



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR 4 — CHART INFORMATION

SECTOR 4

STRAIT OF MALACCA—TANJUNG JAMBUAIR TO TANJUNG SINABOI

Plan.—This sector describes the W shore of the Strait of Malacca between Tanjung Jambuaire and Tanjung Sinaboi. The descriptive sequence is SE.

General Remarks

4.1 The coast between Tanjung Jambuaire and Ujung Tamiang about 69 miles SE, is plain, with few prominent features. From February through May the high mountains in the interior are occasionally visible. During the rest of the year they can usually be seen in the morning. Many of the peaks of the ranges are prominent, and serve as useful landmarks.

Several small rivers flow into the strait along this section of coast. Small, shallow draft coastal vessels use these small rivers.

Between Ujung Tamiang and Tanjung Tanjung, about 96 miles SE, and then to Tanjung Sinaboi, about 115 miles farther SE, the low, swampy coast is intersected by numerous small rivers, few of which are navigable. High mountain ridges rise in the interior and are clearly visible.

The depth curves generally follow the contour of the coast with the 10m curve lying about 1 to 5 miles offshore except in the bays and inlets.

In the SE part of the Strait, which constricts to a width of 37 miles between Pulau Sinaboi and **Tanjong Ru** (2°50'N., 101°17'E.) on the Malaysian coast. The fairway is fouled by a series of narrow detached banks with depths of 11m and less.

The outer shoals and banks found seaward of the 10m curve along this coast are described separately under off-lying depths and dangers.

Winds—Weather.—Although the Strait of Malacca is within the limits of the NE and SW monsoons of the Indian Ocean, the winds are variable because of the high land on both sides. Land and sea breezes are regular on both coasts. In the offing, the monsoons are only regular when they are at their height in the adjacent sea area. However, the wind is moderate in the Strait and only lasts for part of the day. The monsoons become more regular near Singapore.

Between Acheh Head and Ko Phuket the SW monsoon commences in the latter part of April or the early part of May, and ceases in October. Calms and variable winds frequently prevail in November.

The SW monsoon seldom blows far into the Strait. During this season, variable winds, chiefly from the SE and SW, prevail in the middle of the Strait with periods of long calms.

On the Sumatera side, light winds and calms prevail, and heavy squalls from the land are experienced during the night.

Fewer calms are experienced on the Malayan side and there are seldom any squalls. Variable land and sea breezes are usually experienced.

During the SW monsoon, the weather is generally cloudy and stormy especially when the monsoon is at its peak.

Sumatras, or squalls from the SW, are more common during the SW monsoon than during the NE monsoon.

They generally occur during the first part of the night and are accompanied by sudden severe winds, with thunder and lightning. They are more frequent on the N coast of Sumatera and along the Malaysian coast between Parcelar Hill and the Karimung Islands. Here they usually blow for six or eight hours at a time as a strong, or moderate gale. Their characteristic is that of an arch squall.

Northwesters are not as frequent as the Sumatras. They are most common during the SW monsoon and occur in the NW part of the strait but sometimes are felt as far SE as Singapore Strait. Severe high winds blow at the beginning of the storm but their strength soon abates. They are generally preceded by a black cloud arch, which rises rapidly from the horizon toward the zenith and are usually accompanied by thunder, lightning and heavy rain.

The NW monsoon prevails in the W entrance of the Strait of Malacca from November to April, which is considered the fair season. The weather is more settled at this time. There are seldom severe squalls and there is less thunder, lightning, and much less rain than in the other season.

In November the winds are variable, frequently from the NW and W, although occasionally the NE winds set in November. From this period to March, the NW monsoon is the strongest, but at times NW and W winds of one or two days duration have been experienced in every month when the NW monsoon should prevail.

Late in March the NE and N winds become light and variable, with strong land breezes at night. On the Malaysian side these breezes commence between 2000 and 2200 hours and last for four or five hours, sometimes blowing all night.

This is generally the case between Mount Formosa and Cape Rachado. Calm winds are less likely to exist on the Malaysian side than on the Sumatera side of the strait.

Tides—Currents.—The Strait of Malacca is relatively shallow with the greater part of the area having depths of less than 73m. The main movement of water is from tidal influences. Throughout the year, there is a residual predominantly NW current in the strait.

During the NW monsoon, part of the S current in the South China Sea rounds the S extremity of the Malay Peninsula and sets NW through the Strait of Malacca. During the period of the SW monsoon, part of the current which flows through Karimata Strait and into the South China Sea, branches off to the NW into the Strait of Malacca. This NW current is also present during the transition months of April and October although at these times it becomes weaker and less constant.

As the NW monsoon becomes well established there is some evidence in some of the winter months for an counterclockwise circulation in the N parts of the strait, N of about 3°N. This circulation weakens during the April transition.

When the SW monsoon becomes established, a clockwise circulation probably results over the same area during the period June to October, with a maximum effect in August.

Though the predominant direction in the strait is NW, currents from all directions have been reported and the percentage frequency of the predominant flow is never high.

The current is most constant during the period January to April and is least constant from May to August. A number of observations, report rates of less than 1 knot.

Some have been reported more than one knot and no currents have been reported in excess of 2 knots.

The tides on the coast of Sumatera covered by this sector are chiefly semi-diurnal in character. However, on the N and NE coasts the diurnal tidal system of the South China Sea is felt at times, and when the highs and lows of both systems coincident springs, greater highs and lows are experienced.

The flood tidal current sets E on the N coast of Sumatera; the ebb tidal current sets W. At springs the current rarely exceeds 2 knots; at neaps they are sometimes imperceptible, except at the points or over banks and narrow channels.

The currents are also affected by the constant current out of the Strait of Malacca, which takes a W direction along the N coast, through Malacca Passage, and out through Bengal Passage, so that for the greater part of the year the ebb current is longer and stronger than the flood current.

As a result of the prevailing wind, when the water is rising or falling during the NW monsoon, there may be no E set for a day or more; conversely, the flood or E current runs longer and stronger during the SW monsoon.

