Ramsar Information Sheet

Published on 25 March 2025
Update version, previously published on : 29 March 2016

Australia

Interlaken Lakeside Reserve

Designation date	16 November 1982
Site number	259
Coordinates	42°08'50"S 147°09'31"E
Area	517,00 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

Interlaken Lakeside Reserve Ramsar site includes the north-western corner of Lake Crescent, the marshy areas at the lakes perimeter, Lakeside Island and a large section of the dry land between Lake Crescent and Lake Sorell. Lake Crescent is a permanent freshwater water body.

The Ramsar site is a significant example of a mid-altitude (800 m AHD) wetland which supports threatened and endemic species, wetland vegetation communities and an unusual phytoplankton assemblage. These wetlands are not well represented elsewhere in the region.

Freshwater aquatic vegetation communities are present on the site with soft twig-rush and water-ribbons the dominant species. Running marshflower, floating clubsedge, amphibious watermilfoil and floating pondweed are also common.

When full, the lake provides important habitat, for feeding, resting and breeding, for the black swan and ducks. Migratory bird species listed under international agreements have used the Interlaken Lakeside Reserve for feeding and resting.

The site supports a large population of the nationally endangered fish, golden galaxias.

The sitesupports the Ramsar criteria 1, 2, 3, 4, 8 and 9.

1: The site is a valuable regional representation of two Ramsar wetland types ('O' - Permanent freshwater lakes and 'Ts' - Seasonal/intermittent freshwater marshes) within the Tasmanian Drainage Division.

2: The site provides habitat for the Tasmanian endemic freshwater fish, golden galaxias (Galaxias auratus) that is a nationally and internationally threatened species.

3: The site is an essential element of the maintenance of ecological diversity in the area. It supports several species which are rare and/or poorly reserved.

4: The site provides habitat for the nationally listed golden galaxias during spawning, with the site and intermittent marshes adjacent to the lakes providing important nursery habitat for juveniles.

8: The site provides important breeding habitat for the nationally endangered Tasmanian endemic golden galaxias.

9: The site's wetlands support a significant proportion of the entire golden galaxias population.

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 Climate Change, Energy, the Environment and Water (DCCEEW)
Postal address	GPO Box 3090 Canberra ACT 2601 Australia

National Ramsar Administrative Authority

Institution/agency	Department of Climate Change, Energy, the Environment and Water (DCCEEW)
Postal address	GPO Box 3090 Canberra ACT 2601 Australia

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

From year	1982
To year	2023

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Interlaken Lakeside Reserve
Unofficial name (optional)	Interlaken (Lake Crescent)

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 ○ No ◉
(Update) B. Changes to Site area	No change to area
(Update) For secretariat only: This update is an extension	☐

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?	No

(Update) Optional text box to provide further information

Whilst there has been no notifiable change in ecological character, the site has been subject to a changing climate. Australia has warmed by an average of 1.47°C since 1910. Sea surface temperatures have risen by an average of 1.05°C, leading to an increase in the frequency of extreme heat events over land and sea. Australia is projected to experience further increases 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 2022a).

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
<2 file(s) uploaded>

Former maps	0

Boundaries description

The boundary of the Interlaken Ramsar site includes all of allotment 1 on the Tasmanian Central Plan Register (CPR) Plan 5656 (Central Plan Office, Tasmania Department of Natural Resources and Environment). CPR Plan 5656 horizontal datum is Australian Geodetic Datum (AGD66) Universal Transverse Mercator Projection Australian Map Grid (UTM AMG66) and Australian Height Datum (Tasmania) for vertical datum. The site excludes Certificate of Titles 141006/1, 10053/1 and 138567/102. The site also excludes the portion of the Interlaken Road Reserve adjacent to 141006/1 and 10053/1 from a point nearest to 42°08'19.1"S, 147°10'00"E (GDA94 coordinates) in south-easterly direction to the intersection with Property ID 7122924 at a point nearest to 42°08'39.1"S, 147°10'16.2"E (GDA94 coordinates).

