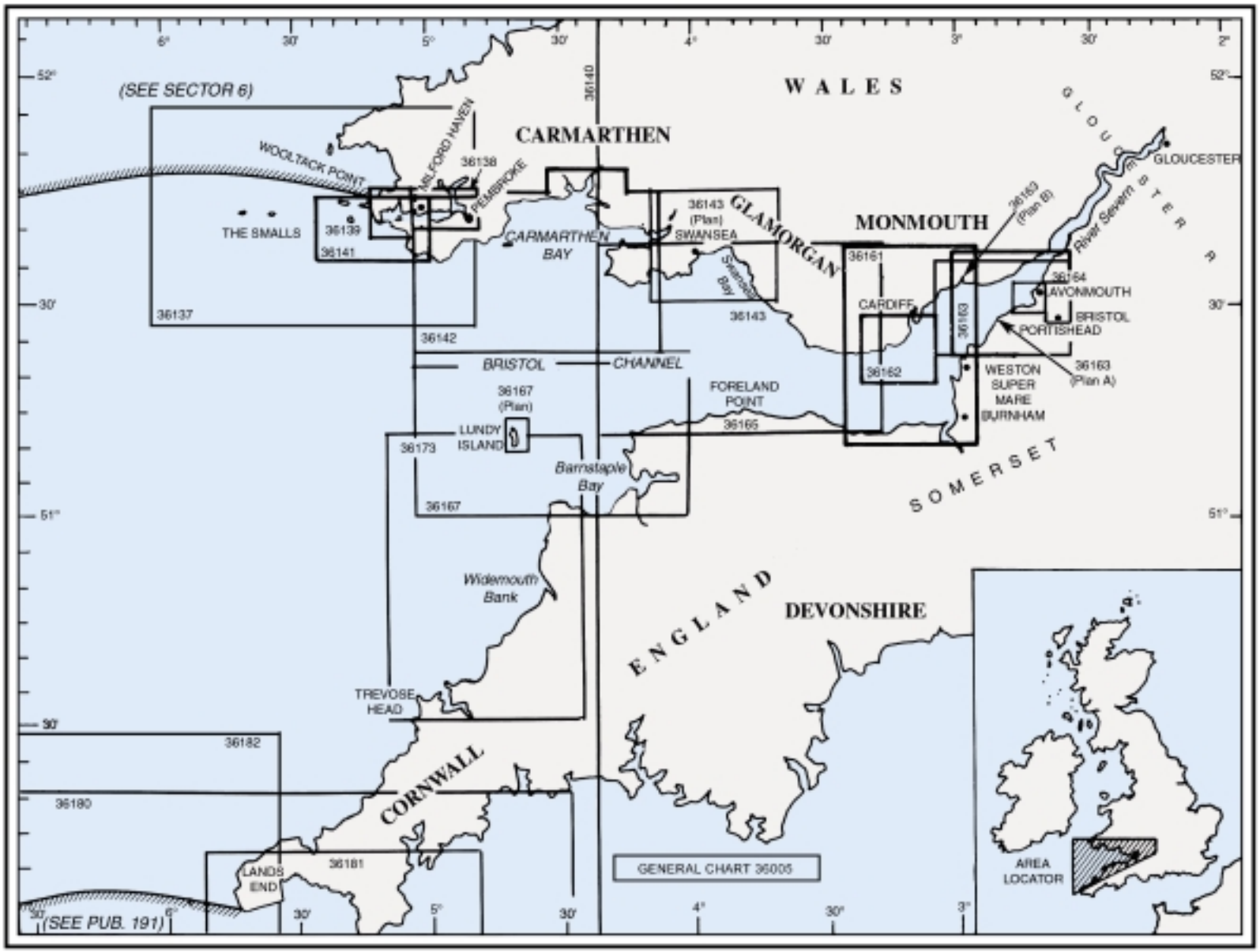

Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **7** — CHART INFORMATION

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SECTOR 7

WEST COAST OF ENGLAND AND WALES—BRISTOL CHANNEL

Plan.—This sector describes the W coasts of England and Wales from Lands End to **Wooltack Point** (51˚44'N., 5˚15'W.) and includes the Bristol Channel. The descriptive sequence is NE along the coast of Cornwall, NE along the S shore of the Bristol Channel, E along the N shore of the Bristol Channel, and NE at the head of the Bristol Channel and the River Severn.

General Remarks

7.1 Caution.—Submarines frequently exercise in the Irish Sea and the approaches to the Bristol Channel.

Vessels operating in connection with oil and gas exploitation, including seismic survey and drilling rigs, may be encountered within the waters described in this sector.

Numerous fishing vessels may be encountered within the waters described in this sector.

Lighted buoys associated with radar training may be encountered in the approaches to the Bristol Channel.

Numerous wrecks lie within the waters described in this sector and may best be seen on the chart.

Lands End to Hartland Point

Lands End (50˚04'N., 5˚43'W.), the W extremity of England, may be identified in clear weather from a distance of 25 miles. When first viewed from the SW or S, the land in the vicinity of this point has the appearance of two detached hummocks. From seaward, the most conspicuous objects are the steeple tower of St. Sennen church and the steeple tower of St. Burian church standing 1 mile E and 3.5 miles E, respectively, of the point. The seaward extremity of Lands End, known as the Peal, is fronted by Peal Rocks which are awash at LW.

Caution.—A Traffic Separation Scheme (TSS), which is IMO-adopted, has been established off Lands End and may best be seen on the chart.

Laden tankers should avoid the areas lying between the E boundary of the scheme and the coast and between the W boundary of the scheme and the Isles of Scilly.

Laden tankers over 10,000 grt using the TSS should stay at least 3 miles seaward of **Wolf Rock** (49˚57'N., 5˚49'W.) and should not use this TSS in restricted visibility or adverse weather.

For a full description of Wolf Rock, Seven Stones, the Isles of Scilly, and the S approach to the TSS, see Pub. 191, Sailing Directions (Enroute) English Channel.

Longships (50˚04'N., 5˚44'W.) consists of a group of detached rocks, 7 to 13m high, which lies centered 1 mile W of the extremity of Lands End. A main light is shown from a conspicuous tower, 36m high with a helicopter platform at the top, standing on the W and highest rock.

Numerous drying rocks lie within about 0.5 mile N and NE of Longships. Carn Base, a rocky bank, lies about 2 miles SSW of Longships and has a least depth of 9.9m. During W gales, heavy seas break over this bank. A narrow channel, with a least depth of 13.7m, leads between the dangers lying close E of Longships and Lands End, but it is not recommended.

Gamper Bay lies between Lands End and Pednmen-du, 0.5 mile NNE. It is backed by prominent cliffs, up to 60m high. Whitesand Bay is entered close N of Pednmen-du and is backed by cliffs, 15 to 61m in high. Sennen Cove, lying in the S part of this bay, is protected by a stone breakwater, 200m long, which dries at its outer end. Several rocks, awash at HWS, lie close N of Pednmen-du.

Cape Cornwall (50˚08'N., 5˚43'W.), located 3.7 miles N of Lands End, is 60m high and is surmounted by the prominent chimney of an abandoned mine. A group of detached rocks, mostly awash, lies about 0.4 mile NW of the cape and two rocky islets, 22 and 27m high, lie on a shoal bank 0.7 mile SSW of it.

Several prominent radio masts and a conspicuous television mast stand 2 miles ESE and 1.8 miles NE, respectively, of the cape.

Pendeen Point (50˚10'N., 5˚40'W.) is located 2.7 miles NE of Cape Cornwall. A main light is shown from a structure, 17m high, standing on this point. The coast between Cape Cornwall and Pendeen Point is rugged, indented, and formed by cliffs, 15 to 60m high. The shore is fronted by several drying rocks.

7.2 Off-lying dangers.—Cape Cornwall Bank (50˚14'N., 5˚50'W.), lying about 6.5 miles NW of Cape Cornwall, is a rocky ridge with a least depth of 22m. Isolated depths of 29 to 30m lie about 3.5 miles W of the S end of this bank.

Bann Shoal (50˚19'N., 5˚45'W.), lying about 10 miles NNW of Pendeen Point, is a rocky shoal with a least depth of 14.6m.

As the sea breaks heavily in bad weather on these banks, particularly during NW gales, their locality should be avoided, especially by small and heavily laden vessels.

7.3 Gurnard Head (50˚12'N., 5˚36'W.), located 3.2 miles NE of Pendeen Point, is high, rugged, steep, and surrounded by a mass of detached rocks. The Carracks, a large group of rocks, lies about 0.2 mile offshore, 2.3 miles NE of Gurnard Head. The largest rock is 7m high, but the others only dry up to about 1m. A wreck, with a depth of 11.9m, lies about 0.2 mile N of this group.

St. Ives Head (The Island) (50˚13'N., 5˚29'W.) is located 5 miles ENE of Gurnards Head. The coast between is rugged, indented, and has cliffs which vary between 15 and 76m in height. The head is formed by the seaward end of a small peninsula, 32m high, which is fringed by drying rocks and ledges and surmounted by an old battery and a watchtower.

Knills Monument, an obelisk, stands on a hill 1.5 miles S of the head and is conspicuous. A number of conspicuous hotels

stand 0.5 mile S of the head, but are not visible until the peninsula has been rounded.

St. Ives Bay lies between the head and Godrevy Point, 3.2 miles NE. Depths of 16 to 22m lie in the entrance and decrease gradually towards the head of the bay. The small tidal harbor of St. Ives lies on the W side of the bay and the entrance to the Hayle Estuary lies at the head. These two small tidal harbors are no longer used by commercial vessels. They are now principally used by fishing boats and pleasure craft with local knowledge.

Godrevy Island (50˚14'N., 5˚24'W.) is located close NW of Godrevy Point. A small detached islet lies close off its W side and its SE shore is fringed by detached rocks, some of which dry up to 3m. The Shore Lanner, a rocky ledge, extends about 100m seaward from its SW shore and is awash at LW. A main light is shown from a prominent tower, 26m high, standing on the island.

