Sea - Seek

Ebook Sailing guide / Guide nautique

Bay of Bengal

Indian Ocean

June 2020
Bay of Bengal
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Bay of Bengal

The Bay of Bengal (largest bay in the world,) forms the northeastern part of the Indian Ocean. It is bordered mostly by the Eastern Coast of India, southern coast of Bangladesh and Sri Lanka to the west and Burma (Myanmar) and the Andaman and Nicobar Islands (part of India) to the east.

On the East, a line running from Cape Negrais in Burma through the larger islands of the Andaman group, in such a way that all the narrow waters between the islands lie to the Eastward of the line and are excluded from the Bay of Bengal, as far as a point in Little Andaman Island and thence along the Southwest limit of the Burma Sea [A line running from Oedjong Raja in Sumatra to Poeloe Bras (Breuêh) and on through the Western Islands of the Nicobar Group to Sandy Point in Little Andaman Island, in such a way that all the narrow waters appertain to the Burma Sea]. On the South, Adam's Bridge (between India and Ceylon [Sri Lanka]) and from the Southern extreme of Dondra Head (South point of Ceylon) to the North point of Poeloe Bras.

The islands in the bay are very numerous, including the Andaman, Nicobar and Mergui groups. The group of islands, Cheduba and others, in the north-east, off the Burmese coast, are remarkable for a chain of mud volcanoes, which are occasionally active. Great Andaman is the main archipelago or island group of the Andaman Islands, whereas Ritchie’s Archipelago consists of smaller islands. Only 37 of the 572 islands and islets of the Andaman and Nicobar Islands are inhabited, or 6.5%.

Major Bangladesh ports on the bay include Chittagong and Mongla. Major Indian ports on the bay include Krishnapatnam, Chennai (formerly Madras), Vishakhapatnam, Kolkata (formerly Calcutta), and Pondicherry. Yangon, the largest city and former capital of Myanmar is also an important port in the bay. Kokalta and Chennai are the biggest ports in the world.

Climate:
The monsoon currents regulate the climate of the Bay of Bengal and the regions around it.
Bay of Bengal

During the months of January to October, the current flows towards the north in a clockwise circulation pattern and is called the East Indian Current.

The Bay of Bengal monsoon moves in a northwest direction hitting the Andaman and Nicobar Islands at the end of May and then the North Eastern Coast of India by the end of June.

Throughout the remaining part of the year, a counter-clockwise current flows towards the southwest direction, and is called the East Indian Winter Jet.

During the months of September and December the weather is very active. The monsoon season often brings in severe cyclones, which affect Eastern India as well as parts of other countries. The 1971 Orissa cyclone is one of the worst.
chittagong port anchorage area

dhamra

1.1 - Calcutta port (W Bengal-NE India)
1.2 - Hugli (Hooghly) River (NE India)

Indian Ocean - Bay of Bengal - East Coast of India - Hugli (Hooghly) River (NE India)

A  Hugli River Entrance (W Bengal-India)
B  Sagar road (Hugli river-India)
C  Haldia port (W Bengal-NE India)
D  Sagar island (W Bengal-India)

The semaphores have three arms, the upper arm indicates meters, the middle arm decimeters, and the lower arm centimeters, as depicted in the diagram above.

**Tides**

Tides in the Hugli River are semi-diurnal. Tidal semaphores have been established at the following places to indicate the rise of the tide in the Hugli River:

1. About 0.5 mile SSW of Sagar Island Light.

2. At Gangra, on the W bank about 7.5 miles NW of the N point of Sagar Island. Tidal information is also broadcast on VHF channel 16.

3. At Balari, on the W bank about 12 miles NE of the tidal semaphore at Gangra.

4. On Hugli Point, about 12 miles upriver from the semaphore at Balari. Tidal information is also broadcast on VHF channel 13.

5. At Moyapur, about 17 miles downriver from Kidderpore Docks. Tidal information is also broadcast on VHF channel 13.

6. At Akra, about 6.5 miles downriver from Kidderpore Docks. Tidal information is also broadcast on VHF channel 13.

7. At Rajabagan, about 3 miles downriver from Kidderpore Docks.

At the moment of HW, a ball is hoisted to its upper position; as the tide begins to fall, the ball is lowered to the lower position until the tide has fallen by 1m, when the ball is hauled down. At LW, the ball is hoisted to the lower position; as the tide begins to rise, the ball is hoisted to the upper until the tide has risen by 1m, when the ball is hauled down.

Night semaphores are situated at Sagar, Gangra, Balari, Hugli Point, and Moyapur.

Each semaphore can display two flashing lights, an upper light showing a 2-second flash every 8 seconds and a lower light showing one flash every second.
Bay of Bengal

<table>
<thead>
<tr>
<th>Signal</th>
<th>Tidal Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper light green</td>
<td>1.0m and 4.0m</td>
</tr>
<tr>
<td>Both lights green</td>
<td>1.2m and 4.2m</td>
</tr>
<tr>
<td>Green over red</td>
<td>1.4m and 4.4m</td>
</tr>
<tr>
<td>Green over white</td>
<td>1.6m and 4.6m</td>
</tr>
<tr>
<td>Lower light green</td>
<td>1.8m and 4.8m</td>
</tr>
<tr>
<td>Upper light red</td>
<td>2.0m and 5.0m</td>
</tr>
<tr>
<td>Red over green</td>
<td>2.2m and 5.2m</td>
</tr>
<tr>
<td>Both lights red</td>
<td>2.4m and 5.4m</td>
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<tr>
<td>Red over white</td>
<td>2.6m and 5.6m</td>
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<tr>
<td>Lower light red</td>
<td>2.8m and 5.8m</td>
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<tr>
<td>Upper light white</td>
<td>3.0m and 6.0m</td>
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<td>White over green</td>
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</tr>
<tr>
<td>Both lights white</td>
<td>3.6m and 6.6m</td>
</tr>
</tbody>
</table>

**Hugli (Hooghly) River (NE India)**

*Rise of the tide*

One fixed red light is displayed if the semaphore is not working.

The strength of the tidal current varies in different parts of the Hugli River at different times of the year; its velocity is least during the Northeast Monsoon from November to February, when it is 3 to 3.5 knots at springs and 1.5 to 2 knots at neaps.

During the latter part of the dry season, the Southwest Monsoon blowing in the direction of the flood current increases its velocity so that it flows up the river at 4 to 6 knots during spring tides.

The descent of the freshets, from July to October, causes the ebb current to predominate and it reaches a maximum velocity of 7 knots during spring tides; at this time the flood current is imperceptible, except in the estuary.

There are three distinct periods in the year, lasting approximately 4 months each. During the cold season, the flood current has a slight preponderance over that of the ebb, because of its shorter period of flow.

The flood current, during the second half of the dry season, is made considerably stronger than the ebb by the Southwest Monsoon. During the rainy season, the flood current is overpowered by the descent of freshets and the ebb current predominates accordingly.

The great body of the tidal current flows in the direction of the channels at velocities of 2 to 3 knots at springs and 1 knot to 1.5 knots at neaps.

At LW during spring tides, the flow of the flood current is checked by the shallow and restricted bed of the river and by the seaward flow of water from the upper reaches. These conditions can lead to the creation of a tidal bore.

Bores in the Hugli River occur only with a greater than average spring tide, and usually when the seaward flow is augmented by freshets. Extreme tidal bores are most prevalent in March and September and reach heights of 2.4 to 6.1m.

During the Northeast Monsoon, from November to February, freshets do not occur and for this reason, bores are a rarity.
When they do occur during this particular season, it is likely to be at night. They are dangerous because they are unexpected. It is advisable to anticipate their occurrence during this season whenever greater than average spring tides are predicted. With the Southwest Monsoon, the occurrence of freshets during greater than average spring tides will always cause bores, those preceding the daylight HW being higher than those at night. The first appearance of the bore is on Diamond Sand, on the W side of the river abreast Diamond Harbor, where the ascending wave runs on as a breaking roller. It is not of much consequence until it enters the contracted reaches above Hugli Point, when, besides swamping boats, it affects vessels at anchor by causing them to run upstream, especially if there is a strong S breeze. The bore reaches a maximum at Chinsura, about 26 miles above Kidderpore Docks, and disappears about 14 miles farther up the river above Naya Serai. Vessels at moorings surge and roll during the passage of the bore as there is a sudden lift of 1.2 to 1.8m; when bores are expected, springs must be put on the flood moorings close down to the buoys to relieve the jerk on the cable and bits. Vessels at anchor have been known to break their anchor chains during extreme tidal bores.

**Depths?Limitations**

Bars, bends, and bores, known as the three Bs, constitute the main dangers to shipping in the Hugli River. Numerous bars, with continuous fluctuating depths over them, encumber the winding channel of the river. The river is high from June to October and during this period, vessels drawing up to 8.5m can reach Calcutta at HWS. Vessels drawing up to 7.9m can reach the port at HWN. From October to June, the river is low and the maximum permissible draft is 7.3m. Maximum drafts may vary from year to year according to the season, but vessels drawing up to 8.8m have ascended the river to Calcutta; special arrangements have to be made and the date selected by the Port Pilotage Office. Vessels proceeding to Calcutta should arrive at the pilot station with drafts as close to an even keel as possible. In some parts of the river, the changes in depths and the directions of the channels are very rapid and no attempt will be made to describe them or the navigational aids which mark them. Although the charts may currently be correct, they can not be relied on to give an accurate presentation of the depths and dangers which may be encountered.
because of these rapid changes.

**Signals**

Signal stations are situated near the lighthouse on Sagar Island, on the E bank at Diamond Harbor, and at Hugli Point, about 6 miles above Diamond Harbor. Diamond Harbor Signal Station is connected by telegraph, and the other stations are connected by telephone with Calcutta.

**Hugli (Hooghly) River (NE India)**

Hugli River (sometimes spelled "Hooghly") is a Ganges River distributary, one of the many branches of the river that are collectively known as the "Mouths of the Ganges".

Vessels entering the Hugli River approach Eastern Channel Light Vessel, which is moored about 46.5 miles SSE of Sagar Island Light. During the Southwest Monsoon, it is best to make the coast near Puri or between Pundi and Ganjam, where higher land backs the coast. When the weather is very hazy, the land is obscured until a very near approach is made. It is advisable to determine a vessel’s position before proceeding N of Puri.

Soundings provide a guide when approaching this coast; the 183m curve lies about 21 miles SE of Pundi, 23 miles SE of Ganjam, and 15 miles S of Puri. At night, vessels should make Kalingapatam Light, Gopalpur Light, or Puri Light. Depths of 36.6m lie about 4 miles off Kalingapatam, 3.5 miles off Ganjam, and 13 miles S of Puri; continuous soundings should be taken when approaching the coast.

At night or in bad weather, a vessel should proceed along the coast in depths of about 36.6m. During the day, in clear weather, the Jagannath Pagodas at Puri and the black pagoda at Konarak should be sighted when passing. When about 10 miles beyond the black pagoda at Konarak, course should be shaped for Eastern Channel Light Vessel. Care should be given to the soundings when passing False Point, as the depths decrease gradually toward the shoal ground around it. At night, vessels should keep in depths of not less than 26m or even 37m when the wind is SE.

In September, toward the end of the Southwest Monsoon, the current sets strongly to the SW, and if a vessel’s position is fixed, landfall should not be made so far to the S.

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During the Northeast Monsoon, if a vessel is on the E side of the Bay of Bengal, course should be shaped directly for Eastern Channel Light Vessel.

**Depths?Limitations**

A bank, located in position 20°44'N, 87°35'E and extending off the coast between False Point and Palmyras Point, is an excellent guide when approaching the entrance of the Hugli River. The bottom, when in depths of 36.6 to 42.1m, consists of reddish-colored shell and sand and gravel; in deeper water to the E or seaward, the bottom consists of sand and mud with shining specks, or olive-colored mud with broken shells. The E edge of the ridge is rather steep, with depths seaward of it ranging from 51 to 55m.

The 35m curve follows the NE curve of the coast and lies about 24 miles E of False Point Light and 25 miles E of Palmyras Shoals.

**Pilotage**

Pilotage is compulsory N of latitude 21°39'N for all vessels of over 200 nrt. Pilots are available 24 hours.

