

with a least depth of 4 feet, lies $\frac{1}{2}$ mile northward of Pulau Lalaijo. The reefs to the westward discolor poorly. ANCHORAGE can be taken in 11 to 16 fathoms southward of Moutong, keeping clear westward of the numerous reefs.

THE INNER PASSAGE between Papajato and Moutong leads westward from close northward of Pulau Ilosangi and Iloluta to Pulau Lalaijo keeping southward of the dangers extending up to 4 miles southward from the coast.

TANDJUNG TULADENGGI is located at the mouth of a river, with the village of Tuladenggi upstream. ANCHORAGE can be taken in about 16 fathoms eastward of the mouth of the river. The approach to the anchorage presents no difficulty, as the reefs near the 100-fathom curve show discoloration.

12B-13 THE COAST westward of Tandjung Tuladenggi is low with sand beaches to Tandjung Sempinit, then it is grown up with mangroves to Tandjung Santigi, about $15\frac{1}{2}$ miles westward. Mogogondo is the only village of any importance along this stretch of coast. A steep rocky hill, 102 feet high and which has a rosy color, is located on the coast southwestward of Mogogondo, and two 430-foot peaks are located behind Mogogondo. Along this stretch of coast there are no known dangers outside the 100-fathom curve.

The approach to Mogogondo through the barrier reef can be made northwestward of Sama, an islet lying on a reef about $4\frac{3}{4}$ miles south-southeastward of Tandjung Santigi, midway between two drying reefs, which discolor, with the 102-foot rosy hill in line with the eastern of the two 430-foot peaks bearing 039° . ANCHORAGE can be taken in 11 fathoms southward of Mogogondo.

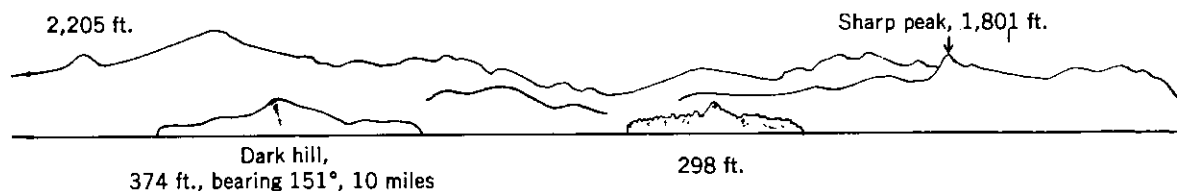
The inner passage between Tuladenggi and Mogogondo is not recommended since unknown dangers may exist.

THE COAST between Tandjung Santigi and Tomini, about $22\frac{1}{2}$ miles west-northwest-

ward, is flat and wooded, except between Tandjung Santigi and Tandjung Taboloo where the mountains approach the coast. A great number of dangers lie off this stretch of coast, and the 100-fathom curve does not sharply define the edge of the barrier reef, as is generally the case in the gulf, several reefs having been found outside. It is possible that further dangers may exist, so that vessels must keep a sharp lookout in the daytime, and at night the utmost caution must be observed, and vessels should remain southward of latitude $0^\circ 10' N$. As there are no trading places on this coast, the principal object of the survey was to find a serviceable passage between the reefs, and outside of this it has not been fully examined.

Numerous coral islets and reefs lie along and inside the edge of the 100-fathom curve and are plainly marked by discoloration. The islets are all low coral islets with trees, and most of them are visible up to 13 miles. Pulau Olua (Ulua), a wooded islet, about $5\frac{1}{2}$ miles west-southwestward of Tandjung Santigi, Pulau Saluton, about 10 miles further west-southwestward, and Pulau Pasige Giombang, about $4\frac{3}{4}$ miles north-northwestward of Pulau Saluton, make good landmarks. Pulau Bongka lies close offshore about $6\frac{3}{4}$ miles northeastward of Pulau Pasige Giombang.

OFF-LYING DANGERS.—There are several known dangers outside the 100-fathom curve, and the easternmost danger along this stretch of coast is a reef which dries lying about $2\frac{1}{2}$ miles south-southeastward of Pulau Olua. A small drying reef, marked by a BEACON with a white ball topmark, lies about 5 miles east-southeastward of Pulau Saluton; a 1-fathom patch lies about $1\frac{3}{4}$ miles southward of the above reef. Reefs lie about $1\frac{1}{4}$ miles and $3\frac{1}{2}$ miles, respectively, eastward of Pulau Saluton. A large reef, with several drying patches, lies about 4 miles westward of Pulau Pasige Giombang, and between this reef and Pulau Saluton there are three other reefs. A



TELUK TOMINI, SOUTH SHORE, EASTWARD OF TANDJUNG BATU HITAM.

13-foot patch lies about $\frac{3}{4}$ mile southwestward of Pulau Pasige Giombang.

THE INNER PASSAGE BETWEEN TANDJUNG SANTIGI AND TOMINI.—The passage through the barrier reef can be made with the peak of Santigi bearing 000° , and when Sama bears 139° alter course to 319° until Santigi bears 089° . Change course to 269° , passing a drying reef and a reef with a sandbank on it to starboard; these reefs show good discoloration. The barrier reef can also be crossed between two drying reefs westward of Pulau Olua with Pulau Bongka bearing 326° , and as directed below.

When the north side of Pulau Olua bears 120° , alter course to 300° , passing close northward of a $4\frac{1}{2}$ -fathom patch. A drying reef, lying about 2 miles southwestward of Pulau Bongka, will be seen dead ahead on this course and may be passed to port, 200 yards distant. A small drying reef lies $\frac{1}{2}$ mile to starboard at this position. The course for Tomini, 281° , can be shaped when the south side of Pulau Bongka bears 101° and Pulau Pasige Giombang bears 180° .

TOMINI, consisting of a number of villages, is located on a wide plain about 4 miles broad. A small landing pier is located at the village. A reef that dries lies about 800 yards southeastward of the pier, and is marked by a **BEACON** with a white ball topmark, this reef does not discolor. An 8-foot patch lies about 550 yards southward of the pier. **ANCHORAGE** can be taken in 27 fathoms, westward of the above dangers, with the pier bearing north-northeastward.

SOUTH COAST OF TELUK TOMINI

12B-14 THE COAST between Tandjung Pangkalaseang and Tandjung Longkoga, a low point, is generally high and steep; the mountains inland have been mentioned in section 12B-2. The 100-fathom curve, which roughly parallels this stretch of coast, lies from 1 mile to $4\frac{1}{2}$ miles offshore. There are no known dangers outside the 100-fathom curve along this part of the coast. Pulau Mentawatudaa, about 4 miles northeastward of Tandjung Longkoga, is low, but covered with tall vegetation.

ANCHORAGE can be taken by vessels with local knowledge close off the south side of Pulau Ampat, about 7 miles northwestward of Tandjung Pangkalaseang, in 5 fathoms, sand. There is a passage $\frac{1}{2}$ mile wide between the westernmost islet of these four low islets of sand and coral, and Pulau Ampat. There is also anchorage off the little village of Boalemo in 9 to 10 fathoms, with a conspicuous hillock about 1 mile southward of the head of the bight bearing 180° .

THE COAST between Tandjung Longkoga and Tandjung Batu Hitam continues high and steep, and has numerous reefs close inshore. Djewas and Bola are two low islets covered with vegetation. Japara is a saddle-shaped islet lying close northeastward of Tandjung Batu Hitam. On the coast southward of Djewas there is a 299-foot hill, and about 2 miles eastward of this hill there is another hill, 374 feet high; both these hills can be recognized at a great distance.

Vessels bound for Teluk Poh (sec. 12B-15) from eastward may shorten the distance by crossing the 100-fathom curve about $5\frac{1}{2}$ miles

westward of Pulau Sendiri, a vegetation covered islet about $8\frac{3}{4}$ miles northwestward of Tandjung Longkoga. At this position the low west side of Japara is in line, bearing 210° , with the east side of Pulau Bang. A course of 220° will lead $\frac{1}{2}$ mile westward of Pulau Bang, and cross the 100-fathom curve again westward of Tandjung Batu Hitam between an islet to the west and a reef to the east.

Within the 100-fathom curve that runs westward from Pulau Mentawatudaa to Selat Walea, then southeastward to Tandjung Batu Hitam there are many shoals and drying areas which show good discoloration. The low coral islets are marked by vegetation.

The only known danger lying outside the 100-fathom curve in this part of the coast is a 5-fathom patch lying about $1\frac{1}{4}$ miles outside this depth curve about $9\frac{1}{2}$ miles west-northwestward of Pulau Sendiri.

PULAU PUAH ($0^{\circ}30'$ S., $122^{\circ}34'$ E.), is hilly, with the highest part on its west point. The north and west sides are very steep; on the south side are two villages. Bangu, a small islet, lies near the northwest point.

Several islets, all covered with vegetation, lie southward of Pulau Puah, the largest of these are Tulawajang and Manoh. The passage between Pulau Puah and these two larger islets is greatly obstructed by reefs.

Bani, a small islet, lies about $1\frac{1}{2}$ miles off the east point of Pulau Puah, with a clear channel between. To enter this channel from eastward pass between Pulau Dondola, a small islet near the edge of the 100-fathom curve northward of Pulau Puah, and a $2\frac{3}{4}$ -fathom patch lying about $1\frac{1}{2}$ miles southeast of Pulau Dondola, thence between Pulau Puah and Bani to the villages on the south coast of Pulau Puah. From southward pass between Tulawajang and Manoh with the east end of Bani bearing 048° , and when the western village of Pulau Puah bears 343° come to that heading, ANCHORING in 17 fathoms in a bight in the coastal reef.

Teloga, a small islet about $5\frac{1}{2}$ miles northwestward of Pulau Puah, is covered with vegetation, and a drying reef with rocks on it lies about $1\frac{1}{4}$ miles further west-northwestward; this reef forms the southeast side of Selat Walea.

A LIGHT is shown on the northwest end of the above drying reef.

SELAT WALEA.—This strait is the usual route from Gorontalo (sec. 12B-9) to the south shore of Teluk Tomini, and it lies between the plateau extending from the south side of the gulf and that of the Kepulauan Penju (sec. 12B-6). The strait is about $1\frac{1}{2}$ miles wide with depths of 251 fathoms in the middle. A 3-fathom patch, inside the 100-fathom curve lies on the northwest side of the strait.

Rippings and strong currents may frequently occur in the strait, but it is a safe passage.

12B-15 TELUK POH ($0^{\circ}43'$ S., $122^{\circ}43'$ E.) entered southward of Tandjung Batu Hitam, a low spur of a conspicuous 704-foot hill close eastward, is surrounded on all sides by high mountains. The north side of the bay is very steep-to, and on the south side the 100-fathom curve is farther from shore. Several reefs lie northward of the village of Dindinga. The northernmost of these reefs is marked by a BEACON with a white ball topmark.

WEATHER.—During the south monsoon a fairly strong south-southeasterly wind blows in the day time. At night the air flowing from the high ground may cause a strong, gusty east wind, which decreases in force where the gulf becomes wider.

PAGIMANA, a village on the south side of an inaccessible lagoon, is an important trading center, being a storage place for copra. A basin with depths of 11 to 16 fathoms runs into the coastal reef affording good but confined ANCHORAGE in about 14 fathoms. There is a small drying mud bank off the village, and elsewhere the shore is fronted by coral. There are some pile dwellings on the coastal reef on the north side of the basin. There is a stone pier

at Pagimana. It is better for vessels remaining only a short time to ANCHOR off the entrance of the basin in about 26 fathoms.

Two detached drying areas lie eastward of the basin and another $\frac{1}{2}$ mile northward. A 5-fathom patch and a 3-foot patch lie $\frac{1}{4}$ mile and 1 mile, respectively, eastward of the northern detached reef.

BEACONS.—There are several unofficial beacons marking the dangers. A beacon surmounted by a cylinder marks the north side of the entrance of the basin, and a beacon surmounted by a truncated cone, the south side. Beacons mark the two detached reefs eastward of the basin; the northern beacon is surmounted by a cylinder. A beacon surmounted by a cylinder marks the east side of the detached reef to the northward.

THE COAST westward of Teluk Poh to Bunta, a village about 30 miles distant, is backed by hills of moderate height near the coast and high mountains behind. Abasong, 2,559 feet high, located near the coast about midway along this stretch of coast is the only important landmark. There are no known dangers outside the 100-fathom curve along this part of the coast.

THE COAST between Bunta and Tandjung Api continues in the same general appearance as that to eastward, with the 100-fathom curve lying close to the coast.

BUNTA is one of the most important trading centers in Teluk Tomini. When clear of the point northward, a number of houses and a large coconut plantation come in sight. Paniki, a small islet lying on a drying reef, is a good mark in the approach to the anchorage. There is very good ANCHORAGE in 30 fathoms off the customs hut. Vessels call here regularly.