4.2 Gosong Deli (Deli Bank) (3°54'N., 98°57'E.), 12 miles N of Tanjung Si Bunga has a least depth of 7m.

Gosong Bunga (Bunga Banks) (3°45'N., 99°03'E.), which lie near the SE end of Gosong Deli consists of two detached parallel sandy ridges, lying between 6 and 9 miles NE of Tanjung Si Bunga. The outer ridge has a least depth of 1.5m, mud, sand, and shells and is steep-to on its outer side. The inner ridge has a least depth 2m.

Both ridges are usually marked by tide rips over their shallowest parts and with any swell the sea breaks. Between the inner ridge and the coastal bank, tide rips and discoloration of the water are frequently observed.

Gosong Berhala (Berhala Bank) (3°55'N., 99°26'E.), a narrow shoal about 7 miles long with a least depth of 11m, lies centered about 31 miles NE of Tanjung Si Bunga. Good anchorage is provided on this shoal. During the strength of the current the water is discolored and tide rips occur.

Pulau Berhala (3°47'N., 99°30'E.), 177m high and thickly covered with vegetation, stands about 25 miles N of Tanjung Tanjung and is an excellent landmark. By day, the island can be seen for a distance of up to 30 miles during clear weather.

By night, with good visibility, it can be seen at a fairly safe distance. The NE and SW sides of the island are steep-to. A light is shown from the island.

A wooded islet, 48m high, stands 137m from the SE side of the island and is connected to it by a drying coral ridge. A similar rocky island, 43m high, stands about 0.5 mile NW of the island. This islet appears white in places. Between Pulau Berhala and this islet there are depths of 9 to 13m.

A rectangular area, with its center on Pulau Berhala, has been designated as a prohibited area.

An ammunition dumping site lies in the SW part of this prohibited area.

Anchorage can be taken on a ridge extending SE from Pulau Berhala, in a depth of about 16m, with the summit of the island bearing 302°, distant a little over 0.3 mile.

A bank, which has a least depth of 16m, lies with its NW end about 4 miles SW of Pulau Berhala.

Discolored water marks this bank during the strength of the current. Occasionally tide rips occur.

Outer Mati Bank (3°28'N., 99°35'E.), about 15 miles long in a NW and SE direction, lies with its NW end about 11 miles NNW of Tanjung Tanjung.

A depth of 8.2m lies near the center of the bank. Some discoloration exists over this bank when the current is strong.

An explosive dumping ground is situated approximately 5 miles NE of Outer Mati Bank.

Pulau Pandang and Pulau Salahnama, also known as The Brothers, are two rocky islands, 64m and 89m high, respectively, which stand about 17 miles ENE and 14 miles E of Tanjung Tanjung.

Pulau Pandang (3°25'N., 99°45'E.) is almost entirely surrounded by a coral reef with some above-water rocks. A foul area was reported to lie about 9 miles E of the island. A light is shown from Pulau Pandang.

Pulau Salahnama (3°20'N., 99°43'E.) is densely wooded and its rocky sides rise steeply from the sea. An above-water rock lies close N of the island and a similar rock lies about 0.5 mile S of the island.

Anchorage can be taken about 1 mile from the NW and SE sides of Pulau Pandang and Pulau Salahnama.

4.3 Pulau-Pulau Aruah (Aruah Islands) (2°52'N., 100°36'E.) is composed of two groups of small islands and some off-lying rocks which is located on a bank with depths of less than 20m. The S end of the bank joins an extensive mudbank lying adjacent to the Sumatera coast.

Batu Utara (2°55'N., 100°36'E.), the N most islet of the group, is about 4.6m high, and has a reef extending N.

Batu Bymys (Bymys Rock) (2°54'N., 100°35'E.), awash, lies about 2 miles SSW of Batu Utara. The charted position is approximate.

Pulau Jemur (2°53'N., 100°34'E.), 22m high, flat and tree-covered, stands about 3 miles SSW of Batu Utara. Kalironggo Islet stands on a reef about 0.3 mile NE of Pulau Jemur, and a drying reef lies about 0.5 mile farther NE.

A round islet, about 50m in diameter and surrounded by a reef about the same distance in width, stands 0.3 mile SE of Pulau Jemur Lighthouse.

A group of five islets lie on a bank, with depths of less than 10m, which lies a little over 0.5 mile WSW of Pulau Jemur and extends in a NNW and SSE direction.

Tokong Mas (2°53'N., 100°33'E.), the northernmost of the group, is 31m high, several drying reefs lie within 0.4 mile N of Tokong Mas. Pasir Pandan, 20m high, and Sarong Alang, 27m high, stand on the same reef S of Tokong Mas. Labuan Bilik, 20m high, stands about 137m SE of Sarong Alang. Tokong Sipotjong lies about 0.3 mile SSE of Labuan Bilik. A drying reef lies between the two.

Batu Berlayer (2°52'N., 100°38'E.), a group of six low rocks, surrounded by a reef, lies about 3 miles E of Pulau Jemur.

Half Tide Rock (2°52'N., 100°40'E.), which dries 2.4m and is steep-to, lies about 2 miles E of Batu Berlayer.

Batu Mandi (2°52'N., 100°41'E.), 2m high and steep-to, lies 7 miles E of Pulau Jemur.

4.4 Tokong Simbang (2°48'N., 100°38'E.), 38m high to the tops of the trees, is precipitous and the highest of the Kepulauan Aruah Group. This islet lies about 6 miles SE of Pulau Jemur and can be seen on a clear day for a distance of 15 miles. There are several rocky islets around it. Tokong, 9m high, stands 1.5 miles SSW of Tokong Simbang.

The large shoal area which extends about 30 miles N from the entrance of the Sungai Rokan to within 2.5 miles S of Tokong.

Tides—Currents.—The SE current off Pulau-Pulau Aruah begins about 4 to 5 hours before HW along the coast and runs from 1 to 2 hours after, at a rate of about 2 knots at springs.

The NW current has a rate of about 3 knots. At neaps, the SE current being opposed by the prevailing NW current results in a very weak set in either direction.

