



# Ramsar Information Sheet

Published on 1 July 2022

Update version, previously published on : 1 January 2012

## Australia

### Little Waterhouse Lake



Designation date	16 November 1982
Site number	260
Coordinates	40°52'25"S 147°36'42"E
Area	56,00 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

Little Waterhouse Lake is a coastal freshwater lagoon situated in the Waterhouse Conservation Area (north-east coast of Tasmania), receiving its water from local catchment runoff and also from a small drain (formerly a creek) known as Tobacco Creek. The lake is an excellent example of a small freshwater lake impounded behind coastal dunes. The Ramsar site encompasses the Little Waterhouse Lake and its adjacent floodplain to the south, as well as the marshland which extends approximately 400 m downstream (west) of the dam wall. Most of the southern floodplain has a cover of aquatic and semi-aquatic herbs with occasional clumps of rushes. The lake has clear, around neutral water, well developed macrophyte flora and a substantial area of open water, approximately 700 m long and 100 m wide. To the east an open heathland covers most of the area with Silver Banksia (*Banksia marginata*) and Grass Trees (*Xanthorrhoea australis*) dominating. In the west of the site, introduced Marram Grass (*Ammophila arenaria*) occurs on the foredunes with Coastal Wattle (*Acacia sophorae*), Silver Banksia and Prickly Moses (*Acacia verticillata*).

The site contains over 40 species of aquatic and semi-aquatic plants. The site supports the Green and Gold Frog (*Litoria raniformis*) (also known as the Southern Bell Frog) and the Dwarf Galaxias (*Galaxiella pusilla*), which are both listed as vulnerable under the EPBC Act and TSP Act).

There are two main wetland types: coastal freshwater lagoons (Ramsar type K) and seasonal/intermittent/irregular rivers/stream/creek (Ramsar type N). Other wetland types include permanent rivers/stream/creek (Ramsar type M), permanent freshwater lakes (Ramsar type O), permanent freshwater marshes/pools (Ramsar type Tp), seasonal intermittent freshwater marshes/pools (Ramsar type Ts) and non-forested peatlands (Ramsar type U).

The area around the Little Waterhouse Lake is significant to Indigenous groups. The North East people used the heaths and plains behind the coast, which they kept open and clear by burning. The Ramsar site is currently used for various recreational activities, particularly fishing as the lake is stocked with Brown Trout and Rainbow Trout.

The critical components, processes and services are: wetland habitat types, rare plant species, diverse macrophyte flora and support for two nationally threatened faunal species – the Green and Gold Frog and the Dwarf Galaxias.

## 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 Primary Industries, Parks, Water and Environment (DPIPWE)
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	2012
To year	2020

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Little Waterhouse Lake
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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

While there has been no notifiable change in ecological character, the site has been subject to a changing climate. Australia has warmed by just over 1 degree C since 1910, with most of the warming since 1950. Further increases in temperature are projected, with more extremely hot days and fewer extremely cool days under all emissions scenarios. Warming over Australia is expected to be slightly higher than the global average (BoM State of Climate, 2018). These conditions will affect the critical components, processes and services of the Ramsar site. The adaptive capacity and resilience of the site will be tested.

The site is currently experiencing lower than average rainfall, which affects the hydrology of the lake and its catchment, but this is not a notifiable change, and there is no change to the criteria met.

## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

#### b) Digital map/image

<2 file(s) uploaded>

Former maps	0
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#### Boundaries description

The boundary of Little Waterhouse Lake Ramsar site is shown as Lot 1 on Central Plan Register (CPR) 5657 from the Tasmanian Information and Land Services, Department of Primary Industries, Water and Environment (Appendix 1). CPR 5657 horizontal datum is Australian Geodetic Datum (AGD66) Universal Transverse Mercator Projection Australian Map Grid (UTM AMG66) and Australian Height Datum (Tasmania) for vertical datum (Appendix 2).

