# 6. Port Navigation

## 6.1 Southport pilotage area

The Southport pilotage area is the area of:

(a) waters bounded by an imaginary line drawn:

- starting at the high water mark at a point where latitude 27º 39.90' south meets the eastern shoreline of the mainland;
- then due east to the high water mark on the western shoreline of North Stradbroke Island at latitude 27º 39.90' south;
- then by the high water mark in a southerly direction along the western shoreline and in an easterly direction along the southern shoreline of North Stradbroke Island to the south- eastern extremity of the island at approximate latitude 27º 43.64' south, longitude 153º 27.10' east;
- then across to the high water mark on the northern extremity of South Stradbroke Island at approximate latitude 27º 45.29' south, longitude 153º 26.69' east;
- then in a southerly direction along the western shoreline and in an easterly direction along the southern shoreline of South Stradbroke Island to the seaward extremity of the northern breakwater at the entrance to the Gold Coast Seaway;
- then in an easterly direction to latitude 27º 55.90' south, longitude 153º 27.06' east;
- then due south to latitude 27º 56.10' south, longitude 153º 27.06' east;
- then in a westerly direction to the seaward extremity of the southern breakwater at the entrance to the Gold Coast Seaway;
- then by the high water mark in a westerly direction along the northern shoreline and in a southerly direction along the western shoreline of The Spit, returning in a northerly direction along the eastern shoreline of the mainland to the starting point; and

(b) the navigable waters of rivers and creeks flowing, directly or indirectly, into the waters in paragraph (a).

## 6.2 Charts and publications

Recommended charts for the Gold Coast region include:

- AU5GOC01 – Australia Gold Coast Seaway

The Beacon to Beacon Directory provides a comprehensive guide to Queensland waterways between Tweed Heads and Gladstone, and freshwater impoundments west to Charleville. Similar to a street directory, this publication provides easy-to-follow maps of south-east Queensland waterways. The maps are based on information provided by Maritime Safety Queensland cartographers and include extra information such as rules and regulations, and boat ramp locations. These maps are freely available online through the MSQ website.

## 6.3 Gold Coast Seaway — features and description

### 6.3.1 Approaches

Ships bound from seaward by day will first make out the rock training walls and their white lighthouse towers from a minimum distance of two nautical miles. Other features, which are prominent from this distance are the Sand Pumping Jetty to the south of the southern breakwater wall and the rear seaway lead light F Bu (Dir FY day). A group of five apartment buildings stand prominent inland and north of the seaway. During the hours of darkness, the tallest of these buildings displays a white occulting light (Oc. 5s).


**Figure 1 - Approaches**

### 6.3.2 Northern approach

When approaching the Gold Coast Seaway from the northward ships should not pass too close to the ebb tide delta which lies north-east of the seaway and extends some 0·95 nautical miles to seaward (see figure 2).

At times when the swell height exceeds 1·5 metres this area of shoal water is prone to heavy breakers.


**Figure 2 – Northern approach**

### 6.3.3 Southern approach

When approaching the Gold Coast Seaway from the south, ships should maintain a clearance of at least one nautical mile off Gold Coast beaches as shark nets are positioned adjacent to the major surfing areas. Large vessels should keep a course at least two nautical miles from the beach and maintain an extra lookout as small vessels regularly use this area. Nets and drum lines are usually positioned up to 300 metres off the beach and are marked with either white floats or inflatable pink or yellow buoys.

There are two artificial reefs to be aware of when making approach from the southeast. An artificial reef exists off Narrow Neck, immediately north of Surfers Paradise beach, and extends some 300 metres off the beach. This reef is located within the surf zone and does not pose a threat to mariners making passage from the south.

Another artificial dive reef is located approximately 2 nautical miles southeast from the Gold Coast Seaway entrance in approximate position latitude 27° 57.655' S, longitude 153° 27.331' E, off Main Beach. This underwater reef is a dive site and rises from the sea floor to within 8 metres of the surface. The reef area covers 500 square metres and is marked by 4 yellow special mark buoys Fl Y 3s. There are 3 unlit mooring buoys located within the 500 square metre area.


