

Christchurch District Plan Site of Ecological Significance

Site Significance Statement

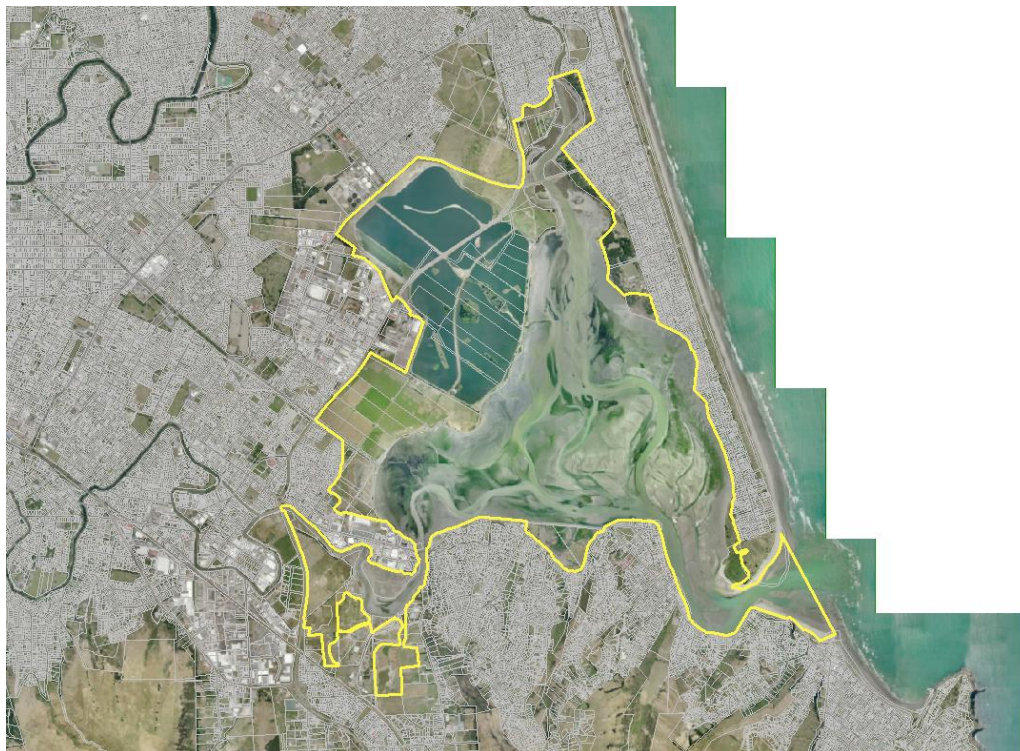
Site name: Avon Heathcote Estuary/Ihutai & Environs

Site number: SES/LP/14

Summary of Significance:

The Avon Heathcote Estuary/Ihutai is an originally rare ecosystem that contains indigenous vegetation communities that have been greatly reduced within the Low Plains Ecological District, and is also of local, national and international importance in terms of it supporting a representative assemblage of indigenous and migratory birdlife, including 23 threatened species.

Site Maps



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PLEASE NOTE THIS STATEMENT IS BASED ON INFORMATION AVAILABLE AT THE TIME OF WRITING. DUE TO THE DYNAMIC NATURE OF ECOSYSTEMS, FUTURE REASSESSMENT OF THE SITE MAY BE NECESSARY TO REFLECT ANY CHANGES IN KNOWLEDGE OF ITS ECOLOGICAL SIGNIFICANCE.

Additional Site Information

Central point: 2487783, 5740761

Area of SES (ha): 1363.20 ha

Site Description

The Avon-Heathcote Estuary/Ihutai is located on the eastern fringes of Christchurch City, in central Canterbury, New Zealand. The site is separated from the Pacific Ocean by a 4.5 km long sand spit and comprises c.880 ha of inter-tidal flats and peripheral salt marsh. The estuary is roughly triangular in shape and fed by 3 small rivers (Avon River, Heathcote River and Linwood Avenue Canal) which collectively drain a largely urbanised catchment of 188 km². Tides are semi-diurnal with a range of 2.1 m for spring tides and 1.1 m for neap tides.

