			3
Plantae	Flora	Rutaceae	5775	<i>Crowea saligna</i>		P	16
Plantae	Flora	Rutaceae	CROW	<i>Crowea</i> spp.			1
Plantae	Flora	Rutaceae	5776	<i>Eriostemon australis</i>		P	2
Plantae	Flora	Rutaceae	5796	<i>Flindersia schottiana</i>	Cudgerie		1
Plantae	Flora	Rutaceae	13575	<i>Glycosmis citrifolia</i>	*		1
Plantae	Flora	Rutaceae	10727	<i>Leionema dentatum</i>	Toothed Phebalium		12
Plantae	Flora	Rutaceae	9042	<i>Murraya paniculata</i>	*		15
Plantae	Flora	Rutaceae	10742	<i>Nematolepis squamea</i> subsp. <i>squamea</i>	Satinwood		1
Plantae	Flora	Rutaceae	8374	<i>Phebalium squamulosum</i> subsp. <i>squamulosum</i>		P	2
Plantae	Flora	Rutaceae	10578	<i>Philotheca buxifolia</i> subsp. <i>buxifolia</i>		P	4
Plantae	Flora	Rutaceae	10588	<i>Philotheca myoporoides</i>	Long-leaf Wax Flower	P	1
Plantae	Flora	Rutaceae	10990	<i>Philotheca reichenbachii</i>		P	2
Plantae	Flora	Rutaceae	5831	<i>Philotheca salsolifolia</i>		P	3
Plantae	Flora	Rutaceae	10596	<i>Philotheca salsolifolia</i> subsp. <i>salsolifolia</i>		P	2
Plantae	Flora	Rutaceae	8842	<i>Sarcomelicope simplicifolia</i> subsp. <i>simplicifolia</i>	Big Yellow Wood		1
Plantae	Flora	Rutaceae	5841	<i>Zieria laevigata</i>	Smooth Zieria		5
Plantae	Flora	Rutaceae	5845	<i>Zieria pilosa</i>	Pilose-leaved Zieria		9
Plantae	Flora	Rutaceae	5847	<i>Zieria smithii</i>	Sandfly Zieria		30
Plantae	Flora	Rutaceae	ZIER	<i>Zieria</i> spp.			1
Plantae	Flora	Salicaceae	8726	<i>Populus deltoides</i>	*		4
Plantae	Flora	Salicaceae	5849	<i>Populus nigra</i>	* Lombardy Poplar		4
Plantae	Flora	Salicaceae	POPU	<i>Populus</i> spp.	*		1
Plantae	Flora	Salicaceae	5851	<i>Salix babylonica</i>	* Weeping Willow		2
Plantae	Flora	Salicaceae	SALI	<i>Salix</i> spp.	*		1
Plantae	Flora	Salviniaceae	8178	<i>Salvinia molesta</i>	*		3
Plantae	Flora	Salviniaceae	13593	<i>Salvinia radula</i>	*		1
Plantae	Flora	Santalaceae	5860	<i>Exocarpos cupressiformis</i>	Cherry Ballart		2
Plantae	Flora	Santalaceae	5865	<i>Leptomeria acida</i>	Sour Currant Bush		6
Plantae	Flora	Sapindaceae	1014	<i>Acer negundo</i>	* Box Elder		3
Plantae	Flora	Sapindaceae	11677	<i>Acer palmatum</i>	* Japanese Maple		1
Plantae	Flora	Sapindaceae	5875	<i>Alectryon subcinereus</i>	Wild Quince		2
Plantae	Flora	Sapindaceae	5877	<i>Alectryon tomentosus</i>	Hairy Bird's Eye		1
Plantae	Flora	Sapindaceae	5882	<i>Cardiospermum arandiflorum</i>	* Balloon Vine		23
Plantae	Flora	Sapindaceae	5884	<i>Cupaniopsis anacardioides</i>	Tuckeroo		27
Plantae	Flora	Sapindaceae	7432	<i>Diploglottis australis</i>	Native Tamarind		3
Plantae	Flora	Sapindaceae	6701	<i>Dodonaea falcata</i>			2
Plantae	Flora	Sapindaceae	DODO	<i>Dodonaea</i> spp.			1
Plantae	Flora	Sapindaceae	5911	<i>Dodonaea triquetra</i>	Large-leaf Hop-bush		100
Plantae	Flora	Sapindaceae	5912	<i>Dodonaea truncatiales</i>	Angular Hop-bush		1
Plantae	Flora	Sapindaceae	5913	<i>Dodonaea viscosa</i>	Sticky Hop-bush		3
Plantae	Flora	Sapindaceae	5917	<i>Guioa semiglauc</i>	Guioa		1
Plantae	Flora	Sapindaceae	12531	<i>Koeleruteria paniculata</i>	*		2
Plantae	Flora	Schizaeaceae	8182	<i>Schizaea dichotoma</i>	Branched Comb Fern		1
Plantae	Flora	Schizaeaceae	8184	<i>Schizaea rupestris</i>			1
Plantae	Flora	Scrophulariaceae	9736	<i>Cymbalaria muralis</i> subsp. <i>muralis</i>	* Ivy-leaved Toadflax		4
Plantae	Flora	Scrophulariaceae	5972	<i>Limosella australis</i>	Australian Mudwort		1
Plantae	Flora	Scrophulariaceae	11115	<i>Maurandya barclayana</i>	*		1
Plantae	Flora	Scrophulariaceae	7062	<i>Misopates orontium</i>	* Lesser Snapdragon		2
Plantae	Flora	Scrophulariaceae	7906	<i>Myoporum acuminatum</i>	Boobialla		1

