5. Port navigation and operational restrictions

5.1 General

Draft figures are related to a draft in salt water of density 1025 kg/m³ and should be ‘as read’.

5.2 Passage Information

Vessels generally follow a series of channels from the Fairway, through Moreton Bay and then into the harbour and river. The route and channels selected will vary according to draft, speed, traffic and environmental conditions. Further information is contained in NP15 Australian Pilot Volume III.

Note – The North East Channel is not a maintained channel used by the pilot service. The channel is used by small craft such as fishing vessels, recreational vessels, small naval craft, and local tugs and barges.

5.3 Speed Limits

5.3.1 Moreton Bay

Smooth water limits 40 knots, unless otherwise prescribed.

5.3.2 Brisbane River – Gazetted Speed Limits

The gazetted speed limits, over the ground, by legislation for the Brisbane River are:

- from the Entrance Beacons to Luggage Point – 13 knots (three metre draft and over)
- upstream of Luggage Point – eight knots (three metre draft and over)
- from the public boat ramp at Kookaburra Park to Mount Crosby Weir – six knots (all traffic)
- Story Bridge to William Jolly Bridge – 15 knots (eight metre LOA and over)
- all creeks and waterways flowing into the Brisbane River (except the Bremer River) – six knots all traffic.

  Temporary speed limits may be gazetted during harbour works, such as wharf and bridge construction. Further information is available via VTS or Notice to Mariners.

5.3.3 Brisbane River – Operational Speed Limit

To assist in the management of berth surge, an operational speed limit (for vessels 3m draft and over) is six knots through the water, when passing vessels that are moored at the following berths:

- Ampol Products
- Cement Australia
- Wagners
- BP Products
- Viva
- Quantem Liquid
- Incitec North
- Pinkenba Common User Berth

There may be circumstances where this speed is required to be exceed, such as high windage vessels. The vessel, normally via the embarked Pilot, will advise Brisbane VTS who will pass this information to vessels alongside.

5.4 Draft restrictions

Information about tidal windows and maximum drafts is available from VTS. As a guideline, tidal restrictions may apply for vessels over 12.0m draft through Moreton Bay up to the Fisherman Island berths: and for vessels over 8.5m draft for berths in the Brisbane River, upstream of Fisherman Island.

Note: Large swell height and/or period, tidal conditions or other special circumstances may require the restrictions be applied to shallower draft vessels for the duration of the event. This will be advised to agents and terminals when enacted and returned to the standard restrictions at the first safe opportunity.

5.4.1 Under Keel Clearance Management Overview

Port of Brisbane utilises both live and static systems to manage the safe movement of vessels within the port with respect to under keel clearance. The static system is a simple calculation of predicated tide against draft and is used for long term planning. Minimal under keel requirements within the static system are outlined in section 16.7.1.

The live system utilises live environmental data across the full breadth of the channels. This includes tide, wind and wave motion. The system uses the vessels specific stability data to calculate its predicated motion for the period of the specific transit, producing a under keel clearance profile along the length of the pilotage.

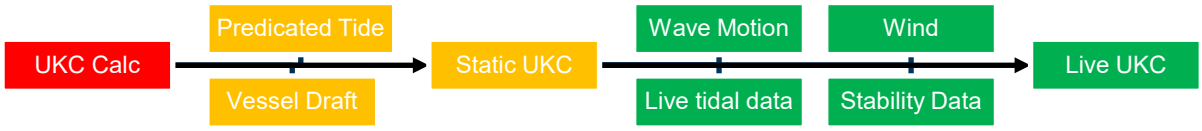

Figure 1 UKC Management

Note – The live system, with more accurate real time data inputs, is considered more precise than the static system therefore tolerances outlined at section 15.7 do not apply.

5.4.2 Static UKC programme (SUKC)

A SUKC programme provides tidal window information for both Moreton Bay and Brisbane River transits. The following information is required:

- name of ship
- date of arrival/departure/removal
- earliest ETA/ETD/removal
- ships draft (‘as read’)
- ships beam
- name of berth.