The Ramsar site encompasses the Little Waterhouse Lake and its adjacent floodplain to the south, as well as the marshland which extends approximately 400 metres downstream (west) of the dam wall. An area of sand dunes to the south of the lake is also included within the Ramsar site boundary, as is a strip of native vegetation to the north and to the east of the lake. The whole site is located within the Waterhouse Conservation Area.

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)	Piper-Ringarooma Rivers, Tasmania

Other biogeographic regionalisation scheme

Australian Drainage Divisions - Bureau of Meteorology, 2012, Australian Hydrological Geospatial Fabric. For more info on the Geofabric see - <http://www.bom.gov.au/water/geofabric/>.

### 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

Hydrological services provided

Little Waterhouse Lake is in near natural condition and provides fresh water for a range of wetland flora and fauna. It is a permanent water resource in an otherwise sandy coastal dune environment (Parks and Wildlife Service, 2003).

The natural damming of the site, which was washed away by heavy rains and subsequently rebuilt by the local fishing club, is also a vital aspect of the site's hydrology, providing a barrier (albeit permeable) to flow from the lake. This contributes to a permanence of water, important to the dwarf galaxias. Through the leaking of water, either through or under the reconstructed dam, the site also contains a swampy marshland downstream of the dam wall, with green herbfields and wet soils with high organic matter content. This area also contains a small network of rivulets, fed by the throughflow from and around the dam, sometimes under the peaty soils, sometimes forming small springs and sometimes expressed as small channels within the marshland.

The hydrologic regime of the lake clearly influences the floristic make-up of the site, through the coverage, depth, timing and rate of delivery of water to the system. Inputs of groundwater and surface water (through local catchment runoff and also through the inputs of Tobacco Creek), maintain the water volumes and variations that contribute to the ranges and variability in depths and habitat zones that characterise the site.

Other reasons

Little Waterhouse Lake is considered a high quality example of a wetland with Ramsar wetland types: K, coastal freshwater lagoon; N, seasonal/irregular creek; M, permanent creeks; O, permanent freshwater lake; Tp, permanent freshwater marshes/pools; Ts, seasonal/intermittent freshwater marshes/pools (includes seasonally flooded meadows, sedge marshes); and U, non-forested peatlands, within the Tasmania Drainage Division.

Its high floristic diversity, high biological productivity and near-natural condition contribute to it being considered a representative example of these types of wetland within the drainage division.

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

The site has high floristic diversity, high productivity and high habitat diversity. It contains over 40 species of aquatic and semi-aquatic plants. The site has a high aquatic macrophyte diversity and supports a diverse and abundant macroinvertebrate fauna.

The site includes a significant population of the dinoflagellate, *Prorocentrum foveolata*, which adds to the regional biodiversity. *Prorocentrum foveolata* is a recently described species classified in a taxonomic group that was previously considered entirely marine (Croome and Tyler 1987). Little Waterhouse Lake is one of two lakes in the region that were found to support *P. foveolata* (the other being Blackmans Lagoon).

The Waterhouse lakes support a variety of invertebrates, including flatworms, water mites, snails, diving beetles, midges, dragonflies, and shrimps (North East Tasmanian Field Naturalists, 2017).

The site supports a variety of waterbirds, including Latham's Snipe, Australasian Grebe, Hoary-headed Grebe, Tasmanian Native Hen, White-fronted Chat and Green Rosella (Wnorowski, 2017).

The site has been observed to support a local pair of White-bellied Sea Eagles (*Haliaeetus leucogaster*, listed as vulnerable under the Tasmanian Threatened Species Protection Act 1995 – TSP Act) and a Wedge-tailed Eagle (*Aquila audax*).

The presence of a variety of fish also contributes to the biodiversity of the site. The Natural Values Atlas states that Southern Short-finned Eel (*Anguilla australis*), Eastern Dwarf Galaxias (*Galaxiella pusilla*), and Jollytail (*Galaxias maculatus*) are present in the Little Waterhouse Lake Ramsar Site (NVA 2011). In addition, the Southern Pygmy Perch (*Nannoperca australis*) has been seen in Little Waterhouse Lake (Micah Visoiu, personal communication).

