



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

SECTOR 1 —CHART INFORMATION

SECTOR 1

CAPE PALMAS TO CAPE SAINT PAUL

Plan.—This sector describes the West African coast between Cape Palmas and Cape Saint Paul. The descriptive sequence is from W to E.

General Remarks

1.1 The coast described in this sector is bordered by reefs and relatively elevated as far as the W approaches to Cape Three Points, a distance of about 230 miles. It is fronted by a low, sloping, and sandy beach backed by tall vegetation. The W part of the coast, between Cape Palmas and Cape Three Points, is high, rocky, and rises gradually to the interior. The E part of this coast is low, sandy, and backed by a number of lagoons. Several rivers discharge through this stretch of the coast, but are of little navigational value. The shoreline, which is subject to a dangerous surf, consists mostly of a sandy beach backed by tall brushwood.

Winds—Weather.—The SE trade wind system is the basic and most extensive wind regime in the area. Between 5° S and 30° S, winds blow from the SE quadrant just about all year round. These trade winds are most strongly developed between 10° S and 25° S, where their frequency approaches 85 percent. The average strength of these winds ranges from force 3 to 4 in the waters of the N part to force 4 to 5 in the waters lying between 20° S and 30° S.

Within 100 miles of the coast, between **Mayumba** (3° 24'S., 10° 39'E.) and Cape Town, the SE trades are deflected and blow parallel to the coast, which results in a predominance of S winds. To the N of 20° N and to the W of 10° W, in accordance with the counterclockwise flow around the South Atlantic Anticyclone, the winds take on a more E component.

The Doldrums, which is associated with the equatorial trough, is a band of light and variable winds. For most of the year, this band is located in the N part of the area, but from late February through March, it reaches the portion of the area lying N of the Equator. During these months, winds to the N of the Equator are calm for about 40 percent of the time.

The most significant of the local wind regimes in the area is the Southwest Monsoon. This large scale sea breeze occurs in the N sections over the Gulf of Guinea and extends 100 to 200 miles inland. It is strongest from June through August, but is prevalent all year round. The monsoon is a deflection of the SE trade winds toward the heated continental interior. Its influence is felt up to 10° S and it acts very much like a land-sea breeze regime. At **Douala** (4° 03'N., 9° 41'E.), for example, while SW winds are prevalent during the afternoon, their frequency drops to 5 percent in the early morning hours.

The harmattan, a wind of continental origin, is hot, dry, and blows from the NE quadrant. It reaches the shores of the Gulf of Guinea and extends seaward. This wind is prevalent from December through early March and is usually laden with fine dust, which can seriously impair visibility in the form of haze. The harmattan is found mainly between Cape Palmas and Douala.

A local wind occurring to the N of the Congo River is known as a tornado. This should not be confused with the phenomenon, known by the same name, which occurs in the United States. African tornados are violent wind squalls which often accompany thunderstorms. They are most frequent from January to early May and from September to November. Tornados can originate either on the land and move seaward or over the water and move onshore.

The barometer gives no warning, but a dark bank of cumulonimbus clouds, with tops reaching 6,000m or more, usually indicates the approach of a tornado. At the base of the cloud bank, there is generally a roll of low clouds and the atmosphere becomes still and oppressive as it approaches. A sudden wind squall, with gusts of 50 knots or more, occurs as the roll of low clouds passes overhead. Then, a few minutes later, rain begins and is accompanied by thunder and lightning. The rain is often very heavy and may reduce visibility to practically zero. The wind usually lasts for less than one hour, but the rain may continue longer. These tornados may be local or they may have the characteristics of a squall line, 100 miles or more wide. Occasionally, these tornados occur without any rain and are known appropriately as dry tornados.

Gales are infrequent over most of the area. Along the coast and to the N of the Equator, they occur on 1 to 6 days annually. From the Equator to Walvis Bay, gales occur on less than 1 day per year. At Walvis Bay, gales can be expected on 14 days annually; 7 of these days occur in October while 4 of these days occur in July and August.

To the S and into the subtropics, gale frequencies increase. At Cape Town, gales occur on an annual average of 22 days, with most from December through March. Over the ocean area, gales are infrequent to the N of 25° S. They occur for an average of 3 percent of the time from April through September between 25° S and 30° S. The frequency of the gales increases rapidly to the S of 30° S and from May through September they occur for 10 to 20 percent of the time between 30° S and 35° S. During this same period, gales occur for 12 to 25 percent of the time between 35° S and 40° S. To the S of 40° S, data is too sparse for an accurate analysis.

All sea areas lying near the shores of the continents and larger islands are influenced by land and sea breezes. Modification of the prevailing winds by onshore winds during the afternoon and offshore winds during the early morning causes corresponding increases or decreases in sea heights. Gravity winds usually result when dense cold air, which accumulates on the continental highlands, flows rapidly down the slopes and out over the sea. They can produce high waves for a short distance from the shore.

Tides—Currents.—The Guinea Current is felt in the vicinity of Cape Palmas and as far E as Pointe Tafou. It disappears about 100 miles ENE of this latter point and then resumes weakly to the E of Abidjan. The currents generally begin about 80 miles E of Abidjan and set inshore between this location and Cape Three Points.

The currents in the vicinity of Cape Three Points are variable in both strength and direction. A current setting E, with a rate as high as 3 knots, has been reported.

Vessels heading W from Cape Saint Paul to Cape Three Points are advised to stay as close to the coast as safety permits. Such vessels usually encounter only a weak current with a rate of 0.4 knot. However, vessels taking the direct route generally encounter a current which, at times, attains a rate of 3 knots.

Depths—Limitations.—Depths in the approaches to this coast are deep and clear of dangers. The 200m curve lies generally parallel to the coast and between 13 and 23 miles offshore. The only exception is Le Trou Sans Fond, in the approaches to Abidjan, where the 30m curve lies almost parallel to the coast and between 1 mile and 6 miles offshore. There are no known dangers outside of the 200m curve.

Caution.—Vessels should not approach within 2.5 miles of the coast between Cape Palmas and the Cavalla River (4° 22'N., 7° 32'W.). The depths lying off the coast are very irregular, particularly in the vicinity of Growa Point (4° 21'N., 7° 37'W.) and Cavalla Point (4° 21'N., 7° 36'W.).

Cape Palmas to Abidjan

1.2 Cape Palmas (4° 22'N., 7° 44'W.), 19m high, is a rocky peninsula which is connected to the mainland by a low and sandy isthmus. Between this cape and Growa Point, 6.7 miles E, the coast consists of a high, sandy beach. A conspicuous black rock lies about 2.5 miles E of the cape.

A shallow lagoon lies close behind the sandy foreshore and extends parallel to it for about 3.5 miles. The village of Buddu is situated near the E end of this lagoon. During the rainy season, the lagoon breaks through to the sea and flows out between the groups of houses standing in the village.

Newill Rock, with a least depth of 6m, lies about 1.7 miles ESE of Cape Palmas. Athol Rock, with a least depth of 6.4m, lies about 3 miles WSW of Growa Point. Two rocky heads, with depths of 6.4 and 9.1m, lie about midway between Newill Rock and Athol Rock. A shoal patch, with a depth of 16.5m, was reported (1967) to lie about 4.5 miles SSE of Cape Palmas.

Growa Point (4° 21'N., 7° 37'W.) is a long, low, and rocky projection. Growa Reefs, on which the sea breaks heavily, extends up to about 0.8 mile SW and 0.4 mile S from this point. During good weather, landing is possible in the vicinity of the point, but a surf boat is necessary.