Tanjung Jambuaire to Ujung Tamiang

4.5 Tanjung Jambuaire (Diamond Point) (5°15'N., 97°30'E.) consists of a sandy point, just above water, which is marked by some Casuarina trees. The coast in the vicinity appears to be receding to the W.

A light, from which a racon transmits, is shown from a 44m high white framework tower situated about 0.5 mile WSW of the point. A white framework water tower stands on the W bank of Tangung Jambuaire, about 1 mile SW of the light.

A spit, with depths of less than 5m, extends about 2.7 miles NW from the point and is fairly steep-to on its NE side, over which the sea breaks in places. Discolored water has been reported about 2 miles N of the lighthouse and vessels are advised not to shoal to depths of less than 20m especially during the NW monsoon when there is a heavy swell.

Tides—Currents.—The tidal currents set SE and NW. The NW set, being increased by the prevailing NW current, is stronger and of longer duration than the SE set. At springs the current sometimes attains a rate of 3 knots, but in the offing it seldom exceeds 1.5 knots.

The tidal currents are weak near the coast W of Tanjung Jambuaire.

Between Tanjung Jambuaire and Ujung Tjuram, 12 miles SE, there are several rivers and creeks.

A sandy, mudbank, which dries in places, extends from 0.5 to 1.5 miles offshore between Tanjung Jambuaire and Ujung Tjuram.

The coast between Tanjung Jambuaire and Ujung Tamiang, about 69 miles SE, is a low, with a few prominent features.

From February through May the higher mountains are occasionally visible. During the remainder of the year they can usually be seen, especially in the morning.

Some of the peaks are good landmarks and can best be seen on the chart.

Several small rivers flow into the strait along this section of coast.

4.6 Ujung Tjuram (Steile Hoek) (5°06'N., 97°38'E.) is a point that has been reported to be radar conspicuous. A tall chimney, marked by obstruction lights, stands about 8 miles SSW of the point.

The mouths of the rivers between Tanjung Jambuaire and Teluk Langsa, about 50 miles to the SW, are difficult to approach and have constantly shifting channels. Local knowledge is required to enter these channels safely.

Between Tanjung Jambuaire and Ujung Tjuram, during the NW setting current, there is a distinct division between the muddy water from the rivers and the clearer water of the strait, extending out to the 40m curve.

Idi Village (4°58'N., 97°46'E.) stands on the right bank at the mouth of the Krueng Idi which flows into the strait about 13 miles SE of Ujung Tjuram. The river is available only to small local craft. A light is shown from Idi.

Anchorage can be taken in a depth of 9m on the SE side of the river entrance bearing 236°, or in a depth of 7.5m, with the entrance bearing 224° and Ujung Peureulak bearing 131°.

Vessels generally ride comfortably here and during the NW monsoon they frequently are unable to communicate with the shore.

Ujung Peureulak (Tanjung Peureulak) (4°54'N., 97°54'E.), located about 9 miles SE of Idi Village, is a low, sandy point covered with high trees. Bukit Brangkat, 130m high, about 4 miles WSW of the point makes it easy to identify.

4.7 Gosong Peureula (Peureulak Bank) (4°56'N., 97°53'E.) extends about 4 miles N and 1.5 miles E from Ujung Peureulak. A drying patch lies close N of the point and a 0.7m patch lies 1.25 miles N of the point. The sea usually breaks over this bank.

Krueng Peureulak flows into the strait close W of Ujung Peureulak and is approached over Gosong Peureulak. In the channel at its mouth there is a depth of 0.5m and a depth of 3.5m inside the river. The large village of Peureulak stands about 5 miles S of the entrance. Small shallow draft boats can reach the village through Kuala Leugo Rajeu about 8 miles S of Ujung Peureulak.

It is advisable to anchor as near as possible to the river mouth steering in on a W course for Ujung Peureulak.

4.8 Kuala Beukah Oil Terminal (4°53.4'N., 97°56.8'E.) consists of a conventional mooring buoy situated 3 miles E of Ujung Peureulak. Tankers of between 60,000 and 90,000 dwt with a maximum length of 240m can be accommodated in a depth of 17.5m.

There is a medical clinic available for vessels calling at this terminal.

The coast between Ujung Peureulak and Ujung Tamiang, about 36 miles SE, continues low and is covered by fairly high trees. Numerous unimportant creeks intersect this stretch of coast. The coast is fringed by a mudbank, with depths of less than 5.5m, which extends from 1 to 2 miles offshore. In the vicinity of Ujung Perolin, where the bank is steep-to, about 19 miles SSE of Ujung Peureulak extends 3.7 miles offshore.

Bugak Village stands on the left bank of Krueng Bugak about 3 miles S of Ujung Peureulak. A white house stands on the S side of the entrance of this creek. Both Krueng Djeungki

and Sungai Raja which flow into the strait about 9.5 and 13 miles SSE of Ujung Peureulak, are navigable only by boats.

Teluk Langsa (Langsa Bay) (4°34'N., 98°103'E.) entered between Ujung Perolin and Tanjung Langsa, about 5 miles SE, is fouled by numerous shoals which are intersected by narrow channels. The bay is easily identified by the rising ground SW of it against which the island of Pulau Telagatujoh, close NW of Telaga Tujoh, stands out clearly.

Ujung Perolin (4°37'N., 98°01'E.), the W entrance point of the bay, is low, sandy, covered with Casuarina trees, and easily identified.

4.9 Telaga Tujoh (4°33'N., 98°04'E.), the SE entrance point of the bay, is easy to identify from the E by its sandy beach.

There are three channels of approach into Teluk Langsa, which is otherwise encumbered by numerous shoals, between which there are narrow boat channels.

Alur Pelayaran Birim leading from NE to the mouth of Krueng Birim. The channel is not buoyed. There are depths of 2.7 to 3m in the fairway.