The Stones, a group of dangerous drying rocks, lies between 0.5 and 1 mile NW of Godrevy Island and is marked at the outer side by a lighted buoy. The Sound, a narrow passage, leads between The Stones and Godrevy Island. It has general depths of 8 to 14m and should only be used by small craft with local knowledge.

Portreath (50˚16'N., 5˚18'W.), a small tidal harbor, lies 4.5 miles ENE of Godrevy Island. It is closed to commercial vessels and is reported to be mostly silted up.

Carn Brea Monument stands on the summit of a hill which rises 3 miles SE of Portreath, and is conspicuous from seaward. A prominent television mast stands 1 mile SE of this monument.

The coast between Portreath and St. Agnes Head, 4 miles NE, is composed of cliffs, 46 to 61m high. A prominent white chimney, 12m high, stands on top of a cliff 1.7 miles NE of Portreath.

St. Agnes Head (50˚19'N., 5˚14'W.) is formed by a bold promontory, 91m high. It is backed by St. Agnes Hill which is 189m high and surmounted by a beacon. Several prominent buildings and chimneys are situated on the NE slope of this hill.

Cligga Head is located 2.5 miles NE of St. Agnes Head. Penhale Point, located 3 miles NNE of Cligga Head, is surmounted by several prominent mine buildings. Ligger Bay lies between these two points and is used by small craft. A dangerous wreck is reported to lie close W of Penhale Point.

Caution.—Vessels are cautioned against anchoring and fishing within 3 miles of the shore of Ligger Bay due to the existence of disused scientific instruments and cables.

Towan Head (50˚25'N., 5˚06'W.), 30m high, is located 3.2 miles NE of Penhale Point and is formed by the seaward extremity of a peninsula, 1 mile long, which protects the small harbor of Newquay from SW gales. This point is fronted by foul ground and an uneven bank, with a least depth of 7.6m, lies about 1 mile NW of it.

The Atlantic Hotel stands on high ground 0.5 mile SE of Towan Head and is conspicuous. A prominent war memorial, in the form of a cross, stands close W of this hotel.

Medusa Rock, with a least depth of 17.7m, lies about 3.2 miles W of Towan Head.

Newquay (50˚25'N., 5˚05'W.), a small tidal harbor, lies 0.5 miles E of Towan Head and is protected by two breakwaters. It is only used by fishing boats and pleasure craft. Good anchorage can be taken off the harbor, during offshore winds or in good and settled weather, in a depth of 9m about 0.6 mile E of Towan Head.

Park Head, located 4.5 miles N of Newquay, is fronted by rocks and foul ground which extend up to 0.5 mile SW of it. Several prominent radio masts and the conspicuous tower of a church stand 2 miles SE of this point.

7.4 Trevose Head (50˚33'N., 5˚02'W.), 71m high, is located 3 miles N of Park Head. When first seen, this headland has the appearance of a round island as the land within it is considerably lower. A main light is shown from a very conspicuous white tower, 27m high, standing on the NW part of the headland.

Several prominent cottages and buildings are situated on the neck of the headland, but are not visible when abreast of the point.

Quies Rocks, consisting of four principal above-water rocks, and The Bull, an above-water rock, lie about 1 mile W and 0.1 mile W, respectively, of the headland. A passage, with a fairway about 0.5 mile wide, leads between Quies Rocks and The Bull, but should not be used except in cases of necessity.

Diver Rock, with a least depth of 14.6m, lies about 3 miles W of Trevose Head.

Stepper Point (50˚34'N., 4˚57'W.), located 3.5 miles ENE of Trevose Head, is moderately high and bold. A light is shown from the E side of the point and a conspicuous stone tower, 12m high, stands on the W side and acts as a daymark. A flagstaff and several conspicuous buildings stand 0.5 mile S of the point.

A dangerous wreck and an isolated depth of 7.2m, lie about 0.6 mile W and 0.7 mile NNW, respectively, of the light.

Gulland Rock (50˚34'N., 5˚00'W.), 28m high, lies 2 miles W of Stepper Point and consists of two bold and rocky islets which are almost joined together. Detached rocky patches with least depths of 5.7m, 2.3m, and 2m lie close E, 1 mile SE, and 0.5 mile S, respectively, of Gulland Rock.

Inner Gulland Shoal, a rocky ridge, lies about 1 mile W of Gulland Rock and has a least depth of 10.9m. Outer Gulland Shoal, the NW and outer danger, lies about 1.5 miles NNW of Gulland Rock and has a least depth of 11.3m.

Padstow (50˚33'N., 4˚56'W.) (World Port Index No. 35170), a small harbor, lies 1.5 miles within the estuary of the River Camel which is entered between Stepper Point and Pentire Point, 1.3 miles NNE.

Tides—Currents.—The tides here rise about 6.5m at springs and 5.2m at neaps.

In the vicinity of the harbor, the flood current attains a rate of 1.5 knots at springs and the ebb current attains a rate of 2 knots. In the narrower parts of the channel, these currents may attain rates of 3 to 3.5 knots at springs.

Depths—Limitations.—The harbor consists of two basins and is protected by breakwaters which form an entrance, 85m wide. It is approached through a buoyed channel, about 200m wide, with charted depths over the bar of 0.2 to 0.9m. The outer basin has 240m of usable berthage and dries out to a bottom of soft mud. Fishing boats, pleasure craft, and coasters of up to 2,000 grt can be accommodated with drafts of up to 4.9m at MHWS and 3.9m at MHWN.

Pilotage.—Pilotage is compulsory for all cargo vessels over 30m in length and all vessels over 20m in length with a draft of more than 2.5m. Pilots can be contacted by VHF and board about 0.3 mile E of Stepper Point.

Caution.—The entrance channel is subject to frequent changes and should not be attempted without local knowledge.

7.5 **Rumps Point** (50˚36'N., 4˚55'W.), fringed by rocks, is located 0.6 mile NE of Pentire Point. The coast between is formed by prominent bold and dark cliffs backed by grassy slopes. A detached rock, with a least depth of 0.8m, lies about 0.3 mile WNW of this point.

Newland, a bold and pyramidal islet, lies 1 mile W of Rumps Point. This islet is 37m high and several drying rocks lie close E and W of it. Mouls, a pyramidal rock, lies 0.3 mile ENE of Rumps Point and is 47m high.

Portquin Bay, entered close E of Rumps Point, is bordered by steep and nearly inaccessible rocky cliffs which have no distinguishing features. Portquin, a small and narrow inlet, indents the NE side of this bay and a village stands on its S side. Small vessels can obtain anchorage within the W part of the bay in good holding ground.

Port Isaac (50˚35'N., 4˚50'W.), a small drying harbor, lies at the head of a creek entered 3.5 miles E of Rump Point. It is protected by two breakwaters and is used by fishing boats. A conspicuous square church tower stands on the high ground 1.2 miles S of the harbor.

Port Gavorne, a narrow drying creek, lies 0.5 mile E of Port Isaac and is only used by small craft at HW. Several houses stand at the head of this creek and become prominent when the entrance opens.

Tintagell Head (50˚40'N., 4˚46'W.), a bluff and prominent headland, is located 7.5 miles NE of Rumps Point. It is 79m high and backed by several rounded ridges which are higher than any portion of the neighboring coast. A conspicuous hotel stands on the high ground 0.2 mile E of the head and a conspicuous church, with a short tower, stands close within the cliffs 0.3 mile S of it.

Gull Rock, 41m high, lies about 0.3 mile offshore, 1.5 miles SSW of Tintagell Head.

Boscastle (50˚41'N., 4˚42'W.), a small fishing boat harbor, lies at the head of a narrow creek which dries. The creek is entered 2.7 miles NE of Tintagell Head between Willapark Point and Penally Point, 0.2 mile NE. Meachard Rock lies 0.2 mile NW of the entrance and is 37m high. A low tower and a white house are situated on Willapark Point and a flagstaff stands on Penally Point.

7.6 **Bude Haven** (50˚50'N., 4˚34'W.), a small harbor used by fishing boats and pleasure craft, lies 10 miles NE of Boscastle. The coast between is bold and indented by cliffs which vary in height between 37 and 213m.

Higher Sharpnose Point (50˚54'N., 4˚34'W.), located 4.5 miles N of Bude, is a prominent point which is fronted by a ledge. A group of conspicuous dish-shaped radar aerials stands near the coast 1.2 miles S of this point.

Hartland Point (51˚01'N., 4˚31'W.), located 7.2 miles N of Higher Sharpnose Point, is formed by the extremity of a dark brown tableland, 107m high, which slopes steeply to the sea; the adjoining cliffs are perpendicular. A main light is shown from a prominent tower, 18m high, standing close below the summit of the point. Several prominent white buildings and walls are situated close to the tower. A radio direction finding station is situated at the light.

A water catchment, surrounded by a white-washed wall, is situated on the N slope of the point and forms a conspicuous mark from the N. Another prominent white-washed wall marks the road which leads from the light tower towards the catchment.

The point is fronted by drying rocks and a dangerous wreck lies about 1 mile NW of it. Depths of 9 to 12m lie within 1.3 miles of the point and it should be given a wide berth.

The tidal currents along the coast between Cape Cornwall and Hartland Point follow the general direction of the coast.

Caution.—An outfall pipeline extends up to 0.5 mile seaward in the vicinity of Bude Haven.

Submarine cables, which may best be seen on the chart, extend seaward from a point on the shore 2.5 miles S of Bude Haven.

Numerous wrecks and isolated depths of less than 18m lie up to 5 miles offshore between Higher Sharpnose Point and Hartland Point.

During the strength of the tidal current, a race may extend up to 2 miles NW of Hartland Point.