Helene Woerman Rock, with a least depth of 3.7m, lies about 2.5 miles SW of Growa Point. This steep-to rock, which was reported not to break in the dry season (November to March), is the outermost danger along this part of the coast.

A shoal patch, with a depth of 10m, lies about 1.7 miles SSW of Growa Point and another patch, with a least depth of 9m, lies between it and Growa Reefs. Harvey Rock, on which the sea always breaks, lies about 1.2 miles WSW of Growa Point. Several rocky patches, with depths of 5 to 10m, lie within 0.5 mile of Harvey Rock. A patch, with a least depth of 9.1m, lies about 1 mile SSW of Cavalla Point.

Foul ground, with several above-water rocks, extends up to 0.8 mile from the coast between Growa Point and Cavalla Point. Cavalla Ledge, formed by a group of shoals, lies about 1 mile offshore, 2.8 miles ESE of Cavalla Point. The shallowest

shoal, with a depth of less than 1.8m, breaks and lies at the NW end of the group.

1.3 The Cavalla River (4° 22'N., 7° 32'W.) indents the coast 4 miles E of Cavalla Point. It is navigable up to about 40 miles above the mouth by small power vessels. This river forms the boundary between Liberia and the Ivory Coast.

Two umbrella trees stand close together on the W side of the entrance and a small house, with a tiled roof, is situated close W of them. The entrance channel, which is about 90m wide between the sand banks, is constantly changing. Sunken rocks lie close offshore at the W side of this channel and the bar, which fronts the entrance, has the reputation of being the most dangerous along this part of the coast. The village of Blieron is situated on the E side of the entrance. A prominent white building, with a red roof and a flagstaff, is situated in the village. Anchorage may be obtained, in depths of 12 to 15m, sand and mud, about 1 mile S of this building.

Between the Cavalla River and Pointe Tafou, 10.5 miles ENE, the coast is low, sandy, and backed by a dense forest. It is broken occasionally by clumps of trees up to 60m high. A prominent flat-topped hill rises 3 miles N of the entrance to the river. It has a conspicuous knob, 94m high, standing close W of the center. In clear weather, this knob is visible from up to 18 miles seaward.

A rounded, sandy point is located 2.7 miles E of the mouth of the Cavalla River and is fronted by extensive reefs, which extend up to about 0.8 mile seaward. Several rocks, up to 3.7m high, lie in the vicinity of these reefs. A stranded wreck, which was reported (1987) to be radar conspicuous, lies in the vicinity of these rocks.

Subra Meno Point (4° 22'N., 7° 27'W.) is located 4.5 miles ENE of the mouth of the Cavalla River and a stranded wreck lies 0.4 mile S of it. A 9.1m patch has been reported to lie 2.7 miles SE of the point. Rocks, which break, lie 0.7 mile offshore, 2.5 miles E of the point.

Pointe Tafou (4° 25'N., 7° 22'W.), marked by a light, is a low and rocky point lying at the W entrance of the Tafou River. This river is small and used only by canoes. It was reported (1969) that the entrance had silted up and only the beach was in use.

Pointe Basha (4° 28'N., 7° 15'W.) is located 7.5 miles NE of Pointe Tafou. The coast between consists of a sandy beach backed by densely wooded country. Pointe Basha, which shelters a loading anchorage, is surmounted by a rock which resembles the outline of a fort from the W. A buoy is moored 1.6 miles ENE of this point.

Grand Basha, a village, stands on the N side of the entrance to a river, 1 mile N of the point. It may be identified by a prominent long and low house with a gray roof. Pointe Boubele, the S entrance point of the river, is marked by two beacons. A post, with a triangular daymark, stands 0.9 mile NNE of Pointe Boubele, but it is situated near the shore and not easily distinguished. A wharf, which is used by lighters, fronts the shore close N of Pointe Boubele. Anchorage may be obtained, with good holding ground, in depths of 12 to 16m, sand and broken shells with gravel, about 1 mile E of Pointe Boubele.

The coast continues ENE for 13 miles from Pointe Basha to Pointe Poor. A long and narrow lagoon lies close behind the

beach, which fronts the coast for the last 8.2 miles. The sandy beach barrier that separates this lagoon from the sea is covered with trees, but occasional bare spots show where the waters burst through in the rainy season.

Pointe Poor (4° 32'N., 7° 03'W.) is low, rocky, and fringed by rocks which extend up to about 0.3 mile seaward.

1.4 Poste de Bereby (Point Sagree) (4° 34'N., 7° 01'W.), located 2 miles NE of Pointe Poor, is one of the few places along this part of the coast where landing is possible. Moderately high mountains rise 8 and 12 miles NNW of this point and provide good landmarks. Anchorage can be taken, in a depth of 20m, sand, about 0.5 mile SE of the point.

Pointe Kadabou (4° 39'N., 6° 54'W.) is located 8.5 miles NE of Poste de Bereby. The coast between consists of a succession of sandy bights divided by rocky points.

From about 1 mile NE of Poste de Bereby, an extensive chain of reefs lies parallel to the coast and extends for about 4.5 miles. Ilot Devil, with a black base, lies 2.3 miles SW of Pointe Kadabou. This islet is 13m high and has a flat summit which has been whitened by numerous sea birds settling on it. A shoal, which breaks, lies 0.3 mile NNE of the islet.

Pointe Kadabou consists of a bold and rocky cliff, 36m high, which can easily be recognized by a white rock standing near its summit. The village of Basa (Grande Berebi) is situated on this point and several reddish houses, with a group of palm trees, are prominent from seaward. A roadstead, used mostly for loading timber, lies at the head of the bight entered N of Pointe Kadabou. A river, with a lagoon at its entrance, empties into the head of this bight. Anchorage may be obtained, in a depth of 11m, about 0.5 mile E of Pointe Kadabou, or in a depth of 14m, about 1 mile ESE of the same point.

Roche Katoum (4° 40'N., 6° 53'W.), lying about 1 mile NE of Pointe Kadabou, appears white on its upper part, but becomes brown during the rainy season. Shoals extend up to about 200m seaward from the W and NE sides of this rock.

Pointe Tahu (4° 42'N., 6° 42'W.) is located 13.5 miles ENE of Basa (Grande Berebi). The coast between consists mostly of sandy beaches and is wooded with numerous villages. The shore is rocky and steep-to in places. Numerous rocks, both above and below-water, lie off this coast and it should be given a wide berth.

The coast from Pointe Tahu continues for 6 miles to the entrance of the San-Pedro River. It is generally sandy, wooded, and fringed by rocks.

Caution.—It was reported (1993) that the ro-ro ferry Jumbo is stranded ashore near Basa (Grand Berebi) in approximate position 4° 39'N, 6° 55'W

It was reported (1995) that the a vessel had grounded in approximate position 4° 38'.5N, 6° 55.0'W, and that the owners intend to abandon the vessel as a constructive total loss.

1.5 San-Pedro (4° 44'N., 6° 37'W.) ([World Port Index No. 45963](#)), a partly-sheltered harbor, lies 1.5 miles SW of the mouth of the San-Pedro River. It is used mostly for the export of timber.

Winds—Weather.—The harbor is exposed to E and NE winds and seas. At such times, a heavy swell may also be experienced at the quays.

Tides—Currents.—The tidal range in the harbor is about 1.5m. The tidal currents attain rates of 0.5 to 1 knot at the entrance, but are less inside the harbor. A strong undertow may be felt within the harbor between June and September.

