Ramsar Information Sheet

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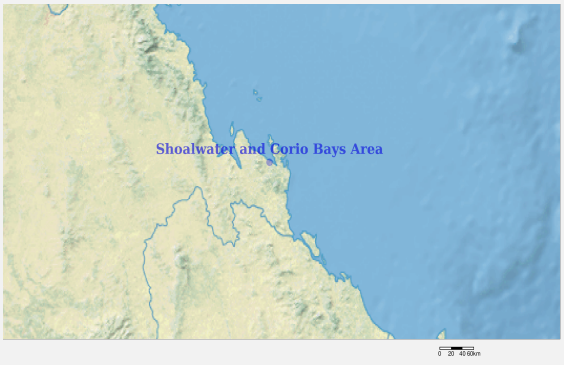
Australia

Shoalwater and Corio Bays Area



Designation date	1 March 1996
Site number	792
Coordinates	22°33'56"S 150°29'41"E
Area	202 023,00 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

Shoalwater and Corio Bays Area Ramsar Site includes approximately 330 km of coastline (including islands) along the central coast of Queensland, Australia. The southern boundary, at Corio Bay, and northern boundary, at Broome Head, are approximately 50 km and 125 km north of Rockhampton, respectively.

The site is part of the largest 'wilderness' area within the Central Queensland Coast Biogeographic Region. It represents a climatic overlap of tropical, sub-tropical and temperate species and supports diverse, extensive and relatively undisturbed wetland systems including subtidal beds, shallow marine waters, coral reefs, intertidal marshes and forests, peatlands, freshwater marshes and pools, sinkholes and springs.

The site contains over 13,000 ha of seagrass beds that are considered to be some of the most extensive on Australia's east coast. These beds provide important feeding grounds for dugongs and green turtles and habitat for fisheries species. Diverse and abundant mangrove communities provide habitat for many species, including nursery areas for fish and roosting and sheltering sites for shorebirds. Extensive freshwater peat swamps in the site are rare within the bioregion and elsewhere in Australia.

The site is biodiverse, housing approximately 908 native plants and native animals comprising 445 fish, 11 frogs, 60 reptiles, 265 birds, and 42 mammals. Globally threatened marine species include the green (Chelonia mydas), hawksbill (Eretmochelys imbricate), flatback (Natator depressus), loggerhead (Caretta caretta) turtles and dugong (Dugong dugong). It is of international importance to listed migratory bird species and regularly supports more than 20,000 waterbirds; many listed under the Japan-Australia Migratory Bird Agreement (JAMBA), China-Australia Migratory Bird Agreement (CAMBA) and/or Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA). Shoalwater Bay is also listed as a Network Site under the East Asian-Australasian Flyway Partnership (Site code EAAF094).

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Compiler 1

Name	Mr Mike Ronan
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2.1.2 - Period of collection of data and information used to compile the RIS

From year	1996
To year	2017

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Shoalwater and Corio Bays Area

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	the area has decreased
(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	☐

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

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<3 file(s) uploaded>

Former maps	0

Boundaries description

The Shoalwater and Corio Bays Area Ramsar Site encompasses three separate sections – Broome Head, Shoalwater Bay and Corio Bay.

The Broome Head section is the most north western area of the site. It includes tidal lands and an adjacent marine area from the southern side of Broome Head to the highest astronomical tide (HAT).

The Shoalwater Bay section of the site includes the Shoalwater Bay Training Area (military training) (SWBTA) from near West Bight, in the northwest, to Five Rocks Beach, along the south eastern coastline. It encompasses estuarine waters and associated intertidal habitats to HAT in the SWBTA. The Shoalwater Bay section extends seaward to the marine boundaries of the SWBTA including Akens Island, Triangular Islands and Skull Island. This section also extends inland from the coast at Cape Manifold to include most of the Dismal Sector of the SWBTA.

The Corio Bay and an adjacent marine area include part of Byfield National Park, along Sandy Point Spit, and Water Park Creek to about 10 km from its connection with the bay. It does not include Water Park Point or the open beach areas of Little Corio Bay.

The boundary of the Broome Head section of the site commences at: (see Additional material section for more detail).

2.2.2 - General location

a) In which large administrative region does the site lie? Livingston Shire, Queensland

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

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): 202023

Area, in hectares (ha) as calculated from GIS boundaries: 202023.46

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	Central Indo-Pacific; Northeast Australian Shelf (33); Central and Southern Great Barrier Reef (143)
Udvardy's Biogeographical Provinces	6.1.1, Australian Realm, Queensland Coastal (Udvardy, 1975)
Bailey's Ecoregions	Province - Seasonally Humid Mixed (Evergreen and Deciduous) Forests (89) (Bailey)
WWF Terrestrial Ecoregions	Tropical and Subtropical Grasslands, Savannah and Shrublands – Brigalow Tropical Savannah (terrestrial); Tropical and Subtropical Moist Broadleaf Forest – Queensland Tropical Rainforests (terrestrial) (WWF)

Other biogeographic regionalisation scheme

Eastern Coastal Australia (807) (FEOW)

Interim Biogeographic Regionalisation for Australia version 7 (IBRA7) (Commonwealth of Australia. 2012) - Terrestrial:
• Australian Drainage Division – North East Coast Drainage Division.
• Brigalow Belt North and Central Queensland Coast Biogeographic Regions.
http://www.environment.gov.au/land/nrs/science/ibra