Tobelombang, Balingara, and Sabo are three small villages on the coast in this large bight. They are occasionally visited by small vessels, but the anchorages are so near the coast that hawsers to the shore are necessary. There is a small pier at Tobelombang.

OFF-LYING REEF AND ISLAND.—Kabini, a small drying reef, lies about 3 miles northwestward of Bunta, and is marked by a beacon with a black truncated cone.

Pulau Bukabuka, 433 feet high, lies about 7 miles northeastward of Tandjung Api. The island is heavily wooded and uninhabited.

TANDJUNG API ($0^{\circ}48'$ S., $121^{\circ}39'$ E.) is the first distinctive feature of the coast westward of Tandjung Batu Hitam. It rises to a flat summit of 1,821 feet, with a very low, broad strip of land between it and the high mountains inland, giving it the appearance of a large island when seen from the east or west. In Labuan Blanda, westward of the above low strip of land, there is ANCHORAGE close under the coast, eastward of Ampana village, in about 30 fathoms. Two detached reefs, marked by BEACONS with a white ball topmark, lie off the north shore of the bay.

12B-16 TIKUNGAN POSO.—This wide bay lies between Tandjung Api and Tandjung Sausu, about 70 miles westward. The coast of the bay is generally very steep with the mountains coming close to it. On the east side of the bay there are several conspicuous landmarks: A dome shaped hill, 777 feet high, near the village of Bongka; Mawuroto, 3,897 feet high further southward; Kendela, a steep, rocky wall in the mountains; Untu Jowi, a sharp peak 3,287 feet high, which is the spur of a higher but less conspicuous mountain. Along the south side of the bay the high mountains inland appear as a single, high, continuous mountain ridge with a flat upper surface. Tongku, 2,146 feet high, is the easternmost of three peaks, and Lebanu, 1,476 feet high and in the form of a beehive, conspicuous at a distance of 40 miles. The mountains along the central part of the west coast of the bay have a flat upper surface.

OFF-LYING DANGERS.—A small isolated reef with a least depth of 3 feet lies about 1 mile northwestward of the village of Tongku, about 36 miles southwestward of Tandjung Api.

Lalanga is a large drying reef, always marked by discoloration, lying about 10 miles east-southeastward of Tandjung Sausu. It is steep-to except on its east side, where there are three small drying reefs and a $1\frac{1}{2}$ -fathom patch. A scaffolding for the use of fishermen stands on Lalanga. A reef, marked by a BEACON with a white ball topmark, lies about 1 mile southward of Lalanga.

ANCHORAGE is available along the east coast of Tikungan Poso off the village of Todjo in about 15 fathoms, steering for the steep, rocky slope of Kandela. The village lies on the south bank of a river, and the narrow strip of land on which the village stands is enclosed by high mountains, the valley of the river affording the only access to the interior. The residence of a native prince is located in the center of Todjo and next to it is a small mosque. Anchorage is also available off the village of Banano, which lies at the head of a bight. A drying reef, which discolors, is separated from the coast by a passage 400 yards wide, with depths of 10 to 18 fathoms.

The small bight eastward of Tandjung Lemo, in the southeast corner of Tikungan Poso, is studded with reefs, and local knowledge is necessary for the passage through them. The village of Uikuli is located in the southeast corner of this bight. A barrier reef edges the 100-fathom curve as far westward as Tandjung Tibu. A BEACON surmounted by a cone marks a reef about $1\frac{1}{2}$ miles east-northeastward of Tandjung Lemo, and a BEACON with a ball topmark marks another reef about 600 yards west-northwestward of the above beacon.

POSO, the seat of a civil administrator, is located on the east bank of a river at the head of a small bay which lies between Tandjung Putia and Tandjung Pemandingi. The coast between Tandjung Putia and Tandjung Karawasa is rocky and can be closely approached. The roadstead is not particularly good, and is entirely exposed to northerly winds. The depths rapidly increase and vessels of any size must

ANCHOR in not less than 40 fathoms, steering for the east bank of the river. A strong current sometimes sets out of the river, so that a landfast is advisable. There is a wooden landing pier at Poso with a depth of about 5 feet at its head.

A LIGHT is shown from the head of the pier at Poso.

A reef, the position of which is approximate, was reported (1950) to lie about 450 yards northwest of the head of the pier at Poso.

WEATHER.—Rain falls frequently at Poso throughout the year, but the dry season may be said to last from August to December. In the dry season the days are hot, but the nights are cool.

MAPANE, a village about 5 miles west of Poso, is very conspicuous from seaward. The ANCHORAGE is in 34 fathoms, 550 yards from shore, with a conspicuous tree near the village bearing 225° . Vessels must not anchor in less than 16 fathoms on account of the very steep bank projecting from the coast.

Teluk Tambarana, on the west coast of Tikungan Poso, is fronted by a barrier reef, one of which is marked by a BEACON with a white ball topmark. The bay is seldom visited.

Teluk Tambu, southeast of Tandjung Sausu, is easily recognized by a white, sandy beach on its north side. ANCHORAGE is available in 17 fathoms in the entrance of the bay.

WEST COAST OF TELUK TOMINI

12B-17 TANDJUNG SAUSU ($0^{\circ}59'$ S., $120^{\circ}30'$ E.) is a low point, but the tall trees on it make it recognizable. Pondindilisa, 1,314 feet high, about 5 miles west of Tandjung Sausu, is conspicuous from the northwest. There are false discolorations in the vicinity of Tandjung Sausu because of the muddy river emptying into the sea.

ANCHORAGE is available for small vessels with local knowledge about 2 miles west of Tandjung Sausu, where a sandbank lies off the coastal reef; between the two is a channel of

13 fathoms, giving access to a basin of 17 fathoms. This anchorage can only be safely reached by first sending two boats in—one to mark the edge of the coastal reef and the other the edge of the sandbank. Pioree, a village, is located between this anchorage and Tandjung Sausu.

OFF-LYING DANGERS.—A small drying reef, marked by a BEACON with a ball topmark, lies about $4\frac{1}{2}$ miles northward of Tandjung Sausu. A 2-foot patch lies about $\frac{1}{2}$ mile west-northwest of the drying reef.

A $2\frac{1}{2}$ -fathom patch lies on the edge of the 100-fathom curve about 2 miles northwestward of Tandjung Sausu.

THE COAST, between Tandjung Sausu and Parigi, a village inland about 24 miles west-northwestward, provides no landmarks with the exception of Pondindilisa, already mentioned. Tandjung Pondindilisa and Tandjung Makatata are low points, but they can be recognized by the tall trees standing on them. Tindaki, a village not visible from seaward, is located in the bight between Tandjung Pondindilisa and Tandjung Makatata. **ANCHORAGE** can be safely taken in 20 fathoms off the village.

The 100-fathom curve extends from 3 to 5 miles from Tandjung Pondindilisa and Tandjung Makatata, and along and inside this area there are reefs and shoals which discolor well; there are a few wide openings in the barrier reef. A BEACON with a black truncated cone marks the outer edge of the reef 3 miles northward of Tandjung Pondindilisa, and a BEACON with a white ball topmark marks a drying reef about $2\frac{1}{4}$ miles eastward of the same point. A BEACON with a black truncated cone marks the outer edge of the reef 5 miles northward of Tandjung Makatata, and a BEACON with a ball topmark marks the south edge of a wooded reef, about $\frac{3}{4}$ mile northward of Tandjung Makatata.

DIRECTIONS.—There are two routes from Tikungan Poso to Parigi, outside the 100-fathom curve or inside the barrier reef. The

outer passage is usually taken by vessels not having local knowledge.

The inner route is entered between the barrier reef and the coast by steering for Tandjung Pondindilisa bearing 291° . When Tandjung Sausu bears 129° astern, alter course to 309° until the nearest point of land west of Tandjung Pondindilisa bears 236° . From this position the next point will be just visible behind. The course here is 255° , steering for Tindaki. When the south ridge of Pondindilisa bears 125° , it is kept astern, making good course 305° , thence passing through the channel between Tandjung Makatata and the reef northward, marked by a BEACON.

PARIGI ROAD ($0^\circ 49'$ S., $120^\circ 11'$ E.).—Parigi, a large village, is located about 4 miles inland and can be seen at a great distance from eastward. Lodji, with the ruins of an old fort built about 1730, is located on the coast. There is a pier with a depth of 5 feet alongside its head at Lodji.

The bottom is very steep, leaving little anchoring space in the road. Steaming for Parigi Road, with 40 fathoms of cable out, the anchor will take hold in fairly good holding ground opposite a break in the coastal reef and very close to this reef. In so doing care must be taken to avoid the 26-fathom depth that lies about 600 yards northeast of the beacon, if the anchor is lowered. The northeast point of the coastal reef southward of the anchorage is marked by a BEACON with a black truncated cone. In very unfavorable circumstances the road is not safe. Upon the approach of vessels a flag is hoisted at Lodji.

A LIGHT is shown at Lodji.

12B-18 LABUA SORE, about 11 miles northwest of Parigi Road, is a basin formed in the coastal reef, affording a very safe and sheltered anchorage for small vessels. The entrance is about 100 yards wide, with a depth of about 23 feet, increasing to 11 to 16 fathoms inside. A conspicuous bare and yellowish hill, 886 feet high, is located close westward of the basin.

AMPIBABO, a village about 11 miles north of Labua Sore, is located on the south side of a point, off which lie two wooded, coral islets, Dongkala and Dii. The trees on Dii are visible 10 miles. Besides these islets there are numerous reefs, which dry and can generally be plainly seen. Vessels may approach the anchorage off the village by steering for the point north of the village bearing 005°, anchoring in about 17 fathoms, with Dongkala just open of the coast.

TANDJUNG TURIBULU, about 10 miles north of Ampibabo, is sharply defined against the high mountains inland, and has a coconut plantation on its extremity. The village of Turibulu is located on the south side of the point, and the bottom here is very steep. Vessels anchor about 300 yards from the shore, steering for the mouth of the inlet, southward of the point, with about 40 fathoms of chain run out, on the bearing of 235°. There is better anchorage in the small bight north of Tandjung Turibulu. Anchorage is also available in 20 fathoms northeast of the village of Donggulu, about 2 miles northwest of Tandjung Turibulu. A 2¾-fathom patch and a 1½-fathom patch lie off Donggulu.

KASIMBAR (0°09' S., 120°02' E.) is a small village on the coast, with anchorage in 24 fathoms east of the village. A large drying coral reef, which shows discolorization, lies south of the anchorage, 550 yards offshore. A 2-fathom patch, marked by a BEACON with a white ball topmark, lies 1½ miles east of Kasimbar. The approach to the anchorage should be made from southward by steering for the point 2 miles northward of Kasimbar bearing 342°.

THE COAST between Kasimbar and Kabu Kabu, a village about 25 miles north-northeast, has no prominent landmarks inland; Tandjung Sene and Tandjung Lemo are low and flat. Northward of Tandjung Lemo the coast is generally high. Tandjung Sene, when seen from north or south, is a prominent point covered with trees of moderate height.

A barrier reef lies close inside the 100-fathom curve along this part of the coast, but there are no known dangers outside. A course of 030° from the anchorage off Kasimbar, passing 1 mile southeast of Tandjung Sene, thence steering for Tandjung Lemo when it bears 000°, will lead through the inshore passage.

The small bay in which the village of Taada is located is foul, and vessels anchoring off the bay must keep close along the north shore with a westerly course, when the reefs are plainly visible.

ANCHORAGE can be taken in 28 fathoms east-southeast of the village of Menelili. Many reefs lie off the village.

In the bight southward of Tandjung Lemo there is anchorage in 15 fathoms off the village of Buol. Large vessels must remain farther out.

BEACONS.—A beacon with a white ball topmark marks a drying reef about 2¼ miles northeast of Tandjung Lemo. An unofficial black beacon marks a reef about 2 miles east of Tandjung Lemo and a similar unofficial beacon is located close off Melanggo, a village northward of Tandjung Lemo.

THE COAST between Kabu Kabu and Tandjung Pelasa, about 19 miles northeastward, has a few conspicuous landmarks. A dark hill, 177 feet high, and a tree located northeast and southwest, respectively, of Sidoa, a village northeast of Kabu Kabu, are conspicuous. A dark clump of trees at Tinombo, about 7½ miles farther northeastward, is easily recognized, and it appears as an islet at a great distance.

ANCHORAGE can be taken in 15 fathoms south of the 1-fathom patch lying off Sidoa. Temporary anchorage can be taken off Tinombo by approaching it with about 45 fathoms of chain out until the anchor holds, then using a landfast. This anchorage is considered unsafe.

TANDJUNG PELASA (0°28' N., 120°25' E.) is a low point, with a 4-foot patch and a

26-foot patch lying, respectively, about 3 miles southeastward and $3\frac{1}{4}$ miles east-southeastward. (See sec. 12B-3 for a description of Raaf.)

