THE AMAZON CIRCULAR - 2024

The Amazon region of Brazil has experienced a marked increase in shipping activity in recent years due to the exportation of products such as iron ore, bauxite, and grains, especially soybeans and corn.

Given the complexity of this region, due to its sheer size and the peculiarities of its various ports and terminals, which remain largely unknown or confusing to many, Williams Brothers has prepared this updated report. The document covers major ports and provides essential, clear, and useful information for those whose vessels will operate in these ports.

Please be advised that this circular is being updated to include new information. However, the details may change without notice, due to both authorities' decisions and the variable river conditions. Therefore, all information should be considered as general guidelines and must be confirmed with local agents before vessels arrive at these ports.

The map of the Amazon region below serves as our point of departure for this report:

ENTERING THE AMAZON RIVER

All vessels must enter the Amazon River through the North Bar and proceed towards the Fazendinha Pilot Station located 174 nautical miles from the North Bar at Latitude 00°04'30"S and Longitude 051°06'30"W. The North Bar is the primary entry point to the Amazon River and presents significant challenges due to its variable conditions.

Navigation conditions

The depth and width of the channel at the North Bar can vary significantly due to tides and changes in the riverbed, which often features shifting sandbanks. These changes can create areas with reduced depth, making navigation more hazardous. Sandbanks may shift with currents and river flow, requiring constant vigilance and the use of updated nautical charts to avoid grounding.

During high tide, the current at the North Bar flows southwest (SW), and during low tide it flows northeast (NE) at an approximate speed of 5.5 knots. About 5 hours after high or low tide, the current shifts to northwest (NW) and southeast (SE), respectively. These variations can affect vessel maneuverability and should be considered when planning navigation, especially during tide changes.

In the rainy season, from December to May, the river water level rises, widening the channels and easing navigation. Conversely, in the dry season, from June to November, the water level decreases, exposing sandbanks and reducing navigable depth. Therefore, continuous monitoring of the water level is essential to adjust navigation according to river conditions.

The vessel's draft must be continuously monitored to avoid grounding, taking into account fluctuations in water level and tidal effects. The maximum recommended draft for crossing the North Bar is 11.50 meters. Above this draft, pilotage becomes mandatory, and navigation adjustments are necessary to ensure the safety of the vessel and cargo.

Nautical charts

For safe and accurate navigation, it is essential to use updated nautical charts. The recommended charts include:

- - Nautical Charts 200, 201, 202, 203, 204, 205, 206, and 210, which cover detailed areas and specifics of the region, providing crucial information about depth and river bed features.
- - Nautical Charts 221, 242, 243, 244, 4101A, 4101B, 4102A, and 4102B, offering updated information on channel conditions, buoy locations, and safe navigation areas.

Pilotage

Pilotage with two river pilots is mandatory in the Pilotage Zone (ZP) from the Fazendinha Pilot Station inward to reach the main Amazon ports and on the outward voyage as well.

Between the North Bar, starting from buoy 02 of the Grande do Curuá Canal, and latitude 00° 03'S, pilotage is optional. Vessels may choose to use pilot services if desired.

For vessels with a draft over 11.50 meters, pilotage is mandatory. For drafts between 11.61 and 11.81 meters, the additional FAZ X CURUÁ X ARCO LAMOSO (North Bar) service must be requested, which incurs extra costs. Drafts exceeding these limits will incur additional fees according to the Zone 1 pilotage agreement. Additionally, two pilots are required for navigating these areas.

Important channels and rivers in the ZP include the North Canal, South Canal, and rivers such as Jarí, Tocantins, Xingu, Tapajós, and Trombetas.

Vessels arriving at or departing from the Port of Itacoatiara do not need to change pilots, as local pilots are qualified for all maneuvers. For vessels leaving Itacoatiara towards the mouth of the Amazon, only the two pilots from the Fazendinha-Itacoatiara ZP are needed.