The presence of the Green and Gold Frog (*Litoria raniformis*), contributes to the diversity of the site, along with five other species of frog which have been recorded in the Waterhouse Conservation Area (Brown 1995).

The site is a key location for two plant species listed as rare under Tasmania's TSP Act: River Club sedge (*Schoenoplectus tabernaemontani*) and Sea Clubsedge (*Bolboschoenus caldwellii*). Waterhouse Conservation Area is one of only two known reserves for River Clubsedge in Tasmania and is one of seven known reserves for Sea Clubsedge in Tasmania (DPIPWE 2010).

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

The dinoflagellate, *Prorocentrum foveolata*, is a species classified in a taxonomic group that was previously considered entirely marine (Croome and Tyler 1987). Little Waterhouse Lake is one of two lakes in the region that were found to support *P. foveolata* (the other being Blackmans Lagoon).

*Prorocentrum foveolata* was not found in the Catalogue of Life database.

### 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								
<b>Others</b>																	
CHORDATA/ AMPHIBIA	<i>Litoria raniformis</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 type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC Act) - vulnerable	Species is nationally vulnerable and regularly recorded at the site.
<b>Fish, Mollusc and Crustacea</b>																	
CHORDATA/ ACTINOPTERYGII	<i>Galaxiella pusilla</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 type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	National (EPBC Act) - vulnerable	Species is nationally vulnerable and regularly recorded at the site.

1) Percentage of the total biogeographic population at the site

The Green and Gold Frog has declined dramatically across its range. Population studies have shown that Green and Gold Frog populations are positively influenced by permanent water, the extent of aquatic vegetation, extensive riparian of floodplain grasslands and the presence of other nearby frog populations (Heard et al 2004). The species is dependent on permanent freshwater lagoons for breeding. The ideal breeding habitat is the shallow part of still or slow-flowing lagoons, generally with complex vegetation structure. Despite their requirement for permanent water for breeding, they also require terrestrial habitat (such as grasslands and forests), feeding mainly on terrestrial invertebrates such as beetles, termites, cockroaches, moths, butterflies and various insect larvae (DAWE 2020). The combined habitat requirements of permanent waters with still to slow-flowing areas and nearby forests and grasslands is provided by the Ramsar site (Lloyd, Newall & Atchison 2012).

In Tasmania, sites supporting Dwarf Galaxias are associated with sand, gravel and alluvium deposits (Chilcott and Humphries 1996). The species is usually found in slow-flowing, shallow waters (often stagnant and less than 30 cm deep), typically in swamps, drains and backwaters of creeks and streams. They usually occur in habitats that are heavily overgrown with aquatic macrophytes, and in larger pools are generally found in the marginal vegetation towards the edge of the pool (DAWE 2020). The Ramsar site provides ideal habitat for this species. At the site, this species was found in macrophyte-rich areas in close proximity to Tobacco Creek. The permanent nature of Little Waterhouse Lake may mean this location is preferred over Tobacco Creek (Lloyd, Newall & Atchison 2012).

### 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

Four critical components, processes and services were identified for the Little Waterhouse Lake Ramsar site:

- wetland habitat types;
- rare plant species;
- macrophyte diversity; and
- fauna species of national significance.

Wetland habitat types – the site comprises seven wetland types:

. Coastal freshwater lagoon (K) and permanent freshwater lake (O): these wetland habitat types describe Little Waterhouse Lake, which covers 6 ha. The lake contains many submerged macrophytes covering a variety of species, including emergent rushes (e.g. *Eleocharis*, *Isolepis* and *Juncus* species) and sedges (*Carex*, *Baumea* and *Lepidosperma* species); submergent ribbon weed (*Triglochin* spp.), pondweeds (*Potamogeton* spp.) and milfoil (*Myriophyllum* spp.).

