Ramsar Information Sheet

Update version, previously published on : 29 August 2001

Australia

Edithvale-Seaford Wetlands

Designation date	29 August 2001
Site number	1096
Coordinates	38°04'26"S 145°08'05"E
Area	261,00 ha

https://rsis.ramsar.org/ris/1096
Created by RSIS V.1.6 on - 3 February 2020

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

1.1 - Summary description

Please provide a short descriptive text summarising the key characteristics and internationally important aspects of the site.
You may prefer to complete the four following sections before returning to draft this summary.

Summary

(This field is limited to 2500 characters)

The Edithvale-Seaford Wetlands Ramsar Site consists of two separate wetland areas (Edithvale Wetland and Seaford Wetland) which are remnants of the once much more extensive Carrum Carrum Swamp. The Ramsar site also includes predominantly dryland areas surrounding the main wetlands. The site is now modified and acts a flood control/stormwater basin for the surrounding urban areas. The wetlands are actively managed by Melbourne Water for biodiversity values, particularly waterbirds. The interactions of hydrology and vegetation provide a mosaic of habitats. The site is internationally significant for supporting two threatened waterbird species: Australasian bittern (Botaurus poiciloptilus) and curlew sandpiper (Calidris ferruginea). The site regularly supports eight international migratory shorebirds in the East Asian-Australasian Flyway, including > 1% of the population of the sharp-tailed sandpiper (Calidris acuminata). A number of waterbirds regularly breed at the site, including black swan (Cygnus atratus), chestnut teal (Anas castanea), blue-billed duck (Oxyura australis), dusky moorhen (Gallinula tenebrosa) and purple swamphen (Porphyrio porphyrio). There are also records of wetland dependent raptors (swamp harrier; Circus approximans) and other wetland dependent birds (e.g. clamorous reed warbler; Acrocephalus stentoreus) breeding in the site.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Name	Janet Holmes
Institution/agency	Department of Environment, Land, Water and Planning
Postal address *(This field is limited to 254 characters)*	8 Nicholson St, East Melbourne, Victoria 3002
E-mail	janet.holmes@delwp.vic.gov.au
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Fax	

Compiler 2

Name	
Institution/agency	
Postal address *(This field is limited to 254 characters)*	
E-mail	
Phone	
Fax	

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

From year	1994
To year	2016

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Edithvale-Seaford Wetlands
Unofficial name (optional)	

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) The boundary has been delineated more accurately	☐
(Update) The boundary has been extended	☐
(Update) The boundary has been restricted	☐
(Update) B. Changes to Site area	No change to area
(Update) The Site area has been calculated more accurately	☐
(Update) The Site has been delineated more accurately	☐
(Update) The Site area has increased because of a boundary extension	☐
(Update) The Site area has decreased because of a boundary restriction	☐

Important note: If the boundary of the designated site is being restricted/reduced, before submitting this updated RIS to the Secretariat the Contracting Party should have followed:
- the requirements in Article 2.5 of the Convention; or
- the procedures established by the Conference of the Parties in the annex to Resolution VIII.20 (2002); or
- where appropriate instead, the procedures in the annex to Resolution IX.6 (2005). Contracting Parties should also have provided to the Secretariat a report on changes prior to the submission of an updated RIS.

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) Are the changes	Positive ○ Negative ○ Positive & Negative ◉

What extent of the Ramsar site is affected (%)

(Update) Positive %

(Update) Negative %

(Update) No information available ☐

(Update) Optional text box to provide further information

(This field is limited to 2000 characters)

A review, based on a more rigorous application of the Ramsar guidance, indicates that the Site continues to meet criteria 2 and 6 as per the original RIS. It is no longer considered to meet criteria 1, and does meet criteria 4.
Justification for the site not meeting Criteria 1:
The appropriate bioregion for the site is the South East Coast (Victoria) drainage division. There is no comprehensive wetland inventory for this bioregion. As such the application of the terms “representative” and “rare” are difficult.
The Edithvale-Seaford wetlands are remnants of what was once the Carrum Carrum Swamp, a large freshwater wetland, largely drained in the late 19th century. The wetlands are highly modified. It is difficult to make the argument that these sites are rare, representative or near-natural. As such, the site does not meet this criterion and did not meet it at the time of listing.