EXCHANGE OF BALLAST WATER AND BUNKERS

Ballast Water Exchange

Local regulations require vessels to perform ballast water exchange in two stages:

- First Exchange :This must occur at least 200 nautical miles from the Brazilian coast to ensure effective seawater exchange.

- Second Exchange: This should begin immediately after passing through the Barra Norte (North Bar) channel and be completed until all seawater is replaced by freshwater.

Bunkering

Fuel supply is available exclusively at the ports of Belem and Manaus. Proper planning for bunkering is crucial to avoid delays and ensure that the vessel is adequately fueled for the voyage.

INSPECTION BY AUTHORITIES:

All vessels must undergo inspection at the Fazendinha Pilot Station before proceeding. The station operates from 08:00 to 12:00 hours and from 14:00 to 17:00 hours LT. Vessels arriving outside of operating hours must anchor at Macapá anchorage until inspected and cleared by the relevant authorities.

ADDITIONAL MARINE INFORMATION:

The Brazilian Navy provides updated information on the location of tide buoys and important navigational warnings. Regular consultation of these Notice to Mariners updates is crucial for safe navigation. Storm warnings and other adverse weather conditions are also issued and should be closely monitored to avoid risks during navigation.

AMAZON PORTS

- **PORT OF SANTANA**

The Port of Santana is located approximately 6 nautical miles from Fazendinha and is accessible via the Santana Channel, which connects the Amazon River to the port. This natural channel ranges in width from 500 to 800 meters and has an average depth of 12 meters, reaching up to 30 meters at low tide. The maximum permitted draft for vessels at the port is 11.50 meters.

The port infrastructure includes a combination of public and private terminals, catering to different types of cargo and port operations. Below are the key terminals and their characteristics:

Public Terminals:

- **Pier A:** 200 meters in length with a depth of 12 meters, designed to handle large-scale cargo operations.
- **Pier B:** 150 meters in length with a depth of 11 meters, serving as an additional point for cargo handling.

Private Terminals:

- **Anglo Ferrous:** This terminal is 270 meters long with a depth of 12 meters and specializes in ore export, playing a crucial role in the handling of mineral products.
- **Ipiranga/Texaco:** With a length of 120 meters and a depth of 10 meters, this terminal is dedicated to fuel handling, ensuring safe and efficient operations.

Operations and Procedures:

The Port of Santana handles a wide range of cargoes, including wood chips, corn, soybeans, manganese, iron ore, and soybean meal for export, as well as bulk agricultural products, minerals, and general cargo for import.

Loading and Unloading Procedures:

- **Bulk Cargo:** Vessels discharge bulk cargo at Pier 2 using cranes and mechanical shovels. The cargo is transported by conveyor belts to storage silos. For loading, the material is moved from the silos to the shiploader via conveyor belts and loaded directly onto the vessel normally at Pier 1.
- **Fuel Cargo:** Fuel transfer is carried out using barges. The barge is anchored and connected to the tanker ship via a hose, with the fuel being pumped under strict control to prevent spills.

Requirements and Restrictions:

Vessels operating at the Port of Santana must carry and use the nautical chart from Fazendinha to Santana (Chart No. 206), as required by the Navy. Vessel dimensions are regulated, with a maximum length of 225 meters and a maximum beam of 32.26 meters. Berthing is restricted to daylight hours and specific tidal conditions.

The terminal operates continuously, 24 hours a day, with a current loading rate of approximately 1,500 to 2,000 tons per hour, with expectations for future increases. Maneuvering assistance is limited to mooring boats due to the absence of tugs, and the port is subject to regular dredging to maintain adequate depth at the piers.

- **PORT OF SANTAREM**

The Port of Santarém is strategically located at the confluence of the Tapajós and Amazon Rivers, approximately at coordinates 02°25'S and 054°42'W. This location provides excellent connectivity for the movement of goods, serving both the domestic market and exports. The port is comprised of three main terminals:

Grain Terminal of Santarém (TGS):

- **Owner:** Cargill Agrícola S.A.