Alur Pelayaran Telukdalam formerly the principal channel to Pelabuhan Kualalangsa, which leads close along the W side of Pulau Teleagatujoh. Apart from a fairway approach buoy, the channel is unmarked. There are least depths of 2.4m on the outer and inner bars.

Kuala Langsa is the principal channel which leads on the SE side of Pulau Telagatujoh through Krueng Langsa to Pelabuhan Kualalangsa.

This channel is marked by leading light beacons, and buoys. There is a reported least depth of 1.5m close SE of leading line. Vessels up to 100 dwt can reach Kualalangsa.

The tidal currents run with considerable strength in the mouths of the various rivers and generally set in the direction of the channels. The strength of the currents is sometimes felt well outside the 10m curve.

Kuala Langsa (4°32'N., 98°01'E.), which is the port for the town of Langsa, stands on the left bank of the Krueng Langsa about 4 miles SW of Tanjung Langsa.

Ujung Tamiang to Tanjung Si Bungabunga

4.10 Ujung Tamiang (4°25'N., 98°17'E.) may be identified from all directions by the groups of casuarina trees standing on either side of the Sungai Tamiang, and which are visible from a considerable distance. From the NW and SE the point appears as an islet from any distance. A light is shown from Ujung Tamiang.

Sungai Tamiang, which discharges about 0.5 mile W of Ujung Tamiang, has no commercial value to shipping.

The coast between Ujung Tamiang and Tanjung Tanjung, about 97 miles SE, is low, thickly covered with vegetation, and marshy. The numerous rivers which discharge along this stretch of coast are available only to small craft with but few exceptions.

The appearance of the coast is very monotonous and it is not always easy to fix a position without local knowledge.

At certain times of the year and in the early morning many of the mountain peaks in the interior are usually visible and serve as valuable aids to the navigator. The positions of these various peaks may best be seen on the chart.

4.11 Teluk Aru (Ara) (4°14'N., 98°20'E.) is entered between Ujung Tamiang and Tanjung Bedukang about 21 miles SSE, is fronted by mud flats with the 2m contour line extending to almost 5 miles offshore.

Two islands, Pulau Kampai and Pulau Sembilan, lie on the N and S sides. Both islands are low but have tall trees which may be seen from a distance of about 16 miles. The settlement of Kumpai stands on the S end of Pulau Kampai. Several small islands stand at the head of the bay. Tanjung Bedukang, the S entrance point of the bay, is difficult to identify.

There are three buoyed channels leading into Teluk Aru across shallow bars to rivers, waterways and berths as follows:

Alur Pelayaran Kampai leads to the river entrances on the W side of the bay. This channel has a least depth of 2.1m on the bar.

Alur Pelayaran Sembilan, the main channel, leads to the oil loading station at the Port of Pangkalonsusu. This channel is reported to have a least depth of 3m at the bar.

Alur Pelayaran Babalan, leads to the oil loading station at Pangkalanbrandan. The least depth in the channel is 0.6m on the bar.

Caution.—The buoyage of these channels is subject to alteration due to changes in the fairways.

A prohibited area extends W from Pulau Sembilan. A restricted area extends W from Pulau Sembilan across Alur Pelayaran Kumpai and SW to Panjang. Both areas are best seen on the chart.

4.12 Pangkalan Oil Terminal (4°13'N., 98°24.6'E.) is situated 9.5 miles offshore in the outer approaches to Teluk Aru. The terminal consists of a SPM, connected to the shore by a submarine pipeline which is marked by several special purpose buoys.

Winds—Weather.—The weather is normally fair with moderate variable winds. During the NE monsoon, there are often strong NE winds with heavy rain, showers and thunderstorms.

Tides—Currents.—The tidal currents in Teluk Aru, set generally in the direction of the channels, and attain a rate of 2 knots at springs. Outside the outer bar of Alur Pelayaran Sembilan the flood sets SW and the ebb NNE. The ebb often continues to run over the outer bar for some time after the flood has ceased in the Strait of Malacca outside the shoals.

Depths—Limitations.—The SPM can accommodate tankers up to 100,000 dwt and 275m in length. Depths in the vicinity vary from 18 to 25m.

Aspect.—**Pulau Kumpai** (4°13'N., 98°14'E.) and Pulau Sembilan are low but have tall trees visible for a distance of 15 miles from seaward.

Platte Hovel (4°16'N., 98°09'E.), 154m high, stands 8 miles inland and is the highest hill in the vicinity.

Pilotage.—Pilotage is compulsory and reported available 24 hours.

Vessels are required to send ETA at 72, 48, and 24 hours in advance with the first message to include the type of cargo require.

Regulations.—Berthing may only take place during daylight, unmooring is permitted day and night.

Anchorage.—The tanker anchorage area is situated approximately 2 miles E of the SPM. It is also reported that a tanker anchorage exists in position 4°16'N, 98°25'E. At the

anchorage the pilot boards with the Loading Master and the crew.

Directions.—Tankers approaching the SPM from the NW or NE can pass on either side of the buoy situated approximately 1.5 miles N of the SPM. It is reported that the approach to the SPM is not difficult to identify as Teluk Aru presents a very good radar picture. The SPM, however, may be difficult to identify due to the presence of fishing huts and boats in the vicinity.

Pangkalan (Pangkalansusu) (4°07'N., 98°13'E.) (World Port Index No. 50700) consists of several small oil jetties and a general cargo wharf. The port is used primarily by small tankers operating between the port and the SPM offshore.

A vessel approaching the entrance of Alur Pelayaran Sembilian should keep outside the 20m curve until the lighted fairway buoy is sighted.

As the distance between the outer and inner bars is about 10 miles, and as HW is about 30 minutes earlier on the inner bar than on the outer bar, vessels are advised to cross the outer bar on a flood tide, leaving the lighted fairway buoy at least 30 minutes before HW. The bottom generally is soft mud except on the inner bar.

4.13 Sungai Gebang (4°02'N., 98°26'E.) and Sungai Serapuh, two shallow rivers, flow into the strait about 3.5 and 4 miles SE of Tanjung Bedukang. The coast between the mouths of the two rivers consists of dark mud with mangroves, and close E of the mouth of the Sungai Serapuh are several tall casuarina trees standing close to the sandy beach that extends about 2.2 miles E to the entrance of the Sungai Langkat. High trees stand behind this beach.

