



## Tweed River Entrance Sand Bypassing Project (TRESBP)

[www.tweedsandbypass.nsw.gov.au](http://www.tweedsandbypass.nsw.gov.au)

## WHAT IS TRESBP?

Fact sheet 1, of 2.

### TRESBP's role

The Tweed River Entrance Sand Bypassing Project (TRESBP) is a sand transport system. The system collects drifting ocean sand at a jetty on the southern side of the Tweed River entrance and 'delivers' the sand, by underground pipe, back to the ocean on the northern side of the river. From here, the sand is transported by wave currents to nourish southern Gold Coast beaches.

The bypass system operates because the Tweed River entrance training walls block the natural northwards drift of sand in the ocean. The TRESBP jetty intercepts the sand before it accumulates around the river entrance training walls. Accumulating sand is a major navigation hazard and deprives beaches further north of sand. In addition to the fixed pumping jetty and underground pipes, an ocean-going dredge periodically clears the navigation channel. Set by legislation, TRESBP's purpose is:

- improving and maintaining navigation conditions through the Tweed River entrance
- maintaining sand supply to southern Gold Coast beaches.



Tweed River, with Tweed Heads/Coolangatta (north) and TRESBP jetty (south).

### TRESBP's location

The jetty and adjacent control centre for the bypassing system are located near the mouth of the Tweed River, in north-east New South Wales. The river flows into the Pacific Ocean. The town of Tweed Heads, New South Wales, is near the river mouth; Tweed Heads is a twin town with adjacent Coolangatta, Queensland. The New South Wales–Queensland border runs between the two towns. Coolangatta is the largest town at the southern end of Queensland's famous Gold Coast. For both the Gold Coast and Tweed Heads, tourism, recreation and hospitality are important to the region and the economy. Immediately south of the Tweed River mouth is a naturally vegetated sand spit, Letitia Spit, part of Fingal Head.



### TRESBP's background

Tweed sand bypassing began in 2001, after years of research. The system is a long-term coastal management measure.

#### Training walls



Tweed River entrance, 1979, with sand build-up around the south wall.

The rock training walls at the Tweed River entrance were extended by about 380 metres between 1962 and 1965 to improve navigation safety at what was a very hazardous river entrance. The training walls created a clearer navigation channel; however, assistance to navigation was only temporary. Within years, sand built up again around the training walls and in the river entrance, creating a dangerous sandbar. Navigation accidents began to occur again.

#### Beaches and erosion



Coolangatta Beach, 1969, depleted of sand after severe storms.  
*Image courtesy of Gold Coast City Council Local Studies Library*

This coast has some very well-known surfing locations including Snapper Rocks, Duranbah, Kirra and Coolangatta beaches, (see place names on the aerial image on page 2). This coastline also has high wave energy and is prone to erosion. When two decades of severe storms hit the Gold Coast in the 1960s and 1970s, beaches were severely eroded. Further, the beaches were deprived of the sand they needed for replenishment because the Tweed River entrance training wall extensions of the 1960s blocked northwards drifting ocean sand. For historical beach images, see [www.tweedsandbypass.nsw.gov.au/historic\\_photographs](http://www.tweedsandbypass.nsw.gov.au/historic_photographs)

The late 1970s to the 1990s, in contrast, had far fewer storms. But even without drastic storms, southern Gold Coast beaches suffered erosion. From the 1960s to the 1990s these beaches missed out on tens of millions of cubic metres of sand because the training walls are an obstacle for the drifting ocean sand. For the stability and appearance of a beach strip, especially in a tourism area such as the Gold Coast, beaches need a continuing supply of sand.

Decades earlier, in the 1930s and 1950s, Gold Coast beaches had been severely eroded due to major storms. Damage to southern Gold Coast beaches was marked. Waves and currents, however, brought more sand and replenished beaches—the sand reached the beaches as these storms were prior to the Tweed River training wall extensions of the 1960s. Even in very stormy periods, eventually beaches recovered. The Tweed sand bypassing system restores this northwards drift of sand along the coastline, replenishing beaches.

## A 'delivery' system

The sand bypassing system is a practical way of moving sand past the Tweed River entrance. Clean ocean sand, mainly quartz grains and shell fragments, is drawn into the system at the TRESBP jetty at Letitia Spit. From here, underground pipes take the sand as slurry—sand and a little seawater—back to the ocean north of the river. Most sand goes to the pipe outlet at East Snapper Rocks, where wave currents carry the sand to beaches.

At times of big waves, large quantities of sand drift along the coast; so, large quantities are drawn in at the TRESBP jetty and delivered through the pipe network. In calm conditions, a smaller quantity of sand drifts in the ocean to be picked up at the jetty and delivered by the pipes. In this respect, the system replicates nature. The volume of sand drawn in at the jetty and 'delivered' by pipe is determined by the volume drifting north in the ocean along Letitia Spit.