- **Specialty:** Focused on the export of grains, especially soybeans and corn.

- **Operations**: The terminal has infrastructure to store large volumes of grain in silos and perform rapid loading operations for bulk carriers. The operations are highly mechanized, with conveyor belts that ensure efficient loading.

- **Number of Berths**: 1 main berth

- **Length of Berth**: Approximately 240 meters

Liquid Bulk Terminal - Petrobras:

- **Owner**: Petrobras Distribuidora S.A.

- **Specialty:**Storage and distribution of fuels.

- **Operations:** Equipped with large capacity tanks and transfer pipelines, the terminal operates both for regional supply and for the export of petroleum derivatives. Waiting times can vary depending on demand and navigation conditions.

Port Terminal of Santarém (TPS):

- **Owner:** Companhia Docas do Pará (CDP).

- **Specialty**: Handling various types of cargo, such as construction materials and manufactured products, in addition to liquid bulk.

- **Operations**: Equipped to receive both general cargo and liquid bulk, with infrastructure for handling petroleum derivatives and other goods. It has cranes and other handling equipment, allowing efficient operation of various types of cargo. Operations are adjusted according to ship schedules, with generally short waiting times due to storage capacity and logistical organization.

- **Number of Berths**:2 berths

- **Length of Berths**:

Berth 1: Approximately 180 meters

Berth 2:Approximately 180 meters

The Companhia Docas do Pará (CDP) also operates bulk cargo handling which allows for transshipment with the vessel anchored at specific coordinates in the river and barges moored alongside. The operation can use equipment from the vessel itself or a mobile crane.

Navigation:

Access to the Port of Santarem is facilitated by its location in a deep-water area, with a natural draft that allows the entry of large vessels. Navigation to the Port of Santarem is guided by specific nautical charts for the area, including Nautical Chart No. 4012, which details depths, navigational hazards, and buoyage. During the dry season, constant monitoring of dynamic draft conditions is essential, as river levels can impact the available depth. Buoys mark safe routes, ensuring navigation safety.

Infrastructure:

The port has berths that can accommodate vessels of various sizes. The berths are equipped with the necessary systems to meet the specific requirements of each type of cargo. Additionally, the port has a traffic control system that helps coordinate the arrival and departure of ships, minimizing waiting times.

- TGS (Cargill): Has storage silos, conveyor belts, and loading systems that allow high efficiency in grain loading**.**

- TPS (CDP): Infrastructure for handling various types of cargo, with fuel storage tanks and facilities to accommodate medium-sized vessels**.**

Dynamic Draft:

The dynamic draft at the Port of Santarém varies according to the seasonal conditions of the Amazon River, being a crucial factor for safe navigation. During the flood season, the draft increases, allowing the entry of vessels with a greater draft, while during the dry season, the draft decreases, requiring more caution in operations.

- TGS (Cargill): Maximum draft of up to 11 meters, depending on river conditions.

- TPS (CDP): Maximum draft of 10 meters, adjusted according to the tide and the time of year.

Average Operation Time:

- TGS (Cargill): Operational efficiency is high, with an average operation time ranging from 12 to 24 hours per ship, depending on the cargo and weather conditions.

- TPS (CDP): The average operation time is 24 to 48 hours, varying with the type of cargo and processing needs.

- **PORT OF JURUTI**

The port of Juruti is located on the right margin of the Amazon River 609 nm from the North Bar and is dedicated to the shipment of Metallurgical Grade Bauxite in Bulk

The port is owned and operated by Alcoa and consists of one berth which is 220 meters long equipped with mooring dolphins and fenders.

Vessels calling at Juruti must conform to the following port limitations to be always afloat:

- Maximum LOA of vessel: 242m
- Maximum beam of vessel: 32.2m
- Maximum draft: 11.58m
- Maximum DWT: 81,600 MT

No tugboats are available at this terminal to assist with berthing and unberthing operations and all such manoeuvres are only permitted in daylight.

The terminal operates 24hrs SHINC and the final cargo loaded for the B/L is by draft survey.

