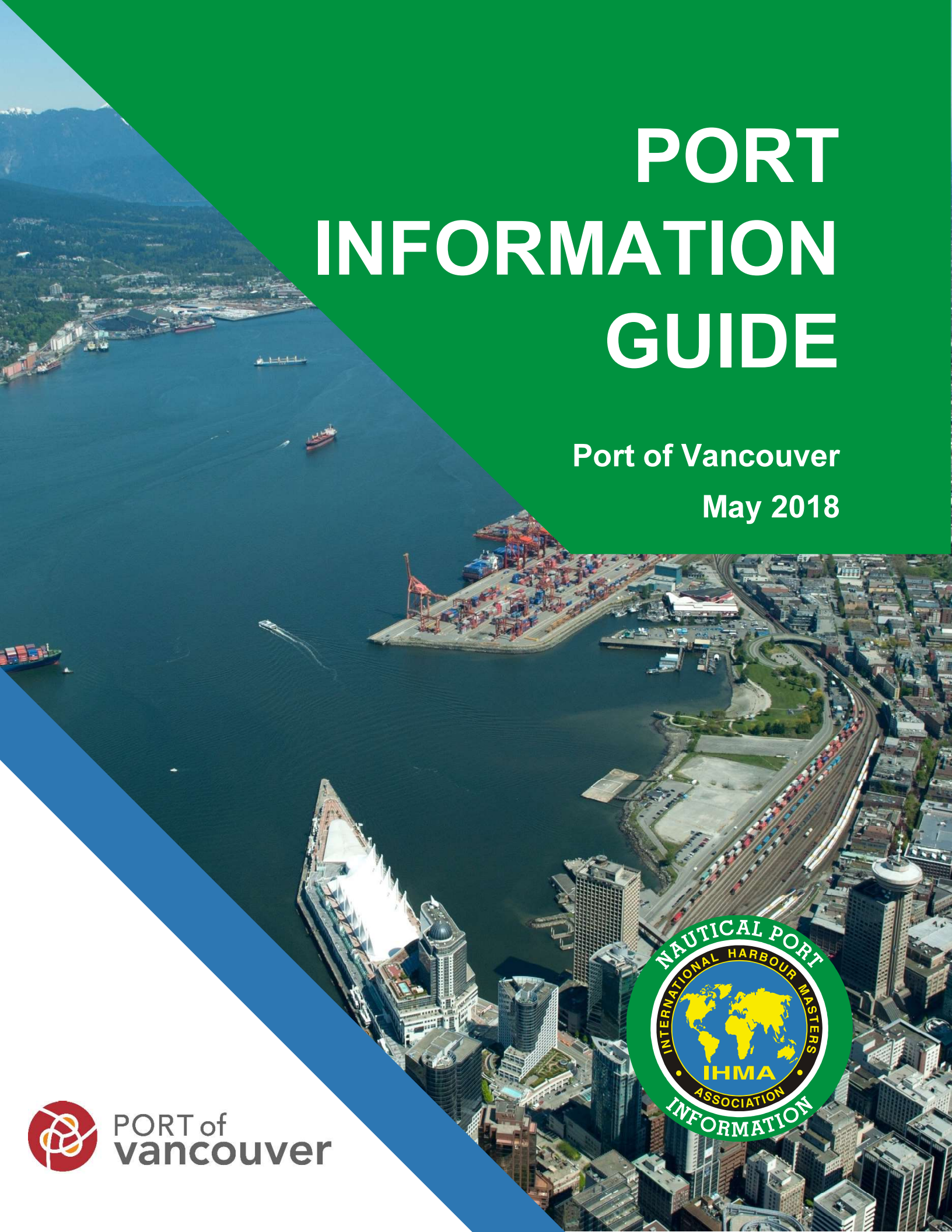
PORT INFORMATION GUIDE

Port of Vancouver

May 2018



PORT of vancouver

8.12 FIRST NARROWS TCZ PROCEDURES (TCZ-1)

GUIDE TO CONTENT

TCZ-1 INTRODUCTION

The First Narrows Traffic Control Zone (TCZ-1) comprises an area enclosed:

- To the northwest by a line drawn from the north pier of the Lions Gate Bridge through Capilano Light, intersecting a line drawn due north from Ferguson Point at position 49°19’22”N & 123°09’32”W;
- To the southwest by a line drawn from Prospect Point, along the Stanley Park seawall, intersecting a line drawn due north from Ferguson Point at position 49°18’40”N & 123°09’32”W;
- To the east by a line drawn from Brockton Point off Stanley Park to Burnaby Shoal, then north to the eastern edge of Fibreco Dock.

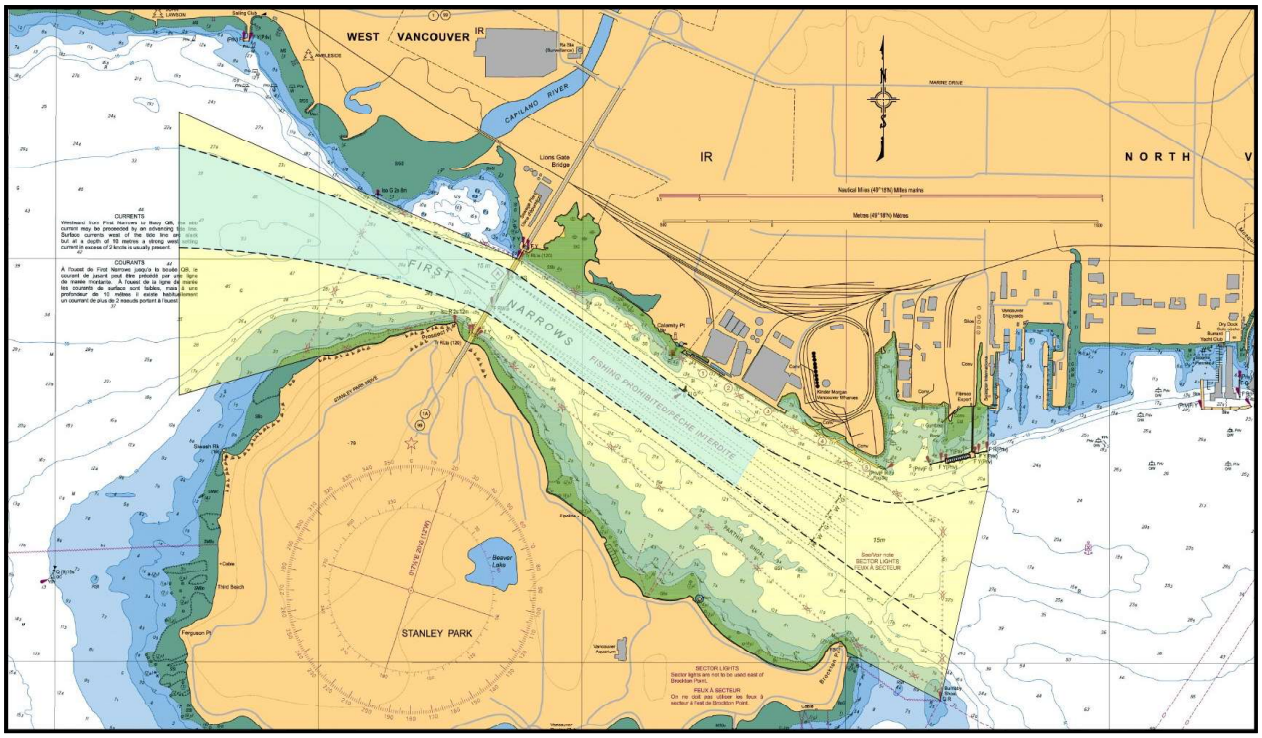


Image: TCZ-1 Boundaries

For enhanced vessel safety, a single lane navigation channel is in effect within TCZ-1 for 0.75 nautical miles both east and west of the First Narrows Lions Gate Bridge (highlighted in green above between the dashed black lines).

The Vancouver Fraser Port Authority (port authority) has established TCZ-1 and has developed these associated procedures in consultation with the Pacific Pilotage Authority (PPA), the BC Coast Pilots (BCCP) and the broader marine industry. The purpose of the TCZ-1 procedures is to facilitate the safe navigation and efficient movement of vessels in this area of the port, and they form an integral part of the port authority regulations outlined in this Port Information Guide.

TCZ-1 APPLICATION

The TCZ-1 procedures apply to all marine traffic in the TCZ-1, except designated port authority vessels and vessels that are engaged in law enforcement and security, search and rescue or other emergency response vessels.

The TCZ-1 Procedures do not relieve the Master from compliance with the *Canada Shipping Act, 2001* or other regulations, requirements or standards in respect of vessels operating in Canadian ports.

These procedures may be varied by the port authority in the event of an emergency that causes (or is likely to cause) loss of life, personal injury, serious environmental pollution or contributes to unsafe navigation in the port.

The Harbour Master, as designated by the port authority, has overall authority in interpreting and overseeing the implementation of these procedures. In doing so, the Harbour Master consults on issues of safety with a number of stakeholders including pilots, other statutory agencies and industry experts, as required.

The TCZ-1 Procedures supersede the *Department of Fisheries and Oceans Canada* Pacific Fishery Management Regulations in the area of Sub-Area 28-9 which overlaps the TCZ-1 area.