2.2.2 - General location

a) In which large administrative region does the site lie? Central Highlands municipality of Tasmania.

b) What is the nearest town or population centre? The town of Tunbridge lies approximately 20km east of the Ramsar site. Its 2021 population was 123 people (Australian Bureau of Statistics 2021).

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): 517

Area, in hectares (ha) as calculated from GIS boundaries: 513.022

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	Tasmanian Drainage Division, Derwent River
Other scheme (provide name below)	Tasmanian Central Highlands, Central Highlands

Other biogeographic regionalisation scheme

Tasmanian Drainage Basin, Derwent River: BoM (2012). Australian Hydrological Geospatial Fabric (Geofabric): Topographic Drainage Divisions and River Regions –Tasmanian Drainage Basin, Derwent River (http://www.bom.gov.au/water/geofabric/documents/BOM002_Map_Poster_A3_Web.pdf).

The Australian Hydrological Geospatial Fabric (Geofabric) is a specialised Geographic Information System (GIS). It registers the spatial relationships between important hydrological features such as rivers, water bodies, aquifers and monitoring points. These provide a set of surface water reporting units based on drainage-enforced digital elevation models and are used to depict where water flows and drains across the landscape.

Commonwealth of Australia (2012). Interim Biogeographic Regionalisation for Australia, Version 7 -Tasmanian Central Highlands. https://www.dcceew.gov.au/environment/land/nrs/science/ibra

The interim Biogeographic Regionalisation for Australia (IBRA) describes the biogeographic regions within Australia. Subdivisions of IBRA regions provide finer scale regions of the Australian landscape. Vegetation community and land system mapping undertaken by the states and territories have been used to establish IBRA Region and Subregion Boundaries. This information can potentially be used to identify regional ecosystems across Australia.

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

Other reasons

Extensive littoral wetlands are a unique feature of the Crescent-Sorell system, especially in comparison to other lakes on the Tasmanian Central Plateau. The wetlands of lakes Crescent and Sorell are shallow, temporary, freshwater systems, and are some of the largest areas of this type of wetland in Tasmania. The site is a valuable regional representation of two Ramsar wetland types 'O' (Permanent freshwater lakes >8ha) and 'Ts' (Seasonal/intermittent freshwater marshes) within the Tasmanian Drainage Division.

Analysis of Tasmania's vegetation mapping (TASVEG) indicates this is one of the largest intermittent freshwater marshes present in the Tasmanian Drainage Division and is particularly unusual at this elevation (800 m). It is considered in good condition relative to other large freshwater wetlands in lowland and coastal Tasmania (Kirkpatrick and Harwood 1983).

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information

The site provides habitat for the endemic freshwater fish, golden galaxias (Galaxias auratus) (Fulton 1990, Hardie 2003) that is listed as endangered nationally under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and internationally under the IUCN Red List.

Its natural distribution is confined to Lake Sorell, Lake Crescent and associated wetlands and small tributaries. Although there are no quantitative data on total abundance throughout its 76 square kilometre range, it is considered to be locally abundant (Hardie 2003; DSEWPAC 2012). The intermittent marshes adjacent to the lakes provide an important nursery area for juvenile fish (Hardie 2003; Jackson 2004). Although it is abundant in these two lakes, the golden galaxias is listed on the Environment Protection and Biodiversity Conservation Act 1999 because of its limited distribution and potential threats to the species which include habitat degradation and predation by introduced species (brown trout).

The site supported 2 threatened species in the past, however there are no recent records for these species, so they do not currently contribute to criterion 2. The following species will be re-assessed against criterion 2 when information becomes available:
• green and gold frog, Litoria raniformis (EPBC – vulnerable, IUCN – endangered)
• Australasian bittern, Botaurus poiciloptilus (EPBC – endangered, IUCN – vulnerable)

The green and gold frog (Litoria raniformis) was seen in the site in the late 1970s and early 1980s (DSEWPAC 2012). Chilcott (1986) listed seven frog species found in the vicinity of Lake Crescent and suggested that the range of green and gold frog would be restricted to the marshes along the margins of Lake Crescent, including within the site. Based on surveys in the early 2000s, it is not clear whether the green and gold frog was still present in the site at that time (Heffer 2003).