Part of the bauxite cargo shipped from Juruti is stocked in the open and part of this cargo is not washed and may contain a larger quantity of clay which retains more water, leading to higher TML. The loading operation at Juruti is by means of a conveyor belt system and an automatic shiploader and the bauxite cargo is stocked in an unpaved and open stockyard.

According to the Cargo Declarations issued by shippers Alcoa, the bauxite shipped from this port is a Group A cargo as per the IMSBC Code, with TML of 14.27% and a moisture content of 12.50%. The stowage factor is between 0.6–0.7 cubic meter per ton. The angle of repose non applicable.

Surveyors are allowed to enter the stockyard to visually inspect the stockpiles prior to loading operations, but may not collect samples for safety reasons. Samples may be collected from the automatic sampler on the shiploader during the loading operation.

If Owners or the Club should require further analysis of cargo samples at an independent laboratory, due to the weight of samples required for TML testing, they must be sent by boat to Santarem and then to the only independent qualified laboratory in the region at Santana by plane to Belem and then back to Santarem. This takes in the region of three days.

To reach Juruti, where there are no local surveyors, surveyors must travel by motor launch from Santarem which takes about 5 hours and the motor launch leaves Santarem for Juruti once a day at 05:00 hours.

	
Berth and shiploader at Juruti	Shiploader

	
Bauxite stocked in open unpaved stockyard	Condition of the stockyard
	
Close up of the bauxite cargo	Close up of the bauxite cargo

PORT OF TROMBETAS

The Port of Trombetas Bauxite Terminal is situated on the right bank of the Trombetas River which is a tributary on the left bank of the Amazon River. This terminal is located 606 nm from the North Bar and60 nm from the confluence.

There is only one berth at Trombetas, located on the Trombetas River, a tributary of the Amazon. the operations are uninterrupted and while one vessel is loading, the next vessel is authorized to come up the river and anchor off the port. The bauxite is loaded by shiploader.

The maximum allowable LOA of vessels loading at Trombetas is normally 245 m and breadth 40m.

The maximum sailing draft from Trombetas is also 11.58m.

The only cargo loaded at Trombetas is bulk bauxite cargo, which the shippers and owners of the port (MRN-Mineração Rio Norte) separate into “wet” and “dry” bauxite.

The bauxite arrives at the port in train cars and the cargo is previously processed (crushed and washed) atthe mines far back in the jungle to remove dirt and other foreign materials. The wet bauxite is stocked in piles in the open and exposed to the elements. This cargo is usually destined to Brazilian and Chinese ports.

The dry cargo is dried mechanically and stocked in enclosed warehouses in the port and this drier cargo is normally destined to ports in the USA, Canada and Europe. The dried cargo is also eventually used to improve

the condition of the "wet" bauxite by loading the drier cargo on top of wetter cargo in stow whenthe MC is above allowable limits.

There are no local surveyors at Trombetas and surveyors arrive by plane, with one flight a day. Previous authorization must be obtained from MRN prior to arrival.

Surveyors are allowed to enter the stockyard to visually inspect the stockpiles prior to loading operations, but not allowed to collect samples for safety reasons. Samples may be collected from the automatic sampler on the shiploader during the loading operation.

If Owners or the Club should require further analysis of cargo samples at an independent laboratory, due to the weight of samples required for TML testing, they must be sent by boat to Santarem and then to the only independent qualified laboratory in the region at Santana by plane to Belem and then back to Santana.

	
Porto Trombetas bauxite loading berth	Sampling tower on shiploader

PORT OF ITACOATIARA

The Hermasa Terminal, operated by shippers Amaggi, is located in Itacoatiara, approximately 270 km from Manaus by road and 108 nautical miles downstream from the capital. The port is 924 nautical miles from the North Bar. The transit time to the terminal is around 51 hours upstream and 36 hours downstream for vessels.