- Seasonal/ intermittent freshwater marshes/ pools (includes seasonally flooded meadows, sedge marshes) (Ts): the majority of this wetland type is the large floodplain to the south of the lake, which is the largest wetland type in the site (9.3 ha).
- Permanent freshwater marshes/ pools (Tp); non-forested peatlands (U); and permanent creeks (M): these wetland types are intermingled and overlap in the area downstream of the dam wall, covering 2.6 ha.
- Seasonal/ irregular creek (N): the creek that drains into Little Waterhouse Lake (Tobacco Creek) is an intermittent drain that carries the runoff from surrounding grazed lands. It is considered a drain rather than a natural waterway and measures 0.2 ha in size.

Rare plant species – the site supports two species that are considered rare in the bioregion:

- Sea Clubsedge (*Bolboschoenus caldwellii*): is a perennial sedge that is typically found in shallow, standing water, generally rooted in heavy black mud. It can reproduce vegetatively from rhizomes, suggesting some resilience to disturbance. Little Waterhouse Lake is one of three key sites in Tasmania for this species.
- River Clubsedge (*Schoenoplectus tabernaemontani*): is a perennial sedge that inhabits the margins of lagoons in Tasmania. This species can also reproduce vegetatively from rhizomes and is noted to persist after flooding. Little Waterhouse Lake is one of its key sites in Tasmania.

Macrophyte diversity – the site includes at least 45 species of wetland-dependent or wetland indicative native plant species. Species range from submerged aquatics to intermittently inundated sedgeland species. The lagoon has dense aquatic growth and high species richness. Tiny Duckweed (*Woffia Australiana*), Sea Clubsedge and River Clubsedge are common at the site.

Fauna species of national significance – the site supports two species listed as vulnerable under national legislation:

- Green and Gold Frog (*Litoria raniformis*): the Ramsar site provides a refuge for this species from threats such as habitat loss due to stock grazing and irrigation for agriculture.
- Dwarf Galaxias (*Galaxiella pusilla*): is found in macrophyte rich areas within the permanent waters of Little Waterhouse Lake near Tobacco Creek.

(Lloyd, Newall & Atchison 2012).

There have been no substantial changes to the site since listing, apart from low water levels during the decade of drought (in the early 2000s). Rains during 2009 gave the site a much needed reinjection of water, organic matter and significant biological activity. However, since then the north-east of Tasmania has again experienced long-term rainfall deficiencies.

### 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
K: Coastal freshwater lagoons		2	6	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		4		Representative
Fresh water > Flowing water >> N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks		0	0.2	Representative
Fresh water > Lakes and pools >> O: Permanent freshwater lakes		3		Representative
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools		0	2.6	
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		1	9.3	Representative
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands		0		Representative

## Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
6: Water storage areas/Reservoirs		0	

(ECD) Habitat connectivity Connection of the lake to its floodplains via floodwaters is an important process that distributes nutrients.

## 4.3 - Biological components

### 4.3.1 - Plant species

## Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	<i>Bolboschoenus caldwellii</i>	rare, found onsite at Little Waterhouse
TRACHEOPHYTA/LILIOPSIDA	<i>Schoenoplectus tabernaemontani</i>	rare, found onsite at Little Waterhouse
TRACHEOPHYTA/LILIOPSIDA	<i>Wolffia australiana</i>	common

## Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTA/LILIOPSIDA	<i>Ammophila arenaria</i>	Actual (minor impacts)	No change
TRACHEOPHYTA/LILIOPSIDA	<i>Typha latifolia</i>	Actual (minor impacts)	No change

## Optional text box to provide further information

The lagoon has dense aquatic growth and high species richness. Tiny Duckweed (*Wolffia australiana*), one of the world's smallest flowering plants, is common at the site, as are the River Clubsedge (*Schoenoplectus validus*) and Sea Clubsedge (*Bolboschoenus caldwellii*), both listed as rare under the Tasmanian TSP Act. To the east of the lake, open scrub covers most of the area, with Silver Banksia (*Banksia marginata*) and Grass Tree (*Xanthoroea australis*) being the dominant species. West of the site Marram Grass (*Ammophila arenaria*) (an invasive species) occurs on the foredunes with Coastal Wattle (*Acacia sophorae*), Silver Banksia (*Banksia marginata*) and Prickly Moses (*Acacia verticillata*).