Depths—Limitations.—The harbor is entered through a channel, 137m wide, which is dredged to a depth of 12m. There are three principal quays. The W quay has 586m of berthage, with a depth of 10.5m alongside. The E quay has 1,120m of berthage with depths of 8.5 to 10.5m alongside. Vessels of up to 25,000 dwt, 220m in length, and 9.8m draft can be accommodated.

The S quay, 154m long, has a dredged depth of 10.5m alongside. It can be used by vessels of up to 150m in length and 8.5m draft.

Several head and stern mooring buoys are situated in depths of 10 to 11m within the N part of the harbor. They form berths which may be used by vessels of 100 to 200m in length with drafts of 8.5 to 10.5m.

A cement berth, 200m long, lies on the NW side of the harbor and has a depth of 11m alongside. It can accommodate vessels of up to 195m in length and 10.5m draft.

A tanker berth lies on the W side of the E quay. It can accommodate vessels of up to 90m in length and 5.5m draft. A turning basin, 400m in diameter, lies in the center of the harbor and is dredged to a depth of 11m.

Aspect.—Two multi-storied buildings, the E of which is taller, stand on the coast, close WSW of the harbor entrance. A conspicuous radio tower is situated 0.6 mile WNW of the harbor entrance.

A main light (San-Pedro) is shown from a metal framework tower, 27m high, surmounting the E end of the summit of a hill which rises 1 mile NE of the harbor entrance. A prominent building and a silo stand 0.9 mile and 1.3 miles WSW, respectively, of the light.

A lighted range, which may best be seen on the chart, indicates the entrance channel.

Pilotage.—Pilotage is compulsory. Pilots can be contacted by VHF and board about 1 mile off the harbor entrance. Vessels should send their ETA 24 hours in advance, with a confirmation message 3 hours before arrival. Generally, vessels may enter by day only, but can depart by day or at night.

Anchorage.—Vessels may anchor, while awaiting a pilot, in a depth of 18m, sand with good holding ground, 0.8 mile SSE of the head of the W breakwater. Anchorage is not recommended W of the meridian passing through the head of the W breakwater.

Caution.—It was reported (1996) that the dredged areas in the harbor are no longer maintained and depths are less than charted in many places.

1.6 Between San-Pedro and Sassandra, 34 miles ENE, the coast generally consists of cliffs backed by mountains, some peaks of which are conspicuous. Collines Temple, 158m high, rises 7 miles NE of San-Pedro and marks the W end of a coastal mountainous chain which extends ENE for 27 miles.

Pointe Mono (Pointe Drewin) (4° 48'N., 6° 26'W.) is located 5 miles E of Collines Temple. This point is prominent, high, rocky, abrupt, and wooded. It is fringed by several rocks which extend up to about 150m NNE. Landing can be effected on the gently sloping beach which lies in the sheltered inlet,

close W of the point. Anchorage may be obtained, in a depth of 11m, 0.3 mile E of the point.

Pointe Enframa (4° 52'N., 6° 13'W.) is located 14 miles ENE of Pointe Monoho. The coast between is formed by a succession of small, rocky points with sandy beaches extending between them. The shore is fringed, in places, by reefs. The villages of Basa and Lolieko are situated 6.2 miles and 7.5 miles NE, respectively, of the point.

1.7 Sassandra (4° 57'N., 6° 05'W.) a harbor, is dominated on the W side by an abrupt headland which is 67m high and covered with luxuriant vegetation. The town stands between this headland and the entrance of the River Sassandra, 0.8 mile NNE. The harbor was reported (1983) to be permanently closed.

A school stands near the coast, 0.7 mile SW of Sassandra. It is conspicuous, well-lighted, and reported to be visible from up to about 15 miles seaward. A conspicuous hospital, consisting of a large white building, stands on a rocky spur, 45m high, and overlooks the town.

A navigational light is shown from a tower, 10m high, standing on the headland which rises on the W side of the former harbor; however, it is reported that the lights of the town are usually seen before this aid.

The coast extending to the E of Sassandra is flat for 3.5 miles and then hilly for 2.5 miles. The hills attain heights of about 110m and are broken by ravines.

Pointe Brouko (Pointe Mortality) (4° 59'N., 5° 58'W.) is located 7 miles ENE of Sassandra; several villages are situated in this vicinity. The point is prominent, bold, and steep-to.

From about 7 miles ENE of Pointe Brouko, a series of red cliffs begin and extend for 18 miles to Fresco. A beach stretches to the E of Fresco and is bordered by a row of trees in the middle of which is a wood.

Between Fresco and Grand-Lahou, 34 miles E, the coast is low and thinly wooded. It is bordered by a sandy beach on which the heavy surf frequently makes communication with the shore impossible.

1.8 Grand-Lahou (5° 09'N., 5° 00'W.) ([World Port Index No. 45970](#)) stands on the W side of the entrance to the Bandama River. This town can be identified by two prominent houses, one with a black and the other with a red roof, standing at the W end. The entrance to the river is very narrow and is fronted by a dangerous bar. The yellowish water from the river can be seen to the E of the mouth and up to nearly 2 miles offshore. A main light is shown from a tower, 17m high, standing in the town. A racon is situated at the light.

Anchorage may be taken, in a depth of 15m, sand and mud, about 0.5 mile SSE of the light. The holding ground is good, but vessels roll heavily at this anchorage.

Between Grand-Lahou and Abidjan, 61 miles E, the coast is bordered by a sandy beach. Numerous villages are situated along the shore, but are difficult to identify. The only danger is a shoal patch, with a least depth of 5m, lying about 4 miles ESE of the light at Grand-Lahou.

Lagune Eerie lies behind the coast, about 13 miles E of Grand-Lahou. This lagoon extends in a W to E direction for about 65 miles and contains numerous islands.

Grande Jack (5° 11'N., 4° 28'W.) is situated 29 miles E of Grand-Lahou. This village can be identified by the mass of foliage in the background and a prominent house with a white roof standing close E of it.

Jacquerville (5° 12'N., 4° 23'W.) ([World Port Index No. 45980](#)), situated 37 miles E of Grand-Lahou, can be identified by a group of white houses, two water towers, and a church. The entire length of the village is fronted by palms.

1.9 Le Trou Sans Fond (The Bottomless Pit) (5° 13'N., 3° 58'W.) is a funnel-shaped submarine canyon which penetrates the coastal bank in the approaches to Abidjan. At a distance of 9 miles offshore, this canyon has a width of about 4 miles and a depth of over 800m. It still has a depth of 200m about 1.3 miles offshore, while at the head, close to the edge of the beach, there is a depth of 40m.

Caution.—An oil and gas field lies centered 16 miles SE of Grand-Lahou. It is reported (1995) to consist of three platforms, a storage tanker, and an SBM. The platforms are supported by several high strength cables in a triangular formation that radiate out at 7.6m below the sea level and then connect to the seabed. Vessels are requested to give this field a wide berth.

A restricted area, which may best be seen on the chart, lies centered 8 miles S of Grande Jack and surrounds an abandoned oil field. Due to the existence of underwater obstructions, anchoring and fishing are prohibited within this area.

Abidjan (5° 15'N., 4° 01'W.)

[World Port Index No. 46000](#)

1.10 Abidjan is the capital and principal port of the Ivory Coast. It provides a sheltered harbor and is also a major railroad terminal.