A Vessel Traffic Management System (VTMS) is in operation to improve the safety of vessels entering Calcutta and Haldia. Three radar surveillance stations located at Sagar Island, Frasergunj, and Haldia will allow vessels to enter the navigation channel safely on the Hugli Delta between Talent Wreck Light Vessel (21°17.0'N., 88°11.5'E.) and the pilot boarding ground. The VTMS guidance is provided by the Hugli River Pilots. The VTMS can be contacted on VHF channel 68, call sign ?VTMS Control.?

When anchoring, vessels should stem the tide before letting go an anchor, because the current sets strongly at the Sandheads.

**Navigation:**

Navigation on the Hugli River is reported to be difficult.

The 39-mile stretch from Hugli Point to Calcutta is the most treacherous. In 1984, it was reported that the channel buoys were not well maintained, many were either unlit or missing. It was reported (1976) that night navigation above Hugli Point was prohibited.

The navigable channel in the river is subject to annual variations; these are caused by the scour of the freshets and the flood current, as the season is wet or dry, respectively. The channel through the estuary is subject to such changes as occur in all wide, sandy, tidal estuaries.

Vessels take advantage of the rise in tide and cross the shallowest bars at HW; this results in bunching of vessels. A vessel inbound can generally go up the river
with the tide without any stops, but sometimes it might take about 24 hours with an anchorage stop along the way. An outbound vessel cannot cover the total distance of the river during the same high tide; the transit down the river is made in stages. According to the speed and type of vessel, sailing down the river takes about 36 to 48 hours, with stops at Ulubaria (abreast of Achipur Point), Diamond Harbor or Kulpi Roads, and Sagar Roads Anchorage. Sharp bends in the river upstream of Diamond Harbor limit the length of a vessel to 189m at Buj-Buj and 172m at Calcutta. During times of predicted tidal bores, the overall length of vessels will be regulated by the harbor master.

The navigable channels of the Hugli River, leading to Calcutta N of the parallel of latitude 21°01'N, are under the jurisdiction of the Port Commissioners of Calcutta. Vessels proceeding against the current should slow down or stop if it appears that other vessels will be met with at difficult parts of the river, or on bars where the deep-water channels are narrow. The usual rule of the road is adhered to in the river and estuary. A prolonged blast of the whistle, quickly followed by three short blasts, is an optional signal that the vessel making the signal is obliged to stop and cannot get out of the way.

1.2.1 - Haldia port (W Bengal-NE India)
Md najim

Haldia is a city and a major seaport and industrial belt located approximately 50 kilometres southwest of Calcutta near the mouth of the Hooghly River, one of the distributaries of the Ganges. It is in the Indian state of West Bengal. Haldia is being developed as a major trade port for Calcutta (Kolkata), intended mainly for bulk cargoes. The port can be contacted, as follows:
1. VHF: VHF channel 16
2. Telephone: 91-3224-252104
3. Facsimile: 91-3224-252251
4. E-mail: haldia@hub.nic.in
Anchorage can be taken in mid-channel, in a depth of 11m, abreast of the port area over a bottom of medium to hard mud and sand, good holding ground. The maximum rate of the current in the river is about 5 knots, both on the flood and the ebb.

1.2.2 - Hugli River Entrance (W Bengal-India)
Eastern Channel Light Vessel, which is frequently moved, marks the entrance of Eastern Channel, the main fairway leading to the Hugli River. Eastern Channel is available for use both by day and night and leads into Gaspar Channel, which in turn leads into Sagar Roads.

Caution is necessary, as several dangerous wrecks, best seen on chart, have been reported in the immediate vicinity of Eastern Channel Light Vessel.

Western Channel leads into Beaumont’s Gut and then into Sagar Roads. Western Channel Station Buoy, conical, black and white stripes, with black framework topmark, is moored 19 miles S of the S end of Eastern Sea Reef.

1.2.3 - Sagar road (Hugli river-India)

Indian Ocean - Bay of Bengal - East Coast of India - Hugli (Hooghly) River (NE India)
Bay of Bengal

haldia to sagar roads
Sagar Island lies on the E side of the Hugli River entrance and is flanked on its E side by the Baratala River, and on its W side by Bedford Channel. The main fairway leading into the Hugli River passes close off the SW extremity of this island. Although well-populated and heavily cultivated, the island has few distinguishing features. The island is large with an area of around 300 km². This island is a famous Hindu
pilgrim place. Every year on the day of Makar Sankranti (mid of January), hundreds of thousands of Hindus gather to take a holy dip at the confluence of river Ganges and Bay of Bengal and offer puja in the Kapil Muni Temple.

1.3 - Subarnareka River (N Orissa-NE India)  
Subarnarekha River (also called Swarnarekha River) flows through the Indian states of Jharkhand, West Bengal and Orissa.
As per tradition, gold was mined near the origin of the river at a village named Piska near Ranchi. This is why it was named Subarnarekha, meaning "streak of gold".
Subarnarekha River is reported to have moderate depths within its entrance and is navigable by native craft for about 16 miles of its distance. The former port of Subarnarekha lies at the mouth of the river, but is available only to fishing boats. A pagoda and a clump of trees lie near the mouth of the river on the W bank. Anchorage can be taken off the mouth of the river, in depths of 8.2 to 9.1m, with the pagoda bearing 327°, distant 8 miles.

1.4 - Panchpara River (N Orissa-NE India)
The Panchpara River discharges into the sea about 4.5 miles NE of the entrance of the Burhabalang River. The river is navigable only by small native craft capable of crossing the bar.

1.5 - Baleshwar (or Balasore) (N Orissa-NE India)

Baleshwar lies on the S bank of the Burhabalang River, about 16 miles above its mouth. This town was formerly a port of some importance, but in recent years there has been no seaborne trade. Cargo is transported by barges from the anchorage in Baleshwar Road.
It is best known for Chandipur beach. It is also the site of the Indian Ballistic Missile Defense Program's Integrated Test Range, located 18 km. south of Balasore. The Defence Research and Development Organisation developed many different missiles such as Nag, Brahmos, Agni missile among others here.

1.6 - Balisahi Point (Orissa-NE India)  

Balisahi Point is the extremity of the low land N of the entrance of the Dhamra River.

The coast between Balisahi Point and the entrance of the Hugli River, about 69 miles NE, is low, flat, and covered with scrub and mangroves along its S part. Southwest of Chandipur, the trees are higher than elsewhere. Northeast of Chandipur, the coast remains low and sandy, but the sandhills are more plentiful. There are no distinctive landmarks.

The Orissa Coast terminates at the entrance of the Hugli River.
Kanika Sand, an extensive drying mud and sand flat, lies on the N side of the entrance channel about 0.8 to 5.5 miles W of Shortt Island. This flat has been reported extending to the SE.

The outer bar, which has a least depth of 1.5m, lies about 1.3 miles NNW of the middle of Shortt Island. The inner bar, S of Kanika Sand, has a least depth of 1.7m.
2.4m. The outer bar maintains its position and depths, but the inner bar is subject to change.
Shortt Island, 3 m high, is the largest of four small islands which lie on a drying shoal about 3 miles N of Maipura Point. The configuration of the island is constantly changing due to the continuous action of the sea. A tower, 17.3m high, stands close off the E side of the island.
Palmyras Point, about 6 miles W of Shortt Island, is the N extremity of the low land which lies between the Maipura River and the Dhamra River. The point is difficult to distinguish because of the dense jungle growth which covers it. The low land on the N side of the Dhamra River presents a similar aspect as far N as Balisahi Point, about 4 miles distant.

Three beacons, each 24m high with a ball topmark, stand in the vicinity of the entrance of the Dhamra River. These aids are visible from seaward, but are not easy to identify outside the outer bar.

The entrance channel over the outer and inner bars is buoyed and the channels within the river are buoyed in places. These buoys are liable to be moved to conform to changes in the channels and are not to be relied upon.

The buoyed entrance channel passes about 0.8 mile N of Shortt Island, and then leads between the shoals extending from it and Kanika Sand. It then leads W between Kanika Sand and the N edge of the flats which extend E from Palmyras Point. This latter stretch leads to the entrance of the Dhamra River and passes N of the island lying in the middle of the river close within the entrance.

Pilotage is not compulsory, but advisable for strangers.

The jetty at Chandbali provides berths for three small vessels with a maximum draft of 3.7m. Passengers and cargo are usually embarked and discharged alongside the jetty.

Vessels with local knowledge can anchor in mid-channel off the town of
Chandbali, in depths of 8.2 to 12.2m.
Weather signals are displayed at Chandbali; the Brief System is used.
False Bay lies between Nurrea Banga Nassi and Maipura Point, about 20 miles NE, at the entrance of the Maipura River. Depths in the bay decrease gradually toward the shore over a bottom of olive-green mud, in the S part, to a bottom of sand and mud, in the N part. The shore on the W of the bay consists of moderately-high sand hills. Caution. The Gahirmatha Marine Wildlife Sanctuary, best seen on the chart, lies roughly between the 10m and 20m contours in False Bay. Fishing, trawling, or any other activity harmful to marine life within this area is prohibited.
Palmyras Shoals, with depths of 2.3 to 10.1m, lie within a radius of 8 miles ENE through SE of the central part of Short Island.

Caution. Care is necessary when approaching Palmyras Shoals from the E, because the depths decrease rapidly and soundings will give no warning of the proximity of these dangers.

Tidal currents in the vicinity of Palmyras Shoals set at a rate of 2 knots at springs.
On the NE side of the shoals, the flood sets to the NW and the ebb to the SE. At the S end of these shoals the flood sets to the N and the ebb sets to the S. From the end of June to the end of November, there is little or no flood or W current off Palmyras Shoals, except at spring tides; a strong outset is experienced from the rivers during freshets.

1.10.2 - False point (Orissa-NE India)
About 2.5 miles NNE of the Lion's Rump, False Point lies between the two entrances of the Mahanadi River and has been reported to be a good radar target up to 17 miles. The lighthouse on the point is shown from a white round masonry tower with red bands; the lighthouse is difficult to see if there is a heat haze because it has a light-colored top and there is no background, so care is necessary when navigating in the vicinity of False Point. The point derives its name from the circumstance that vessels proceeding up the Bay of Bengal frequently mistook it for Point Palmyras, less than a degree farther north. It is a low headland with a lighthouse located 2 km inland from the point.

During January through March, fog may occasionally obscure the light or cause it to show a deep red color. Frequent soundings should be taken and depths should not be shoaled to less than 20.1m.

During the Northeast Monsoon or with NE winds, the current in the vicinity of False Point generally sets to the W. From the end of June to the end of November, there is little or no flood or W current off False Point, except at spring tides; a strong outset is experienced from the rivers during freshets.

Off False Bay the flood sets to the NW to N and the ebb sets SW, each at a velocity of about 1 knot. The velocity is greatly influenced by the prevailing winds. The tidal current, together with the coastal current during the Southwest Monsoon, sometimes attains a velocity of 4 knots.

A long tongue of land extends about 3.8 miles NE from False Point and almost meets and sometimes joins the S extremity of Nurrea Banga Nassi, a low grass-covered narrow island about 5.8 miles long. A large stone building, with a banyan tree close by, stands on the W side of the island. A drying shifting sand spit extends N and W from the N end of Nurrea Banga
Nassi.
False Point Anchorage (20°28'N., 86°47'E.) lies in the bay W of the N part of Nurrea Banga Nassi.
The outer anchorage, about 1 mile N of the N extremity of Nurrea Banga Nassi, has a depth of about 7.9m. A depth of 10m exists about 1 mile farther NE. The holding ground is fairly good, but a heavy swell is experienced. Anchorage is not recommended.
Small vessels can anchor in a depression about 1.5 miles long which lies W of the N part of Nurrea Banga Nassi, but local knowledge is necessary. Anchorage within the bay is safe, but the depths are shallow because of silting.
Caution: With strong S winds, the flood sets toward the coast in the vicinity of Satbaia Sandhill about 15 miles N of the N end of Nurrea Banga Nassi. Vessels approaching from the N must guard against this current.
With a strong flood it is advisable to approach the anchorage on a S course. Such a current is noticeable by the rapid drift of the vessels to the N. Stemming the current by turning the vessel to port, to the E or NE, from a S course is advisable before anchoring.
Vessels attempting to turn to starboard, or to the SW and NW, have been swept rapidly to the W and have grounded on the shoals extending from Temple Point.

