

Fixing the Port

Over the past decades, Toondah Harbour has evolved into a busy passenger port that is surrounded by housing, local parks, roads and car parking areas. Sensitive habitat and conservation areas also adjoin these local urban areas. For decades, the problem of 'how to fix the port' has eluded successive councils and state governments.

The Problem

Since its beginning as an industrial port in the 1960s to support sand mining on North Stradbroke Island (Minjerribah), Toondah Harbour has evolved into a busy passenger port that is surrounded by housing, local parks, road and extensive car parking areas, as well as shorebird habitat.

Each year about one million passengers and 200,000 vehicles are transported through the Toondah Harbour port by 29,000 vessel movements.

This existing marine services hub comprises a turning basin, dredged 2.55 km public entrance channel, public boat ramp for recreational users and landward facilities, including ticketing offices and extensive car parking.

Fixing the port entails more than revitalising landward facilities and car parking areas. The Fison Channel is 2.55 km long and typically 45 m wide. It extends from the turning basin in front of the existing barge berths, via three significant bends to exit into deeper water 1.5 km past Cassim Island. The turning basin's diameter is below the accepted minimum for the maximum length and width of vessels currently using the harbour.

Toondah Harbour's port, harbour and navigation channel need to be brought up to the relevant Australian Standards and guidelines for harbours and approach channels.

Current maintenance dredging requirements

As sections of the harbour have an elevated bed level, dredging is needed to enable vessels to move within the turning basin and channel. From available records, maintenance dredging of the entrance channel and navigational basin at Toondah Harbour has been undertaken periodically in 1997, 2005, 2008, 2014 and 2019. In the most recent campaign, approximately 41,000 m³ was removed from the channel and turning basin.

Because of the cost and the need to find a suitable place to dispose of the material, this dredging work only maintains a minimum operational depth and width.

As well as the facilities on land, a permanent solution to widening and deepening the Fison Channel is a key, and often overlooked part of 'fixing the port' to meet Australian maritime standards for design, safety and operations.

What is being proposed?

When the Queensland State Government and Redland City Council sought a private sector proponent to revitalise the Toondah Harbour precinct, a key requirement was that the successful company undertake capital dredging to straighten, widen and deepen the Fison Channel and extend the turning basin.

Walker has addressed the capital-dredging requirements of the Fison Channel with an integrated design concept that:

- realigns the channel to reflect the new terminal location
- reduces channel bends from three to two to minimise maintenance dredging requirements
- provides a two way entrance channel with sufficient width and depth to allow safe navigation
- provides an unimpeded turning basin

Preliminary assessment by marine engineering experts indicates that a minimum of 500,000 m³ of material would need to be removed from the channel to achieve this outcome.

As illustrated in Figure 1, the Toondah Harbour project proposes to beneficially reuse the dredged material to create new land for development, foreshore parkland and new conservation areas. Without the reclamation, a suitable dredge material disposal site would need to be identified in Moreton Bay or transported to landfill via local streets at great environmental, social and economic cost.

