The Palm Beach Artificial Reef is an underwater rock structure built to combat coastal erosion along an iconic stretch of Gold Coast coastline. Construction of the reef was completed in September 2019 as part of City of Gold Coast’s Ocean Beaches Strategy 2013-2023.

The History

Palm Beach on the southern Gold Coast is one of the city’s most vulnerable beaches to the threat of coastal erosion. Storms and swell events have historically caused severe erosion along Palm Beach, presenting a significant safety risk, damaging beachfront infrastructure, and jeopardising recreational beach amenity through temporary loss of usable beach.

The Design

The City worked with a team of world class experts in coastal science and engineering to deliver the best possible solution specific to Palm Beach. Significant investigation went into the design including computer modelling, wave tank testing and real-life coastal data analysis.

The resulting design is a rock structure 160 metres long and 80 metres wide, positioned 270 metres offshore from Nineteenth Avenue. It is constructed of 60,000 tonnes of large rock boulders, and is 1.5 metres below the average water level at its highest point.

The artificial reef influences surrounding waves and currents to help promote a long term increase in sand along vulnerable sections of Palm Beach. The increase in sand is generally located just offshore within the surf zone, not always distinctly visible to beach users, but in a position to act as a protective buffer from erosion into the future.

While the primary purpose of the artificial reef is coastal protection, surfing outcomes were considered during the design of the reef. During certain swell conditions there is expected to be waves breaking on the reef suitable for intermediate to advanced surfers.
The Project
Phase 1 of the project began in 2017 when the City deployed a specialised dredge vessel to transfer sand from our offshore sand reserves and place it around the nearshore wave breaking zone. More than 470,000 cubic metres of clean sand was delivered to the Palm Beach shoreline to provide an effective buffer to coastal erosion ahead of construction of the reef.

The second phase of the project, construction of the artificial reef, began in May 2019. Rocks weighing up to eight tonnes each were quarried in south east Queensland and shipped from the Port of Brisbane to the site. A specialist marine construction vessel called a backhoe dredger then accurately moved the rocks into position using GPS technology. Construction was completed in September 2019.

The Legacy
A plaque was unveiled at Nineteenth Avenue in Palm Beach to commemorate the completion of the $18.2 million artificial reef project. Now that the artificial reef is complete, the City is closely monitoring sand movement, surf amenity and ecology around the reef. Ongoing data collected from the project may help to inform the design of future artificial reefs.

Safety
All beach users are advised to familiarise themselves with beach and surf safety information prior to accessing City beaches. Signage has been installed along beach access points near the reef detailing hazards and warnings related to the artificial reef.

When swimming or surfing near the artificial reef please note:

- Water can be shallow above the artificial reef; please exercise caution when in close proximity.
- Observe the surf and wave conditions before surfing.
- Conditions may be dangerous and can change unexpectedly.
- There may be strong currents and hazardous waves on and around the artificial reef at times.
- The submerged uneven rock surface may present an entanglement risk.

- Similar safety considerations exist when swimming or surfing near any submerged rocks.
- The area may not be patrolled by lifeguard services.