PART C. KEPULAUAN SULA AND KEPULAUAN BANGGAI

12C-1 TANDJUNG FATUKUMBU ($1^{\circ}47'$ S., $125^{\circ}19'$ E.), at the east end of Pulau Taliabu in the Kepulauan Sula, and the northwest entrance point of Selat Tjapalulu, is rocky. From northward the point is conspicuous because of its reddish rocks.

GENERAL

12C-2 THE KEPULAUAN Sula consists of the three large islands Pulau Taliabu, Pulau Mangoli, and Pulau Sanana, with many smaller ones. They are high, bold islands, thickly wooded, and very fertile. There are no rivers of any importance, and the dry beds of the streams form the only tracks to the interior.

Pulau Taliabu and Selat Tjapalulu are the only parts of the Kepulauan Sula described in this volume; the remainder is discussed in H.O. Pub. No. 73.

PULAU TALIABU, the largest of the group, and of which little is known, consists of hills rising steeply from the south coast in the east part. The west part of the island consists of a high tableland, reaching an elevation of 4,528 feet. The mountain land descends very steeply to the south, but slopes gradually down to a low plain to the north. When viewed from south-southwest through north-northwest the west part of Pulau Taliabu has a monotonous appearance without any prominent landmarks.

KEPULAUAN BANGGAI, separated from Kepulauan Sula by Selat Greyhound, includes Pulau Peleng and the islands to its south and southeast. Pulau Peleng is a mountainous and thickly wooded island with an irregular outline, forming many bays. When coming from the north the conical peak, 1,831 feet high, in the east part of the island is conspicuous. Pulau Sago, the southernmost island of the group, is an excellent landmark for approaching the Kepulauan Banggai from the southwest, and from the southeast the islands at the southwest entrance of Selat Greyhound provide more than enough landmarks for the approach.

DEPTHS—DANGERS

12C-3 The Kepulauan Sula lies on a sunken plateau which runs fairly close along the coasts of Pulau Taliabu, except off the west side, where it extends as far westward as Selat Greyhound. Several islands and dangers lie on this plateau.

There are three banks as defined by the 100-fathom curve lying in the northern approach to Selat Greyhound; these banks will be discussed in detail with the description of the strait (sec. 12C-8).

The Kepulauan Banggai also lies on a sunken plateau. The edge of this plateau runs close along the north and west coasts of Pulau Peleng, and the southeastward encompassing all the remaining islands of the group. There are several dangers lying off the south side of this plateau and they will be discussed with the coastal features.

WINDS—WEATHER

12C-4 For the description of the winds and weather in the Molucca Sea and Banda Sea see section 8-2.



KEPULAUAN BANGGAI FROM SOUTH-WESTWARD.

TIDES—TIDAL CURRENTS

12C-5 See sections 12-3 and 8-3.

KEPULAUAN SULA—COASTAL FEATURES—LANDMARKS

12C-6 Pulau Taliabu—North coast.—The coast between Tandjung Fatukumbu and Tandjung Pohonbatu, about 13 miles northwest, is indented by three bays, Djiko Samuja, Djiko Parigi, and Djiko Duhu. Anchorage can be taken in these bays during the south monsoon, and in Djiko Samuja and Djiko Parigi during the north monsoon. A 1-fathom shoal lies off the entrance of Djiko Duhu.

The coast westward of Tandjung Pohonbatu is also indented with several bays to Tandjung Lau, then to Tandjung Marikasu, the northwest point of Pulau Taliabu, the coast is made up of dunes, covered with some vegetation, and bordered by a sandy beach. Anchorage can be taken almost everywhere along this part of the coast during the Southeast Monsoon.

There are numerous islands and dangers lying off the coast, and within the 100-fathom curve, between Tandjung Pohonbatu and Tandjung Marikasu; and unless necessary, vessels passing this coast should keep outside the 100-fathom curve.

SOUTH COAST—TANDJUNG NDOLUDEU, the southeast point of Pulau Taliabu and the southwest entrance of Selat Tjapalulu, is low and sandy, with hills rising close within.

In the bights on either side of Tandjung Kasika, a rocky point about 13 miles west of Tandjung Ndoludeu, the shores are sandy beaches with some coconut trees. A fairly conspicuous hill, 1,158 feet high, is located close north of Tandjung Kasika. A conspicuous hill, 794 feet high, is located northward of Tandjung Hoku, the east entrance point of the bight east of Tandjung Kasika.

The coast west of Tandjung Kona to Tandjung Pasturi is low and sandy with the hills approaching nearer the coast.

In the bight between Tandjung Pasturi and Tandjung Wojo there is a sandy beach, interrupted in places by a few rivulets during the rainy season. Wojo, a small islet about 65 feet high and covered with low trees, lies close off the coast about 1 mile east of Tandjung Wojo. The islet is conspicuous from eastward and westward. A $2\frac{3}{4}$ -fathom patch and a $2\frac{1}{4}$ -fathom patch lie about $\frac{3}{4}$ mile east-northeast and $\frac{1}{2}$ mile north-northeast, respectively, of Wojo. **ANCHORAGE** can be taken in about 16 fathoms north of these dangers and south of the village of Wajkilo.

Kawalu, a large village on the coast $8\frac{1}{2}$ miles west-southwest of Tandjung Wojo, is the residence of a district chief and the principal village on the island. A conspicuous hill with some reddish patches on it is located about $1\frac{1}{2}$ miles west of Kawalu.

Tandjung Bo, about 4 miles west of Kawalu, is a rocky point, reddish-brown in color. Batu Tiga, about 2 miles west-southwest of Tandjung Bo, consists of three wooded rocks, with a bare rock between, lying on a drying coral reef.

SELAT TJAPALULU

12C-7 **SELAT TJAPALULU** is a narrow passage separating Pulau Taliabu and Pulau Mangoli, with its narrowest part at the south entrance. The north entrance of the strait lies between Tandjung Fatukumbu (sec. 12C-1) and Tandjung Wajteja, a rocky point at the northwest extremity of Pulau Mangoli. The south entrance lies between Tandjung Ndoludeu (sec. 12C-6) and Tandjung Sakomata, at the southwest end of Pulau Mangoli, a low point covered with large trees. Tandjung Ndoluselagi, about $\frac{3}{4}$ mile northeast of Tandjung Ndoludeu, is low and coral covered with large trees; a large drying rock lies on the coastal reef off the point. Tandjung Batu Gossok, about 1 mile northwest of Tandjung Sakomata, is a conspicuous rocky point; the coast northwest of Tandjung Sako-

mata is sandy to Tandjung Batu Gossok, and wooded to the water's edge on both sides northward.

DEPTHS—DANGERS.—The depths in the strait are generally over 9 fathoms and it can be navigated by large vessels.

Three patches, with depths of 49 to 56 feet, lie on the east side of the north part of the strait, off the entrance of a bay southwest of Tandjung Wajteja. A 5-foot patch lies close of the east shore about 1,200 yards south of Tandjung Gina, a point about 4 miles southwest of Tandjung Wajteja. A 7-foot patch, lying close off the west shore, and a 19-foot patch, off the east shore, lie about $\frac{1}{2}$ mile west and close west-northwest, respectively, of Tandjung Batu Gossok.

TIDAL CURRENTS.—The tidal currents in Selat Tjapalulu are of mixed character, but predominantly semidiurnal. The maximum rate of the south-going current may reach 6 knots, during the semidiurnal spring tides, and when the maximum rates of the north-going diurnal and semidiurnal tides fall together a rate of $9\frac{1}{2}$ knots may be expected. These two tides fall together in May and June at 1600, and in November and December at 0400, during semidiurnal spring tides. During semidiurnal neap tides the current in either direction will not exceed about 3 knots.

In the middle and south parts of the strait there are heavy tide rips and eddies when the tidal currents are strong.

DIRECTIONS.—Entering Selat Tjapalulu from northward, vessels should pass midway in the entrance and proceed southward favoring the east side. Pass about 275 yards off the Pulau Taliabu coast opposite Tandjung Gina, thence paralleling the west side of the strait, pass Tandjung Batu Gossok and Tandjung Ndoluslagi about 550 yards distant.

From southward vessels should steer for Tandjung Batu Gossok and proceed through the strait by reversing the directions given above.

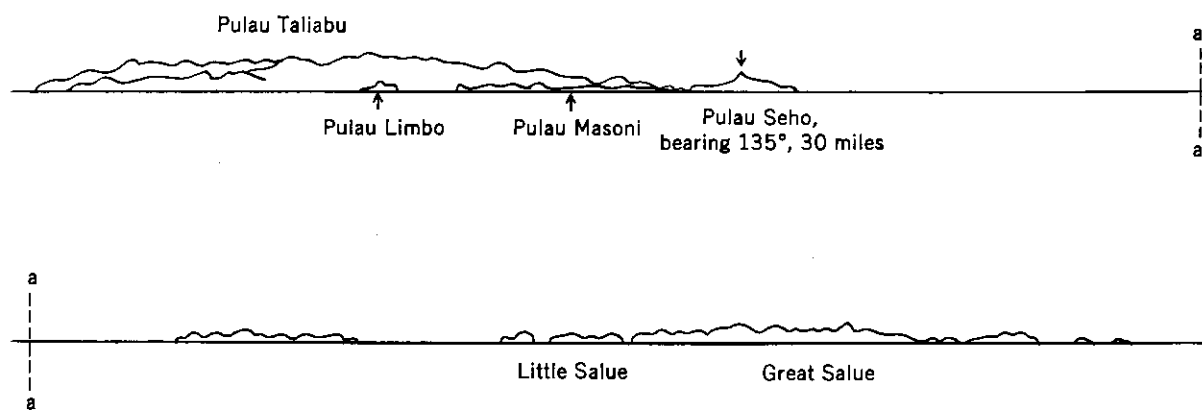
SELAT GREYHOUND

12C-8 SELAT GREYHOUND separates Kepulauan Sula and Kepulauan Banggai and is deep and clear of dangers in the fairway. The strait lies between Pulau Timpaus on the east side, and Great and Little Salue on the west side. In the north part of the strait it is divided into two arms by an extensive steep-to bank, as defined by the 100-fathom curve, about 3 miles wide, running in a north and south direction. This bank has a least depth of 6 fathoms. For a description of the west side of Selat Greyhound; see section 12C-10.

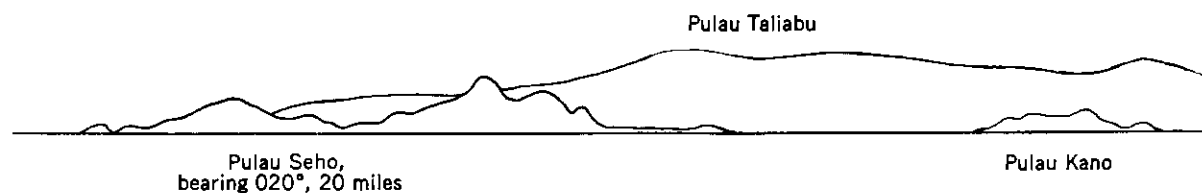
CURRENTS.—The drift currents in the Molucca Sea and the Banda Sea indicate that a current either northward or southward may be expected, but it is impossible to state how far tidal influence reaches here. A current flows through the strait either north-northwest or south-southeast; a rate of 2 to 3 knots has been observed.

EAST SIDE OF SELAT GREYHOUND—OFF-LYING ISLANDS AND DANGERS.—PULAU TIMPAUS ($1^{\circ}50' \text{ S.}, 124^{\circ}01' \text{ E.}$), the westernmost of the islands lying on the plateau extending off Pulau Taliabu and forming the east side of Selat Greyhound, is a wooded island, about 469 feet high. An isolated hill, about 288 feet high, is located at the north end of the island; the south part of the island is lower with a sandy coast. There are coconut plantations along the entire coast of the island. A ridge, as defined by the 10-fathom curve, extends about $10\frac{1}{2}$ miles south-southeast from Pulau Timpaus. A $2\frac{1}{4}$ -fathom patch and a $2\frac{1}{2}$ -fathom patch lie on this ridge about $5\frac{1}{2}$ miles south-southeast of Pulau Timpaus, and a $5\frac{1}{2}$ -fathom patch lies about $3\frac{1}{2}$ miles farther in the same direction.

PULAU MASONI, about 9 miles northeast of Pulau Timpaus is a low island, separated from Pulau Timpaus by a deep and clear passage. Several steep-to detached patches, with



VIEW, IN TWO PARTS, OF SELAT GREYHOUND FROM NORTHWARD.



SELAT GREYHOUND FROM SOUTHWARD.

* depths of $5\frac{1}{2}$ to 11 fathoms, lie between $6\frac{1}{4}$ and 14 miles northward of the north side of the island.

12C-9 WEST COAST OF PULAU TALIABU.—Tandjung Marikasu, the northwest extremity of Pulau Taliabu, is a low, rocky point, and is not conspicuous. The area between the west coast of Pulau Taliabu south of Tandjung Marikasu and the islands extending about 10 miles southwest has not been thoroughly examined. Tandjung Merah, the southwest extremity of Pulau Taliabu, is steep and brown colored.