Between Tanjung Bedukang and the entrance of the Sungai Langkat, a bank with depths of less than 5.5m, extends about 4 to 5 miles offshore.

Sungai Serapuh (4°02'N., 98°27'E.), which has a least depth of 0.9m at its entrance, extends inland to the settlement at Tanjungpura. Only small vessels with local knowledge can enter this river.

A white wooden rectangular beacon stands near the W side of the entrance of the Sungai Serapuh.

Small craft with local knowledge can enter the Sungai Langkat but the depths are shallow. A remarkable tree stands on the E entrance point of this river. The approach channel leading to the river is marked by fishing stakes.

4.14 Kuala Tapak Kuda (3°59'N., 98°33'E.), entered about 4 miles E of Sungai Langkat, may be identified by Kuda Pusung which lies on the E side of the entrance. A depth of 1.8m exists on the outer bar but inside the river there is a depth of 3m as far as the village of Tapak Kuda.

Only small craft with local knowledge can enter the river.

The entrance of the river has been reported to be a good radar target at distances up to 12 miles.

Ujung Ahu (Og Ahoe) (3°55'N., 98°39'E.), about 8 miles SE of Kuda Pusung, can only be identified from the E by the casuarina trees.

Karang Gading (3°56'N., 98°39'E.), which has a least depth of 4.6m, is a hard bottom ridge which extends NNW from the

coastal bank in the vicinity of Ujung Ahu. Its outer end lies about 7 miles NNW of that point.

The entrance of Sungai Karang Gading and Sungai Nipah Larangan lies about 0.5 mile SE of Ujung Ahu. A prominent clump of trees stands on the E entrance point of the rivers.

Tanjung Beting Tjamar, which is tree-covered, stands 1.2 miles SE of this point. The coast between this point and Tanjung Belawan, about 6.2 miles SSE, has been reported to be radar conspicuous.

Between Tanjung Beting Tjamar and Tanjung Perling, about 10 miles SSE, the coast is fronted by an extensive shoal area which extends up to 5 miles offshore. The inner part of this shoal is bordered by mudbanks.

The entrance of the dredged channel leading to the Sungai Deli leads through these shoals to Pulau Belawan which has the port of Belawan on its N side.

The Sungai Deli has two entrances separated by Pulau Belawan. Sungai Belawan, the N channel, has the port of Belawan along its S side, and Sungai Deli, the S channel, leads S of Pulau Belawan. The S channel is no longer in use.

Numerous fishing stakes stand on the shoal area in the approach to Belawan.

Belawan (3°47'N., 98°41'E.)

World Port Index No. 50730

4.15 Belawan, the most important port in Sumatera, lies at the confluence of the Sungai Belawan and the Sungai Deli about 8 miles S of the lighted approach buoy. Ample, modern alongside berthing facilities are available for handling all classes of ocean-going vessels capable of transiting the dredged entrance channel. Belawan is a first port of entry.

Tides—Currents.—The tidal rise at Belawan is 2.4m at MHSW, and 1.2m at MHWN. The highest level of water is reached in about the middle of May and November. There is a tide gauge near the W end of Ocean Quay.

Outside the entrance of the dredged channel to Belawan, the flood sets to the SE and the ebb to the NNW, both at a maximum rate of 2 knots.

At neaps there are periods with no currents at all. At the outer entrance of the dredged channel the current sets in the direction of the fairway, the ebb attaining a rate of 3 knots at springs and the flood a rate of less than 2 knots.

It has been reported that the tidal current at Ocean Quay turns about one hour later than at the entrance of the dredged channel.

Depths—Limitations.—The approach channel to Belawan is approximately 9 miles in length, 100m in width and has a depth of 8.5m at LWS. The channel is well marked by navigational aids and is free of dangers.

The channel is subject to continuous silting and therefore the channel depths may be subject to frequent changes.

The port can accommodate vessels up to 200m in length with a maximum draft of 10m. Pier information is listed in the table below.

An offshore oil loading area is marked by a group of four mooring buoys. The facility is connected to the coast by a submarine pipeline 3 miles SSE of Nipah Larangan light. It lies

within a charted pipeline area 0.5 mile wide across Belawan Channel.

PORT FACILITIES-BELAWAN			
Berth	Depth	Length	Max. size
Gabion Container Wharf	8.1-9.8m	500m	45,000 dwt
Conventional Wharf	8.0-9.1m	350m	45,000 dwt
Unjung Baru	8.0-9.8m	1,557m	45,000 dwt
Citra Unjung Baru	4.5-4.9m	625m	45,000 dwt
Pelabuhan Lama	5.0-8.2m	567m	
Pertamina Oil Jetty	11.2m	75m	20,000 dwt

Aspect.—Tanjung Perling, the SE entrance point of the river, can only be identified from the SE. Under favorable conditions Gunung Gulu and the adjacent mountains and the Van Heutsz range, SE and S of Belawan, can be distinguished.

When approaching from the NE, a vessel should steer for the valley between the two ranges.

Other good landmarks are a group of oil tanks (3°47'N., 98°41'E.), two chimneys with red and white bands E of Belawan, and an adjacent orange painted building SW of the town which is reported to be conspicuous from seaward in the afternoon.

A silo on the cement wharf on the W side of the basin (Citra Ujung Boru) is reported to be the most prominent object in the port area.

Pilotage.—Pilotage for vessels over 500 grt is compulsory and is available 24 hours. Send ETA 48 hours in advance.

The pilot should be ordered through the vessel's agent at least 8 hours in advance stating the ETA, cargo, length, and draft. The pilot boards near Lighted Buoy No. 2.

Regulations.—Vessels leaving Belawan have priority over those entering. Large vessels are not permitted to pass in the channel. An underkeel clearance of 1m is required when transiting the approach channel.