As per port authority Port Information Guide standard definitions, all references to "In product" refers to a tanker (including barges and articulated tugs and barges – ATBs) when carrying greater than 6,000 tonnes of liquids in bulk.

TCZ-1 NAVIGATION ENVELOPE (CLEARANCES)

All vessels having a length overall (LOA) of 366m and above and/or a moulded breadth of 49m and above are restricted from entering Burrard Inlet without the prior approval of the port authority. Reference should also be made to *Table 1: First Narrows TCZ (TCZ-1) transit procedures deep sea vessels – Summary matrix.*

The pilot in conjunction with the master should evaluate all clearance conditions mentioned in this section prior to the transit of TCZ-1 in conjunction with the port authority matrix *"First Narrows – Minimum channel depths and maximum vessel air drafts based on TCZ-1 moulded breadth factor for channel width."* found in Appendix A.

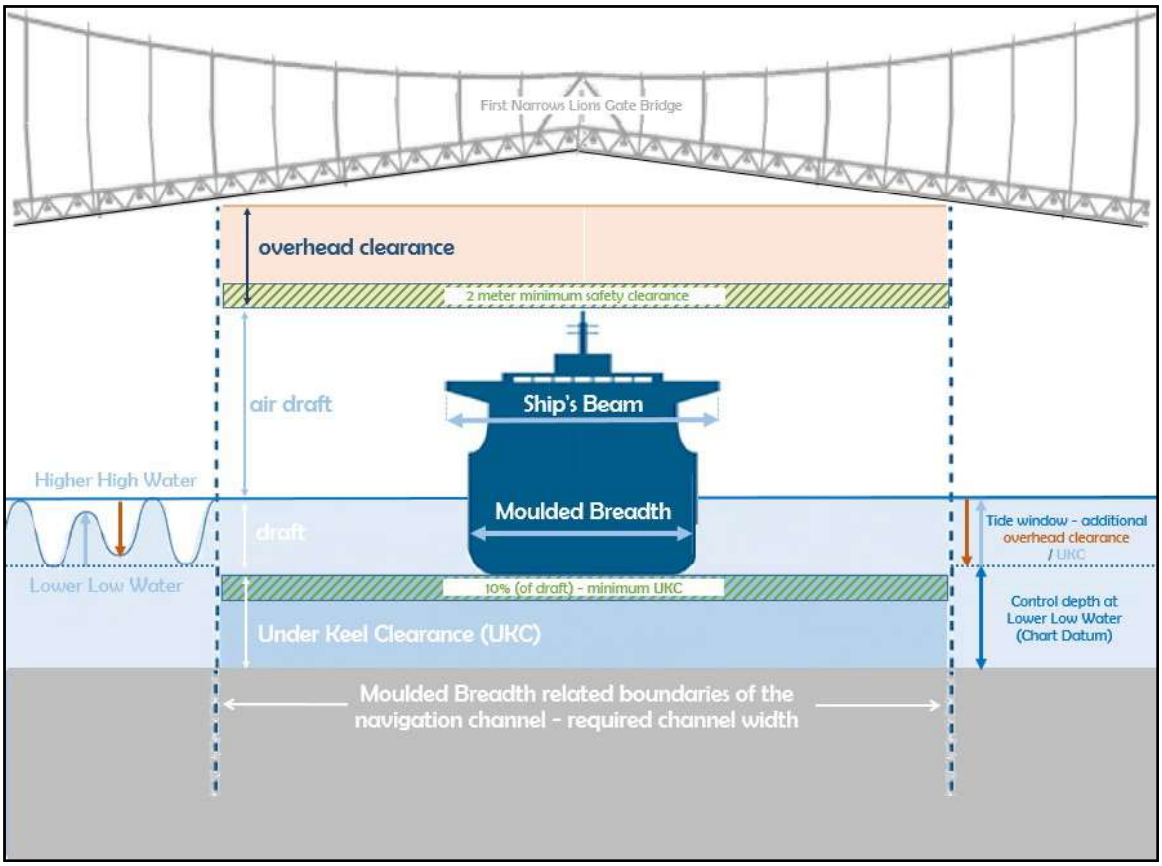


Image: TCZ-1 Navigation Envelope

a) Vertical Clearances

Vertical clearances are given as distances measured from higher high water, large tide datum (+5m) to the lowest member of the bridge structure, in way of the navigation channel.

Due to the curvature of the First Narrows Lions Gate Bridge, the maximum air draft for transit of TCZ-1 is subject to the moulded breadth of the vessel, actual tidal height, air temperature, bridge traffic load and the requirement for a minimum safe overhead clearance of 2m. Reference should be made to Appendix A, *First Narrows – Minimum channel depths and maximum vessel air drafts based on TCZ-1 moulded breadth factor for channel width.*

Vessels that exceed the maximum vessel air draft at higher high water may be able to transit subject to tidal windows. Lower tides will increase the maximum allowable air draft but will correspondingly decrease the available depth. The maximum tidal range is 5m.

Vessels with an air draft in excess of the maximum air draft allowed for transiting TCZ-1, which require tidal windows as listed above, must obtain port authority and PPA approvals to transit TCZ-1. The maximum air draft of the ship or floating equipment needs to be reported at least 24 hours in advance of transit to the port authority Operations Centre (harbour_master@portvancouver.com) and PPA (marineops@ppa.gc.ca).

The air draft must be verified by a qualified and independent local survey company within port authority jurisdiction prior to transit. The detailed results of this air draft survey must be provided to both the port authority and PPA. Thereafter, the verified vessel's draft/air draft must be maintained until completion of the transit.

Upon receipt by the port authority of the air draft survey, the port authority will review the transit request and determine if the vessel is approved to transit the TCZ-1 with tide restriction.

Upon receipt of the air draft survey by PPA, PPA will liaise with the BCCP to verify actual transit times based on current windows, tide height, vessel draft, air draft and other planned TCZ-1 vessel traffic. PPA/BCCP will validate the transit request and indicate to the dispatched pilot that the air draft has been verified.

Transit windows are calculated using the static air draft i.e. the air draft of the vessel when not moving through the water.

For air draft considerations, the center of the bridge is also the center of the navigation channel.

b) Horizontal Clearances

The width of the navigable channel is 222m, which is based on the distance between the First Narrows Lions Gate Bridge pier on the south side of the channel and the contour of the seabed on the north side of the channel.

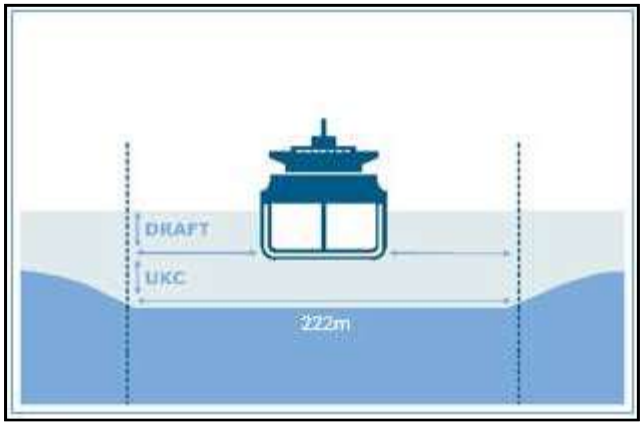


Image: TCZ-1 Horizontal Clearances

The minimum channel width required for transiting TCZ-1, based upon international design standards, is 3.7 times the vessel's moulded breadth. The maximum allowable moulded breadth with the navigation channel design is therefore 60m.

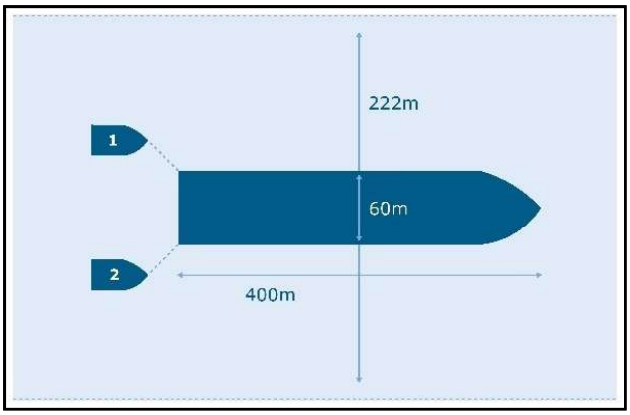


Image: TCZ-1 Design Vessel

c) Under Keel Clearances (UKC)

The control depth of the navigation channel is 15m at chart datum (0.0m tide).

A minimum UKC of 10% of the static draft is required across the profile of, and up to the boundaries of, the navigation channel.

The maximum unrestricted draft for transit is 13.6m at chart datum (0.0m tide).

Vessels with a draft in excess of 13.6m may transit subject to tidal windows. Tidal assist will increase the maximum allowable draft but will correspondingly decrease the available air draft.

Transit windows are calculated using the static draft, i.e. the draft of the vessel when not moving through the water.

TCZ-1 COMMUNICATIONS

a) Marine Communications and Traffic Services (MCTS)

Communication with vessels transiting, intending to transit or manoeuvring within TCZ-1 is provided, on behalf of the port authority, by the Canadian Coast Guard Marine Communications and Traffic Services (MCTS).