PULAU LIMBO, close to the west coast of Pulau Taliabu, is about 302 feet high and wooded. A $2\frac{1}{2}$ -fathom patch and a $3\frac{3}{4}$ -fathom patch lie about midway between Pulau Masoni and Pulau Limbo. A $2\frac{1}{4}$ -fathom patch lies

about $2\frac{1}{2}$ miles and $1\frac{1}{4}$ miles, respectively, west of the south end of Pulau Limbo, and a 5-fathom patch and a $3\frac{1}{4}$ -fathom patch lie about $2\frac{3}{4}$ miles west-southwest and $3\frac{1}{2}$ miles south, respectively, of the same point. The passage between Pulau Masoni and Pulau Limbo is not recommended because of the strong currents, especially in the vicinity of Pulau Limbo.

PULAU SEHO and PULAU KANO are two islands separated from Tandjung Merah by Selat Boki, a narrow channel navigable by vessels of moderate size with local knowledge. Pulau Seho is about 1,660 feet high with a conical summit, and Pulau Kano is about 719 feet high. Batu Andor, an above-water rock lies on the edge of the reef projecting from the south side of Pulau Kano.

KEPULAUAN BANGGAI—COASTAL FEATURES—LANDMARKS

12C-10 PULAU PELENG.—TANDJUNG PEMALI (1°17' S., 123°34' E.), the northeast extremity of Pulau Peleng, rises almost vertically from the sea and is easily recognized by a large rock.

THE EAST COAST OF PULAU PELENG is free of dangers, except off a point in about the middle where a rocky islet lies; this islet is visible a great distance. Kamotokan and Sambiut are two villages on the east coast, and they are visible from seaward. Anchorage can be taken off Sambiut in 20 fathoms, outside the strong current of Selat Kalumbangan, with the rocky islet north-northeastward bearing 025° and the northernmost of the rocks north of Pulau Potil-ketjil, an islet about 4 miles south-southeast of Sambiut, bearing 148°.

SELAT KALUMBANGAN, separating Pulau Peleng and Pulau Banggai, is a safe passage although there is a strong current of 4 to 7 knots running either northeast or southwest. This strait is the principal route for vessels from the Molucca Sea to the village of Banggai on the west coast of Pulau Banggai.

Kalumbangan, a village on the north side of the strait about 5½ miles southwest of Sambiut, stands on the coastal reef, and on the edge of the drying area in front of the village is a sandflat with some trees on it. There is temporary anchorage in 11 fathoms east by south of this sandflat.

PULAU BANGGAI.—The east coast of Pulau Banggai is high and rocky. Pulau Potil-besar, lying close east of the north end of Pulau Banggai and about 436 feet high on its northeast side, is a conspicuous mark in the approach to Selat Kalumbangan. The rest of the island is low with rocky coasts. Pulau Potil-ketjil, close north of Pulau Potil-besar, is also low with rocky coasts. Several above-water rocks lie within 1 mile north of Pulau Potil-ketjil.

Teluk Lambako, lying west of Tandjung Bandana Olipatan, affords sheltered anchorage during the south monsoon in the south part of the bay in about 22 fathoms.

THE WEST COAST OF PULAU BANGGAI is low as are the off-lying islands westward. A conspicuous tree stands on the southwest side of the island. To-ulon, two islands lying close off the northwest side of Pulau Banggai, and Bakakang, two islands lying close together on a reef to the southward, lie at the southeast entrance of Selat Kalumbangan. A 23-foot patch lies about 2¼ miles southwest of Bakakang. Banddang, two low islands, lie off the southwest coast of Pulau Banggai, and Pulau Kaukanau, a hilly islet, lies off the south coast of the island. Two 2¾-fathom patches lie about 1 mile south of Pulau Kaukanau.

BANGGAI, the principal village in the Kepulauan Banggai and the residence of a prince, is located at the middle of the west side of the bay. A white mosque with a high roof is conspicuous from a considerable distance. There is a landing pier at the village. Vessels call regularly at Banggai and ANCHORAGE can be taken in 7 fathoms with the landing pier in line with the mosque bearing 100°.

A LIGHT is shown from a post at the inner end of the pier.

12C-11 GREAT SALUE AND LITTLE SALUE, forming the west side of Selat Greyhound, lie at the southeast end of the plateau on which the Kepulauan Banggai lies. These islands when viewed from the northeast, east, and southeast appear as a single high ridge with sharp peaks. Great Salue rises to an elevation of 1,522 feet and Little Salue to 1,020 feet. Belangan, about 545 feet high and rising steeply from the sea, is located close west of the north extremity of Great Salue; another steep islet, rocky and wooded, is located close off Great Salue about 1¼ miles southeast of the same point. A low, wooded islet is located in the east entrance of the passage between Great Salue

and Little Salue; a single tree stands on the drying reef that surrounds this islet. Southeast and south of Little Salue there are large drying reefs and low islets.

WEST OF GREAT AND LITTLE SALUE and along the south part of the Kepulauan Banggai to Pulau Sago there are numerous islets and reefs some of which are separated by narrow channels of over 100 fathoms. **PULAU SAGO** ($2^{\circ}13' \text{ S.}$, $123^{\circ}09' \text{ E.}$), about 430 feet high, lies on a drying reef which shows discoloration. Some islets lie on the south part of this drying reef.

VESUVIUS, the westernmost of three large steep-to drying reefs, lies about 17 miles west-northwest of Pulau Sago. The other two drying reefs lie about 9 miles east-northeast and 3 miles southeast, respectively, of Vesuvius; a small house, the position of which is approximate, stands on the latter reef. All of these reefs show discoloration.

PULAU BANGKULU AND PULAU LABOBO, southwest of Pulau Banggai, are fairly high and thickly wooded. The north part of Pulau Labobo rises to an elevation of about 820 feet, and the highest peak of Pulau Bangkulu, near the middle of the island, is about 2,273 feet high. Pulau Bongko, a low, wooded islet, is located about $2\frac{1}{4}$ miles north-northeast of the north extremity of Pulau Bangkulu; the islet is surrounded by a drying reef which shows discoloration.

A $3\frac{3}{4}$ -fathom patch and a 5-fathom patch lie about $5\frac{3}{4}$ miles and 6 miles, respectively, east-southeast of Pulau Bongko.

DIRECTIONS—WEST APPROACH TO BANGGAI.—Vessels from the west should pass off the northwest point of Pulau Bangkulu and then use the recommended route that leads between the above point and Pulau Bongko. The vessel should then pass north of Pulau Labobo to Banggai.

See section 12C-10 for the approach to Banggai from the Molucca Sea.

SOUTH COAST OF PULAU PELENG—TANDJUNG KEMBANI ($1^{\circ}36' \text{ S.}$, $122^{\circ}53' \text{ E.}$), the southwest extremity of Pulau Peleng, is a low spur rising to the mountains northward. Several reefs and dangers lie southwest and south, respectively, of Tandjung Kembani.

Teluk Peleng, entered between Tandjung Kembani and Tandjung Patipakaman, about 13 miles eastward, is free of dangers except close to the coast, and the villages in the north part of the bay can be seen from a considerable distance. Tetapen, an island about 351 feet high, is located at the north end of the bay and is also visible at a considerable distance. Lolantang, on the west shore of the bay, is the principal village in the bay and is in an inlet available to small craft only.

The large drying areas that lie off the entrance of Teluk Peleng show good discoloration when submerged.

Teluk Mesamat, separated from Teluk Peleng by a peninsula, is obstructed with several shoals in the northeast part. The shoals along the west and north sides show good discoloration. Liang, the principal village in the bay, lies in an inlet on the west shore, enclosed by a reef with deeper water inside. The 1,003-foot summit north of the southwest entrance point of Teluk Mesamat is conspicuous. A conspicuous rocky islet covered with tall trees, lies close south of the peninsula separating the two bays.

12C-12 NORTH AND WEST COASTS OF PULAU PELENG.—Teluk Lelomping, about 8 miles west-northwest of Tandjung Pemali (sec. 12C-10), affords excellent anchorage, sheltered from all except northerly winds. The entrance is clear, and the scattered houses of the village Luwuksago at the head of the bay may be steered for, anchoring in 7 to 9 fathoms about 1,300 yards east-northeast of the northernmost of two rocky islets at the head of the bay. Pondi Pondi, a small islet, lies off the northwest entrance of the bay and can be seen from a considerable distance. A bank, with

depths of 6 to 10 fathoms, lies north of Pondi Pondi and is always marked by light green discoloration, and frequently by tide rips.

TELUK BANGKALAN, west of Teluk Lelompang, affords good anchorage everywhere. The shores of the bay are high and thickly wooded, and several islets lie on the west side. When the bay is open, the dome-shaped 1,496-foot summit at the head of the bay is conspicuous. Utara Bangkalan and Selatan Bangkalan, two thickly wooded islands, lie at the entrance of the bay, with a clear passage on either side; the former island is rocky and high, and the latter low and flat. The channel between the two islands is deep, but not to be recommended because of strong currents. Off the northeast point of Selatan Bangkalan there is a 6½-fathom patch just inside the 100-fathom curve, usually marked by discoloration and tide rips.

Peleng village lies just south of Tandjung Montok on the west side of the bay. On the east shore, south of Selatan Bangkalan, are the fairly large villages of Lamobuang and Salakan, partly built over the reef.

The approach to Salakan can be made on a course of 180° with a conspicuous godown, a large galvanized iron building with a roof partly painted red, on the same bearing. ANCHORAGE can be taken in 15 fathoms, about 400 yards from the godown with the cape formed between Salakan and Lamobuang bearing 086°. This course clears the coastal reef which extends about ½ mile northwestward from Salakan. This reef was reported (1962) to be extending northward and eastward. Two stakes mark the boat passage through the coastal reef.

The bay west of Teluk Bangkalan affords anchorage only near the head, very close to the west shore, where there is a drying reef.

TANDJUNG BATU PUTIH, the northwest point of Pulau Peleng, is marked by a couple of white rocky patches, and like the rest of the north coast, west of Teluk Bangkalan, it is steep.

The west coast of Pulau Peleng is mountainous, but the summits are difficult to identify. The south part of this coast is fringed by a number of islets and reefs.

In 1958 a vessel anchored off Leme Leme, a village located about 7 miles southwest of Tandjung Batu Putih. The approach to the anchorage was made between two reefs about 330 yards apart lying about ¼ mile off the village. The southwest end of the northern reef was marked by a pole with a white cross. The vessel made the passage between the reefs keeping the above pole slightly on the port bow. This mark was passed at a distance of about 30 yards, thence course was set for an unpainted godown which was the only large shed completely made of galvanized iron. The vessel anchored in about 13 fathoms about 300 yards from the beach with a white triangle on a lawn near the beach bearing about 135°.

SELAT PELENG

12C-13 SELAT PELENG, lying between the Kepulauan Banggai and the Celebes coast, is a very deep and almost entirely clear channel, and is the usual route from Teluk Tomini to the east coast of the Celebes. The 100-fathom curve runs fairly close to both shores.

CURRENT.—Currents in the strait run either north and south or west and south; the current to the north and east, more frequent and stronger, sometimes attains a rate of 2 to 3 knots.

WEATHER.—During the night the strait is often calm and free of wind.

ISLANDS AND REEF IN SELAT PELENG.—Makailu (1°20' S., 122°45' E.) is a partly wooded island with tall trees, and surrounded by a large dry reef. Pulau Lesampuang, about 9½ miles south of Makailu, is a conspicuous islet surrounded by a steep, drying coral reef.

Thames, lying nearly in the middle of the south entrance of the strait, is an oval-shaped,

steep coral reef which partly dries at low water. It is easily seen by the surf and its light green color. There are two deep basins in the center.

PART D. TANDJUNG PANGKALASEANG TO CAPE NEDERBURGH

12D-1 Tandjung Pangkalaseang ($0^{\circ}43'$ S., $123^{\circ}26'$ E.), the southeast point of Teluk Tomini, rises perpendicularly from the sea, the high mountain land terminating close to the coast.

COAST—GENERAL

12D-2 The coast south of Tandjung Pangkalaseang to Tandjung Botok, the northeast entrance of Selat Peleng, and along the west side of Selat Peleng to Tandjung Maoloh ($1^{\circ}14'$ S., $122^{\circ}38'$ E.) is for the most part high with mountains close inland. These mountains inland between Tandjung Pangkalaseang and Tandjung Botok are generally hidden by clouds, but the high, steep points along the coast provide useful landmarks. There are no special landmarks along the west side of Selat Peleng.

South of Tandjung Maoloh the coast is low for about 32 miles, then the mountains approach the coast again. The Pegunungan Tokala, north of Teluk Tomori, and running in a south-southeast and north-northwest direction, is easily recognized; the northern and highest summit attains an elevation of 8,623 feet. A conspicuous summit, 5,571 feet high, is located about 25 miles east-northeast of the summit of the Pegunungan Tokala. Batu Morowali, 6,730 feet high, to the west of Pegunungan Tokala, and a 5,730-foot summit between, are also very conspicuous. A sharp peak about 4,735 feet high, at the inner end of Teluk Tomini southwest of Batu Morowali is conspicuous for vessels approaching from the south.