The vegetation north of Little Waterhouse Lake is dominated by heaths and coastal shrubberies. Graminoid heath, rich in grass trees, tends to occupy the dune tops, with tall dense coastal shrubbery in more sheltered areas. She-oaks (*Allocasuarina*) and eucalypt species are found within the shrub communities on well drained dolerite ridges and other sites where soil fertility is favourable. A wind-pruned woody shrubbery extends for several hundred metres inland on most of the western coast and small herbfields, often grazed to 'marsupial lawns', are found throughout.

Weeds: Cumbungi (*Typha latifolia*), poplar (*Populus* spp.), willows (*Salix* spp) and other weed species are present in parts of the site and could proliferate, altering the ecological character of the site. In particular, cumbungi has been seen forming thick bands in the lake and in the pond downstream of the dam, and appear to be close to causing serious impact. Marram Grass plantings in the vicinity have altered natural geomorphic processes. Marram Grass produces coastal landforms which have completely different shapes to dunes produced by native plants, with large steep faced dunes characteristic of areas planted with marram grass (DPIPWE 2003).

### 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/AVES	<i>Haliaeetus leucogaster</i>				

Invasive alien animal species

Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/ACTINOPTERYGII	<i>Oncorhynchus mykiss</i>	Actual (major impacts)	No change
CHORDATA/ACTINOPTERYGII	<i>Salmo trutta</i>	Actual (major impacts)	No change

Optional text box to provide further information

The site has been observed to support a local pair of White-bellied Sea Eagles (*Haliaeetus leucogaster*) listed as vulnerable under the Tasmanian TSP Act).

Exotic trout species are stocked in the site, including Brown Trout (*Salmo trutta*) and Rainbow Trout (*Oncorhynchus mykiss*). The original stocking took place prior to Ramsar listing. The Tasmanian Inland Fisheries Service continues to stock the site regularly (including in 2015 and 2017) with these two species to support recreational fishing.

### 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)

Little Waterhouse Lake experiences a cool to mild maritime climate. The area receives an average annual rainfall of 719 mm, occurring fairly evenly throughout the year, with a slight winter maximum (Parks and Wildlife Service, 2003). Rainfall is variable, with recorded annual extremes of 395 mm and 917 mm (Bureau of Meteorology, 2009). The area experiences a mild maritime climate with extensive winds, which vary from northwest to southwest (Parks and Wildlife Service, 2003).

In 2020, the east coast of Tasmania experienced protracted dry spells leading to drought in some areas with above average day and night time temperatures, and with a low likelihood of significant rain in the seasonal outlook.

Over the last 30 years, changes to the climate and weather of the North Tasmania region have included:

- Rainfall has decreased in the autumn months in the north
- There have been fewer frosts
- There have been more hot days

(BOM Regional Weather guide 2019, North Tasmania).

#### 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.

Little Waterhouse Lake is a permanent freshwater resource in an otherwise sandy coastal environment (Parks and Wildlife Service, 2003). It is part of the Piper-Ringarooma River Region in north east Tasmania.

#### 4.4.3 - Soil

Mineral

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

Organic

(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)

Little Waterhouse Lake is situated in an interdunal depression on a dunefield consisting of Quaternary calcareous sands that have formed belts of dunes. Quaternary sands and clays found in this area are strongly mottled with a layer of impermeable coffee rock at a depth of 1.5 metres. The topsoil is grey Quaternary calcareous, with low peat content.

#### 4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	unknown

Source of water that maintains character of the site

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

Water destination

Presence?	Changes at RIS update
To downstream catchment	unknown

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:

Little Waterhouse Lake receives its water from local catchment runoff and from a small drain (formerly a creek) known as Tobacco Creek. Tobacco Creek drains agricultural pasture land. It is a permanent freshwater resource in an otherwise sandy coastal environment (Parks and Wildlife Service, 2003). It is part of a wetland complex at Waterhouse Point and the lake level fluctuates with rainfall and dune and stream movement. Drainage patterns are dynamic due to the movement of sand dunes and/or use of water for agriculture.