5.4.3 Live UKC programme

Port of Brisbane operates the DHI Water and Environment Pty Ltd NCOS Online Under keel Clearance Forecasting System to manage the safe movement of deep draft vessel transits of Moreton Bay. Vessels with a draft > 12·0 metres are required to supply stability information on the NCOS Vessel Particulars form (15.8.6).

5.4.4 Maximum draft forecasts

The SUKC program can provide a listing of maximum drafts on a monthly or daily basis for Moreton Bay and Brisbane River transits.

5.4.5 Hourly drafts alongside

For vessels loading to a deep draft for a particular berth, maximum predicted drafts alongside are available to assist masters and terminal operators to plan cargo operations.

Note: Drafts supplied are taken ‘as read’ and do not take into account water salinity or the tides being below predicted height.

5.4.6 Under Keel Clearances (UKCs) – Moreton Bay

Minimum UKCs for Moreton Bay vary according to the route taken. The clearances are greater towards the north of the bay, where waves and swell have the greatest effect. Generally, if the draft exceeds 12·0 metres irrespective of beam, then a tidal window may exist, and a draft check should be made.

If, because of draft restrictions, it is not possible to do a complete bay and river transit in an unbroken passage, it may be possible to affect the movement in two stages.

Stage 1 Fairway to Brisbane Roads anchorage.

Stage 2 Brisbane Roads anchorage to the relevant berth or vice versa for the departure of deep draft ships.

(Refer 15.7.1 Moreton Bay and Brisbane River)

5.4.7 UKC's – Brisbane River

The Brisbane River is dredged and maintained to a least depth of 9·1m LAT. A minimum UKC of 0·6 metre is required which increases with draft. The actual tide required for a given draft can be found in the UKC table.

(Refer 15.7.2 Tides – UKC required for Brisbane River).

5.4.8 UKC's – alongside berths

All vessels must maintain a minimum UKC of at least 0·3 metre whilst alongside any berth.

5.4.9 Trim and list requirements

The trim of a vessel must not exceed 2% of the vessel's LOA, with propellers fully immersed. The vessel must not be trimmed by the bow and must be upright with no list for any passage within the Brisbane Pilotage Area.

5.5 Passing requirements

The following conditions are the parameters used for ship scheduling purposes.

Any passing manoeuvre must be agreeable to the pilots and/or exempt masters on the passing ships. Weather, tidal conditions or special circumstances may require a departure from the following guidelines.

Overtaking should be avoided unless both vessels agree and VTS is advised.

5.5.1 Local Traffic

Regular river users (local traffic), such as sand/bunkering/landing barges and dredges, are to keep well clear of larger ships and are not to impede their passage in any way. The pilot / exempt master must agree to the passing which should occur either:

- downstream of the Pelican Banks Buoy
- where the navigable width of the river is >180 metres - Hamilton Reach, Pinkenba swing basin or Cement Australia swing basin
- where the regular river user can operate safely outside of the dredged channel.

5.5.2 Moreton Bay

Channels within Moreton Bay vary in width and depth profile throughout the bay. The following applies when any of the vessels is greater than 300m LOA and/or over 12 m draft

- Passing is not to occur between NW2 and NW4.
- Passing is not to occur at NW12
- Passing is not to occur at E5
- Passing may occur by mutual agreement between NW4 and NW6 if the smaller vessel is able to safely use the Northwest Bypass Channel.
- Passing may occur by mutual agreement between NW2 and the Fairway if one of the vessels is safely able to transit north of the Fairway.

5.5.3 One mile to seaward of the Entrance Channel, Entrance Channel and Outer Bar Reach

Ships with an aggregate LOA less than 370 metres may pass provided:

- neither ship has a draft 12 metres or more
- neither ship has a beam greater than 33 metres.