1.11 - Paradip port (Orissa-NE India)
Paradip lies on the coast about 6.5 miles ENE of the entrance of the Jatadharmon River. The port handles containers, general cargo, dry bulk cargo, and liquid bulk cargo.

**Depth/Limitations**

The port is approached through a channel with dredged depth of 12.8m. Vessels with a draft of 13m can utilize this port, which offers problem-free berthing year round. Berth information is given in the accompanying table. LASH operations are normally carried out between the mother ship at the anchorage and the lighter berths at the S end of the general cargo wharf. The port has a large turning basin 520m in diameter, with a dredged depth of 12.8m.

**Aspect**

Paradip Light is shown from a round concrete tower, 1.5 miles W of the entrance to the port. The entrance to the port is protected by a N and a S breakwater. A trestle pier projects from the S breakwater. The channel leading into the inner harbor passes about midway between two breakwaters and then extends NW to the turning basin close SW of the T-head jetty on the E side of the harbor. The alignment of the main fairway is indicated by two pairs of range lights.

**Pilotage**

Pilotage is compulsory for all vessels greater than 200 gross tons and is available 24 hours. Pilots board 2 miles SE of the harbor entrance. Departing vessels should request a pilot from Port Control on VHF channel 16 at
least 2 hours prior to departure.

**Regulations**

Vessels should send their ETA 24 hours in advance.

The following information should be sent by radio when a vessel is within 40 to 60 miles to the port:
1. Vessel’s name.
2. Last port of call.
3. ETA.
5. Length overall.
7. Draft.
8. Deadweight tonnage.
9. Speed.
10. Dangerous cargo.
11. Type and quantity of cargo.
12. Name of agent and requirements.

**Signals**

Storm and weather signals are shown at Paradip; the General System is used.

**Contact Information**

Port Control can be contacted, as follows:
1. Call sign: Paradip Port
2. VHF: VHF channels 6, 9, 12, and 16
3. E-mail: pptinet@dte.vsnl.net.in

The harbormaster can be contacted, as follows:
1. Telephone: 91-6722-222012
2. Facsimile: 91-6722-223498
3. E-mail: harbourmaster_ppt@email.com

**Caution**

An SPM has been established about 10 miles SE of the entrance to the Jatadharmohan River. A submarine pipeline extends from the SPM to a point on the coast about 4.5 miles WSW of the entrance to Paradip Harbor.

Anchorage areas for VLCCs, each with a radius of 1.5 miles, are centered about 4.5 miles S and about 5.5 miles ENE of the SPM. Anchorage is prohibited within 2 miles of the SPM and within 1 mile of the submarine pipeline.
The low coast extends about 3 miles ENE and terminates at the Lion’s Rump, on the S side of the entrance of the Mahanadi River. A conspicuous white house and a water tower stand about 0.5 mile SW of the Lion’s Rump.

1.12 - Devi point (Orissa-NE India)

Indian Ocean - Bay of Bengal - East Coast of India

Devi point is nearer to the shakkar lake and it is at 1.5km. from Chikhaldara Busstation. There are few steps leading to this point on the hill top, from where tourists can view the originating point of the Chandrabhaga River. Travellers can also see the ruins of the Amravati Fort from the top of the Devi Point.

Central Sand, a shoal with depths ranging from 0.4 to 9.1m, extends about 1.5 miles E through NE from Devi Point. A detached 5.5m patch lies about 1.5 miles S of the same point. Central Sand is reported to have extended about 1 mile farther SE.

In fine weather, the sea does not always break over this shoal. The Devi River, one of the largest branches of the Mahanadi River, flows into the sea N of Devi Point. This point can best be identified by Balijori Obelisk, which lies about 2.5 miles NNE of the point. Nulyasai Village is also conspicuous to approaching vessels in the vicinity of Devi Point. The river is frequented only by native craft.
Caution: A dangerous wreck is reported (2006) to lie about 11 miles offshore, about 18.5 miles ENE of Devi Point.

1.13 - Puri port (Orissa-NE India)

Puri port is an open roadstead harbor and lies on a low sandy ridge on the coast where large buildings stretch about 3 miles fronting the sea. Harbor entrance is restricted due to tide. Puri Light is shown from a white pedestal on the wall of a two story building. Storm signals are displayed at the flagstaff which lies 0.2 mile SW of the light structure; the Brief System is used.

Puri Ports Ltd. develops captive deep-water port. We can have cargo handling capacity of 10 million tonne per annum when fully commissioned with the captive cargo consisting of imported timber, veneer, melamine & engineered wooden panel. The port will handle mixed cargo such as timber logs, heavy machineries, and container cargo like melamine, kraft paper, design paper and limestone. Provisions are available.

1.14 - Puri lighthouse (Orissa-NE India)
Puri is known internationally for Lord Jagannath temple and the annual Rath yatra. Puri is the Rail terminus providing direct trains to all major cities.

The lighthouse is situated about 8 km west of Railway station.
It is a 25 m high circular tower with black

and white bands, 30 m height.
Six detached 18.3m patches lie within 4.5 miles SE through 5.8 miles SSE of Puri Light.
Paluru to Chilka mouth (Orissa-NE India)

Chilka mouth

A low beach of sand hills extends 32 miles NE from Paluru Bluff to Chilka Mouth, the entrance of Chilka Lake. There are few landmarks found along this part of the coast.
Mita Kua Bungalow, a small white house on a sand hill close to the coast about 20 miles ENE of Paluru Bluff, is the most conspicuous. A beacon lies on the coast about 13 miles ENE of the above bluff. Sandari Beacon lies about 5 miles ENE of Mita Kua Bungalow. Babeswal Temple, painted black, lies about 2.3 miles NE of Sandari Beacon and is sometimes visible among the trees. Chilka Lake, large shallow expanse of water, is separated from the sea by a long, narrow sandy ridge. Only boats can be accommodated. The coast between Chilka Mouth and Puri continues low and sandy.

1.16 - Gopalpur port (Orissa-NE India)

Gopalpur is a town near Berhampur, on the shore of the Bay of Bengal. It has an ancient commercial port, now lying in ruins. Gopalpur-on-Sea is a famous sea beach and tourist attraction. This languorous beach with coconut groves, casuarinas and gentle sand dunes is deserted for miles.

A major landmark of Gopalpur-on-Sea is its lighthouse. Gopalpur, a natural port of Orissa, is one of the ideally located and
topographically suited deep sea ports on the East Coast of India. The mammoth task of developing Gopalpur has been awarded to Sara International Ltd. and Orissa Stevedores Ltd. by the Government of Orissa. At the end of the development project 2010 the port would be capable of handling capesize vessels.

Winds constantly blow along the coast near Gopalpur in March and April; the Southwest Monsoon usually breaks about in the middle of June. Farther N the winds are only occasional.

The currents usually set with the prevailing wind. About the middle of January, the NE current begins and by the middle of February it sets steadily ENE with velocities of 0.5 knot close offshore, and increasing to 1.5 knots about 12 miles offshore. At the latter distance it sets NE.

The NE current continues to run until July and then sets SW, gradually strengthening to a rate of 2 knots and more.

Tel: 263499, 260099
Fax: (91) 6811-263383

During the windy months, April to July, it is recommended that anchorage be taken, in a depth of 16.5m, with ample chain veered. Two hard patches, one 0.8 mile SSE and the other 0.7 mile E of Gopalpur Light, should be avoided when anchoring.

Caution.?Firing practice areas are located NE and SE of Gopalpur, as follows: a. 19°23'N, 85°23'E. b. 19°02'N, 85°25'E.

1.17 - Investigator Rock (Andhra Pradesh-NE India)
Investigator Rock, with a least depth of 2.3m, lies about 8.5 miles NE of Baruva South Beacon. The water over the rock is not discolored and it is not marked by breakers. A shoal area, with a least depth of 9.3m, lies 2 miles SSW of Investigator Rock.

1.18 - Kalingapatnam lighthouse (Andra Pradesh-NE India)

Kalingapatnam lies close S of the mouth of the Vamsadhara River and about 1.5 miles NNW of Sandy Point. There are no berthing facilities. Kalingapatnam is known in the history as the Capital of Gang Dynasty who ruled the region, spread over the entire coastal belt from Godavari to Ganges (Hooghly) during 8th to 15th century. Kalingapatnam was a flourishing port and trade centre during the ancient times-Vessels from here sailed to Sri Lanka, Java, Sumatra and Singapore. In the later part of the 19th century the British introduced a regular steamer service.
Bay of Bengal

between Rangoon and Kalingapatnam.

A lighthouse, 31m high Hexagonal Masonry Tower red and white, is located near Thansahebpeta village.

1.19 - Satara Reef (Andhra Pradesh-NE India)

Satara Reef, which extends about 0.8 mile NE from Sandy Point, has general depths of 9.1m and a least depth of 6.4m at its outer end. The reef is steep-to on its N and E sides.

1.20 - Sandy Point (Andhra Pradesh-NE India)
Sandy Point lies about 3.5 mile E of Nanwell Point. An obstruction, with a least depth of 7.3m, was reported to lie about 1.5 miles NNE of Sandy Point.

1.21 - Agra Rock (Andhra Pradesh-NE India)  
18°07.25 N  
83°46.22 E

Agra Rock, with a least depth of 5.5m, lies about 3.5 miles E of Ramachandrapur. The sea seldom breaks over this danger.

1.22 - Konada (Andhra Pradesh-NE India)  
18°00.76 N  
83°34.05 E

Konada lies at the mouth of a small river. Several white buildings and some
trees lie on the N side of the river. The coast between Konada and Kalingapatam, about 37 miles ENE, consists of a sandy beach backed by low sandhills.

**1.23 - Santhapalli rocks (Andhra Pradesh-NE India)**

Santapelli rocks, with a least depth of 1.5m and dangerous wrecks close E, lie between 5.5 and 6 miles SE of Santapilli Light. The sea breaks heavily over these dangers with a moderate swell, but not in good weather. The channel between these rocks and the mainland is safe only during daylight. At night, vessels should keep in depths of over 35m when Santapilli Light bears between 322° and 290°.

The summit of an isolated bare red double-peaked hill, 117m high, about 2 miles N of Santapilli Light, in line bearing 304° with Kandivalasa Peak, leads N of Santapilli Rocks.

Santapilli Light in line bearing 322° with Kandivalasa Peak, leads S of these rocks.

**1.24 - Bhimunipatnam (Andhra Pradesh-NE India)**
Bhimunipatnam lies on the S side of the mouth of the large and shallow Gostani River. Vessels anchor in the open roadstead off the town to work cargo. The town is built on the E slopes of a hill, 166m high, which is topped by some trees and a pyramidal obelisk. A white temple lies about midway up the E slope of the hill and shows up well when the sun shines on it. A tall factory chimney lies about 2.5 miles NNW of the town, and is a good mark. In the approach to the roadstead, the depths shoal gradually from the 18m curve about 2 to 3 miles offshore to a depth of 11m at the anchorage 1 mile offshore. Two wharves lie on the S shore of the river but are available only to lighters. Cargo is carried to these wharves from vessels at the anchorage. Weather signals are displayed from a flagstaff close SW of the lighthouse; the General System is used. Anchorage can be taken, in depths of 11 to 12.8m, sand and mud, with good holding ground, about 1 mile offshore abreast of the town. During the Southwest Monsoon, a vessel should anchor with the lighthouse bearing 264°; during the Northeast Monsoon, anchorage should be taken with the lighthouse bearing between 249° and 259°. The coast between Bhimunipatnam and Konada, about 10 miles to the NE, is sandy and broken about midway along its length by some low red cliffs which show up well when the sun shines on them.

1.25 - Vizag military harbour (Andhra Pradesh-NE India)  
Indian Ocean - Bay of Bengal - East Coast of India
The city was so important during times of war that the Indian government decided to set up the Eastern Naval Command, overlooking the more populous Chennai and Kolkata, and developed Visakhapatnam during that period.

The establishment of the E.N.C. soon after the construction of the ship building yard firmly secured Visakhapatnam's place in the annals of the Indian Navy. Some of the defence related establishments are N.S.T.L. (Naval Science and Technology Laboratories), which is responsible for the development and testing of warship technology, equipment and weapons and Bharat Dynamics Ltd is coming up for manufacturing heavy and light weight torpedoes.