Winds—Weather.—The wind usually blows from the SW with frequent calms, especially during the dry seasons. A dry wind blows occasionally from ENE between December and February. Hurricanes are frequent, particularly in April, May, October, and November. The weather in this vicinity consists of four seasons, as follows:

1. A long dry season from December to April.
2. A long rainy season from May to the middle of July.
3. A short dry season from the middle of July to September or October.
4. A short rainy season from September or October to November.

A swell from the SW, which never quite subsides, generally attains a height of 0.3m and causes rollers along the beach in the vicinity of the port. This swell has been reported to occasionally attain a height of 1.8m during June, July, and August.

Tides—Currents.—The tides rise about 1.2m at springs and 0.9m at neaps.

At springs, the ebb tidal current attains a rate of about 6 knots at the seaward end of Canal de Vridi. The flood current is weaker and at neaps and during the rainy season, it is imperceptible.

At the entrance of Canal de Vridi, the tidal currents sometimes set toward the W bank with strong eddies. At such

times, vessels should use care as they may encounter difficulties in maneuvering, particularly heavily loaded tankers.

Depths—Limitations.—The port is entered through Canal de Vridi which is about 1.5 miles long. This canal has a width of 370m, except at the seaward end where it is only about 200m wide. The canal has been dredged (1992) to a depth of 13.5m..

Vessels can transit through the canal when the tidal current is setting at a rate of less than 2 knots. At neaps, this occurs anytime. At springs, this occurs from 1 hour before to 1 hour after HW and from 1 hour before to 30 minutes after LW. Large vessels are advised to arrive at the entrance to the canal at HW.

Overhead power cables, with a minimum vertical clearance of 66m, span the canal, 0.6 mile NW of the S entrance.

A tanker berth, consisting of an L-shaped jetty, lies near the middle of the E bank of the canal. It is equipped with breasting dolphins and mooring buoys and has a depth of 10m alongside. Vessels of up to 210m in length and 9.1m draft can be accommodated.

A mineral pier, with a depth of 8m alongside, lies in the N part of the E bank of the canal. A private fertilizer pier, 90m long, lies close E of the mineral pier and can accommodate vessels of up to 130m in length and 7.9m draft.

South Quay, 0.8 mile long, extends N from a point located 0.5 mile NE of the N end of the canal. It provides ten berths and is reported (1989) to have depths up to 12.5m alongside. A ro-ro pier is situated S of South Quay. It is 200m long and has a depth of 12.5m alongside.

A fishing vessel basin is situated N of South Quay. It has 1,050m of berthage with depths of 5 to 7m alongside. West Quay, 0.8 mile long, extends NW from the fishing basin. It provides ten berths and has a depth of 10m alongside. North Quay, 0.4 mile long, extends NE from West Quay. It provides five berths and has a depth of 10m alongside.

Banana Wharf, 240m long, lies N of North Quay. It provides two berths and has a depth of 7m alongside.

There are facilities for general cargo, ro-ro, container, timber, fruit, bulk, tanker, and fishing vessels. Vessels of up to 260m in length and 11.3m draft can be accommodated, but the maximum draft for entry is sometimes reduced to 9m during periods of heavy swell.

It was reported (1995) that vessels of up to 220m in length could only enter with drafts up to 10.4m and vessels of up to 260m in length could only enter with drafts up to 9.1m.

Aspect.—Lighted ranges, which may best be seen on the chart, indicate the channel leading to the canal entrance. An outer lighted buoy, equipped with a racon, is moored about 0.9 mile SE of the S entrance of the canal.

Several oil tanks, flares, a refinery, and a signal station, all prominent, stand on the E side of the canal. A conspicuous crane stands on the W side of the entrance to the canal.

A main light is shown from a conspicuous tower, 27m high, standing 2.5 miles E of the S canal entrance.

The government palace, a large prominent building, stands on a small hill, in the SW part of the town. Two conspicuous power station chimneys stand on the E side of the canal, 0.7 mile NW of the signal station. Pylons, supporting the overhead power cable, stand close S of the power station and are also conspicuous.

Ile Boulet (5° 16'N., 4° 06'W.) forms the W side of the canal. It has a wall, painted white, bearing 313° ahead. It is used as a mark by vessels transiting the canal.

Pilotage.—Pilotage is compulsory for vessels of more than 150 nrt. Pilots can be contacted by VHF and generally board about 0.5 mile ENE of Lighted Buoy R. All vessels should send an ETA 24 and 6 hours in advance. A confirmation message should then be sent 1 hour before arrival.

Regulations.—A Vessel Traffic Service (VTS) is in operation in the approach to Canal de Vridi. The VTS Control Zone is a circular area, with a radius of 1 mile, centered on Lighted Buoy R. The VTS center, call sign Vigie, can be contacted on VHF channel 12 and 16.

Anchorage.—Vessels awaiting the pilot should anchor W of the meridian passing through the S entrance point of Canal de Vridi. Vessels should anchor in depths of over 20m, sand with good holding ground, at least 1 to 2 miles off the coast.

Caution.—Several submarine cables, which may best be seen on the chart, lie across Canal de Vridi.

A dangerous wreck is reported to lie about 0.5 mile SSW of the S entrance to Canal de Vridi.

Large vessels must comply with certain conditions and entry to the port may be delayed by adverse conditions of swell, current, or tide. The local authorities should be contacted in advance for the latest information concerning any restrictions.

Abidjan to Takoradi

1.11 Port-Bouet Offshore Terminal (5° 14'N., 3° 58'W.) (World Port Index No. 45990) lies 2.7 miles E of the entrance to Canal de Vridi and serves the refinery at Abidjan. An outer lighted buoy is moored 1.6 miles SSW of Port Bouet.

Submarine pipelines extend 0.9 mile SSE and 2.1 miles SSW from the vicinity of Port-Bouet. A berth, consisting of several mooring buoys, lies at the seaward end of the W pipeline. It can handle tankers of up to 80,000 dwt, from 170 to 270m in length, and up to 14m draft. A berth, consisting of an SBM, is moored at the seaward end of the E pipeline. It can handle tankers of up to 250,000 dwt, 200m in length, and 21m draft.

The SSW swell in the vicinity of the berths usually attains a height of 1.5m, but can reach a height of 2.7m during July and August.

Pilotage.—Pilotage is compulsory. Pilots can be contacted by VHF and board about 2 miles SSW of the outer lighted buoy moored off Canal de Vridi.

Tugs are compulsory. Vessels must send their ETA through their agents 72 and 24 hours in advance. Vessels must also contact the Abidjan Port Master the day before arrival at the Vridi roadstead and at least 6 hours before arrival to confirm the ETA.

Caution.—A restricted area, which may best be seen on the chart, surrounds the offshore terminal. Vessels not proceeding to or from the terminal are prohibited from entering this area without prior permission.

Belier Oil Field (5° 05'N., 3° 50'W.), consisting of one production platform, lies centered 11 miles SSE of Port-Bouet. A submarine pipeline extends between this field and Port-Bouet.

1.12 Grand Bassam (5° 12'N., 3° 43'W.) situated 15 miles ESE of Port-Bouet, stands on the narrow and sandy neck which separates Lagune Ouladine from the sea. A ruined pier extends S from the town and the Komoe River (Flueve Comoe) flows into the sea 2 miles E of it. Three radio masts and a tower are situated 2.7 miles ENE and 0.8 mile E, respectively, of the pier. The yellowish waters of the river discolor the sea up to about 4 or 5 miles offshore.

Vessels anchoring at Grand Bassam usually moor, in depths of 11 to 18m, good holding ground, off the ruined pier. Local knowledge is advised.

