



Ramsar Information Sheet

Published on 13 April 2023

Update version, previously published on : 29 March 2016

Australia

Apsley Marshes



Designation date	16 November 1982
Site number	255
Coordinates	41°58'28"S 148°12'19"E
Area	880,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

The Apsley Marshes includes freshwater marshes at the mouth of the Apsley River, located on the east coast of Tasmania. The Apsley Marshes stores and filters flood waters for slow release into the adjacent Moulting Lagoon 'Wetland of International Importance'. Both wetlands are geologically significant as they were formed in a long-lived graben system, which is possibly related to the break up of Gondwanaland. The Apsley Marshes contain woody vegetation dominated by Swamp Paperbark. Saltmarsh communities occur in the southern section near Moulting Lagoon. Parts of the site are important for swan nesting, and it is an important feeding and breeding area for waterfowl, which require a freshwater habitat. The marshes have a long history of human use, including use by Indigenous communities. The land is private freehold and used for grazing.

Apsley Marshes meets criteria 1, 2, 3, 4 & 8:

- 1: The Apsley Marshes, located in the Tasmanian Australian Drainage Division bioregion, contains six dominant wetland types; intertidal marshes, intertidal forested wetlands, permanent rivers/streams/creeks, permanent freshwater marshes and pools, seasonal/intermittent freshwater marshes and pools, canals, and drainage channels and ditches.
- 2: Apsley Marshes supports two threatened species, a waterbird (the Australasian bittern) and a plant (the swamp everlasting).
- 3: The site supports 94 flora species, 82 of which are native wetland-dependent. The Site is known to support 15 wetland-related flora species considered rare and threatened in the Tasmanian bioregion. The white-bellied sea eagle, which is rare in the bioregion, has been recorded as breeding within the site.
- 4: The wetland is important for providing a breeding habitat in the lower marshes for swans that also utilise the neighbouring Moulting Lagoon. Up to 1000 nests have been recorded in Apsley Marshes and the location is considered to be the second most heavily-used nesting site in the area.
- 8: The Site provides a linkage between the inland waters of the Apsley River and the Southern Ocean, via Moulting Lagoon. Eight species of fish use the site as a migratory pathway including Short-finned eel and the vulnerable Australian grayling. Black bream spawn in the site.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	Department of Agriculture, Water and Environment
Postal address	GPO Box 44 HOBART, Tasmania 7001 Australia

National Ramsar Administrative Authority

Institution/agency	Australian Government Department of Agriculture, Water and the Environment
Postal address	GPO Box 858 Canberra ACT 2601 Australia

2.1.2 - Period of collection of data and information used to compile the RIS

From year	<input type="text" value="2011"/>
To year	<input type="text" value="2020"/>

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Apsley Marshes
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2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary	Yes <input type="radio"/> No <input checked="" type="radio"/>
(Update) B. Changes to Site area	No change to area
(Update) For secretariat only: This update is an extension	<input type="checkbox"/>

2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?	Not evaluated
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(Update) Optional text box to provide further information

Whilst there has been no notifiable change in ecological character, the Apsley Marshes has been subject to a changing climate.

Australia has warmed by just over 1°C since 1910, with most warming since 1950. It is projected to experience further increase in temperatures, with more extremely hot days and fewer extremely cool days over the coming decades under all emissions scenarios. Warming over Australia is projected to be slightly higher than the global average (BOM and CSIRO, State of the Climate 2018).

These conditions will affect the critical components, processes and services of the site. The adaptive capacity and resilience of the site will be tested.

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Former maps	<input type="text" value="0"/>
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Boundaries description

The Apsley Marshes contains Lot 1 on Central Plan Register (CPR) 5653 from the Tasmanian Information and Land Services, Department of Primary Industries, Water and Environment. CPR 5653 horizontal datum is Australian Geodetic Datum (AGD66) Universal Transverse Mercator Projection Australian Map Grid (UTM AMG66) and Australian Height Datum (Tasmania) for vertical datum (see Attachment A for map of site.) The boundary of the Apsley Marshes Ramsar site includes all of the contained area defined by the following GPS coordinates; point 600555mE 5349095mN to point 600050mE 5349835mN, to point 600050mE 5350180mN, to point 599750mE 5350385mN, to point 598930mE 5350445mN, to point 599090mE 5351352mN, to point 598925mE 5351580mN, to point 598925mE 5351840mN, to point 598715mE 5352160mN, to point 598370mE 5352285mN, to point 598280mE 5353060mN, to point 598280mE 5353775mN, to point 598985mE 5354500mN, to point 599742mE 5354515mN, to point 600575mE 5354075mN, to point 600710mE 5353820, to point 600220mE 5353215mN, to 6 point 00105mE 5352285mN, to point 600710mE 5351820mN, to point 601250mE 5351060mN, to point 601600mE 5351240mN. From that point the boundary continues to the intersection of the western bank of Cusicks Creek with the southern boundary of Lot 1 on CPR 7708, then south-south east along the western bank of Cusicks Creek to the Low Water Mark (in Tasmania this is the lowest astronomical tide). It then follows the Low Water Mark to the intersection with the unnamed creek, then follows the centre of the creek to the intersection of 600320mE with the creek, then closes at point 600555mE 5349095mN.