☑ Criterion 3 : Biological diversity

Justification

The site is an essential element of the maintenance of biological diversity in the area. Fifty-two species of plants have been recorded in the wetland part of the Interlaken Lakeside Reserve (IFS 2004). One hundred and fifty species of fauna have been recorded in the Lake Cresent area (DPIWE 2014).

The site supports state listed rare species such as the soft twig-rush (Baumea arthrophylla).

The interesting nature of the phytoplankton community, and its differences from nearby Lake Sorell, are of scientific value. In 2003, 47 species of phytoplankton were recorded (Uytendaal 2003a).

The wetland provides important habitat for many species of macroinvertebrates, including the hydrobiid gastropod (Austropyrgus sp.), which is endemic to lakes Sorell and Crescent (Cleary 1997).

The site supports a significant proportion of the population of the nationally listed golden galaxias (Galaxias auratus). The golden galaxias is endemic to Lakes Sorell and Crescent and associated streams and wetlands.

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

Optional text box to provide further information

When inundated, the wetlands provide important habitat for waterbirds, as a feeding, resting and breeding areas, and as a drought refuge. When lake levels are high in Lake Crescent and the adjoining Lake Sorell, it is believed that waterbirds such as ducks, swans and cormorants use these wetlands when nearby wetlands in the Midlands periodically dry out (DSEWPAC 2012).

The site provides habitat for the nationally listed golden galaxias during spawning and the intermittent marshes adjacent to the lakes provide critically important nursery habitat for juveniles. Therefore, the site is considered to support populations of an internationally important species during a critical life stage.

The site supports the endemic hydrobiid gastropod, (Austropyrgus pagodoides). This species is among the more unusual members of the genus and Australian hydrobiid fauna more generally, in that there is marked sexual dimorphism, with the males possessing a prominent keel on the whorls whereas the females lack the keel (Clark et al 2003).

☑ Criterion 8 : Fish spawning grounds, etc.

Justification

The wetlands in site provide important breeding habitat for the nationally endangered endemic golden galaxias. The galaxiid's small, adhesive eggs are typically deposited on aquatic vegetation and rocky substrate, and the intermittent marshes adjacent to the lakes provide critically important nursery areas for juvenile fish (Hardie 2003; Jackson 2004). Adult fish prefer rocky lakeshore habitat (Hardie 2003) however, the wetland habitat provides important foraging areas to sustain the population.

Given the high relative abundance of the Lake Crescent golden galaxias population, the Interlaken site is considered to provide important spawning, foraging and refuge (from predators) habitat for the species.

☑ Criterion 9 : >1% non-avian animal population

Optional text box to provide further information	Although there is no quantitative data on total abundance of golden galaxias throughout its 76 square kilometer range, it is locally abundant. The golden galaxias is endemic to Tasmania and only occurs naturally in lakes Sorell and Crescent and associated streams and wetlands. Habitat critical to its survival includes all areas where the species naturally occurs. Lake Crescent (and associated intermittent marshes) is approximately 2,285 ha while Lake Sorell (and associated intermittent marshes) is approximately 5,212 ha. Given the higher densities of golden galaxias in Lake Crescent, it may contain up to 80% of the population of this species. As the Ramsar site comprise approximately 15% of the wetlands in Lake Crescent, it is probable that the site regularly supports 1% or more of the population of this species (DSEWPAC 2012).

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 / LILIOPSIDA	*Machaerina arthrophylla*	☐	☑	☐		☐		C3: common species at site, listed as rare in Tasmania. Note this species was formerly known as Baumea arthrophylla.