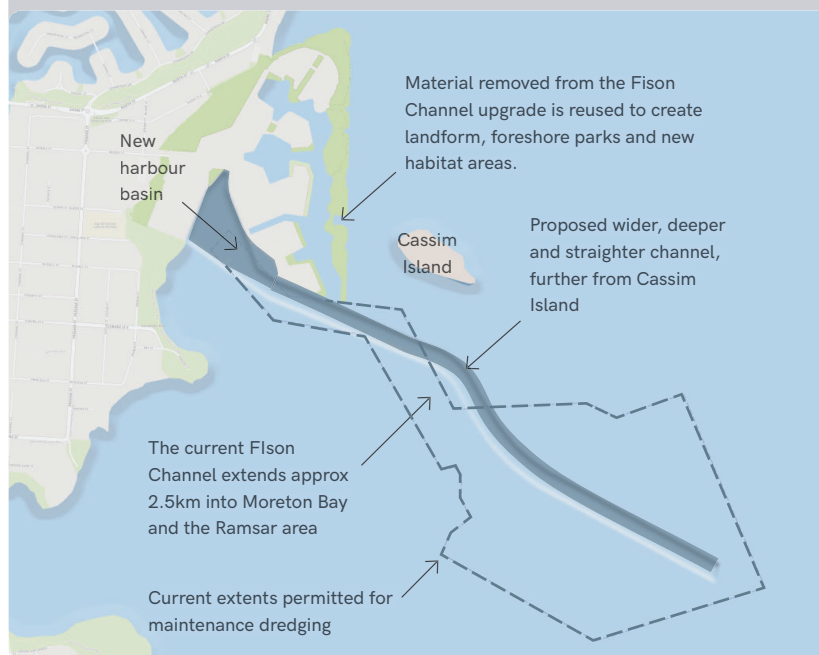


Figure 1 : Proposed channel works

The Moreton Bay Ramsar Wetland

The current environmental impact studies, research and analysis seeks to find balanced outcomes to protect and preserve the environmental qualities of the area, whilst delivering much needed infrastructure investment, local employment and foreshore amenities for the growing Redlands Coast population.

A Ramsar site is a wetland designated to be of international importance under the Ramsar Convention, an international treaty established in 1971 in Ramsar, Iran to halt the worldwide loss of wetlands and to conserve, through wise use and management, remaining wetlands.

Key Facts and Figures

- Approximately 42 ha of the PDA overlaps with the Moreton Bay Ramsar Site. This represents 0.03% of the Moreton Bay Ramsar site, which has a total area of 120,654 ha.
- The Moreton Bay Ramsar site is 110 km long from north to south and 35 km at its widest east to west alignment. It stretches from Caloundra to Southport.
- Toondah Harbour is an existing ferry port facility, which operates as the regional gateway to North Stradbroke Island (Minjerrabah) and southern Moreton Bay. Toondah Harbour was already an operating port when the Ramsar mapping was declared in 1993.
- Each year one million passengers and 200,000 vehicles are transported through Toondah Harbour on the commercial ferries and barges that operate from the site.
- Toondah Harbour is located within the Moreton Bay Marine Park. The Moreton Bay Marine Park is about 3,400km² in size.
- The existing 2.55km long Fison Channel also overlaps with the Ramsar area. Approximately 29,000 vessels move through the channel each year.