Whenever possible, MCTS will provide a vessel with information on all known traffic intending to transit TCZ-1 at least 20 minutes prior to the vessel entering TCZ-1, or before the vessel departs an inner harbor terminal or anchorage. MCTS will also, at this time, advise of any specific orders regarding the TCZ-1 transit, which may have been issued by the port authority.

Where vessels are required to wait pending the transit of another vessel, they will, whenever possible, be so advised by MCTS prior to leaving berth, weighing anchor, or entering TCZ-1 from either direction.

In the event of an interruption to communications between a TCZ-1 vessel and MCTS whereby MCTS has not provided the vessel with traffic information prior to undertaking a TCZ-1 transit,

pilots will assess the movement of other traffic having the potential to impede such transit in making a determination as to whether it is safe to continue. A decision on such determination will be conveyed to the port authority Operations Centre.

Vessels at berth within TCZ-1 when required to wharp alongside to facilitate cargo operations must inform both the port authority Operations Centre and MCTS at least one hour in advance. Due safety considerations must be taken to a vessel's displacement and the prevailing tidal strength when planning a shift of a ship alongside. See, port authority Port Information Guide Section 8.10 for detailed procedural requirements.

Bunkering operations, including delivery of lubricating oils, at berths within TCZ-1 are subject to port authority approval whether delivery is to the offshore side of the vessel by barge or from the dock.

Bunkering notifications:

- The bunker supplier or barge operator is responsible for notification to MCTS prior to and upon completion of bunkering operations by barge.
- The vessel is responsible for notification to MCTS prior to and upon completion of bunkering operations from the dock.

TCZ-1 RESTRICTIONS

For the purposes of the TCZ-1 regulations, the following definitions apply:

Tier 1 vessel: *Means any vessel which falls under the following categories:*

- *All piloted vessels and tug and barge combinations when piloted, regardless of tonnage;*
- *All non-piloted tug and barge combinations with a barge of 10,000 tonnes or more carrying capacity;*
- *All non-piloted vessels including barges and articulated tugs and barges (ATBs) when in product.*

Tier 2 vessel: *Means all other vessel traffic operating in the TCZ-1 boundaries.*

a) Transit Windows

A TCZ-1 transit: *is defined as a movement within TCZ-1 that includes passing under the First Narrows Lions Gate Bridge.*

Transit windows are established for vessels restricted by draft or air draft and delineate the level of tidal assist that will allow for a safe transit of TCZ-1. Reference should be made to Appendix A.

Vessels with an air draft in excess of the maximum air draft allowed for transiting TCZ-1, which require tidal windows as listed above, must obtain port authority and PPA approvals to transit TCZ-1. The maximum air draft of the ship or floating equipment needs to be reported at least 24 hours in advance of transit to the port authority Operations Centre (harbour_master@portvancouver.com) and PPA (marineops@ppa.gc.ca).

Predicted transit windows for vessels restricted by air draft can be provided by the port authority on request to the port authority Operations Centre well in advance of the actual transit.

All available navigational information, including that gained from Portable Pilotage Units along with available real time tide and current information, should be used in conjunction with predicted transit windows to improve the safety and efficiency of TCZ-1 operations.

b) Transit Restrictions

Reference is to be made to the section “TCZ-1 Navigation Envelope (Clearances)” with respect to the maximum size of vessel that may transit TCZ-1 without the prior approval of the port authority.

Tier 2 vessels must transit or move within TCZ-1 only when safe to do so and must take into account all factors influencing safety of navigation including traffic, tides, tidal current, weather conditions and their knowledge of TCZ-1.

The following specific transit restrictions and requirements apply:

- The maximum length overall (LOA) of vessels that can transit TCZ-1 is 400m, irrespective of tidal conditions, current, draft, air draft or mitigation measures.
- All vessels having a draft of 13.6m or more require tidal assist to maintain a minimum 10% under keel clearance as measured in static condition.
- The maximum air draft allowed for transiting TCZ-1 without port authority approval is based on a minimum safe overhead clearance of 2m.
- Should the predicted air draft at the time of an TCZ-1 transit exceed the maximum listed in Appendix A for the vessel moulded breadth, the authority may approve the transit based on calculation of a tidal window that allows for an overhead clearance of minimum 2m and may require verification of the air draft by a qualified and independent local survey company within port authority jurisdiction, prior to transit. Reference in all cases should be made to Appendix A *First Narrows – Minimum channel depths and maximum vessel air drafts based on TCZ-1 moulded breadth factor for channel width.*
- Non-piloted tug and barge combinations with a barge of 15,000 tonnes or more carrying capacity are restricted from transiting TCZ-1 without the prior approval of the port authority.

Loaded tankers must be trimmed to an even keel or trimmed by the stern and must not be trimmed by the head.

Vessels found by BCCP to have unacceptable maneuvering characteristics may be refused permission to transit TCZ-1 or be subject to special restrictions.

A vessel having a defect in the hull, main propulsion machinery, steering system or other communication or navigation system that is detrimental to safe navigation, requires the prior approval of both Transport Canada and the port authority to transit TCZ-1.

c) Clear Narrows Restrictions

The term “Clear Narrows” is defined as the transit of a vessel through TCZ-1 unimpeded by any other vessel.

MCTS will declare a “Clear Narrows” on VHF Channels 12 and 16 by means of a Securité call to ensure unimpeded transit of restricted vessels, examples being but not limited to:

- Tankers in product
- Barges and ATBs in product
- A vessel with a draft of 13.6m or greater, upon request by Pilot
- A vessel with an air draft greater than specified for the vessel moulded breadth in Appendix A, and which has received port authority approval to transit TCZ-1
- Other vessels with special transit requirements that require the approval of the port authority
- A vessel, which for safety considerations requires a clear passage through TCZ-1 upon request of the Master or pilot

MCTS may direct other vessels to a suitable holding area until conditions are such that a transit of the TCZ-1 can be safely executed.

Light tugs and other highly maneuverable small vessels may, on request, be granted a compliance exemption by MCTS, provided a ship-to-ship agreement has been reached with the vessel for which a clear narrows has been declared.

All other vessels must observe the Clear Narrows declaration for TCZ-1 and must not interfere in any way with the passage of a vessel for which a Clear Narrows has been declared.

Vessels delayed in transit due to other traffic must remain clear of TCZ-1 until conditions are such that a transit can be safely executed.

First Narrows TCZ Holding Areas: *are defined as areas to which vessels, in agreement with MCTS, can hold themselves in readiness until conditions are such that a safe transit of TCZ-1 can be executed.*

d) Speed Restrictions

Tier 1 vessels must transit or manoeuvre within TCZ-1 at a safe speed, not to exceed 10 knots through the water when running free, seven knots through the water when tethered, except when safety of navigation requires otherwise.

Tier 2 vessels within TCZ-1 must proceed at a safe speed which will allow them to properly respond to the prevailing circumstances and conditions.

Due consideration must be taken to the safety of vessels alongside, and potential interaction between vessels, when passing terminals within TCZ-1.

e) Visibility Restrictions

All Tier 1 vessels, including tugs and barges, may request the declaration by MCTS of a Clear Narrows during a TCZ-1 transit when restricted visibility of one mile or less is expected.

Nothing in this section should be construed to require the Master of a vessel to execute a transit in reduced visibility or hinder the decision of a Master and pilot to proceed with a transit in restricted visibility following an assessment of prevailing traffic conditions.

f) Wind Restrictions

There are no standing wind restrictions for TCZ-1. However, when wind warnings are in effect, the master and/or pilot will take into consideration such factors as light vessel draft and/or high freeboard, when planning the transit.

The impact of wind on Tier 1 vessels is normally limited to high sided vessels such as cruise ships, container ships and car carriers.

TCZ-1 VESSEL TRAFFIC PROCEDURES

a) Order of Transit

Tier 1 vessels have priority over Tier 2 vessels within TCZ-1. In principle, taking account of both safety and efficiency, the following order of transit applies to vessels transiting TCZ-1:

- First priority will be a vessel whose draft or air draft tidal window is closing, including east bound vessels scheduled for a restricted transit window transit of TCZ-2.
- Second priority will be a tanker in product of LOA 185m or greater and/or 40,000 tonnes SDWT in product.
- Third priority will be a cruise ship.

For operational reasons, the order of transit may be amended with the mutual agreement of all vessels transiting, berthing or departing a berth within TCZ-1. Any such amendment must be advised to MCTS.

Priority consideration may also be given to an inbound vessel having labour standing by but subject to the overall efficiency of traffic movement.

A vessel proceeding to, departing from or shifting alongside a berth within TCZ-1 must give way to, and not interfere with, the movement of Tier 1 vessels in transit.

Unless otherwise agreed prior to entering the jurisdiction of the port authority, when one or more inbound cruise ships are scheduled to arrive at the First Narrows TCZ-1 simultaneously, the order of transit will be as follows:

- First transit – a vessel proceeding to berth at Canada Place East
- Second transit – a vessel proceeding to berth at Canada Place West
- Third transit - a vessel proceeding to berth at Canada Place North

b) Overtaking and Safe Distance Between Vessels Regulations

A Tier 2 vessel may overtake another Tier 2 vessel within the geographical boundary of TCZ-1, always provided that a safe speed is not exceeded in doing so.