Lundy

7.7 **Lundy** (51˚10'N., 4˚40'W.), an island 140m high, lies with its S extremity located 10 miles NW of Hartland Point and serves as an invaluable landmark for all vessels bound up the Bristol Channel. It consists mostly of granite and is encircled by nearly inaccessible cliffs.

A main light is shown from a prominent tower, 16m high, standing on a small peninsula at the SE end of the island. Another main light is shown from a prominent tower, 17m high, standing at the N extremity of the island.

A prominent disused light tower, 30m high, stands on the highest part of the island, 0.5 mile N of the SW extremity. A prominent wind motor stands close E of this disused tower. The conspicuous keep of Morisco Castle stands on the summit of the SE part of the island. A church, with a prominent tower, is situated 0.2 mile NW of the castle and is the best landmark in this vicinity when approaching from the S or E.

Numerous small rocks, some of which dry, front the shores of the island and lie up to about 0.2 mile seaward. A dangerous wreck lies about 1.5 miles NNE of the light at the SE end of the island.

Rat Island, a green hummock, lies close off the SE end of the island and is joined to it by a rocky ledge which dries. Hen and Chickens Rocks, consisting of a group of rocks, dries from 1.5

to 3m and extends up to about 0.3 mile W of the N extremity of Lundy. This group should be given a wide berth.

East Bank lies centered 1 mile NE of the SE extremity of Lundy. It is composed of sand and fine broken shells and has a least depth of 9.4m.

North West Bank (51˚12'N., 4˚44'W.) lies between 1 and 2 miles W of the N extremity of Lundy. It has a least depth of 12.8m and is connected to the N part of the island by a sunken ridge with depths of 22 to 33m. There are overfalls on this bank.

Stanley Bank (51˚13'N., 4˚37'W.), with a least depth of 8.2m, lies centered 2.7 miles NE of the N extremity of the island. Heavy tide rips, at times resembling breakers, indicate the position of this bank during the strength of the current.

Tides—Currents.—The tidal current setting ENE divides at a position about 3.5 miles SW of the island and increases its velocity to about 5 knots at springs off the N extremity. During the strength of the current, a heavy race extends up to about 1 mile N of the N extremity of the island and a very heavy race, known as The White Horses, forms over Stanley Bank. A heavy race also forms off the S end of the island and extends up to about 1.5 miles E of the SE extremity. Similar races form when the tidal current sets WSW, but the race over Stanley Bank is less violent and the race off the S end of the island extends up to about 1 mile SW of the SW extremity.

The rates of the tidal currents to the N and S of the island decrease to normal rates for that locality about 3 miles from the island.

Caution.—A marine nature reserve area, the limits of which are shown on the chart, has been established within the waters surrounding the island in order to protect its marine habitats and marine life. The island itself is a designated bird sanctuary.

A measured distance (2146.6m), indicated by beacons, lies off the SE side of the island and may best be seen on the chart.

Bristol Channel—South Coast

7.8 The Bristol Channel is entered between Hartland Point, on the S side, and Saint Govan's Head, on the N side, 37 miles NNW.

The coast between Hartland Point and Clovelly, 5 miles ESE, consists of nearly perpendicular cliffs. The most conspicuous cliff is Gallantry Bower, 110m high, which stands 4 miles E of Hartland Point.

Clovelly (51˚00'N., 4˚24'W.), a small harbor, is formed by a short pier which curves to the E. The harbor is used by small fishing boats and provides little shelter. The roadstead provides good anchorage in S and SW winds. The best anchorage is in a depth of 10m, mud, about 0.8 mile N of the pier. A picturesque and prominent village backs the harbor and is built on a thickly wooded slope. Clovelly Court, a large and conspicuous mansion, stands 0.5 mile NW of this village.

The Gore, a shallow and rocky ridge, extends up to 0.7 mile NNW from a point on the shore 1.5 miles E of Clovelly.

7.9 Bideford Bar (51˚05'N., 4˚15'W.), located 11 miles ENE of Hartland Point, lies off the common mouth of the River Taw and the River Torridge which discharge into Barnstaple Bay. Northam Burrows and Braunton Burrows are a succession of low sandhills, fronted by extensive drying sands, which lie on the S and N sides, respectively, of the river mouth. The port of Bideford consists of the lower reach of the River Torridge which leads S and is bordered by the towns of Appledore and Bideford, on its W bank, and the town of Instow, on its E bank. Barnstaple stands on the River Taw, 6 miles E of the mouth, but is no longer used by commercial vessels.

Tides—Currents.—Tides at Appledore rise about 7m at springs and 5m at neaps. Tides at Barnstaple rise about 4m at springs and 1.4m at neaps. Tides at Bideford rise about 6m at springs and 3.6m at neaps.

The currents run with considerable strength over the bar and into the Rivers Taw and Torridge, but off the bar, they are rotatory in character and feeble in strength, rarely exceeding a rate of 1 knot. Within the mouth of the river, it is reported that the tidal current to the N of Appledore can attain a rate of up to 5 knots at springs. The outgoing current from the rivers, when opposed by strong W winds, causes a high sea on the bar.

Depths—Limitations.—A buoyed channel crosses the bar which is composed of sand and gravel. It leads between the drying sand banks on either side of the mouth and has a least depth of 0.6m. Within the mouth, there are numerous facilities for fishing boats and pleasure craft.

A prominent road bridge spans the river near Bideford and has a vertical clearance of 24m. Appledore, near the river entrance, is fronted by a quay which can handle coasters of up to 800 tons and 5.5m draft at MHWS. The main commercial quay at Bideford provides 164m of berthage. It dries at LW and has a depths of 5.5m alongside at MHWS. Vessels of up to 82m in length, 12m beam, and 5m draft can be accommodated at MHWS.

Yelland Oil terminal, situated near the entrance of the River Taw, consists of a T-shaped pier with a berthing face, 25m wide. It can accommodate coastal tankers of up to 2,000 dwt and 4.6m draft at MHWS.

Aspect.—The entrance to the channel is marked by an outer lighted buoy, moored about 2 miles offshore. The entrance fairway is indicated by a lighted range which may best be seen on the chart.

Pilotage.—Pilotage is compulsory for all vessels over 350 grt. Pilots can be contacted by VHF and generally keep watch from 2 hours before HW when a vessel is expected. Pilots usually board in the vicinity of the outer lighted buoy, but will sometimes embark off Clovelly.

Anchorage.—Vessels waiting to cross the bar may anchor in depths of 14 to 17m, about 0.5 mile W of the outer lighted buoy.

Caution.—The channel over the bar is subject to constant changes and local knowledge is required. A ground swell sometimes causes steep and confused seas on the bar.

7.10 Baggy Point (51˚09'N., 4˚16'W.), a bold and barren bluff, is located 3.7 miles N of Bideford Bar. Baggy Leap, a rocky shoal, lies with its outer end located 0.8 mile WNW of the point and is marked by a buoy. Asp Rock, with a least depth of 3m, lies about 1.2 miles S of the point.

Two prominent radio masts stand 2.8 miles SE of Baggy Point.

Morte Point (51˚11'N., 4˚14'W.), located 3 miles NNE of Baggy Point, is rocky and barren, sloping from its summit in low cliffs. Morte Stone, which dries 7.3m, lies near the center of a rocky ledge which extends up to about 0.4 mile W of the point. It is marked by a buoy and is only covered for a short time at HWS.

Due to the shoals and obstructions lying in this vicinity, vessels are advised to stay in depths of at least 37m when rounding this point.

Bull Point (51˚12'N., 4˚12'W.), a prominent rocky point, is located 1.3 miles NE of Morte Point. A main light is shown from a prominent structure, 11m high, standing on this point.

A wreck, with a swept depth of 10.4m, and Rockham Shoal, with depths of less than 1.8m, lie about 0.5 mile W and 0.9 mile WSW, respectively, of the point.

Horseshoe Rocks (51˚15'N., 4˚13'W.), with a least depth of 8.8m, lies about 2.7 miles N of Bull Point and is marked by a lighted buoy, moored on its N side.

From Bull Point, the coast trends nearly straight for 3.2 miles to Ilfracombe. It is bounded by high and steep slopes which are intersected at Lee Bay, 1.1 miles E of Bull Point, by a deep and well-wooded valley. The shore is fringed with foul ground.

A prominent wind motor, 16m in high, stands on a hill 2 miles E of Bull Point.

7.11 Ilfracombe (51˚13'N., 4˚07'W.), a small drying harbor, is protected by a breakwater and used by fishing vessels and pleasure craft. It is not visible from seaward and lies on the S side of Lantern Hill. The town, which is a resort, backs the harbor and has numerous prominent white buildings. Anchorage off this harbor is reported to be inadvisable even in the summer, due to the strength of the tidal currents and the poor holding ground.

Combe Martin Bay (51˚13'N., 4˚03'W.) is entered 2.5 miles E of Ilfracombe and provides shelter. Vessels can find temporary anchorage within this bay, during good weather, in a depth of 14m.

Little Hangman, a well-defined conical hill, stands near the E entrance point of the bay. It is 214m high and conspicuous from seaward. The village of Combe Martin is situated at the mouth of the River Umber which flows into the SE corner of the bay. Only the NW part of the village and a church are visible from the bay.

Great Hangman, a high cliff of deep red color, stands 0.9 mile E of Little Hangman. It is backed closely by a hill which is 314m high and separated by a deep gorge from another hill, 345m high, standing 1 mile E.

Copperas Rock (51˚14'N., 4˚01'W.), with a least depth of 1.4m, lies 0.5 mile N of Great Hangman. This rock is marked by a buoy and the sea breaks heavily on it during strong winds.

7.12 Foreland Point (51˚15'N., 3˚47'W.), located 9.5 miles E of Combe Martin Bay, is the most prominent point on the S side of the Bristol Channel. It is fronted by rocks and rises abruptly, about 0.2 mile inland, to a hill which is 215m high and divided from the higher ground to the S by a conspicuous hollow or saddle. A main light is shown from a prominent tower, 15m high, standing on the point. A radiobeacon is situated at the light.