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																	
MOLLUSCA / GASTROPODA	*Austropyrgus pagodoides*	☐	☑	☐	☐	☑	☐	☐	☐					☐	☐		C3 and C4: Endemic species that occurs within the site. This species is considered an unusual member of the genus and Australian hydrobiid fauna more generally.
CHORDATA / ACTINOPTERYGII	*Galaxias auratus*	☑	☑	☐	☑	☑	☐	☐	☑	-1		-1		☐	☐	Endangered (EPBC Act 1999), endemic	C2: Nationally listed threatened species (EPBC). Internationally listed threatened species (IUCN). C3: Endemic species a high determinant of the unique character of the site. C4 and 8 Spawning ground; nursery for juvenile fish C9 support high proportion of population

1) Percentage of the total biogeographic population at the site

The golden galaxias population size and numbers at the site have not been quantified. However, the limited range of the species to Lake Sorell and Lake Crescent, and the large numbers of fish observed at the site, indicate the species may support 80% of the population (DSEWPAC 2012).

Lake Cresent, and potentially Lake Sorell, provides important habitat for the endemic hydrobiid gastropod (Austropyrgus sp.), which occurs only in these lakes (Cleary 1997).

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

<no data available>

Optional text box to provide further information

Whilst not listed nationally as a threatened ecological community, the intermittent marshes are considered a critical component of the ecological character of the site. The intermittent marshes are characterised by freshwater aquatic vegetation communities such as water-ribbon herbland and soft twig-rush sedgeland.

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

4.1 - Ecological character

The site is a significant example of a mid-altitude (800 m AHD) wetland which supports threatened endemic species, wetland vegetation communities and an unusual phytoplankton assemblage. These wetlands are not well represented elsewhere in the region. The main habitats within the site include intermittent marshy areas around the north-west perimeter of Lake Crescent; an area of open scrubby Eucalyptus woodland; and open water.

The intermittent marshes are characterised by freshwater aquatic vegetation communities such as Triglochin procerum herbland and Baumea arthrophylla sedgeland.

The fauna community on site is dominated by aquatic and semi aquatic species such as native and introduced fish, invertebrates, platypus, frogs and waterbirds.

Diatoms and other phytoplankton flourish in the nutrient-rich shallow water of the site. Trophic interactions in Lake Crescent include: 1) zooplankton consuming phytoplankton; 2) plankton, benthic fauna and airborne insects that land on the water surface are consumed by small fish such as golden galaxias; 3) small fish are consumed by larger fish such as trout.

The critical components and processes for the site are:
• Golden galaxias: This species is a critical component as it is one of the primary determinants of the ecological character of the site. The species is endemic to Tasmania and found only in Lake Sorell, Lake Crescent and associated tributaries and wetlands. It is found in the highest densities within Lake Crescent. The golden galaxias is a critical component in the justification for meeting five of the Ramsar criteria for which the site was listed (Criteria 2, 3, 4, 8 and 9).
• Intermittent marshes: The intermittent marshes of the site are considered a critical component as they are a significant defining character of the site. The presence of the intermittent marshes is central to the justification for meeting Criterion 1 of the Ramsar criteria for which the site is listed. The intermittent marshes are also important foraging, spawning and nursery areas for the golden galaxias as well as a refuge from predation by introduced fish. Due to the highly variable nature of the wetting and drying regime of the marshes and water extraction for downstream use, in the absence of controls; it is highly probable that changes in the nature of the wetlands would occur, resulting in significant negative ecological changes to the Ramsar site.

The critical benefits and services of the site are:
• Threatened wetland species, habitats and ecosystems. The rocky substrate around the shore of Lake Crescent and the intermittent marshes provides spawning areas for golden galaxias (Hardie et al. 2007). The species also uses the open water column and wetland habitats during its life cycle.
• Natural or near-natural wetland ecosystem. The site is a regional example of mid-altitude temperate wetland communities and component species. The intermittent marshes are the largest freshwater wetlands within the Central Highlands and Tasmania. The wetland communities are adapted to variable climatic conditions but are dependent on regular periodic inundation to survive. Connectivity to the lake provides important sediment and nutrient cycling, as well as water for germination and dispersal of propagules.