Irrespective of the declaration of a Clear Narrows, Tier 1 vessels in transit are not permitted to meet or overtake each other within 0.75 nautical miles either side of First Narrows Lions Gate Bridge.

Tier 1 vessels transiting in the same direction must maintain a safe separation of three cables (0.3 nautical miles) or more distance between them.

c) Tier 2 Vessel Regulations including Pleasure Craft

All Tier 2 vessels including pleasure craft and sailing vessels when transiting TCZ-1 must be under adequate mechanical power.

Tier 2 vessels must not cross ahead of or otherwise impede Tier 1 vessels within TCZ-1 and, unless otherwise authorized by MCTS, must stay to the side of the navigation channel to give Tier 1 vessels as unobstructed a passage as is practicable, consistent with good seamanship.

For safety reasons, vessels engaged in fishing (including crab-by-trap), personal watercraft such as jet skis, row boats, canoes and vessels, sailing or proceeding without mechanical power, are not permitted within TCZ-1. Fishing, sailing and other non-powered recreational activity is permitted only in designated areas outside of the boundaries of TCZ-1 west of First Narrows Lions Gate Bridge.

d) Towing Regulations

A vessel engaged in towing operations within TCZ-1, must limit the length of her towline to the least length that is safe and practical, taking account of weather, current and traffic conditions at time of transit but in any event must not exceed 80m. Such towline may not be lengthened until both vessels are completely clear of the bridge piers.

Tugs engaged in towing or pushing barges, whether in ballast or in product, must be of adequate power.

For the purposes of TCZ-1, piloted ATB's are subject to the requirements of a tanker of equal size.

The overall width of log booms within TCZ-1 must not exceed two boom sections (maximum 40m) wide, and the overall length of log booms within TCZ-1 must not exceed 20 boom sections (maximum 400m) long.

When transiting TCZ-1 with more than 10 boom sections overall length (maximum 200m), the Master or person in charge of a log boom must engage, in addition to tugs required in the towing operation, one or more tugs of adequate power in order to:

- Remain close inshore off the main channel.
- Be capable of maintaining such boom sections in an appropriate holding area.

Unless cleared by MCTS, eastbound tugs with tows bound for the Seaspan facility and the Navy Buoy barge tie-up area must cross the channel east of Burnaby Shoal.

TCZ-1 PILOTAGE REQUIREMENTS

Pilotage requirements within port authority jurisdiction are governed by the *Pacific Pilotage Regulations*, Section 9 (Ships Subject to Compulsory Pilotage) and 10 (Waiver of Compulsory Pilotage). In addition to the pilotage requirements established under Section 9 and Section 10 of the *Pacific Pilotage Regulations*, the following pilotage requirements apply to vessels operating in TCZ-1:

- Tankers of 40,000 tonnes SDWT and above in product require two pilots for a TCZ-1 transit. Both pilots must remain on the bridge throughout the transit.
- All other piloted vessels, including vessels shifting to or from a berth or anchorage east of the First Narrows Lions Gate Bridge, require one pilot.
- When a tethered escort tug is required for a TCZ-1 transit, the vessel or agent is required to supply the Mooring and Towing Arrangement of the vessel with the Safe Working Load (SWL) of the fairleads to PPA dispatch when ordering a pilot.

Refer also to Pacific Pilotage Authority pilot ordering requirements.

TCZ-1 VESSEL ASSIST TUG REQUIREMENTS

Tier 1 vessels when transiting TCZ-1, must comply with the standards for tug requirements included in Table 1: *First Narrows TCZ (TCZ-1) transit procedures deep sea vessels – Summary matrix* which details the number of tugs and bollard pull requirements. In addition:

- All vessel assist tugs employed on piloted Tier 1 vessels transiting TCZ-1 must be tethered tractor/ASD tugs.
- Vessel assist tugs capable of generating more than 40 tonnes of bollard pull must have an operational tension meter that the tug operator can easily read from the conning position.
- All vessels which require tethered tugs for a TCZ-1 transit must have them tethered prior to entering TCZ-1 and must remain tethered until clear of TCZ-1 unless, for operational reasons, they are required to remain tethered beyond TCZ-1.
- Tankers of LOA of 185m and above in product and/or 40,000 tonnes SDWT and above in product require a minimum of two tugs that, when inbound must be tethered prior to transiting TCZ-1 and when outbound must remain tethered until clear (west) of TCZ-1.

Highly maneuverable craft may be exempted from these requirements at the discretion of the port authority in consultation with the PPA and BC Coast Pilots.

For escort and tethered tug requirements related to tankers of 40,000 SDWT and above in product outside of port authority jurisdiction, reference should also be made to the relevant Pacific Pilotage Authority Notices to Industry.

TABLE 1: FIRST NARROWS TCZ (TCZ-1) TRANSIT PROCEDURES DEEP SEA VESSELS – SUMMARY MATRIX

Bulk Carriers

LOA 250 – 310m				
Draft (m)	Transit Direction	Tide	Current (knots)	Tugs/ Bollard Pull
≤12.5m	Inbound	Flood	>2	1 x 50T
		Ebb	-	-
	Outbound	Flood	For first 2 hours after flood or >2	1 x 50T
		Ebb	-	-
>12.5m	Inbound	Flood	>2	2 x 50T
		Ebb	>2	1 x 50T
	Outbound	Flood + Ebb	>2	1 x 50T

Outbound bulk carriers having LOA 225 – 250m and draft of >12.5m, when sailing on a flood tide, may also retain an adequate tractor/ASD tug at Master/Pilot discretion.

Container Ships

LOA 340 – 350m and moulded breadth >42m				
Draft (m)	Transit Direction	Tide	Current (knots)	Tugs/ Bollard Pull
≤13.6m	Inbound	Flood	>2	1 x 50T
>13.6m	Inbound/Outbound	Flood + Ebb	>2	1 x 50T

LOA 350 – 360m				
Draft (m)	Transit Direction	Tide	Current (knots)	Tugs / Bollard Pull
All conditions	Inbound/Outbound	Flood + Ebb	>2	1 x 50T

LOA > 360m				
Draft (m)	Transit Direction	Tide	Current (knots)	Tugs / Bollard Pull
All conditions	Inbound/Outbound	Flood + Ebb	All conditions	2 x 50T

Tankers in product

LOA less than 185m and/or less than 40,000 SDWT				
Vessel draft	**No. of tugs**	**Bollard pull tonnes (total)**	**No. of tugs**	**Bollard pull tonnes (total)**
	Bow		Stern	
No tug requirements				

LOA 185m – 199.9m and moulded breadth less than 35m and/or over 40,000 SDWT				
Vessel draft	**No. of tugs**	**Bollard pull tonnes (total)**	**No. of tugs**	**Bollard pull tonnes (total)**
	Bow		Stern	
≤8m	1	20	1	30
>8m ≤10m	1	30	1	40
>10m	1	30	1	50

LOA 200m – 229.9m and moulded breadth less than 35m				
Vessel draft	**No. of tugs**	**Bollard pull tonnes (total)**	**No. of tugs**	**Bollard pull tonnes (total)**
	Bow		Stern	
≤8m	1	30	1	50
>8m ≤10m	1 or 2	60	1 or 2	65
>10m ≤12m	1 or 2	60	1 or 2	65
>12m	1 or 2	60	1 or 2	65

LOA 230m – 250m and moulded breadth less than 45m				
Vessel draft	**No. of tugs**	**Bollard pull tonnes (total)**	**No. of tugs**	**Bollard pull tonnes (total)**
	Bow			Stern
All drafts	1 or 2	60	1 or 2	65

For all other vessels, in particular high sided vessels, such as cruise ships and car carriers, additional mitigation of risk due to weather and/or tidal conditions may apply on a case by case basis.

Tankers may also be subject to additional risk mitigation on a case by case basis due to maneuvering characteristics, weather and/or tidal conditions.

Vessels over LOA 250m and/or moulded breadth 45m require approval for transit from the port authority in consultation with the PPA and BCCP.

The tug matrix requirements are based on static bollard pull capacity and assume that vessels have the ability to operate the main engine at full ahead and there are no other mechanical issues involved.

8.13 SECOND NARROWS TCZ PROCEDURES (TCZ-2)

GUIDE TO CONTENT

TCZ-2 INTRODUCTION

The Second Narrows Traffic Control Zone (TCZ-2) comprises an area enclosed:

- To the West by a line drawn north from the Terminal Dock light (one mile west of the Second Narrows Iron Workers Memorial Bridge on the south shore of Burrard Inlet) to the North Vancouver shoreline at Neptune terminal on the north shore of Burrard Inlet.
- To the East by a line drawn north from Berry Point Light (approximately 1.5 miles east of the Second Narrows Railway Bridge on the south shore of the inlet) and the intersection of a line drawn from the south east corner of the “Canexus” (Chemtrade Electrochem Terminal) dock to the “West Nexun” Navigational marker through the “LL410” navigational marker.