The coast south of Teluk Tomori to Cape Nederburgh (sec. 8A-1) has a few conspicuous peaks in the mountains that run close along the coast.

DEPTHS—DANGERS

12D-3 The 100-fathom curve runs close to the Celebes coast from Tandjung Pangkalaseang to the south part of Selat Peleng, then it gradually extends offshore. Innumerable reefs lie inside the 100-fathom curve from $1^{\circ}33'$ S. to the entrance of Teluk Tomori. They are generally marked by discoloration and the water is very clear, but the utmost caution must be exercised when navigating in this vicinity.

South of Teluk Tomori to Cape Nederburgh the 100-fathom curve lies from 2 to 6 miles offshore, and the isolated reefs inside show good discoloration.

There are no known dangers outside the 100-fathom curve along this part of the Celebes coast.

WINDS—WEATHER

12D-4 See sections 12-2, 12C-13, and 8-2.

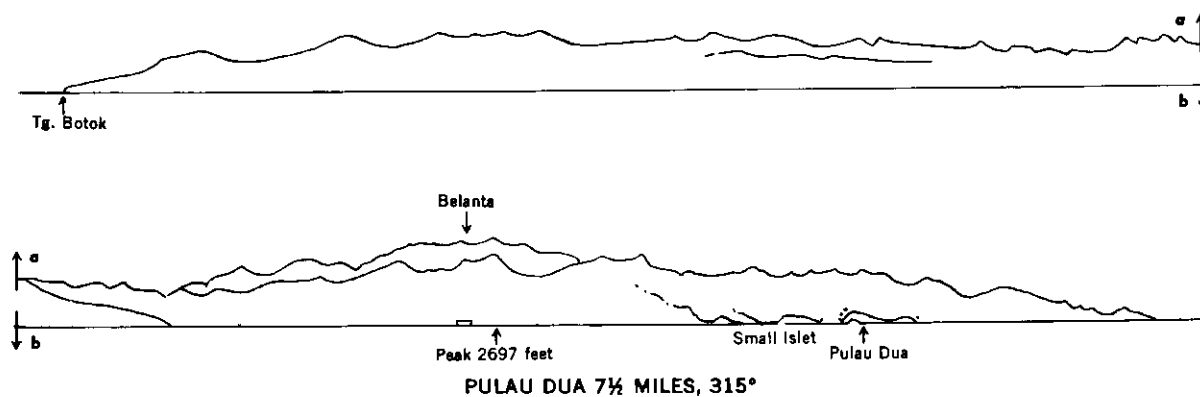
TIDES—TIDAL CURRENTS

12D-5 See sections 12-3, 12C-13, and 8-3.

COASTAL FEATURES—LANDMARKS

12D-6 TANDJUNG TALABU, south of Tandjung Pangkalaseang, rises perpendicularly from the sea, the high mountains terminating close to the coast. Batu Tetek are two drying reefs close north of Tandjung Talabu; the heavy breakers over these reefs can be seen from a great distance. Pulau Dua are two islets lying close off the coast; the northern islet is about 325 feet high; and has a sandy beach on its north side. A partly drying reef lies about 400 yards north of the sandy beach. A strong CURRENT runs between these islets and the coast.

In the bight between the point off which Pulau Dua lies and Tandjung Dongolala there is ANCHORAGE available off Belantak, a village at the foot of a 2,697-foot peak, in 10 to 16 fathoms, mud and sand. Easterly and southerly winds raise a long swell. Some conspicuous white rocks are located on the coast south of Belantak.



In 1958 a vessel approached Belantak and anchored about 200 yards off the beach in about 30 feet with the 2,697-foot peak and a godown in line bearing 350° . In this position the east point of Pulau Dua was bearing 047° .

Anchorage can also be taken in Teluk Pojang north of Tandjung Dongolala in about 9 fathoms, 500 yards offshore with a banyan tree bearing 327° . In this position the godown at Belantak will bear 011° just touching the shoulder of land north of the anchorage.

TANDJUNG BOTOK and TANDJUNG SENTIGI mark the northeast entrance of Selat Peleng. ANCHORAGE can be taken in about 15 fathoms off a small village about 3 miles northwest of Tandjung Sentigi. The approach to the anchorage is made with a conspicuous godown with a thatched palm roof on poles bearing 043° . Proceed on this course and anchor when Tandjung Sentigi bears about 150° , the northeast entrance point of the bay west of Teluk Bangkalan (sec. 12C-12) bearing 208° , and the cape about 9 miles northwest of Tandjung Sentigi just visible clear of the shoulder of land about $2\frac{1}{4}$ miles northwest of the anchorage. A boat passage, marked by two poles, each with a basket topmark and LIGHTED when loading is in progress, leads through the coastal reef fronting the village.

TELUK LAMALA is a large bay with low shores, with depths of 11 to 28 fathoms. A 1-fathom patch lies nearly in the middle of the

entrance, and by steering 000° or 018° for a conspicuous tree in the northeast part of the bay will lead east or west, respectively, of this patch.

Teluk Nonapetong is an inlet in the east part of Teluk Lamala. Basum Pelau, a low, swampy islet, with large reefs projecting from its north and west sides, lies in front of this inlet. Two drying reefs, marked by stakes and showing discoloration, lie west of Basum Pelau. A 1-fathom shoal lies 350 yards south of the eastern of these two reefs. There is ANCHORAGE in about 16 fathoms northeast of Basum Pelau, near the mouth of a small river. The passage to the anchorage is midway between Basum Pelau and the point to the south, making good 067° for a very high conspicuous tree, then north to the anchorage.

TELUK ARDJUNO is a narrow inlet indenting the coast with many smaller inlets within; many of these smaller inlets are filled up with reeds. A reef, with four islets on it lies before the entrance, leaving on each side a narrow channel to the anchorage.

12D-7 LUWUK ($0^\circ 57' S.$, $122^\circ 48' E.$), the seat of a civil administrator, is an important collecting place for copra and forest products. A conspicuous tree stands near the coast in the middle of the village. The customhouse and landing pier lie in the inner bay, entered northward of Tandjung Tumbuk, which can only be

entered by small vessels, although inside there is a deep basin.

The anchorage should be approached with the middle of a cleft in the mountains behind Luwuk, bearing 315°. Good ANCHORAGE is available in 25 fathoms, about 550 yards offshore. Vessels should anchor farther eastward if there are other vessels already in the roadstead because the bottom off Tandjung Tumbuk is very steep-to.

A LIGHT is shown on the coast north of the village only when vessels are expected.

THE COAST south of Tandjung Tumbuk continues high to about Tandjung Batui, 24 miles southwestward, and there are several places along this stretch of coast where anchorage is available.

Mendono, a village, lies partly on the coast near a river and partly on a plateau formed by a ridge from the mountains; this plateau can be recognized by light green patches and a round-topped tree. Anchorage can be taken about 400 yards offshore in 23 fathoms southwest of the above tree.

Kintong, a village 3 miles west of Mendono, is easily recognized by a conspicuous cleft in the mountains behind and some light green patches on the slopes. There is anchorage in 26 fathoms, about 300 yards offshore.

Luk, a village, lies at the head of a small, deep bay immediately northwest of Tandjung Batui. Anchorage is available in 24 fathoms about 300 yards southeast of the village.

THE COAST south of Tandjung Batui is low to about 8 miles west of Tandjung Donggi, about 27 miles southwestward, where the mountains approach the coast again. A barrier reef lies along the 100-fathom curve from a position south of Tandjung Menahakeh, across the entrance of Teluk Tomori, to where it approaches the coast again southeast of Teluk Tomori. None of the villages along the coast between Tandjung Batui and Teluk Tomori are of any importance to shipping, but there are a few anchorages.

At Donggi, a village near a river close north of Tandjung Donggi and not visible from seaward, anchorage is available in 10 to 12 fathoms about $\frac{1}{2}$ mile offshore. The roof of a shed standing on a point about 1 mile northeast of the river is conspicuous. A BEACON with a black truncated cone marks a reef east of Tandjung Donggi.

ONDOLEAN, about 15 miles west-southwest of Tandjung Donggi, is a small village at the mouth of a river among some coconut trees. A conspicuous house with a zinc roof is located in the village. The coast here forms a small bight almost filled in by the coastal reef, and the reefs outside make the approach difficult. The village of Buabuang lies farther northeastward in the bight. A detached drying reef, usually marked by discoloration, lies about 1 mile southeast of Ondolean.

BEACONS.—A beacon with a white ball topmark stands on the southwest extremity of a drying reef, lying on the barrier reef, about $9\frac{1}{2}$ miles south-southeast of Ondolean.

A beacon with a black and white checkered topmark marks a 3-foot patch about 2 miles south of Ondolean, and a beacon with a white ball topmark stands on the north side of a reef about $1\frac{1}{4}$ miles south-southeast of the same place.

A beacon with a white cone topmark stands near the coast about 1 mile south-southwest of Ondolean. A red MOORING BUOY is located about $\frac{1}{2}$ mile north-northwest of the beacon with the black and white checkered topmark.

THE COAST between Tandjung Damari and Tirongan, a village about $8\frac{1}{2}$ miles southwest, is steep and rocky and forms several bays. A few islets lie on the coastal reef, the most conspicuous being Boba. Southward of Tirongan the coast is low, swampy, and inaccessible to Teluk Tomori. The principal village along this latter stretch is Tokala, which can be recognized by the flagstaff of the chief's house.

TELUK TOMORI

12D-8 **TELUK TOMORI**, entered between Tandjung Bea ($1^{\circ}58' \text{ S.}$, $121^{\circ}37' \text{ E.}$) and Tandjung Bahu-mbelu, about $13\frac{1}{4}$ miles south-southeast, is low on both sides at the entrance, but the shores within are high and rocky, except at the head where there is a low and swampy stretch. The bay contains many dangers and has general depths of from 20 to 24 fathoms. Inside the bay there are many smaller bays, the principal being Teluk Tambajoli and Teluk Lambolo.

LANDMARKS in the seaward approach have been discussed in section 12D-2. Closer in the 1,535-foot summit about 9 miles north-northeast of Tandjung Bea, and the low land north of Tandjung Bea and Tandjung Onematubu provide good landmarks for vessels approaching from northward. On the south side of the bay Tandjung Dongkala, about $11\frac{1}{2}$ miles southeast of Tandjung Bahu-mbelu, is fairly conspicuous, and Batu Pon, about 590 feet high and located about $2\frac{1}{4}$ miles west-northwest of Tandjung Lingkolu, is very conspicuous.

There are many hilly and thickly wooded islands in the bay and they may be divided into two main groups—the Tomori and Lambolo groups. The Tomori group stretches across the bay in an east and west direction, and includes the islands Rubmia, Batu, Nanaka, Nanasi, Balo Sumpi, Tomori and Dediri. Several islets and rocks extend northward from Tomori. A shoal with a least depth of 3 feet is located about $1\frac{1}{2}$ miles northwestward of Nanaka. The Lambolo group runs in a north and south direction, dividing Teluk Lambolo into two parts, and includes the islands Toko Dimba, Pakapaka, and several islets lying close together further southward.

Pulau Tokobae, 1,976 feet high and the largest island in the bay, lies in the north part of the bay before the entrance of Teluk Tambajoli; a small islet lies on the reef projecting from the northeast extremity of Pulau Tokobae.

A 1-fathom patch lies between Toko Dimba and the coast eastward, and Batu Tengah, a rock covered with vegetation, lies between

Pakapaka and the coast eastward.

The water in front of Teluk Tomori and within the bay is very muddy because of the rivers emptying into the bay which makes the reefs difficult to distinguish by their discoloration. The water in Teluk Tambajoli and Teluk Lambolo is very clear and the reefs are generally marked by discoloration.

NORTH COAST.—This region of the bay is practically uninhabited. There is a small village inland on a shallow river, which empties into the bay about $5\frac{3}{4}$ miles northwest of Tandjung Onematubu. Good anchorage is found near the edge of the bank off the mouth of the river.

In Teluk Tambajoli there is anchorage in 10 to 12 fathoms at a suitable distance from the mud bank extending off the mouth of the Sungai Bajoli.

SOUTH COAST.—In the bight between Tandjung Bahu-mbelu and Tandjung Lingkobu the depths decrease gradually and there are no known dangers inside the line joining the two points and the 3-fathom curve, except for a drying reef about $\frac{3}{4}$ mile west of Tandjung Bahu-mbelu. Good anchorage is available close off the coast west of Tandjung Bahu-mbelu.