Justification of the site meeting criteria 4:
A review of wetland criteria in 2012 provided evidence that the site met, and continues to meet this criterion as it supports wetland-dependent species during the critical lifecycle stages of migration and breeding.

Are changes the result of (tick each category which applies):

(Update) Changes resulting from causes operating within the existing boundaries? ☐

(Update) Changes resulting from causes operating beyond the site's boundaries? ☐

(Update) Changes consequent upon site boundary reduction alone (e.g., the exclusion of some wetland types formerly included within the site)? ☐

(Update) Changes consequent upon site boundary increase alone (e.g., the inclusion of different wetland types in the site)? ☐

(Update) Please describe any changes to the ecological character of the Ramsar Site, including in the application of the Criteria, since the previous RIS for the site.

(This field is limited to characters)

(Update) Is the change in ecological character negative, human-induced AND a significant change (above the limit of acceptable change) Yes ○ No ◉

(Update) Has an Article 3.2 report been submitted to the Secretariat? Yes ○ No ◉

2.2 - Site location

2.2.1 - Defining the Site boundaries

a) GIS boundaries *link*

Materials presented on this website, particularly maps and territorial information, are as-is and as-available based on available data and do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Ramsar Convention concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

b) Digital map/image

AU1096_map1606.png

Former maps

<no file available>

Boundaries description

(This field is limited to 2500 characters)

The boundary description is attached at 6.1.2.vi

Coordinates of the centre of the site, as automatically estimated from the GIS boundaries (for information only)

2.2.2 - General location

a) In which large administrative region does the site lie? Port Phillip and Westernport Catchment Management Area

b) What is the nearest town or population centre? Melbourne

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 ◉

c) Is the site part of a formal transboundary designation with another Contracting Party? Yes ○ No ◉

d) Transboundary Ramsar Site name:

2.2.4 - Area of the Site

If you have not established an official area by other means, you can copy the area calculated from the GIS boundaries into the 'official area' box.

Official area, in hectares (ha): 261

Area, in hectares (ha) as calculated from GIS boundaries: 261.53

2.2.5 - Biogeography

Please provide the biogeographic region(s) encompassing the site and the biogeographic regionalization scheme applied:

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Freshwater Ecoregions of the World (FEOW)	Eastern Coastal Australia

Other biogeographic regionalisation scheme

(This field is limited to 2500 characters)

Biogeographic regionalisation Scheme: Australian Drainage Divisions
Biographic region: South East Coast (Victoria) Drainage Division

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Tick the box against each criterion applied to the designation of the Ramsar Site. All criteria which apply should be ticked.
Please explain why you selected a criterion by filling in the relevant fields on this page, on the three other pages of this section 'Criteria & justification' and on the 'Wetland types' page of the section 'What is the site like?'. More guidance on how to justify a criterion will appear when you tick it as well as in the help box.

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

To justify this Criterion, please select at least one wetland type as representative, rare or unique in the section What is the site like? > Wetland types and provide further details in at least one of the three boxes below.

Hydrological services provided
(This field is limited to 3000 characters)

Other ecosystem services provided
(This field is limited to 3000 characters)

Other reasons
(This field is limited to 3000 characters)

☑ Criterion 2 : Rare species and threatened ecological communities

Justification,see: - relevant plant species in the section Criteria & justification> Plant species (3.2) - relevant animal species in the section Criteria & justification> Animal species (3.3) - relevant ecological communities in the section Criteria & justification> Ecological communities (3.4)

Optional text box to provide further information
(This field is limited to 3000 characters)

This criterion is only applied to wetland dependent flora and fauna that are regularly supported at a Ramsar site. The site regularly supports two fauna species listed under the EPBC Act and or IUCN Red List:
• Australasian bittern (Botaurus poiciloptilus) – Endangered (EPBC and IUCN)
• Curlew sandpiper (Calidris ferruginea) – Critically endangered (EPBC).
The curlew sandpiper was only listed as critically endangered under the EPBC Act in 2015 and, hence was not identified as meeting this criterion in DSE (2012).
Two other nationally threatened species have been recorded in the site but are not regularly supported. There is a single record of the Australian painted snipe (Rostratula australis) from Edithvale in 2008 (BirdLife Australia unpublished data) and a record of two growling grass frogs (Litoria raniformis) from 1988.

