

TWEED RIVER ENTRANCE SAND BYPASSING PROJECT

THE PROJECT

Sand is swept northwards along the north coast of NSW by the predominantly south-easterly swells. The extension of the breakwaters at the mouth of the Tweed River in the early 1960s interrupted this movement of sand. As a result, the beach to the south of the entrance widened significantly, while beaches to the north eroded.

The Tweed River Entrance Sand Bypassing Project is an environmentally sustainable project of the New South Wales and Queensland State Governments that was created to achieve the following objectives:

- Establish and maintain a navigable entrance to the Tweed River;
- Restore the southern beaches of the Gold Coast and supply them with sand in perpetuity.

HOW THE SAND BYPASS SYSTEM WORKS

The fixed sand bypassing system has been designed to intercept the natural northward movement of sand before it reaches the Tweed River. Sand collects in cone shaped depressions in the sea bed formed by submersible pumps positioned along a 450m long jetty that is 200m south of the river entrance. The sand is pumped through a pipeline under the Tweed River to an outlet near Snapper Rocks, usually at night. Sand may also be placed at Duranbah Beach, Kirra Point, and just west of Snapper Rocks when required.

CURRENT STATUS

Dredging

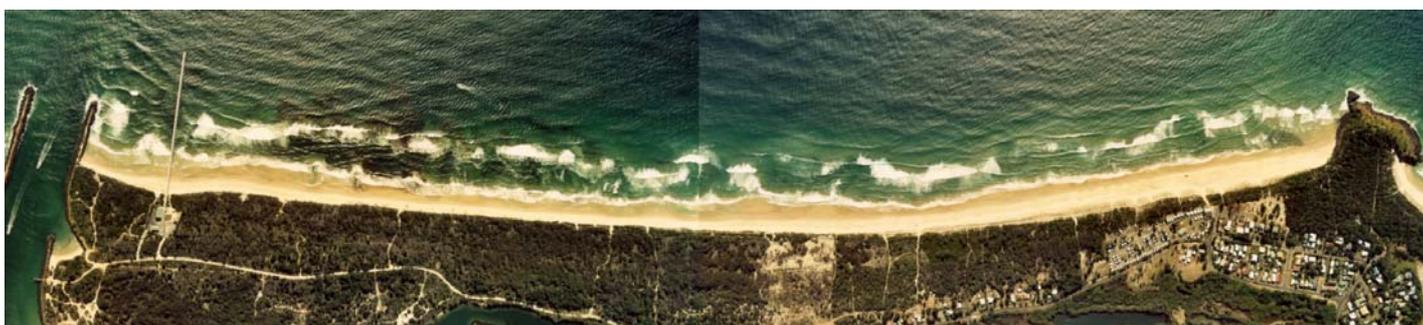
Since the project commenced in 1995, a total of 4.5 million cubic metres of sand has been dredged from the river entrance and delivered to the southern Gold Coast to restore the beaches.

Pumping

A further 3 million cubic metres of sand has been pumped by the sand bypass system since it began operating in early 2001. During the first 4 years of operations, the sand bypass system removed some of the sand that had built up on Letitia Spit, immediately south of the Tweed River mouth.

Letitia Spit

More sand than the normal coastal sand drift was pumped during the initial stages of the sand bypass project to construct a sand trap for the sand bypass jetty. At the jetty, the beach was drawn back about 100m. The recession tapers off to the south, and no recession has occurred at Fingal. As the position of the beach is now approaching the long term position, dune works will be undertaken to establish a natural dune shape. Native vegetation will be planted to help stabilise the dunes and to improve the habitat of the area.



Letitia Spit – 5 March 2005

Duranbah Beach

The artificial bypassing of sand from the jetty on Letitia Spit to Snapper Rocks has reduced the natural flow of sand through the river mouth. As a result, Duranbah Beach has become smaller than it was before the start of the sand bypass project. This change is a consequence of re-establishing a deeper entrance to improve navigation conditions.

To compensate for the reduced natural flow of sand onto Duranbah Beach, the project supplies sand to the beach whenever necessary to ensure there is a useable beach and good surfing shoals. In May this year, a trial sand placement was undertaken in conjunction with Tweed Shire Council to examine the effects of enlarging the dunes at the rear of the beach. The outcome is currently being monitored by the project. This work is part of a plan to refine the operation of the bypass system to give the best results.

River Entrance

Since the sand bypass system was commissioned over 4 years ago, the navigation conditions have been much safer for boats crossing the bar.



Entrance to the Tweed River – 6 August 2004

Rainbow Bay, Greenmount and Coolangatta Beaches

Storm and wave conditions can quickly change the size of these beaches. This is a normal occurrence that exists at beaches just north of headlands in this region. Whether the sand originates from natural sand flow or a sand bypass system, it builds up in large quantities to the south of the headland and in larger southerly wave conditions the sand sweeps around the headland in a lump. In the future, the beaches will be generally narrower than they have been over the past few years. There has been a measurable trend towards becoming narrower over the past year or so.

Kirra and North Kirra Beaches

These beaches now provide recreational amenity in an area that had been eroded badly for many years. The beaches are currently wider than expected in the long term. This is because of the lower capacity of the waves to move the sand along the southern Gold Coast beaches compared to the large quantities of sand coming from Letitia spit via the sand bypass system in the early years of the project. The beaches will become narrower as the waves slowly disperse the sand to the north and they will tend to be like they were before the 1960s. However, if wave conditions remain generally small, then this may take a couple of years, or so.

WANT TO KNOW MORE

Project websites contain a more detailed description of the project. The sites provide information such as seabed maps of the Tweed River Entrance, sand delivery quantities, technical details, newsletters, photographs of the river entrance and the beaches, and links to other weather, tide and wave recording websites. The addresses are:

www.tweedsandbypass.nsw.gov.au
www.epa.qld.gov.au/sandbypass
www.wrl.unsw.edu.au/coastalimaging/tweed

Alternatively, you can contact the
Tweed Sand Bypass on (02) 6627-0104