2.2.2 - General location

a) In which large administrative region does the site lie?

b) What is the nearest town or population centre?

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	East Coast Region, Tasmanian Drainage Division

Other biogeographic regionalisation scheme

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Apsley Marshes are considered to be one of the best examples of freshwater marsh and intertidal saltmarshes in the Tasmanian Drainage Division bioregion (DPIPWE 2010). Apsley Marshes is one of the largest wetland systems in Tasmania (Barnes and Visoiu 2002) and due to its location, size and climate, the marshes play a vital hydrological and ecological role in the region.

Hydrology at the Apsley Marshes is driven by the freshwater inflows from the Apsley River and the tidal cycles in Great Oyster Bay and Moulting Lagoon. Although groundwater contribution to the Site is a knowledge gap there is no evidence that it is a significant contributor to the water budget. The combination of freshwater inflows and tidal exchange results in a seasonal pattern of inundation and salinity as well as variation over longer periods of drought, high rainfall and inter-annual tides.

Hydrological services provided

Freshwater flows into the Apsley Marshes site from the north via the Apsley River. Flow is generally highest in winter and lowest in summer and autumn. The seasonality of rainfall and river flow, as well as evaporation results in a cyclic hydrology of the wetlands within the Site. During winter and spring months when river flow is highest, freshwater extends over much of the site and pressure from the flow of freshwater limits the intrusion of saltwater in tidal cycles. In late summer and autumn, the situation is reversed, with little or no freshwater inputs, and higher evaporation resulting in a drying of marsh areas and an increase in the area affected by saltwater from Moulting Lagoon.

Tide has a strong influence on the Site; however, there is no quantitative data available for tides in the area. Average tidal range at the top of Moulting Lagoon (adjacent to the Ramsar site) is approximately 30 cm (Temby and Crawford 2008). Tidal ranges vary considerably and “king tides” have been known to occur, resulting in large scale inundation of normally freshwater areas within the Marshes. The most recent of these was in autumn 2009, when king tides were reported across the east coast of Tasmania.

The following ecosystem services are provided:

Provisioning services:

- Fodder for cattle: The Site has been used for cattle grazing for decades and wetland plant communities, particularly in the freshwater rushland and sedgeland communities are an important source of fodder.

Supporting services

- Diversity of wetland types: The Site contains a diversity of freshwater and marine wetland types.

- Supports biodiversity : The Site contains 82 native species of wetland plant including fourteen species of bioregional conservation significance.

Other ecosystem services provided

- Physical habitat: The Site provides habitat for feeding and breeding of waterbirds.

- Threatened species: The Site supports one nationally threatened species of plant (swamp everlasting) and one internationally threatened species of animal (Australasian bittern).

- Ecological connectivity: The Site provides a migration route from inland waters to the sea for migratory fish species.

The long history of agricultural production (cattle grazing) on the site has played a significant role in shaping the ecology of the Apsley Marshes. It is likely that selective grazing, nutrient inputs from the cattle and other farming practices have influenced the productivity and vegetation community composition.

Criterion 2 : Rare species and threatened ecological communities

The Apsley Marshes supports three threatened species:

- The Australasian bittern (*Botaurus poiciloptilus*) - is listed nationally as endangered (under the Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)). It is also listed internationally as endangered under the IUCN Red List. The Australasian bittern is a resident within the Site, occurring along the heavily vegetated drainage lines. It is suspected that this species also nests within the Site (S. Blackhall, DPIPWE, personal communication).

Optional text box to provide further information

- The Australian grayling (*Prototroctes maraena*) - is listed nationally as vulnerable (EPBC Act, 1999), and has been found in the river upstream of the Ramsar site. Larvae presumably use the site as a migratory route to the sea. Adults spend their lives in freshwater. Following spawning in Autumn, larvae move passively to the sea with the river current. Juveniles return to freshwater in spring at about six months of age.