Plantae	Flora	Scrophulariaceae	9043	<i>Myoporum boninense</i> <i>subsp. australe</i>					3
Plantae	Flora	Scrophulariaceae	4607	<i>Orobanche minor</i>	*		Broomrape		1
Plantae	Flora	Scrophulariaceae	11421	<i>Paulownia tomentosa</i>	*		Princess tree		1
Plantae	Flora	Scrophulariaceae	5999	<i>Verbascum virgatum</i>	*		Twiggy Mullein		6
Plantae	Flora	Selaginellaceae	8186	<i>Selaginella kraussiana</i>	*		Spreading Clubmoss		5
Plantae	Flora	Selaginellaceae	SELA	<i>Selaginella spp.</i>					1
Plantae	Flora	Selaginellaceae	8187	<i>Selaginella uliginosa</i>			Swamp Selaginella		2
Plantae	Flora	Simaroubaceae	6012	<i>Ailanthus altissima</i>	*		Tree of Heaven		5
Plantae	Flora	Smilacaceae	7592	<i>Smilax australis</i>			Lawyer Vine		9
Plantae	Flora	Smilacaceae	6022	<i>Smilax glycyphylla</i>			Sweet Sarsparilla		71
Plantae	Flora	Solanaceae	13605	<i>Anthocercis viscosa subsp. viscosa</i>	*				1
Plantae	Flora	Solanaceae	6027	<i>Cestrum parqui</i>	*		Green Cestrum		33
Plantae	Flora	Solanaceae	7869	<i>Cyphomandra betacea</i>	*		Tamarillo		1
Plantae	Flora	Solanaceae	6033	<i>Datura stramonium</i>	*		Common Thornapple		3
Plantae	Flora	Solanaceae	6036	<i>Duboisia myoporoides</i>			Corkwood		1
Plantae	Flora	Solanaceae	6040	<i>Lycium ferocissimum</i>	*		African Boxthorn		1
Plantae	Flora	Solanaceae	6041	<i>Lycopersicon esculentum</i>	*		Tomato		4
Plantae	Flora	Solanaceae	6042	<i>Nicandra physalodes</i>	*		Apple-of-Peru		1
Plantae	Flora	Solanaceae	6045	<i>Nicotiana glauca</i>	*		Tree Tobacco		1
Plantae	Flora	Solanaceae	6053	<i>Petunia axillaris</i>	*				1
Plantae	Flora	Solanaceae	7823	<i>Physalis minima</i>			Wild Gooseberry		1
Plantae	Flora	Solanaceae	6061	<i>Salpichroa origanifolia</i>	*		Pampas Lily-of-the-valley		8
Plantae	Flora	Solanaceae	7043	<i>Solanum americanum</i>	*		Glossy Nightshade		13
Plantae	Flora	Solanaceae	6065	<i>Solanum aviculare</i>			Kangaroo Apple		5
Plantae	Flora	Solanaceae	6071	<i>Solanum chenopodioides</i>	*		Whitetip Nightshade		1
Plantae	Flora	Solanaceae	12273	<i>Solanum laxum</i>	*		Potato Climber		1
Plantae	Flora	Solanaceae	9211	<i>Solanum linnaeanum</i>	*		Apple of Sodom		4
Plantae	Flora	Solanaceae	6090	<i>Solanum mauritianum</i>	*		Wild Tobacco Bush		20
Plantae	Flora	Solanaceae	6091	<i>Solanum nigrum</i>	*		Black-berry Nightshade		56
Plantae	Flora	Solanaceae	6101	<i>Solanum pseudocapsicum</i>	*		Madeira Winter Cherry		4
Plantae	Flora	Solanaceae	6104	<i>Solanum seaforthianum</i>	*		Climbing Nightshade		3
Plantae	Flora	Solanaceae	6107	<i>Solanum sisymbriifolium</i>	*				1
Plantae	Flora	Solanaceae	SOLA	<i>Solanum spp.</i>					2
Plantae	Flora	Solanaceae	6109	<i>Solanum stelligerum</i>			Devil's Needles		2
Plantae	Flora	Stackhousiaceae	6125	<i>Stackhousia viminea</i>			Slender Stackhousia		2