The water level fluctuates with rainfall and dune/stream movement and the maximum lake depth measures between two and four metres.

Little Waterhouse Lake broke its banks during spring floods in 1952. Local fishermen, concerned about erosion of the retaining dunes and subsequent loss of fish to the ocean, attempted to dam the outflow. The original structure consisting of sand, soil and brush was inadequate, so donations were called for in 1954 to construct an enlarged wall and spillway. Sufficient funds to complete a dam were granted in 1955 and work finished in July that year. The stability of the dam wall is unknown, although it is known to leak water from Little Waterhouse Lake, either through or underneath the dam wall.

(ECD) Connectivity of surface waters and of groundwater Connection of the waterbodies to the floodplain via floodwaters is recognised as an important process that contributes nutrients (including dissolved carbon and plant matter) to the lake.

#### 4.4.5 - Sediment regime

Sediment regime unknown

Please provide further information on sediment (optional):

High inflow events are important for inputs of floodplain sediments and nutrients to the lake.

(ECD) Water turbidity and colour The water is very clear (low turbidity) although with some tannin colouring.

(ECD) Light - reaching wetland High clarity (low turbidity) of the water allows light to penetrate and provide light energy to submerged macrophytes.

#### 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):

pH is generally neutral to alkaline.

#### 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

Unknown

Please provide further information on salinity (optional):

The water of Little Waterhouse Lake is typically fresh but can become slightly brackish. The brackish nature of the water reflects the site's proximity to the sea (with salt spray expected to be blown into the lake's catchment) and also the evaporation of surface water, tending to concentrate dissolved material, particularly during drier periods. This concentration will be greatest during the warmer, drier summer months with higher inflows diluting salt concentration during winter.

#### 4.4.8 - Dissolved or suspended nutrients in water

Eutrophic

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

Unknown

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

Little Waterhouse Lake is known to have naturally high nutrient levels, similar to that of surrounding wetlands. Nutrient levels were sampled in 1992, with oxidised nitrogen and total phosphorus measuring 0.03 mg/L. Chlorophyll a measured 2.80 µg/L, indicating that though nutrient concentrations are high, there is no evidence of algal blooms occurring in the lake.

(ECD) Dissolved organic carbon

Plant matter and dissolved carbon from the floodplain provide the nutrient requirements for the base of the food chain.

#### 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 surrounding area is used for recreational camping and livestock grazing, with water use for agricultural purposes altering the water level of the wetland. Land use within Dorset Council includes agriculture, forestry, and tourism.

Changes to the catchment including vegetation clearance, dam building and water abstraction, have changed the flow regime (and reduced the water quality) of waters inflowing into the site. Input flows are therefore less reliable. Vegetation clearance and grazing in the surrounding area has resulted in dune destabilization. The creation of blowouts in the dunes, has led to dune movement and a highly mobile geomorphology (possibly covering part of the lake). Nutrient inputs are also likely to impact water flowing into the lake from grazed sections of the catchment.

### 4.5 - Ecosystem services

#### 4.5.1 - Ecosystem services/benefits

##### Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Medium
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium
Scientific and educational	Major scientific study site	Medium

##### 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	High

Within the site: 10s

Outside the site: 10s

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

Description if applicable

The social and cultural values of the site have not been assessed for international importance.

The Waterhouse area was probably within the territory of the Leenererter Band of the North East Tribe (Ryan 1996) and could be of Indigenous cultural significance, but this is a knowledge gap.

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

#### 4.6 - Ecological processes

(ECD) Nutrient cycling

The Lake is known to have naturally high nutrient concentrations. These contribute to the macrophyte richness of the lake.