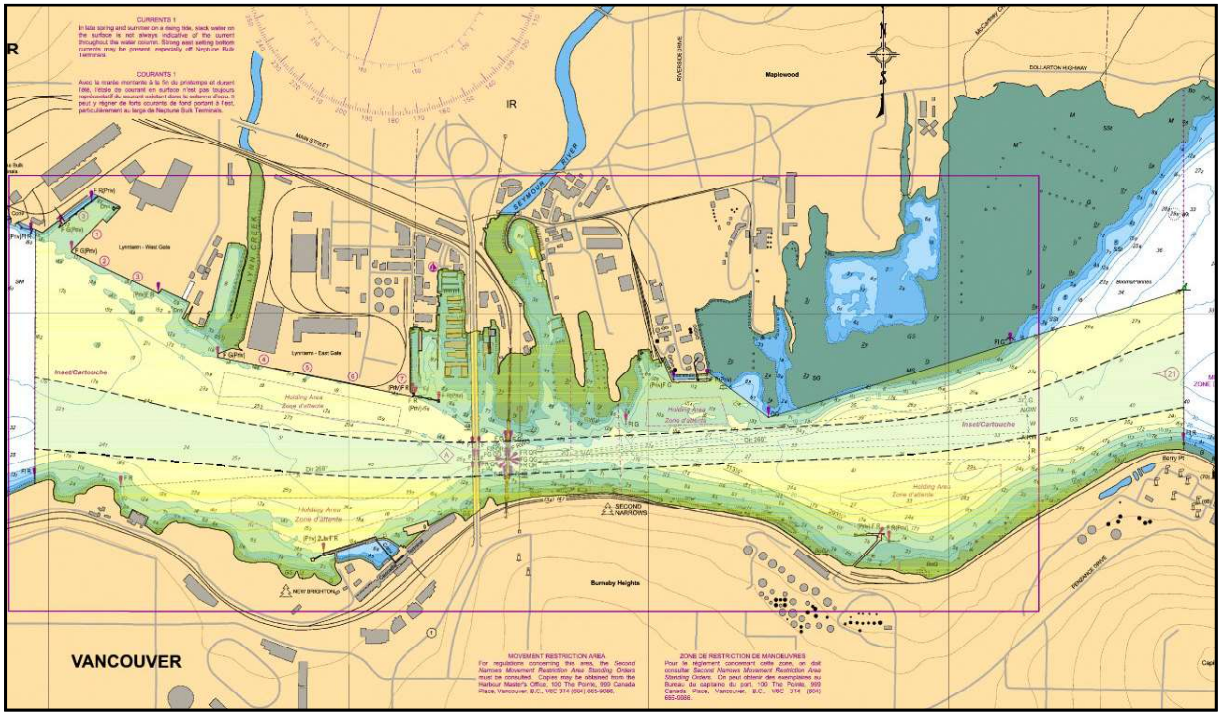


Image: TCZ-2 Boundaries

For enhanced vessel safety, a single lane navigation channel is in effect within TCZ-2 (highlighted in green above between the dashed black lines).

The Vancouver Fraser Port Authority (port authority) has established TCZ-2 and has developed these associated procedures in consultation with the Pacific Pilotage Authority (PPA), the BC Coast Pilots (BCCP) and the broader marine industry. The purpose of the TCZ-2 procedures is to facilitate the safe navigation and efficient movement of vessels in this area of the port, and they form an integral part of the port authority regulations outlined in this Port Information Guide.

TCZ-2 APPLICATION

The TCZ-2 Procedures apply to all marine traffic in TCZ-2, except designated port authority patrol vessels and vessels that are engaged in law enforcement and security, search and rescue or other emergency response vessels.

The TCZ-2 Procedures do not relieve the Master from compliance with the *Canada Shipping Act 2001* or other regulations, requirements or standards in respect of vessels operating in Canadian ports.

Further, these procedures do not lessen in any way the responsibility of the Master for the safe navigation, prudent maneuvering of the vessel and preparation for unforeseen circumstances affecting the normal operation of the Second Narrows Rail Bridge.

These procedures may be varied by the port authority in the event of an emergency which causes (or is likely to cause) loss of life, personal injury, serious environmental pollution or contributes to unsafe navigation in the port.

The Harbour Master, as designated by the port authority, has overall authority in interpreting and overseeing the implementation of these procedures. In doing so, the Harbour Master consults on issues of safety with a number of stakeholders including pilots, other statutory agencies and industry experts, as required.

The TCZ-2 Procedures supersede the *Department of Fisheries and Oceans Canada* Pacific Fishery Management Regulations in the area of Sub-Area 28-11 which overlaps the TCZ-2 area.

TCZ-2 NAVIGATION ENVELOPE (CLEARANCES)

The pilot in conjunction with the master should evaluate all clearance conditions mentioned in this section prior to the transit of TCZ-2 in conjunction with the port authority matrix *"Second Narrows - Minimum channel depths and maximum vessel air drafts based on TCZ-2 moulded breadth factor for channel width"* found in Appendix B.

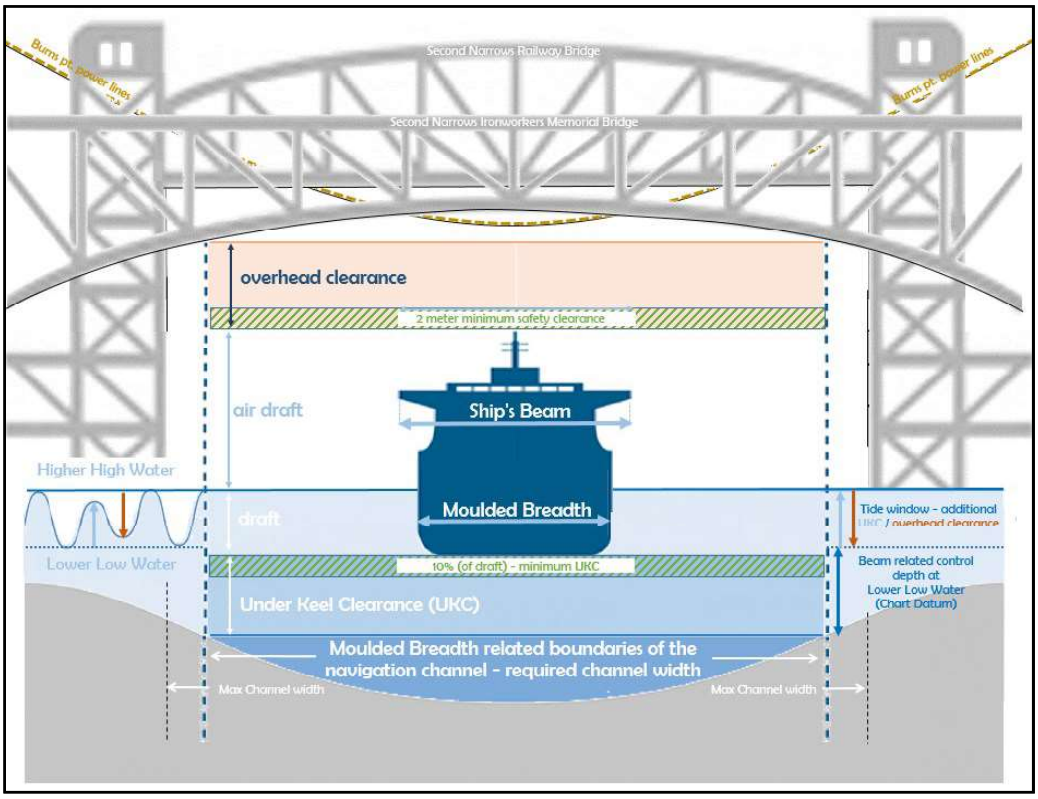


Image: TCZ-2 Navigation Envelope

d) Vertical Clearances

Vertical clearances are given as distances measured from higher high water, large tide datum (5.0 m) to the lowest point of the power lines or the lowest member of the bridge structure, in way of the navigation channel.

Due to the curvature of the Second Narrows Ironworkers Memorial Bridge, the maximum air draft for transit of TCZ-2 is subject to the moulded breadth of the vessel, actual tidal height and the requirement for a minimum safe overhead clearance of 2m. Refer to Appendix B.

- Vessels with a moulded breadth of 27m and less have a maximum unrestricted air draft of 42.7m.
- Vessels with a moulded breadth of 27.1m – 36m have a maximum unrestricted air draft of 42.38m.
- Vessels with a moulded breadth of 36.1m – 45m have a maximum unrestricted air draft of 41.82m.
- Vessels with a moulded breadth of 45.1m – 48m have a maximum unrestricted air draft of 40.95m.

NOTE: If the transit continues into Port Moody Arm past a line drawn due north from Gosse Point to Admiralty Point (East of Barnet Marine Park), the maximum air draft allowed for transiting TCZ-2 without port authority approval is 42.0m at a maximum vessel moulded breadth of 36m and is based on the height (44m) of the Burns Point Power lines above the navigation channel.

Vessels that exceed the maximum vessel air draft at higher high water may be able to transit subject to tidal windows. Lower tides will increase the maximum allowable air draft but will correspondingly decrease the available depth. The maximum tidal range is 5.0 m.