Foreland Ledge, an area of rocky ground, is centered 0.8 mile N of Foreland Point. It lies parallel with the coast and has a least depth of 6.9m. In bad weather, dangerous overfalls may be encountered in the vicinity of this shoal.

Sand Ridge, a dangerous and shallow shoal, lies between 0.5 mile and 1.5 miles W of Foreland Point and is composed of gravel. It has a least depth of 1.8m and is marked by a buoy, moored at the W end.

Several wrecks lie within 4 miles of Foreland Point and may best be seen on the chart.

Tides—Currents.—At a position about 1.2 miles N of Foreland Point, the tidal currents follow the direction of the trend of the coast and attain a maximum rate of 5 knots at springs. Farther offshore, in the fairway of the Bristol Channel, both tidal currents set up and down the channel and attain a maximum rate of 4.5 knots at springs. Close outside Sand Ridge, the tidal currents set E and W at rates of 4 to 5 knots.

Lynmouth (51˚14'N., 3˚50'W.), a picturesque resort village, is situated at the mouth of the Lyn River, 1.7 miles SW of Foreland Point. A shelf of boulders, which dries, fronts the mouth and a narrow channel, which has been scoured by the river, leads through it to a small craft harbor, enclosed by two stone jetties. Anchorage, during offshore winds, can be taken in the roadstead off the river mouth and S of Sand Ridge. A good berth is in a depth of 8m, sand and gravel, between 0.5 and 0.7 mile offshore and out of the strength of the tidal currents.

7.13 Gore Point (51˚13'N., 3˚38'W.), located 6 miles E of Foreland Point, is low, shingly, and fronted by boulders. The coast between consists of a range of hills which rises to a height of over 350m and is partly wooded.

Porlock Bay, entered E of Gore Point, provides anchorage in depths of 7 to 9m, partly out of the strength of the tidal currents. A valley extends inland for 3 miles from the S shore of the bay to Dunkery Hill which is 515m high. This hill is surmounted by a prominent beacon and is the highest peak visible from seaward along the S shore of the Bristol Channel.

Porlock Weir, a small village, stands on the W side of Porlock Bay. It is fronted by a basin, with dock gates, which is used by small craft.

Minehead (51˚12'N., 3˚28'W.), a small drying harbor, lies 4.7 miles ESE of Porlock Bay and is used by pleasure craft. It is protected by a breakwater, curving E, over which the sea breaks at HW during gales. Tides here rise about 10.6m at springs and 8m at neaps. Local knowledge is required for entry and the harbor may be contacted by VHF. Vessels of up to 60m in length and 2.5m draft can enter.

The ruins of a promenade pier extend up to about 180m N from a point on the shore close W of the harbor. The Gables, a shingle reef, lies about 0.7 mile ENE of the harbor and dries up to 3.3m. Outfall pipelines extend up to 0.4 mile seaward in the vicinity of Minehead and may best be seen on the chart.

Conygar Tower, a conspicuous landmark, stands on a wooded hill 2 miles SE of Minehead.

Blue Anchor Head is located 4 miles ESE of Minehead. The coast between is low, flat, and recedes to form a bay which is

fronted by a drying and rocky foreshore extending up to about 0.5 mile seaward. Good anchorage may be taken within Blue Anchor Roadstead, in depths of 5 to 7m, sticky blue clay, about 1.5 miles N of the point.

7.14 Watchet (51˚11'N., 3˚20'W.), a small drying harbor, lies 5.7 miles ESE of Minehead and is protected by two breakwaters.

Tides—Currents.—The tides rise about 11m at springs and 8.5m at neaps.

Depths—Limitations.—The harbor is fronted by a rocky foreshore which dries out to about 0.5 mile seaward. The entrance between the two breakwater heads is 28m wide. There are two main berths which dry at LW and have depths alongside of 5.7m at springs and 2.7m at neaps. Vessels of up to 3,900 dwt, 95m in length, and 5.5m draft can be accommodated at MHWS.

Aspect.—A light is shown from a prominent six-sided tower standing on the head of the W breakwater.

Pilotage.—Pilotage is compulsory for commercial vessels. Pilots can be contacted by VHF from 2 hours before HW and board about 1 mile N of the harbor entrance. Vessels should send an ETA at least 12 hours in advance.

Caution.—The harbor is subject to silting and vessels of up to 61m in length are advised to allow an additional 0.3m clearance; vessels of 61 to 95m in length should allow an additional 0.6m clearance.

Due to the strength of the tidal currents setting across the entrance, close attention should be paid when entering the harbor. Visiting pleasure craft should not attempt to enter without local knowledge.

Stoke Bluff (51˚12'N., 3˚12'W.), a prominent point, is located 5 miles E of Watchet. The coast between consists of cliffs of variegated color. A church, with a prominent square tower, stands 2 miles E of Watchet. It is situated on the slope of a hill at the village of West Quantoxhead, 0.8 mile inland. Two prominent radio masts stand on a hill 1.5 miles SW of Watchet.

Stoke Spit, which consists of stones and terminates to seaward in drying sand, extends up to about l.3 miles NW from Stoke Bluff. Kilve Patch, with a least depth of 3.7m, lies about 0.7 mile NW of the outer end of Stoke Spit.

Culver Sand (51˚17'N., 3˚15'W.), centered 5.5 miles NNW of Stoke Bluff, lies nearly parallel to the coast and is marked at its E and W extremities by lighted buoys. This bank is steep-to on its S side and is awash in places.

Caution.—Several floating targets and lighted buoys, which are used in connection with air-firing exercises, are moored in the vicinity of Stoke Spit.

Several disused cables lie in the waters N of Culver Sand.

7.15 Bridgwater Bay (51˚15'N., 3˚10'W.) is entered between Stoke Bluff and Brean Down, 10 miles NE. The latter point is formed by a conspicuous and bold projection, 98m high. This large bay, for the most part, is encumbered by drying mud flats which extend up to about 5 miles from the shore. Burnham-on-Sea, a resort town, is situated at the head of the bay. It stands close N of the entrance to the River Parrett which leads to the port of Bridgwater, 6 miles S. A church tower, surmounted by a turret, stands in this town and is very prominent and easily distinguishable from seaward.

Hinkley Nuclear Power Station stands on the S shore of the bay, 2.5 miles E of Stoke Bluff. The chimneys, 60m high, and main buildings of the station are very conspicuous from seaward.

The approach channel leading to the river mouth is entered 5 miles W of Burnham-on-Sea and is marked by an outer fairway lighted buoy which is moored 2.3 miles NE of Stoke Bluff. A bar occupies the first 2 miles of the channel and has a drying depth of 0.6m. The tides rise on this bar about 10.8m at MHWS and 8m at MHWN. The S side of the channel shelves very gradually, but the N side shelves more steeply and consists of hard sand. Within the bar, the channel becomes narrower and has depths of 1.5 to 3.7m.

The fairway is marked by lighted buoys and beacons which are moved as necessary. A directional light, which indicates the deepest water in the channel, is shown from a tower standing at Burnham-on-Sea. Vessels waiting to enter the channel may obtain good, although exposed, anchorage, in depths of 5 to 7m, about 1.8 miles NNE of Stoke Bluff.

Caution.—The deepest water is indicated by the directional sector light. Due to the constantly changing depths, the navigational fairway marked by the buoys does not always follow the deepest available water.

Fishing stakes, some unmarked, may be encountered outside of the buoyed channel.

7.16 Bridgwater (51˚08'N., 3˚00'W.) (World Port Index No. 35100), a small port, lies 8 miles upstream of the mouth of the River Parrett. It consists of several drying wharves which front the banks of the river.

Tides—Currents.—The tides at Bridgwater rise about 4.6m at springs and 1.9m at neaps.

The river is subject to a slight bore, about 0.5m high, at the first of the spring flood; at neaps, it is scarcely perceptible.

Depths—Limitations.—There are five main wharves, 52 to 150m in length, which dry at LW and have depths of up to 6.1m alongside at MHWS. Vessels of up to 1,800 dwt, 73m in length, and 4.5m draft can be accommodated. Vessels of light draft up to 82m in length can also be handled. There are facilities for general cargo, ro-ro, and tanker vessels.

A yacht marina, consisting of an enclosed basin, lies on the W side of the river, close N of the town.

Pilotage.—Pilotage for the river and the port is compulsory for all vessels over 30m in length. Pilots may be contacted by VHF and normally board off Burnham-on-Sea, between Lighted Buoy No. 2 and Brue Lighted Beacon. In bad weather, pilots will board at **Barry Roads** (51˚23'N., 3˚14'W.), but require 24 hours advance notice. Vessels should pass the outer approach lighted buoy no earlier than 3 hours and no later than 2 hours before HW.

Caution.—Overhead cables, with a vertical clearance of 33m, span the river 2.3 miles above the entrance.

7.17 Weston Bay (51˚20'N., 3˚00'W.) lies between Brean Down and Anchor Head, 2.3 miles NE. The latter point is formed by the W extremity of Worlebury Hill, a ridge, which rises to a height of 100m and is surmounted by a conspicuous radio mast and a water tower. The whole of this bay is blocked by mud flats which dry up to about 1.3 miles seaward of its E shore.

Birnbeck Islet lies 0.2 mile W of Anchor Head and is connected to it by a bridge. A pier used by small craft fronts the N side of this small islet. Weston Ledge, an isolated shoal patch, lies about 0.5 mile W of the islet and has a least depth of 1.2m.

The River Axe, which is navigable only by small craft at HW, flows into the SE corner of the bay. Knightstone, a small drying boat harbor, lies 0.3 mile SE of Anchor Head and is protected by a rocky projection.

Weston-Super-Mare, a resort town, extends along the N and E sides of Weston Bay. Grand pier, constructed on iron piles, extends 0.3 mile W from the NE shore of the bay and is conspicuous.