Canal d'Assinie (Assinic River) (5° 07'N., 3° 17'W.) lies with its mouth about 27 miles E of Grand Bassam. The coast between is fringed by trees, 30 to 35m high, and numerous huts are situated along the beach. The bar, which fronts the river, is often impassable and can only be crossed by small craft. A village stands close W of the river entrance; the town of Assinie is situated 8 miles E of it.

1.13 The coast extends 42 miles E from the entrance to Canal d'Assinie and is formed by a sandy beach, with lagoons and swamps, backed by hills. The interior of the country consists of thick forest.

The boundary between the Ivory Coast and Ghana lies about 13 miles E of the entrance to Canal d'Assinie.

The **Ankobra River** (4° 54'N., 2° 16'W.) is fronted by a shallow bar and boats should not attempt to cross it without local knowledge. With a heavy swell, the sea breaks in depths of less than 5m in the vicinity of the river entrance. Several rocks, above and below-water, lie close outside the mouth of the river.

Axim Bay is entered close S of the entrance to the river. It lies between Akrumasi Point and Pepre Point, 2.5 miles SSE. The N shore of this bay is sandy and the E shore is rocky. The shores are backed by densely wooded land which rises to hills, 60 to 90m high. Round Hill, 77m high, rises 1.2 miles E of Akrumasi Point.

1.14 Axim (4° 52'N., 2° 15'W.) ([World Port Index No. 46020](#)), an anchorage port for timber, lies at the E side of the bay, 0.7 mile N of Pepre Point.

Bobowasi Island, which is marked by a light, lies 0.4 mile NNW of Pepre Point and is connected to the coast by a reef. Litton Rock, with a least depth of 6.4m, lies about 2.3 miles W of the S extremity of Bobowasi Island. It is surrounded by rocky patches, with depths of 7 to 9m, which extend up to 0.3 mile seaward. Watts Rock, with a least depth of 6.7m, lies 0.7 mile S of Pepre Point and is surrounded by foul ground. Heaven Rock, with a least depth of 2.1m, lies about 1 mile W of Bobowasi Island and is also surrounded by foul ground. Depths of less than 9m lie close W, N, and ESE of this rock. Benin Rock, with a least depth of 6.4m, lies 0.4 mile NW of Bobowasi Island.

Anchorage may be obtained in a depth of 9m, good holding ground, 0.7 mile WNW of Bobowasi Island and midway between Heaven Rock and Benin Rock.

The coast between Axim and Cape Three Points, 12 miles SE, is indented by several bays.

Cape Three Points (4° 45'N., 2° 05'W.) is the name given to the middle one of three points which form a section of the

coast, 3.5 miles long. The entire face of this section, from West Point to East Point, consists of a series of hills with abrupt sides and rocky points. A light is shown from a tower, 19m high, standing on the S extremity of the cape.

Cape Shoal, a group of dangerous rocks, lies 0.8 mile SSW of Cape Three Points and has a least depth of 4.6m. The sea does not always break on this group and even with heavy rollers, the rocks only break at considerable intervals of time. Vessels are advised to stay in depths of at least 35m in this vicinity.

1.15 Achowa Point (4° 46'N., 1° 58'W.) is located 6 miles ENE of Cape Three Points. The coast between is bold and rocky for nearly 1 mile. It then becomes an undulating plain fronted by a sandy beach. The depths offshore between these points are very irregular and vessels should not approach the coast without local knowledge.

Achowa Point is composed of several rocky projections, with reefs extending a short distance from each of them. Several above-water rocks lie close off the W side of the point and may be seen distinctly from seaward. A rock, with a least depth of 5.5m, lies 0.4 mile SSW of the outermost above-water rock. A rock, with a least depth of 18m, lies about 2.5 miles S of the point.

Adoblo Rock (4° 50'N., 1° 53'W.) lies at the end of a sandy projection which extends about 6.5 miles NE of Achowa Point. It is large, black, and shaped like a haystack.

Between this rock and Takoradi, 9 miles ENE, the character of the coast changes and the shore is fronted by reefs, irregular depths, and rocky shoals. Vessels are advised to keep in depths of at least 20m because of the numerous dangers.

1.16 Takoradi (4° 53'N., 1° 44'W.) ([World Port Index No. 46040](#)), a sheltered harbor, lies in the SW part of Takoradi Bay, which is entered between Takoradi Point and Sekondi Point, 4 miles NE.

Winds—Weather.—Squalls occur from the middle of February to the beginning of June and from the middle of October to the middle of December. They approach from between NE and SE, but usually from the former direction. The rainy season is from July to September.

Tides—Currents.—The tidal currents set in and out of the harbor entrance and run parallel to Lee Breakwater. Their effect is slightly noticeable in the E part of the harbor, but elsewhere it is nearly imperceptible.

Outside the harbor, a current sets E along the N side of Lee Breakwater and across the entrance. Rollers, which generally break W of Takoradi Point, are comparatively slight within the bay.

Depths—Limitations.—The harbor entrance was reported (1995) to have a depth of 10.6m.

The port has 1,400m of principal quayage, which provides seven main berths. These berths are 157 to 225m long and have depths of 8.6 to 10m alongside. There are facilities for general cargo, ore, bulk, ro-ro, and tanker vessels. Vessels of up to 186m in length and 9.2m draft can be accommodated.

In addition, nine mooring buoy berths are situated in the S part of the harbor. These berths can be used by vessels of 103 to 182m in length and up to 9.8m draft.

Aspect.—Takoradi Reef extends 0.6 mile S and 1 mile E of Takoradi Point. The harbor is formed by two breakwaters. Main Breakwater extends E and NNE along the N side of the reef. Lee Breakwater extends E from a point lying 0.4 mile N of the root of Main Breakwater. These breakwaters form an entrance, about 200m wide, which faces N.

A conspicuous hotel, over 30m high, stands 0.3 mile WNW of Takoradi Point. A prominent clock tower and a water tower, marked by a light, stand close together, 0.3 mile W of the inner end of the harbor.

Several prominent oil tanks are situated near the root of Lee Breakwater. Three radio masts stand 1.5 miles NNW of the root of Main Breakwater.

Pilotage.—Pilotage is compulsory and is available from 0600 to 1800 hours for arrivals and 0600 to 2300 hours for departures. Vessels should confirm their ETA when within 30 miles of the port. Pilots can be contacted by VHF and board 0.7 mile NE of the head of Main Breakwater.

Anchorage.—Anchorage can be taken, in a depth of 9m, good holding ground, to the N of Lee Breakwater. Designated anchorage berths may best be seen on the chart.

Caution.—A dangerous wreck lies about 0.2 mile E of the head of Main Breakwater.

Takoradi to Tema

1.17 Sekondi (4° 57'N., 1° 42'W.) ([World Port Index No. 46045](#)) lies about 4 miles NE of Takoradi. The coast between is composed of several bights divided by rocky points. The shore is fronted in many places by foul ground.

Poasi Bluffs is located 1.2 miles N of Lee Breakwater. A wreck, with a depth of 0.9m, lies about 2.3 miles E of Poasi Bluffs and is marked by a buoy.

Sekondi Point (4° 56'N., 1° 42'W.) is a bold, prominent, and rocky cliff, 29m high. It is surmounted by Fort Orange, a conspicuous square building, which is marked by a light.

The town of Sekondi extends W and N from the point and is situated between the fort and Sekondi Lagoon.

