

# Water

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### A Directory of Important Wetlands in Australia

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#### Pitt Water and Orielton Lagoon - TAS067

**Level of importance:** National - Directory

**Location:** 42 degrees 46' 56.53" S, 147 degrees 31' 45.72" E; East of Hobart, immediately east of Midway Point, north of the Sorell Causeway; TASMALP No. 8412 (Nugent), Grid Ref. 433E, 632N.

**Biogeographic region:** Tasmanian South East (IBRA) and Bruny IMCRA Region.

**Shire:** Municipality: Sorell.

**Area:** 265 ha.

**Elevation:** 0 m ASL.

**Other listed wetlands in same aggregation:** None.

**Wetland type:** A8

**Criteria for inclusion:** 3, 4, 5,

**Site description:** Pitt Water/ Orielton Lagoon comprises an estuarine system with a large area of saltmarsh. The estuary system offers a diversity of habitats and is subsequently a species-rich environment. Access to the lagoon is possible with 2-wheel drive.

**Physical features:** Pitt Water is an almost land-locked body of tidal salt water with a narrow entrance to Fredrick Henry Bay. The area includes estuaries of four watercourses: Coal River and Sorell Rivulet into Pitt Water, Orielton Rivulet into Orielton Lagoon and Iron Creek into Iron Creek Bay. The whole area is protected from the open sea by a large sand bar (Seven Mile Beach). The site has large areas of tidal mud and sand flats and a restricted tide flow through the mouth leaves extensive areas exposed as suitable feeding areas for wading birds. The geology of the area is complex, being dominated by Holocene river alluvium, silt, fine sand, dune and windblown sand with pockets of Triassic sandstone and shale. Orielton Lagoon is separated from Pitt Water by a causeway originally constructed in 1868 and modified in 1906 and 1953. This structure constricted broad tidal flow and created a shallow (1.25 metres deep) lagoon about 265 hectares in area. The culverts under the causeway have recently been modified to allow freer water flow between Orielton Lagoon and Pitt Water.

**Hydrological features:** Orielton Lagoon has been separated from Pitt Water since 1868, when a causeway was constructed, restricting tidal flushing. In 1995 additional culverts were created under the causeway allowing increased water exchange. Previous to this, seawater replenishment was only possible during high tides, and evaporation in the shallow (1.25 m) lagoon resulted in large changes in salinity. Average annual rainfall in the area is 500-625 mm (Sharpe 1995).

**Ecological features:** Most of the site is open water fringed by saltmarsh communities and rocky shores. Extensive mudflats and saltmarsh areas are important habitat for wading birds and waterfowl. There are a number of saltmarsh communities which are significant in their own right; particularly in the north-west (north of Lands End) and surrounding Barilla Bay. The saltmarsh at the northern end of the lagoon, is dominated by *Sclerostegia arbuscula* and *Sarcocornia quinqueflora* (Kirkpatrick & Glasby 1981). Altered salinity combined with nutrient input from adjacent land uses led to eutrophication, and a series of algal blooms of the species *Nodularia spumigena* in the lagoon in 1993.

**Significance:** The Pitt Water estuary often contains large populations of waterbirds, and is considered to be an important refuge in times of drought. It is the most southern major summer feeding ground for waterbirds in Australia. It is an important area for migratory waders that fly to the site from as far away as the arctic tundra. Twenty six bird species that occur in the estuary are listed on the Japan - Australia Migratory Bird Agreement (JAMBA). Similarly, 27 bird species are listed on the China - Australia Migratory Bird Agreement (CAMBA). The wetland flora contains an array of species which are considered to be rare and at risk in Tasmania. Orielton Lagoon is listed as an important site for the double-banded plover (*Charadrius bicinctus*) under The East Asian - Australasian Shorebird Site Network which links wetlands that are internationally important for shorebirds. The rocky shores of Pitt Water are also critical habitat for the endemic starfish, *Patriella vivipara* (Endangered- Se, TSPA 1995), which has a very restricted geographic range. The southern part of the site is a protected shark nursery area.

**Notable flora:** Six plant species are of particular significance in this area because of their threatened status. The daisy, lemon beauty-head (*Calocephalus citreus*; Se; Threatened Species Protection Act (TSPA) 1995) is endangered and occurs within the reserve at the lagoon. Four other species, slender water-mat (*Lepilaena preissi*), silky wilsonia (*Wilsonia humilis*; Sr; TSPA 1995), fennel pondweed (*Potamogeton pectinatus*) and sea lavender (*Limonium australe*) are all listed under the Threatened Species Protection Act, 1995 as rare. *Potamogeton pectinatus* and *Limonium australe* are found in only two reserves. The region contains one of the most significant areas of saltmarsh in Tasmania (Kirkpatrick and Glasby 1981). All but one of the poorly reserved saltmarsh species in Tasmania occur in abundance within the reserve. Six species of threatened bryophytes also occur within the reserve.