☐ Criterion 3 : Biological diversity

Justification,see: - relevant plant species in the section Criteria & justification> Plant species (3.2) - relevant animal species in the section Criteria & justification> Animal species (3.3)

Justification
(This field is limited to 3000 characters)

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

Justification,see: - relevant plant species in the section Criteria & justification> Plant species (3.2) - relevant animal species in the section Criteria & justification> Animal species (3.3) and explain the life cycle stage or nature of adverse conditions in the accompanying 'justification' box.

Optional text box to provide further information
(This field is limited to 3000 characters)

Criterion 4 was not considered to have been met in DSE (2012). However, there is evidence that the site met, and continues to meet, this criterion as it supports wetland-dependent species during the critical lifecycle stages of migration and breeding.

Twenty species of waterbirds listed under international migratory agreements have been recorded within the Ramsar site. This number includes species that, in Australia, are residents (e.g. eastern great egret) and a number of migratory species that are occasionally recorded at the site. There are eight species of international migratory shorebirds that are regularly supported (two thirds of seasons) by the Edithvale-Seaford Wetlands Ramsar Site. There are records of over 20 species of waterbird breeding within the Ramsar site (Silcocks et al. 2006, Silcocks and O'Connor 2009, 2009, Silcocks 2013). The most commonly recorded breeding waterbird species are black swan (Cygnus atratus), chestnut teal (Anas castanea), blue-billed duck (Oxyura australis), dusky moorhen (Gallinula tenebrosa) and purple swamphen (Porphyrio porphyrio). There are also breeding records of wetland dependent raptors (e.g. swamp harrier; Circus approximans) and other wetland dependent birds (e.g. clamorous reed warbler; Acrocephalus stentoreus) breeding in the site (BirdLife Australia unpublished data).

☐ Criterion 5 : >20,000 waterbirds

Justification,see:- the total number of waterbirds and the period of data collection - relevant waterbird species, and if possible their population size, in the section Criteria & justification> Animal species (3.3)

Overall waterbird numbers

Start year

End year

Source of data:

Optional text box to provide further information
(This field is limited to 3000 characters)

☑ Criterion 6 : >1% waterbird population

Justification,see:Criteria & justification> Animal species (3.3)

Optional text box to provide further information
(This field is limited to 3000 characters)

☐ Criterion 7 : Significant and representative fish

Justification,see:Criteria & justification> Animal species (3.3)

Justification
(This field is limited to 3000 characters)

☐ Criterion 8 : Fish spawning grounds, etc.

To justify this Criterion, please give information in the box below. Completion of details on relevant fish species in the section Criteria & justification> Animal species (3.3) is optional.

Justification
(This field is limited to 3000 characters)

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

To justify this Criterion, please give details on relevant non-avian species and their population size in the section Criteria & justification> Animal species (3.3)

Optional text box to provide further information
(This field is limited to 3000 characters)

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

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<no data available>								

Optional text box to provide further information on plant species of international importance:

(This field is limited to 3000 characters)

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

Phylum	Scientific name	Common 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								
Birds																		
CHORDATA / AVES	*Anas castanea*	Chestnut Teal	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Botaurus poiciloptilus*	Australasian Bittern	☑	☐	☑	☐	☐	☐	☐	☐	5	1994-2015	1	EN	☐	☐	EPBC - endangered	Site provides winter feeding habitat. Population size calculated from maximum annual abundance 1994 to 2015.
CHORDATA / AVES	*Calidris acuminata*	Sharp-tailed Sandpiper	☐	☑	☑	☐	☐	☐	☐	☐	1870	1994-2015	1	LC	☐	☐		Non-breeding foraging habitat for international migratory species. Population size calculated from maximum annual abundance 1994 to 2015
CHORDATA / AVES	*Calidris ferruginea*	Curlew Sandpiper	☑	☑	☐	☐	☐	☐	☐	☐				NT	☐	☐	EPBC - critically endangered	Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Calidris melanotos*	Pectoral Sandpiper	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Calidris ruficollis*	Red-necked Stint	☐	☑	☐	☐	☐	☐	☐	☐				NT	☐	☐		Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Circus approximans*	Swamp Harrier	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Cygnus atratus*	Black Swan	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Gallinago hardwickii*	Latham's Snipe	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Gallinula tenebrosa*	Dusky Moorhen	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Oxyura australis*	Blue-billed Duck	☐	☑	☐	☐	☐	☐	☐	☐				NT	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Porphyrio porphyrio*	Purple Swamphen	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Regularly breeds within the site
CHORDATA / AVES	*Tringa glareola*	Wood Sandpiper	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Tringa nebularia*	Common Greenshank	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Non-breeding foraging habitat for international migratory species
CHORDATA / AVES	*Tringa stagnatilis*	Marsh Sandpiper	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Non-breeding foraging habitat for international migratory species