Signals.—Traffic signals for controlling movement for the port may be shown from the pilot vessel, the **Harbor Office Flagstaff** (3°47.3'N., 98°41.5'E.), and the entrance to **Sungai Nunang** (3°47.5'N., 98°41.2'E.).

Signals prohibiting movement by vessels from 1,050 to 3,500 grt are, as follows:

1. By day: A black ball between 2 black cones points up.
2. At night: White, red, white lights shown vertically signifying vessels are not to enter the harbor and that no vessel in the anchorage is to shift her berth without the harbor masters approval.
3. By day: A black cone (point up) over 2 black balls, signifies that vessels may enter the harbor if their draft does not exceed 4 meters.

Suction dredges are at work in the entrance channel and will display the following signals in addition to the prescribed lights and marks:

1. By day, if the dredges are at work a cone at the yardarm indicates that vessels should keep to the E side of the channel.
2. Two cones at the yardarm indicate that vessels should keep to the W side of the channel.

3. If the dredges are anchored with the suction apparatus on the bottom, an anchor at the yardarm indicates that vessels should pass on the side on which the anchor is shown.

4. By night, if the suction apparatus is on the bottom a green light at the yardarm indicates that vessels should keep to the E side of the channel.

5. A red light at the yardarm indicates that vessels should keep to the W side of the channel.

6. When the suction apparatus is not on the bottom, no special signals will be made.

When two dredges are working at a distance of not more than a quarter mile apart, in the event of a vessel approaching, the dredge farthest away from the approaching vessel will cross over to the same side of the channel as the dredge nearest the approaching vessel.

Off-lying anchors of dredges working in the channel are marked by drums.

Vessels are prohibited from passing between the drums and the dredge.

Great care must be exercised in passing a dredge on the bar, as the narrowness of the channel permits very little maneuvering room.

Anchorage.—The outer anchorage for Belawan is located in position 3°55'N, 98°46'E and is also designated as the pilot boarding station.

Anchorage is prohibited in the following areas:

1. Within about 0.3 mile on either side of the axis of the dredged channel leading to Belawan, S of 3°55'N.
2. Within the pipeline area extending from the coast to the loading area in position 3°51'N, 98°47'E.
3. In Pelabuhan Belawan, E of 98°41'E.

The coast between Tanjung Perling and the mouth of the Sungai Serdang, about 8 miles SE, consists of mud and mangroves but from there to Teluk Mengkudu, about 18 miles farther SE, there is a considerable amount of sandy beach and high casuarina trees.

Rantau Pandjang (3°42'N., 98°50'E.), at the mouth of the Sungai Serdang, may be identified by high trees standing about 3 miles E.

Tanjung Si Bunga to Tanjung Siapiapi

4.16 Tanjung Si Bunga (3°39'N., 99°00'E.), which stands about 17 miles SE of Tanjung Perling, may be identified by a dense group of casuarina trees.

Sungai Perbaungan flows into the strait close E of the above point. A large shed on a pier and a white house in the vicinity, are prominent when viewed from the E.

Sungai Bedagai, which discharges about 17 miles SE of Tanjung Si Bunga, can be identified by a clump of high trees at its mouth with several detached clumps of trees to the E.

A small pier stands at the river mouth and the village of Kuala stands on the left bank.

Between the mouth of the Sungai Bedagai and Telok-baru, about 11 miles SE the coast is bordered by fishing enclosures which extend out to the 10m curve.

At Telok-baru there are shallow depths in the channel leading inland.

The river which flows into the strait at Tanjung Tanjung, has a narrow entrance and shallow depths.

Anchorage can be taken off the river mouth in depths of about 11.9 to 18.3m with a clump of casuarina trees bearing 169°.

4.17 Tanjung Tanjung (3°21'N., 99°29'E.) is low but can be identified by its white sandy beach and high trees. A strong current sometimes sets here along the coastal bank. Vessels when crossing the mouth of the river, should not shoal to a depth of less 16.5m.

Kuala Tanjung is a minor port of Kualanjung close N of Tanjung Tanjung. There is a pier that projects out about 2 miles from the point and its termination is marked by a light.

Depths—Limitations.—Vessels up to 11,000 dwt, with a maximum draft of 9m and a maximum length of 160m, can be accommodated. The pier has three berths, as follows:

Berth A is 200m long, depth 11.5m. Berth B has a length of 150m, depth 11.6m. They are both used for aluminum.

Berth C is 80m with a depth of 7.1m. It is used for general cargo purposes.

Aspect.—A racon transmits from the light. The approach to the port is marked by a lighted beacon, standing 10m high, 2.5 miles N of the point, and by Buiten Mati Bank lighted buoys. Pilotage, which is available through Belawan, is compulsory.

Anchorage.—An anchorage area has been established and centered about 1.3 miles W of the lighted beacon. The area has a radius of 500m.

4.18 Between Tanjung Tanjung and Tanjung Tiram, about 9 miles SE, the coast is bordered by a white sandy beach except for a bank of mud and mangroves about 2 miles S of Tanjung Tanjung.

A light is shown from Tanjung Tiram.

Sungai Kuala Batubara (3°15'N., 99°36'E.), which discharges on the E side of Tanjung Tiram, has shallow depths. Fish enclosures extend up to 4 miles offshore in this vicinity.

The tidal currents set SE and NW and turnabout one hour after HW and LW at Tanjung Tiram.

Tanjung Tambuntulang (3°10'N., 99°45'E.), about 11 miles ESE of Tanjung Tiram, is a low overgrown point.

The Sungai Tambuntulang discharges close W of the point and is marked by the village of the same name.

4.19 Tambuntulang Bank (3°12'N., 99°47'E.), with depths of from 1.8 to 5.5m and fairly steep-to, extends about 4 miles NE from Tanjung Tambuntulang.

Numerous fishing stakes are reported to lie near the edge of this bank.

Sungai Asahan (3°02'N., 99°52'E.) is entered between Tanjung Napal, 10 miles SE of Tanjung Tambuntulang and Tanjung Jumpul about 2 miles to the SE.