A naval harbor, which has depths of 4 to 11m, is formed by two breakwaters which extend seaward from the vicinity of the point.

Tsiakur Bansu Point (4° 57'N., 1° 42'W.), located 0.7 mile NNE of Fort Orange, is surmounted by a prominent pillar. A conspicuous green house, with a dark roof, is situated 0.3 mile SW of this point.

Sherbro Bank (4° 57'N., 1° 39'W.) has a least depth of 5.5m and breaks when the rollers are heavy. Vessels are advised to give this shoal bank a wide berth.

Roani Bank (4° 55'N., 1° 38'W.), with a least depth of 11m, lies about 5 miles ESE of Sekondi Point. It is reported that fishing craft are often encountered in the vicinity of this bank.

1.18 Aboadi Point (4° 58'N., 1° 38'W.) is located 4.5 miles ENE of Sekondi Point. The coast between consists of sandy beaches separated by abrupt rocky points. The shore is rather uniform in height and, although presenting a broken appearance, it is without any conspicuous features. Aboadi Point is a double point of low rock, with a conspicuous clump of palm trees near its extremity. Several above-water rocks front the point and extend up to about 0.5 mile seaward.

Caution.—A tanker mooring buoy, connected to the shore by an oil pipeline, lies about 2 miles SE of Aboadi Point. The pilot boards about 4 miles SW of the buoy.

Bassubu Rocks (4° 59'N., 1° 38'W.) lie 0.7 mile NE of Aboadi Point and are fringed by a reef which extends up to 0.5 mile E. The coast in this vicinity is fringed by reefs and foul ground which extend up to 0.8 mile offshore in places.

Shama Bay is entered between Aboadi Point and Kafodzidzi (Kotobrai), 6.5 miles NE. The bay affords considerable shelter from the swell, even during the rainy season. A conspicuous fort stands 2.3 miles NNE of Aboadi Point. It is situated on rising ground behind the town of Shama. The Pra River discharges into the bay between two lagoons, about 0.5 mile N of Shama. It is fronted by a shallow bar and only used by small craft. Anchorage may be obtained within the bay, in a depth of 12m, sand and mud, between 1.5 and 2 miles ESE of the town.

A straight beach, 4.5 miles long, extends from the mouth of the Pra River to Kafodzidzi, a point composed of prominent red cliffs. An irregular reef, lying 0.2 mile offshore, commences 1 mile W of the red cliffs and fronts their whole length.

1.19 Assay Point (5° 03'N., 1° 30'W.), located 3 miles ENE of Kafodzidzi, is surmounted by Gold Hill, an isolated hummock, which has a remarkable appearance when seen from the W. Foul ground and depths of 5 to 9m extend up to 1.2 miles SE of the point.

Between Assay Point and Komenda, 1 mile ENE, the coast is low and fronted by reefs. A lagoon lies close E of Komenda. Ampenyi (Ampeni), a small village, stands 3.5 miles ENE of Komenda and the town of Brenu-Achinum is situated on the summit of a small hill, close ENE of it.

Nkwanda (Ankwana) (5° 04'N., 1° 24'W.), a village, stands on the beach, 2.3 miles E of Brenu-Achinum.

Busum Accra Reefs fringe the coast in the vicinity of Nkwanda. These reefs appear in four distinct patches on which the rollers break heavily. Depths of less than 8m lie close to the outer edge of the reefs which extend up to about 0.5 mile offshore.

Elmina Point, the extremity of a low and rocky peninsula, is located 2.7 miles E of Nkwanda. The coast between is formed by a hard and sandy beach. Elmina Bay, about 0.5 mile wide, is entered close N of Elmina Point.

1.20 Elmina (5° 05'N., 1° 20'W.) a small town, extends around the shores of the bay. A fort, 30m high, stands on a hill and overlooks the S part of the town. Elmina Point is surmounted by a white fort and is fringed by a reef which extends up to about 200m seaward and dries 0.6m at its outer edge. Rollers break 0.2 mile off this reef, depending on the state of the sea and swell.

Anchorage may be obtained off the bay, in a depth of 13m, sand and mud, about 1.5 miles SE of the fort on Elmina Point. Anchorage may also be taken, in a depth of 9m, black mud, 0.9 mile E of the fort or in a depth of 5m, fine black sand with fair holding ground, 0.3 mile offshore.

Cape Coast (5° 06'N., 1° 14'W.) is situated 6.7 miles E of Elmina. The coast between is bordered by a sandy beach with regular soundings offshore, with the only exception being at

the W end of the beach where there are two small rivers, each closed by a bar, which have a rocky stretch between them.

Cape Coast Castle, which is white and conspicuous, stands on a great mass of red sandstone lying on a projecting point. The town of Cape Coast stands behind this castle. A prominent mast is situated 1 mile N of the castle and is marked by obstruction lights at night.

During the dry season, vessels can anchor, in a depth of 9m, about 0.5 mile SE of the castle. During the rainy season, there is usually a long swell. Vessels should then anchor, in a depth of 18m, about 1.5 miles SE of the castle.

Between Cape Coast and Queen Ann's Point (Queen Anne Point), 2 miles NE, the coast consists of many small bays and points which are fronted by rocks. Generally, an almost continuous line of breakers appears along these rocks.

Queen Ann's Point is bold and steep. Its summit is surmounted by a village and the ruins of a fort. A small river, the mouth of which is closed by a bar, lies on the W side of the point. The adjacent land is hilly and covered with trees.

Between Queen Ann's Point and Moree Point, 1.3 miles NE, the shore is fronted by several rocks. The ruins of a fort, which are difficult to distinguish against the dark background, are situated on the heights above Moree Point. A black rock, with two heads on which the sea breaks, lies 0.2 mile E of Moree Point.

The coast between Moree Point and Kromantse, 8.3 miles NE, is foul; rocks extend up to 0.3 mile offshore in places.

1.21 Anashun Point (5° 09'N., 1° 10'W.), located 1.8 miles NE of Moree Point, is bold and consists partly of sand and partly of rock. Several prominent hills, covered with large trees, rise 5 miles NW of this point.

Biriwa Rock, over which the sea breaks, lies 0.7 mile ENE of Anashun Point. The village of Biriwa is situated on the coast, 0.3 mile NNW of this rock.

Anomabu Fort (5° 10'N., 1° 07'W.) is conspicuous and stands in front of the town of Anomabu, at the entrance to a cove. Anchorage may be obtained, in a depth of 16m, blue mud and sand with good holding ground, about 2 miles SE of the fort.

Kromantse (Kromanti) (5° 12'N., 1° 04'W.), a town, stands at the corner of a ridge of high ground on the E side of a river valley. It may be identified by several very tall trees. A conspicuous fort stands on a bold rocky base, 1 mile SW of the town. It is a square building, constructed of reddish earth, with a tower, 44m high, rising at the SW side.

Saltpond (5° 12'N., 1° 03'W.) (World Port Index No. 46063), a principal commercial center, stands 1.2 miles E of Kromantse. The town can be recognized by its numerous white houses, two churches, and a large red earth building standing on a height to the N.

Anchorage may be obtained, in a depth of 13m, hard sand, about 1.5 miles S of the town.

Caution.—An oil production platform, with a flare, is situated 7.5 miles SSE of Saltpond.

1.22 The character of the coast changes in the vicinity of Saltpond. It extends 14 miles E to the village of Aboana in an unbroken straight line of sandy beach. The shore, most of which is cleared of trees and covered with long grass, is very low. Several villages, each standing near clumps of coconut

trees, are situated along this stretch and two salt water lagoons lie behind the coast. The approach to this stretch of coast is clear, without any off-lying rocks, and the bottom is composed of fine sand and broken shells, with occasional mud.