- Swamp everlasting (*Xerochrysum palustre*) - is listed as vulnerable (EPBC Act, 1999) and is found in the seasonally inundated freshwater wetlands of the Site (Askey-Doran, Smith and Visoiu 2013). The swamp everlasting is an annual or perennial herb, with large, yellow, everlasting daisy flowers from spring to autumn. It grows in permanent or intermittent freshwater wetlands in water up to one metre deep (Carter and Walsh 2010). This threatened species is reliant on annual freshwater inundation and protection from grazing animals (native and introduced) to maintain its population.

Criterion 3 : Biological diversity

Apsley Marshes supports a diverse range of flora including a number of species that are considered rare in the bioregion (Tasmania). Ninety-four flora species have been recorded in the marshes; 82 of which are wetland dependent and native (Barnes and Visoiu 2002). It has been described as one of the most floristically rich wetlands in Tasmania (Kirkpatrick and Harwood 1981).

Apsley Marshes is an important area for the protection of rare and threatened plant species with 15 species listed under the Tasmanian Threatened Species Protection Act 1995 recorded to date. One species, *Xerochrysum palustre*, is listed as vulnerable under national legislation (EPBC Act) (Askey-Doran, Smith and Visoiu 2013). These are:

- water woodruff (*Asperula subsimplex*) rare
- drooping sedge (*Carex longibrachiata*) rare
- purple loosestrife (*Lythrum salicaria*) vulnerable
- southern swampgrass (*Amphibromus neesii*) rare
- gentle rush (*Juncus amabilis*) rare
- swamp violet (*Viola caleyana*) rare
- winged water starwort (*Callitriche umbonate*) rare
- Australian gypsywort (*Lycopus australis*) endangered
- showy willowherb (*Epilobium pallidiflorum*) rare
- hairy brooklime (*Gratiola pubescens*) vulnerable
- swamp triggerplant (*Stylidium beaugleholei*) rare
- star clubsedge (*Isolepis stellate*) rare
- branching rush (*Juncus prismatocarpus*) rare
- tiny arrowgrass (*Triglochin minutissimum*) rare

The white-bellied sea-eagle (*Haliaeetus leucogaster*), which is listed as vulnerable under Tasmanian threatened species legislation and considered rare in the bioregion, has been recorded breeding within the site (Birdlife Tasmania, 2013). The nationally endangered (EPBC Act) Australasian bittern (*Botaurus poiciloptilus*) is present on the site (Birdlife Tasmania, 2013).

Justification

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further information

The Apsley Marshes is important for nesting black swans, with up to 1,000 nests recorded in a single occasion (Blackhall 1988). The site supports breeding of other waterbirds, including the bioregionally rare white-bellied sea-eagle (*Haliaeetus leucogaster*), with one nest recorded.

The Apsley Marshes connects Moulting Lagoon (and the ocean) with inland freshwater environments acting as a migratory route for diadromous fish species. Within the site there are 3 fish species known to use this migratory route: Australian grayling (*Prototroctes maraena*); black bream (*Acanthopagrus butcheri*); and short-finned eel (*Anguilla australis*).

Criterion 8 : Fish spawning grounds, etc.

Justification

The Apsley Marshes provide a linkage between the inland waters of the Apsley River and the Southern Ocean, via Moulting Lagoon. The landowner reports regular migrations of short-finned eels (*Anguilla australis*) both on their seaward migration to breed as well as returning juveniles. Mature short-finned eels migrate from fresh water to the sea in order to spawn in the South Coral Sea, after which it is believed they die. The eel larvae are carried south by the East Australian Current from their spawning grounds until they reach the continental shelf. At around this time they metamorphose into glass eels and subsequently remain at sea for 1–3 years. Then they begin the long migration to freshwater reaching Tasmania by mid spring. Glass eels remain in estuarine waters to develop into elvers and adjust to fresh water. Upstream migration from the estuary to freshwaters occurs at night and they can overcome barriers to connectivity by travelling across damp grasslands at night. Eels are long lived and are unlikely to breed until they are 10–35 years old (Native Fish Australia 2010).

The common jollytail (*Galaxias maculatus*) is relatively abundant in the main Apsley River channel reflecting the importance of this route for the upstream migration of juvenile jollytail which enter the estuary as post-larval 'whitebait'. Adult black bream spend most of their lives in estuaries and near shore coastal environments, rarely venturing into the open ocean. In southern waters, adults migrate during summer into the freshwater reaches of rivers and creeks to spawn. A large number of pelagic eggs are laid and adults return to estuarine and near shore marine waters. Juveniles remain in freshwater for up to 4 years before migrating back to estuaries. Sexually maturity is reached at 5 years. The species is relatively long lived (Norris et al. 2002).

Black bream (*Acanthopagrus butcheri*) are known to travel up the drains into the Apsley Marsh Ramsar site in order to spawn (S. Blackhall, pers. comm.).