The Avon-Heathcote Estuary/Ihutai and its surrounding associated features comprise a mosaic of coastal environments, ecological units and vegetation types including salt marsh, and turf saltmeadow on riparian terraces, and planted shrubland and coastal bush. In addition to extensive areas of mudflat and peripheral salt marsh, the greater Avon-Heathcote area also includes the c.275 ha Bromley Oxidation Ponds/Te Huingi Manu Wildlife Refuge, c.100 ha of lowland wet grassland (Linwood Paddocks), and a combined area of c.40 ha of human-created tidal wetlands located around the margins of the estuary (Charlesworth, Bexley and Ferrymead wetland reserves, respectively). In total, c.1300 ha of habitat is available for wetland birds and at peak times these combined habitats support upwards of 30,000 birds (Crossland 1993, 2010, 2013a).

Extent of Site of Ecological Significance

The Avon-Heathcote Estuary/Ihutai and Environs SES includes the tidal extent of the estuary basin and shoreline, the lower Avon and Heathcote Rivers, Jellicoe Marsh, Bexley Wetland, McCormacks Bay (including the sports fields at the western end of the bay), the extent of the Bromley oxidation ponds, coastal paddocks between the oxidation ponds and the Avon Rivermouth, Linwood paddocks north of Linwood Avenue/east of Dyers Road, Charlesworth reserve, the portion of the Southshore spit south of the existing residential area, and large areas of grazed pasture, salt meadow and constructed wetlands within Ferrymead Park and on adjacent privately owned land as shown on the location maps. Note that the SES excludes the golf course area within Ferrymead Park, as indicated on the location map.

Assessment Summary

The Avon Heathcote Estuary/Ihutai and Environs SES has been evaluated against the criteria for determining significant indigenous vegetation and significant habitat of indigenous fauna listed in Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury, 2013) (see below) referring also to the Wildland Consultants (2013) Guidelines and advice from the relevant Specialist Ecologist

Groups. Under these criteria the site is ecologically significant because it meets the representativeness (criteria 1 & 2), rarity/distinctiveness (criteria 3, 4, 5 & 6), diversity and pattern (criterion 7), and ecological context criteria (criteria 9 & 10).

Assessment against Significance Criteria

Representativeness

- 1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.***

The site is significant under this criterion.

The Avon-Heathcote Estuary/lhutai and immediate surroundings has had 144 bird species recorded between 1840 and 2014, including 54 resident species, 20 seasonal visitors, 61 vagrants and nine species which are now locally extinct. Of these, 47 native and migratory species (Appendix 1) are described as either being a) resident all year round, b) resident and breeding, c) resident with seasonal population influxes, or d) seasonal or regular visitors (Crossland 2013a).

Thirty-four species of fish representative of both marine and freshwater habitats have been recorded at the Avon Heathcote Estuary/lhutai (Cromarty and Scott 1996). Sixteen species of fish were recorded during a 2011 survey of the Estuary, and sampling found no evidence for large scale changes in fish communities that could be associated with the 2011 earthquakes (Unwin and Hawke 2012).

- 2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.***

The site is significant under this criterion.

The Avon-Heathcote Estuary/lhutai is the largest, semi-enclosed shallow estuary in Canterbury, and remains one of the Low Plains Ecological District's and New Zealand's most important coastal wetlands, despite being almost totally surrounded by the residential housing suburbs to the east of Christchurch City (Crossland 2009, Mac Farlane 2012; Cromarty and Scott 1996).

Rarity/Distinctiveness

- 3. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.***

The site is significant under this criterion.

Site contains wetland vegetation that has been reduced to less than 20% of its former extent in the Low Plains Ecological District. The Threatened Environment Classification reports that less than 10% of indigenous cover remains in the Low Plains Ecological District (See Walker *et al.* 2007; Lloyd *et al.* 2013; Harris 1992).

4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.

The site is significant under this criterion.