This terminal specializes in the loading of soybean products, including soybeans, soymeal/pellets, and soybean oil, as well as corn. Loading operations take place around the clock, including Saturdays, Sundays, and holidays (SHINC).

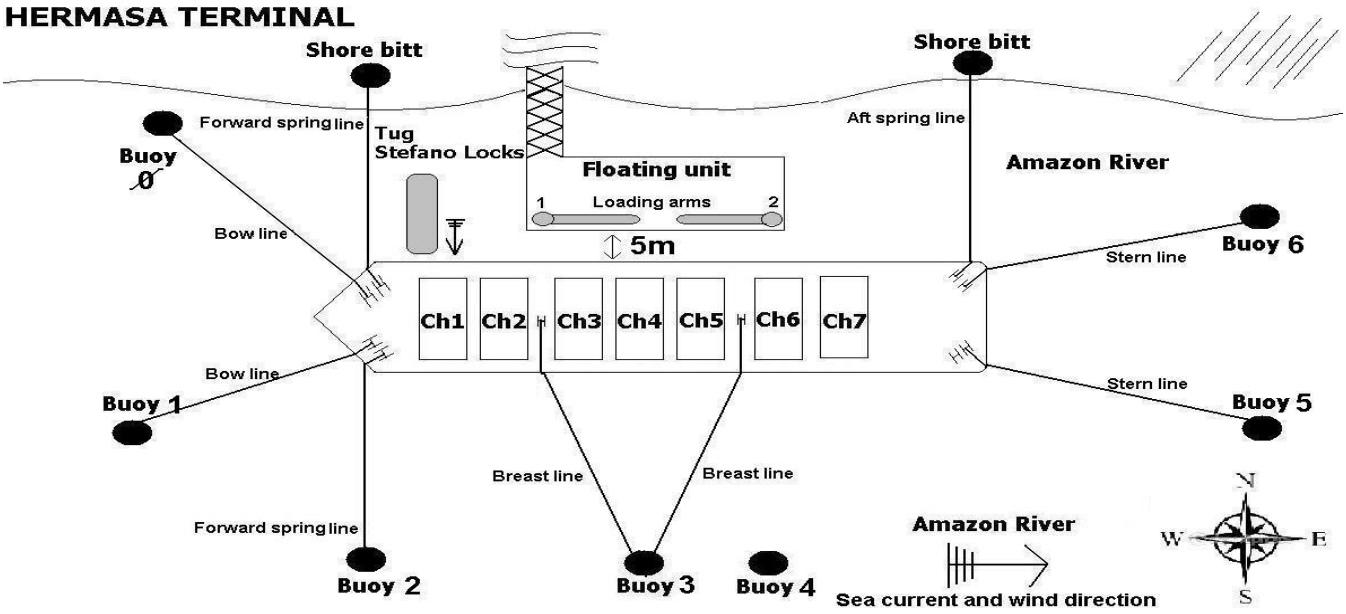
The terminal features a double-hulled floating pier (catamaran), approximately 83 meters long and 35 meters wide, equipped with two fixed vessel loaders that can operate simultaneously. The vessel loader has two arms: one with an outreach of 25 meters (Arm No. 1) and the other 28 meters (Arm No. 2). Both arms can move 30º up/down and swivel 180 degrees at the base. The loading capacity is 2,800 tons per hour for soybeans and corn, 700 tons per hour for soymeal, and 500 tons per hour for soybean oil.

Cargo is transported to the terminal by a convoy of Mississippi-style barges, consisting of 128 barges and five tugboats. Each convoy includes twenty barges pushed by one pusher tug and the distance from Porto Velho to Itacoatiara is approximately 1,100 km navigating the Madeira and Amazon Rivers. Older barges are covered with PVC tarps, while new barges are equipped with aluminum covers. All cargo is sampled and tested before storage or loading and weighed onshore before being loaded.

Loading is either from barges that dock under the terminal shiploader and transfer the cargo via conveyor belt, or from warehouses to the floating pier, where it is weighed on shore and directly loaded into the vessel's holds. The barge hook loader can handle up to 1,200 tons per hour.