Australian grayling (*Prototroctes maraena*) have also been recorded in the river upstream and presumably would use the site as a migratory route during breeding. Adult Australian grayling spend their lives in freshwater and are most commonly found in clear, gravelly streams with a moderate flow. They spawn in freshwater in autumn and the larvae move passively to the sea with the current. Juveniles return to freshwater in spring at about 6 months of age (Backhouse et al. 2008).

3.2 - Plant species whose presence relates to the international importance of the site

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Plantae								
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Asperula sub simplex</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Callitriche umbonata</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Carex myosurus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Epilobium pallidiflorum</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Helictotrichon neesii</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmania Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Isolepis stellata</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Juncus amabilis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmania Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Juncus prismatocarpus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Lycopus australis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Lythrum salicaria</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Vulnerable (Tasmania Threatened Species Protection Act 1995)	Vulnerable in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Stylidium beaugleholei</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ LILIOPSIDA	<i>Triglochin minutissima</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Viola caleyana</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Rare (Tasmanian Threatened Species Protection Act 1995)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Xerochrysum palustre</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Vulnerable (EPBC Act, 1999)	Rare in the Tasmanian bioregion. Contributes to maintaining biodiversity.

Gratiola pubescens (hairy brooklime) which is listed as vulnerable under the Tasmania Threatened Species Protection Act 1995, occurs at the site. This species is rare in the Tasmanian bioregion.

Apsley Marshes has a very high diversity of threatened plant species for a wetland area which indicates the ecological importance of the Marshes. The majority of threatened plant populations are located on the eastern side of the Marsh and primarily in places where stock access is lessened by deeper channels and areas of scrub. Several of the species found are of particular note. Australian gipsywort (*Lycopus australis*) was last collected in the area in the 19th century and outside of Apsley Marshes is now confined to river systems on the north coast. Swamp violet (*Viola caleyana*) has only been recorded from Tasmania four times in the last 100 years, with the Apsley Marshes apparently the stronghold for the species in Tasmania.

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence ¹⁾	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
Fish, Mollusc and Crustacea																	
CHORDATA/ ACTINOPTERYGII	<i>Acanthopagrus butcheri</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Migrate through Apsley Marshes to spawn upstream in freshwater.
CHORDATA/ ACTINOPTERYGII	<i>Anguilla australis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		Regularly migrate through Apsley Marshes to spawn upstream in freshwater and to return to the sea.
CHORDATA/ ACTINOPTERYGII	<i>Galaxias maculatus</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Juveniles of the species migrate from the estuary to Apsley Marshes as post-larval 'whitebait'.
CHORDATA/ ACTINOPTERYGII	<i>Prototroctes maraena</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	National: EPBC ACT Vulnerable Tasmania Threatened Species Protection Act: Vulnerable	Likely to occur in small numbers at the site. Migrates between Apsley Marshes and the ocean.
Birds																	
CHORDATA/ AVES	<i>Botaurus poiciloptilus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	Endangered (EPBC Act, 1999)	The species is nationally endangered.
CHORDATA/ AVES	<i>Cygnus atratus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Apsley Marshes Ramsar site is regionally important for nesting and moulting of black swans
CHORDATA/ AVES	<i>Haliaeetus leucogaster</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	Tasmania Threatened Species Protection Act 1995: vulnerable	Regionally rare and has been recorded breeding within the site.

1) Percentage of the total biogeographic population at the site

In sampling undertaken in 2012, the fish community was dominated by the short-finned eel - representing the dominant fish biomass in the Apsley Marshes (Davies, Cook & Jackson, 2012).

This species was formerly more widespread in Tasmania, however it is now absent from some major wetlands that have dried out. It occurs most commonly in the coastal regions in the north-east, the east coast and on the islands of Bass Strait (Australian Government, 2019).

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

The critical components and processes of the Apsley Marshes Ramsar site are:

Hydrology: The character of the Apsley Marshes is driven by freshwater inflows from the Apsley River and tidal cycles in Great Oyster Bay and Moulting Lagoon. The combination of freshwater inflows and tidal exchange results in a seasonal pattern of inundation and salinity as well as variation over longer periods of drought, high rainfall and inter-annual tides. Freshwater flows into the Apsley Marshes site from the north via the Apsley River. Flow is generally highest in winter and lowest in summer and autumn. Although data from the gauging station indicates a cease to flow over summer months, the landowner indicates the river is permanent.

Wetland vegetation: 94 species were recorded from within the Apsley Marshes, comprising 82 native and 12 introduced species. This includes the swamp everlasting (*Xerochrysum palustre*) which is listed as vulnerable under national legislation and a further 6 species listed under Tasmanian legislation. See sections 3.1, 3.2 and 3.4.