Ecosystem services and benefits of the site include provisioning services such as water supply for downstream users (irrigation and domestic water supply) and a commercial eel fishery; regulating services such as the trapping of sediment by wetland vegetation that regulates sediment transport, sediment deposition and influences water quality; cultural services such as recreational trout fishing and spiritual and inspirational associations for Aboriginal people; and supporting services such as the provision of habitat and breeding areas for endemic, threatened or unusual flora and fauna species and communities.

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

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 > Lakes and pools >> O: Permanent freshwater lakes		1	179	Representative
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		2	173	Representative

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Dry forest and woodland	165

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	*Amphibromus neesii*	Tasmanian legislation listed rare species previously recorded at site
TRACHEOPHYTA/LILIOPSIDA	*Cycnogeton procerum*	A dominant species at the site. Formerly known as Triglochin procerum
TRACHEOPHYTA/LILIOPSIDA	*Isolepis fluitans*	Most common aquatic species at site. Submerged to semi-emergent
TRACHEOPHYTA/LILIOPSIDA	*Isolepis montivaga*	Uncommon but found at north-western corner of Lake Crescent
TRACHEOPHYTA/MAGNOLIOPSIDA	*Myriophyllum simulans*	A dominant aquatic species at the site
TRACHEOPHYTA/MAGNOLIOPSIDA	*Ornduffia reniformis*	Most common aquatic species at site. Submerged to semi-emergent. Also known as Villarsia reniformis.
TRACHEOPHYTA/LILIOPSIDA	*Potamogeton tricarinatus*	Submerged species widespread at site

Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTA/LILIOPSIDA	*Elodea canadensis*	Potential	No change
TRACHEOPHYTA/MAGNOLIOPSIDA	*Ulex europaeus*	Potential	No change

Optional text box to provide further information

The dominant aquatic flora species present at the site are soft twig-rush (Baumea arthrophylla) and water-ribbons (Triglochin procerum) (DSEWPAC 2012). Running marshflower (Villarsia reniformis), floating clubsedge (Isolepis fluitans), amphibious watermilfoil (Myriophyllum simulans) and floating pondweed (Potamogeton tricarinatus) are also common (Heffer 2003).

Swamp wallaby grass (Amphibromus neesii) was recorded from the site and is listed under the Tasmanian state legislation. The north-western corner of Lake Crescent supports mountain clubsedge (Isolepis montivaga) which is uncommon, but is not listed under Tasmanian state legislation.

The highly invasive declared weed gorse (Ulex europaeus) is present in the dryland areas of the site (Heffer 2003). Terrestrial species present in the wetlands when dry are likely to be out-competed by adaptable wetland species once the area is re-wetted.

Canadian pondweed (Elodea canadensis) was recorded in Lake Sorell in an early survey. The species is expected to exist in the lake as it is difficult to eradicate once it is introduced.

A description of the distribution of notable flora, and a full list of the plant species fund at the site, is included in the Ecological Character Description attached to this Ramsar Information Sheet.

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/AMPHIBIA	*Crinia signifera*				Wetland dependent species that contributes to the character of the site.
CHORDATA/AMPHIBIA	*Limnodynastes dumerilii*				Wetland dependent species that contributes to the character of the site.
CHORDATA/AMPHIBIA	*Litoria ewingii*				Wetland dependent species that contributes to the character of the site.
CHORDATA/MAMMALIA	*Ornithorhynchus anatinus*				Wetland dependent species that contributes to the character of the site. This species is listed as near threatened under IUCN.
CHORDATA/AMPHIBIA	*Pseudophryne semimarmorata*				Wetland dependent species that contributes to the character of the site.
CHORDATA/ACTINOPTERYGII	*Anguilla australis*				Wetland dependent species that contributes to the character of the site.
CHORDATA/AVES	*Cygnus atratus*				Wetland dependent species that contributes to the character of the site.