1) Percentage of the total biogeographic population at the site

Optional text box to provide further information on animal species of international importance:

(This field is limited to 3000 characters)

The site is an important non-breeding refuge for the endangered Australasian Bittern, but data is lacking on the proportion of the population that utilizes the wetland for this purpose. Within the Ramsar site the species inhabits emergent vegetation, but there is a balance between having sufficient cover and the vegetation being too dense for effective foraging. The site is important for waders, which are the most numerous birds at the site.

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

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
<no data available>			

Optional text box to provide further information

(This field is limited to 3000 characters)

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

4.1 - Ecological character

Please summarize the ecological components, processes and services which are critical to determining the ecological character of the site. Please also summarize any natural variability in the ecological character of the site, and any known past or current change

(This field is limited to 4000 characters)

The Edithvale-Seaford Wetlands were listed in 2001, primarily for their waterbird values. There are four components, processes and services critical to the ecological character of the Ramsar site:
Waterbird diversity and abundance - 75 species of wetland dependent birds have been recorded in the site and annual maximum counts are around 5000. The site regularly supports eight species listed under international migratory agreements, including > 1% of the population of sharp-tailed sandpipers.
Waterbird breeding - there are records of over 20 species of waterbird breeding within the Ramsar site (Silcocks et al. 2006, Silcocks and O'Connor 2009, Silcocks 2013). The most common species are black swan (Cygnus atratus) and a range of ducks such as chestnut teal (Anas castanea) and blue-billed duck (Oxyura australis). There are also records of wetland dependent raptors (swamp harrier; Circus approximans) and other wetland dependent birds (e.g. clamorous reed warbler; Acrocephalus stentoreus) breeding in the site (BirdLife Australia unpublished data). Black swan (Cygnus atratus) , Blue-billed duck (Oxyura australis), Chestnut teal (Anas castanea), Dusky moorhen (Gallinula tenebrosa, Purple swamphen (Porphyrio porphyrio) and Swamp harrier (Circus approximans) breed in more than two thirds of seasons.
Physical habitat waterbirds - the site comprises a mosaic of habitats that support a wide variety of waterbirds, these habitats include deeper open water, shallow open water, exposed mudflats, emergent marsh vegetation, open pasture and fringing woody vegetation.
Threatened wetland species - the site regularly supports two threatened waterbird species; Australasian bittern (Botaurus poiciloptilus) (recorded in 95% of seasons) and curlew sandpiper (Calidris ferruginea) (recorded in 68% of seasons).
There has been no unacceptable change in these critical components, processes and services since listing in 2001.

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

Please list all wetland types which occur on the site, and for each of them:
- rank the four most abundant types by area from 1 (greatest extent) to 4 (least extent) in the third column,
- if the information exists, provide the area (in ha) in the fourth column
- if this wetland type is used for justifying the application of Criterion 1, indicate if it is representative, rare or unique in the last column
- you can give the local name of the wetland type if different from the Ramsar classification system in the second column

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
<no data available>				

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 >> P: Seasonal/ intermittent freshwater lakes		4	1	
Saline, brackish or alkaline water > Marshes & pools >> Ss: Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools		2	11	
Fresh water > Lakes and pools >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		1	116	
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands		3	4	

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
<no data available>				

What non-wetland habitats are within the site?

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Damp sands herb rich woodland	61
Other terrestrial vegetation	69

idem

(ECD) Habitat connectivity	The site comprises two seperate wetland areas: Edithvale Wetlands and Seaford Wetlands that are approximatley 6 kilometres apart.