Waterbirds.

26 species of waterbird have been recorded within the site. The most significant species in terms of occurrence and abundance is the black swan, which breeds annually within the Site. The site also supports the internationally endangered Australasian bittern, which is a resident at the Site and the white-bellied sea eagle which is known to breed at the Site.

Other important components are:

Climate: the site lies within a temperate climatic zone with warm summers and cool winters. Rainfall occurs year-round and is low for temperate conditions; On average evaporation exceeds rainfall for 10 months of each year.

Geomorphic setting: the Site is part of the Oyster Bay / Moulting Lagoon graben. It contains a broadwater reach of the Apsley River and a broad floodplain which is a depositional environment. The southern end contains a number of tidal and artificial drainage channels, which facilitate connectivity between the marine and freshwater environments for native fish.

Water quality: inflowing water from the Apsley River is mostly fresh, neutral, low turbidity with low nutrient concentrations. Water flowing in from Moulting Lagoon on the tide is saline, low turbidity and low nutrient concentrations.

Fish: Four native species have been observed at the site: the native short-finned eel (*Anguilla australis*), black bream (*Acanthopagrus butcheri*), tupong (*Pseudaphritis urvillei*) and jollytails galaxids (*Galaxius maculatus*). One introduced species, brown trout (*Salmo trutta*) has also been observed in the site (Davies, Cook & Jackson, 2013). Australian grayling (*Pototroctes maraena*) has been recorded in the Apsley River upstream of the site and must migrate through the Apsley Marshes to complete its lifecycle in estuarine / marine waters.

The following ecosystem services are provided:

Provisioning services:

- Fodder for cattle: The Site has been used for cattle grazing for decades and wetland plant communities, particularly in the freshwater rushland and sedgeland communities are an important source of fodder.

Supporting services

- Diversity of wetland types: The Site contains a diversity of freshwater and marine wetland types.
- Supports biodiversity: The Site contains 82 native species of wetland plant including 6 species of biogeographical conservation significance.
- Physical habitat: The Site provides habitat for feeding and breeding of waterbirds.
- Threatened species: The Site supports one nationally threatened species of plant (swamp everlasting) and one internationally threatened species of animal (Australasian bittern).
- Ecological connectivity: The Site provides a migration route from inland waters to the sea for migratory fish species.

4.2 - What wetland type(s) are in the site?

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
H: Intertidal marshes		3	155	Representative
I: Intertidal forested wetlands		3	155	Representative

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks		0		Representative
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools		1	250	Representative
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		2	190	Representative

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
9: Canals and drainage channels or ditches		0	

(ECD) Habitat connectivity Apsley Marshes is connected to the sea through the adjacent Moulting Lagoon Ramsar site.

4.3 - Biological components

4.3.1 - Plant species

Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTAMAGNOLIOPSIDA	<i>Cotula coronopifolia</i>	Potential	No change
TRACHEOPHYTAMAGNOLIOPSIDA	<i>Crataegus monogyna</i>	Potential	No change
TRACHEOPHYTALILIOPSIDA	<i>Juncus articulatus articulatus</i>	Potential	No change
TRACHEOPHYTAMAGNOLIOPSIDA	<i>Salix fragilis</i>	Potential	No change
TRACHEOPHYTAMAGNOLIOPSIDA	<i>Ulex europaeus</i>	Actual (minor impacts)	No change

Optional text box to provide further information

Twelve introduced species were recorded from the marsh area and its foreshore. Gorse is the most widespread and threatening weed at Apsley Marshes. Within the marsh, the most widespread introduced species are *Cotula coronopifolia* (water buttons) and *Juncus articulatus* (jointed rush). The shoreline is dominated by *Ulex europaeus* (gorse), occurring as either dense patches or as linear infestations along the shoreline. *Salix fragilis* (crack willow) occurs in riparian areas along the Apsley River and in some of the drains of the Marshes.