Interim Marine and Coastal Regionalisation for Australia (IMCRA version 4, June 2006) – Tropical Waters:
• Provincial-scale bioregion – Northeast.
• Meso-scale marine bioregion – Shoalwater Coast.
http://www.environment.gov.au/resource/guide-integrated-marine-and-coastal-regionalisatio n-australia-version-40-june-2006-imcra

Australian Hydrological Geospatial Fabric – Topographic Drainage Divisions and River Regions (Commonwealth of Australia. Bureau of Meteorology. 2012):
• Water Park Creek.
• Shoalwater Creek.
http://www.bom.gov.au/water/about/riverBasinAuxNav.shtml

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

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

Hydrological services provided	The Ramsar Site is a significant regional asset in terms of water supply to the Capricorn Coast and will provide a reserve for freshwater in the future.
Other ecosystem services provided	The Ramsar Site supports a range of ecosystem services driven by interacting climate, geomorphologic and hydrodynamic processes. These ecosystem services include benefits to people such as: • providing nursery habitat of critical importance to regional commercial and recreational fisheries • supporting a range of pristine/near natural wetland environments important for scientific research and assessing the future impacts of climate change • being a part of a broader 'wilderness area' – there is a strong community attitude toward supporting this value.
Other reasons	The Ramsar Site contains 22 marine, estuarine and freshwater Ramsar wetland types that are representative of the North East Coast Drainage Division (from IMBRA 7) of Australia. These include estuarine waters, subtidal beds, shallow marine waters, intertidal marshes and forests, forested and non-forested peatlands, and shrub dominated wetlands. Many of these wetland types are spatially extensive in Shoalwater and Corio Bays Area and form complex assemblages. These wetland types are also unusually good examples within the Drainage Division because of their near-natural state and the relatively undisturbed nature of the catchments flowing through the Ramsar Site. The freshwater peat swamps within the Ramsar Site are rare in the Drainage Division. Major examples of this type of sedge-heath wetland (or 'fens') occur in Dismal Swamp, near Freshwater Beach and in parts of the Clinton Lowlands. Peat-based wetlands are extremely rare in the bioregion, and Australia, and mainly occur in relatively small areas of the coastal sand mass. The Ramsar Site is widely regarded to have 'wilderness' qualities of remoteness and naturalness (Lesslie and Maslen 1995; www.environment.gov.au/node/20141) - the North East Coast Drainage Division of Queensland, south of the Cape York Peninsula otherwise includes coastline that is urbanised or somewhat modified.

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification: The site supports at least 445 fish species, of which 428 are marine and estuarine, and 17 are freshwater (Trnski et al., 1993). The freshwater assemblage represents approximately 35% of the total number of freshwater species in the Northeast Coastal Drainage area (Pusey et al., 2004). The site further supports 22 frog species (Nix, 1972; Habitat, 1974; Schodde et al., 1992; Catling et al., 1994 and DoD, 2009 in BMT WBM, 2010), 60 reptile species, 42 mammal species (including approximately 20 bat species) and 265 bird species.

At least 77 waterbird species have been recorded at the site, including substantial numbers of migratory shorebirds (26 species). This includes breeding by notably species including the resident Australian pied oystercatcher (Haematopus longirostris) and beach stone-curlew (Esacus magnirostris), and raptors such as the eastern osprey (Pandion cristatus). The site also supports the the entire life cycles of a range of frog species, as well as the EPBC listed freshwater fish species honey blue-eye (Pseudomugil mellis).

Eight species of seagrass and thirteen species of mangrove are also known to occur within the site, representing 53% and 37% of the species known to occur in Queensland, respectively (Lee Long et al., 1997; Coles et al., 2004; DoD, 2009; Lovelock, 1999). These communities provide important habitat and nursery grounds for not only fish species but important megafauna species such as dugong (Dugong dugon).

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

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers: >20,000 regularly

Start year: 1995

Source of data: AECOM, 2016; Kingsford & Porter (unpubl. data); Jaensch, 2008a; Driscoll, 1996.

☑ Criterion 6 : >1% waterbird population

☑ Criterion 7 : Significant and representative fish

Justification: The Ramsar Site supports the nationally vulnerable honey blue-eye (Pseudomugil mellis), a small freshwater fish species typically found in acidic, freshwater lakes, pools and small streams with coastal lowland wallum ecosystems. It is endemic to Queensland, with a restricted range extending from Brisbane to Bundaberg (Arthington et al., 1994). The Shoalwater and Corio Bays Area Ramsar Site is one of only a handful of sites that support the species.

☑ Criterion 8 : Fish spawning grounds, etc.

Justification

The waters of the SWBTA support 428 marine and estuarine fish species (Trnski et al. 1993). This represents 12% of Australia's marine fish fauna, and approximately 22% of Australia's northeastern tropics marine fish fauna. Seventeen freshwater fish species were recorded within the boundaries of SWBTA. An additional 8 species were recorded in adjoining streams and it is likely they also occur in SWBTA.

Pusey et al (2004) suggest up to 37 freshwater fish species occur in the catchments of Shoalwater Creek and Water Park Creek, however this does not include honey blue-eye found by Trnski et al (1993). The overall number of freshwater fish species within SWBTA is approximately 35% of the total North East Coast Drainage Division fish fauna (Pusey et al 2004). Significantly, no invasive pest species were sampled, making the Shoalwater Bay region nationally significant.