Steep Holm (51˚20'N., 3˚06'W.), 72m high, lies 2.7 miles WNW of Brean Down. This island has steep cliffs which render it inaccessible, except at the E end which is fronted by a shingle drying spit.

South Patches, a shoal, lies about 1.5 miles E of the E end of Steep Holm and has a least depth of 4.3m.

Sand Bay (51˚22'N., 2˚58'W.) lies between Anchor Head and Sand Point, 2 miles NNE. It is entirely filled by sand and mud flats on which numerous fishing stakes may be encountered. Swallow Rocks, which dry, extend up to about 0.2 mile W from Sand Point.

Wales—Wooltack Point to St. Govan's Head

Off-lying Dangers

7.18 The Smalls (51˚43'N., 5˚40'W.), a group of low rocks, forms the NW extremity of the approach to the Bristol Channel and is the W and outer danger in the approach to Milford Haven. A main light is shown from a prominent tower, 41m high, standing on the NW and largest rock. A racon is situated at the light.

Hats (51˚43'N., 5˚37'W.), an area of rocky ground, lies 2 miles E of The Smalls. It has a patch, with a least depth of 2.3m, which breaks in bad weather and is usually marked by tide rips except near slack water.

Barrels (51˚43'N., 5˚33'W.), an area of a rocky ground lies 4.2 miles ESE of The Smalls. Several drying rocks are located near the N end of this area and are usually marked by tide rips except near slack water.

Grassholm (51˚44'N., 5˚29'W.), a prominent island, lies 7 miles E of The Smalls and is 44m high. Mersey Rock, which dries 0.6m, lies close off its NE end and several other rocks lie close off the SW and S parts of the island. A tongue of foul ground extends 1.5 miles SE from the island and may cause tide rips at times.

Caution.—A Traffic Separation Scheme (TSS), which is IMO-adopted, has been established to the W of The Smalls and may best be seen on the chart. For further information, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean.

Laden tankers should avoid using the area lying between this TSS and The Smalls.

Laden tankers over 10,000 grt should not use the channel lying E of Grassholm unless navigating between St. Brides Bay and Milford Haven.

An Area to be Avoided, which is IMO-adopted, lies between The Smalls and Grassholm and may best be seen on the chart. This area should be avoided by all vessels laden with oil, gas, or noxious liquids substances and all other vessels of more than 500 grt.

During bad weather, the areas of Hats and Barrels are marked by heavy overfalls and heavy seas break over them.

As the tidal currents set directly from the N and S onto Grassholm, considerable races are formed off both ends of the island. In addition, a strong eddy or indraft is formed on the opposite side to that on which the tide is setting. These eddies may extend up to 0.5 mile from the island.

Vessels navigating to the SE of The Smalls in the vicinity of the approaches to Milford Haven should use caution as deep-draft vessels with limited maneuverability may be encountered.

Coastal Features

Wooltack Point (51˚44'N., 5˚15'W.), dark and rugged, is backed by a prominent peak, 54m high, which stands 0.3 mile inland. Tusker Rock, 1.5m high, lies close W of the point and a drying rock lies midway between.

Skomer Island (51˚44'N., 5˚18'W.) lies centered 1.5 miles W of Wooltack Point and forms a prominent feature when viewed from the N or S. It is surrounded by deeply indented precipitous cliffs which are nearly 60m high in places. The main part of this island is nearly level, but small rocky peaks, up to 70m high, are interspersed throughout. Garland Stone, a conical rock, lies close off the N extremity of the island and is 29m high. Mewstone, a conical and green-topped islet fronted by rocks, lies close off the S extremity and is 57m high. The Neck, a small promontory, forms the E extremity of the island and is connected by a low and narrow isthmus. Midland Isle, 45m high, lies close E of The Neck and is separated from it by a narrow passage with a least depth of 2.7m.

Jack Sound leads between Midland Isle and Wooltack Point. The fairway of this channel is 180m wide and has depths of more than 10m, but is bounded on both sides by drying rocks and shoals. Blackstones, a group of above-water rocks which never cover, lies 0.2 mile S of Midland Isle. Crab Stones, another group of rocks, extends E from Midland Isle and dry up to 5.6m. Several dangerous sunken rocks lie close SE and SSE of the outer rock of Crab Stones.

The Bench, a cluster of rocks which never cover, lie about 0.3 mile offshore, 0.8 mile S of Wooltack Point. Gateholm Island, 37m high, lies 1.5 miles SE of Wooltack Point and is fringed by shelving rocks which connect it to the mainland at LW.

Skokholm Island (51˚42'N., 5˚16'W.) lies 2.5 miles SSW of Wooltack Point. It has precipitous sides and attains a height of 50m near the SW end. A main light is shown from a prominent white tower, 18m high, standing at the SW end of the island.

An isolated rock lies close off the E end of the island which is formed by a low neck. A spit, composed of sunken rocks, extends about 0.3 mile NNE from this isolated rock and has a least depth of 2.1m. Several shoal patches lie SE of the isolated rock. The outer patch lies about 0.4 mile offshore and has a least depth of 6.3m. Several rocky patches lie off the W end of the island. The outer patch lies about 0.5 mile W of the W extremity and has a least depth of 9.4m.

Broad Sound, a wide and deep channel, leads between Skokholm Island and Skomer Island, but is partially obstructed by The Knoll, a rocky bank, which lies in mid-channel and has a least depth of 7.6m.

Tides—Currents.—Wildgoose Race forms W of Skomer and Skokholm Islands during the strength of the tidal currents. It is especially violent near the time of springs, with a strong wind blowing against or across the current, and is dangerous for small craft. A race of much less violence extends NE from Skokholm Island when the currents are setting strongly.

A strong current, with various and sudden eddies, is reported to set through Jack Sound and attain rates of 6 to 7 knots.

Milford Haven (51˚43'N., 5˚02'W.)

World Port Index No. 34880

7.19 Milford Haven, formed by the broad and deep outlet of the River Cleddau, is entered between Saint Ann's Head and Sheep Island, 2 miles ESE. The port is principally a major oil terminal for deep-draft tankers. Pembroke Dock, a cargo terminal, is situated at the E end of the haven.

Tides—Currents.—The tides in the haven rise about 7m at MHWS and 5m at MHWN.

The tidal currents within the entrance set nearly parallel to the channel. The ingoing current generally attains a rate of l.5 knots and the outgoing current a rate of 1.7 knots. Within the approaches, the tidal currents set approximately at right-angles to the line of approach and confused seas are often experienced off the entrance where the tidal currents meet.

Depths—Limitations.—East Channel, with a least depth of 9.8m, is entered between The Rows Rocks and Sheep Rock. This channel leads E of Chapel Rocks and close W of Thorn Rock. It is available to all vessels of suitable size and draft.

West Channel, the main deep-water entrance channel, has a least depth of 16.4m. It is entered between St. Ann's Head Shoal and Middle Channel Rocks and leads W of Chapel Rocks.

The entrance to the haven is exposed to the S and W and a heavy swell can be experienced. This condition should be taken into consideration when assessing underkeel clearance requirements. The minimum clearance allowed is generally 10 percent of the deepest draft.

Herbrandston Terminal, the former Esso Terminal, consists of a T-head jetty which extends 1,000m S from the N shore of the haven and has a berthing face, 1,350m long. It is reported (1994) to be only used for transshipment, repair, and lay-by. Vessels of up to 300,000 dwt and 366m in length can be accommodated.

Elf Marine Terminal, formerly Amoco, consists of a T-head jetty which extends 800m SSE from the N shore of the haven and has a berthing face, 700m long. It has two main outer berths, with depths of 11.6 to 18m alongside, and can accommodate tankers of up to 275,000 dwt.

Texaco Marine Terminal consists of two jetties which extend N from the S shore of the haven. The E jetty, a T-head, extends N for 360m and has a berthing face, 1,100m long. It has three main outer berths, with depths of 11.5 to 19.5m alongside, and can accommodate tankers of up to 300,000 dwt.

The W jetty, an L-head, extends N for 385m and has 1,150m of berthage along its seaward side. It is connected to the E jetty by a walkway. There are three outer berths, with maintained depths of 14.2 to 19.1m alongside; tankers of up to 300,000 dwt can be accommodated.

Gulf Terminal consists of three T-head jetties which extend S from the N shore of the haven. The middle and main deep-water jetty has a depth of 16.8m alongside and can accommodate tankers of up to 165,000 dwt.

The above terminals also provide facilities for LPG vessels.

Milford Dock, a wet dock, lies on the N side of the haven, 3.2 miles E of the entrance. It has 1,530m of quayage with a dredged depth of 10.4m in the main part and a depth of 6.7m in the N and S parts. The dock is entered through a lock which is 165m long, 19.8m wide, and has a depth of 7.9m over the sill. The approach channel leading to the lock is dredged to a charted depth of 2.9m. Vessels of up to 137m in length, 17.6m beam, and 7m draft can enter. The dock is used by small cargo vessels and has extensive facilities for fishing vessels. A drydock and a marina are situated within the wet dock.

Pembroke Dock lies on the S side of the haven, 1.5 miles E of the Gulf Terminal. The ro-ro ferry terminal berth has a dredged depth of 6.4m alongside and can accommodate vessels of up to 130m in length. In addition, there are three main quays, 72 to 185m long, with depths of 6.5 to 11m alongside. Vessels of up to 30,000 dwt, 160m in length, and 11m draft can be accommodated.

An L-head jetty lying E of the ro-ro terminal has a depth of 6.1m alongside and is used by offshore supply vessels of up to 5,000 dwt.

Carr Jetty lies W of the ro-ro terminal and fronts a small naval base. It has dredged depths of 5.4m alongside its head and 9m alongside its NE side.

Extensive marina facilities for yachts are situated on the N shore of the haven, NNE of Pembroke Dock.