Invasive alien animal species

Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/ACTINOPTERYGII	*Oncorhynchus mykiss*	Potential	No change
CHORDATA/ACTINOPTERYGII	*Salmo trutta*	Potential	No change

Optional text box to provide further information

Other noteworthy animal species that have been observed at Lake Crescent include the following:

• The native short finned eel (Anguilla australis) is present at the site.

• The platypus (Ornithorynchus anatinus) is known to inhabit Lake Crescent, where it feeds on the abundant invertebrate fauna (DSEWPAC 2012).

• Frog species such as common froglet (Crinia signifera), bull frog (Limnodynastes dumerili), brown tree frog (Litoria ewingi) and southern toadlet (Pseudophryne semimormorata) exist within the site (Heffer 2003).

• Depending on seasonal and climatic conditions, the area is locally important for black swan (Cygnus atratus) and ducks as a feeding, resting and breeding area.

Introduced species include: brown trout (Salmo trutta), rainbow trout (Oncorhynchus mykiss) (Heffer 2003).

The preferred food of adult brown trout is the golden galaxias.

Carp previously inhabited the lakes, however they have been removed through an eradication program (pers comm IFS 2024).

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)

The site is sub-alpine and experiences frost and occasional to frequent snowfalls during winter. The warmer months of January and February experience a mean maximum temperature of 19.4 ºC and a minimum of 6.4 ºC. July is usually the coldest month of the year with mean maximum and minimum temperatures of 7.5 ºC and -1 ºC respectively (BoM 2002). Mean annual rainfall is 699 mm with a range from a low of 274 mm in 1913 to a high of 1157 mm in 1956 (DSEWPAC 2012).

According to BoM and CSIRO (2022b) climate projections for the southern slopes (Tasmania east) region average temperatures will continue to increase in all seasons with more hot days and warm spells. Fewer frosts are projected. Generally less rainfall in spring and little change or an increase in winter rainfall is projected. Changes to summer and autumn rainfall are possible but less clear. Increased intensity of extreme rainfall events is projected.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 802

a) Maximum elevation above sea level (in metres): 806

- 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.

Water enters the lake via a canal from Lake Sorell and flows out into the Clyde River.

4.4.3 - Soil

- 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)

The soils tend to be neutral to acidic with a build-up of litter and peat beneath the vegetation. The narrow neck separating the two lakes consists of highly organic deposits. The area is underlain by Jurassic dolerite, Tertiary basalt and Triassic sandstone, with alluvial deposits common on flats and swampy ground (DSEWPAC 2012).

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 precipitation	☑	No change
Water inputs from surface water	☐	No change

Water destination

Presence?	Changes at RIS update
To downstream catchment	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:

Lake Crescent lake levels are influenced by a number of factors, principally rainfall, inflows from Lake Sorell, seasonal use for irrigation in the Clyde River valley, town uses and evaporation.

Lake Crescent is a natural lake that has been modified through regulation of its outflow (DPIWE 2005a). Outflow from Lake Crescent is through a short canal to the Clyde River. This outlet is also controlled by an outlet weir.

Lake Crescent is connected from Lake Sorell via the Interlaken canal. Water passes from Lake Sorell into Lake Crescent via the canal and Kermodes Drain when water levels are high.

Both lakes are heavily reliant upon local rainfall as the main water input and are supplied by a few small watercourses and catchment run-off.

The Lakes Sorell and Crescent system has a small catchment. Dry seasons and periods of low water with associated poor water quality have been reported over the last 150 years.

(ECD) Connectivity of surface waters and of groundwater	Water passes from Lake Sorell into Lake Crescent via the Interlaken canal and Kermodes Drain when water levels are high. There is little evidence of ground-water contribution to water input (DSEWPAC 2012).
(ECD) Stratification and mixing regime	As Lake Crescent is shallow it is subject to frequent disturbance of the sediments through wind and wave action.