Fish species recorded for the Corio Bay Fish Habitat Area (FHA-067) include: barramundi (Lates calcarifer); blue threadfin salmon (Eleutheronema tetradactylum); bream (Acanthopagrus spp.); estuary cod/rockcod (Epinephelus spp.); flathead (Platycephalus spp.); grunter; grey mackerel (Scomberomorus semifasciatus); jewfish; mangrove jack (Lutjanus argentimaculatus); queenfish (Scomberoides spp.); sea mullet (Mugil cephalus); school mackerel (Scomberomorus queenslandicus); whiting (Sillago spp.); banana prawns (Penaeus merguiensis); anguillid eels (Anguilla spp.).

Fish assemblages at the site comprise species with different life-history features, including potadromous (entirely freshwater) species, catadromous (requiring marine and freshwaters to complete life-cycle), and fully marine species. The site also supports a wide variety of life-history stages (i.e. eggs, larvae, recruitment sites, spawning sites).

The seagrass is critical nursery and feeding habitats for species that contribute to locally and regionally important fish stocks and fisheries. These include commercial prawn trawl and fin-fish gill-net fisheries, as well as fin-fish fisheries of recreational and tourism value. Seagrass-associated baitfish contributes to the health of target-species valued by commercial and recreational fisheries (Lee Long et al 1997).

Extensive mangroves and saltmarsh at both the Corio Bay and Shoalwater Bay sections of the Ramsar Site are utilised by juvenile stages of a variety of fish, prawns and crab species. Corio Bay is particularly important as a nursery for recreational fisheries (Walker 1997). Rocky reefs present at SWBTA also support fish diversity and provide nursery habitat.

The complexity of habitats created by the tropical and subtropical climatic overlap zone in the area has contributed to the occurrence of four fish species exhibiting their northern- most range distribution: ornate rainbowfish (Rhadinocentrus ornatus), firetail gudgeon (Hypseleotris galii), short-headed lamprey (Mordacia mordax) and honey blue-eye (Pseudomugil mellis) (Moore & Marsden 2011).

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
Comesperma oblongatum	Byfield matchstick	☑	☑	☐		☐	Environment Protection and Biodiversity Conservation Act 1999 – VU Nature Conservation Act 1992 – VU	Byfield matchstick is endemic to coastal central Queensland and has been recorded from a relatively low number of collections including within Byfield National Park and the SWBTA
Phaius australis	lesser swamp orchid	☑	☑	☐		☐	Environment Protection and Biodiversity Conservation Act 1999 – EN Nature Conservation Act 1992 – EN	There is a large discontinuity in this species' range in central eastern Queensland, between the Fraser Island populations and an isolated population at Byfield National Park.
Quassia bidwillii	quassia	☑	☑	☐		☐	Environment Protection and Biodiversity Conservation Act 1999 – VU Nature Conservation Act 1992 – VU	Quassia is endemic to Queensland.

The precise number of wetland plant species within the Ramsar Site is not known. The Queensland State Government WildNet database records 909 species of native plants (http://www.qld.gov.au/environment/plants-animals/species-list/, 09/09/2015), Melzer et al. (1993) recorded 791 plant species within the SWBTA and Brushe (2002) recorded 1341 plant species and subspecies within the SWBTA.

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	*Calidris ferruginea*	curlew Sandpiper	☑	☑	☐	☐	☑	☑	☐	☐				NT	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 – CE, Marine, Migratory; Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 - EN	Wildnet report of presence in site.
CHORDATA/ AVES	*Calidris tenuirostris*	great knot	☑	☑	☐	☐	☑	☑	☐	☐				EN	☐	☑	Environment Protection and Biodiversity Conservation Act 1999 – CE, Marine, Migratory; Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – EN	Feeding and roosting habitat.
CHORDATA/ AVES	*Esacus magnirostris*	beach stone-curlew	☑	☑	☐	☐	☑	☑	☐	☐				NT	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 – Marine Nature Conservation Act 1992 – LC	Breeding habitat for resident population.
CHORDATA/ AVES	*Haematopus longirostris*	Australian pied oystercatcher	☐	☑	☑	☐	☑	☑	☐	☐	286	1995-2016	2.6	LC	☐	☐	Nature Conservation Act 1992- LC	Breeding habitat for resident population. Population size is a mean based on multiple surveys between 1995-2016. As species is not a migratory shorebird, there is no Hansen et al., 2016 population estimate for the species. Instead the Waterbird Population Estimates (WPE) has been used to determine the 1% threshold for this species.
CHORDATA/ AVES	*Limosa lapponica baueri*	bar-tailed godwit	☑	☑	☑	☐	☑	☑	☐	☐	2806	1995-2016	0.86	NT	☐	☐	Environment Protection and Nature Conservation Act 1992 – LC Environmental Protection and Biodiversity Conservation Act 1999 –VU, Marine, Migratory- Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – VU	Feeding and roosting habitat. Population size is a mean based on multiple surveys between 1995-2016.
CHORDATA/ AVES	*Numenius madagascariensis*	eastern Curlew; Far Eastern Curlew	☑	☑	☑	☐	☑	☑	☐	☐	1114	1995-2016	3.18	EN	☐	☑	Environmental Protection and Biodiversity Conservation Act 1999 – CE, Marine, Migratory- Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – EN	Feeding and roosting habitat. Population size is a mean based on multiple surveys between 1995-2016.