The Sungai La, one of the largest rivers of central Celebes, discharges northwest of Tandjung Lingkobu; the east arm of the delta is seldom used. The north arm of the delta is entered between Bungi ntimbe, a small islet, and the Celebes coast, where the depths are 5 to 6 feet at low water. Vessels with local knowledge can anchor north of Bungi ntimbe.

KOLONODALE, the headquarters of a government official and the export center for the region, is located on the west side of the head of Teluk Lambolo. There is a landing pier for boats at the village. There is a telephone which connects with the general telegraph system. There is a doctor and a hospital at Kolonodale.

Anchorage is available in 7 to 8 fathoms about 330 yards east of the pier.

12D-9 DIRECTION—NAVIGATIONAL AIDS.—From northward the barrier reef on

the edge of the 100-fathom curve is crossed close north of a beacon in $1^{\circ}58' \text{ S.}$, $121^{\circ}52' \text{ E.}$, steering 260° for Batu Pon and 282° when the south point of Rumbia is in range with the summit of Tomori on that bearing. When the island Batu is in range with the middle of Pulau Tokobae, steer northwest on that mark. Pass east of Batu and then bring the islet on the coastal reef off the northeast point of Pulau Tokobae in range with the projecting point about $3\frac{3}{4}$ miles southeastward bearing 312° ; the above islet comes into view when abreast Batu. Continue on this last mark until the northeast point of Toko Dimba bears 265° , then steer for Teluk Lambolo on that mark and for the anchorage off Kolonodale, as described below.

Vessels bound for the anchorage off Kolonodale should pass east of the islands in Teluk Lambolo. Vessels should pass east of the 1-fathom patch and west of Batu Tengah, then altering course for the anchorage when southward of the southernmost islands of the group.

From southward a course parallel to the coast is steered to Tandjung Dongkala. The beacon on the reef about 5 miles north of this point is generally visible from a position off the coast about 14 miles southward, and when seen may be steered for with a course not north of 312° . Vessels pass north of this beacon, steering then for the beacon with a white ball topmark on the reef 3 miles east of Tandjung Bahu-nibelu, which must be passed at not less than 200 yards southward. Then bring this beacon astern bearing 112° , steering course 292° , and steer for the beacon with a black cone topmark $\frac{1}{2}$ mile north of Tandjung Lingkobu when it bears 323° . The extending shoal off Tandjung Lingkobu should be guarded against. When the beacon with a white ball topmark about 2 miles east of Tandjung Lingkobu is in range with the 1,535-foot summit north-northeast of Tandjung Bea, steer a northerly course so as to bring another beacon with a white ball top-

mark, close northward of the above similar beacon, astern on the bearing 126° . Making good course 306° , the south point of Tomori will be sighted dead ahead. This course passes about $\frac{3}{4}$ mile northeast of the beacon with a black cone topmark north of Bungi ntimbe. When through the strait between Tomori and Dediri steer by sight, as necessary for Teluk Lambolo.

COASTAL FEATURES — LANDMARKS (CONTINUED)

12D-10 THE COAST SOUTH OF TANDJUNG DONGKALA has only a few conspicuous peaks, and the 100-fathom curve lies close off it to Tandjung Losoni. The isolated reefs within the 100-fathom curve show good discoloration. Vessels can anchor off Wosu, a village about $3\frac{1}{2}$ miles south of Tandjung Dongkala, in 10 to 12 fathoms with the middle of the village bearing 225° , taking care to avoid four drying reefs and rocks lying east of the village. Behind the village the land rises to a height of 2,628 feet.

BUNGKU ($2^{\circ}33' \text{ S.}$, $121^{\circ}58' \text{ E.}$), a village completely hidden by coconut palms, including the mosque, is a very prosperous place with a considerable trade in forest products. It is the seat of a civil administrator and of a prince. Bungku can be distinguished from a great distance by Kondeh, 1,890 feet high, with a conspicuous grove on the summit. There is a stone pier extending northeast from the shore.

There is a break in the barrier reef, about 600 yards wide, northeast of the pier. The reefs are steep-to, and the small detached $1\frac{1}{2}$ -fathom patch on the north side of the road is not easily seen. A BEACON with a black cone topmark marks the north end of the barrier reef on the south side of the road. ANCHORAGE is in 17 to 24 fathoms northeast of the head of the pier. The road is open to easterly and southerly winds, which quickly raise a heavy sea.

LOSONI village lies in a small bight about 3 miles northwest of Tandjung Losoni, and only a couple of houses are visible from seaward. Two large reefs which dry in places run parallel to the coast and about 1 mile from it with a passage between them 800 yards wide and 14 fathoms least depth. The north point of the south reef is marked by an unofficial stake BEACON during the months that the coastal vessels call at the road. There is good anchorage in 16 fathoms as far south as possible in the bight between the reefs and the shore; this anchorage is well sheltered during the south-southeast monsoon. The anchorage should be approached steering 247° , passing north of the beacon.

TANDJUNG LOSONI is steep and rocky and can be recognized by the three hills on it, the highest with an elevation of 702 feet.

In the bight between Tandjung Losoni and Tandjung Laroga the coast is low, and west of Tandjung Losoni at the entrance of a cleft in the mountains there are the villages of Kolono

and Bahumpombini. Anchorage can be taken off these villages, which are visible from seaward, in 27 fathoms. A large drying reef lies about $3\frac{1}{4}$ miles northwest of Tandjung Laroga and $1\frac{1}{2}$ miles offshore.

Teluk Talowa is an unimportant bay with depths of 20 to 50 fathoms. The shore is fronted by a broad coastal reef, and several small rocks covered with vegetation lie at the head of the bay. Alangalang, an island, lies on the coastal reef off the north point of the bay.

Several reefs and dangers lie near the 100-fathom curve off Teluk Talowa, which make the approach to the bay dangerous. DWARS IN DEN WEG, a partially drying reef, lies about $2\frac{1}{2}$ miles northeast of Tandjung Lalompa, the southeast entrance of Teluk Talowa. KIJKUIT, awash, lies outside the 100-fathom curve about $1\frac{3}{4}$ miles east-northeast of Tandjung Lalompa.

Cape Nederburgh and the Celebes coast southward is discussed in chapter 8.

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APPENDIX

CLIMATOLOGICAL TABLES

PORT—BALIKPAPAN, INDONESIAN BORNEO.—Latitude 01°15' S., longitude 116°50' E., elevation 10 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
TEMPERATURE														
Average (°F.)	77.9	78.1	77.9	78.1	78.4	78.1	78.1	78.8	79.0	78.8	78.1	77.9	78.3	6
Average daily maximum (°F.)	85.1	85.5	85.5	84.7	84.6	83.5	82.6	83.3	83.8	84.7	84.9	84.9	84.4	6
Average daily minimum (°F.)	72.9	72.9	72.7	73.0	73.6	73.4	73.2	73.9	73.9	73.8	72.7	72.9	73.2	6
Extreme highest each month (°F.)	91.2	91.2	91.4	89.8	90.9	89.6	85.1	85.5	87.6	91.0	91.2	91.2	91.4	6
Extreme lowest each month (°F.)	69.6	70.2	70.2	70.0	70.7	70.5	68.2	69.1	67.1	68.9	69.6	69.8	67.1	6
RELATIVE HUMIDITY														
Average percent (0800)	90	91	92	91	91	91	91	89	86	86	88	88	89	6
Average percent (1400)	77	76	76	79	80	79	80	76	74	76	77	74	77	6
PRECIPITATION														
Average amount (inches)	7.87	6.85	9.09	8.23	9.13	7.60	7.13	6.38	5.51	5.24	6.61	8.15	87.80	43
Mean maximum in 24 hours (inches)	2.05	1.89	2.32	2.21	2.48	2.13	2.05	2.01	2.05	1.89	1.93	2.09	4.57	43
Mean number of days with precipitation	14.0	12.7	14.6	13.3	13.0	12.1	11.1	10.7	8.6	9.4	11.8	14.9	146.2	43

BANDUNG, JAVA, INDONESIA.—Latitude 06°54' S., longitude 107°35' E., elevation 2,428 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
TEMPERATURE														
Average (° F.)	72	72	72	73	73	72	72	72	73	73	72	72	72	22
Average daily maximum (° F.)	81	80	81	82	82	82	82	83	84	84	82	81	82	22
Average daily minimum (° F.)	67	67	67	67	66	64	63	63	64	65	66	67	65	22
Extreme highest each month (° F.)	90	88	90	87	88	87	87	88	91	94	93	88	94	22
Extreme lowest each month (° F.)	59	60	59	57	57	53	52	53	53	57	55	59	52	22
RELATIVE HUMIDITY														
Average percent (0600)	90	90	90	91	90	89	88	87	87	89	89	89	89	22
Average percent (1400)	65	66	66	64	61	57	51	48	49	56	63	65	59	22
PRECIPITATION														
Average amount (inches)	7.83	7.13	9.45	8.94	5.47	3.58	2.44	2.32	3.35	6.61	9.29	9.09	75.50	50
Maximum in 24 hours (inches)	3.5	3.3	5.1	4.6	3.5	2.7	3.5	3.8	3.7	3.0	3.7	4.7	5.1	49-50
0.02 inch or more (mean number of days)	16.3	16.5	17.3	16.5	10.3	8.4	5.4	4.7	7.2	11.3	16.7	15.7	146.3	44

PORT—DJAKARTA.—Latitude 06° 11' S., longitude 106° 50' E., elevation 26 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1010	1010	1010	1009	1009	1010	1010	1010	1011	1010	1010	1009	1010	75
TEMPERATURE														
Average (°F).....	79	79	80	81	81	80	80	80	81	81	80	79	80	80
Average daily maximum (°F).....	84	84	86	87	87	87	87	87	88	87	86	85	86	80
Average daily minimum (°F).....	74	74	74	75	75	74	73	73	74	74	74	74	74	80
Extreme highest each month (°F).....	93	92	92	94	93	93	92	94	96	96	96	93	98	80
Extreme lowest each month (°F).....	69	69	69	69	70	67	67	67	66	69	68	67	66	80
RELATIVE HUMIDITY														
Average percent (0600) (L.S.T.).....	95	95	94	94	94	93	92	90	90	90	92	92	93	80
Average percent (1400).....	75	75	73	71	69	67	64	61	62	64	68	71	68	80
CLOUD COVER														
Average amounts (tenths).....	7.5	7.5	6.7	5.9	5.3	5.1	4.7	4.5	4.9	5.6	6.8	7.3		56
Less than 2/8 average amount (mean number of days).....	1	1	2	4	5	6	8	8	7	5	3	1	51	61
More than 6/8 average amount (mean number of days).....	18	18	15	11	9	8	6	6	7	10	14	17	139	61
PRECIPITATION														
Average amount (inches).....	11.8	11.8	8.3	5.8	4.5	3.8	2.5	1.7	2.6	4.4	5.6	8.0	70.8	78
Greatest amount (inches).....	32.4	29.2	19.4	14.7	13.2	12.7	8.3	7.5	9.7	11.7	12.7	22.4	96.9	67
Least amount (inches).....	2.9	4.4	2.0	0.9	0.4	0.0	0.0	0.0	0.0	0.0	1.3	2.2	45.9	67
Maximum in 24 hours (inches).....	2.6	2.8	2.1	1.9	1.7	1.5	1.2	0.8	1.1	1.6	1.7	2.1	2.8	78
0.04 inch or more (mean number of days).....	18	17	15	11	9	7	5	4	5	8	12	14	125	36
WIND														
Direction (percentage of 0600 obs. 0600 L.S.T.).....														
North.....	2	2	3	0	1	2	1	0	1	0	1	1		10
Northeast.....	4	2	1	1	5	6	2	5	3	1	2	2		10
East.....	8	5	8	10	19	11	12	14	21	11	9	6		10
Southeast.....	6	8	6	6	7	6	11	13	11	18	8	9		10
South.....	5	6	4	1	2	3	4	7	9	8	5	5		10
Southwest.....	7	4	6	3	2	1	2	2	3	5	5	8		10
West.....	14	8	10	4	1	0	1	0	1	1	8	15		10
Northwest.....	7	6	3	2	0	0	0	0	1	1	2	4		10
Calm.....	47	59	59	73	63	71	67	59	50	55	60	50		10
Direction (percentage of 1300 obs. 1300 L.S.T.).....														
North.....	21	17	21	30	22	21	20	32	49	45	38	27		10
Northeast.....	4	7	9	29	47	40	37	32	18	17	14	10		10
East.....	2	1	2	7	15	24	15	10	5	4	5	1		10
Southeast.....	0	0	0	0	1	2	2	2	1	1	2	1		10
South.....	2	1	0	0	1	1	2	1	0	2	1	1		10
Southwest.....	5	3	4	4	3	2	3	1	1	2	4	4		10
West.....	32	38	34	14	5	5	7	4	4	7	16	28		10
Northwest.....	33	33	30	16	6	5	13	18	22	22	20	28		10
Calm.....	1	0	0	0	0	0	1	0	0	0	0	0		10
34 knots or over (mean number of days).....	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Mean wind speed (knots) at 0600 (L.S.T.).....	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.6	0.3	10
Mean wind speed (knots) at 1300 (L.S.T.).....	4.9	4.7	4.5	3.7	3.7	3.3	3.1	4.3	4.5	3.7	3.7	4.1	4.0	10