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Phragmites australis	common reed	Invasive native species
Typha orientalis	cumbungi	Invasive native species

Invasive alien plant species

Scientific name	Common name	Impacts	Changes at RIS update
Juncus acutus	spiny rush	Actually (minor impacts)	No change

Optional text box to provide further information

(This field is limited to 2500 characters)

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
<no data available>						

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	Changes at RIS update
CHORDATA/MAMMALIA	*Felis catus*	Domestic Cat	Actually (minor impacts)	No change
CHORDATA/MAMMALIA	*Vulpes vulpes*	Red Fox	Actually (minor impacts)	No change

Optional text box to provide further information

(This field is limited to 2500 characters)

4.4 - Physical components

4.4.1 - Climate

Please indicate the prevailing climate type(s) by selecting below the climatic region(s) and subregion(s), using the Köppen-Gieger Climate Classification System.

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Csb: Mediterranean (Mild with dry, warm summer)

If changing climatic conditions are affecting the site, please indicate the nature of these changes:

(This field is limited to 1000 characters)

Site specific scenarios for Edithvale and Seaford were made in 2015 as part of a state-wide assessment of climate change impacts to coastal wetlands (DELWP 2016a and DELWP 2016b).
These assessments are based on Grose et al. (2015) modelling of moderate (RCP 4.5) and worse case (RCP 8.5) responses to climate change. As outlined in Quinn et al. (2016), under both scenarios Edithvale and Seaford wetlands are highly exposed to the key components including:
- increased eustatic sea level;
- increased storm surge activity;
- higher temperatures;
- lower average rainfall;
- changes in seasonal rainfall with strong declines in winter and spring; and
- overall, more variable rainfall.
Sea level rise modelling shows increasing levels of inundation over the course of this century, with almost total inundation of both wetlands by 2100.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 0

a) Maximum elevation above sea level (in metres): 1

b) Position in landscape/river basin:

- 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.
(This field is limited to 1000 characters)

The Edithvale-Seaford Wetlands are located within 3 kilometres of the coast of Port Phillip Bay. Edithvale-Seaford is within a highly urban catchment and receives stormwater from surrounding urban landscapes.

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)
(This field is limited to 1000 characters)

The soils at both Edithvale and Seaford Wetlands consisted of a peat layer. However, the northern depressions of Edithvale North Wetland were excavated into underlying sands in 1987. In 1988, similar excavations at the southern end of Seaford Swamp broke through the peat layer into acid-sulfate soils which caused salinisation and lowered pH. With the addition of lime and the oxidation process declining with time, pH was 4.8 – 5.0 in 2005. In the remainder of Seaford Wetland the peat layer remains relatively intact.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	
Usually seasonal, ephemeral or intermittent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	☑	No change
Water inputs from groundwater	☐	No change

Water destination

Presence?	Changes at RIS update
<no data available>	

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:

(This field is limited to 2000 characters)

The site is used for stormwater storage and retention, with the water regime managed within those constraints to maintain ecological character and the mosaic of habitats. A 2011 environmental water requirements study indicated that the water regime at the Edithvale wetland cells largely met the requirements of ecological character. The then more stable shallow water conditions at Seaford Wetland were resulting in an expansion of emergent vegetation and a loss of waterbird foraging habitat. Water management now aims to inundate to full level in winter with a gradual drawdown over late spring and summer. For more information see the ECD section 6.1

(ECD) Connectivity of surface waters and of groundwater	Groundwater from marine aquifers are hydraulically connected to regional water table at Seaford Wetland. Stormwater inputs periodically flush shallow groundwater maintaining freshwater conditions.
(ECD) Stratification and mixing regime	The sites are predominantly shallow and well mixed. Some temporary stratification occurs in the deeper pools.

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site ☐

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

Significant accretion or deposition of sediments occurs on the site ☐

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

Significant transportation of sediments occurs on or through the site ☐

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

Sediment regime is highly variable, either seasonally or inter-annually ☐

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

Sediment regime unknown ☐

Please provide further information on sediment (optional):

(This field is limited to 1000 characters)

Stormwater is the primary source of sediments to the wetlands.