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								
CHORDATA/ AVES	*Numenius phaeopus variegatus*	whimbrel	☑	☑	☑	☐	☑	☑	☐	☐	2598	1995-2016	7.42	LC	☐	☐	Environmental Protection and Biodiversity Conservation Act 1999- Marine, Migratory- Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – SL	Feeding and roosting habitat. Population size is a mean based on multiple surveys between 1995-2016.
CHORDATA/ AVES	*Pandion cristatus*	Eastern Osprey	☑	☐	☐	☐	☑	☑	☐	☐					☐	☐	Environmental Protection and Biodiversity Conservation Act 1999 - Migratory - Bonn	Reported in the marine waters of the site.
CHORDATA/ AVES	*Pelecanus conspicillatus*	Australian Pelican	☐	☑	☐	☐	☑	☑	☐	☐				LC	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 - Marine Nature Conservation Act 1992 – LC	Largest breeding colony on Akens Island and Pelican Rock in Great Barrier Reef Marine Park.
CHORDATA/ AVES	*Tringa brevipes*	gray-tailed Tattler; Grey-tailed Tattler	☑	☑	☑	☐	☑	☑	☐	☐	2130	1995-2016	3.04	NT	☐	☐	Environmental Protection and Biodiversity Conservation Act 1999- Marine, Migratory- Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – SL	Feeding and roosting habitat. Population size is a mean based on multiple surveys between 1995-2016.
CHORDATA/ AVES	*Tringa incana*	wandering Tattler	☑	☑	☐	☐	☑	☑	☐	☐				LC	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 – Marine, Migratory; Bonn, JAMBA	Feeding and roosting habitat.
CHORDATA/ AVES	*Xenus cinereus*	terek Sandpiper	☑	☑	☑	☐	☑	☑	☐	☐	420	1995-2016	2.84	LC	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 – Marine, Migratory; Bonn, CAMBA, JAMBA, ROKAMBA Nature Conservation Act 1992 – SL	Feeding and roosting habitat. Population size is a mean based on multiple surveys between 1995-2016.
Fish, Mollusc and Crustacea																		
CHORDATA/ ACTINOPTERYGII	*Pseudomugil mellis*	honey blue-eye; honey blue-eye; Honey Rainbow Fish	☑	☑	☐	☐	☑	☐	☑	☑				EN	☐	☐	Environment Protection and Biodiversity Conservation Act 1999 – VU Nature Conservation Act 1992 – VU	Site provides freshwater habitat that is essential to the life cycle of the honey blue-eye freshwater fish
Others																		
CHORDATA/ REPTILIA	*Caretta caretta*	loggerhead turtle	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☐	Environmental Protection and Biodiversity Conservation Act 1999 – EN, Marine, Migratory- Bonn Nature Conservation Act 1992 – EN	Marine waters provide habitat
CHORDATA/ REPTILIA	*Chelonia mydas*	green turtle	☑	☑	☐	☐	☑	☐	☐	☐				EN	☑	☑	Environmental Protection and Biodiversity Conservation Act 1999 – VU, Marine, Migratory- Bonn Nature Conservation Act 1992 – VU	Largest feeding population on east coast of Australia.
CHORDATA/ MAMMALIA	*Dugong dugon*	dugong	☑	☑	☐	☐	☑	☐	☐	☐				VU	☑	☐	Environmental Protection and Biodiversity Conservation Act 1999 – Marine, Migratory- Bonn Nature Conservation Act 1992 – VU	Largest habitat in the Mackay/Capricorn Management Area of the Great Barrier Reef Marine Park.
CHORDATA/ REPTILIA	*Eretmochelys imbricata*	hawksbill turtle	☑	☐	☐	☐	☑	☐	☐	☐				CR	☑	☑	Environmental Protection and Biodiversity Conservation Act 1999 – VU, Marine, Migratory- Bonn Nature Conservation Act 1992 – EN	Marine waters provide habitat
CHORDATA/ REPTILIA	*Natator depressus*	flatback turtle	☑	☑	☐	☐	☑	☐	☐	☐					☑	☐	Environmental Protection and Biodiversity Conservation Act 1999 – VU, Marine, Migratory- Bonn Nature Conservation Act 1992 – VU	Nesting habitat (Akens Island).
CHORDATA/ MAMMALIA	*Orcaella heinsohni*	Australian snubfin dolphin	☑	☐	☐	☐	☐	☐	☐	☐				VU	☑	☐	Environmental Protection and Biodiversity Conservation Act 1999 - Marine, Migratory- Bonn Nature Conservation Act 1992 - VU	Reported in the marine waters of the site
CHORDATA/ MAMMALIA	*Sousa chinensis*	Indo-Pacific Humpbacked Dolphin; Indo-Pacific Humpback Dolphin	☑	☐	☐	☐	☑	☐	☐	☐				NT	☑	☐	Environmental Protection and Biodiversity Conservation Act 1999 - Marine, Migratory- Bonn Nature Conservation Act 1992 - VU (Sousa sahulensis)	Alternative name is Australian humpback dolphin (Sousa sahulensis)

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								
CHORDATA / MAMMALIA	*Xeromys myoides*	false water rat	☑	☑	☐	☐	☑	☐	☐	☐				VU	☑	☐	Environment Protection and Biodiversity Conservation Act 1999 – VU; Nature Conservation Act 1992 - VU	A specimen was recorded in March 2008 in mangrove habitat on the western shore of Shoalwater Bay, between Shoalwater and Georges Creeks on the SWBTA

1) Percentage of the total biogeographic population at the site

The Australian snubfin dolphin and Indo-Pacific humpback dolphin have both been observed in the site's marine waters. Respectively, these species are listed as internationally "vulnerable" and "near threatened" and as 'vulnerable' at a state-level.

The previous Ramsar Information Sheet of 1999 estimated the population of the great knot as exceeding 1% (3,800) threshold. However, this was based on numbers reported in Lane and Davies (1987) that included extensive intertidal areas associated with the Broad Sound area that is not within the Ramsar Site. Surveys conducted exclusively within the Ramsar Site during 1995 (see Driscoll 1996) and 2007 (Jaensch 2008a) recorded numbers of this species well below the 1% threshold.