The Site contains small areas of saltmarsh. Saltmarshes are among the most efficient ecosystems globally at sequestering carbon, although different areas of saltmarsh will vary in capacity (Australian Government, 2020). Saltmarsh and intertidal areas of Moulting Lagoon are important Blue Carbon systems contributing to climate change mitigation and adaptation.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/ACTINOPTERYGII	<i>Aldrichetta forsteri</i>				Coastal and estuarine, with local movements
CHORDATA/ACTINOPTERYGII	<i>Anguilla reinhardtii</i>				Freshwater resident migrates to the ocean to breed
CHORDATA/ACTINOPTERYGII	<i>Atherinosoma microstoma</i>				Estuarine resident
CHORDATA/ACTINOPTERYGII	<i>Galaxias truttaceus</i>				Migrates to upper estuary to breed
CHORDATA/ACTINOPTERYGII	<i>Pseudaphritis urvillii</i>				Migrates to estuary to breed
CHORDATA/ACTINOPTERYGII	<i>Pseudogobius olorum</i>				Estuarine resident

Invasive alien animal species

Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/ACTINOPTERYGII	<i>Salmo trutta</i>	- Please select a value -	No change
CHORDATA/ACTINOPTERYGII	<i>Tinca tinca</i>	- Please select a value -	No change

Optional text box to provide further information

The fish assemblage is believed to represent a typical lowland upper estuarine – freshwater community found in most eastern, southeast and northern Tasmanian estuaries Davies, Cook and Jackson, 2013).

Alien fish species recorded at the Site include Tench (*Tinca tinca*), a species known mainly from midland and southern rural Tasmanian rivers and storages. Another alien species, Brown trout, is also known from the Apsley River and marshes.

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cfb: Marine west coast (Mild with no dry season, warm summer)

Apsley Marshes lies within the temperate climatic zone of south eastern Australia. The general climatic pattern is cool winters and warm summers. Rainfall occurs year-round with highest monthly average rainfall in December (60mm) and lowest in September (41mm). There is some variability in rainfall, ranging from less than 10mm per month to greater than 100mm per month (Bureau of Meteorology 2010).

Over the last 30 years, changes to the climate and weather of the Southern Tasmanian region include:

- A shift in monthly rainfall – summer rainfall has decreased by 10mm per year from 251mm to 241mm; and winter rainfall has decreased by 40mm per year from 334mm to 294mm.
- More hot days – in the last 30 years eight days per year above 30°C compared to six days in the previous 30 years. (BOM Regional Weather and Climate Guide 2019).

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

Entire river basin

Upper part of river basin

Middle part of river basin

Lower part of river basin

More than one river basin

Not in river basin

Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

The Site lies within the Swan-Apsley Basin in the Tasmanian Drainage Division. The Apsley Marshes are located at the mouth of the Apsley River, where it discharges to Moulting Lagoon (another Wetland of International Importance) and ultimately to the Great Oyster Bay. The basins are within a graben (an area of the earth's crust that has fallen relative to surrounding faults) that formed following the separation of Antarctica and Australia. The area (including Apsley Marshes) has been listed as a site of geo-conservation significance due to the presence of this feature. The marshes themselves are characterised by low relief topography and deposited alluvial sediment. The underlying geology is almost entirely alluvium sand, gravel and talus of Holocene origin. The northern part of the Site contains the last part of the Apsley River within a defined channel.

4.4.3 - Soil

Mineral

(Update) Changes at RIS update No change Increase Decrease Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional)

Predictive mapping of potential acid sulfate soils (ASS) undertaken for Tasmania identifies Apsley Marshes as having a high probability of ASS. Any disturbance to soil / sediment that results in exposure to the air such as from construction of additional drainage channels has the potential to significantly impact the ecological character of the Site.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	<input checked="" type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Marine	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Hydrology at the Apsley Marshes is driven by the freshwater inflows from the Apsley River and the tidal cycles in Great Oyster Bay and Moulting Lagoon. The combination of freshwater inflows and tidal exchange results in a seasonal pattern of inundation and salinity as well as variation over longer periods of drought, high rainfall and inter-annual tides. Freshwater flows into the Apsley Marshes site from the north via the Apsley River. Flow is generally highest in winter and lowest in summer and autumn. The seasonality of rainfall and river flow, as well as evaporation results in a cyclic hydrology of the wetlands within the Ramsar site. During winter and spring months when river flow is highest, freshwater extends over much of the site and pressure from the flow of freshwater limits the intrusion of salt water in tidal cycles. In late summer and autumn, the situation is reversed, with little or no freshwater inputs, and higher evaporation resulting in a drying of marsh areas and an increase in the area affected by salt water from Moulting Lagoon.

(ECD) Connectivity of surface waters and of groundwater Although groundwater contribution to the site is not well described, there is no evidence that it is a significant contributor to the water budget.

4.4.5 - Sediment regime

Sediment regime unknown

Please provide further information on sediment (optional):

The Apsley River and its tributaries that flow into Apsley Marshes have areas of stream bank erosion and contain reaches with mobile sediment loads. This erosion and sediment may impact the water quality of the Marshes from time to time (Meeson & Kelly, 2013).

(ECD) Water turbidity and colour Inflowing water from the Apsley River is mostly fresh, neutral, low turbidity with low nutrient concentrations.