Due to the significant variation in the Amazon River level during the rainy season from December to June, which can range from 30 to 50 meters, the vessel loader was built on a floating unit connected to shore by a conveyor belt system. This floating unit is kept in position by a system of nine anchors. During loading operations, vessels do not dock at the floating unit but are moored alongside, approximately 3 to 5 meters away, to a system of seven buoys and two mooring bitts ashore. A tugboat is always on standby to assist in maneuvering the vessels and in case of emergencies.

Vessels leaving the Hermasa Terminalwith a draft of 11.61 meters can reach the North Bar with a draft of 11.50 meters without additional costs. During authorized test periods by the Navy, it is possible to operate with a maximum draft of 11.70 meters, provided that the necessary authorizations are requested before the vessel's arrival.



When required, surveyors are dispatched from their base in Manaus, approximately 5-6 hours by car from Itacoatiara, to ensure compliance and quality of operations at the terminal.

Vessels berthed at the Hermasa Terminal

Amaggi also operates the Maquira Terminal II, a floating berth located west of the Hermasa Terminal in the river. At this terminal, the mooring system requires the vessel to be secured to five buoys—three at the bow and two at the stern—without the need for dropping anchors. The crane barge is moored alongside the vessel, and any positional adjustments are made solely with the crane barge. The barges come alongside the floating berth, and the cargo is transferred to the ship by the crane equipped with a grab. During the operation, the vessel must shift alongside to ensure all holds are reached. The crane barge has two grabs available, though only one is in operation at a time, with each grab having a capacity of 25 tons.

PORTS OF BELEM / VILA DO CONDE/BARCARENA

Access to the ports of Belem, Vila do Conde, and Barcarena is via the Pará River Channel, near the mouth of the Amazon, which has a minimum depth of 10.5 meters at low tide. The Espardarte Pilot Station is located at the mouth of the Pará River, and all tankers are required to take on a pilot at this station to proceed towards Belém, Vila do Conde, or Barcarena. All other vessels, unless draft-restricted, may proceed on their own to the Mosqueiro Pilot Station, further along the Pará River Channel, where they are also required to take on a pilot to continue towards the aforementioned ports.

IMPORTANT RECENT NOTICES (FOURTH SEMESTER 2024)

Owners of vessels transiting the Amazon are advised of recent issues with local pilots reporting deficiencies in air conditioning systems aboard, that is, Pilots Thermal Discomfort, to the Brazilian Ministry of Labour.

The two pilots required by law disembarked mid voyage with resulting Ministry of Labour requirements for inspections by engineers, purchase and installation of portable air conditioning units and high additional pilotage costs, as well as delays in the voyage.

Previously when pilots stated that the temperature on the bridge and in the two pilot cabins was higher than permitted by law, the agents just purchased and installed three portable units and the vessel would continue her voyage, however recently the pilots also informed the Ministry of Labour that the temperature in crew cabins was also above the permitted.

In a recent case, the vessel´s agents received a formal notification from the Ministry of Labour stating the vessel would be inspected, however the Ministry inspectors had to travel from Belem at the mouth of the Amazon to Santarem where the pilots disembarked with further costs. During this time, extra pilotage was counting at about USD 2,200 per hour.

Agents are now suggesting that vessels ensure that the temperature on board in all common areas and cabins is between 19ºC and 25ºC. If the crew observes that the temperature, especially on the bridge and in the two pilot cabins, is not within this range, they should advise their agent when arriving at the Fazendinha pilot station so the agent can solve the issue while the vessel is at anchor in Macapa prior to the pilots embarking for the river voyage. If the pilots are comfortable on the bridge and in their own cabins, they are not as likely to check the other cabins.

However, as an example, in the recent case, an occupational engineer had to be contracted to record the temperature in all 21 crew cabins, the bridge, ship´s office and pilot cabins and the extra pilotage time came to 40 hours. The resulting extra cost was over USD 120,000.