These points and the coast in the vicinity are low, muddy and overgrown with mangroves. The channel is marked by buoys and beacons.

Jumpul Bank (3°04'N., 99°56'E.) extends about 7 miles N from Tanjung Jumpul to the 10m curve. The bank dries up to 2 miles N from the point. The NE and E edges of the bank are steep-to. From the SE the bank can be picked up by soundings but not from the NW. Fishing enclosures are erected on the bank.

The channel in the approach to the river runs along the edge of the drying bank extending offshore NW of Tanjung Napal and has a least depth of 0.6m on the bar.

Above Baganasahan about 2 miles S of Tanjung Napal, the least depth in the channel to the wharf at Teluk Nibung is about 0.9m at LW and 4m at HWS.

Tides—Currents.—Springs rise about 3m and neaps about 1m. Outside the bar the flood sets from SE to SSE at a rate of about 1.5 knots and the ebb NNW, but more to the N, at a rate of about 2 knots.

During neaps the currents are weak and irregular and overcome by the river current. Near the outer buoy the ebb sets NW and the flood to the SE.

The flood begins in the entrance about 5 hours before HW and the ebb about 6 hours later. The flood attains a rate of 1.5 knots and the ebb a rate of 3 knots at springs. During freshets the rate is increased on the ebb.

Directions.—A vessel approaching Sungai Asahan should obtain an accurate fix by the bearings of The Brothers and Tanjung Tambuntulang, and then steer for the outer bar buoy.

The channels are continually changing, only vessels with local knowledge should attempt to enter the river.

4.20 Tanjung Balai (2°58'N., 99°48'E.), the chief town of the district, stands about 7 miles above the river entrance. It has a 70m pier with a least depth of 0.8m alongside.

The berth at Teluknibung, about 2 miles below Tanjungbali, an iron jetty 160m in length with a reported depth of 2m alongside. A pier 42m long lies close W of the jetty.

The coast between Tanjung Jumpul and Tanjung Siapiapi, about 9 miles SE, is bordered by a mudbank with depths of less than 1.8m. This bank extends up to 5.75 miles off the former point and 2.5 miles off the latter point.

There are some fishing huts but few objects for identifying the low, mangrove covered coast. The mountain ranges inland are usually visible in clear weather.

Tanjung Siapiapi to Tanjung Sinaboi

4.21 Tanjung Siapiapi (2°56'N., 99°59'E.) is a low, well-defined point overgrown with mangroves of moderate height and is clearly visible up to a distance of 10 miles on SE and NW bearings. The mudbank S of the point extends about 2.2 miles offshore and is steep-to.

The coast between Tanjung Siapiapi and Tanjung Pertandang, about 20 miles SE, is indented by a large bay fouled by shoals.

Several navigable channels lead through these shoals to the mouths of the Sungai Kuala Kualu and the Sungai Panai.

The coast forming the W side of Kualu Geul, which leads to the Sungai Kualu, has no distinctive marks, except a customs station on piles close off the village of Simendulang, about 7 miles S of Tanjung Siapiapa and some houses on piles off Tanjung Sibabi, about 1.7 miles farther S.

The settlement at Ledung is difficult to make out by day, but at night the lights of the houses can be seen and distinguished from those on the fish stakes on the banks of the Sungai Ledung which lies S of the settlement.

A buoy is moored about 7 miles ESE of Tanjung Siapiapi.

There are four channels leading to the entrance of the Sungai Panai but Teluk Piai Geul, which has a depth of 2.4m is the only one now in regular use. It lies close W of the outer buoy and close E of the mudbank extending N from Tanjung Prapat, the W entrance point of Sungai Panai. The channel is buoyed on its W side.

Kualu Geul, the W most channel, passes W of the outer buoy and leads to the settlement at Ledung on the W side of the entrance to Sungai Kualu, about 3 miles S of Tanjung Sibabi; this channel, which is not buoyed, has depths of 1.8 to 2.7m over the bar, about 1.2 miles E of the settlement. These channels are subject to change in depth and direction.

In the inner approaches to Sungai Kualu and Sungai Panai, there is a swept channel best seen on the chart. It is 198m wide and marked by buoys on its W end.

Tanjung Ledung, about 0.5 mile S of the S entrance of Sungai Ledung, stands out distinctly. A customs station with a pier extending from it stands at Ledung. This pier has a depth of 0.6m in its approach. Between Tanjung Kluang, about 3 miles S of Tanjung Ledung and Tanjung Mengedar, about 9 miles farther up, there are depths of about 1.2m.

Anchorage can be taken by vessels with local knowledge in a depth of about 3m off Ledung. The ebb off the mouth of the Sungai Ledung is strong, especially near the time of LW.

Vessels with local knowledge can also anchor off the settlement at Tanjung Mengedar, in depths of about 3m.

A vessel approaching Ledung from the N should pass from 0.75 to 1 mile E of the steep-to mudbank extending SE from Tanjung Siapiapi, and keep Tanjung Ledung well open of Tanjung Sibabi.

When Tanjung Ledung bears 211° it should be steered for on that bearing, until Simendulang Customs Station bears 270°. The course should then be altered to 197° and altered as required for the anchorage. This channel is not buoyed and passes between shoals on either side, only vessels with local knowledge should use it.

4.22 Sungai Panai (2°45'N., 100°06'E.) is entered between **Tanjung Datu** (2°41'N., 100°06'E.) and Tanjung Bangsi, a low mangrove point, about 4.2 miles NE, about 10 miles within the entrance the river is joined by Sungai Bilah. The settlement of Labuhanbilik stands on the right bank of the Sungai Panai about 2 miles above the junction of these rivers.

The Tanjung Datu has been reported to be a good radar target at distances up to 20 miles.

There is a Customs Station and jetty at Njiri about 3 miles S of Tanjung Datu.

The shores of the river are mangrove covered as far as Tanjung Berembang about 7 miles SSW of Tanjung Bangsi and in the bight N of Tanjung Berombangtunggal, the NW entrance point of Sungai Bila. Tanjung Berembang, an islet lying in the middle of Sungai Panai, about 7 miles S of Tanjung Datu, is covered with high trees.