Numbers of up to 90 birds have been recorded for the beach stone-curlew in the SWBTA (DoD, 2009). This abundance exceeds the 1% threshold for the Australian population (estimate of 50 as per Garnett and Crowley, 2000); however, this is less than the 1% threshold for the whole East Asian-Australasian Flyway population (estimate of 250).

A specimen of the water mouse was recorded in March 2008 in mangrove habitat on the western shore of Shoalwater Bay, between Shoalwater and Georges Creeks on the SWBTA.

While sufficient data is not available to demonstrate the site meets Criterion 9, it has been suggested that estimates indicate the 1% population threshold is likely to be met for dugong. The honey blue-eye freshwater fish also meet the Criterion on the basis that the extent of suitable wallum habitat types elsewhere in the drainage division is limited and these species are likely to exist as discrete populations within a local area.

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
Palustrine wetland (eg vegetated swamp) (REgional Ecosystem RE.) 8.1.5) Ramsar wetland type Xf	☑	Melaleuca spp. and/or Eucalyptus tereticornis and/or Corymbia tessellaris woodland to open forest (estuarine wetland) with a ground stratum of salt tolerant grasses and sedges, usually in a narrow zone adjoining tidal ecosystems	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'endangered' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
Contains palustrine wetland (e.g. in swales) (RE 8.2.7) - Ramsar wetland type Xf (freshwater tree-dominated wetlands)	☑	Melaleuca spp. and/or Lophostemon suaveolens and/or Eucalyptus robusta open woodland to open forest in wetlands associated with parabolic dunes	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'endangered' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
Palustrine wetland (e.g. vegetated swamp) (RE 8.2.11) - Ramsar wetland type Xf (freshwater tree-dominated wetlands)	☑	Melaleuca spp. woodland in parallel dune swales (wetlands)	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'of concern' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Mangroves - stilted mangrove (Rhizophora stylosa), grey mangrove (Avicennia marina) , river mangrove (Aegiceras corniculatum), yellow mangrove (Ceriops tagal)	☑	Extensive mangrove communities occur along the sheltered sections of coastline in Shoalwater Bay, Port Clinton and Corio Bay occupying approximately 21,000 hectares, and are considered to be a near-natural, representative habitat type in the drainage div	13 of 35 mangrove species known to occur in Queensland are found within the Ramsar Site,
Riverine wetland or fringing riverine wetland (RE 8.3.1) - Ramsar wetland type Xf (freshwater tree-dominated wetlands)	☑	Semi-deciduous notophyll/mesophyll vine forest fringing watercourses on alluvial plains	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'endangered' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
Riverine wetland or fringing riverine wetland (RE 8.3.8) - Ramsar wetland type Xf (freshwater tree-dominated wetlands)	☑	Syncarpia glomulifera, Eucalyptus portuensis, Corymbia intermedia open forest on sandy creek flats and granite outwash	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'of concern' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
Palustrine wetland (e.g. vegetated swamp) (8.3.13) - Ramsar wetland type Xf (freshwater tree-dominated wetlands)	☑	Eucalyptus tereticornis and/or Corymbia tessellaris and/or Melaleuca spp. open woodland to open forest on alluvial and old marine plains, often adjacent to estuarine areas	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'endangered' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
RE 11.2.2 - Complex of Spinifex sericeus, Ipomoea pescaprae and Casuarina equisetifolia grassland and herbland on foredu	☑	Casuarina equisetifolia varies from clumps of open forest, to woodland, to isolated trees. The ground layer is quite dense. Occurs on Quaternary coastal fore dunes and beaches.	Vegetation Management Act 1999 – listed 'of concern'. Biodiversity status (Qld) is 'of concern' - this status reflects that these communities have previously been substantially cleared at the bioregional scale.
Seagrass. Family Zosteraceae (Zostera capricorni), Family Cymodoceaceae: (Cymodocea serrulata, Halodule uninervis, Halodule pinifolia, Syringodium isoetifolium Family Hydrocharitaceae (Halophila decipiens, Halophila ovalis, Halophila spinulosa)	☑	The site contains over 13,000 hectares of seagrass beds, considered to be some of the most extensive seagrass meadows on the east coast of Australia, and a near-natural, representative habitat type in the drainage division.	8 of 15 seagrass species known to occur in Queensland are found within the Ramsar Site,

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

4.1 - Ecological character

The ecological character of the Ramsar Site is primarily derived from its size, diversity of habitats and relatively undisturbed condition. The site contains a significant representation of a number of relatively intact vegetation types that were previously widespread in southern Queensland, with half of the wetland types found in Queensland present in the Shoalwater and Corio Bays Area. The biodiversity supported by the site's wetlands is extremely rich, in part due to its coastal location at a climatic overlap of tropical and subtropical zones. The seagrasses and mangroves of the site are of 'outstanding universal value' for the purpose of the Great Barrier Reef World Heritage listing (Geoscience Australia, 2013).

Several of the notable wetland habitats of the site and their values include:
• seagrass beds - grazing habitat for marine megafauna including dugongs, marine turtles; habitat for fish species of recreational and commercial importance
• mangroves and saltmarshes - habitat for juvenile fish and other marine organisms; roosting sites for birds; protecting the shoreline from erosion
• freshwater tree-dominated swamps, shrub-dominated swamps and marshes - habitat for a variety of wetland flora and fauna, including species of conservation significance
• peat swamps - carbon sink properties; retention of paleo-environmental information about previous landscapes and climate states.