PORT—JOLO, SULU, P.I.—Latitude 06°03' N., longitude 121°00' E., elevation 43 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1009	1009	1009	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	15
TEMPERATURE														
Average (°F.).....	80	80	80	80	81	81	81	81	80	80	80	80	80	15
Average daily maximum (°F.).....	85	86	86	87	87	87	87	88	87	87	87	86	87	15
Average daily minimum (°F.).....	74	73	73	73	74	74	74	74	73	73	73	73	73	15
Extreme highest each month (°F.).....	89	93	92	94	94	94	92	94	93	92	91	92	94	15
Extreme lowest each month (°F.).....	67	65	66	68	70	68	68	68	68	69	68	66	65	15
RELATIVE HUMIDITY														
Average percent (0000).....	93	94	95	95	95	95	93	94	94	94	95	94	94	10
Average percent (1400).....	77	76	76	76	77	77	74	73	74	76	76	76	76	10
CLOUD COVER														
Less than 2/10 average amount (mean number of days).....	0	0	0	0	0	0	0.1	0	0	0	0	0.1	0.2	10
More than 8/10 average amount (mean number of days).....	16	13	12	9	10	17	18	16	15	16	15	13	170	10
PRECIPITATION														
Average amount (inches).....	4.8	4.1	4.2	5.4	7.5	8.5	6.3	6.8	7.1	8.9	7.9	6.7	78.2	41
Maximum in 24 hours (inches).....	3.4	5.2	6.3	5.5	2.6	10.5	4.1	3.6	3.4	4.0	4.1	4.9	10.5	15
0.04 inch or more (mean number of days).....	8	6	7	8	13	16	13	13	13	17	15	10	139	10
WIND														
Direction (percentage of 0600 obs.):														
North.....	24	17	7	2	1	1	1	0	1	2	5	13	6	10
Northeast.....	16	10	7	3	1	2	1	1	1	1	3	13	5	10
East.....	5	4	5	2	3	2	1	1	1	2	2	1	2	10
Southeast.....	2	6	6	5	6	4	4	4	3	4	3	3	5	10
South.....	6	7	13	9	11	14	26	27	18	13	8	6	13	10
Southwest.....	1	1	0	3	4	4	11	10	8	6	6	4	5	10
West.....	1	1	0	1	4	4	6	4	4	9	8	4	4	10
Northwest.....	1	1	0	1	1	1	1	0	0	1	3	3	1	10
Calm.....	44	53	62	74	69	68	49	53	64	62	62	53	59	10
Direction (percentage of 1400 obs.):														
North.....	52	50	43	23	10	9	5	6	6	11	18	33	22	10
Northeast.....	28	24	19	13	7	11	3	5	6	10	12	20	14	10
East.....	1	1	0	1	3	3	1	1	1	1	1	1	1	10
Southeast.....	1	0	1	2	4	4	4	4	2	2	3	1	2	10
South.....	1	2	3	3	12	20	37	30	22	10	5	5	13	10
Southwest.....	1	1	6	7	16	16	23	20	16	16	11	4	11	10
West.....	7	11	16	36	35	27	22	25	41	38	38	21	20	10
Northwest.....	6	8	8	9	7	5	2	3	2	6	7	6	6	10
Calm.....	3	3	4	6	6	5	3	6	4	6	5	3	5	10
Mean wind speed (knots).....	6	5	5	4	5	5	7	6	6	6	6	6	6	5

PORT—KUPANG (INDONESIAN TIMOR).—Latitude 10° 10' S., longitude 123° 34' E., elevation 148 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1008	1009	1009	1010	1011	1011	1012	1012	1012	1011	1010	1008	1010	21
TEMPERATURE														
Average (°F.).....	81	81	81	81	81	80	79	80	81	83	83	82	81	21
Average daily maximum (°F.).....	87	87	87	89	89	88	88	89	91	92	92	89	89	21
Average daily minimum (°F.).....	75	75	74	73	72	71	70	70	71	73	74	75	73	21
Extreme highest each month (°F.).....	94	94	93	97	96	95	93	98	98	101	101	98	101	18
Extreme lowest each month (°F.).....	70	68	69	63	64	60	60	60	62	65	67	70	60	18
RELATIVE HUMIDITY														
Average percent (0800).....	85	86	86	81	70	69	67	62	61	62	67	80	73	21
Average percent (1400).....	71	72	69	55	51	48	45	44	45	49	55	67	56	21
CLOUD COVER														
Average amount (tenths) 0800.....	4.1	3.6	3.2	1.2	1.2	1.0	1.0	0.4	0.5	0.9	1.2	2.9	1.8	10
Average amount (tenths) 1200.....	4.2	3.8	3.6	2.2	1.7	1.8	1.7	0.9	1.1	1.9	2.6	3.8	2.4	10
PRECIPITATION														
Average amount (inches).....	15.20	13.66	9.21	2.56	1.18	0.39	0.20	0.08	0.08	0.67	3.27	9.13	45.63	63
Greatest amount (inches).....	26.97	30.20	19.76	7.09	15.51	3.62	2.05	0.47	0.51	7.05	8.03	15.12	81.97	15-16
Least amount (inches).....	5.28	0.28	3.39	0	0	0	0	0	0	0	0.24	2.48	30.16	15-16
Mean maximum in 24 hours (inches).....	3.54	3.58	2.48	1.18	0.51	0.32	0.16	0.08	0.08	0.39	1.34	2.32	4.88	63
0.02 inch or more (mean number of days).....	18	16	12	5	3	1	0.7	0.3	0.3	1	7	15	79.3	50
WIND														
Direction (percentage of 0700 obs.):														
North.....	16	5	7	3	0	0	4	0	3	13	17	8	6	3-4
Northeast.....	3	2	3	7	4	8	8	13	20	21	8	15	9	3-4
East.....	1	0	7	40	50	48	57	58	44	15	9	11	28	3-4
Southeast.....	1	2	0	19	26	20	13	14	17	9	3	3	11	3-4
South.....	2	0	0	5	4	0	3	1	2	5	1	1	2	3-4
Southwest.....	8	3	3	3	0	0	1	1	0	1	1	1	2	3-4
West.....	15	26	5	0	3	1	0	0	0	1	1	1	2	3-4
Northwest.....	11	7	7	3	0	0	0	0	0	3	1	3	5	3-4
Calm.....	43	55	68	20	13	23	14	13	9	28	50	53	33	3-4
34 knots or over (mean number of days) (0800).....	0	0	0	0	0	0	0	0.3	0	0	0	0	0-3	3-4

PORT—MAKASAR, CELEBES.—Latitude 05° 08' S., longitude 119° 28' E., elevation 6 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1009	1010	1009	1009	1010	1010	1010	1010	1010	1009	1009	1009	1010	4
TEMPERATURE														
Average (°F.).....	79	80	80	80	81	79	78	78	79	80	80	79	79	10-11
Average daily maximum (°F.).....	84	84	85	86	87	86	86	87	87	87	86	84	86	10-11
Average daily minimum (°F.).....	74	75	74	74	74	72	70	69	70	72	74	74	73	10-11
Extreme highest each month (°F.)*.....	88	89	89	91	92	91	92	94	95	92	91	89	95	11
Extreme lowest each month (°F.)*.....	70	70	70	69	63	63	63	62	58	65	66	69	58	11
RELATIVE HUMIDITY														
Average percent (0800).....	87	85	86	83	81	80	77	69	63	66	73	83	78	11
Average percent (1400).....	80	77	77	72	70	67	65	65	66	71	73	79	72	11
PRECIPITATION														
Average amount (inches).....	28.31	20.91	16.73	6.54	3.62	2.68	1.34	0.39	0.51	1.58	6.85	23.23	112.68	63
Mean maximum in 24 hours (inches).....	4.53	3.86	3.82	2.17	1.50	1.30	0.63	0.24	0.32	0.75	2.09	4.09	5.91	63
0.02 inch or more (mean number of days).....	25	20	18	10	8	6	4	2	2	5	11	22	133	50
WIND														
Mean wind velocity (m.p.h.)*.....	4.0	3.4	2.9	2.5	2.2	2.5	2.7	3.4	3.4	3.8	3.1	3.4	3.1	11

*05° 4' S., 119° 32' E., elevation 46 feet.

PORT—MANADO, CELEBES.—Latitude 01° 30' N., longitude 124° 50' E., elevation 5 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1010	1010	1010	1009	1009	1008	1009	1009	1009	1009	1009	1008	1009	15
TEMPERATURE														
Average (°F.).....	79	79	79	80	81	81	80	80	81	81	80	80	80	14-15
Average daily maximum (°F.).....	85	85	85	87	87	87	87	89	89	89	87	86	87	14-15
Average daily minimum (°F.).....	73	73	73	73	74	74	73	74	73	73	73	74	73	14-15
Extreme highest each month (°F.).....	91	92	92	92	92	93	93	94	96	97	94	92	97	14
Extreme lowest each month (°F.).....	67	67	68	69	69	68	65	66	67	65	66	68	65	14
RELATIVE HUMIDITY														
Average percent (0600).....	93	92	92	92	91	90	86	83	86	90	92	92	90	13-15
Average percent (1400).....	74	73	74	73	71	70	64	60	63	64	72	73	69	13-15
CLOUD COVER														
Average amount (tenths).....	5.0	5.0	4.8	3.2	3.6	3.4	2.7	2.1	3.0	3.6	3.6	3.8	3.7	6
PRECIPITATION														
Average amount (inches).....	18.3	14.1	12.0	7.8	6.3	6.4	4.7	3.8	3.4	4.8	8.6	14.6	104.8	50
Greatest amount (inches).....	47.44	30.24	33.62	19.41	14.84	15.12	14.57	11.38	11.26	15.63	29.53	45.00	158.90	67-68
Least amount (inches).....	4.08	3.03	2.01	0.91	1.85	1.42	0.0	0.0	0.0	0.0	1.50	4.41	62.60	67-68
Maximum in 24 hours (inches).....	9.61	5.03	7.44	4.13	6.38	5.43	8.43	8.15	4.02	3.31	5.59	8.07	9.61	41
0.02 inch or more (mean number of days).....	21	18	16	13	13	12	9	9	8	10	14	20	163	50
WIND														
Mean wind speed (knots).....	7.2	7.9	5.8	6.0	4.9	5.4	6.0	6.4	6.4	6.0	6.0	8.4	6.3	2
Prevailing wind direction.....	W	W	NW	W	E	E	ESE	ESE	ESE	E	W	W	---	2

PORT—PASURUAN, JAVA.—Latitude 07°38' S., longitude 112°55' E., elevation 16 feet

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1009	1009	1009	1009	1010	1010	1011	1011	1011	1010	1009	1009	1010	30
TEMPERATURE														
Average (°F.).....	81	81	81	81	81	79	79	79	80	82	83	81	81	17
Average daily maximum (°F.).....	88	88	88	88	88	87	87	87	89	90	90	88	88	17
Average daily minimum (°F.).....	74	74	74	74	73	71	70	70	71	73	75	74	73	17
Extreme highest each month (°F.).....	94	94	93	92	93	93	93	94	93	95	96	95	96	11-17
Extreme lowest each month (°F.).....	69	69	69	65	62	60	58	61	62	64	67	68	58	11-17
RELATIVE HUMIDITY														
Average percent (0600).....	91	91	91	91	90	87	84	82	80	79	81	87	86	10
Average percent (1200).....	64	65	66	64	59	56	52	49	49	49	54	60	57	10
PRECIPITATION														
Average amount (inches).....	8.9	11.0	8.4	5.4	3.7	2.2	1.0	0.2	0.2	0.7	2.4	6.5	50.6	50
Greatest amount (inches).....	23.39	19.06	17.52	18.07	19.25	10.08	10.39	4.09	4.09	8.07	12.09	16.46	90.16	71-72
Least amount (inches).....	1.57	4.17	1.58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.06	24.96	71-72
Maximum in 24 hours (inches).....	6.3	5.1	5.4	4.1	7.2	3.9	4.5	1.7	2.4	3.2	4.5	5.2	7.2	50
0.01 inch or more (mean number of days).....	17	17	15	9	6	4	2	1	1	1	5	13	91	50
WIND														
Direction (percentage of 0700 obs.):														
North.....	4	3	2	2	2	2	1	1	1	1	5	2	2	8
Northeast.....	0	0	1	1	0	1	0	0	0	0	0	1	0	8
East.....	2	4	2	1	2	2	2	1	1	0	1	3	2	8
Southeast.....	4	7	6	9	3	2	7	5	4	2	2	6	5	8
South.....	24	26	26	32	33	36	36	39	34	36	25	24	31	8
Southwest.....	23	19	24	30	27	30	41	40	44	40	41	31	33	8
West.....	41	40	35	25	32	25	13	13	16	20	25	32	26	8
Northwest.....	2	1	4	0	1	2	0	1	0	1	1	1	1	8
Calm.....	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Direction (percentage of 1200 obs.):														
North.....	45	51	50	56	62	53	51	54	58	58	60	46	54	8
Northeast.....	16	15	14	27	23	32	30	33	32	32	26	25	25	8
East.....	3	3	4	5	7	5	3	2	1	1	1	2	3	8
Southeast.....	1	1	1	1	1	1	1	0	1	1	0	1	1	8
South.....	0	1	1	1	1	1	1	1	1	0	1	1	1	8
Southwest.....	1	2	0	1	0	2	1	1	1	0	0	2	1	8
West.....	16	11	9	3	1	3	5	2	0	2	1	11	5	8
Northwest.....	18	16	21	6	5	3	7	7	6	6	11	12	10	8
Calm.....	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Average wind velocity (m.p.h.).....	2.7	2.5	2.2	2.5	2.5	2.7	3.1	3.8	4.3	4.0	3.1	2.9	3.0	10