**Figure 3 – Southern approach**

### 6.3.4 Eastern approach

The outgoing tidal stream sets strongly through the Gold Coast Seaway and care should be exercised if crossing the seaway during the ebb tide. Steep pressure waves form at the eastern end of the seaway due to the speed of the ebb tide, which runs at its quickest (three knots) three hours after HW.

The effect of the ebb tide has an influence on the sea conditions out to a distance of about one nautical mile. Sea conditions are generally confused and steep waves form as a result of the opposing forces of the tide and wind.

## 6.4 Gold Coast Seaway leads and beacons

There are two sets of leading beacons and four lateral marks, which assist navigation when making entry into the Southport Broadwater via the seaway.

The Centre Line Leads (255°T) are marked by two beacons aligned for passage through the centre of the seaway. The front lead beacon, Iso Bu 4s, is a directional light and is at its brightest when the leads are in line. It is positioned on a five metre solid white tower located on the foreshore of Wave Break Island. The rear lead beacon, F Bu (Dir FY day), is a tall white pole constructed on the mainland at Labrador. This rear lead exhibits a yellow directional sodium fixed light by day and is visible well before the front leading mark is observed (see figure 4).


**Figure 4 – Centre line leads**

The Bar Clearance Leads (291°T) are marked by two lighted structures aligned for passage into the seaway from the south-east. A solid white beacon GS1 (Fl G 4s 5M) located on the eastern extremity of the north breakwater indicates the front lead, while the rear lead, (Oc 5s 8M) is positioned on the tallest of a group of four prominent buildings situated on the mainland at Bayview Harbour.

The Bar Clearance Leads (291°T) have no lights showing by day but can be clearly seen at some distance (see Figure 5).


**Figure 5 – Bar clearance leads**

The two breakwaters and sand pumping jetty are clearly seen on radar from a distance of 0·6 nautical miles whilst closing the seaway on the bar clearance leads (291°T). At night the red and green lateral mark lights on GS1 (Fl G 4s) and GS2 (Fl R 4s) at the end of the breakwaters are clearly visible from this location.

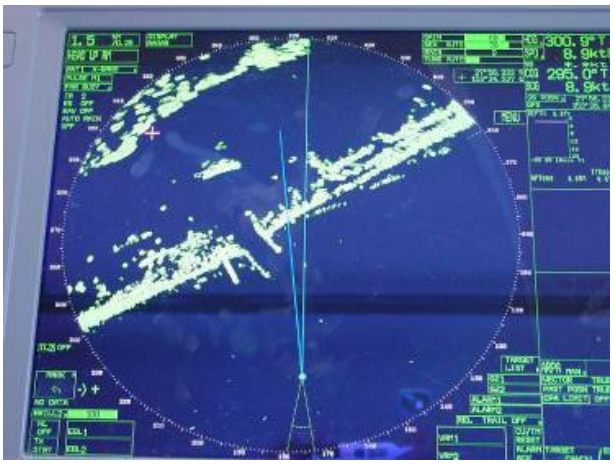

**Figure 6 – Radar view**

### 6.4.1 Use of the Gold Coast Seaway leads

At times, an ebb tide delta can form immediately north of the Gold Coast Seaway entrance resulting in the depths on the Centre Line Leads becoming variable.

As the northern migration of sand drifts along this area of coast, small sand bars form at the entrance and the depth on the leads is subject to change. The use of the Bar Clearance Leads is required when the sea conditions are such that breakers form close to the centre line leads.

The Bar Clearance Leads are also used to clear the area of confused seas caused by the ebb tide. The direction of the swell also dictates the use of these leads. Notices to Mariners provide regular updates.

### 6.4.2 Gold Coast Seaway — inbound from the pilot boarding ground

Once at the Pilotage Boarding Ground a westerly course is steered to pick up either set of leads to enter the Gold Coast Seaway. Both sets of leads are visible from at least 1·5 nautical miles offshore. The sea state and tidal conditions will determine which set of leads is to be used to make entry.

**Figure 7 – Inbound from pilot boarding ground**

Should the conditions be smooth with a swell height less than 1·5 metres and an incoming tide the Centre Line Leads (255°T) will be aligned at 1·5 nautical miles offshore.