Please see Additional material section for more information on ecological character.

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

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
A: Permanent shallow marine waters	Shoalwater Bay, Island Head Creek	2	46400	Representative
B: Marine subtidal aquatic beds (Underwater vegetation)	Leicester Island, Townshend Island, Island Head Creek, Shoalwater Bay	4	13000	Representative
C: Coral reefs	Rocky reefs e.g. Marquis Reef	0	3779	Representative
D: Rocky marine shores	E.g. Akens Island, Sabina Point	0		Representative
E: Sand, shingle or pebble shores	RE 11.2.2	0		Representative
F: Estuarine waters	E.g. Shoalwater Bay, Corio Bay	1	100237	Representative
G: Intertidal mud, sand or salt flats	Mangroves, saltmarsh	0		Representative
H: Intertidal marshes	RE 8.1.2, 8.1.3, 11.1.2	0	2742	Representative
I: Intertidal forested wetlands	RE 8.1.1, 11.1.4	3	20057	Representative
Zk(a): Karst and other subterranean hydrological systems	Associated sinkholes	0		Representative

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks	RE 8.3.1, 8.3.3, 8.3.8, 11.3.25 e.g. Water Park Creek	0		Representative
Fresh water > Flowing water >> N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks	E.g. eastern sand mass of Shoalwater Bay section	0		Representative
Fresh water > Marshes on inorganic soils >> Tp: Permanent freshwater marshes/ pools		0		Representative
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools	RE8.2.4 e.g. Clinton Lowlands, Freshwater Swamp	0		Representative
Fresh water > Lakes and pools >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils	RE8.2.4 e.g. Clinton Lowlands, Freshwater Swamp	0		Representative
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		0		Representative
Fresh water > Marshes on peat soils >> U: Permanent Non-forested peatlands	E.g. Dismal swamp, Freshwater Swamp	0		Representative
Fresh water > Marshes on inorganic soils >> W: Shrub-dominated wetlands	RE 8.2.4	0		Representative
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands	REs 8.1.5, 8.2.7, 8.2.11, 8.3.1, 8.3.8, 8.3.13	0		Representative
Fresh water > Marshes on peat soils >> Xp: Permanent Forested peatlands	E.g. Dismal swamp, Freshwater Swamp	0		Representative
Fresh water > Flowing water >> Y: Permanent Freshwater springs; oases	RE 8.2.5	0	184	Representative
Fresh, saline, brackish or alkaline water > Subterranean >> Zk(b): Karst and other subterranean hydrological systems	Associated with sinkholes	0		Representative

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
Sowerbaea subtilis	lily	Nature Conservation Act 1992 – VU. Species is conserved within the SWBTA, Byfield National Park and Byfield State Forest

Invasive alien plant species

Scientific name	Common name	Impacts	Changes at RIS update
Asclepias curassavica	red-head cotton bush	Potentially	unknown
Asystasia gangetica micrantha	Chinese violet	Potentially	unknown
Catharanthus roseus	pink periwinkle	Potentially	unknown
Cenchrus echinatus	Mossman River grass	Potentially	unknown
Cryptostegia grandiflora	rubber vine	Potentially	unknown
Dolichandra unguis-cati	cats claw creeper	Potentially	unknown
Eragrostis curvula	African love grass	Potentially	unknown
Gloriosa superba		Potentially	unknown
Indigofera vohemarensis		Potentially	unknown
Ipomoea purpurea	Morning Glory	Potentially	unknown
Lantana camara	lantana	Potentially	unknown
Macroptilium atropurpureum	Purple Bean	Potentially	unknown
Melinis minutiflora	molasses grass	Potentially	unknown
Mimosa pudica pudica	Sensitive Plant	Potentially	unknown
Praxelis clematidea	praxelis	Potentially	unknown
Sansevieria trifasciata	mother-in-laws tongue	Potentially	unknown
Sida ciliaris	bracted fanpetals	Potentially	unknown
Solanum torvum	devils fig	Potentially	unknown
Sorghum halepense	Johnson grass	Potentially	unknown
Sphagneticola trilobata	Singapore daisy	Potentially	unknown
Sporobolus fertilis	giant Parramatta grass	Potentially	unknown
Sporobolus natalensis	giant rat's tail grass	Potentially	unknown
Sporobolus pyramidalis	giant rat's tail grass	Potentially	unknown
Stylosanthes scabra	seca stylo	Potentially	unknown
Themeda quadrivalvis	grader grass	Potentially	unknown
Xanthium pungens	noogoora burr	Potentially	unknown

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
CHORDATA/AVES	*Calyptorhynchus lathami*	Glossy Black Cockatoo				Nature Conservation Act 1992 - VU
CHORDATA/REPTILIA	*Crocodylus porosus*	estuarine crocodile				Nature Conservation Act 1992 - VU

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	Changes at RIS update
CHORDATA/MAMMALIA	*Bos taurus taurus*	European cattle	Potentially	decrease
CHORDATA/MAMMALIA	*Canis lupus familiaris*	wild dog	Potentially	unknown
CHORDATA/MAMMALIA	*Capra hircus*	goat	Potentially	unknown
CHORDATA/MAMMALIA	*Equus caballus*	Horse	Potentially	unknown
CHORDATA/MAMMALIA	*Felis catus*	feral Cat	Potentially	unknown
CHORDATA/MAMMALIA	*Mus musculus*	house mouse	Potentially	No change
CHORDATA/AVES	*Streptopelia chinensis*	spotted dove	Potentially	No change
CHORDATA/MAMMALIA	*Sus scrofa*	pig	Potentially	No change
CHORDATA/MAMMALIA	*Vulpes vulpes*	red fox	Potentially	No change

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)
C: Moist Mid-Latitude climate with mild winters	Cfa: Humid subtropical (Mild with no dry season, hot summer)

Climate change has been identified as a key potential threat to the Ramsar Site, in particular, sea level rise, and changes to rainfall and runoff, temperature and evaporation patterns. There are concerns that the peat swamps are more susceptible to damage from fire during prolonged dry conditions.