The controlling depths, for all states of the tide, are 16.2m up to the Texaco Marine Terminal and 12.8m up to the Gulf Terminal. It was reported (1988) that a vessel of 355,000 dwt had been accommodated within the port. Generally, VLCCs with drafts of up to 20m can be accommodated on most high waters. The local authorities should be consulted for the latest information concerning depths.

Aspect.—St. Ann's Head (51˚41'N., 5˚10'W.), a bold promontory, is 37m high and forms the W entrance point of the haven. Its steep cliff face has a distinctive reddish-brown color. A main light is shown from a tower, 13m high, which stands near the cliff edge and is attached to several prominent buildings. A conspicuous disused light tower, used as a coastguard station, is situated close NW of the light.

St. Ann's Head Shoals, with depths of 5.5 to 11m, extends up to about 0.5 mile S and SW of the point and is marked by a lighted buoy. A detached shoal, with a least depth of 4.4m, lies about 0.5 mile ENE of St. Ann's Head and is marked by a lighted buoy.

Middle Channel Rocks, a rocky shoal bank, lies about 0.7 mile SE of St. Ann's Head and has a least depth of 5.3m. A lighted beacon stands on the rocks at the NW side of this bank and a lighted buoy is moored about 0.2 mile SW of it. The Rows Rocks, a rocky shoal, lies close E of the E side of Middle Channel Rocks and has a least depth of 8m.

Sheep Island (51˚40'N., 5˚07'W.), the E entrance point of the haven, lies 2 miles ESE of St. Ann's Head and is fronted by foul ground. This island is 36m high and connected to the mainland by a drying ledge. A small islet lies close off its W side.

Sheep Rock, with a least depth of 6m, lies about 0.5 mile WSW of the W end of Sheep Island and is marked by a lighted buoy. Several shoal patches, with depths of less than 10m, lie within 0.3 mile S and SW of the island.

Chapel Rocks, a rocky shoal bank, lies about 0.8 mile NW of Sheep Island. It has a least depth of 3.5m and is marked by lighted buoys. Thorn Rock, with a least depth of 3.7m, lies about 1 mile NE of Chapel Rocks and is marked by a lighted buoy.

Several oil refinery complexes, with associated tank farms and prominent chimneys, are situated along the shores of the haven and may best be seen on the chart. A prominent power station stands on the S side of the haven, 5.5 miles E of the entrance, and has a conspicuous chimney, 218m high. A prominent road bridge, with a vertical clearance of 37m, spans the haven 8 miles E of the entrance. The river above this bridge is only used by small craft.

The entrance channels are marked by lighted buoys. The W entrance channel and haven fairways are indicated by lighted ranges which may best be seen on the chart. The centerline ranges of the W entrance channel are fitted with high intensity lights which are used in daylight, in reduced visibility, or at any time upon request.

Pilotage.—Pilotage is compulsory for all vessels over 50m in length with certain exemptions. Pilots can be contacted by VHF and vessels should remain at least 5 miles off St. Ann's Head until radio contact has been established. Pilots board about 4.5 miles SSW of the light on St. Ann's Head.

Regulations.—A Vessels Traffic Service (VTS) scheme has been established within the approaches to the haven. This scheme is mandatory for all vessels over 20m long entering or departing the port of Milford Haven and provides full radar surveillance for the control of shipping. Milford Haven Radio is the call sign of the VTS control station.

Vessels inbound should send an ETA at least 12 hours in advance with any subsequent amendments at least 2 hours before arrival.

Vessels should then confirm their ETA by VHF when within 20 to 30 miles of St. Ann's Head.

Vessels within 1 hour of their arrival off St. Ann's Head should contact the VTS control station on VHF channel 16 and subsequently maintain a listening watch on VHF channel 12 or 14 as directed.

Inbound vessels must report to the VTS control station when passing the following:

1. West Approach (51 39.3'N., 5 18.0'W.).
2. South Approach (51 36.25'N., 5 14.10'W.).
3. East Approach (51 36.25'N., 5 08.60'W.).
4. West Channel (St. Ann's Lighted Buoy).
5. East Channel (Sheep Lighted Buoy).
6. Thorn Rock Lighted Buoy.
7. Cunjic Lighted Buoy.
8. Wear Spit (when bound for Pembroke Dock).

Outbound vessels must report to the VTS control station when passing the following:

1. Wear Spit.
2. Milford Dock (only when leaving Milford Docks).
3. Cunjic Lighted Buoy.
4. Esso Lighted Buoy.
5. West Channel (St. Ann's Lighted Buoy).
6. East Channel (Sheep Lighted Buoy).

All vessels should report to the VTS control station when entering the entrance channels. All vessels underway within the haven should maintain a VHF watch as directed. Vessels anchoring within the haven should report to the VTS control station and maintain a VHF watch. Vessels may also request information concerning wind speed and height of tide from the VTS control station. Within the limits of the port, vessels of over 50,000 nrt should exhibit the shapes and lights for a vessel constrained by draft. During restricted visibility, such vessels should make the appropriate sound signals. Other vessels are requested to give a wide berth to vessels exhibiting the above shapes or lights or making the above sound signals.

Signals.—Traffic signals are displayed from a flagstaff located on the E side of the Milford Docks en-trance, as follows:

Meaning	Day Signal	Night Signal
Dock gates are open. Vessels may enter.	Blue flag.	Two fixed green lights, vertically disposed.
Vessels may leave the dock.	Signal arm lowered at inner end of dock.	Fixed green light at inner end of dock.

Anchorage.—Anchorage is reserved for large vessels of up to 12m draft in Dale Roads which lies in the W part of the haven and N of the fairway channel. This roadstead is exposed to wind and swell and has an uneven rocky bottom which does not always provide a good holding area. Smaller vessels may anchor in Dale Shelf Anchorage, which lies W of Dale Roads, in Sandy Haven Anchorage, which lies NE of Dale Roads, or in Stack Anchorage, which lies ESE of Dale Roads. Several wrecks and obstructions lie in the vicinity of these anchorage areas and may best be seen on the chart.

When anchoring, mariners should take care not to obstruct the range light marking West Channel.

Caution.—Vessels in the vicinity of the approaches to the haven should navigate with caution as deep-draft vessels with limited maneuverability may be encountered.

Deep-draft vessels are advised not to anchor in the approaches to the entrance channels.

A disused explosive dumping ground area, which may best be seen on the chart, lies 7 miles WSW of the entrance to the haven.

Several submarine cable areas lie in the vicinity of the entrance and within the haven and may best be seen on the chart.

A spoil ground area lies close seaward of the entrance to the haven and can best be seen on the chart.

Several unlighted mooring buoys are situated within the haven and adjacent to the fairway.

Vessels with a draft of over 12m are advised not to anchor within a radius of 5 miles from the light on Middle Channel Rocks. Passing vessels are also advised to keep at least 5 miles off the light on Middle Channel Rocks.

Vessels with a draft of over 12m are advised not to anchor within a radius of 5 miles from the light on Middle Channel Rocks. Passing vessels are also advised to keep at least 5 miles off the light on Middle Channel Rocks.

Coastal Features (Continued)

7.20 Freshwater West Bay (51˚39'N., 5˚05'W.) is entered between Sheep Island and Linney Head, 4 miles SE. It provides sheltered anchorage during offshore winds in depths of not less than 16m; inside this depth, the bottom is foul. The N side of the bay is formed by bold cliffs, but the E side has a sandy foreshore.

Turbot Bank (51˚37'N., 5˚08'W.) lies 2.5 miles W of Linney Head. This shoal bank has a least depth of 9.6m and is marked by a lighted buoy. During bad weather, tide rips and a dangerous short sea may be encountered in this vicinity.

Linney Head (51˚37'N., 5˚03'W.) is formed by dark and perpendicular cliffs, 46m high, and has a flat summit. A rock, which dries 4m, fronts the head and a shoal patch, with a depth of 6.7m, lies about 0.5 mile SW of it.

Crow Rock, which dries 5.5m, lies 0.5 mile SSE of Linney Head and is marked by a ruined beacon. The Toes, consisting of several shallow rocks, extends up to 0.2 mile NW and 0.5 mile SE of Crow Rock.

Pen-y-holt Stack is located 0.4 mile ESE of Linney Head. It is prominent, 23m high, and stands on the foul ground fronting the coast.

Caution.—Numerous lobster pots may be encountered in Freshwater West Bay and within 1.5 miles of Linney Head.

Bristol Channel—North Coast

7.21 The Bristol Channel is entered between St. Govan's Head and Hartland Point which is located on the S coast, 37 miles SSE.

St. Govan's Head (51˚36'N., 4˚55'W.), located 5.5 miles ESE of Linney Head, is formed by a perpendicular and bare limestone cliff, 37m high. The land behind the head is nearly level and the conspicuous tower of St. Petrox church, situated 2.5 miles N, can be identified from seaward. The old chapel and the well of St. Govan, the former being a small and crude structure with a belfry, are situated on a shelf halfway up the cliff, 0.5 mile W of the head. The spire of Warren church, standing 3.2 miles NW of the head, is also prominent.

Rocky shoal patches, with depths of 8.5m, lie about 1.2 miles E and 1.3 miles ESE of the head. Several shoal patches, with depths of 12.8 to 16.5m, lie within 5 miles of the head.

St. Gowan Shoals (51˚33'N., 4˚57'W.) consist of several patches with depths of less than 18m. The outermost of these patches has a depth of 6.4m and lies about 4 miles SW of St. Govan's Head. There are overfalls over this uneven shoal area and the sea breaks over it in heavy weather.

A lighted buoy (St. Gowan), equipped with a racon, is moored about 4.8 miles SW of St. Govan's Head and vessels should pass to the S of it.

Caution.—A tidal race extends up to about 0.6 mile seaward of St. Govan's Head.

Numerous inshore trawlers may be encountered in the vicinity of St. Govan's Head during the summer months.