Vessels with an air draft in excess of the maximum air draft allowed for transiting TCZ-2, which require tidal windows as listed above, must obtain port authority and PPA approvals to transit TCZ-2. The maximum air draft of the ship or floating equipment needs to be reported at least 24 hours in advance of transit to the port authority Operations Centre (harbour_master@portvancouver.com) and PPA (marineops@ppa.gc.ca).

The air draft must be verified by a qualified and independent local survey company within port authority jurisdiction prior to transit. The detailed results of this air draft survey must be provided to both the port authority and PPA. Thereafter, the verified vessel's draft/air draft must be maintained until completion of the transit.

Upon receipt by the port authority of the air draft survey, the port authority will review the transit request and determine if the vessel is approved to transit the TCZ-2 with tide restriction.

Upon receipt of the air draft survey by PPA, PPA will liaise with the BCCP to verify actual transit times based on current windows, tide height, vessel draft, air draft and other planned TCZ-2 vessel traffic. PPA/BCCP will validate the transit request and indicate to the dispatched pilot that the air draft has been verified.

Transit windows are calculated using the static air draft i.e. the air draft of the vessel when not moving through the water.

For air draft consideration, the center of the overhead obstruction (bridge or power lines) is also the center of the navigation channel.

The vertical span clearances of the Second Narrows Rail Bridge are:

- Lift span fully raised (open position) 46m above Higher High Water.
- Lift span at lowest level (closed position) 10.8m above Higher High Water.
- First fixed span immediately south of the south tower 10.8m above Higher High Water.

e) Horizontal Clearances

The width of the navigable channel is 137m which is based on the distance between the Second Narrows Railway Bridge piers on the north and south side of the channel.

Image: Second Narrows Railway Bridge maximum channel width and maximum vertical clearance.

The minimum channel width required for transiting TCZ-2 with tug assist is 2.85 times the vessel moulded breadth. The maximum allowable moulded breadth with the navigation channel design is therefore 48.1m.

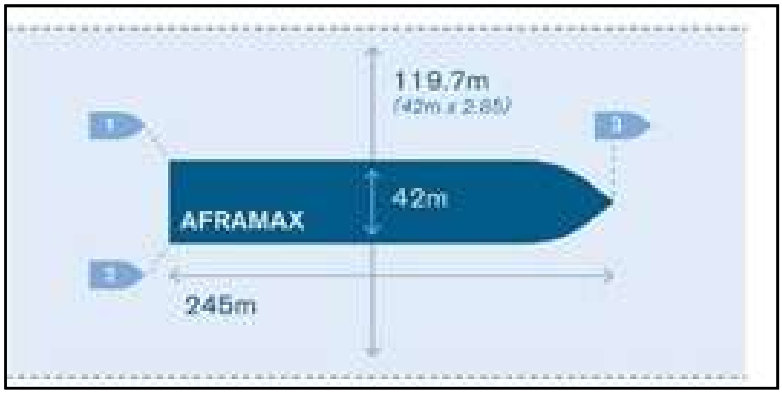


Image: Example of the horizontal channel boundary for a 42m moulded breadth vessel.

f) Under Keel Clearances

The control depth of the navigation channel at chart datum (0.0m tide) depends on the moulded breadth of the vessel and the required width of the navigation channel. Reference should be made to Appendix B Second Narrows – Minimum channel depths and maximum vessel air drafts based on TCZ-2 moulded breadth factor for channel width.

A minimum UKC of 10% of the static draft is required across the profile of, and up to the boundaries of, the navigation channel.

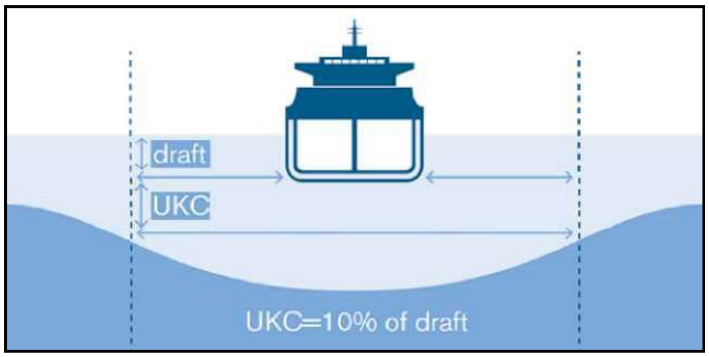


Image: Example of Under-Keel Clearance (UKC) requirement.

The draft available for transiting TCZ-2 is limited by the underwater contour of the Navigation Channel between the Second Narrows Railway Bridge and Berry Point.

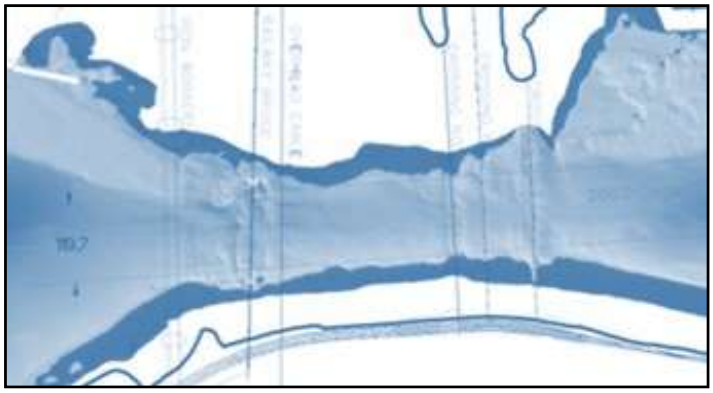


Image: Plan view of the horizontal channel boundary for a 42m moulded breadth vessel.

The maximum moulded breadth allowed for transiting TCZ-2 is 48.1m, which corresponds to a channel width of 137m. The maximum depth of a 137m wide channel through TCZ-2 is 8.7m, which at 10% UKC equals a maximum vessel draft of 7.9m at chart datum (Lower Low Water).

Vessels with a draft in excess of the maximum established in Appendix B may transit subject to tidal windows. Tidal assist will increase the maximum allowable draft but will correspondingly decrease the available air draft.

Transit windows are calculated using the static draft, i.e. the draft of the vessel when it is not moving through the water,

For loaded tankers, the maximum allowable draft is currently 13.5m.

TCZ-2 COMMUNICATIONS

a) Marine Communications and Traffic Services (MCTS)

Communication with vessels transiting, intending to transit or manoeuvring within TCZ-2 is provided, on behalf of the port authority, by the Canadian Coast Guard Marine Communications and Traffic Services (MCTS).

MCTS provides clearance to enter, move within or depart from TCZ-2 subject to conditions specified in these procedures.

When a clearance is given to a vessel to transit TCZ-2, MCTS will provide a vessel with information on all known traffic intending to transit TCZ-2 on the same slack water period at least 20 minutes prior to the vessel entering TCZ-2, or before the vessel departs an inner harbor terminal or anchorage. MCTS will also, at this time, advise of any specific orders regarding the transit, which may have been issued by the port authority.

Where vessels are required to wait pending the transit of another vessel, they will, whenever possible, be so advised by MCTS prior to leaving berth, weighing anchor, or entering TCZ-2 from either direction.

In the event of an interruption to communications between a TCZ-2 vessel and MCTS whereby MCTS has not provided the vessel with formal clearance to undertake a TCZ-2 transit, pilots will assess the movement of other traffic having the potential to impede such transit in making a determination as to whether it is safe to continue. A decision on such determination will also be conveyed to the port authority patrol boat on station or directly to the port authority Operations Centre.

b) Second Narrows Rail Bridge Communications

The duty Second Narrows Rail Bridge operator, on receipt of a TCZ-2 vessel's ETA, when possible, will make the Rail Bridge available with the lift span elevated 30 minutes prior to the ETA.

All TCZ-2 vessels requiring the Second Narrows Rail Bridge lift span be raised, when possible, will establish communication on VHF Channel 12 with the Rail Bridge operator, at least 1.5 hours prior to the TCZ-2 scheduled transit time indicating their intention to request for the lift span to be raised. Same must be reconfirmed 30 minutes prior to transit.

Tugs and barges making local harbor moves involving a TCZ-2 transit, when possible, will provide at least 30 minutes notice to the Rail Bridge operator if such a move requires the lift span to be raised. Vessels so designed, when possible, will lower their mast for a TCZ-2 transit where such action will eliminate the need for the lift span to be raised.

Communication between TCZ-2 vessels and the Second Narrows Rail Bridge operator will include:

- A statement of intentions, prior to departing from a Vancouver Harbour location or upon entering English Bay, when underway
- ETA at the Second Narrows Rail Bridge
- Confirmation of such ETA upon reaching the boundary of the Second Narrows TCZ

When the vessel's request has been received, the Second Narrows Rail Bridge operator will be required to:

- Verbally confirm understanding on VHF Channel 12
- Display one flashing red light on that side of the lift span facing the approaching vessel which indicates that the lift span is in the process of being raised to the fully raised position for every piloted vessel unless advised otherwise.
- Display one flashing green light on that side of the lift span facing the approaching vessel which indicates that the lift span has been raised to the requested height.
- Display a sector light for westbound TCZ vessels that require the lift span in the fully raised position.

Vessels must not approach the Second Narrows Rail Bridge when the following signals are displayed:

- Two flashing red lights on that side of the lift span facing the approaching vessel which indicates that the vessel is to stop at once or, if necessary, go astern; or
- A vertical row of four fixed white lights on the center of the main lift span which indicates that another vessel is approaching from the opposite direction.