4.4.5 - Sediment regime

Sediment regime unknown ☐

Please provide further information on sediment (optional):

Lake Crescent has long been known as a cloudy (turbid) lake. This is due mainly to sediments at the bottom of the shallow lake being stirred up by waves caused by wind. Some of the sediments settle with time while others once disturbed do not tend to settle out so the lake stays cloudy until that water gets flushed out (NRM South 2016).

(ECD) Water turbidity and colour	The water in Lake Crescent is notably turbid due to the suspension of inorganic lake bed sediments.
(ECD) Light - reaching wetland	Low water levels cause sediment resuspension to become a driving factor light penetration levels (Uytendaal 2003a)
(ECD) Water temperature	Lake temperature is homogeneous in all seasons, it has diurnal variation during calm periods (Cheng and Tyler 1973).

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 of Lake Crescent is 7 (Heffer 2003).

4.4.7 - Water salinity

Fresh (<0.5 g/l) ☑

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

Unknown ☐

(ECD) Dissolved gases in water

Dissolved oxygen has been found in the past to be at saturation (Cheng and Tyler 1973).

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):

Lake Crescent and Lake Sorell are mesotrophic systems (Uytendaal 2003b). Diatoms dominate the phytoplankton biomass in Lake Crescent, in both absolute and relative abundance (Uytendaal 2003a). Few macrophytes occur in the open water of Lake Crescent as they are limited by light attenuation caused by high levels of turbidity. Changes in the light climate of a shallow lake have a strong influence on algal growth and sediment re-suspension dynamics have an impact on algal biomass and community composition (Uytendaal 2003a). Sediment re-suspension has also been shown to influence phosphorus concentration in the water column (Uytendaal 2003a).

(ECD) Water conductivity	The conductivity of Lake Crescent is 200 µS/cm (Heffer 2003a).

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 catchment is used for agriculture, residential and forestry.

Water extraction for human and agriculture use can impact the site. Water from the site is used for seasonal irrigation. The area around lakes Sorell and Crescent has historically had a very low human population. However, a sub-division of approximately seventy lots has been developed along the adjacent western shoreline. This could introduce pollutants to the lake.

The catchment has traditionally been used for forestry activities. Forestry activities such clearing of native vegetation, partial harvesting or plantation establishment could impact the site. An end to native logging is planned in Tasmania for 2025.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Low
Fresh water	Water for irrigated agriculture	Medium
Fresh water	Drinking water for humans and/or livestock	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Erosion protection	Soil, sediment and nutrient retention	Low

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Medium
Spiritual and inspirational	Spiritual and religious values	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	Medium

Optional text box to provide further information

Provisioning services include fresh water supply (downstream domestic supply and irrigation).

Regulating services include sediment deposition and retention (sediment trap).

Cultural services include recreation and tourism (trout fishing) and spiritual and inspirational (Aboriginal associations and education).

Supporting services include threatened wetland species, habitats and ecosystems (breeding/spawning area for golden galaxias), natural or near-natural wetland ecosystems (regional example of mid-altitude temperate wetland communities and component species), biodiversity (habitat for endemic and threatened species and plankton dominated aquatic community, including unusual diatom communities).

The first people to live on the shores of the lakes were from the Big River nation. The Pangerninghe people as well as other Big River bands lived and travelled in this area. There are many significant cultural sites around both lakes. Today Aboriginal people continue to undertake trips to the area to view sites and to re-connect and maintain their long association with the land.

Additional detail can be found in the Ecological Character Description attached to this Ramsar Information Sheet.

Within the site: 3000

Outside the site: unknown

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

<no data available>

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
Public land (unspecified)	☑	☐

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	☑	☑

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

The land within the Interlaken Ramsar site is mostly Crown land, with a number of small privately owned parcels of land. Land in the surrounding area is privately owned. The Department of Natural Resources and Environment Tasmania (DNRE) is the managing authority responsible for the reserve. Recreational and commercial fishing activities within lakes Crescent and Sorell are managed by the Inland Fisheries Service. DNRE administers the Lakes Sorell and Crescent Water Management Plan 2005 that includes the management of lake levels for environmental and downstream use purposes.