## The environment

The environment is closely monitored. The beach profile is carefully recorded, with the seabed surveyed and mapped each quarter, and annually in deeper water. An Argus coastal imaging system

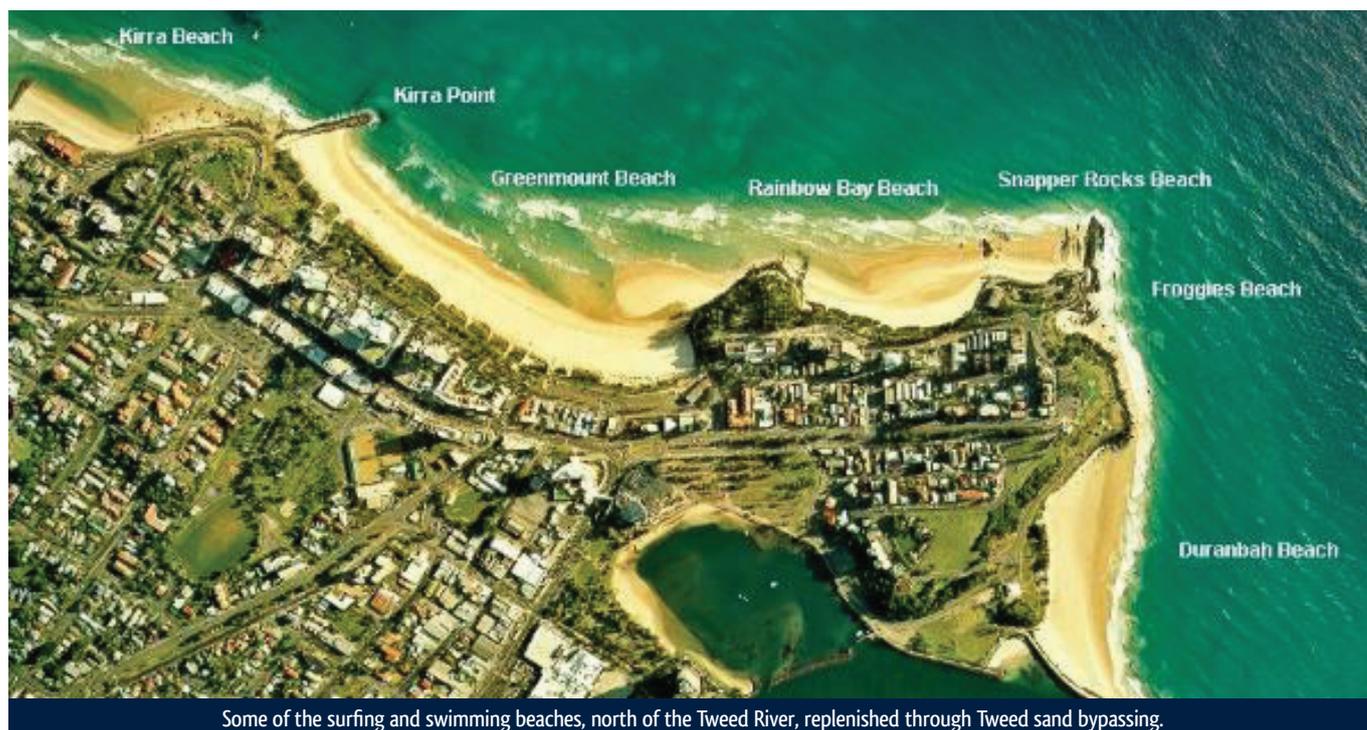
provides hourly, up-to-date information during daylight hours on entrance conditions and upper beach and shoreline changes. This works through fixed cameras at four locations. See [www.tweedsandbypass.nsw.gov.au/coastal\\_video\\_monitoring](http://www.tweedsandbypass.nsw.gov.au/coastal_video_monitoring)

Aerial images, taken twice a year, allow further study of the coastline. In addition, monthly environmental monitoring summaries are produced and placed online. Also monitored are wetland vegetation, tidal range in the Tweed River, Kirra Reef and the impact of Kirra groyne. Further, environmental management system audits are carried out every three years by an external agency. All impacts are reviewed.

## Negotiations and legislation

Sand bypassing at the Tweed is the result of decades of coastal studies and community and political negotiation. Final agreement for the joint project between the New South Wales and Queensland governments was reached in 1994, with the signing of a 'Heads of Agreement'. The sand bypassing operation is administered and jointly managed, because of the border location, by both the New South Wales and Queensland governments. Legislation in each state formalised the 1994 agreement. This legislation sets out financial arrangements and roles and responsibilities for the two states. See TRESBP legislation at: [www.legislation.nsw.gov.au/sessionalview/sessional/act/1995-55.pdf](http://www.legislation.nsw.gov.au/sessionalview/sessional/act/1995-55.pdf) and [www.legislation.qld.gov.au/Acts\\_Passed/Acts\\_Passed\\_NUM\\_1998.htm](http://www.legislation.qld.gov.au/Acts_Passed/Acts_Passed_NUM_1998.htm) Operational costs are divided equally between New South Wales and Queensland; the Queensland cost is split between the Queensland Government and Gold Coast City Council.

The jetty and pipe network took thirteen months to build, commencing in February 2000. The pumphouse and the landward section of the jetty are on Aboriginal land, Bundjalung country, with consent from the local Aboriginal Land Council. Engineering firm McConnell Dowell were awarded the contract to design, build and operate the system under contract until 2024. Following testing, the system commenced in May 2001.



Some of the surfing and swimming beaches, north of the Tweed River, replenished through Tweed sand bypassing.