TCZ-2 RESTRICTIONS

For the purposes of the TCZ-2 regulations, the following definitions apply:

Tier 1 vessel: Means any of the following vessels:

- All piloted vessels and tug and barge combinations when piloted, regardless of tonnage.
- All non-piloted tug and barge combinations with a barge of 10,000 tonnes or more carrying capacity.
- All non-piloted vessels including barges and articulated tugs and barges (ATBs) when in product.

Tier 2 vessel*:* Means all other vessel traffic operating in the TCZ-2 boundaries.

a) Transit Windows

A TCZ-2 transit: *is defined as a movement within TCZ-2 that includes passing under the Second Narrows Iron Workers Memorial Bridge and the Second Narrows Railway Bridge.*

Transit windows are established on either side of high and low water slack tides and are based on predicted slack water or stemming a predicted limiting current of one or two knots. Reference should be made to *Table 1: Second Narrows TCZ (TCZ-2) transit procedures deep sea vessels – Summary matrix*.

All Tier 1 vessels are subject to observing TCZ-2 transit windows during their transit and when manoeuvring within TCZ-2.

Predicted transit windows for vessels restricted by air draft can be provided by VPFA on request to port authority Operations Centre well in advance of the actual transit.

All available navigational information, including that gained from Portable Pilotage Units along with real time tide and current information, should be used in conjunction with predicted transit windows to improve the safety and efficiency of TCZ-2 operations.

b) Transit Restrictions

Reference should be made to the section "TCZ-2 Navigation Envelope (Clearances)" with respect to the maximum size of vessel that may transit TCZ-2 without the prior approval of port authority.

Tier 2 vessels must transit or move within TCZ-2 only when safe to do so and must take into account all factors influencing safety of navigation including traffic, tides, tidal current, weather conditions and their knowledge of TCZ-2.

All piloted vessels are required to remain at a safe distance from the Second Narrows Rail Bridge until the lift span is in a fully raised position. Non-piloted vessels must also wait for the flashing green light signal before proceeding.

The following specific transit restrictions and requirements apply:

- Vessels with length overall (LOA) of 250m and above and/or a moulded breadth or 45m and above are restricted from transiting TCZ-2 without the prior approval of the port authority.
- Vessels with Length Overall (LOA) of 230m and above and/or a moulded breadth of 35m and above are subject to daylight passage of TCZ-2.
- Tankers greater than LOA 185m and/or 40,000 Summer Deadweight (SDWT) and above are restricted to daylight transit of TCZ-2 when in product.
- The maximum air draft allowed for transiting TCZ-2 without port authority approval is based on a minimum safe overhead clearance of 2m.
- Should the predicted air draft at the time of a TCZ-2 transit exceed the maximum listed in Appendix B for the vessel moulded breadth, the authority may approve the transit based on calculation of an overhead clearance of minimum 2m or require verification of the air draft by a competent local surveyor and conducted within the port authority jurisdiction, prior to transit. Reference in all cases should be made to Appendix B *Second Narrows – Minimum channel depths and maximum vessel air drafts based on TCZ-2 moulded breadth factor for channel width*.
- Tug and barge combinations specifically designed for pushing and tractor tugs towing alongside with a barge of 15,000 tonnes or more carrying capacity are restricted from TCZ-2 without the prior approval of the port authority.

- Tug and barge combinations specifically designed for pushing and tractor tugs towing alongside with a barge of 10,000 tonnes or more carrying capacity are subject to TCZ-2 transit windows.
- Tug and barge combinations designed for pushing and tractor tugs towing alongside, may transit with a barge of less than 10,000 tonnes carrying capacity, regardless of current direction, when not employing a pilot. However, such vessels are required to source local (Canadian Hydrographic Service or the port authority) tidal data to ensure accuracy and comply with the requirements set out in Table 3 *Second Narrow TCZ (TCZ-2) tugs and barges including ATBs when not piloted – Summary Matrix.*

Loaded tankers must be trimmed to an even keel or by the stern and must not be trimmed by the head.

Vessels found by the BC Coast Pilots to have unacceptable maneuvering characteristics may be refused permission to transit TCZ-2 or be subject to special restrictions.

A vessel having a defect in the hull, main propulsion machinery, steering system or other communication or navigation system that is detrimental to safe navigation, requires the prior approval of both Transport Canada and the port authority to transit TCZ-2.

c) Clear Narrows Restrictions

The term “Clear Narrows” is defined as the transit of a vessel through TCZ-2 unimpeded by any other vessel

MCTS will declare a “Clear Narrows” on VHF Channels 12 and 16 by means of a Securité call to ensure unimpeded transit of restricted vessels, examples being but not limited to:

- A vessel with LOA 230m and above and/or a moulded breadth of 35m or above.
- A Tier 1 vessel (tanker) in product.
- A vessel with an air draft greater than specified for the vessel moulded breadth in Appendix B, and which has received the port authority approval to transit TCZ-2.
- Other vessels with special transit requirements that require the approval of the port authority.
- A vessel, which for safety considerations requires a clear passage through TCZ-2 upon request of the Master or pilot.

MCTS may direct other vessels to a suitable holding area until conditions are such that a transit of the TCZ-2 can be safely executed.

Light tugs and other highly maneuverable small vessels may, on request, be granted a compliance exemption by MCTS, provided a ship-to-ship agreement has been reached with vessel for which a clear narrows has been declared.

All other vessels must observe the Clear Narrows declaration for TCZ-2 and must not interfere in any way with the passage of a vessel for which a Clear Narrows has been declared.

Vessels delayed in transit due to other traffic must remain clear of TCZ-2 until conditions are such that a transit can be safely executed.

Second Narrows TCZ Holding Areas: *are defined as designated areas to which Tier 1 vessels subject to transit windows may be directed by MCTS or in which Tier 2 vessels, including non-piloted tugs and barges, in agreement with MCTS can hold themselves in readiness until conditions are such that a safe transit of TCZ-2 can be executed.*

d) Speed Restrictions

Tier 1 vessels must transit or manoeuvre within TCZ-2 at a safe speed not to exceed six knots through the water, except when safety of navigation requires otherwise.

Tier 2 vessels within TCZ-2 must proceed at a safe speed which will allow them to properly respond to the prevailing circumstances and conditions.

e) Visibility Restrictions

Reduced visibility limits the ability to see aids to navigation and other vessels or landmarks. These procedures outline safety requirements to be followed when transiting TCZ-2 during periods of reduced visibility.

The following vessels are subject to visibility restrictions:

- All piloted vessels and tug and barge combinations when piloted, regardless of tonnage.
- All non-piloted tug and barge combinations specifically designed for pushing and tractor tugs towing alongside with a barge of 10,000 tonnes or more carrying capacity.
- All non-piloted vessels including barges and articulated tugs and barges (ATBs) when in product.

When intending to transit TCZ-2, the above vessels and tug and barge combinations must observe the bridges clearly before reaching Terminal Dock when eastbound and before reaching Berry Point when westbound. The same requirement applies prior to departure from a terminal within TCZ-2 to make a TCZ-2 transit.

Pusher tug-barge combinations or tractor tugs towing alongside of less than 10,000 tonnes carrying capacity, whether in product or in ballast, may only transit during conditions of restricted visibility subject to the following conditions:

- An additional tug is employed to assist with the transit.
- Each tug's shipboard navigation equipment includes a type approved and fully operational electronic chart display and radar.
- The transit is restricted to a reduced TCZ-2 transit window limited to one knot current in either direction.

The vessel operator must provide to the port authority in advance the relevant documentation, which demonstrates to the satisfaction of the port authority that adequate internal safety management systems are in place for a safe transit of TCZ-2 and the degree of local knowledge.

Nothing in this section should be construed to require the master of a vessel to execute a transit in reduced visibility.

Refer to Table 3: *Second Narrows TCZ (TCZ-2) Tugs and barges including ATBs when not piloted – Summary matrix*.

f) Wind Restrictions

There are no standing wind restrictions for TCZ-2. However, when wind warnings are in effect, the master and/or pilot must take into consideration such factors as light vessel draft and/or high freeboard, when planning the transit.

TCZ-2 VESSEL TRAFFIC PROCEDURES

a) Order of Transit

For operational reasons, the order of transit may be amended with the mutual agreement of all vessels transiting, berthing or departing a berth within TCZ-2. Such amendment must be advised to MCTS.

Tier 1 vessels have priority over Tier 2 vessels within TCZ-2. In principle, taking into account of both safety and efficiency, the following order of priority applies to vessels transiting TCZ-2:

- First priority is a loaded tanker of LOA 230m and above and/or a moulded breadth of 35m and above;
- Second priority is a vessel whose window is closing which will have priority over a vessel transiting in the other direction;
- Third priority is deeper draft vessels over other transits in the same direction.

Priority consideration may also be given to an inbound vessel having labor standing by but subject to the overall efficiency of traffic movement.