**Notable fauna:** The rock wall of the Sorell Causeway supports the largest concentration of the small endemic sea-star *Patriella vivipara*, one of the few viviparous sea stars. The saltmarshes around Barilla Bay provide one of the few recorded Tasmanian localities of the rare chequered blue butterfly (*Theclinessthes serpentata*) (Bryant and Jackson, 1999). The great crested grebe (*Podiceps cristatus*-Rare, Sr, TSPA, 1995) is frequently seen in the area. The fairy tern (*Sterna nereis*; rare, Sr, TSPA) and little tern (*Sterna albifrons sinensis*; Endangered, Ne, Se, TSPA 1995, Endangered Species Protection Act (ESPA) 1992) are both threatened in Tasmania and have been sited in the reserve.

**Other Fauna:** Migratory bird species include the eastern curlew (*Numenius madagascariensis*), bar-tailed godwit (*Limosa lapponica*), common greenshank (*Tringa nebularia*), curlew sandpiper (*Calidris ferruginea*) and red-necked stint (*C. ruficollis*), whimbrel (*Numenius phaeopus*), pied oystercatcher (*Haematopus longirostris*), Pacific golden plover (*Pluvialis fulva*), red-capped plover (*Charadrius ruficapillus*), hooded plover (*Thinornis rubricollis*), and masked lapwing (*Vanellus miles*).

**Social and Cultural values:** Community groups are involved in the rehabilitation of Orielton Lagoon. The Pitt Water area is valued by locals as a recreational fishing area. The area is also commercially valued as an important area for shell fish aquaculture production. At the time of European arrival, Pitt Water was part of the territory occupied by the Oyster Bay Tribe. Twenty-one sites within close proximity to the site have been registered on the Tasmanian Aboriginal site index. Although few surveys have specifically focused on aboriginal sites in the area, one reasonably large midden has been located in the site and it is highly likely that more exist.

**Land tenure:** On site: Crown land, Nature Reserve Surrounding area: Private freehold.

**Current land use:** On site: Conservation and bird watching. Surrounding area: Grazing, agriculture and residential development.

**Disturbance or threat:** Past/present: Decreased water exchange between Orielton Lagoon and Pitt Water due to the construction of a causeway, resulted in increased evaporation in the shallow lagoon and consequent large changes in salinity associated with this process. Altered salinity combined with nutrient input from adjacent landuses (residential, aquaculture and agriculture) led to eutrophication of areas of the lagoon which resulted in a toxic algal bloom of *Nodularia spumigena* in 1993. The creation of additional culverts to increase water exchange has helped to decrease the frequency of blooms in the area. Significant saltmarsh areas have been trampled by grazing stock. Introduced species concerns are primarily associated with terrestrial and aquatic plants, boneseed (*Chrysanthemoides monilifera*), gorse (*Ulex europaeus*), blackberries (*Rubus fruticosus*) and boxthorn (*Lycium ferocissimum*) have established along much of the shore of Orielton Lagoon. Other introduced species include the toxic dinoflagellate *Gymnodinium catanatum*, and the European shore crab (*Carcinus meanus*).

Potential: Subdivision on the shore of Orielton Lagoon in the vicinity of Shark Point Road, increasing clearance, residential effluent, dumping of vegetative material, general disturbance from noise, pets, and human activity. Proposal to increase abstraction of water from the main tributary of upper Pitt Water, the Coal River. Increased irrigation activities in the drainage basin.

**Conservation measures taken:** This site is listed under the Convention on Wetlands and on the Register of the National Estate. Three separate sections of the estuary have been declared Nature Reserves.

**Management authority and jurisdiction:** Director, Parks & Wildlife Service, Tasmania (134 Macquarie Street, Hobart).

**References:** <http://www.parks.tas.gov.au/manage/parksres/reserves.html>; Kinhill Engineers (1993); Kirkpatrick & Glasby (1981); Kirkpatrick & Tyler (1988); Sharpe (1995).

[See Tasmania Reference List](#)

**Compiler & date:** J. Atkinson, 1992; A.J.J. Lynch, 1995; C. Corbett, 1995, A.C. McEntee, 1999, E. Rollins, 2000.

**Drainage:**

<b>AWRC Division</b>	TASMANIA
<b>AWRC Region</b>	TASMAN
<b>AWRC Basin</b>	EAST COAST
<b>Catchment</b>	
<b>Sub-catchment</b>	

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