An overhead cable, with a vertical clearance of 13m, spans the Sungai Barumon about 2 miles SW of Labuhanbilik.

Anchorage can be taken by vessels with local knowledge off Berembang, about 0.5 mile N of Tanjung Berembang, in depths of 2.4 to 3.4m, and off Labuhanbilik, in depths of 4 to 4.5m, about 193m off the E shore.

Vessels intending to use the Teluk Piai Geul should keep a good lookout for fishing stakes near its entrance and having passed between the two outer lines of fishing stakes NE of Tanjung Prapat, should follow the directions given above.

Only vessels with local knowledge should attempt to proceed to Labuhanbilik.

Tides—Currents.—Between Tanjung Siapiapi and the drying banks off the mouth of the Sungai Panai, the flood sets into Teluk Piai Geul and follows the direction of the channel.

The ebb sets on to Tanjung Siapiapi. Off Tanjung Pertandangan the ebb sets to the E.

Both off and within the river mouths, for sometime after the flood begins, the surface water continues to run out while an undercurrent sets inward. Outside the 10m curve N of the banks the flood sets SE. The greatest rate of the current outside the 10m curve is 2 knots and in the channels and rivers, 3 to 4 knots. There is very little slack water at springs.

Outside, each current runs for about 6 hours, but farther in the ebb runs for 7 hours and the flood for 5 hours. The currents turn about 45 minutes after HW and 30 minutes after LW.

Off Tanjung Prapat and Tanjung Datu the flood sets towards the coast while the ebb sets strongly to the NW.

Between Tanjung Pertandangan and Tanjung Sinaboi, about 56 miles ESE, the only points of identification are the river mouths. The mangrove covered coast is mostly muddy and low lying. The coastal bank, as far out as the 10m curve, is marked by fishing stakes and enclosures. Fishing boats range well offshore and at night display no lights. At times they work as far out as close S of the Kepulauan Aruah group of islands.

Caution.—A former mined danger area exists in the approaches to Sungai Kualoh and Sungai Panai in which it is reported to be dangerous to anchor, trawl, or engage in any seabed activity. The area is best seen on the chart.

A dangerous wreck (PA) lies approximately 15 miles NNE of Tanjung Pertandangan.

4.23 Tanjung Pertandangan (2°42'N., 100°13'E.) is low but shows up well from the N because of its high trees. From Tanjung Pejudian, about 11 miles SSE of Tanjung Pertandangan, a spit with depths of less than 10m extends about 11 miles N almost parallel with the coast. The S end of the spit is fairly steep-to. Fishing stakes were reported to stand in the vicinity of this spit.

Tanjung Pecudian (2°31'N., 100°20'E.) is fringed by mangroves, and may be easily identified by the high trees behind it, decreasing very rapidly in elevation upon closer approach. Panipahan Village stands 4 miles S of this point.

Between Panipahan Village and the entrance of the Sungai Rokan, about 27 miles SE, the coast is broken by several creeks and bordered by shoals.

Pulau Alang-besar, about 25 miles SE of Tanjung Pejudian, lies in the entrance of **Sungai Rokan** (2°18'N., 100°36'E.).

The approach to this river is fouled by mudbanks. Off Tanjung Belanda, the E entrance point, and Tanjung Sinaboi about 16 miles ENE, the coastal bank dries out from 2.5 to 6 miles.

A shoal, with depths of less than 10m then extends about 26 miles NW from this section of coast and about 25 miles N from Pulau Alang-besar.

4.24 Pulau Halang (2°11'N., 100°39'E.) is low and thickly covered with vegetation. The channel between this islet and the coast to the SW is suitable only for small craft.

The passage across the banks from NE of Tanjung Pertandangan to **Bagansiapi** (2°09'N., 100°48'E.) at the N entrance to Sungai Rokan is encumbered by numerous fishing stakes and enclosures which should be given a wide berth.

There is no definite channel as depths are constantly changing. Only small craft with local knowledge should attempt navigating this estuary.

Tides—Currents.—Outside the bank extending from the mouth of Sungai Rokan, the flood sets SE and the ebb NW.

Near the 10m curve, the currents set along the shoals at a rate of 3 to 4 knots at springs.

The flood runs from about 3 hours before HW at Bagansiapi to about 3 hours after.

Except for a short period of slack water, the current over the bank's middle is rotatory in a counterclockwise direction.

About the time of HW at Bagansiapi the current sets E, 3 hours after HW it sets N, at LW sets W, and 3 hours after LW, S at a rate of 3 to 4 knots.

At neaps the N and S currents predominate. The E and W currents are hardly perceptible, and the N current runs the longer and at its greatest rate.

Off Bagansiapi both the flood and ebb follow the direction of the mouth of the river and run at their greatest rate

immediately after the turn of the tide. The maximum rate at springs being 3 to 4 knots.

4.25 Bagansiapi (2°10'N., 100°48'E.) fronts the E shore of the mouth of the Sungai Rokan. A pier with a flagstaff at its head, fronts the town. This pier is 75m long with a depth of 1m alongside. Vessels berthed alongside ground at LW on the soft mud which extends about 25m from the head of the pier.

Caution.—It is not advisable for vessels without local knowledge to approach Bagansiapi or the Sungai Rokan by the passage W of Pulau Alang-besar, or to proceed inside the 10m curve because of the numerous fish traps and stakes in the vicinity.

The strong currents setting across the course make it difficult to keep clear of these obstructions; the lighted buoys in the approach are too far apart to give proper guidance.

From three days before to three days after full and change, the flood current is usually accompanied by a tidal bore about 1m in height.

It travels at a great rate with a thundering noise and causes damage to local craft. It usually is felt up to about 31 miles upriver.

From Bagansiapi, the coast curves N and E for about 20 miles to Tanjung Sinaboi. This section of coast is bordered by mudbanks and shoals which extend up to 12 miles offshore.