Plantae	Flora	Strelitziaceae	11588	<i>Ravenala madagascariensis</i>	*				1
Plantae	Flora	Strelitziaceae	12537	<i>Strelitzia juncea</i>	*				1
Plantae	Flora	Strelitziaceae	11725	<i>Strelitzia nicolai</i>	*				2
Plantae	Flora	Strelitziaceae	11726	<i>Strelitzia reginae</i>	*				7
Plantae	Flora	Strelitziaceae	STRI	<i>Strelitzia spp.</i>	*				2
Plantae	Flora	Stylidiaceae	6154	<i>Stylidium debile</i>			Frail Triggerplant		1
Plantae	Flora	Stylidiaceae	12040	<i>Stylidium paniculatum</i>			Frail Triggerplant		1
Plantae	Flora	Theaceae	11595	<i>Camellia japonica</i>	*		Camellia		4
Plantae	Flora	Theaceae	11596	<i>Camellia sasanqua</i>	*		Sasanqua Camellia		5
Plantae	Flora	Theaceae	CAML	<i>Camellia spp.</i>	*				4
Plantae	Flora	Thelypteridaceae	8189	<i>Christella hispidula</i>					1
Plantae	Flora	Thelypteridaceae	CHRI	<i>Christella spp.</i>					6
Plantae	Flora	Thelypteridaceae	14610	<i>Cyclosorus dentatus</i>			Binung		15
Plantae	Flora	Thymelaeaceae	6965	<i>Pimelea curviflora var. curviflora</i>		V	V		1
Plantae	Flora	Thymelaeaceae	6182	<i>Pimelea linifolia</i>			Slender Rice Flower		10
Plantae	Flora	Thymelaeaceae	6814	<i>Pimelea linifolia subsp. linifolia</i>					2
Plantae	Flora	Tropaeolaceae	6215	<i>Tropaeolum majus</i>	*		Nasturtium		7
Plantae	Flora	Typhaceae	7224	<i>Typha domingensis</i>			Narrow-leaved Cumbungi		2
Plantae	Flora	Typhaceae	6217	<i>Typha orientalis</i>			Broad-leaved Cumbungi		10
Plantae	Flora	Typhaceae	TYPH	<i>Typha spp.</i>					1
Plantae	Flora	Ulmaceae	6221	<i>Celtis occidentalis</i>	*		Hackberry		19
Plantae	Flora	Ulmaceae	8436	<i>Celtis sinensis</i>	*		Japanese Hackberry		31
Plantae	Flora	Ulmaceae	CELT	<i>Celtis spp.</i>					5
Plantae	Flora	Ulmaceae	6761	<i>Trema tomentosa var. aspera</i>			Native Peach		7
Plantae	Flora	Ulmaceae	11222	<i>Ulmus parvifolia</i>	*		Chinese Elm		9
Plantae	Flora	Urticaceae	6226	<i>Dendrocnide excelsa</i>			Giant Stinging Tree		1
Plantae	Flora	Urticaceae	6232	<i>Parietaria judaica</i>	*		Pellitory		68
Plantae	Flora	Urticaceae	6233	<i>Pilea microphylla</i>	*		Artillery Plant		2
Plantae	Flora	Urticaceae	6235	<i>Soleirolia soleirolii</i>	*		Baby's Tears		1
Plantae	Flora	Urticaceae	6236	<i>Urtica dioica</i>	*		Giant Nettle		1
Plantae	Flora	Urticaceae	6237	<i>Urtica incisa</i>			Stinging Nettle		2
Plantae	Flora	Urticaceae	6238	<i>Urtica urens</i>	*		Small Nettle		2
Plantae	Flora	Uvulariaceae	3566	<i>Schelhammera undulata</i>					8
Plantae	Flora	Verbenaceae	13632	<i>Aloysia citrodora</i>	*		Lemon Verbena		1
Plantae	Flora	Verbenaceae	11578	<i>Citharexylum spinosum</i>	*				2
Plantae	Flora	Verbenaceae	10898	<i>Duranta erecta</i>	*		Sky Flower		6
Plantae	Flora	Verbenaceae	6248	<i>Lantana camara</i>	*		Lantana		75
Plantae	Flora	Verbenaceae	6249	<i>Lantana montevidensis</i>	*		Trailing Lantana		3