Ships with an aggregate LOA greater than 370 metres and less than 420 metres may pass provided:

- neither ship exceeds the draft and beam parameters as above
- favourable weather and tidal conditions permit
- pilots and masters agree to the passing.

Non-Gas Free (NGF) Ships with an aggregate LOA less than 370 metres may pass provided:

- neither ship exceeds the draft and beam parameters as above
- favourable weather and tidal conditions permit
- pilots and masters agree to the passing.
- Only one of the ships is a NGF Tanker
- One ship has an LOA less than 160m

Where the above passing requirements are not able to be met, the inbound vessels will be required to;

- Not pass abeam of the Rear Reciprocal before the outbound vessel has passed the Entrance Beacons outbound.
- Not pass abeam of the Front Reciprocal until the outbound vessel has completed its alteration to the ENE if departing via the East Channel.

5.5.4 Inner Bar Beacons to Pelican Bank Buoy

Ships with LOA less than 300m may pass provided:

- favourable weather and tidal conditions permit
- pilots and masters agree to the passing.

Non-Gas Free (NGF) Ships with an aggregate LOA less than 420 metres may pass provided:

- One ship less than 190 metres LOA
- only one of the ships to be a NGF tanker
- neither ship to be subject to tidal restriction; drafts 12.0 metres or more
- neither ship to have a beam greater than 33.0 metres
- pilots/exempt master to agree to the passing.

5.5.5 Brisbane River upstream from the Pelican Bank Buoy

Ships will not normally be scheduled to pass in the Hamilton Reach. In the event that passing is required, the following applies

- A ship less than 130 metres LOA and 5.0 metres draft may pass another ship of up to an aggregate LOA 370 metres provided:
    - the passing occurs where the channel width exceeds 180 metres – Pinkenba and the Cement Australia swing basins
- the other ship has a draft less than 8·5 metres
- only one of the ships to be a NGF tanker

5.6 River Transits – advice of movement to other vessels

In order to alert all river users of the arrival/departure or removal of a ship transiting the river between Pelican Banks to Hamilton, a radio message that advises the current guidelines will be broadcast by VTS.

5.7 Maximum Ship Size

Port of Brisbane can be defined as three sub areas with the following size limitations;

5.7.1 Below Pelican Banks

The maximum permissible Vessel LOA below Pelican Banks is 350m, defined by the Koopa Swing Basin.

The maximum permissible vessel Beam below Pelican Banks is 55m, defined by berth dimensions

The maximum permissible displacement for Fisherman Island 1 to Fisherman Island 12 berths is 140,000 tonnes.

5.7.2 Above Pelican Banks

Generally, the maximum length of vessels to be 250 metres and a maximum beam of vessels to be less than 33 metres

Ships greater than 200 metres LOA will attract additional restrictions that will be assessed on a case by case basis.

High windage vessels, such as RORO are generally limited to 200m LOA.

5.7.3 Above Hamilton Reach

The maximum permissible vessel above Hamilton Reach is 80m LOA or total combination for Tug/Barge operations. Movements above this limit may attract additional restrictions that will be assessed on a case by case basis.

5.7.4 Swinging – maximum ship length

The maximum size of ship permitted to swing in a particular location is determined by the LOA of the vessel relative to the diameter of the swing basin. As a general rule, the diameter of the swing basin should exceed 1·6 times the LOA of the ship being swung. Details of the restrictions are given in the table contained in 15.4 Swing basin and swing areas Brisbane River. For standard operations the most commonplace restrictions are:

- **downstream of Pelican Bank –** ships less than 308 metres LOA may swing at the Fisherman Island swing basin. Ships less than 350 metres LOA may swing at the Koopa swing basin
- **upstream of Pelican Bank –** ships should meet the LOA criteria for the nominated swing basin that they are using (refer 15.4). Pilots should give VTS as much notice as possible of which swing basin they intend to use. Ships proceeding above Pelican banks are also subject to the following limitations:

5.8 Air draft/bridge heights

Information regarding air draft and clearance requirements for the Sir Leo Hielscher (Gateway) Bridge, Bulimba Power Lines and Story Bridge can be found at 15.5 Air Draft/Bridge Heights.