A vessel proceeding to, departing from or shifting alongside berths within TCZ-2 must give way to, and not interfere with, the movement of Tier 1 vessels in transit.

b) Overtaking and Safe Distance between Vessels Regulations

A Tier 2 vessel may overtake another Tier 2 vessel that is proceeding at a speed of less than six knots within the geographical boundary of TCZ-2 provided that a safe speed is not exceeded in doing so. Such overtaking must not occur within two cables of either side of the Second Narrows bridges.

Tier 2 vessels must not overtake TCZ-2 vessels within the geographical boundary of the Second Narrows TCZ.

A Tier 1 vessel must not commence its transit until a Tier 1 vessel transiting in the opposite direction has completed its transit.

Tier 1 vessels transiting in the same direction must maintain a safe separation of three cables (0.3 nautical miles) or more distance between them.

c) Tier 2 Vessel Regulations including Pleasure Craft

All Tier 2 vessels including pleasure craft and sailing vessels when transiting TCZ-2 must be under adequate mechanical power.

Tier 2 vessels must not cross ahead of or otherwise impede TCZ-2 vessels within TCZ-2 and must stay to the side of the navigation channel to give TCZ-2 vessels as unobstructed a passage as is practicable, consistent with good seamanship.

For the safety reasons, vessels engaged in fishing, personal watercraft such as jet skis, row boats, canoes and vessels sailing or proceeding without mechanical power are not permitted within TCZ-2. Fishing, sailing and other non-powered recreational activity is permitted only in designated areas outside of the boundaries of TCZ-2 east of Second Narrows Rail Bridge.

d) Towing Regulations

- A vessel engaged in towing operations within TCZ-2, must limit the length of her towline, measured from the stern of the towing vessel to the nearest portion of the vessel being towed, to not more than 60m. Such towline may not be lengthened until both vessels are completely clear of the bridge piers.
- Tugs engaged in towing or pushing barges, whether in ballast or in product, must be of adequate power and comply with the assist tug requirements set out in *Table 3: Second Narrows TCZ (TCZ-2) Tugs and barges including ATBs when not piloted – Summary matrix.*
- For the purposes of TCZ-2, piloted ATB's are subject to the requirements of a tanker of equal size.
- The overall width of log booms within TCZ-2 must not exceed two boom sections (maximum 40m) wide, and the overall length of log booms within TCZ-2 must not exceed 20 boom sections (maximum 400m) long.

When transiting TCZ-2 with more than 10 boom sections overall length (maximum 200m), the master or person in charge of a log boom must engage, in addition to tugs required in the towing operation, one or more tugs of adequate power in order to:

- Remain close inshore off the main channel;
- Be able to maintain such boom sections in the designated holding areas located on both sides of the Second Narrows bridges as shown on Canadian chart # 4964.

TCZ-2 PILOTAGE REQUIREMENTS

Pilotage requirements within the port authority jurisdiction are governed by the Pacific Pilotage Authority Regulations, Section 9 (Ships Subject to Compulsory Pilotage) and 10 (Waiver of

Compulsory Pilotage). In addition to the pilotage requirements established under Section 9 and Section 10 of the *Pacific Pilotage Regulations*, the following pilotage requirements apply to vessels operating in TCZ-2:

- Tankers of 40,000 summer deadweight tonnage (SDWT) and above in product require two pilots for a TCZ-2 transit. Both pilots must remain on the bridge throughout the transit. Two new pilots will replace the two shifting pilots in English Bay or other agreed location;
- Vessels with LOA 230m and above and/or a moulded breadth of 35m and above require two pilots for a TCZ-2 transit;
- All other piloted vessels, including vessels shifting to or from a berth or anchorage east of the Second Narrows Iron Workers Memorial Bridge, require one pilot;
- The vessel or agent is required to supply the Mooring and Towing Arrangement of the vessel with the Safe Working Load (SWL) of the fairleads to PPA dispatch when ordering a pilot.

Refer to Pacific Pilotage Authority pilot ordering requirements.

TCZ-2 VESSEL ASSIST TUG REQUIREMENTS

TCZ-2 vessels when transiting TCZ-2, must comply with the standards for tug requirements included in Table 1 or Table 2 as appropriate, which detail the number of tugs and bollard pull requirements, reasonably spread between tug hulls. In addition:

- All vessel assist tugs employed on piloted TCZ-2 vessels transiting TCZ-2 must be tethered tractor/ASD tugs;
- Vessel assist tugs capable of generating more than 40 tonnes of bollard pull must have an operational tension meter that the tug operator can easily read from the conning position;
- All vessels which require tethered tugs for a TCZ-2 transit must have them tethered prior to entering TCZ-2 and must remain tethered until clear of the Second Narrows Bridges unless, for operational reasons, they are required to remain tethered beyond TCZ-2;
- Tankers of LOA of 185m and above in product and/or 40,000 tonnes SDWT and above in product require a minimum of two tugs that, when inbound must be tethered prior to transiting TCZ-1 and when outbound must remain tethered until clear (west) of TCZ-1. An interrupted passage between Second Narrows and First Narrows bridges, for whatever reason, does not reduce the minimum escort tug requirements for the transit.

Highly maneuverable craft may be exempted from these requirements at the discretion of the port authority in consultation with the Pacific Pilotage Authority and BC Coast Pilots.

For escort and tethered tug requirements related to tankers of 40,000 SDWT and above in product outside of the port authority jurisdiction, reference should also be made to the relevant Pacific Pilotage Authority Notices to Industry.

TABLE 1: SECOND NARROWS TCZ (TCZ-2) TRANSIT PROCEDURES DEEP SEA VESSELS - SUMMARY MATRIX

Tankers in product

Vessel type	Night time allowed	Tidal current opposing	Tidal current following	Tugs	Pilots	Tugs First Narrows
Tankers LOA <185m and/or < 40,000 SDWT	Yes	<1.0k	<0.5k	T	1	-
Tankers LOA > 185m	No	<1.0k	<0.5	T	1	-
Tankers > 40,000 SDWT	No	<1.0k	<0.5k	T	2	T

Tankers not in product and all other deep sea vessels

Vessel type	Night time allowed	Tidal current opposing	Tidal current following	Tugs	Pilots	Tugs First Narrows
LOA <230m and moulded breadth < 35m	Yes	<2.0k	<0.5k	T	1	-
LOA >230m or moulded breadth >35m	No	<1.0k	<0.5k	T	2	-

T = tethered tug required

For escort and tethered tug requirements related to tankers of 40,000 SDWT in product outside of port authority jurisdiction, reference should be made to the relevant Pacific Pilotage Authority Notices to Industry.

TABLE 2: SECOND NARROWS TCZ (TCZ-2) DEEP SEA VESSEL - TUG AND BOLLARD PULL REQUIREMENTS MATRIX

LOA less than 200m and moulded breadth less than 35m

Vessel draft	No. of tugs	Bollard pull tonnes	No. of tugs	Bollard pull tonnes
	Bow		Stern	
<8m	1	20	1	30

>8m <10m	1	30	1	40
>10m	1	30	1	50

LOA 200m – 229.9m and moulded breadth less than 35m

Vessel draft	No. of tugs	Bollard pull tonnes	No. of tugs	Bollard pull tonnes
	Bow		Stern	
<8m	1	30	1	50
>8m <10m	1	60	1 or 2	65
>10m <12m	1 or 2	60	1 or 2	80
>12m	1 or 2	60	2	110

LOA 230m – 250m and moulded breadth less than 45m

Vessel draft	No. of tugs	Bollard pull tonnes	No. of tugs	Bollard pull tonnes
	Bow		Stern	
<10m	1 or 2	60	1 or 2	65
>10m <12m	1 or 2	60	1 or 2	80
>12m	1 or 2	60	2	110

- Vessels over LOA 250m and/or moulded breadth 45m require approval for transit from the Harbour Master in consultation with the Pacific Pilotage Authority and BC Coast pilots.
- The maximum allowable moulded breadth for a TCZ-2 transit is 48m due to the width of the channel at the Second Narrows Rail Bridge.
- A TCZ-2 transit of tankers with a LOA 250m and draught greater than 13.5m is subject to tug requirements and other aids to navigation system enhancement presently not in place at the Second Narrows TCZ-2.

TABLE 3: SECOND NARROW TCZ (TCZ-2) TUGS AND BARGES INCLUDING ATB'S WHEN NOT PILOTED – SUMMARY MATRIX

Barge capacity tonnes	**Night time allowed**	**Tidal current opposing*1**	**Tidal current following*1**	**Visibility restricted* 2**	**No. of assist tugs**	**Bollard pull (tonnes)**
<6,000	Yes	-	-	conditional	-	-
6,000> <10,000 not in product *3	Yes	-	-	conditional	1	20
6,000> <10,000 *3	Yes	<2.0k	<2.0k	conditional	1	20
10,000> <15,000	Yes	<2.0k	<2.0k	restricted	1 or 2	40

*1 - Tugs and barges including ATBs when piloted are subject to the transit rules at set out in Table 1.

*2 - Reference should be made to: TCZ-2 *Restrictions – e) Visibility Restrictions* for detailed requirements.

*3 - For the purposes of this table, barges carrying cargoes other than liquid bulk will be subject to the requirements for "in product" when loaded, and subject to the requirements for "not in product" when light.

Note: One pilot is required for any tug/barge combination if under pilotage and subject to transit windows.