4.4.6 - Water pH

Circumneutral (pH: 5.5-7.4)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

Please provide further information on pH (optional):

The pH is mostly neutral with a mean of 7; but ranging from a low of 6 to a high of 8.5

4.4.7 - Water salinity

Fresh (<0.5 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Mixohaline (brackish)/Mixosaline (0.5-30 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Euhaline/Eusaline (30-40 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

Please provide further information on salinity (optional):

Inflowing water from the Apsley River is fresh, neutral and of relatively low turbidity. Salinity (as indicated by electrical conductivity) ranges from less than 100 to over 300 microSiemens per centimetre and turbidity from less than one to over 20 NTU. Salinity and turbidity have an inverse relationship; with peaks in turbidity coinciding with lows in salinity.

4.4.8 - Dissolved or suspended nutrients in water

Mesotrophic

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

Please provide further information on dissolved or suspended nutrients (optional):

Total and dissolved nutrient concentrations within the river are relatively low for a lowland river and indicative of mesotrophic conditions. Mean total nitrogen concentration is approximately 300 micrograms (µg) per litre and dissolved inorganic nitrogen (the portion available for plant uptake) is very low and generally comprises less than 5% of the total. Total and dissolved inorganic phosphorus concentrations are also relatively low for a lowland river. Mean total phosphorus was approximately 10 µg per litre. However, the proportion of this that is in bioavailable form is highly variable, ranging from nearly 100% to less than 10%. Seasonal patterns of both nitrogen and phosphorus also seem to follow river flow, with the highest concentrations coinciding with high flows.

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself. i) broadly similar ii) significantly different

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

The catchment for Apsley Marshes is dominated by green space, including native vegetation (62%). The upper catchment is forested, with a mix of green space and native production forest, which accounts for 14% of the catchment area. Lower catchment areas are dominated by grazing (19% of the catchment) mostly for wool. There are also significant areas of cropping and horticulture in this modified landscape, together accounting for 2% of the catchment. Horticulture consists of viticulture and walnuts. Rural residential areas account for another 2% of the catchment, with a significant community of Dolphin sands, along the foreshore of Great Oyster Bay, east of Swansea, and additional rural residential areas on the eastern side of the catchment, near the inlet and Lagoon foreshore areas (Kelly, 2018).

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Wetland non-food products	Livestock fodder	

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Hazard reduction	Flood control, flood storage	

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	Medium
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium

Optional text box to provide further information

The Site provides a migration route from inland waters to the sea for migratory fish species. Eight species of fish whose local population depends on the ability to use Apsley Marshes as a migration pathway or temporary habitat, have been recorded on Site.

Apsley Marshes (and the adjacent Moulting Lagoon) perform an important role in trapping sediment, processing nutrients and reducing bacteria and thus improving water quality in downstream areas such as Great Swanport.

Other ecosystem service(s) not included above:

Supporting services

The Site contains a diversity of freshwater and marine wetland types.

The Site contains 82 native species of wetland plant including six species of bioregional conservation significance.

The Site provides habitat for feeding and breeding of waterbirds.

The Site supports one nationally threatened species of plant (swamp everlasting) and one internationally threatened species of animal (Australasian bittern).

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

<no data available>

4.6 - Ecological processes

(ECD) Notable aspects concerning migration

Moulting Lagoon and the Apsley Marshes provide a linkage between the inland waters of the Apsley River and the Southern Ocean. Regular migrations of short-finned eels (*Anguilla australis*) occur.

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

The Apsley Marshes site is privately owned and is managed for the dual purposes of conservation and agricultural production, providing an excellent example of the "Wise Use" principle.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

This site is managed by a private landowner. For more information contact:
 Department of Primary Industries, Parks, Water and Environment (DPIPWE)
 GPO Box 44
 HOBART, Tasmania 7001, Australia
 Phone: +61 3 6165 4390
 Email: Information@dPIPWE.tas.gov.au

Provide the name and/or title of the person or people with responsibility for the wetland:

as above

Postal address:

Department of Primary Industries, Parks, Water and Environment (DPIPWE)
 GPO Box 44
 HOBART, Tasmania 7001, Australia

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Livestock farming and ranching	Low impact	Low impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Hunting and collecting terrestrial animals	Low impact	Low impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species	unknown impact	unknown impact	<input checked="" type="checkbox"/>	unknown	<input type="checkbox"/>	unknown

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Storms and flooding	High impact	High impact	<input checked="" type="checkbox"/>	unknown	<input checked="" type="checkbox"/>	No change
Temperature extremes	unknown impact	Medium impact	<input checked="" type="checkbox"/>	unknown	<input checked="" type="checkbox"/>	unknown

Please describe any other threats (optional):

Climate change is likely to be a threat to the site in future. As the global climate continues to warm, according to the Bureau of Meteorology and CSIRO, the Southern slopes Tasmania east NRM region in which the Moulting Lagoon Wetland of International Importance is located, is projected to experience further increases in temperature across all seasons, with more hot days, less rainfall in spring and possible changes to summer and autumn rainfall (though these are less clear). There will be increased intensity of rainfall events, a continued rise in mean sea level, increase in extreme sea level events and harsher fire weather (BOM and CSIRO, 2020).