The navy also has a naval dockyard [started in 1949] in the city where recently India's first Nuclear Submarine was launched. The navy has plans to set up submarine base in the city at the alternate ENC base in Rambilli near Visakhapatnam.

The Navy is also constructing a second base as the current base is overpopulated and not sufficient to meet the needs of the E.N.C. Despite its importance, the Naval establishment has become a hindrance for the development of Visakhapatnam. The harbour is not open to the general public for reasons of security, while in Mumbai and Kochi, the entire port along with Naval docks are opened for boating and tourism.

Visakhapatnam is surrounded on three sides by the overlapping mountain ranges, and the southeastern city is safeguarded by the Bay of Bengal. Visakhapatnam is far away from any international border, both land and...
sea, making it the choice for strategic placement of the headquarters of the eastern naval command.

1.26 - Kakinda

Indian Ocean - Bay of Bengal - East Coast of India
Visakhapatnam port (Andhra Pradesh-NE India)

1.28 - Dolphin's Nose (Andhra Pradesh-NE India)

Indian Ocean - Bay of Bengal - East Coast of India

17°40.58 N 83°17.55 E
Dolphin's Nose, a bluff headland 163m high, is conspicuous when viewed from the NE or SW. A lighthouse with a racon, two radio masts, and a flagstaff stand on Dolphin's Nose. Dolphin's Nose has been reported to be a good radar target up to 17 miles. Caution: A wreck lies about 3 miles E of Dolphin's Nose. Submarine Exercise Areas lie centered 20 miles SSE and E of Dolphin's Nose. A good lookout should be maintained when transiting these areas.

1.29 - Pigeon Island Gangavaram (Andhra Pradesh-NE India)
Indian Ocean - Bay of Bengal - East Coast of India
Pigeon Islet, 21m high and rocky, lies in a small bay 5 miles NE of Kutu Konda.

1.30 - Gangavaram port (Andhra Pradesh-NE India)

Indian Ocean - Bay of Bengal - East Coast of India

Gangavaram Port is located at Visakhapatnam, the industrial nerve center of Andhra Pradesh.

Yarada Hill at north and Mukkoma Hill at south. A creek in between these two hills forms Balacheruvu.
Bay of Bengal

Lagoon, where the natural port of Gangavaram has been developed. Gangavaram Port is India's deepest port. It has a depth of 21m. Gangavaram Port provides efficient cargo handling services for a variety of bulk and break bulk cargo groups including Coal, Iron Ore, Fertilizer, Limestone, Bauxite, Raw Sugar, Project Cargo, Alumina, Steel products etc.

The Port, its related facilities and material handling system are among the most advanced in Asia and meet the highest standards in terms of pollution prevention and safety.

Berthing Facilities (5 Berths: Iron Ore 1; Coal 1; Multipurpose 3)

Depth in harbor 19.5m below CD

Mechanized Coal and Iron Ore discharge and loading systems for vessels upto 200,000 DWT

Mechanized Wagon Loading and Wagon Tippling System

New generation Mobile Harbor Cranes for other bulk and break bulk cargoes

Iron ore stackyard and coal stackyard with storage capacity of more than 1 MMT and 2 MMT respectively

Covered transit storage for bulk and break cargoes

Tel: +91 404 4349999
Fax:+91 404 4349990
Mail: port@gangavaram.com

1.31 - Pudimadaka lighthouse (Andhra Pradesh-NE India)  17°29.29 N  83° 00.26 E

Indian Ocean - Bay of Bengal - East Coast of India
Pudimadaka Village lies on the shore of a bight about 4 miles NE of Rambilli Beacon. A red stone temple, with three towers, lies in the village. The light was commissioned on 21st January 1971 and renovated in 1991. The lighthouse was on a masonry tower of 26 meters height. It has a visible range of 27 Nautical miles.

Pillar Rock, 9.1m high, lies about 0.3 mile SSE of Pudimadaka Village. This rock and some dark cliffs on the coast show up prominently against the white sandy beaches. A ledge of rocks lies between Pillar Rock and the coast, and serves as a breakwater during the Southwest Monsoon. The coast between Pudimadaka Village and the Dolphin’s Nose, about 20 miles NE, is rocky and backed by a hilly plain. Conspicuous sandy patches mark the SW sides of some of these hills.
Vakalapudi Lighthouse is situated about 10 Km north east from Kakinada (Cocanada) town. It is a tower 23 m high circular masonry tower red and white bands. The coast, up to 10 miles NE of Vakalapudi, is low and marked by numerous villages and coconut trees. Low sand hills then appear and continue as far as Pentakota, about 16 miles farther NE.
Cocanada Bay (Kakinada Bay), a shallow body of water filled with extensive drying mud flats at its head, is entered between Godavari Point and the coast about 2.8 miles WNW.

For many years the bay has been silting up because of the discharge from the Godavari River, about 8 miles S of the entrance, but is the safest natural harbor on the E coast of the Indian subcontinent.
The town and port of Cocanada lie on the W side of the bay, about 2 miles within the entrance of the Cocanada River. The low bay shores are subject to periodic inundations during cyclonic storms. North of Cocanada, the land appears bold, with high land extending NE. South of the port, the low sandy coast is marked by some sand hills and trees. In Cocanada Bay, the flood current sets SW and the ebb current sets NE. These tidal currents are strong at springs, especially from October to February, and must be taken into consideration when approaching in this vicinity. Tidal current effects are noticeable nearly 0.5 mile off Godavari Point. The current follows the contour of the land, with the flood current having a maximum velocity of 0.5 knot and the ebb current having maximum velocities of 1.5 to 2 knots. In Cocanada Bay, the flood current sets SW and the ebb current sets NE. These tidal currents are strong at springs, especially from October to February, and must be taken into consideration when approaching in this vicinity. Tides at Cocanada are semi-diurnal. The coastal waters in the approach to Cocanada Bay have shoaled considerably more than shown on the chart. Depths are reported to be 2.7m less than charted. Depths S of a line drawn between Godavari Point and Vakalapudi Light to the NW shoal gradually to a depth of less than 1.8m about 4 miles to the S. Depths N and E of this line range from 7.3 to 11m, about on the meridian of Godavari Point. Depths in the dredged buoyed channel leading to the barge facilities on the banks of the Cocanada River average about 2.1m. Depths alongside the lighter wharves range from 1.2 to 2.1m.

1.33.1 - Kakinada fishing harbour (Andhra Pradesh-E India)  
16°58.77 N 82°16.91 E  
Indian Ocean - Bay of Bengal - East Coast of India - Kakinada (Cocanada) bay (Andhra Pradesh-E India)
The port of Cocanada comprises a partly-exposed anchorage located about 3 to 4 miles NNE of the entrance of the Cocanada River and is suitable for ocean-going vessels; cargo is transported by lighters between the anchorage and the wharves on the river bank abreast of the town.

Tidal current effects are noticeable nearly 0.5 mile off Godavari Point. The current follows the contour of the land, with the flood current having a maximum velocity of 0.5 knot and the ebb current having maximum velocities of 1.5 to 2 knots. Depths in the dredged buoyed channel leading to the barge facilities on the banks of the Cocanada River average about 2.1m. Depths alongside the lighter wharves range from 1.2 to 2.1m.

Deep Water Port is 610m long, with an alongside depth of 10m. It consists of two multi-purpose berths and one liquid cargo berth. Vessels up to 190m long, with a maximum beam of 32.4m and a maximum draft of 11.5m at HW, can be accommodated.

Lighterage Area M1, which has been designated for lighterage operations, has a radius of 1 mile centered on a position about 7.5 miles ESE of Goadaveri Point, as seen on the chart.

A designated anchorage for vessel awaiting lighterage operations lies about 3 miles NW of Lighterage Area M1 and is also best seen on the chart.

In the approach to the port, the disused lighthouse on Hope Island, Godavari
Point Light, and Vakalapudi Light are conspicuous landmarks. Pilotage is compulsory for all vessels using Deep Water Port. The vessel’s agent makes the request for pilotage 72 hours prior to arrival. The pilot station can be contacted on VHF channel 14 or 16. Pilotage is not required for vessels calling at the Anchorage Port.

**Regulations**

Vessels using the Anchorage Port should advise their agent of their ETA. Vessels should also obtain bearing position from the harbormaster to ensure safe anchorage in the Anchorage Port.

**Signals**

A signal station is located at Vakalapudi Light. Vessels can communicate with the station by Morse code.

**Contact Information**

The port can be contacted, as follows:

1. VHF: channels 12, 14, and 16  
2. Tel: 91-884-2365089 or 91-884-2365889  
3. Fax: 91-884-2385402  
4. Mail: mailkkd@kakinadaseaports.in

**Anchorage**

Anchorage in the bay, E of Vakalapudi Light, is subject to considerable ground swell from the SE, even when there is no wind. Anchorage may be obtained 2.25 miles ESE of Vakalapudi Light, in a depth of about 9m. Safe anchorage may also be obtained, in a depth of about 6m, about 3.25 miles SE of Vakalapudi Light. There is very little tidal current at these anchorages.

**Caution**

Vessels are advised not to anchor between 1 mile and 1.8 miles N and NW of Godavari Point Light, because of the numerous wrecks which lie in this area. Some of these wrecks are dangerous to surface navigation. There is a foul patch about 0.4 mile NNW of the point, with dangerous wrecks within 0.5 mile N of the foul patch. Other foul areas, best seen on the chart, lie NNE and NE of Godavari Light. Extensive developments, including the construction of wharves and breakwaters and the establishment of dredged areas and dumping grounds, have taken place in Cocanada Bay. Depths may also be less than charted.
Hope Island (16 km long sand spit from the sand carried by the waters of Godavari delta), one of a chain of similar islands which form part of the delta of the Godavari River, is low, swampy, and covered with jungle. The area between Kakinada coast and Hope Island is known as Kakinada Bay. The water spread of the bay is about 100 km². Hope Island protects the city of Kakinada from the strong cyclone/tidal waves/tsunamis.
Bay of Bengal

coming from the Bay of Bengal. Hope Island acts as a sort of natural break water and provides tranquility to the ships anchored in Kakinada bay which makes Kakinada port one of the safest natural ports in the Eastern Coast of India.

A black and white banded, disused lighthouse stands on Hope Island.

1.33.2.1 - Godavari point (Andhra Pradesh-E India)

Godavari Point is the N extremity of a low sandy spit and narrow sand bank, which forms a part of the coast N of Hope Island. The coast between the mouth of the Gautami Godavari and Godavari Point, about 24 miles to the N, is very low and intersected by many small outlets. The "Godavari point" overlooks the entry point into the Bay of Kakinada and the Kakinada harbor.

Sacramento Shoal lies off the mouth of the Gautami Godavari.

**Tides**

The current between Godavari Point and Bimlipatam lies farther offshore than off Sacramento Shoal, but its velocity is less. Inshore of this current, slack water is usually found. Tidal currents will sometimes be experienced close offshore.
Sacramento Shoal, hard shifting sand, lies off the entrance to the Guatami Godavari and extends about 4 miles SE and 3.5 miles E from Sacramento Light. Depths over this breaking shoal range from 2.7 to 5.5m. This shoal is subject to frequent changes in position and depth.

**Tides**

The current from January through April sets steadily to the NE along the coast between Machilipatnam and Godavari Point. In the vicinity of Sacramento Shoal a rate of 4 knots is usually experienced about 5 miles offshore. The current in the bay to the W of Narasapur Point is weak and variable.
Narasapur Point, low and wooded, lies on the E side of the mouth of the Vasishta Godavari, which is the southernmost branch of the Godavari River. An obelisk, 24.4m high, lies about 1 mile N of the point. During January and February, the current sets W at a maximum rate of 2 knots off the coast between Narasapur Point and the mouth of the Vanteyam Godavari.
New Machilipatnam Light is shown from a white, round, concrete tower with black bands, 3.8 miles NNE of the mouth of Machilipatnam Creek. The great tsunami of 26 December 2004 swept away hundreds of people on the beach and reached the base of the lighthouse, but the tower was not damaged. The original light was on a flagstaff; this lighthouse replaced a much shorter tower built in 1930. Located behind Manginapudi Beach, about 15 km northeast of Machilipatnam.
Machilipatnam (Masulipatam), the only port of the Krishna District, lies about 5 miles within the mouth of the creek of the same name about 11 miles N of Divi Point. Vessels anchor in the roadstead to handle all cargo to and from native lighters. Tel: +91 884 2363825 or +91 884 2376129

Fax: +91 884 2367055
Mail: mdincap@gmail.com

The gates of the tidal lock have been closed and the wharves are not used. The old wharves are partially destroyed and are used by fishing vessels. A new wharf, 60m long, lies E of the old wharves and is also used by fishing vessels. Groynes are under development to protect the entrance to the creek and to increase depths at the entrance. Depths in the approach to the port range from 11m, about 5.3 mile E of the entrance of the creek, to a depth of 1.8m about 1 mile offshore. The mouth of the creek is blocked by sand banks and can only be navigated at HW by vessels with a draft of less than 1.5m.