The site supports 23 avian species that are identified by Robertson et al. (2012) as either Threatened, Nationally Endangered, Nationally Vulnerable, At Risk, Relict, Naturally Uncommon or Recovering (refer Crossland 2009; Crossland 2013a).

The site supports the At Risk/Naturally Uncommon horses mane lakeweed (*Ruppia megacarpa*) (CCC Natural Areas Database).

5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.

The site is significant under this criterion.

The Avon Heathcote Estuary/Ihutai is the southern limit of national and global range for Little Black Cormorant (*Phalacrocorax sulcirostris*) (Crossland 2013b).

6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

The site is significant under this criterion.

Estuaries are listed by Williams *et al.* (2007) as historically rare ecosystems, and as such the associations of indigenous species that occur within the Avon Heathcote Estuary are significant under this criterion.

Diversity and Pattern

7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.

The site is significant under this criterion.

The wider site contains a high diversity of ecological units, including: mud flats, ribbonwood-rush shrub saltmarsh, reed-rush/turf saltmarsh, turf saltmeadow, exotic turf saltmeadow, raupo swamp, raupo/NZ flax/reed/rush/sedge tussock swamp, freshwater aquatic ecosystems, pine/NZ tree planted coastal bush, and exotic grazed pasture that supports indigenous migratory waders and waterfowl.

Ecological Context

8. *Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.*

Does not meet this criterion

9. *A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.*

The site is significant under this criterion.

The estuary is a semi-enclosed basin with a surface area of over 800 ha, within which the combined flows of the Avon and Heathcote Rivers meet and mix with seawater during each tidal cycle. It functions as a trap for sediments transported down the beds of the two inflowing rivers. The extensive mudflats support an abundant and diverse invertebrate community which forms much of the food source for a wide variety of fish species, as well as resident and migratory waterfowl (Cromarty and Scott 1996).

10. *Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.*

The site is significant under this criterion.

The Avon Heathcote Estuary/Ihutai complex regularly support peak numbers of 30,000-35,000 wetland birds including peak numbers of waterfowl and 3000 individuals of other species (including cormorants, gulls, terns, swallows, spoonbills, herons, kingfisher, coot and pukeko). Of the 15,000 waterfowl, only 2000 of these were reported to be introduced species (mallard ducks and Canada geese) (Crossland 2005).

The highest counts are in late summer/autumn with c.36,637 birds in Jan 2010, followed by 34,292 birds in Feb 2010 and 31,743 birds in Mar 2010. More than 20,000 wetland birds were present during each of the 5 months from Dec to Apr 2010. This is the annual peak period when the area supports a considerable influx as part of the moulting, post-breeding flocking and migration strategies of many bird species (Crossland 1993, 2010). Lowest numbers occurred in Sep 2009 which coincides with many native species being away on inland breeding grounds and was immediately prior to the arrival of migratory bar-tailed godwits. The 7871 total recorded in Sep 2009 excludes cormorants and gulls. Based on counts in other years (unpubl. data), Sept estimates for gulls (3000+) and cormorants (400+) would give an estimated annual low population of c.11,000 – 12,000 wetland birds (Crossland 2013a).

Twelve species were recorded with populations exceeding 1000 individuals. These included New Zealand shoveler (7046), grey teal (5881), New Zealand scaup (5739), South Island pied oystercatcher (4844), paradise shelduck (3092), Canada goose (*Branta Canadensis*) (2871), mallard/grey duck hybrid (*Anas*

platyrhynchos x *A. superciliosa*) (2617), black-backed gull (*Larus dominicanus*) (2344), bar-tailed godwit (2110) and black swan (*Cygnus atratus*) (1104). In addition, both red-billed gull and black-billed gull (with a combined peak count of 6214) had peak populations estimated at 5000+ and 1000+, respectively. Another 8 species were recorded with numbers exceeding 100 individuals in at least one month: pukeko (881), pied cormorant (427), white-fronted tern (*Sterna striata*) (319), pied stilt (*Himantopus himantopus leucocephalus*) (312), little cormorant (*Phalacrocorax melanoleucos brevirostris*) (142), spur-winged plover (*Vanellus miles novaehollandiae*) (116), variable oystercatcher (109) and royal spoonbill (*Platalea regia*) (102). Three additional species had peak counts slightly under 100 during the 2009-2010 study but in other years each of these has regularly exceeded 100 in number: black cormorant (*Phalacrocorax carbo novaehollandiae*) (93), banded dotterel (*Charadrius bicinctus bicinctus*) (86), and white-faced heron (*Egretta novaehollandiae*) (85) (Crossland 2013a).