If conditions require the use of the Bar Clearance Leads (291°T) these leads will be visible from the south-east at a distance of at least 1·5 nautical miles. The southern breakwater will be passed at a distance of 200 metres and extreme caution should be exercised during ebb tide conditions and when seas rise above 1.5 metres as breakers form off this breakwater.

Once past the breakwater the Centre Line Leads are conspicuous and when at a position 120 metres off the breakwater the leads will come into line where, by this stage, the ship will be on a heading of 255°T for entry into the seaway.

When inside the two breakwaters the channel is a maximum of 200 metres wide. At times a shoal area forms along the inside of the north breakwater where occasional breakers form in heavy weather. This channel narrows after passing the seaway communications tower and diverts north towards the Coomera River or south towards Southport.

## 6.5 South Channel to Southport Boat harbour

After passing GS4 (Fl R 4s) adjust course to port and remain about 130 metres off the south wall throughout the turn.

The South Channel is approximately 100 metres wide and is marked with sets of lateral beacons with lights synchronised to flash 4s. Steer approximately 178°T for a distance of 1·2 nautical miles and after passing S10 alter course to approximately 175°T for a distance of 0·6 nautical mile for the final leg to the marinas. This channel experiences heavy recreational boating activity on weekends and holidays with many small craft and personal watercraft competing for room.

Navigating the South Channel at night is demanding due to the large quantity of background lighting from the buildings and streetlights of Southport and Main Beach. Care should be exercised when transiting towards the south as the lateral marks can be lost in the urban lighting.

**Figure 8 — South Channel**

## 6.6 Berthing and vessel facilities

Southport has four main marinas where berthing of vessels up to 130 metres in length can be achieved. The channel is approximately 100 metres wide where swing room is required for berthing. The tidal stream sets strongly through the channel near the marinas and vessels should take advantage of slack water for maneuvering.


**Figure 9 – Berthing vessel facilities**

**Figure 10 – Southport Mega Yacht berth**

## 6.7 Anchoring restrictions

A small craft anchorage is available for transient vessels east of the South Channel between beacons S6 and S8. Refer to Appendix 9.6 Prohibited anchorage within the vicinity of Swing Basin at Southport Yacht Club.

All Gold Coast waterways are subject to anchoring and mooring restrictions. Information can be sought from the office of the Gold Coast Waterways Authority.

**Figure 11 - Anchorages**

## 6.8 North Channel to Coomera River mouth

Whilst on the Centre Line Leads (255°T) making entry to the Southport Broadwater, alter course to starboard when abeam of the seaway communications tower. Maintain a distance off the north breakwater of 130 metres until N1 (Fl G 4s) is abeam.

Set a course to pass between the remaining North Channel beacons and prepare to alter course to starboard when abeam N7 (Fl G 4s). After passing N7 set a course of 022°T towards Currigee camp on South Stradbroke Island, then continue northward round the next

three red lateral marks whilst maintaining a distance of at least 100 metres off the beach. Three green lateral mark buoys (Fl G 3s) have been established adjacent to Currigee to assist in maintaining distance off the beach.

Alter course to pass the next two green lateral beacons whilst maintaining position mid channel. When abeam of the northern green beacon (Fl G 2·5s) alter course to starboard and steer 001°T for a distance of 0·7 nautical miles. While maintaining this course a red lateral beacon (Fl R 6s) and a yellow special mark beacon (Fl Y 2·5s) will pass down the port side.

Once passed and clear of the special mark, slightly alter course to port and remain at least 100 metres off the shoreline of the Sovereign Islands. Follow the curve of the island, whilst maintaining the 100 metres distance off, for entry into the Coomera River.

**Figure 12 - North Channel**

## 6.9 Coomera River mouth to Gold Coast marine precinct and Gold Coast City Marina

The Coomera River navigation channel varies with a minimum design width of 40m at the narrowest point. The channel from Paradise Point upstream to the Gold Coast City Marina follows the natural path of the river, passing Hope Harbour Marina and Sanctuary Cove.

The river is marked by a combination of lit lateral marks and leading lights. Special and Cardinal marks indicate channel junctions. There are no lit navigation aids above the Gold Coast City Marina.

**Figure 13 – Coomera River mouth and Gold Coast City Marina**