Plantae	Flora	Verbenaceae	11134	<i>Phyla canescens</i>	*	Lippia	1
Plantae	Flora	Verbenaceae	13634	<i>Stachytarpheta angustifolia</i>	*		1
Plantae	Flora	Verbenaceae	13635	<i>Stachytarpheta mutabilis</i>	*		1
Plantae	Flora	Verbenaceae	6256	<i>Verbena bonariensis</i>	*	Purpletop	21
Plantae	Flora	Verbenaceae	10716	<i>Verbena caracasana</i>	*	Shore Verbain	2
Plantae	Flora	Verbenaceae	10718	<i>Verbena incompta</i>	*		3
Plantae	Flora	Verbenaceae	6258	<i>Verbena litoralis</i>	*		3
Plantae	Flora	Verbenaceae	6259	<i>Verbena officinalis</i>	*	Common Verbena	4
Plantae	Flora	Verbenaceae	10720	<i>Verbena quadrangularis</i>	*		3
Plantae	Flora	Verbenaceae	11406	<i>Verbena rigida var. rigida</i>	*	Veined Verbena	9
Plantae	Flora	Verbenaceae	VERE	<i>Verbena spp.</i>			4
Plantae	Flora	Violaceae	6537	<i>Hybanthus vernonii subsp. vernonii</i>			1
Plantae	Flora	Violaceae	12061	<i>Melicytus dentatus</i>		Tree Violet	1
Plantae	Flora	Violaceae	11863	<i>Viola banksii</i>			2
Plantae	Flora	Violaceae	6272	<i>Viola hederacea</i>		Ivy-leaved Violet	17
Plantae	Flora	Violaceae	6274	<i>Viola odorata</i>	*	Sweet Violet	4
Plantae	Flora	Violaceae	11190	<i>Viola sieberiana</i>			1
Plantae	Flora	Violaceae	VIOL	<i>Viola spp.</i>			2
Plantae	Flora	Viscaceae	6279	<i>Notothixos subaureus</i>		Golden Mistletoe	2
Plantae	Flora	Vitaceae	6281	<i>Cayratia clematidea</i>		Native Grape	17
Plantae	Flora	Vitaceae	6282	<i>Cissus antarctica</i>		Water Vine	11
Plantae	Flora	Vitaceae	6283	<i>Cissus hypoglauca</i>		Giant Water Vine	21
Plantae	Flora	Vitaceae	6287	<i>Parthenocissus quinquefolia</i>	*	Virginia Creeper	1
Plantae	Flora	Vitaceae	11832	<i>Parthenocissus tricuspidata</i>	*		1
Plantae	Flora	Vitaceae	11767	<i>Vitis vinifera</i>	*	Grape Vine	2
Plantae	Flora	Xanthorrhoeaceae	6315	<i>Xanthorrhoea arborea</i>		P	11
Plantae	Flora	Xanthorrhoeaceae	6319	<i>Xanthorrhoea media</i>		P	8
Plantae	Flora	Xanthorrhoeaceae	6320	<i>Xanthorrhoea minor</i>		P	1
Plantae	Flora	Xanthorrhoeaceae	6321	<i>Xanthorrhoea resinosa</i>		P	1
Plantae	Flora	Xanthorrhoeaceae	XANT	<i>Xanthorrhoea spp.</i>		P	9
Plantae	Flora	Xyridaceae	6324	<i>Xyris operculata</i>			4
Plantae	Flora	Zamiaceae	6327	<i>Macrozamia communis</i>		Burrawang	P
Plantae	Flora	Zamiaceae	6335	<i>Macrozamia spiralis</i>			P
Plantae	Flora	Zingiberaceae	6913	<i>Alpinia arundelliana</i>		Native Ginger	1
Plantae	Flora	Zingiberaceae	6340	<i>Alpinia caerulea</i>		Native Ginger	1
Plantae	Flora	Zingiberaceae	ALPI	<i>Alpinia spp.</i>			1
Plantae	Flora	Zingiberaceae	13674	<i>Hedychium coronarium</i>	*		1
Plantae	Flora	Zingiberaceae	6787	<i>Hedychium gardnerianum</i>	*	Ginger Lily	18
Plantae	Flora	Picrodendraceae	2736	<i>Micranthemum ericoides</i>			10
Animalia	Arachnida	Atracidae	1018	<i>Atrax robustus</i>		Sydney funnelweb spider	1