1.38 - Divi point (Andhra Pradesh-E India)
Divi Point is the SE extremity and False Divi Point is the SW extremity of the delta. Ocean-going local craft use the river for about 6 months of the year. Krishna Old Light, a white masonry tower, 44m high, lies about 9.5 miles ENE of False Divi Point. Another old lighthouse, a similar structure, 15m high, lies 2.3 miles NW of Divi Point and is maintained as a landmark.
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The Coromandel Coast (E India)

The Coromandel Coast is the name given to the southeastern coast of the Indian Subcontinent between Cape Comorin and False Divi Point. It may also include the southeastern coast of the island of Sri Lanka. The coast is generally low, and punctuated by the deltas of several large rivers, including the Kaveri (Cauvery), Palar, Penner, and Krishna, which rise in the highlands of the Western Ghats and flow across the Deccan Plateau to drain into the Bay of Bengal.

The alluvial plains created by these rivers are fertile and favour agriculture. The coast is also known for its ports and harbours, Pulicat, Chennai (Madras), Sadras, Pondicherry, Karaikal, Cuddalore, Tranquebar, Nagore, and Nagapattinam, which take advantage of their close proximity with regions rich in natural and mineral resources (like the Chhattisgarh belt and the mines of Golconda and Kolar) and/or good transport infrastructure.

The Coromandel Coast falls in the rain shadow of the Western Ghats, and receives a good deal less rainfall during the summer southwest monsoon, which contributes heavily to rainfall in the rest of India. The region averages 800 mm/year, most of which falls between October and December. The topography of the Bay of Bengal, and the staggered weather pattern prevalent during the season favours northeast monsoon, which has a tendency to cause cyclones and hurricanes rather than a steady precipitation. As a result, the coast is hit by inclement weather almost every year between October to January. The high variability of rainfall patterns are also responsible for water scarcity and famine in most areas not served by the great rivers. For example, the city of Chennai is one of the driest cities in the country in terms of potable water availability, despite high percentage of moisture in the air, due to the unpredictable, seasonal nature of the monsoon.

The Coromandel Coast is home to the East Deccan dry evergreen forests
ecoregion, which runs in a narrow strip along the coast. The Coromandel coast is also home to extensive mangrove forests along the low-lying coast and river deltas, and several important wetlands, notably Kaliveli Lake and Pulicat Lake, that provide habitat to thousands of migrating and resident birds.

1.39.1 - Nagayalanka Lighthouse (Andra Pradesh-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

Nagayalanka Lighthouse from the river

Nagayalanka Lighthouse, 15 m high, lies 2.3 miles NW of Divi Point and is maintained as a landmark. The station is situated near the mouths of Krishna river. There is a masonry retaining wall, which serves as jetty. A cement concrete pathway for 500 m from the Lighthouse station to the jetty has been provided. Krishna river is navigable up to Vijayawada and is in use by local crafts.
Bay of Bengal

Nagayalanka Lighthouse from the river
Nizampatam Bay lies between Kottapatam and False Divi Point, about 41 miles ENE, and recedes about 14 miles to the N. Except for the shoals in the vicinity of Mutapolli Bank, the bay is free from dangers and its shores may be approached with safety to a depth of 9.1m.

A backwater is formed 4 to 6 miles NNE of Kottapatam by the confluence of the Mudigorda Yeru River and the Gundlakamma River. During fine weather, the latter river is available to small boats.
A beacon lies about 0.5 mile within the Mudigorda Yeru River. From the mouth of the Gundlakamma River, the bay shore curves NE for about 35 miles to the entrance of a creek leading to the town of Nizampatam. Dindi House, a large building with a big high tree close E of it, lies on the N entrance point of the creek. A light is shown from a white tower, 30m high, with red bands. Between Dindi House and False Divi Point, almost 13 miles to the SE, the coast remains low and sandy. A beacon lies on the NW entrance point of a boat creek about 5 miles E of Dindi House. In Nizampatam Bay, weak tidal currents are experienced inshore only at spring tides.

1.39.2.1 - Mutapolli Bank (E India)

Mutapolli Bank, with depths of 6.4 to 11m, lies centered about 11 miles E of Kottapatnam. Overfalls usually mark this bank. Two detached shoals, with depths of 10 to 11m, lie within 5.8 miles SW and three detached shoals, with depths of 9.1 to 11m, lie within 11.3 miles NE of this bank.

1.39.2.2 - False Divi Point (E India)
False Divi Point is a low headland located at the northern end of the Coromandel Coast, in the state of Andhra Pradesh. It is located at the apex of the Krishna River delta and covered by small mangroves. The area is low, swampy and dominated by mangroves. A bank, which dries in patches, extends about 1 mile S and about 3 miles W of False Divi Point.

Caution:

A bank, which dries in patches, extends about 1 mile S and about 3 miles W of False Divi Point.

The current off False Divi Point sets parallel to the coast with the prevailing monsoon, having its greatest velocity near the 185m curve about 8 miles offshore. During March, the current off Divi Point has been found to set E at a rate of 1.5 knots.

A submarine cable and pipeline area has been established between the Godavari River entrance and False Divi Point. The limits of this area, known as the Ravva Oilfield Development Area, may best be seen on the chart. Anchoring and fishing are prohibited.

The Krishna River rises in Bombay State and flows E across the peninsula of India, into the Bay of Bengal by several branches, the mouth of one being near False Divi Point.

The enormous amount of silt carried by the river has formed a wide alluvial delta which extends seaward between the towns of Nizampatam and Machilipatnam. Divi Point is the SE extremity and False Divi Point is the SW extremity of the
Bay of Bengal
delta.
Ocean-going local craft use the river for about 6 months of the year.

1.39.3 - Ramaypatnam Lighthouse (Andra Pradeh-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

Ramaypatnam Light, from which a radiobeacon transmits, is shown from a hexagonal concrete tower lying on the coast 0.8 mile NE of the church at Ramaypatnam, built in 1870, that served as a land mark for the benefit of ships cruising off the Ramaypatnam coast.
The Lighthouse Tower was built in 1982 and the PRB-21 equipment supplied by M/s Asia Navigation Aids, New Delhi was installed on it. The lighthouse was commissioned into service on 26th June 1982. The sealed beam lamps were replaced by Auto Head lights with 12 V 100 W halogen lamps in February 1996.
**1.39.4 - Shallinger Shoal (Andra Pradesh-E India)**

Shallinger Shoal, a spit with depths of 3.2 to 4.6m, extends about 2.5 miles NE from the coast, 7.5 miles N of the mouth of the Upputeru River. A detached 5.5m patch lies 1.5 miles S of the NE extremity of Shallinger Shoal.

**1.39.5 - Krishnapatnam port (Andra Pradesh-E India)**

http://www.sea-seek.com                         June 2020  
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Krishnapatnam or Kistnapatam is a port town in Muthukur mandal of Nellore district in Andhra Pradesh. Krishnapatnam is a major port and market center. It is situated at a distance of 24 km from Nellore City in Nellore District, the southernmost coastal district in the state of Andhra Pradesh, 200 kilometer north of Chennai. It has handled 30 million tonne of cargo in its first 12 months of operations. 10 deep water berths are operational at the port now, (for coal, iron ore and general cargo) and 2 breakwaters. It will soon have additional 35 berths, with facilities to handle containers etc.

Krishnapatnam is one of the very few ports in the world which can handle giant ships with load capacities of 1,50,000 tonnes. It has became one of the deepest port of India with 18 meters of draft.

**Depths?Limitations**
There are four berths with maximum depths of 15m alongside. Two berths handle coal, one handles iron ore and one handles general cargo. The port plans on eventually expanding to 17 more berths in two phases.

**Pilotage**
Pilotage is compulsory. Pilots board vessels with drafts less than 10m at Pilot Boarding Station A, in position 14°14.5′N, 80°12.5′E. Pilots board vessels with a draft of 10m or greater at Pilot Boarding Station B, in position 14°14.9′N, 80°15.3′E.

**Regulations**
Vessels should report their ETA to Port Operations 7 days, 5 days, 48 hours, and 24 hours, in advance. The ETA message should contain the following information:
1. Draft forward and aft.
2. ETA at the pilot boarding station.
 Signals
Storm signals are shown; the Brief System is used.
Casuarina plantations line the coast up to 3 miles N of the mouth of the Upputeru River, then abruptly changes to sand hills for 5 miles and becomes low and sandy as far N as the Penner River, about 13 miles farther N.

1.39.6 - Armagon light (Andra Pradesh-E India)
Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

Armagon Light is shown from a white round concrete tower with red bands, about 30m high, lying near the coast 7 miles NNW of Point Pudi.

1.39.7 - Armagon shoal (E India)
Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)
Armagon Shoal, with depths ranging from 3 to 9.1m, extends about 15 miles N from a position 1.5 miles NE of Point Pudi.

A narrow, detached shoal, about 2.5 miles long, with depths of 10 to 11m, lies close N of the N end of Armagon Shoal. The sea sometimes breaks over the shallowest part of Armagon Shoal. A shoal, with a least depth of 4.9m, lies about 2.3 miles offshore abreast of Tummalapenta.

The depths are very irregular in the vicinity of this shoal and up to 7 miles N of it. In the approach to Blackwood Harbor, the current along this part of the coast, which includes Armagon Shoal, usually sets with the prevailing wind, but at times reverses itself.

1.39.8 - Point Pudi (Andhra Pradesh-E India)
Point Pudi, a low sandy point, is marked by clumps of palm trees. Armagon Shoal extends N from Point Pudi.

1.39.9 - Pulicat lighthouse (Tamil Nadu-E India)

13°25.24 N 80°19.56 E

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)
The Lighthouse station is separated from Pulicat town by a sea water channel. The town of Pulicat lies on an island at the S end of Pulicat Lake and is visible from the offing. A tall conspicuous monument lies close N of the lighthouse near the beach. The lighthouse at this site is meant to warn against the existence of a shoal about 4 NM from the shore. The shoal extends more than 9 NM toward south. The LH expert Mr Alan D Stevenson on his visit to this lighthouse in 1926 observed the light to be extremely low powered for the purpose of marking such danger. Besides he also mentioned about frequent Malarial attacks infesting the station.

The coast between Pulicat and Point Pudi, about 22 miles NNW, is marked by casuarina plantations for about 11 miles N of Pulicat Lake. A conspicuous clump of coconut trees, 24m high, lies on a sand hill about 1 mile S of Point Pudi.

**1.39.10 - Pulicat Shoals (E India)**

Pulicat Shoals, a chain of hard, sandy patches with depths ranging from 4.3 to 9.1m, extends about 7.5 miles NNE from the N end of Ennur Shoal. Several detached patches, with depths of 8.2 to 11m, lie within 3.8 miles N and
NNW of the N end of Pulicat Shoals. These shoals were reported to be extending to the E. In the vicinity of Pulicat Shoals, the current is weak and sets parallel to the coast.

**1.39.11 - Ennur shoal (E India)**

Ennur Shoal, with depths of 0.9 to 8.5m, extends 2.5 miles NE from a position on the coast about 10.5 miles NNE of Chennai Harbor. The coast between Chennai and Ennur, about 9.5 miles NNE, is bordered by plantations of casuarina and palm trees.

**1.39.12 - Ennore port (E India)**

Channel 16, 74, 77
Ennore Port, about 24 km north of Chennai

Port, is the first port in India which is a public company. Ennore Port lies on the northeastern corner of the state of Tamil Nadu on a flat coastal plain known as the Eastern Coastal Plains, on the Coromandel coast.