Barbara Pow Hill, 97m high and peaked, stands 3 miles inland, 7.8 miles ENE of Saltpond.

Tantamkweri Point (Tantum Point) (5° 13'N., 0° 48'W.) is located 2.3 miles E of Aboana. The coast between is composed alternately of rock and sand. The village of Tantum, with the ruins of an old fort covered with jungle close NE, stands on the point.

Babli Point, located 1.2 miles NE of Tantamkweri Point, is formed by a large black rock fronted by foul ground.

Kwabon Hill (Obusumadi) (5° 17'N., 0° 47'W.), rising 3.5 miles N of Babli Point, is 143m high and table-topped. It forms an excellent landmark for this part of the coast.

Between Babli Point and Winneba Point, 12.5 miles NE, the coast is formed by several small and sandy bays which are separated by points fringed with some detached rocks.

Apam Point (5° 17'N., 0° 44'W.), located 5 miles NE of Babli Point, is fringed by above and below-water rocks. This point appears like a small hummock on the E side of a saddle-shaped hill which rises immediately from the sea. A ruined fort stands on the hummock.

Abrekum (5° 18'N., 0° 43'W.), a village, stands 1.5 miles NE of Apam Point. Assakri, consisting of two groups of above and below-water rocks, lies about 0.4 mile SSE of this village.

Ejisimanku Hill (5° 20'N., 0° 41'W.) is a bold and conspicuous headland with a steep ascent from the sea. Its summit, 180m high, is the E of two peaks. When viewed from the SE, it appears as a single conical hill with a flat top.

Muni Lagoon, lying 1 mile E of Ejisimanku Hill, is open to the sea only at the height of the rainy season. A heavily breaking reef, about 1 mile long, fringes the shore at the W side of the foot of Ejisimanku Hill.

1.23 Winneba (5° 20'N., 0° 37'W.), a town and resort, stands near the beach of a small inlet. It is situated within a hollow lying between two arms of slightly higher ground which extend to the sea. The higher ground, located on either side of the town, is about 30m high and mostly covered with trees of medium size. A white customs shed, situated on the beach, and a radio mast, standing 1.2 miles N of it, are conspicuous from seaward. Vessels can anchor, in a depth of 7m, sand, 0.8 mile SE of the customs shed.

Meredith Point (5° 23'N., 0° 30'W.) is located 7.8 miles ENE of Winneba. The coast between consists of a low and sandy beach. It then turns to the N and becomes rocky. The land rises close inland to several hills which are generally bare of trees, but covered with low and stunted bushes. The most prominent hill is 114m high and stands 2 miles WNW of the point. In addition, several conspicuous hills rise farther inland. Apra, with two hummocks, is 218m high and stands 10 miles N of Meredith Point. Camels Hump, about 360m high, stands 5.5 miles NNW of Apra. It is the central peak of a range which extends about 6 miles in a NE to SW direction.

Dampa Hill (5° 29'N., 0° 23'W.), 103m high, stands 9.3 miles NE of Meredith Point. It is conspicuous and forms the SW end of a range of hills which extend NE. Mount Bannerman, 148m high, rises 6.5 miles NE of Dampa Hill.

Caution.—It was reported (1994) that a wreck lies 2.3 miles offshore, about 11.5 miles NE of Meredith Point. The two masts of the sunken vessel are visible at HW; the wreck is marked by a buoy.

Oil exploration is being carried out along this coastal area and vessels are warned that numerous wellheads, submerged pipelines, drilling rigs, and platforms may be encountered. Vessels should also exercise care when navigating in this vicinity, as many of the installations are often moved and are not charted.

1.24 Accra Point (5° 32'N., 0° 13'W.) is located 19 miles NE of Meredith Point. Shoals, with depths of less than 5m, extend up to about 0.5 mile E of this point. A main light is shown from a prominent tower, 28m high, standing on the point.

Accra (5° 32'N., 0° 12'W.), the capital of Ghana, extends NW and NE from Accra Point, but has no docking facilities and little protection from heavy seas. Several prominent tall buildings and churches stand in the city.

An open roadstead lies S of the city, but is encumbered by numerous foul areas, obstructions, and wrecks. Since the opening of the port of Tema, this roadstead is reported to be no longer used by cargo vessels.

Caution.—Due to the existence of submarine cables and obstructions, several prohibited anchorage areas lie S of Accra and may best be seen on the chart.

1.25 Between Accra and Tema, 14 miles ENE, the coast is generally low and featureless. Inland, the country is grassy, partly open, and diversified with groves of trees, bushes, and scrub. A ridge, 24m high to the top of the trees, runs along the shore and is broken at intervals by lagoons and stretches of low-lying country. These lagoons, which are not open to the sea, flood large areas behind this ridge during the rainy season.

The Shai Hills rise to a height of 289m and stand 28 miles NE of Accra Point. This picturesque range is very broken and rugged in outline. It is conspicuous in clear weather from seaward.

Caution.—Between Accra and Tema, numerous fishing canoes may be encountered offshore within the 200m curve. They fish with drift nets, moored nets, and hand lines by day and at night.

A Prohibited Entry Area extends 5 miles seaward from **Christiansborg Castle** (5 32.6'N., 0 11.6'W). A Prohibited Anchorage Area extends 10 miles seaward from the same point. In an emergency, mariners forced to violate these prohibited areas are required to contact the naval base at Tema or the Tema port authorities.

1.26 Teshe (Teshi) (5° 34'N., 0° 06'W.), a small town, stands 7 miles ENE of Accra. It is situated on the top of a ridge and extends down to the sea, where there are rocky cliffs, about 10m high. A number of prominent white buildings stand on the outskirts close W of the town. A church, with a low white roof and belfry, stands at the W end of the town and is conspicuous from S and W. Landing is extremely difficult and dangerous. It is only practicable in surf boats within a small bay lying near the mouth of a lagoon, close NE of the town.

Between Teshe and Tema, 7 miles NE, the coast consists of a sandy beach. Nungwa Point (Nungua Point), located 2 miles ENE of Teshe, is the SW of two points, 0.7 mile apart, and is fringed with rocky ledges. A shallow bay, in which canoes may be landed, lies between these two points. The village of Nungwa (Nungua), almost hidden by trees, stands on rising ground, 0.3 mile inland.

Greenwich Rock (5° 37'N., 0° 01'W.), 2.1m high, lies about 0.2 mile offshore, 3.5 miles NE of Nungwa Point. It can be easily recognized against the white background of the beach. Several other rocky ledges, over which the sea breaks heavily, extend up to about 0.2 mile seaward in this vicinity

Tema (5° 37'N., 0° 01'E.)

World Port Index No. 46070

1.27 The port of Tema provides extensive cargo facilities and is a major fishing center. The town stands on a ridge close N of the main harbor, which is formed by two rubble breakwaters.

Winds—Weather.—Winds from the W and SW prevail throughout the year, except between December and February, when the harmattan prevails from the NE. Dangerous squalls from the E occur mostly between May and July. The dry season lasts from December to February while the monsoon season continues from March to November.

Tides—Currents.—The tides rise about 1.5m at springs and 1.2m at neaps.

The Guinean Current, at a distance of about 3 miles SE of Tema, sets NE along the coast at a rate of about 0.5 knot.