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
State protected area	Moulting Lagoon Game Reserve		partly

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Moulting Lagoon IBA	http://datazone.birdlife.org/site/factsheet/moulting-lagoon-iba-australia	partly

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Other:

In Australia, the ecological character of a designated Ramsar site is protected as a Matter of National Environmental Significance under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

5.2.5 - Management planning

- Is there a site-specific management plan for the site? No
- Has a management effectiveness assessment been undertaken for the site? Yes No
- If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

5.2.6 - Planning for restoration

- Is there a site-specific restoration plan? Yes, there is a plan
- Further information

Actions undertaken

Willow, gorse and hawthorn control:

- Weeds were treated across a total of 408 hectares, comprising 284 hectares of gorse and 124 hectares of willows (but including some gorse and hawthorn).
- All willows (approximately 1,000) were treated. With monitoring and appropriate follow-up action eradication is likely in a short timeframe.
- Treatment methods included drill and poison (willows only), spot spraying, cut and pasting and mechanical removal

Stock access control:

- New fences were erected to control stock accessing the Apsley Marshes. Complementary actions undertaken to provide alternative stock watering points included the cleaning out of six existing water holes and the installation of a new water trough in paddocks adjacent to the Apsley Marshes.

Revegetation:

- Revegetation was conducted within the areas where gorse control had been undertaken with the aim of: providing competition for any future emergent gorse seedlings and re- growth; providing 'stepping stone' habitat between core areas of surrounding native forest; and replacing habitat for native animals and stock windbreaks previously provided by dense gorse thickets.
- A total of 4,785 local native species were planted across six sites. The most abundant planting was that of silver tussockgrass (*Poa labillardierei*), which not only provides competition for emergent gorse plants but is also resistant to any follow-up chemical spraying of gorse.

Engagement with other landowners in the Apsley Catchment:

- Landowners in the Apsley Catchment were approached to discuss weed and other management issues on their properties that could potentially have downstream impacts on the ecological values and integrity of the Apsley Marshes.
- As a result of the landowner engagement, Weed Action Plans were developed.

5.2.7 - Monitoring implemented or proposed

<no data available>

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Askey-Doran, M., Smith, J. & Visoiu, M. (2013) Apsley Marshes – A Survey of the Vegetation and Identification of Natural Values. Department of Primary Industries, Parks, Water and the Environment, Hobart.

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Davies, P.E., Cook, L.S.J. and Jackson, J.E. (2013) Apsley Marshes Fish Survey November 2012. Freshwater Systems, Aquatic Environmental Consulting Service.

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R. Kelly (2018). Water quality improvement plan for the Moulting Lagoon and Apsley Ramsar sites: Desktop pre-planning assessment report, report to NRM South, isNRM Pty Ltd, May 2018.

Meeson, N and Kelly, M. (2013). 10 year management action plan for the Apsley Marshes Ramsar site and the Apsley catchment 2013-2023. Native Fish Australia, 2010 <http://www.nativefish.asn.au/sfeel.html> accessed October 2010.

Norris, J.V. Tregonning, J., Lenanton, R. and Sorre, G., 2002, Biological synopsis of the Black Bream, Acanthopagrus butcheri in Western Australia with reference to information from other states" Fisheries Research Report (Perth: Department of Fisheries, Government of Western Australia).

NRM South (2011) Water quality in the Swan-Apsley Catchment: Rivers, estuaries and groundwater.

Temby, N. and Crawford, C., 2008, Coastal and Estuarine Resource Condition Assessment: A baseline survey in the Southern NRM Region, Tasmania, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<1 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<1 file(s) uploaded>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Apsley Marshes Ramsar site 1 (K Morgan, 08-06-2010)



Apsley Marshes Ramsar site 2 (K Morgan, 08-06-2010)



Apsley Marshes Ramsar site showing constructed drains (K Morgan, 08-06-2010)



Apsley Marshes Ramsar site 3 (K Morgan, 08-06-2010)

6.1.4 - Designation letter and related data

Designation letter

<no file available>

Date of Designation 1982-11-16