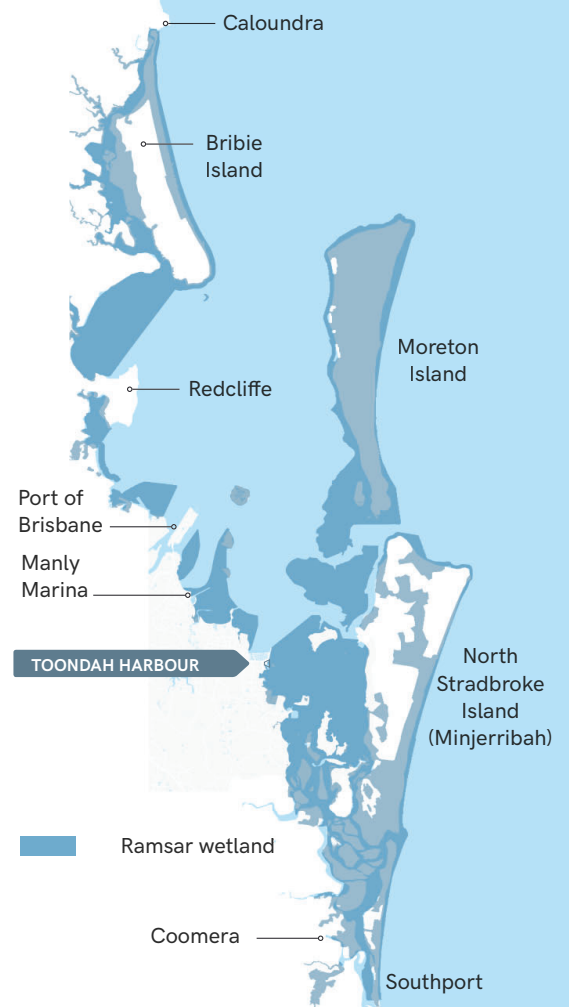


Figure 1 : Southern Moreton Bay Ramsar areas

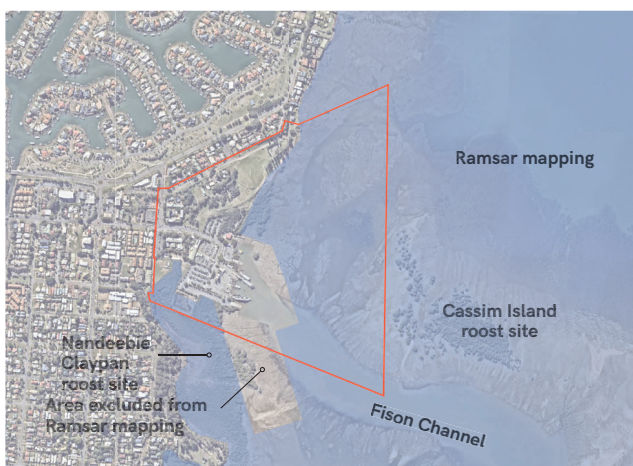


Figure 2: Ramsar mapping across Toondah Harbour

Ramsar mapping across Toondah Harbour

As the gateway to Southern Moreton Bay and Minjerrabah (North Stradbroke Island), Toondah Harbour will become an increasingly important transit destination and gateway for island residents, visitors and tourists. As the Redland city's major port connection, it is vital that the facilities are brought up to the same operational and maritime safety standards as other passenger ports across Australia.

A 6.2 ha area was excluded from the Toondah Harbour Ramsar mapping (refer Figure 2) when it was declared in 1993. This area does not allow for future port expansion and is located alongside a sensitive shorebird roost.

A key focus of the Toondah Harbour proposal is seeking a practical and environmentally responsive solution to fixing the Fison Channel and a solution to the disposal or beneficial re-use of the dredge spoil that needs to be removed from it.

Southern Moreton Bay's migratory shorebirds

Each year the Moreton Bay Ramsar Wetland is visited by approximately **30,000 migratory shorebirds**, down from 40,000 historically. Shorebird sites are prevalent throughout Moreton Bay's wetlands, reserves, creeks and islands. Based on the tides and prevailing conditions, shorebirds will move between inter-tidal areas, sand banks and mudflats in search of food sources. Some of the foraging locations and roost sites where migratory shorebirds can be seen in Southern Moreton Bay are listed on the map below.

Ongoing shore bird counts, surveys and assessment will continue as part of Toondah Harbour's environmental studies. This work will provide valuable research and understanding of the Toondah Harbour site and how migratory shorebirds use this habitat. This information will benefit everyone with an interest in migratory shorebirds on the Redlands Coast and Moreton Bay.



If the EIS studies identify that impacts will occur, an offsets package would be developed in consultation with the government agencies and be designed to ensure an overall benefit in the ecological character of the Moreton Bay Ramsar Wetland and for migratory shorebirds.

Activities may include rehabilitation of areas in the Ramsar Wetland to increase the quality and availability of shorebird habitat, or implementation of management measures such as fences and noise barriers to protect existing local habitat areas.

Toondah Harbour's shorebirds

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Recent shorebird surveys have begun to provide valuable information on migratory birds that roost on Cassim Island and in the Nandeebie Claypan. Further studies will be undertaken during the preparation of the Environmental Impact Statement (EIS) for the Toondah Harbour proposal to better understand how these shorebirds use the Toondah Harbour mudflats and broader Southern Moreton Bay area for foraging and food sources



Figure 1: Toondah Harbour's intertidal areas



The Nandeebie Claypan roosting site, south of the Toondah Harbour PDA

Shorebird roosts

Toondah Harbour is located near three important roosting sites for migratory shorebirds, which are located in the vicinity, but outside of the Toondah Harbour PDA:

- Cassim Island mangrove roost sites, which is used on high tides
- Nandeebie Claypan, which is used mainly on spring tides
- Oyster Point shoreline, which is used on all tides

Detailed surveys in 2014/15 found that:

- an average of **699** and a maximum of **920** migratory shorebirds were counted using the Cassim Island high tide mangrove roost site east of the PDA;
- an average of **250** migratory shorebirds, with a maximum of **1060** using the Nandeebie Claypan, mainly on spring tides; and
- similar numbers of migratory shorebirds to Nandeebie Claypan use the Oyster Point shoreline further south of the claypan on all tides. Birds move between the two roosts depending on the height of the tide and extent of disturbance at Oyster Point.