Depths—Limitations.—The main harbor entrance is 240m wide. It was reported (1990) to have a depth of 10.6m.

An oil berth, with mooring buoys and dolphins, is situated near the head of Lee Breakwater. It can accommodate tankers of up to 198m in length and 9.7m draft.

A dredged fairway leads to Volta Wharf, a private aluminum berth, which lies on the inner side of Lee Breakwater, N of the oil berth. It can accommodate vessels of up to 182m in length and 9.7m draft.

No. 1 Quay, situated on the NW side of the harbor, has seven berths, each 183m long. No. 2 Quay, which extends NE from Main Breakwater, is 878m long and provides five berths. There are facilities for general cargo, container, bulk, and timber vessels. Vessels of up to 183m in length and 9.6m draft can be accommodated alongside. Vessels with drafts of over 9m can only enter at HW.

Two fishing basins, protected by breakwaters, lie at the E side of Lee Breakwater.

It was reported (1994) that vessels of up to 230m in length had been handled in the main harbor.

Aspect.—Main Breakwater extends ESE and then ENE to form the S side of the harbor. Lee Breakwater extends S from a point on the shore about 1 mile NE of the root of Main Breakwater. It forms the E side of the harbor and the W side of the fishing basin. These breakwaters are composed of rubble and are 4m high.

A main light (Chemu Point) is shown from a tower standing 0.8 mile NE of the harbor. A conspicuous chimney, 152m high, is situated about 1 mile N of this light. A conspicuous hotel,

marked by a light, and the port administration building, 35m high, stand 0.7 mile NNW and 0.5 mile N, respectively, of the root of Main Breakwater.

Pilotage.—Pilotage is compulsory in the main harbor for all vessels over 60.9 nrt. Pilotage for the fishing basins is available on request. Pilotage is available 24 hours; pilotage for tankers is only available from 0600 to 1800. Tankers may enter the harbor only during daylight hours. Pilots can be contacted by VHF and board about 1 mile off the entrance to the main harbor. Vessels should send an ETA at least 24 hours in advance. Vessels arriving from Abidjan should send an ETA 48 hours in advance.

Anchorage.—Anchorage may be obtained off Tema, in depths of 10 to 18m, good holding ground. However, vessels should avoid anchoring on the rocky ridge, which has depths of 17 to 18m, lying 1.5 miles off Tema.

Caution.—An area, within which anchoring and fishing are prohibited, lies off the entrance to the harbor and may best be seen on the chart.

The latest information should be requested from the authorities in advance, as actual depths in the harbor may be less than charted due to siltation.

The harbor entrance is affected by swell and vessels may experience heavy rolling.

A dangerous wreck, with masts visible, lies about 1.8 miles ENE of the harbor and is marked by a buoy. It was reported (1992) that several uncharted and unmarked wrecks lie to the N of this wreck.

Tema to Cape Saint Paul

1.28 Breaker Point (5° 39'N., 0° 02'E.), located 0.7 mile NE of Tema, is fronted by a coastal bank, with depths of less than 5m, which extends up to 0.2 mile SE and 0.5 mile SW of it.

Grove Point (5° 40'N., 0° 03'E.) is located 1.5 miles NE of Breaker Point. The coast between consists of a sandy beach interspersed with rocky ledges. Numerous rocks, over which the sea breaks heavily, front this point.

Kpone Bay (5° 40'N., 0° 03'E.) is entered between Grove Point and Tenpobo Point, 5.5 miles NE. It has depths of 7 to 13m over a bottom formed by sand, shell, and coral. The village of Kpone, obscured by trees, stands on the top of a hill which rises close inland, 1.5 miles NNE of Grove Point. A white house, situated at the W side of the village, is conspicuous from the W.

Prampram (5° 43'N., 0° 06'E.), a town, stands 3.5 miles ENE of Kpone. The coast between consists of a beach fringed with palm trees. A lagoon lies in the flat country behind the beach. The town is composed of an upper and a lower part. The upper part stands on the summit of a ridge, 50m high, but is partly obscured from seaward by trees. The lower part is not visible, but a white house is situated on the foreshore in front of it. Anchorage can be obtained, in a depth of 11m, about 1 mile S of this white house.

Vernon Bank (5° 42'N., 0° 11'E.), a narrow spit, has depths of 6 to 9m and extends about 12 miles ENE from the vicinity of Grove Point. The bottom of this bank is very irregular and is composed of rocky ledges and patches of sand, stones, and coral. There is a pronounced swell over the bank and it sometimes breaks in heavy weather.

Jange Lagoon (River Ningo) enters the sea through a narrow mouth lying between two sandy points, 4.5 miles NE of Prampram. It is reported to be always open and navigable by canoes whenever the heavy surf, which rolls in on the bar, allows.

Caution.—Numerous stranded wrecks lie along the shore between Tema and Prampram.

1.29 The coast extending for about 4 miles E of the mouth of Jange Lagoon is fringed by a broad ledge of rocks, over which a small river discharges. The edge of this ledge is nearly steep-to and heavy surf rolls over it incessantly.

Between the above ledge of rocks and the Volta River, 26 miles E, the shore consists of an uninterrupted beach. For 5 miles E of the ledge, the coast is formed by a low, clay cliff. Then, for the next 13 miles, it is formed by a sandy ridge, 4 to 5m high, which is covered by a few bushes. This ridge separates Songaw Lagoon, a large salt-water lagoon, from the sea. The lagoon is caused by the overflow from the Volta River. Its surface is broken by large tracts of swamps, some covered by grass and others by jungle, with a few high scattered trees.

1.30 Ada (5° 46'N., 0° 33'E.) is situated 2.5 miles W of the entrance to the Volta River. This town may be easily identified by a prominent mission house which stands near its W end. The house is long, white, and flat-roofed.

Anchorage may be obtained, in a depth of 13m, sand, about 1 mile SSE of the mission house. Vessels are advised not to anchor any closer to the shore as the depths decrease quickly and the swell is heavy at times.

The **Volta River** (5° 46'N., 0° 41'E.) empties into the sea between two low and sandy points about 0.5 mile apart. The trees in the vicinity of the entrance attain an unusual height. A dark grove stands on the E bank, 1 mile N of the entrance; from a distance it resembles a bluff headland. Another grove, resembling a conical hill, stands 2 miles E. Three groves of tall trees stand on the W side of the river entrance.

The river is subject to considerable differences in water level according to the season. It begins to rise early in June and commences to fall about the middle of October. The river is usually at its lowest in March and at its highest in September.

The bar, 0.2 mile wide, lies between the extremities of two lines of very heavy breakers which extend up to over 1 mile SE from the river entrance points. It has a least depth of 2.4m and should only be crossed in good weather.

Within the entrance, the river expands into a wide basin containing several islands, most of which are covered with thick bushes and trees. Local knowledge is necessary. Vessels with drafts up to 1.8m can ascend up to 45 miles from the mouth between July and November. During the remainder of the year, vessels with similar drafts would experience difficulty in proceeding only 40 miles above the entrance.

For about 7 miles E of the river entrance, the land is covered with dense forest, principally consisting of fan palms.

Cape Saint Paul (5° 50'N., 0° 58'E.) is located 18 miles ENE of the Volta River. The coast between is fronted by a beach.

Caution.—Depths in the approaches to the Volta River are liable to change. When passing the river entrance, vessels should keep in depths of 22m or more in order to avoid getting within the influence of the steep breakers and rollers. Vessels should also guard against the inward set of the flood tide.