**Depths?Limitations**

The port has two breakwaters; North Breakwater is 3,080m long while South Breakwater is 1,080m long. The entrance channel, about 3,750m long and 250m wide, is dredged to a depth of 16m. The harbor basin is dredged to a depth of 15m and consists of two 280m long coal berths.

One berth can accommodate vessels up to 65,000 dwt; the other berth can accommodate vessels up to 77,000 dwt.

**Pilotage**

Pilotage is compulsory. The pilot boards about 0.1 mile S of Fairway Lighted Buoy (13°12.9’N., 80°22.4’E.).

**Regulations**

Vessels should report their ETA to Ennore Port Control 48 hours, 24 hours, and 3 hours in advance. Any changes of more than 2 hours should be immediately reported.
Vessels should also contact Ennore Port Control 3 hours prior to entering or leaving the harbor. The ETA message should contain the following information:
1. Vessel's name, call sign, grt, nrt, dwt, loa, and beam.
2. Draft forward and aft.
3. Cargo grade and quantity on board.
4. ETA at Fairway Lighted Buoy (in local time).
5. Local agent.

**Contact Information**
Tel: 91 44 2521666
Fax: 91-44-25251665
Mail: marine@ennoreportltd.com
Chennai Port, formerly known as Madras Port, is the second largest port of India, behind the Mumbai Port, and the largest port in the Bay of Bengal and the principal harbor of Coromandel coast.

It is an artificial and all-weather port with wet docks that front the center of the city. It was a major travel port before becoming a major container port. The port with 3 docks, 24 berths and draft ranging from 12 to 16.5 m has become a hub port for containers, cars and project cargo in the east coast of India.

**Weather**

Cyclones at Chennai usually commence with the wind between NNW and NNE, the wind direction changing to the E or W according to whether the port is in the right-hand or left-hand semicircle of the storm. The Chennai coast is normally frequented by cyclones during May, October, and November. Rainfall is almost entirely confined to the period from November to January during the Northeast Monsoon. In April and May, there are occasional squalls from the NW, usually in the early part of the night. Weather reports are broadcast by the radio station at Chennai.

The climate of Chennai is considered quite hot. Even in the cooler months of December and January, the mean temperature is about 25°C.

**Tides**

The tides at Chennai are semidiurnal and subject to a diurnal inequality which may advance or retard the times of HW and LW; this inequality may increase or diminish the rise by as much as 0.3m.
**Depths?Limitations**

The approach channel, marked by the IALA Maritime Buoyage System (Region A), is dredged and maintained at a depth of 19.2m. Vessels are to keep at least 0.5 mile off the channel entry unless a pilot is on board.

The harbor entrance is maintained to a depth of 18.6m, and there is a swinging basin, 0.3 mile in diameter, lying immediately inside the harbor entrance with a maintained depth of 18m. In 1986, it was reported the port could accommodate vessels up to 274m length, with a draft of 16.2m.

Bharathi Dock, the N part of the harbor, is protected by the North Breakwater and East Breakwater; a light stands near the head of East Breakwater. Dock 1 and Dock 3, on the E side of Barathi Dock, are oil berths. Dock 2, located in the NW corner of the dock, is an iron ore berth.

A fully mechanized container terminal, with alongside charted depths of 11.5 to 12.5m, is located on the W side of Bharathi Dock close NW of North Pier.

The S part of the harbor, forming the Inner Harbor is protected by East Quay. The entrance lies between North Pier and a spur projecting from East Quay; it is 122m wide with a depth of 9.4m and marked by lighted beacons at each side of the entrance.

The protecting breakwater N of the spur is known as the sheltering arm; a light stands at the head of the arm. Dr. Ambedkar Dock (Inner Harbor) contains 12 berths alongside the quays and one fixed mooring.

It has been reported (2006) that the alongside depths are being increased to 15m.

Jawahar Dock, entered along the mid-section of South Quay of the inner harbor, has an overall length of 655m. The S end of the dock is used by LASH barges. It has been reported (2006) that the depth in the dock has been increased to 11.5m.

Chennai Fishing Harbor is located 1 mile N of Bharathi Dock and is sheltered by two extensive breakwaters which provides berths for up to 500 fishing vessels. Depths off the harbor shoal gradually from the 20m curve, about 1.5 to 2 miles offshore, to a depth of 11m less than 0.3 mile E of the breakwaters.

The surf N and S of the harbor generally breaks about 122m from the beach in fine weather and about 183m in squally weather. During gales from the E, breakers were observed about 244m offshore; with an offshore wind, the surf is often very high and in the form of a heavy roller. During normal weather the surf wave is about 0.9 to 1.8m high, and during a gale from 3 to 3.7m high.

**Pilotage**
Pilotage is compulsory for vessels over 200 grt.

**Signals**
The Port Signal Station is located on the Harbor Office on the seaward end of the Transit Shed and Passenger Terminal on North Pier. International Code of Signals Flags and Morse code are employed.

**Contact Information**
The port can be contacted, as follows:
1. Call sign: Port Control
2. VHF channels 10 and 16
3. Tel: 91-44-25360833
4. Fax: 91-44-25384012
5. Mail: dc@chennaiport.gov.in

**Anchorage**
Chennai Roadstead is open to all except offshore winds. There is usually a swell from seaward which causes vessels to labor or roll considerably.
Vessels which are not awaiting berth on arrival are not to anchor N of latitude 13°06'N, and within Pilot Boarding Area No. 1 or Pilot Boarding Area No. 2, without prior approval from Port Control.
A dangerous wreck, with masts exposed, lies about 0.8 mile SE of the harbor entrance. It is marked by a lighted buoy lying 0.2 mile E.
An Examination Anchorage area is shown on the chart.
Caution.?Vessels are advised to be on the lookout for pirates attempting to board at night.
The roadstead fronting the harbor area is subject to a heavy surf.

**1.39.14 - Chennai lighthouse (E India)**

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

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The Madras Light House is a lighthouse facing the Bay of Bengal. It is a famous landmark on the Marina Beach in Chennai. The lighthouse was opened in January 1977. It is one of the few lighthouses in the world and the only one in India with an elevator. The currents N of Chennai vary considerably in velocity and direction and sometimes set toward the land. Great caution is necessary.
Mahabalipuram is about 35 km from Chennai. Mahabalipuram also known as Mamallapuram was an important port built by Pallavas during the Seventh Century for the maritime trade with the countries of South East Asia and Mediterranean. In the ancient times the log fire on one of the high rocks used to serve as beacon for the vessels approaching Mahabalipuram port during the night.

A dressed stone masonry circular tower 26m in height was built on a nearby rock in 1900. The PV source was replaced by incandescent electric lamp in 1994.

1.39.16 - Pondicherry lighthouse (E India)

http://www.sea-seek.com
Pondicherry Light, with a racon, is shown from a white tower with black bands. A ruined iron pier projects E about 0.2 mile from the shore, 1 mile NNE of the light. The following landmarks are conspicuous from the offing: 1. A red chimney, 56m high, about 1 mile WNW of the light. 2. Two square towers and cupola of the cathedral about 1 mile NNE. 3. The port flagstaff about 0.5 mile NNE of the light. 4. A conspicuous TV tower lying 0.4 mile WSW of the port flagstaff. Pondicherry has been reported to be a good radar target up to 18 miles. Pondicherry Hills, which lie 3 to 5 miles NW and N of the town, have been reported to be good radar targets up to 24 miles.
Deep water Port at Puducherry

Puducherry, (formerly known as Pondicherry), ranked as India's best small state, fast emerging as an industrial and technology destination, is an ideal location for developing a Deep water Port. Upon completion of the development, the port will handle containers, cars, general cargo, edible oil and passenger.

Salient Features:
Design ship size: Container vessels (7000 TEU) with a draft of 14.2 mts and length of 300 mts
Dredge channel: Length - 2.5 Kms | Depth - 16.4 mts | Width - 210 mts 
Volume of capital dredging - 16.3 million cubic meters

Dredged material will be used for:

Port Development:
The Port facilities will be commissioned by 2012.
The following will be the port facilities upon completion of development by 2017.

Container terminal - 1670 m long with annual throughput capacity of 2.25 million TEU
General cargo / ro-ro berth - 300 m long with annual throughput capacity of 180000 cars
Edible oil berth - One liquid cargo terminal handling 200,000 tonnes per annum
Cruise terminal - 300 m long with annual throughput capacity of 23350 passengers
Sand bypassing and beach nourishment - Bypass the sand from south of the port to the beach of Puducherry
land reclamation and beach formation.

Breakwaters: Northern & southern breakwaters totaling 3 Kms in length, oriented to avoid wave penetration and sediment intake & designed for 100 year return period storm.

Liquid cargo terminal: Ships pumps will be used for unloading.

Port infrastructure equipment: 2 Tugs, pilot and survey boats, navigation buoys and lights, port VTS system.

Buildings: Port administration building, accommodation block & gate house plus individual administration blocks and offices in each terminal.

Container terminal equipment:
- 10 quay side post panamax ship to shore container cranes.
- 3 quay side feeder ship to shore container cranes.
- 52 rubber tyred gantries 1 over 5.
- 78 tractor trailer units.
- 11 empty container handlers.
- 2 rail mounted gantries.

Quay level: +4.5 m CD
Depth at quay: -15.5 m CD

Land reclamation: Raising and filling of sea 1200m long and 200m to sea from present shoreline and area on south and north in the basin & treatment of soft marine clays.

Modal split of traffic: Trans-shipment 20%, Rail 10%, Road 70% for containers. General cargo terminal equipment Ships' gear will be utilized.

Utilities: Government is committed to provide adequate power and water. State-of-the-art waste water and solid waste disposal facilities will be provided.

Pondicherry (Pondicherri), the capital and seat of government of the Union Territory of Pondicherry, lies about 13 miles N of Cuddalore. All cargo is handled by lighters at the anchorage off the town.

Puducherry currently has a small shallow water port used for the import & export of general cargo. Ships anchor offshore and cargo is transferred to a small shallow draft quay by means of barges.

**Winds & Weather**

During the Northeast Monsoon, which usually prevails from October through...
January, rough seas are raised, hampering cargo operations. During the rest of the year the prevailing wind is from the W in the morning; a choppy sea is raised by the SE wind in the afternoon.

**Depths?Limitations**

Depths surrounding the port range from the 20m curve, which lies about 2.5 miles E of the port, to about the 5m curve, which lies about 0.3 mile from the shore.

The new pier is located about 0.7 mile S of Pondicherry Light. The pier is about 287m long and 15.2m wide across the outer face. Cargo is handled by lighters between the anchorage and this pier. About 50 small lighters, with a capacity of 2.5 tons each, are available for cargo handling.

**Aspect**

The low sandy shore S of the town is marked by trees. The land, from 3 to 5 miles NW and N of the town, is 45 to 73m high and helps to identify the locality.

The Government of India has developed a National Maritime Development programme with a vision to make India a leading player by the year 2025.

**Pilotage**

Pilotage is not available.

**Regulations**

Local quarantine and port regulations are in force in Pondicherry. A copy of these regulations can be obtained from the local port authorities.

**Signals**

A signal station lies at the inner end of the new pier at the S end of the town. Vessels can communicate with the station by using the International Code of Signals by day and Morse code at night.

Storm and weather signals are displayed from the signal station; the General System is used.

**Contact Information**

The port can be contacted, as follows:

VHF channels 12 and 16
Tel: 91-413-2337114
Mail: port@pon.nic.in

**Anchorage**

During good weather, anchorage can be taken, in depths of 9.1 to 11m, about 0.8 mile off the coast at Pondicherry. From October to December, when bad weather may be expected, it is advisable to anchor about 1 mile farther offshore, using a good scope of chain. The holding ground is not very good.

Anchorage can also be taken, in depths of 9.1 to 11m, about 0.5 mile E of the
head of the new pier. At this anchorage the powerhouse chimney and Rodiar Chimney are in line, bearing 276.5°.

1.39.18 - Cuddalore port (Tamil Nadu-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

Cuddalore is a fast growing industrial city and headquarter of Cuddalore district in the Tamil Nadu state of southern India. Located 25 kilometres south of Pondicherry on the coast of Bay of Bengal, Cuddalore has a large number of industries which employ a great deal of the city's population.

The Cuddalore Port area comprises the open anchorage off the town and the backwater formed by the confluence of the estuaries of the Gadilam River and the Uppanar River, both of which are subject to heavy flooding in the rainy season.