Feeding habitat

Within the Toondah Harbour PDA there is approximately **40 ha** of feeding habitat (intertidal mudflats) for shorebirds. There is **23,000 ha** of intertidal mudflats and sandflats within the Moreton Bay Ramsar Site.

Based on the concept master plan for the Toondah Harbour development **32 ha** of intertidal mudflat within the PDA will be affected by the Toondah Harbour development. This represents **0.14%** of the total feeding habitat in the Moreton Bay Ramsar Site.

Detailed studies on migratory shorebirds within Toondah Harbour during the **2014/2015** season found the feeding habitat within the PDA was used by **22** water bird species, including seven migratory species. An average of **101** and a maximum of **158** migratory shorebirds were counted feeding on the intertidal mudflats. During **2019** surveys, the average count had fallen to **33** birds.

Ongoing wader counts and assessment will continue during the EIS to provide further informed understanding of the site and surrounding areas and migratory shorebird habitat use.

The Eastern Curlew

The critically endangered Eastern Curlew visits seasonally around the Australian coastline, with up to 3,500 birds estimated to visit Moreton Bay each year. Tracking of species such as the Eastern Curlew has indicated these birds have a wide and varied feeding range. This range includes movement between the mainland and Southern Moreton Bay Islands, dependant on tides and conditions.

Eastern Curlew migrating to Australia have undergone a severe population decline of 66.8% over 20 years and 81.4% over 30 years (Threatened Species Scientific Committee 2015). The cause of the decline is attributed to severe habitat loss at key migration staging sites in the Yellow Sea region of China and South Korea as well as hunting pressure in Asia (Murray et al. 2014, Threatened Species Scientific Committee 2015, Moores et al. 2016, Studds et al. 2017). These declines are not due to impacts or loss of habitat within Australia.

Detailed shorebird counts have been conducted within the Toondah Harbour PDA and surrounding areas over recent years, recording the following numbers of Eastern Curlew:

- In 2014/15, migratory shorebird counts within the Toondah Harbour PDA area included a maximum of seven (7) and an average of five (5) Eastern Curlew.
- In 2019, an average of a four (4) and a maximum of five (5) Eastern Curlew were counted within the Toondah Harbour PDA.
- Outside of the PDA area, an average of 10 and a maximum of 45 Eastern Curlew were counted at the Nandeebie Claypan roost site during the 2014/2015 summer surveys.

As shown in Figure 1, a minimum 250 m buffer has been proposed between urban development and Cassim Island and Nandeebie Claypan roost sites that area located outside of the PDA area. This is based on the Conservation Advice for *Numenius madagascariensis* (Eastern Curlew) (2015) which states that the species is easily disturbed by human interaction within 250m.

The EIS process will assess the potential impacts of the proposed project on Eastern Curlew and how these impacts can be mitigated or offset to ensure a net benefit to Eastern Curlew and migratory shorebirds more generally.

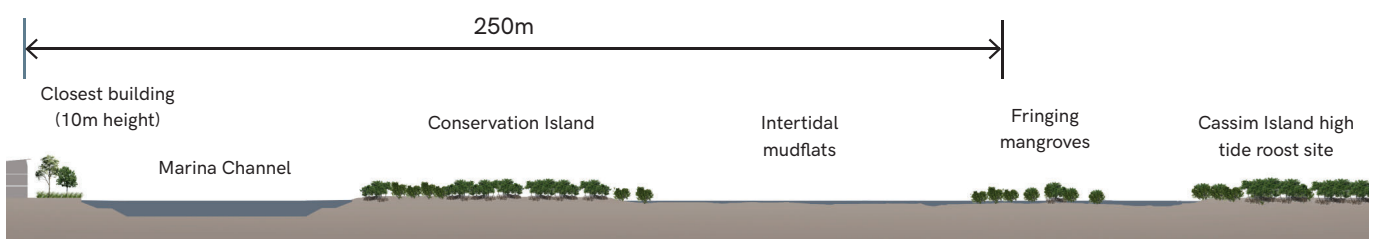


Figure 1: Cassim Island shorebird roost buffer and proposed 250m minimum separation