## **Appendix C. NSW Fisheries Management Act 1994 Schedules 4, 4A and 5**



# NSW legislation

## Fisheries Management Act 1994 No 38

Current version for 30 October 2023 to date (accessed 22 July 2024 at 12:14)

Schedule 4

### Schedule 4 Endangered species, populations and ecological communities

(Section 220C)

#### Part 1 Endangered species

##### Fish

<i>Archaeophya adamsi</i> Fraser, 1959	Adam's Emerald Dragonfly
<i>Austrocordulia leonardi</i>	Sydney Hawk Dragonfly
* <i>Dendronephthya australis</i> (Kükenthal, 1905)	Cauliflower Soft Coral
<i>Hippocampus whitei</i> (Bleeker, 1855)	White's Seahorse
* <i>Maccullochella ikei</i> Rowland	Eastern Freshwater Cod
* <i>Maccullochella macquariensis</i> (Cuvier)	Trout Cod
* <i>Macquaria australasica</i> (Cuvier, 1830)	Macquarie Perch
<i>Mogurnda adpersa</i> (Castelnau, 1878)	Southern Purplespotted Gudgeon, Purple Spotted Gudgeon
<i>Nannoperca australis</i> Günther, 1861	Southern Pygmy Perch
* <i>Nannoperca oxleyana</i> Whitley	Oxleyan Pygmy Perch
* <i>Prototroctes maraena</i> (Günther, 1864)	Australian Grayling
<i>Sphyrna lewini</i> (Griffith & Smith, 1834)	Scalloped Hammerhead Shark
<i>Thunnus maccoyii</i>	Southern Bluefin Tuna

##### Marine vegetation

#### Part 2 Endangered populations

##### Fish

*Ambassis agassizii* Steindachner, 1866, Agassiz's glassfish, olive perchlet, western New South Wales population

*Craterocephalus amniculus* (Crowley and Ivanstoft, 1990), Darling River Hardyhead, Hunter River population

*Gadopsis marmoratus*, river blackfish, Snowy River population

*Tandanus tandanus* (Mitchell, 1838), freshwater catfish, eel tailed catfish, Murray-Darling Basin population

##### Marine vegetation

\**Posidonia australis* Hook.f. (1858), seagrass, Port Hacking, Botany Bay, Sydney Harbour, Pittwater, Brisbane Waters and Lake Macquarie populations

### Part 3 Endangered ecological communities

Aquatic ecological community in the natural drainage system of the lower Murray River catchment (as described in the recommendation of the Fisheries Scientific Committee to list the ecological community)

Aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River (described in the recommendation of the Fisheries Scientific Committee to list that aquatic ecological community, as the area covered by that recommendation)

Aquatic ecological community in the natural drainage system of the lowland catchment of the Lachlan River (described in the recommendation of the Fisheries Scientific Committee to list that aquatic ecological community, as the area covered by that recommendation)

Aquatic ecological community in the catchment of the Snowy River in NSW (as described in the final determination of the Fisheries Scientific Committee to list that aquatic ecological community)

### Part 4 Species presumed extinct

#### Fish

*Hadrachaeta aspeta* Hutchings, 1977

Marine Worm

\**Pristis zijsron* Bleeker, 1851

Green Sawfish

*Metaprotella haswelliana* Mayer, 1882

Haswells Caprellid

#### Marine vegetation

\**Vanvoorstia bennettiana* (Harvey) Papenfuss (1956)