The old town, which shows up well from the N, especially the buildings to the E, lies on the Uppanar Backwater; the new town lies on the Gadilam River, about 1
mile N of the old town.
Depths off the port shoal gradually from the 20m curve about 3.5 miles E of the port, to the 5m curve about 0.3 to 0.5 mile offshore.
An unmarked shifting boat channel crosses the bar at the entrance of the Uppanar River, about 0.8 mile S of the light. This channel has a least depth of 1.2m.
Vessels should send their ETA 24 hours in advance.
A signal station, by which vessels can communicate by Morse code, lies close S of the lighthouse. Storm signals are displayed in accordance with the Indian Extended System.
When surf conditions require the closing of the channel across the bar, flag K of the International Code of Signals is displayed. Flag M indicates a strong ebb current; flag S indicates a strong flood current.
The port can be contacted weekdays only, from 0900-1300 and from 1400-1800, as follows:
Call sign: Cuddalore Port Radio
VHF: VHF channels 11 and 16
Tel: 91-4142-238025
Fax: 91-4142-238026
Mail: cuddaloreport@gmail.com

1.39.19 - Cuddalore Lighthouse (Tamil Nadu-E India)
Indian Ocean  -  Bay of Bengal  -  East Coast of India  -  Coromandel coast (E India)
Cuddalore Light is exhibited from a white round concrete tower 0.2 mile W of the mouth of the Uppanar River. A white flagstaff, 31m high and conspicuous, stands 0.6 mile NNE of the lighthouse. Cuddalore Light has been reported to be a good radar target up to 21 miles. A dangerous wreck with its mast visible is located about 1.2 miles ENE of Cuddalore Light.
The town of Porto Novo lies on the N bank of the Vellar River about 1 mile within the mouth. It's an isolated fishing hamlet.

A white flagstaff on the N bank of the river entrance and the two white boundary markers, one N and one S of the town, are conspicuous landmarks. A light is shown from a white tower with red bands, 30m high, 0.8 mile N of the flagstaff.

The coast between Porto Novo and Cuddalore, about 13 miles to the N, is low and marked by scattered trees. From the offing, the few sand hills which are visible appear as islets.

1.39.21 - Karaikal lighthouse (Tamil Nadu-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)
Karaikal Light, a white circular concrete tower, 18m in height, stands on the N bank of the Arasalar River.

1.39.22 - Karaikal Port (Tamil Nadu-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

10°50.34 N 79°51.13 E

1.39.23 - Nagapattinam port (Tamil Nadu-E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India)

10°45.66 N 79°50.99 E
Bay of Bengal
the narrow line between India and Sri Lanka is known as Palk Strait

West side of India
The N shore of Palk Strait consists of the low-lying coast between Point Calimere and a low point, about 39 miles WSW, which projects from the coast close S of the entrance to the Vellar River. Between Point Calimere and Atirampattinam, about 29 miles W, the coast consists of mud flats, covered with mangrove bushes, and flooded during heavy rains and high spring tides.

1.39.24.1 - Calimere Point (E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Palk Strait North side (E India)
1.39.25 - Gulf of Mannar (SE India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)

A   Comorin Cape (S India)
B   Comorin Lighthouse (S India)
C   Kanyakumari Port (S India)
D   Vivekananda rock - Thiruvalluvar Statue
E   East Cape (E India)
F   Manappad Point (SE India)
G   Tiruchendur Point (Tamil Nadu-E India)
H   Punnaikkayal (E India)
I   Tuticorin
J   Chidambaranar (Tuticorin) Port (E India)
K   Kariya Shuli and Vilangu Shuli islets (Pattanamarudur-E India)
L   Approaches Pamban Pass (E India)
M   Valinokkam Point (E India)
N   Ramen Point (Tamil Nadu-E India)
P   Pamban Pass (Tamil Nadu-E India)
Q   Pamban port (Pamban Island-E India)

The Gulf of Mannar lies between the SE coast of the Indian Peninsula and the W coast of Sri Lanka. Its S boundary lies between Cape Comorin, the S extremity of India, and Point de Galle, the SW point of Sri Lanka. The gulf is bounded N by Adam’s Bridge, a chain of islets and rocks extending from the E end of Pamban Island to Mannar Island, about 16 miles ESE.

The NW coast of the Gulf of Mannar is, with the exception of the mountains extending N from Cape Comorin, generally low and sandy, with the mountains lying about 55 miles inland.

This level plain has an average elevation of about 50m, and gradually rises toward Cape Comorin.

The W coast of Sri Lanka is low and planted with coconut trees. Inland, the foothills of the mountain district abreast Colombo begin about 20 miles from the coast.

Winds?Weather

The coast covered by this sector is, like the rest of Sri Lanka, predominantly in a region of the monsoon.

Of the four phases to be considered the Southwest Monsoon is the most important, followed by the Northeast Monsoon. Between these two monsoon are the spring and autumn transitions with their light and unsteady winds.

In the Gulf of Mannar, the Northeast Monsoon is steadiest in January and has much weakened by March. The wind becomes light and variable toward the end of April, and squally showers are common.

The Southwest Monsoon is usually established sometime in May and gains strength in June. From July to the end of September fresh SW winds prevail, with mainly fair weather at the end of the gulf. The wind usually moderates near the head of the gulf at night and in the early morning and freshens again in the afternoon as a result of land and sea breeze effect. In October the wind is more variable and there are heavy squalls with rain in the latter part of the month.
In November, the wind is normally between WNW and NE and the weather is very unsettled with frequent heavy squalls and rain; the Northeast Monsoon usually becomes established by about the end of the month.

**Marine sanctuary**

The Gulf of Mannar is known to harbour over 3,600 species of flora and fauna, making it one of the richest coastal regions in Asia.

In 1986, a group of 21 islets lying off the Tamil Nadu coast between Thoothukudi and Dhanushkodi were declared the Gulf of Mannar Marine National Park. The park and its 10 km buffer zone were declared a Biosphere Reserve in 1989.

The Gulf of Mannar Biosphere Reserve covers an area of 10,500 km² of ocean, islands and the adjoining coastline. The islets and coastal buffer zone includes beaches, estuaries, and tropical dry broadleaf forests, while the marine environments include seaweed communities, sea grass communities, coral reefs, salt marshes and mangrove forests.

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1.39.25.1 - Comorin Cape (S India)

8°04.67 N 77°31.93 E

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)

1.39.25.2 - Comorin Lighthouse (S India)

8°04.86 N 77°32.81 E

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)
Cape Comorin Light is shown from a square white tower, 34m high, and painted in red bands, about 0.3 mile NW of the cape. A church, 54m high, lies in a village about 0.5 mile N of the cape. Good radar returns have been reported from Cape Comorin at 23 miles.

1.39.25.3 - Kanyakumari Port (S India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)
Kanyakumari is a town that is at the tip of the Indian Peninsula and faces the Indian Ocean. The port is a minor port primarily for ferry traffic. Depths in the boat basin and alongside the pier are 2.3m or less.

Vivekananda Rock Memorial is a sacred monument and popular tourist attraction in Kanyakumari, India. The memorial stands on one of two rocks located about 500 meters off mainland India's southernmost tip. It was built in 1970 by the Vivekananda Rock Memorial Committee in honour of the visit of the great spiritual teacher Swami Vivekananda to Shripada Parai during the month of December 1892 for deep meditation and enlightenment. He swam to this rock and meditated about the past, present and future of India. It is said that he attained
enlightenment on the rock, and henceforth became a reformer and philosopher.

From very ancient times, the rock has been regarded as a sacred place. The Thiruvalluvar Statue is a 133 feet (40.5 m) tall stone sculpture of the Tamil poet and saint Tiruvalluvar, author of the Thirukkural. It was opened in January 1, 2000 (Millenium) and is located atop a small island near the town of Kanyakumari, where two seas and an ocean meet; the Bay of Bengal, the Arabian Sea, and the Indian Ocean. The statue has a height of 95 feet (29 m) and stands upon a 38 foot (11.5 m) pedestal that represents the 38 chapters of "virtue" in the Thirukkural. The statue standing on the pedestal represents "wealth" and "pleasure", signifying that wealth and love be earned and enjoyed on the foundation of solid virtue.

1.39.25.5 - East Cape (E India)

East Cape is prominent, and the coastal reef, with depths of 5.5m, extends about 1 mile offshore near the cape.

**Anchorage**

Shelter from W winds can be found in the bight between Cape Comorin and East Cape, but during the Southwest Monsoon landing by ship’s boats should not be attempted as swells roll into the bight.

Anchorage can be obtained, in 7.3m, in the bight N of East Cape, partially
protected from W winds and swell by the coast SW.

1.39.25.6 - Manappad Point (SE India)

Manappad Point is a high sandy promontory with a rock base. A light is shown from a white, round concrete tower with red diagonal stripes. The village of Manappad lies 0.8 mile W of the point.

Manappad Outer Shoal, with a least depth of 6.4m, lies about 8 miles SE of Manappad Point. A 13.4m shoal, reported in 1976, lies about 6 miles farther E. Other shoals lie WNW and WSW. Vessels should avoid passing through this area, and in thick weather should not get into depths less than 35m.

The coast between Manappad Point and Tuticorin is low, sandy, and fringed with coconut trees.

Between Manappad Point and the village of Alantalai (Alendal), about 5.5 miles NNE, an area of foul rocky ground extends about 2.8 miles offshore. There are heavy breakers over this area during the Northeast Monsoon; these breakers extend 1 mile SE of Manappad Point.

Alendal Shoals, with depths of 3.7m, extend to about 4 miles ESE of Alantalai.
Tiruchendur Point is a low, rocky bluff headland, with a prominent dark-colored temple, 54m high, at its extremity. This pagoda is a useful mark and can be seen for a distance of about 15 miles.

A conspicuous chimney, 28m high, painted in red and white bands and emitting a flame, lies about 5 miles NNW of the point. In 1976, a depth of 14m was reported 9.3 miles ESE of the point.

From Tiruchendur Point to abreast the fishing village of Punnaikkayal, about 8 miles N, the coastal reef extends about 2.3 miles offshore. In heavy weather, the sea breaks on this reef in depths of 4.6 to 5.5m; usually it breaks farther inshore in depths of 3.7m.
Punnaikkayal, about 1 mile inland, can be identified by the ruins of a church and by a group of palmyra trees on the beach. A 4.6m patch lies about 3 miles E of the village. Anchorage in 7.3m, can be found off Punnaikkayal, about 1.5 miles offshore, with the clump of trees bearing 258° remaining clear of the dangerous wreck N of the anchorage. The coastal reef to the S provides shelter from S winds, but local knowledge is necessary.

1.39.25.9 - Tuticorin
Port protected by a breakwater.

1.39.25.10 - Chidambaranar (Tuticorin) Port (E India)

Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)

channel 6, 12, 14, 16
The town of Pattanamarudur, with some large trees visible up to 10 miles offshore, lies at the head of this bight, about 7 miles N of Tuticorin. The bight is filled by a flat, with depths of less than 5.5m, extending up to about 4.5 miles offshore. Kariya Shuli and Vilangu Shuli, two low-lying sandy islets, lie on this flat.
Caution. Vessels, other than small coasting vessels, should not approach the coast between Tuticorin and Valinokkam Point, about 37 miles NE, closer than 6 or 7 miles due to the many off-lying shoals.

The coast between Valinokkam Point and Ramen Point, about 32 miles ENE, is fronted by a chain of islands and shoals extending up to 6 miles offshore. Depths outside this chain of islands and shoals are regular, but in places overfalls occur. An anchorage is located 2.5 miles NE of Valinokkam Point. A dangerous rock lies about 1 mile WSW of the anchorage.

Large vessels should not navigate in depths less than 22m off this stretch of coast as the area is imperfectly surveyed and several relatively shoal patches are charted. They should not sight any of the islands of which the chain is composed. Kilakkarai Passage, the shallow passage between the chain and the coast, can only be used by small vessels; local knowledge is necessary due to the numerous shoals, with depths of less than 1.8m, and the narrow, undefined channels between them. The passage affords a smooth passage for small coastal vessels for half the distance between Tuticorin and Pamban.