(ECD) Water turbidity and colour	Median turbidity levels have generally not above 50 NTU, occasional recordings above 50 NTU in Seaford Wetland cells
(ECD) Light - reaching wetland	No information available
(ECD) Water temperature	No information available

4.4.6 - Water pH

Acid (pH<5.5) ☑

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

Circumneutral (pH: 5.5-7.4) ☑

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

Alkaline (pH>7.4) ☑

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

Unknown ☐

Please provide further information on pH (optional):

(This field is limited to 1000 characters)

The site maintains a pH of between 6 and 8 under most circumstances. Periodically low pH (4) is recorded when water levels are low and acid sulfate soils are exposed which occurs in two of the Seaford wetland cells. Low pH observations are typically recorded between August and November during the wetting cycle of these cells.

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 ○

Hyperhaline/Hypersaline (>40 g/l) ☐

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

Unknown ☐

Please provide further information on salinity (optional):

(This field is limited to 1000 characters)

Salinity at the site has risen, but this occurred mostly prior to the time of listing. Salinity is higher at Seaford Wetland than Edithvale Wetland. Salinity rises as water levels drop and salts become concentrated in a residual pool of water. Saline groundwater also intrudes into some wetland cells in the site when surface water levels in the cells are low. Stormwater inflows increase fresh conditions and lower salinity levels.

(ECD) Dissolved gases in water

(This field is limited to 1000 characters)

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic ☑

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

Mesotrophic ☐

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

Oligotrophic ☐

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

Dystrophic ☐

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

Unknown ☐

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

(This field is limited to 1000 characters)

The Edithvale-Seaford Wetlands are located within a highly urbanised area and the dominant water source for the system is stormwater and drainage water. Urban water sources are known to be high in nutrient and sediment loads, particularly carried in the first flushes after heavy rainfall (ANZECC and ARMCANZ 2000). Monitoring of water column nutrient concentrations indicates periodic eutrophic conditions at both Seaford and Edithvale Wetlands. However, this is not surprising for urban wetlands receiving primarily stormwater inflows and there is no indication of a sustained rising trend.

(ECD) Dissolved organic carbon: No information available

(ECD) Redox potential of water and sediments: No information available

(ECD) Water conductivity: No information available

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 ◉

If the surrounding area differs from the Ramsar Site, please indicate how: (Please tick all categories that apply)

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:

(This field is limited to 2000 characters)

The catchment of the Edithvale-Seaford Wetland is highly urbanised. Connectivity of flow has been progressively disrupted since European settlement due to drainage of natural water courses, and a high degree of modification of surface water flows. At the time of Ramsar listing in 2001 and now, surface inflows to the wetlands are primarily from drains, many of which are controlled. Groundwater inflows are now much more significant due to wetland excavations in the late 1980s and drainage from residential areas at Seaford Wetland. Outflows are also controlled as are flows between wetland cells.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Please select below all relevant ecosystem services/benefits currently provided by the site and indicate their relative importance in the right-hand column.

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
<no data available>		

Regulating Services

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

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Major scientific study site	High

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	High

Optional text box to provide further information

(This field is limited to 2500 characters)

Other ecosystem service(s) not included above:

(This field is limited to 2000 characters)

Physical habitat for waterbirds:
Hydrology and vegetation type have been identified as the most important habitat components for supporting waterbirds at the Ramsar site (Tzaros and Silcocks 2004). The wetlands have been divided into habitat zones and three zones are considered most important for waterbirds (Quinn et al. 2016):

Edithvale
• Edithvale North 1 - deeper water for a number of duck species, surrounded by tall reeds; and
• Edithvale South 1 – shallow wetlands that are seasonally dry providing foraging habitat for shorebirds, grading to tall marsh at the fringes, providing cover for species such as Australasian bittern and Latham's snipe.

Seaford (Figure 5):
• North 2 Pool, Seaford Central West 1 and Seaford Central East 2 – mosaic of deeper water, tall marsh, deeper saline ponds important for all wetland bird species.

The mosaic nature of the habitat is what supports the broad range of species.

Please make a rough estimate of the approximate number of people who directly benefit from the ecological services provided by this site (estimate at least in orders of magnitude: 10s, 100s, 1000s, 10 000s etc.):

Within the site: 0

Outside the site: 10,000s

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

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature):

(This field is limited to 2500 characters)

4.5.2 - Social and cultural values

Is the site considered internationally important for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? If so, please describe this importance under one or more of the four following categories. You should not list here any values derived from non-sustainable exploitation or which result in detrimental ecological changes.