5.9 Specific Berth & Operational Manoeuvre Requirements

5.9.1 Ampol Products wharf - berthing/unberthing restrictions

Due to the proximity of the Ampol Products Berth to the navigation channel, the following scheduling rules apply.

- Berthing and unberthing of ships at Ampol Products wharf in a “head down” direction, is not permitted during the ebb tidal stream.
    - Vessel over 9.0m draft if berthing ‘head up’ should be scheduled to berth on their tidal window and with a predicted flood tidal stream no greater than 0.5 knots OR on the ebb tidal stream.
    - if berthing ‘head down’ should be scheduled to berth on their tidal window and swing with sufficient time to berth before the onset of the ebb stream.
- Vessel 10.0m draft and over
    - Vessels 10.0m draft and over, should only be scheduled to berth head up at slack water, irrespective of the duration of tidal window.

5.9.2 Wagner Wharf – berthing/unberthing restrictions

Vessels over 9.0m draft:

- if arriving ‘head up’ should be scheduled to berth on their tidal window and with a predicted flood tidal stream no greater than 0.5 knots, OR on the ebb tidal stream at the berth.

- if arriving ‘head down’ should be scheduled to berth on their tidal window and swing with sufficient time to manoeuvre at the berth before the onset of the ebb stream.
- If departing 'head up' should be scheduled to depart on their tidal window and swing with sufficient time to manoeuvre at the berth before the onset of the ebb stream.

Vessels 10.0m draft and over

- scheduled to berth head up between slack water and 0.5 knots ebb within the tidal window.

5.9.3 +300m LOA Container - berthing/unberthing restrictions

Outlined below are the operational requirements for handling large container vessels, defined as a LOA of more than 300m.

- If berthing head up on arrival, to be scheduled either on slack water or ebb tide up to a maximum of 1 knot.
- If departing head down, to be scheduled either on slack water or flood tide up to a maximum of 1 knot.
- Swing to be scheduled for either high or low water slack.
- Maximum wind speed of 20 knots gusting 25 knots for transit upstream of Entrance Beacons.

5.9.4 QBT Berth – Ships 200m to 230m LOA, berthing/unberthing restrictions

Vessels with an LOA between 200m and 230m will be subject to the following operational conditions.

- Vessel to arrive unladen.
- Berthing to be Head Down imperative on arrival swinging at Hamilton Swing Basin
- 2 tugs required for berthing (including swinging) and unberthing.
- Maximum wind speed of 20knots, gusting 25 knots for transit upstream of Pelican Banks

5.9.5 Pinkenba Berth - LR1 Tankers berthing and unberthing restrictions

Vessels with an LOA between 200m and 230m will be subject to the following operational conditions.

- Vessel to berth head up at slack water
- Swing on departure timed close to slack water
- 3 tugs required when arrival draft exceeds 10.0m
- Clear berth and river transit required
- Maximum wind speed of 25knots for transit upstream of Pelican Banks

5.10 Restricted Visibility

Fog and other sources of restricted visibility are known to occur in Port of Brisbane. Visibility is considered to restricted when limited to no more than 0.8nm. In the event visibility is reduced, VTS may re-direct movements. This may include being held at the berth, diverted to Brisbane Roads or the movement cancelled until conditions improve.

5.11 Operational Wind Limitations

Details of operational wind limitations and the associated standard tug allocations are contained in a table in section 15.8 Wind Limits. This table is to be read in conjunction with Section 5 and Section 8 of the Port Procedures Manual. Where there is a discrepancy or conflict between the table and respective PPM section, the PPM section takes precedence, with any issue highlighted to the RHM at the earliest opportunity