Valinokkam Point is marked by a beacon, 6m high. A submerged rock is marked by a beacon about 1.5 miles NE. These beacons are useful marks for vessels making the W entrance of Kilakkarai Passage, between Valinokkam Point and Anaipar Tivu (Anapipar Tivu), about 2 miles E.

The passage then leads S of a submerged rock, marked by a beacon, about 4
miles ENE of Valinokkam Point, and then to the anchorage off Kilakarrai. A light is shown from a white hexagonal concrete tower with red bands, 30m high, at Kilakkarai.
Mansfield Patch, with a least depth of 5.8m, about 7 miles SE of Kundagal Point, is the N and shallowest of a group of detached patches.
Batt Patch, with a least depth of 4.9m, lies about 2.8 miles WNW of Mansfield Patch; the sea breaks on Batt Patch in a fresh breeze.
Manauli Reef, with its E edge about 4 miles SW of Kundagal Point, consists of coral and dries in places. The E end of the reef is marked by beacons.
Manauli Tivu (Manilla Tivu), with a conspicuous white beacon close E, lies about 2 miles from the E end of the Reef.
Pulli Shoal, with a least depth of 1.2m and over which the sea breaks, lies about 3 miles E of Manauli Tivu.
Puma Channel, leading to Pamban Pass, lies between Manauli Reef and Pulli Shoal.
Pulli Reef, N of Pulli Shoal, has three islands on it.
Pumurichan, along the W edge, has a conspicuous beacon, 10m high, on its SW side; Pumurichan Tivu, farther SE; and Kurisadi Tivu (Kursadi Tivu).
The extensive coral reef dries in places; its N edge is well defined at low water, but its S edge is indented and the sea breaks on it. Beacons mark the S and NW sides of Pulli Reef.
Kurisadi Beacon No. 2, 7m high, lies in the middle of Kurisadi Tivu. Kurisadi Beacon No. 1, 4.8m high, lies about 0.2 mile NW of Kurisadi Beacon No. 2, on the N edge of Pulli Reef.
Shingle Island, low and covered with scrub, lies nearly 1 mile ESE of Kurisadi Tivu. The island lies on Kallaru Reef, a coral reef, on the SW edge of which the sea breaks heavily. A conspicuous triangular white beacon, 9.5m high with a black band, lies on the E end of Shingle Island.
Kundagal Channel leads into Kundagal Gut, between Kundagal Point and the N side of Kurisadi Tivu, then NW into Sand Bank Channel, then NNE through The Basin to Pamban Pass.
The tidal current sets W through Kundagal Channel on the flood, and then W along the N edge of Pulli Reef, where it joins with the flood current through Puma Channel. The combined currents then set N, but they are weak unless influenced by strong S winds.

**Directions**
Vessels approaching Pamban Pass from the S should use great care as the off-lying islands are low, and there are no hills or conspicuous landmarks. During the Southwest Monsoon, haze frequently overhangs and obscures the islands.
Vessels over 4.6m draft should not approach within depths of 14.6m until their position is accurately determined.
The first landmarks identifiable from seaward are Rameswaram Temple, 50m high, appearing as a large square tower viewed from NE or SW and as a narrow pinnacle from SE or NW; Gandhamana Temple, 44m high, about 1 mile NW, lying in a large enclosure, but less conspicuous; Pamban Light, a white tower, on a sandhill on the NW point of Pamban Island; a
red square water tower on a framework structure, 18m high, about 5 miles W of Pamban Light, and conspicuous when bearing less than 050°; and the beacon close E of Manauli Tivu, Pumurichan, and Shingle Island.

Vessels approaching Kundagal Channel, which is the better and more direct approach, should, after having passed the outlying dangers, steer to pass about 0.4 mile E of Shingle Island, taking care to avoid the shoals E.

When the beacon about 0.3 mile NE of Kundagal Point bears 286°, steer for Kundagal Gut, passing S of Kundagal Point. Continue W and bring Kurisadi Beacon No. 1 and Kurisadi Beacon No. 2 in line, astern, bearing 130°; this range leads through Sand Bank Channel passing close SW both of a buoy, moored 0.6 mile W of Kundugal Point, and a buoy moored 0.5 mile further WNW. Keep close to beacons marking the SW side of the latter channel, and SW of Elbow Buoy, a red conical buoy at the junction of Sand Bank Channel and The Basin, a narrow channel leading NNE, with depths of 4.6 to 6.7m in the fairway, which is marked by beacons.

A NNE course through The Basin leads to the S end of Pamban Pass.

A buoy moored 0.5 mile SW of Elbow Buoy marks a shoal ground of less than 1m on the W side of the deeper water at the intersection of Sand Bank Channel and The Basin.

Puma Channel, the SW approach, only available to those with local knowledge, demands navigation by eye. Manauli Reef, on the W side, is well-marked on its S and E sides by breaking seas.

Mandapam South Beacon, in line bearing 338° with a beacon on a low hill NNW, leads into Puma Channel. When the beacon on the SW side of Pumurichan bears 060°, vessels should steer NE through Puma East Channel; then steer along the N edge of Pulli Reef and into the channel N of Pulli Reef, marked by beacons; and finally steering into Sand Bank Channel and following the directions given above.

The vessels bound for the drydock at Mandapam, about 0.5 mile E of Mandapam South Beacon, should pass through Puma Channel as described and, leaving Cana Paru Reef about 0.3 mile to port, continue on the 338° range line until 1.3 miles from Mandapam South Beacon; local knowledge is necessary from this point.

The drydock at Mandapam is 81m long and 15m wide, with the sill 2m below chart datum.

1.39.25.14 - Ramen Point (Tamil Nadu-E India)
Ramen Point is the E extremity of a narrow tongue of land projecting E from the coast.

A temple in ruins lies about 183m W of the point; a coconut plantation lies about 183m farther W.

The coast from Ramen Point to Devipattanam, about 21 miles NW, is generally low and level.

Kathu Vallimuni Reef, consisting of scattered coral heads, extends up to 0.5 mile offshore, and lies parallel with the coast for about 1.8 miles W of Ramen Point. There are several heads, which dry 0.6m, at the E end of the reef.

Vella Pertumuni Reef extends about 3 miles W of Kathu Vallimuni Reef, from which it is separated by a boat channel.

1.39.25.15 - Pamban Pass (Tamil Nadu-E India)
1.39.25.16 - Pamban port (Pamban Island-E India)  
9°16.77 N  
79°12.33 E  
Indian Ocean - Bay of Bengal - East Coast of India - Coromandel coast (E India) - Gulf of Mannar (SE India)
Pamban, administered by a conservator, lies close N of the W extremity of Pamban Island. Cargo is handled by lighters to and from the beach. South and SW winds prevail from April to October.
Kachchaitivu (Kachchtivu), about 10 miles SW of Delft Island, is 12m high and overed with scrub.
There is a well and a small shrine on the NE side of the island. Depths of less than 9.1m extend 1 mile SE of the island.
Depths of less than 5.5m extend about 2.5 mile NE from the broad peninsula extending N from Pamban Island.
Sri Lanka is an island country with maritime borders with India to the northwest and the Maldives to the southwest.

2.1 - Trincomalee Inner Harbor

Indian Ocean - Bay of Bengal - Sri Lanka
Bay of Bengal

2.2 - Negombo

Indian Ocean - Bay of Bengal - Sri Lanka

Harbor.
2.3 - Colombo Sri Lanka

6°57.19 N
79°50.98 E

Indian Ocean - Bay of Bengal - Sri Lanka

2.4 - Galle Harbor

6°02.00 N
80°13.85 E

Indian Ocean - Bay of Bengal - Sri Lanka
Samarinda
Port protected by a breakwater.
Port protégé par une digue.

2.5 - Galle
Indian Ocean - Bay of Bengal - Sri Lanka

6°01.87 N
80°13.20 E
2.6 - Mirissa

Indian Ocean - Bay of Bengal - Sri Lanka

Harbor View

Isabelle C

Isabelle C

Isabelle C

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Palk Bay, the continuation S of Palk Strait, is bounded on the E by the coast of Sri Lanka, on the S by Mannar Island, Adam’s Bridge, and Pamban Island, and on the W by the coast of India.
The bay has general depths of 11 to 12.8m, but on its E side depths of 9.1m and less extend up to 15 miles from the coast of Sri Lanka, and within it are several islands, rocks, and shoals.

On the S side of the bay depths of less than 9.1m extend up to 7 miles from the coast. The NW part of the bay has not been fully surveyed.

Caution.?Dangerous wrecks and other hazards to navigation in Palk Strait are best seen on the chart.

3.1 - Tondi jetty (E India)

Tondi, is a small port for local coasting craft.
Two white masonry beacons, 4.5m high, mark the port limits.
A light stands about 4.5 miles NE of Tondi.

Anchorage may obtained, in 6m, mud, about 5 miles ESE of Tondi, but this position is exposed to all but offshore winds.
Small vessels anchor nearer the town, in about 4.9m, stiff mud.
3.2 - Pamban Island (E India)

Indian Ocean - Bay of Bengal - Palk Bay (E India) - Pamban Island (E India)

A   Pamban light (Pamban island-E India)

B   Dhanushkodi (Pamban island-E India)

C   Lands End (Pamban island-E India)

D   Adam’s Bridge (Pamban island-E India)
Pamban Island (E India)

Pamban Island (also known as Rameswaram Island) is low, sandy, and well-planted with coconut trees towards its W end, where a broad peninsula extends about 3 miles N. The chain formed by Pamban Island, the shoals of Adam's Bridge, and Mannar Island of Sri Lanka separate Palk Bay and the Palk Strait in the northeast from the Gulf of Mannar in the southwest. Pamban Island extends for around 30 kilometres in width from the township of Pamban in the west to the remains of Dhanushkodi towards the south-east. The length of the island varies from 2 kilometres at the Dhanushkodi promontory to 7 kilometres near Rameswaram. The area of the island is around 67 square km.

3.2.1 - Pamban light (Pamban island-E India)

Pamban Light is shown from a conspicuous white tower on a sandhill on the NW point of Pamban Island. NE Beacon, 5.5m high and white, lies close N of the light.

Kanthe Thuki Reef, composed of partly drying coral heads, lies between 0.3 and
0.5 mile W of Pamban Island Light. A boat channel between this reef and the coast is used by pilots when boarding vessels during the Northeast Monsoon. Outer Fairway Buoy, painted in black and white checkers, is moored in the N approach to Pamban Pass, about 0.3 mile NW of Kanthe Thuki Reef, and about 0.7 mile WNW of Pamban Island Light.

3.2.2 - Dhanushkodi (Pamban island-E India)

remains of Dhanushkodi church

Dhanushkodi, about 2 miles NW of Lands End, is connected to the railway system of India. A pier, for use by vessels of the ferry service between Dhanushkodi and Talaimannar, extends from the NE coast of Pamban Island abreast the town.

The pier is 219m long, with depths of 3.4m on each side of the pier head; the pier carries a double railway track.

The town of Dhanushkodi is most known for a cyclone passing, in 1964, over the railway station and drowning 100 passengers in the train that was traveling. Dhanushkodi was a small town only having a railway station, an hospital, some stores, and few
houses. In 1964 a cyclone wiped out the whole town and a memorial was later created to those who died in the storm.

3.2.3 - Lands End (Pamban island-E India)

Lands End is the SE extremity of Pamban Island; a small but conspicuous building lies near the point. Dhanushkodi, about 2 miles NW of Lands End, is a railroad terminal; the red-roofed railway buildings are conspicuous.
3.2.4 - Adam’s Bridge (Pamban island-E India)

Indian Ocean - Bay of Bengal - Palk Bay (E India) - Pamban Island (E India) - Adam’s Bridge (Pamban island-E India)
Adam’s Bridge (Pamban Island - E India)

Adam’s Bridge (Rama’s Bridge or Rama Setu) is a chain of limestone shoals of sand and rocks, mostly dry, which connects Pamban Island with Mannar Island (off the NW coast of Sri Lanka), about 16 miles ESE. It is composed mostly of shifting sand banks, with intricate shallow channels (1 m to 10 m) between them.

The bridge is 30 km long and separates the Gulf of Mannar (SW) from the Palk Strait (NE). Shoal water extends up to 5 miles from the bridge, with depths under 11m. Farther seaward, depths increase sharply to over 183m about 12 miles SW of Adam’s Bridge.
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