PORT—SANDAKAN, BRITISH NORTH BORNEO.—*Latitude 05°50' N., longitude 118°07' E., elevation 152 feet*

Weather elements	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Years of record
SEA LEVEL PRESSURE														
Average (millibars).....	1010	1011	1010	1009	1009	1009	1009	1009	1009	1009	1009	1009	1009	9
TEMPERATURE														
Average (° F.).....	85	86	87	89	89	89	89	89	89	88	87	86	88	45
Average daily maximum (° F.).....	74	74	75	76	76	75	75	75	75	75	75	74	75	45
Average daily minimum (° F.).....														
RELATIVE HUMIDITY														
Average percent (0600).....	91	91	91	92	92	92	91	91	91	92	93	92	92	9-10
Average percent (1400).....	77	75	74	70	69	69	69	69	67	70	75	76	72	9-10
CLOUD COVER														
Less than 2/10 average amount (mean number of days).....	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	10
More than 8/10 average amount (mean number of days).....	19	14	14	11	11	12	13	13	13	17	16	17	170	10
PRECIPITATION														
Average amount (inches).....	19.0	10.9	8.6	4.5	6.2	7.4	6.7	7.9	9.3	10.2	14.5	18.5	123.7	46-47
0.04 inch or more (mean number of days).....	19	13	13	11	10	14	14	12	15	18	19	20	178	9-10
WIND														
Direction (percentage of 0600 obs.):														
North.....	11	7	8	6	1	1	0	1	1	4	2	6	4	10
Northeast.....	13	11	6	5	2	1	0	0	0	0	3	6	4	10
East.....	1	1	1	1	0	0	0	0	0	0	0	0	0	10
Southeast.....	1	2	2	6	6	9	8	8	5	6	3	2	5	10
South.....	3	1	6	6	8	12	17	13	13	7	4	2	8	10
Southwest.....	8	6	11	22	36	41	48	35	40	26	21	21	26	10
West.....	5	5	7	13	22	16	14	20	13	14	17	12	13	10
Northwest.....	13	12	6	7	4	3	1	0	2	5	8	10	6	10
Calm.....	45	55	53	34	21	17	12	23	26	38	42	41	34	10
Mean wind speed (Beaufort).....	0.7	0.6	0.6	0.8	1	1	1	1	1	0.9	0.8	0.9	0.9	9
Direction (percentage of 1400 obs.):														
North.....	28	21	19	23	10	3	3	5	6	13	15	22	14	10
Northeast.....	37	43	49	47	31	16	10	9	8	22	29	29	27	10
East.....	6	9	8	6	11	7	4	6	5	5	6	6	7	10
Southeast.....	3	2	3	6	16	21	20	21	20	13	6	6	11	10
South.....	2	2	2	2	8	18	20	19	19	11	6	5	9	10
Southwest.....	2	2	5	6	11	18	20	21	16	13	6	6	11	10
West.....	4	1	1	2	4	5	11	8	8	7	5	5	5	10
Northwest.....	14	13	8	7	6	5	3	3	5	6	14	12	8	10
Calm.....	6	7	5	1	3	7	9	8	13	10	13	9	8	10
Mean wind speed (Beaufort).....	1	1	1	1	1	1	1	1	1	1	1	1	1	9
VISIBILITY														
Days with visibility less than ½ mile.....	0.1	0	0	0	0	0	0	0	0	0	0	0.2	0.3	10

OCEAN AREA A

For location see figure 1 (sec. 1-34)

Months		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Pressure	¼ of obs. <---	1005	1006	1008	1009	1010	1010	1011	1012	1012	1010	1009	1009
Sea level pressure	Median	1008	1008	1009	1011	1011	1012	1013	1013	1013	1012	1010	1008
(Millibars)	¼ of obs. >---	1011	1010	1011	1012	1012	1014	1014	1014	1014	1014	1012	1009
Temperature, air (°F) ..	¼ of obs. <---	81	82	82	82	81	78	77	77	77	79	82	82
	Median	82	83	83	83	82	80	78	78	78	81	83	83
	¼ of obs. >---	83	85	85	84	83	81	79	79	80	83	84	86
Temperature, mean sea surface °F		83	84	84	83	82	80	78	79	79	82	84	85
Cloudiness:	¼ of obs. <---	1/8	2/8	2/8	2/8	1/8	1/8	1/8	1/8	1/8	1/8	2/8	2/8
Total cloud amount in eighths of sky cover.	Median	3/8	3/8	3/8	3/8	2/8	2/8	2/8	2/8	2/8	2/8	3/8	4/8
	¼ of obs. >---	5/8	5/8	4/8	4/8	4/8	4/8	3/8	3/8	3/8	4/8	4/8	5/8

Median—Half the observations fall below and half above this point.

OCEAN AREA B

For location see figure 2 (sec. 1-34)

Months		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Pressure	¼ of obs. <---	1009	1009	1009	1008	1008	1008	1008	1009	1008	1008	1008	1008
Sea level pressure	Median	1010	1011	1010	1009	1010	1010	1010	1010	1010	1009	1010	1010
(Millibars)	¼ of obs. >---	1012	1013	1012	1011	1012	1011	1012	1012	1012	1012	1012	1012
Temperature, air (°F) ..	¼ of obs. <---	80	80	80	81	82	82	81	81	81	82	81	80
	Median	81	81	81	82	83	83	82	82	82	83	82	81
	¼ of obs. >---	82	82	82	83	84	84	83	83	83	84	83	82
Temperature, mean sea surface °F		82	82	82	83	84	83	83	83	83	83	83	83
Precipitation: Percent of observations with precipitation		8.0	5.0	2.7	2.6	5.0	3.6	9.0	13.5	5.6	7.6	2.9	5.6
Cloudiness	¼ of obs. <---	3/8	2/8	2/8	2/8	2/8	2/8	2/8	1/8	2/8	2/8	2/8	2/8
Total cloud amount in eighths of sky cover.	Median	5/8	4/8	3/8	3/8	3/8	4/8	4/8	3/8	4/8	4/8	4/8	4/8
	¼ of obs. >---	7/8	6/8	6/8	5/8	5/8	6/8	6/8	6/8	6/8	6/8	6/8	6/8
Visibility: Percent of observations	<2 miles	1.4	0.9	0.0	0.0	0.6	0.0	2.2	0.9	0.0	1.0	0.0	0.0
	<5 miles	2.8	1.8	0.8	0.0	0.6	0.0	4.3	1.8	0.7	2.1	0.0	1.4

Median—Half the observations fall below and half above this point.

GLOSSARY

A

Abu-abu.....	Gray.
Adjab.....	Remarkable.
Air, ajer.....	Water, stream.
Air pelajaran.....	Channel, fairway
Air rendah.....	Low water.
Air tinggi.....	High water.
Alang alang.....	Reeds.
Alangan.....	Bar.
Alur pelajaran.....	Passage.
Angin.....	Wind.
Api.....	Fire.
Arus.....	Current.

B

Bahan peledak.....	Explosive.
Bakobako.....	Mangroves.
Bambar.....	Bamboo cane.
Bandar.....	Harbor, port.
Barat.....	West.
Barat daja.....	Southwest.
Barat laut.....	Northwest.
Baru.....	New.
Batang air.....	River.
Batu.....	Rock, stone.
Batu besar.....	Boulder.
Batu bulat-bulat.....	Boulders.
Batu karang.....	Rocky.
Besar.....	Great, large.
Besi.....	Iron.
Biru.....	Blue.
Budjur.....	Longitude.
Bukit.....	Hill.
Bukit pasir.....	Sandhills, dunes.

D

Dalam.....	Inner, deep, depth.
Danau.....	Lake.
Darat.....	Coast, land, the interior.
Daratan.....	Land.
Depa.....	Fathom.
Dermaga.....	Pier, quay, wharf.
Dibawah air.....	Submerged.
Dikenal.....	Conspicuous.
Dikentikan.....	Discontinued.
Dilarang.....	Prohibited.

Dirusak.....	Destroyed.
Diterangi.....	Lighted.
Djalan kereta api.....	Railway.
Djalan masuk.....	Entrance.
Djalan raya.....	Road, highway.
Djambatan.....	Jetty, mole, pier
Djankat.....	Shoal.
Djarak.....	Distant.
Djembatan.....	Bridge.
Djingga.....	Orange (color).
Doro.....	Mountain.

G

Gili.....	Islet, rock.
Gosong.....	Bank.
Gunung.....	Mountain.
Gunung Api.....	Volcano.

H

Hidjau.....	Green.
Hitam.....	Black, dark.

I

Ikan.....	Fish.
Itam.....	Black, Dark.

K

Kali.....	River, stream.
Kampung.....	Village.
Karang.....	Coral reef.
Karang pentjil.....	Rock, isolated.
Kedul.....	South, southern.
Kepulauan.....	Archipelago.
Kelapa.....	Coconut.
Ketjil.....	Little, small.
Kira-kira.....	About.
Kota.....	City, town.
Kota luar.....	Suburb.
Kuala.....	Estuary, river mouth.
Kuning putjat.....	Amber.

L

Labuhan.....	Anchorage, harbor.
Laguna.....	Lagoon.
Lama.....	Old.

Larangan	Prohibited.
Laut	Sea, north.
Lehoy	Bay.
Lehuk	Bay.
Lembek	Valley.
Lihat peta	(See chart).
Lihat rentjama	(See plan).
Lintang	Latitude.
Luar	Outer.
Luas	Large.
Lumpur	Mud.

M

Menaro	Tower.
Merah	Red.
Muara	Estuary.

N

Nipa	Palm (small marsh).
Nisa	Island.
Nusa	Island.

P

Pangkalan	Landing place.
Pantai	Coast, shore.
Pantjang	Pole, stake, pile.
Pasik	Reef.
Pasir	Sand.
Pegunungan	Range of mountains.
Pelabuhan	Harbor, road, roadstead, anchorage.
Pelabuhan perikanan	Fishing harbor.
Pelampung	Buoy.
Pendaratan	Landing place.
Penting	Prominent.
Pinggir laut	Coast, seaboard.
Pohon palem	Palm tree.
Pulau	Island.
Pulau ketjil	Islet.
Puntjak	Summit, peak.
Puntjak tinggi	Summit.
Putih	White.

R

Rakit	Float.
Rambu apung	Floating beacon.
Rambu pantjang	Fixed beacon.
Rambu radio	Radio beacon.
Rumah	House.

S

Sawang	Narrows, strait.
Selat	Narrows, strait, channel.
Selatan	South.
Semenandjung	Peninsula.
Seros	Fishing stakes.
Setasiun	Station.
Suar	Light.
Sungai	River.

T

Taka	Shoal, reef, rock.
Tambak	Mole.
Tanah	Ground.
Tanah medja	Tableland.
Tandjung	Cape, headland, promontory, point.
Tanggul	Mole, embankment, levee.
Teluk	Gulf, bay, cove, sound, bight, creek, inlet.
Tempat	Ground.
Tempat berlabuh	Anchorage.
Tengah	Middle.
Tenggara	Southeast.
Tenukis	Projected.
Tiang	Mast.
Tiang radio	Radio mast.
Timur	East.
Timur Laut	Northeast.
Tinggi	Altitude, height, lofty.
Tjadi	Little, small.
Tjandi	Shrine.
Tjemera	Fir tree.
Tjoklat	Brown.
Tjuitan	Narrows.
Toro	Cape, point.
Tripang	Beche-de-mer.
Trumbu	Drying reef.
Trusan	Connecting channel.
Tua	Old, ancient.
Tukuh	Islet.
Tukung	Islet, large rock.

U

Udjung	Cape, headland, point, promontory.
Ungu	Violet, purple.
Utara	North.

W

Wai	Stream, creek.
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INDEX

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