The Bromley oxidation ponds regularly support peak numbers of more than 15,000 waterfowl and 3000 individuals of other species (including cormorants, gulls, terns, swallows, spoonbills, herons, kingfisher, coot and pukeko). Of the 15,000 waterfowl, only 2000 of these were reported to be introduced species (mallard ducks and Canada geese) (Crossland 2005). The Bromley oxidation ponds area is also a critical moulting site for NZ Scaup, NZ Shoveler, Paradise Shelduck, Grey Teal and Grey Duck. Oxidation Ponds area an important national/international breeding site for NZ Scaup, and regional importance for four cormorant species Crossland (2009).

Site Management

Existing Protection Status

To be completed

Threats and risks	Management recommendations	Support package options
<ul style="list-style-type: none"> Pest plant incursion 	<ul style="list-style-type: none"> Monitor pest plant infestations and implement control as required. Assess new pest plant incursions and implement control as required 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Animal pest incursion 	<ul style="list-style-type: none"> Monitoring of possible animal pest incursions and trapping as necessary Utilise moat and island concept in wetland restoration/creation around edges of estuary to deter access to sensitive breeding areas and roosting areas. 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Reclamation, habitat loss and modification of the estuary margins (Grove and Parker 2013) 	<ul style="list-style-type: none"> Consider improving the condition of the saltmarsh habitat on the margins of the estuary by ensuring that further degradation and habitat loss does not occur through the establishment of an appropriate buffer between the estuary and grazed pasture. 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Disturbance of birds by humans and dogs. 	<ul style="list-style-type: none"> Ensure levels of human disturbance are minimised, for example by erecting temporary fencing and signage around nest sites. Ensure that dogs are under control or on a leash and prohibit dogs within core wetland areas of SES area Interpretation highlighting the impacts dogs can have on wildlife values Restrict access to the estuary shoreline adjacent to the oxidation ponds. 	<ul style="list-style-type: none">

<ul style="list-style-type: none">• Human disturbance to pied and little shag breeding colonies and royal spoonbill roost site	<ul style="list-style-type: none">• Restrict access to the vicinity of the nesting colony (specifically to anglers and staff undertaking maintenance of restoration plantings) during the breeding season.	<ul style="list-style-type: none">•
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Assessment completed by: Dr Antony Shadbolt
Date: 14th January 2015