4.4.2 - Geomorphic setting

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

a) Maximum elevation above sea level (in metres): 209

- 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.

Drainage Sub-Basins: Water Park Creek, Shoalwater Creek.
Drainage Basin: Fitzroy
Drainage Division: North East Coast
Sea/Ocean: Coral Sea; South Pacific Ocean

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)

Soil is a mix of mineral and organic material.

See Additional material section for details.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	No change
Usually seasonal, ephemeral or intermittent water present	No change

Source of water that maintains character of the site

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

Water destination

Presence?	Changes at RIS update
Feeds groundwater	No change
Marine	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels largely stable	No change
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:

See Additional material section for details.

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 unknown ☐

Please provide further information on sediment (optional):

See Additional material section for details.

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):

A brief comparison of water quality data sampled within the SWBTA against the regional Queensland Water Quality Guidelines (QWQG) found: pH – The 80th percentile, maximum and mean pH values are within the recommended QWQG range. Water pH data and water quality analysis is not available for the Corio Bay section of the site.
http://www.ehp.qld.gov.au/water/pdf/water-quality-guidelines.pdf

4.4.7 - Water salinity

Fresh (<0.5 g/l) ☑

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

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

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

Euhaline/Eusaline (30-40 g/l) ☑

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

Unknown ☐

Please provide further information on salinity (optional):

A brief comparison of water quality data sampled within the SWBTA against the regional Queensland Water Quality Guidelines (QWQG) found: Conductivity – Mean electrical conductivity values range from <80 to 480 µS/cm. Values above the recommended guideline value of 375 µS/cm were recorded at sites that have naturally high salinity.

Salinities of Corio Bay in the El Nino year of 2006/07 reached up to 40 PSU (practical salinity units) towards the mouth. In the La Nina year of 2007/'08 salinities down to 23 PSU were recorded, which were associated with Keppel Bay waters that were affected by flooding of the adjacent Fitzroy River and local catchment run off.

4.4.8 - Dissolved or suspended nutrients in water

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):

Please Additional Material section for details

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 ○

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	Drinking water for humans and/or livestock	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Low
Erosion protection	Soil, sediment and nutrient retention	Medium
Pollution control and detoxification	Water purification/waste treatment or dilution	Medium
Climate regulation	Local climate regulation/buffering of change	Low
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	Low
Hazard reduction	Flood control, flood storage	Low
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	Medium
Recreation and tourism	Picnics, outings, touring	High
Recreation and tourism	Water sports and activities	Medium
Recreation and tourism	Nature observation and nature-based tourism	Medium
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Spiritual and inspirational	Aesthetic and sense of place values	High
Spiritual and inspirational	Inspiration	Medium
Spiritual and inspirational	Spiritual and religious values	Low
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Long-term monitoring site	Low
Scientific and educational	Major scientific study site	Medium
Scientific and educational	Type location for a taxon	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	High
Soil formation	Sediment retention	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	Medium

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 ☑

Description if applicable

The landscape is important to the Darumbal people QC2012/008. A report finalised in November 2015 clearly demonstrates the value of the Ramsar Site and its management to the Darumbal people. This report "Shoalwater and Corio Bays Ramsar Area Aboriginal Cultural Values: Description, Risks and Management" was prepared for the Fitzroy Basin Association.

4.6 - Ecological processes

(ECD) Primary production	Please see Additional Material section for details
(ECD) Nutrient cycling	Please see Additional Material section for details
(ECD) Carbon cycling	Carbon flows in freshwater wetlands are not well known and require further investigation, although freshwater marshes and peat swamps are recognised as important sinks for carbon as they actively accumulate organic matter.
(ECD) Animal reproductive productivity	Nil
(ECD) Vegetational productivity, pollination, regeneration processes, succession, role of fire, etc.	Nil
(ECD) Notable species interactions, including grazing, predation, competition, diseases and pathogens	Please see Additional Material section for details
(ECD) Notable aspects concerning animal and plant dispersal	Nil
(ECD) Notable aspects concerning migration	Nil
(ECD) Pressures and trends concerning any of the above, and/or concerning ecosystem integrity	Nil

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
National/Federal government	☑	☑
Provincial/region/state government	☑	☑
Public land (unspecified)	☐	☑
Local authority, municipality, (sub)district, etc.	☐	☑

Private ownership

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

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

The Broome Head section is adjacent to and includes 70 ha of the Shoalwater Bay Regional Park.

The Shoalwater Bay section is within the SWBTA; gazetted as a Defence Practice Area under the Defence Act 1903 (Cwth). The land immediately adjacent to the Shoalwater Bay section is largely Commonwealth freehold land associated with the SWBTA and also Byfield National Park and Byfield State Forest. To the north are the islands of the Broad Sound Islands National Park and a small portion of the southern extent of the Shoalwater Bay section is adjacent to several freehold land parcels in the township of Byfield.