5.1.2 - Management authority

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

Department of Natural Resources and Environment Tasmania

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

No direct contact available. Enquiries to the Tasmanian government can be made at: nre.tas.gov.au/contact-us

Postal address:

GPO Box 44
HOBART, Tasmania 7001, Australia
Telephone: +61 1300 368 550

5.2 - Ecological character threats and responses (Management)

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

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Housing and urban areas	Low impact	Low impact	☐	No change	☑	increase

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Water abstraction	Low impact	Medium impact	☑	No change	☐	No change

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Wood and pulp plantations	Low impact	Low impact	☐	No change	☑	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	Low impact	Medium impact	☑	No change	☑	No change

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Household sewage, urban waste water	Low impact	Low impact	☐	No change	☑	No change

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Droughts	Medium impact	Medium impact	☑	No change	☐	No change

Please describe any other threats (optional):

The principal threat to the ecological character of Interlaken Lakeside Reserve and the entire lakes Sorell and Crescent ecosystem is limited water inflows and unregulated water extraction for downstream use. While fluctuation in water level is characteristic of this system, extreme drying out (or water-logging) over an extended period is a major threat to the site's ecological character. It has the potential to impact wetland vegetation, water quality and fauna habitat, particularly for the golden galaxias.

Other threats include:
• Forestry activities adjacent to wetland such as clearing of native vegetation, partial harvesting or plantation establishment
• Water extraction for human and agricultural use
• Increase in terrestrial or exotic flora
• Unregulated management of the recreational trout fishery
• Introduction of other exotic fish species
• Presence of chytrid fungus
• Introduction of didymo (Didymosphenia geminata)

5.2.2 - Legal conservation status

<no data available>

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 ☐

<no data available>

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Species

Measures	Status
Control of invasive alien plants	Implemented
Control of invasive alien animals	Implemented

Human Activities

Measures	Status
Management of water abstraction/takes	Implemented

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.

Water in the system is managed under the Lakes Sorell and Crescent Water Management Plan 2005 and the River Clyde Catchment Water Management Plan 2017.

Tasmania (NRM South) has previously undertaken and supported actions to maintain or improve the condition and/or ecological character of the Interlaken Ramsar wetland, including:
• an environmental fencing project to protect the wetlands from stock grazing during dry conditions.
• a flora survey and vegetation condition assessment to improve knowledge of native vegetation values and condition at the wetland to assist in the management of the Reserve. A follow-up vegetation condition assessment was completed in 2015 to identify changes in in vegetation condition and assess the impact of weeds control works.
• participation in a Central Highland Weed control partnership. This included gorse control and treatment of Orange Hawkweed on Crown Land at Interlaken.
• development of a five year Weed Management Plan specifically for the Crown Land and public reserve at Dago Point.
• 2018 targeted weed control at Tasmanian Land Conservancy Interlaken properties.
• Production of the 2022-2030 Natural Resource Management Strategy for Southern Tasmania (2022-2030 Strategy). The 2022-2030 Strategy identifies Interlaken as an important freshwater wetland habitat in the region and as an ongoing priority for investment and on-ground action.

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 ◉

5.2.6 - Planning for restoration

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

5.2.7 - Monitoring implemented or proposed

<no data available>

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

A Bibliography has been attached at 6.1.2 additional reports vi. other published literature

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:

--- (---, *14-03-2016*)

Interlaken (Lake Crescent) Ramsar site - Lake Crescent (*Jim Mollison, 05-11-2009*)

Interlaken (Lake Crescent) Ramsar site (*Jim Mollison, 01-05-2013*)

Interlaken (Lake Crescent) Ramsar site - Lake Crescent (*Jim Mollison, 05-11-2009*)

Interlaken Ramsar site interpretation sign (*Erin Kirsch, 10-06-2024*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation: 1982-11-16