Bennetts Seaweed



# NSW legislation

## Fisheries Management Act 1994 No 38

Current version for 30 October 2023 to date (accessed 22 July 2024 at 12:14)

Schedule 4A

### Schedule 4A Critically endangered species and ecological communities

(Section 220C)

#### Part 1 Critically endangered species

##### Fish

* <i>Carcharias taurus</i> Rafinesque, 1810	Greynurse Shark
* <i>Craterocephalus fluviatilis</i> (McCulloch, 1913)	Murray Hardyhead
<i>Euastacus dharawalus</i> (Morgan, 1997)	Fitzroy Falls Spiny Crayfish
<i>Euastacus vesper</i> (McCormack & Ahyong, 2017)	Cudgegong Giant Spiny Crayfish
* <i>Galaxias brevissimus</i> (Raadik, 2014)	Short-tail Galaxias
<i>Galaxias rostratus</i>	Flathead Galaxias
* <i>Galaxias supremus</i> (Raadik, 2014)	Kosciuszko Galaxias
<i>Galaxias tantangara</i> (Raadik, 2014)	Stocky Galaxias
<i>Notopala hanleyi</i> (Frauenfeld, 1864)	Hanley's River Snail
<i>Notopala sublineata</i> (Conrad, 1850)	Darling River Snail
<i>Smeagol hilaris</i> Tillier & Ponder, 1992	Marine Slug

##### Marine vegetation

<i>Nereia lophocladia</i> J. Agardh (1897)	Marine Brown Alga
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#### Part 2 Critically endangered ecological communities



# NSW legislation

## Fisheries Management Act 1994 No 38

Current version for 30 October 2023 to date (accessed 22 July 2024 at 12:14)

Schedule 5

### Schedule 5 Vulnerable species and ecological communities

(Section 220C)

#### Part 1 Vulnerable species

##### Fish

*Austropetalia tonyana* (Theischinger, 1995)

*Bidyanus bidyanus* (Mitchell, 1838)

*Branchinella buchananensis* Geddes, 1981

\**Carcharodon carcharias* (Linnaeus, 1758)

*Epinephelus daemeli* (Günther, 1876)

*Euastacus armatus* (von Martens 1866)

*Microrchestia bousfieldi* Lowry & Peart, 2010

*Sphyrna mokarran* Ruppell, 1837

Alpine Redspot Dragonfly

Silver Perch

Buchanans Fairy Shrimp

White Shark, Great White Shark

Black Rockcod, Black Cod

Murray Crayfish

Bousfields Marsh-hopper

Great Hammerhead Shark

##### Marine vegetation

#### Part 2 Vulnerable ecological communities



## **Appendix D. Marine Taxa Reference Images**

Reference image	Taxa
	<p>Algae (<i>Corallina officinalis</i>)</p>
	<p>Algae (<i>Ecklonia radiata</i>)</p>
	<p>Algae (mixed foliose)</p> <p>Variety of short red and brown foliose species forming a dense carpet on the substrate. Heavily silted sub-tidally at both sites</p>

Reference image	Taxa
 A close-up photograph showing a dense, textured mat of dark green, leafy algae. The leaves are small and overlapping, creating a thick, carpet-like appearance.	<p>Algae (mixed foliose)</p>
 A photograph of a rocky reef surface covered in various algae. In the center, there is a prominent, yellowish-green, cup-shaped alga with a central stalk. Other smaller, brownish and reddish algae are visible in the background.	<p>Algae (<i>Padina spp.</i>)</p>
 A close-up photograph of a dark, branching, articulated alga. The alga has a thick, segmented appearance and is growing on a light-colored, porous rock surface. The background shows other algae and the texture of the rock.	<p>Algae (red; articulated)</p> <p>Possibly Order Nematiales. Abundant at Site 1 amongst the small mixed foliose algae.</p>