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Date: 14th January 2015

Statement updated by: XXX
Date: XXX

Appendix 1: Indigenous Bird Checklist

White-flipped Penguin (<i>Eudyptula minor albosignata</i>)	w Rb *
Australasian Gannet (<i>Morus serrator</i>)	w S #
Black Cormorant (<i>Phalacrocorax carbo novaehollandiae</i>)	w Rb **
Pied Cormorant (<i>Phalacrocorax varius varius</i>)	w Rb ***
Little Cormorant (<i>Phalacrocorax melanoleucos brevirostris</i>)	w Rb **
Spotted Shag (<i>Stictocarbo punctatus punctatus</i>)	w Rb ****
Little Black Cormorant (<i>Phalacrocorax sulcirostris</i>)	w Rb #
White-faced Heron (<i>Ardea n. novahollandiae</i>)	w RbS **
White Heron (<i>Egretta alba modesta</i>)	w S #
Australasian Bittern (<i>Botarus poiciloptilus</i>)	w S #
Royal Spoonbill (<i>Platalea regia</i>)	w RS **
Black Swan (<i>Cygnus atratus</i>)	w RbS ****
Paradise Shelduck (<i>Tadorna variegata</i>)	w RbS *****
Grey Duck (<i>Anas s. superciliosa</i>)	w RbS *
Grey Teal (<i>Anas gracilis</i>)	w RbS *****
New Zealand Shoveler (<i>Anas rhynchos</i>)	w RbS *****
New Zealand Scaup (<i>Aythya novaseelandiae</i>)	w RbS *****
Australasian Harrier (<i>Circus approximans</i>)	w RbS *
New Zealand Falcon (<i>Falco novaeseelandiae</i>)	t S #
Marsh Crake (<i>Porzana pusilla affinis</i>)	w S *
Pukeko (<i>Porphyrio porphyrio melanotus</i>)	w RbS ****
Australasian Coot (<i>Fulica atra australis</i>)	w S *
South Island Pied Oystercatcher (<i>Haematopus ostralegus</i>)	w RS *****
Variable Oystercatcher (<i>Haematopus unicolor</i>)	w RS **
Pied Stilt (<i>Himantopus himantopus</i>)	w RbS ***
Wrybill (<i>Anarhynchus frontalis</i>)	w S #
Banded Dotterel (<i>Charadrius bicinctus</i>)	w RbS **
Spur-winged Plover (<i>Vanellus miles</i>)	w RbS **
Turnstone (<i>Arenaria interpres</i>)	w S #
Red Knot (<i>Calidris canutus canutus</i>)	w S #
Eastern Bar-tailed Godwit (<i>Limosa lapponica baueri</i>)	w RS *****
Arctic Skua (<i>Stercorarius parasiticus</i>)	w S #
Pomarine Skua (<i>Stercorarius pomarinus</i>)	w S #
Black-backed Gull (<i>Larus dominicanus</i>)	w RbS *****
Red-billed Gull (<i>Larus novaehollandiae</i>)	w RbS *****
Black-billed Gull (<i>Larus bulleri</i>)	w RbS ***
White-fronted Tern (<i>Sterna striata</i>)	w RbS ****
Black-fronted Tern (<i>Sterna albobristata</i>)	w S **
Caspian Tern (<i>Sterna caspia</i>)	w RS **
New Zealand Pigeon (<i>Hemiphaga novaeseelandiae</i>)	t S #
Shining Cuckoo (<i>Chrysococcyx lucidus</i>)	t Sb *
New Zealand Kingfisher (<i>Halcyon sancta</i>)	w RbS **
New Zealand Pipit (<i>Anthus novaeseelandiae</i>)	t S *
Welcome Swallow (<i>Hirundo tahitica</i>)	w RbS ***
Grey Warbler (<i>Gerygone igata</i>)	t RbS *
South Island Fantail (<i>Rhipidura fuliginosa</i>)	t RbS *
Silvereye (<i>Zosterops lateralis</i>)	t RbS ****
Bellbird (<i>Anthornis melanura</i>)	t RbS *

Definition of terms To be completed.

Appendix 2: Fish Taxa

Fish taxa recorded from the Avon-Heathcote estuary during five fish surveys reported by Unwin and Hawke (2012) between 2005 and 2011.

Common name	2005	2006	2007	2010	2011
Chinook salmon	y	y			
Clingfish	y		y		y
Common Bully					y
Common smelt	y	y	y	y	y
Common sole	y	y	y	y	y
Estuary stargazer	y	y	y	y	
Giant bully	y		y		y
Globefish	y	y			
Inanga			y		y
Kahawai	y	y	y		y
Sand flounder	y	y	y	y	y
Shortfin eel	y	y	y	y	y
Slender sprat	y				y
Slender stargazer	y	y	y	y	y
Speckled sole		y			
Spotted stargazer	y	y	y	y	y
Spotty	y	y	y		
Stout sprat	y	y	y	y	y
Triplefins	y	y	y	y	y
Yellowbelly flounder	y	y	y	y	y
Yelloweye mullet	y	y	y	y	y
Number of species	21	16	16	11	16