Stackpole Head (51˚37'N., 4˚54'W.), located 1.2 miles NE of St. Govan's Head, has a bold and sharp outline and its extremity is almost detached. Vessels can anchor in a depth of 11m about 0.5 mile N of this head, but S winds soon raise heavy seas in the roadstead.

Old Castle Head, located 4.5 miles ENE of Stackpole Head, is the S termination of a distinctive summit which is 56m high and rises close inshore. This head should be given a wide berth as the tidal currents set directly onto it and produce overfalls and a short, broken sea.

Lydstep Point, located 1 mile ENE of Old Castle Head, is formed by a narrow ridge of limestone, 43m high. Shoal patches, with depths of 2.8 and 4.2m, lie about 0.8 mile E of this point.

Giltar Point is located 1.8 miles ENE of Lydstep Point and a line of vertical cliffs extends up to 1.3 miles W of it. The coast extending N from this point consists of high sand dunes which are fronted by drying sands.

Between St. Govan's Head and Caldey Island, the tidal currents set directly and attain maximum rates of 3 knots at springs and 2 knots at neaps.

Caldey Island (51˚38'N., 4˚41'W.), 56m high, lies 1 mile SE of Giltar Point. It is mostly bounded by cliffs of moderate height, the highest being on the S and NE sides. A prominent monastery, with a round tower, stands near the center of the island. A main light is shown from a conspicuous tower, 16m high, standing near the SE end of the island.

Offing Patches, consisting of several small areas of foul ground, lies within 1 mile of the S side of the island and has a least depth of 6.8m. Drift Rock, with a least depth of 9.1m, lies about 1.3 miles SE of the light and the tidal current, setting W, occasionally causes a considerable sea over this rock.

A ledge of rocky shoals, with a least depth of 3.7m, fronts the E side of the island. Spaniel Shoal, the E and outer of these dangers, lies about 0.5 mile E of the E end of the island and is marked by a buoy.

Eel Spit, a rocky ridge, extends about 0.3 mile N from the N extremity of the island and has a least depth of 1.8m. Highcliff

Bank, with a least depth of 1.9m, extends 0.8 mile N from the N side of the island and is marked by a buoy.

St. Margaret's Island, bounded by cliffs, lies 0.2 mile W of the NW end of Caldey Island to which it is connected by a drying reef. Caldey Sound lies between the mainland coast and St. Margaret's Island. This channel provides temporary anchorage in a depth of 15m, but the holding ground is poor.

Man of War Roads lies centered 0.6 mile NE of the E end of Caldey Island and affords shelter from winds between SSW and NNW. Vessels can anchor in depths of 11 to 13m, sand over sticky clay, with little tidal current. Caldey Roads, lying between Eel Spit and Highcliff Bank, affords anchorage in depths of 5 to 9m.

Caution.—Several submarine cables lie between the N coast of Caldey Island and the mainland.

7.22 Carmarthen Bay (51˚41'N., 4˚30'W.) is entered between Caldey Island and Worms Head, 14 miles ESE. The common estuary of the River Tywi and River Taf lies at the head of this bay and Burry Inlet is located on the E side.

Trawlers Dread is located in the approach to the bay. This rocky shoal patch lies about 5.5 miles ESE of Giltar Point and has a least depth of 12.8m.

Tenby (51˚44'N., 4˚42'W.), a small resort town, is situated 1.3 miles NNE of Giltar Point. It stands on a bold promontory which terminates E in Castle Hill, a narrow peninsula of rock, on which stands a monument. A church, with a conspicuous spire, stands near the center of the town. A small island, 28m high, lies close SE of Castle Hill and is connected to it by a drying ridge of sand. A small tidal harbor, which dries, fronts the town and is used by fishing vessels and pleasure craft. Tenby Roads, lying NE of Castle Hill, affords good anchorage in depths of 5 to 7m, sand over mud.

The Yowan, an isolated shoal patch, lies about 2.3 miles ESE of Tenby and has a least depth of 4.4m. Woolhouse Rocks, formed by a narrow reef which dries, lies about 1.5 miles SE of Tenby and is marked by a buoy.

Saundersfoot (51˚43'N., 4˚42'W.), a small town, is situated 2.3 miles N of Tenby. It is fronted by a small tidal harbor which is formed by two piers and used by fishing vessels and pleasure craft. A prominent castle stands on high ground, 0.7 mile N of the harbor.

Monkstone Point, fronted by two small islets, is located 0.9 mile SSE of Saundersfoot. Three prominent radio masts stand close SW of this point.

Cefn Sidan Sands (51˚43'N., 4˚26'W.), an extensive area of drying sandbanks, lies in the NE part of the bay and fronts the common river estuary. These sandbanks are clearly defined in bad weather by a heavy sea breaking on them. A bar lies at the W end of the sandbanks, but no attempt should be made to cross it without local knowledge as the depths and channels change frequently. The town of Carmarthen stands on the W bank of the River Tywi, 10 miles above the bar, and can be reached by small craft.

Burry Holms, 31m high, is located 2.7 miles NNE of Worms Head. This grassy islet lies close off the W end of the Gower Peninsular to which it is connected by a drying spit of sand and rock. Foul ground, with depths of 5 to 11m, lies between 1.5 and 2.5 miles W of the islet. Hall Rock, with a least depth of 6.7m, lies near the W extremity of this foul ground area.

Burry Inlet is entered on the E side of the bay N of Burry Holms. This inlet, for the most part, is encumbered with shifting sands and the depths and channels change frequently. Burry Port, a small drying harbor, lies 1.5 miles ENE of the N entrance point of the inlet and is used by fishing boats and pleasure craft.

It was reported (1990) that the harbor at Llanelli, lying 3 miles E of Burry Port, had fallen into disrepair and was no longer open to commercial traffic.

Rhossili Bay (51˚35'N., 4˚19'W.) lies between Burry Holms and Worms Head, 2.7 miles SSW. The shore of the S half of this bay is formed by prominent limestone cliffs, 30m high, which are backed close inland by hills, 189m high. Anchorage can be obtained within this bay, sheltered from S winds. Small vessels can anchor in a depth of 5m, stiff mud, about 0.5 mile NE of Worms Head. Larger vessels can anchor in a depth of 9m about 1 mile N of the same point.

Worms Head (51˚34'N., 4˚20'W.), the SE entrance point of Carmarthen Bay, is formed by the W extremity of an island, 53m high, which lies close W of Rhossili Point and has three conspicuous hummocks.

Caution.—Several buoys, which mark exercise and practice firing ranges, are moored in the vicinity of Carmarthen Bay and may best be seen on the chart.

An outfall pipeline extends 1.5 miles ESE from a point on the shore close SW of Tenby.

7.23 Port Eynon Point (51˚32'N., 4˚12'W.) is located 4 miles SE of Rhossili Point. The coast between consists of rugged, broken, and nearly perpendicular cliffs which vary in height from 30 to 61m. The shore is fronted by drying rocks and a reef, which dries, fronts the S side of Rhossili Point.

Port Eynon Point is 43m high, perpendicular, and surmounted by a small monument. Two small and low islets lie on a drying rocky ledge which extends 0.2 mile E from this point.

Helwick Sands (51˚32'N., 4˚18'W.) extend W for about 7 miles from a position about 0.3 mile S of Port Eynon Point. The W part of the sands, known as West Helwick, has a least depth of 1.3m and the E part, known as East Helwick, has a least depth of 3.7m. Helwick Swatch, a narrow passage, leads across the sands about midway between East Helwick and West Helwick and has a least depth of 5.5m. Helwick Pass, another narrow passage, separates the E end of the sands from Port Eynon Point and has a least depth of 2.4m in the fairway. These passages should only be used by vessels with local knowledge.

A lighted buoy is moored 0.4 mile S of Port Eynon Point and marks the E end of the sands. A lighted buoy, equipped with a racon, is moored close W of the W end of the sands.

Caution.—Vessels should give Helwick Sands a wide berth as they are steep-to at the S side and the flood current sets NE towards them. In addition, a heavy sea is often formed in the vicinity when strong W winds blow against the tidal current.

Port Eynon Bay (51˚32'N., 4˚11'W.) is entered between Port Eynon Point and Oxwich Point, a bluff point, 2.3 miles ENE. The shore is fronted by a sandy bank which dries to about 0.3 mile seaward. A dangerous wreck, marked by a buoy, lies in the NW part of the bay. With offshore winds, small vessels can find anchorage in a depth of 7m, good holding ground, about 0.8 mile ENE of Port Eynon Point. Vessels should give both entrance points of the bay a wide berth.

Oxwich Bay (51˚33'N., 4˚07'W.) lies between Oxwich Point and Pwll-du Head, 3.2 miles ENE. Cefn Bryn, a ridge of high ground, stands at the head of the bay and has the appearance of a cone when seen from the E. The shore of the bay is bordered by drying sands and the E side is backed by broken cliffs, 61 to 76m high. A rock, with a least depth of 2m, lies about 1.5 miles W of Pwll-du Head.

Caution.—Two submarine cables extend seaward from the W side of Oxwich Bay and may best be seen on the chart.

Swansea Bay

7.24 Swansea Bay (51˚35'N., 3˚54'W.) is entered between Mumbles Head and Sker Point, a low and dark point, 9 miles SE. The shores of the bay are mostly low and are bordered by an extensive drying flat which consists of sand, with patches of stone, covered by mud. Shallow depths extend some distance beyond the flat and a depth of 5m lie up to 1.5 miles seaward of the head of the bay. The ports of Swansea and Neath lie at the head of the bay and Port Talbot lies at the E side.

Mumbles Head (51˚34'N., 3˚58'W.), the outer of two islets, lies on a rocky flat which extends up to 0.5 mile E of The Mumbles, the SE extremity of the mainland. Cherrystone, a detached rock, lies at the E end of this flat and dries. A main light is shown from a prominent tower, 17m high, standing on the summit of Mumbles Head.