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 ☐

Description if applicable

(This field is limited to 2500 characters)

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

Description if applicable
(This field is limited to 2500 characters)

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

Description if applicable
(This field is limited to 2500 characters)

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 ☐

Description if applicable
(This field is limited to 2500 characters)

4.6 - Ecological processes

This section is not intended for completion as part of a standard RIS, but is included for completeness as part of the agreed format of a 'full' Ecological Character Description (ECD) outlined by Resolution X.15

(ECD) Primary production	No information available
(ECD) Nutrient cycling	In the Edithvale South Wetlands, as the wetlands dry in late summer and autumn, lush growth of Salt Club-rush (Bolboschoenus caldwellii) occurs. The species that sustains nutrient cycling in these cells.
(ECD) Carbon cycling	No information available
(ECD) Animal reproductive productivity	There are records of over 20 species of waterbird breeding within the Ramsar site.
(ECD) Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc.	Phragmites australis and Typha spp. have been expanding reducing floristic diversity and changes the structure of the vegetation from an open wetland to a dense, tall sward.
(ECD) Notable species interactions, including grazing, predation, competition, diseases and pathogens	No information available
(ECD) Notable aspects concerning animal and plant dispersal	No information available
(ECD) Notable aspects concerning migration	Eleven migratory species are recorded at the site, 8 of these species being regularly recorded.
(ECD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	Edithvale and Seaford Wetlands will also become more saline over time with eustatic sea level rise exacerbating tidal intrusions. Rising salinity is likely to result in shifts from freshwater to more saline tolerant conditions.

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
Local authority, municipality, (sub)district, etc.	☐	☑
Provincial/region/state government	☑	☐

Private ownership

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

Other

Category	Within the Ramsar Site	In the surrounding area
<no data available>		

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

(This field is limited to 1000 characters)

Edithvale Wetland consists of freehold land which is owned and managed by Melbourne Water. Seaford Wetland consists of freehold land owned by Melbourne Water and a Crown land conservation reserve for which Melbourne Water has formal management responsibility.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:
(This field is limited to 1000 characters)

Melbourne Water
990 LaTrobe Street, Docklands, VIC 3008

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

William Steele, Senior Biodiversity Scientist, Integrated Planning

Postal address:
(This field is limited to 1000 characters)

PO Box 4342 Melbourne VIC 3001

E-mail address:

william.steele@melbournewater.com.au

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	High impact	☐	No change	☑	increase

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage			☑		☐	
Salinisation			☑		☐	

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
<no data available>						

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
<no data available>						

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
<no data available>						

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
<no data available>						

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	Low impact	High impact	☑	increase	☑	increase

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Fire and fire suppression	Low impact	High 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
Problematic native species	Medium impact	High impact	☑	increase	☐	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	High impact	☑	No change	☐	No change

Geological events

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
<no data available>						

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			☐		☑	

Please describe any other threats (optional):

(This field is limited to 3000 characters)

Invasive weed species which threaten the wetlands include:
- non native species - spiny rush (Juncus acutus subsp. acutus) (medium risk)
- native species - Phragmites australis and Typha spp. (high risk)

Invasive animal species which threaten the wetlands include: foxes, cats, rats (extreme risk), pigs and rabbits (medium risk) and mosquitofish (unspecified risk)
(Quinn et al. 2016)

5.2.2 - Legal conservation status

Please list any other relevant conservation status, at global, regional or national level and specify the boundary relationships with the Ramsar Site:

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
<no data available>			

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
<no data available>			

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
<no data available>			

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Carrum Wetlands IBA	http://www.birdlife.org/datazone/sitefactsheet.php?id=24547	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

Habitat

Measures	Status
Improvement of water quality	Implemented
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Implemented

Species

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

Human Activities

Measures	Status
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

Other:

(This field is limited to 3000 characters)