Reference image

Taxa



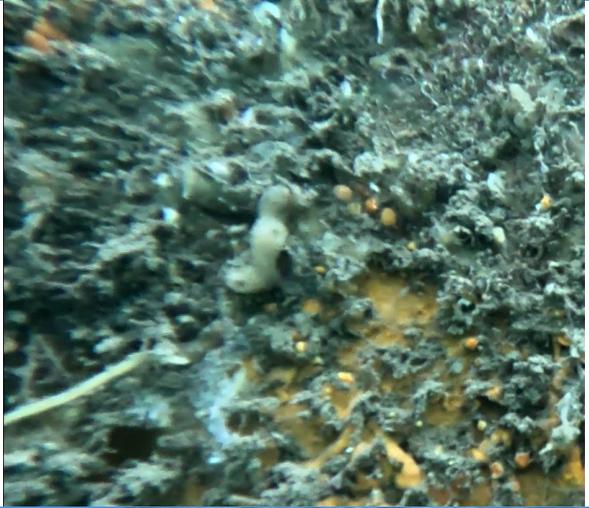
Algae (red; membranous)



Algae (*Sargassum* spp.)



Ascidian (orange)

Reference image	Taxa
	Ascidian (white, globular)
	Ascidian (white, tube) Yellow and white forms recorded.
	Ascidian (white; sphere)

Reference image

Taxa



Christmas Tree Worm (*Spirobranchus corniculatus*)



Feather star (black; *Colobometra perspinosa*)



Fish (Yellowfin bream - *Acanthopagrus australis*)

Reference image

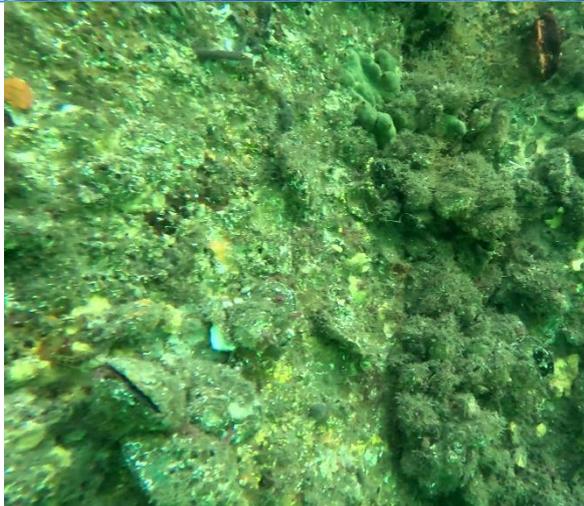
Taxa



Fish (Striped catfish - *Plotosus lineatus*; juvenile)



Fish (Eastern hulafish - *Trachinops taeniatus*)



Molluscan bivalve (other)

Reference image

Taxa



Molluscan bivalve (oyster)

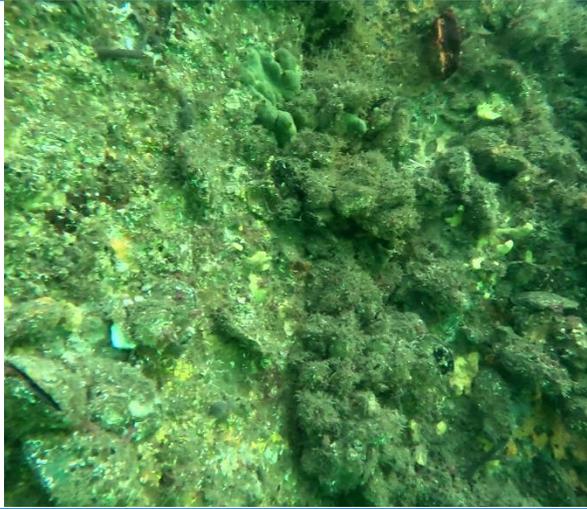


Sponge (ball)

Yellow and green lobate forms recorded.



Sponge (encrusting; orange and pink)

Reference image	Taxa
 A close-up photograph of a rocky surface covered in a dense, green, encrusting sponge. The sponge has a textured, porous appearance with various shades of green and some yellowish-green patches.	<p>Sponge (encrusting; green)</p>
 A close-up photograph of a rocky surface covered in a dense, brown, encrusting sponge. The sponge has a textured, porous appearance with various shades of brown and some greenish-brown patches.	<p>Sponge (encrusting; brown)</p>
 A close-up photograph of a rocky surface covered in a dense, orange and yellow, finger-like sponge. The sponge has a textured, porous appearance with various shades of orange and yellow.	<p>Sponge (finger) Yellow and orange finger forms recorded.</p>

## Reference image



## Taxa

Sponge (tubular)

Yellow, green and orange forms recorded.