(ECD) Animal reproductive productivity

The wedge-tailed eagle and fairy tern may breed within the Waterhouse Conservation Area, but there are no records of them within the Ramsar site.

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

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local authority, municipality, (sub)district, etc.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Private ownership

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

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

The site has been reserved within the Waterhouse Conservation Area since 1996. Prior to the introduction of the National Parks and Reserves Management Act 2002, the area was proclaimed under the Crown Lands Act 1976 (Department of Primary Industries, Parks, Water and Environment, 2008). The term Conservation Area is applied to an area of land predominantly in a natural state but mining, and in some cases, hunting may be permitted (Department of Primary Industries, Parks, Water and Environment, 2008).

#### 5.1.2 - Management authority

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

Parks and Wildlife Service

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

Director, Parks and Wildlife Service

Postal address:

GPO Box 1751  
HOBART 7001  
Tasmania  
Australia

## 5.2 - Ecological character threats and responses (Management)

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

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage			<input type="checkbox"/>		<input checked="" type="checkbox"/>	

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Non specified			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Recreational and tourism activities			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Fire and fire suppression			<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Unspecified/others			<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Dams and water management/use			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

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			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Unspecified			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Please describe any other threats (optional):

Potential threats to the site include:

- changes to water quality through inappropriate land use in the Tobacco Creek catchment, upstream of the site;
- changes to hydrology, through groundwater extractions elsewhere within the aquifer or through breaching of the dam wall;
- stocking alien fish species;
- vegetation clearance on-site and in the surrounding areas;
- vehicle and recreational use at the site;
- the introduction or spread of weeds, plant diseases and/or pathogens;
- duck hunting; and
- climate change.

Climate change is likely to be a threat to the site in future. As the global climate continues to warm, the region (Southern Slopes, Tasmania East) is projected to experience increasing average temperatures in all seasons, with more hot days and warm spells. There will be fewer frosts, generally less rainfall in spring, and little change or an increase in winter rainfall. There will be an increased intensity of extreme rainfall events. Mean sea level will continue to rise and height of extreme sea-level events will also increase. There will be a harsher fire-weather climate in the future.  
(Climate Change in Australia, Southern Slopes, Tasmania East Projection Summaries).

### 5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Protected area	Waterhouse Conservation Area	<a href="https://parks.tas.gov.au/explore-our-parks/waterhouse-conservation-area">https://parks.tas.gov.au/explore-our-parks/waterhouse-conservation-area</a>	whole

### 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

Species

Measures	Status
Control of invasive alien plants	Partially implemented

Human Activities

Measures	Status
Fisheries management/regulation	Implemented
Regulation/management of recreational activities	Proposed

Other:

In Australia, the ecological character of a designated Ramsar site is protected as a Matter of National Environmental Significance (MNES) 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? Yes

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

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

The site includes an Australian Government sign acknowledging that the site is of international significance, and providing information on aspects of the site's ecological character. There is also a sign at the entrance of the Waterhouse Conservation Area, providing details on the conservation zone and conditions of visitor use. Outside the site, there are information booklets on Ramsar sites of Tasmania.

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Animal species (please specify)	Implemented

In 2017, the North-East Tasmanian Field Naturalists undertook surveys of invertebrates at 10 sites within the Waterhouse Lake Conservation area, identifying a large variety of flatworms, water mites, snails, diving beetles, midges, dragonflies, and other species (North-east Tasmanian Field Naturalists, 2017).

Bird surveys have also been undertaken (Wnorowski, 2017)



## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Reference list is attached at 6.1.2.

#### 6.1.2 - Additional reports and documents

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

<no file available>

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

<1 file(s) uploaded>

vi. other published literature

<1 file(s) uploaded>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Little Waterhouse Lake, Tasmania ( Australian Government Department of the Environment and Energy, 16-05-2009 )



Little Waterhouse Lake, Tasmania ( Australian Government Department of the Environment, 16-05-2009 )



Little Waterhouse Lake, Tasmania ( Australian Government Department of the Environment, 16-05-2009 )

#### 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation **1982-11-16**