The Edithvale-Seaford Wetlands Ramsar site is actively managed by Melbourne Water, which has instigated a large number of monitoring and management activities since the last Ramsar Rolling Review in 2011. This includes:
• Monthly monitoring of birds by BirdLife Australia
• Development and implementation of a kangaroo management plan
• Development and implementation of a fire management plan for the Seaford portion of the site
• Assessment of the hydrology of the site and hydrology works at Seaford
• Water quality review
• Assessment of vegetation condition and weed mapping
• Active vegetation mapping including weed control and control of native invasive wetland species
• Active community engagement and participation through the Edithvale-Seaford Wetlands Community Liaison Committee

Being a Ramsar site, the wetland is offered legal protection from development pressures under the EPBC act, however it does not classify under any other legal conservation status

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Is the management plan/planning implemented? Yes ◉ No ○

The management plan covers All of Ramsar Site

Is the management plan currently subject to review and update? Yes ○ No ◉

Has a management effectiveness assessment been undertaken for the site? Yes ◉ No ○

Please give link to site-specific plan or other relevant management plan if this is available via the Internet or upload it in section 'Additional material':

(This field is limited to 500 characters)

Uploaded in additional material section

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:

(This field is limited to 1000 characters)

Edithvale-Seaford Wetland Education Centre https://www.melbournewater.com.au/getinvolved/education/programs/eswdc/pages/edithvale-seaford-wetla nd-discovery-centre.aspx

URL of site-related webpage (if relevant):

5.2.6 - Planning for restoration

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

Has the plan been implemented? Yes ○ No ◉

The restoration plan covers: All of Ramsar Site

Is the plan currently being reviewed and updated? Yes ○ No ◉

Where the restoration is being undertaken to mitigate or respond to a threat or threats identified in this RIS, please indicate it / them:

(This field is limited to 1000 characters)

Active management of hydrology, water quality, invasive species and re-vegetation occurs at the site. There are additional issue specific plans developed and implemented by Melbourne Water such as: kangaroo management plan, fire management plan, invasive plants management plans.

Further information

(This field is limited to 2500 characters)

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Plant community	Implemented
Plant species	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

Please indicate other monitoring activities:

(This field is limited to 3000 characters)

Monthly monitoring of birds at the site since 2003;
Monitoring also of kangaroos, frogs, bats, mosquitoes.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

(This field is limited to 3000 characters)

ANZECC and ARMCANZ (2000) Australian and New Zealand guidelines for fresh and marine water quality. Volume 1, The guidelines. Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand.
Department of Environment, Land, Water and Planning (2016a). Climate change vulnerability and adaptive capacity of coastal wetlands. Decision Support Framework – Volume 1. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
Department of Environment, Land, Water and Planning (2016b). Climate change vulnerability and adaptive capacity of coastal wetlands. Decision Support Framework – Volume Two. Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
Grose, M. et al., 2015, Southern Slopes Cluster Report, Climate Change in Australia Projections for Australia's Natural Resource Management Regions: Cluster Reports, eds. Ekström, M. et al., CSIRO and Bureau of Meteorology, Australia
Quinn, D., Sutton, F., Hale, J., and McMahon, A. (2016). Edithvale-Seaford Wetlands Ramsar Site Management Plan. Melbourne Water, Melbourne, Victoria.
Silcocks, A. (2013). Edithvale and Seaford Wetlands Bird Survey Project 2012-13. Unpublished consultancy report prepared for Melbourne Water. Birds Australia, Melbourne, Victoria.
Silcocks, A.1 Ehmke, G. Tzaros, C. and Weston, M.A. (2006). Edithvale and Seaford Wetlands Bird Survey Project 2003-06. Report No. 3. Final Report 2003-2006. Unpublished consultancy report prepared for Melbourne Water by Birds Australia, Melbourne.
Silcocks, A. and O'Connor, N. (2009). Edithvale and Seaford Wetlands Bird Survey Project 2006-09. Unpublished consultancy report prepared for Melbourne Water. Birds Australia, Melbourne, Victoria.

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)
AU1096ECD.pdf

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>

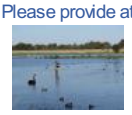
v. site management plan
AU1096_mgt170828.pdf

vi. other published literature
AU1096_lit170825.docx

Please note that any documents uploaded here will be made publicly available.

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Edithvale South Wetland (
Yvette Baker, 01-10-2008)

6.1.4 - Designation letter and related data

Designation letter
AU1096_DesLet181116.pdf

Date of Designation: 2001-08-29