Part of the Corio Bay section (approximately 700 ha) is within the Byfield National Park.
This section is adjacent to Byfield National Park, Byfield State Forest and freehold and leasehold land parcels. To the south of Corio Bay is freehold land associated with the Iwasaki Sangyo Company Australia Pty Ltd Mercure Capricorn Integrated Resort tourism complex.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:	The Shoalwater Bay Training Area is managed by the Australian Government Department of Defence. The Great Barrier Reef Marine Park (Commonwealth) is jointly managed by the Great Barrier Reef Marine Park Authority (Commonwealth Government) and the Queensland Department of National Parks, Sport and Racing (Queensland Parks and Wildlife Service).The Great Barrier Reef Coast Marine Park (Queensland), Byfield National Park and Shoalwater Bay Regional Park are managed by the Queensland Department of National Parks, Sport and Racing (Queensland Parks and Wildlife Service). HQ Plantation manages Byfield State Forest that is adjacent to the Ramsar Site, for plantation forestry and associated purposes, including recreational access.The Corio Bay Fish Habitat Area is also managed by the Queensland Department of National Parks, Sport and Racing (Queensland Parks and Wildlife Service) and development applications in the declared FHA are assessed by Fisheries Queensland.
Provide the name and title of the person or people with responsibility for the wetland:	Department of Defence, Qld Dept National Parks, Sport and Racing, Great Barrier Reef Marine Park Authority, Qld Dept Environment and Heritage Protection.
Postal address:	QLD Department of Environment and Heritage Protection GPO Box 2454 Brisbane QLD 4001
E-mail address:	info@ehp.qld.gov.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
Tourism and recreation areas	Low impact		☑	No change	☑	No change
Housing and urban areas		Low impact	☐	unknown	☑	No change

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Water abstraction	Low 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	unknown impact		☐	No change	☑	No change
Livestock farming and ranching	unknown impact		☐	No change	☑	No change

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Mining and quarrying	unknown impact		☐	No change	☑	No change

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Roads and railroads	Low impact		☑	No change	☑	No change

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Logging and wood harvesting	unknown impact		☐	No change	☑	No change
Fishing and harvesting aquatic resources	Low impact		☑	No change	☑	No change

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		☑	No change	☑	No change
(Para)military activities	Low impact		☑	No change	☑	No change

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		☑	unknown	☑	unknown
Dams and water management/use	Low impact		☐	No change	☑	No change
Vegetation clearance/ land conversion	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		☑	No change	☑	No change

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Industrial and military effluents	Low impact		☑	No change	☑	No change
Agricultural and forestry effluents	Low impact		☑	No change	☑	No change
Garbage and solid waste	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
Habitat shifting and alteration	Medium impact		☑	unknown	☑	unknown
Storms and flooding	Medium impact		☑	unknown	☑	unknown

Please describe any other threats (optional):

Please see Additional Material section for details.

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
World Heritage site	Great Barrier Reef World Heritage Area	www.gbrmpa.gov.au	partly

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Declared Fish Habitat Area	Corio Bay Fish Habitat Area (FHA-067)	www.nprsr.qld.gov.au/mana ging/area-summaries/coriobay.htm l	whole
Dugong Protection Area	Shoalwater Bay and Port Clinton Dugong Sanctuaries	http://www.gbrmpa.gov.au/zoning-permits-and-plans/special-manage ment-areas	whole
National Protected Area	Great Barrier Reef Marine Park	www.gbrmpa.gov.au	partly
State Protected Area (QLD)	Byfield National Park	www.nprsr.qld.gov.au/parks/byfie ld	partly
State Protected Area (QLD)	Byfield State Forest	www.nprsr.qld.gov.au/parks/byfie ld	partly
State Protected Area (QLD)	Great Barrier Reef Coast Marine Park	www.nprsr.qld.gov.au/marine-park s/gbr_coast_marine_park.html	partly
State Protected Area (QLD)	Shoalwater Bay Regional Park	http://www.nprsr.qld.gov.au/park s/shoalwater-bay/index.html	partly

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Shoalwater Bay	http://birdlife.org.au/documents /OTHPUB-IBA-supp.pdf	whole
Other non-statutory designation	East Asian-Australasian Flyway Network Site (Site code EAAF094)	www.eaaflyway.net	partly

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve ☐

Ib Wilderness Area: protected area managed mainly for wilderness protection ☐

II National Park: protected area managed mainly for ecosystem protection and recreation ☑

III Natural Monument: protected area managed mainly for conservation of specific natural features ☐

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention ☑

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation ☐

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems ☑

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Partially implemented
Improvement of water quality	Partially implemented
Re-vegetation	Partially implemented
Soil management	Partially implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Implemented
Control of invasive alien animals	Implemented

Human Activities

Measures	Status
Management of water abstraction/takes	Implemented
Regulation/management of wastes	Implemented
Livestock management/exclusion (excluding fisheries)	Implemented
Fisheries management/regulation	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

5.2.5 - Management planning

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

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

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes ○ No ◉

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

Queensland Parks and Wildlife Service (QPWS) online visitor information

URL of site-related webpage (if relevant): www.npsr.qld.gov.au/parks/byfield/pdf/sandy-point-flyer.pdf

5.2.6 - Planning for restoration

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

5.2.7 - Monitoring implemented or proposed

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

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Please see document AU792_lit180116__Reference_list.docx' in Section 6.1.2, vi. other published literature, for full reference list.

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
<no file available>

vi. other published literature
<7 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Corio Bay (*Queensland Department of Environment and Heritage, 20-04-2015*)

Shoalwater (*Queensland Department of Environment and Heritage Protection, 20-04-2015*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation: 1996-03-01