Mumbles Pier extends 230m NE from a point on the mainland 0.2 mile NW of Mumbles Head. It is used by pleasure craft, but is reported (1990) to be in poor condition. Mumbles Hill, 60m high, rises steeply from the coast close W of the pier and is prominent. Numerous yacht and small craft moorings lie within the waters of the bay which front the S shore to the NW of the pier.

White Oyster Ledge (51˚31'N., 4˚00'W.), with a least depth of 8.5m, lies near the center of a bank with depths of less than 18m. In fog, this bank is sometimes useful in determining the position of a vessel. A lighted buoy is moored about 4 miles S of Mumbles Head and marks the S end of the bank.

Mixon Shoal (51˚33'N., 3˚58'W.), composed of fine sand, lies centered 0.5 mile SSW of Mumbles Head. This shoal dries in places, is steep-to on its SE side, and is marked by a lighted buoy.

Outer Green Grounds (51˚33'N., 3˚55'W.), an area consisting of numerous detached shoal patches, lies centered 2 miles E of Mumbles Head and is marked by a lighted buoy at the SE side. This area has least depths of 4.4 and 5.1m, which lie near its NW end.

Green Grounds (51˚35'N., 3˚56'W.), an area of shallow foul ground with detached patches of rock and stones, encumbers the greater part of the W side of the bay and is marked on its S side by a lighted buoy, moored about 0.8 mile E of Mumbles Head.

Scarweather Sands (51˚28'N., 3˚50'W.) lie across the S approach to Swansea Bay and extend to a position 6.5 miles WSW of Sker Point. The sands, which dry up to 3.3m near their middle and E parts, are marked on the E side by a buoy, on the S side by a lighted buoy, and on the W side by a lighted buoy which is equipped with a racon. In bad weather, a heavy sea generally breaks over Scarweather Sands and the area should be given a wide berth.

Hugo Bank lies about 0.5 mile NE of the center of Scarweather Sands. This shoal, which dries, is marked on its S side by a buoy.

Kenfig Patches lies close N of Hugo Bank. This shoal, which dries near its SE end, is marked on the SE side by a lighted buoy.

North Kenfig Patches, consisting of several rocky shoals, lies about 2.5 miles NW of Sker Point and has a least depth of 3.4m.

Caution.—Several outfall pipelines, which extend up to 2.3 miles seaward, lie in the NE part of the bay and can best be seen on the chart.

A wreck, with a depth of 7.1m, lies about 3.7 miles ESE of Mumbles Head and is marked by a lighted buoy.

The banks lying in the vicinity of Swansea Bay change frequently due to shifting sands.

Mumbles Outer Roadstead (53˚34'N., 3˚57'W.) lies centered 1 mile ESE of Mumbles Head and provides good anchorage in depths of 9 to 15m. Care must be taken to avoid an isolated patch, with a depth of 8m, which lies near the middle of this roadstead.

Conspicuous landmarks in the vicinity of the bay, which may be identified from some distance seaward, include the ruins of Oystermouth Castle, 52m high, standing 1.3 miles NW of Mumbles Head; the white tower of the guildhall standing 3 miles NNE of Mumbles Head; the tower of a hospital standing 3.7 miles NNW of Mumbles Head; a television mast standing on Kilvey Hill, 1.2 miles NNE of the entrance to Swansea; the numerous flares, chimneys, and cooling towers of the chemical works situated close SE of the Port of Neath; and the numerous chimneys, cooling towers, and silos situated near the steel works, close S of Port Talbot.

Between Mumbles Head and Scarweather Sands, the tidal current sets E with a maximum rate of about 4 knots at springs and about 3 knots at neaps. From Mumbles Head, this current sets towards Swansea and the Port of Neath. The tidal current sets W from the Port of Neath and Swansea towards Mumbles Head at a rate of 3 to 4 knots at springs, and, at times, causes a strong race within 0.5 mile of the latter point.

Swansea (51˚37'N., 3˚57'W.)

World Port Index No. 34950

7.25 The port of Swansea lies at the mouth of the River Tawe and is entered via a dredged channel which leads NNE between two breakwaters. The harbor lies at the E side of the river entrance and consists mainly of several wet docks which are entered through a lock.

Tides—Currents.—The tides rise about 8.6m at springs and 6.3m at neaps.

Depths—Limitations.—The entrance channel is dredged (1998) to a depth of 4.2m over a width of 122m. The lock, which leads into Kings Dock, is 267m long, 27.4m wide, and has depths over the sill of 12.4m at springs and 10.1m at neaps. An approach jetty, 300m long, extends SSW from the lock entrance and forms a lead-in.

Kings Dock has 2,268m of total quayage, with depths of 9.6 to 10.1m alongside, and is used by container, general cargo, and bulk vessels.

Queens Dock, mainly used by tankers, has a depth of 10.7m and is entered from Kings Dock through a passage, 30.5m wide, which is spanned by a lift bridge and a floating oil boom.

Prince of Wales Dock, mainly used by fishing vessels, has a depth of 8.1m and is entered from Kings Dock through a passage, 21.3m wide. It can accommodate vessels of up to 122m in length, 20.7m beam, and 7.3m draft.

Vessels of up to 36,000 dwt, 199m in length, 26.5m beam, and 9.9m draft can enter Kings Dock at HW.

A ro-ro ferry berth is situated outside the wet docks at the E side of the river, close N of the lock entrance. It is 137m long and has a dredged depth of 4.6m alongside.

A yacht marina and a small craft basin lie at the W side of the river and are entered through a lock, 40m long and 12.5m wide, which forms a passage through a barrage.

Aspect.—The E side of the entrance fairway is indicated by a lighted range and marked by lighted buoys which may best be seen on the chart. For conspicuous landmarks, see Swansea Bay.

Pilotage.—Pilotage is compulsory N of Mumbles Head for vessels over 1,600 grt and for all vessels carrying 12 or more passengers. Vessels without local knowledge should not attempt to enter this port without the services of a pilot. Vessels should contact the pilot vessel by VHF 1 hour before arrival at the boarding place. Pilots generally board about 1.1 miles SE of Mumbles Head.

Regulations.—Vessels must send an ETA to the port at least 24 hours and 2 hours in advance of arrival. Vessels must also contact the port by VHF on arrival off Mumbles Head in order to receive docking instructions.

Caution.—See Swansea Bay.

7.26 Port of Neath (51˚37'N., 3˚50'W.) (World Port Index No. 34970) occupies Baglan Bay and the lower reaches of the River Neath which flows into the NE corner of Swansea Bay.

Depths—Limitations.—An approach channel leads NE over an extensive area of drying sand and mud, which fronts the river mouth, and lies between two training walls, 76m apart. It dries and has least depths of 7.1m at springs and 4m at neaps.

A yacht basin lies on the W side of the river and is fronted by small craft moorings. Five main wharves lie along the river banks and provide 680m of total berthage. Vessels of up to 3,500 dwt, 92m in length, and 6m draft can be accommodated alongside at springs. A chemical tanker berth, consisting of a jetty with dolphins, is situated in Baglan Bay at the river entrance. It can accommodate vessels of up to 2,000 dwt and 5.8m draft.

Winds from the SW tend to increase the depths in the approach channel and winds from the NE tend to decrease them. At times, the river is subject to heavy freshets.

Aspect.—The approach channel is bordered by training walls which are marked by buoys and lighted beacons. Its seaward entrance is marked by lighted buoys. For conspicuous landmarks, see Swansea Bay.

Pilotage.—Pilotage is compulsory. Pilots can be contacted by VHF and generally board about 3.4 miles ENE of Mumbles Head.

Caution.—Submarine pipelines lie across the entrance channel in the vicinity of the river mouth. They are marked by beacons and may best be seen on the chart.

Port Talbot (51˚35'N., 3˚49'W.)

World Port Index No. 34980

7.27 Port Talbot lies at the S side of the mouth of the River Avan which flows into the E side of Swansea Bay. The harbor, which is an ore and coal terminal, is protected by two breakwaters. The wet docks, formerly entered through a lock within the river mouth, are closed.

Tides—Currents.—The tides rise about 9.6m at springs and 7.3m at neaps.

Depths—Limitations.—The approach fairway is 183m wide and is dredged (1998) to a depth of 11.2m. A bulk jetty, with two berths, extends from the E part of the harbor and has a dredged depth of 15m on its N side and 17.2m on its S side. The fairway has least depths of 18.3m at springs and 16.2m at neaps. The berths have depths of 24.4m at springs and 22.3m at neaps. Vessels of up to 176,000 dwt, 287m in length, 47m beam, and 14.8m draft have been accommodated alongside the jetty.

Aspect.—The approach channel is indicated by a lighted range and marked by lighted buoys which may best be seen on the chart. For conspicuous landmarks, see Swansea Bay.

Pilotage.—Pilotage is compulsory for vessels over 1,600 grt and for all vessels carrying 12 or more passengers. Vessels without local knowledge should not attempt to enter this port without the services of a pilot. Vessels should contact the pilot vessel by VHF 2 hours before arrival at the boarding place. Pilots are provided by Swansea and generally board about 6.5 miles SW of Mumbles Head. Vessels should send an ETA to the port at least 24 hours in advance of arrival.

Caution.—A ground swell causes a heavy sea at the harbor entrance.

Several dangerous wrecks lie in the vicinity of the entrance channel and may best be seen on the chart.

Swansea Bay to Barry

7.28 Porthcawl (51˚28'N., 3˚42'W.), a small resort town, is situated 2.5 miles SE of Sker Point. The coast between is low, rocky, and flat for up to 1 mile inland. The town is fronted by a

small tidal harbor which is protected by breakwaters. Prominent buildings stand close W and 1.5 miles NW of the harbor. A conspicuous hotel stands 0.4 mile NW of the harbor. A conspicuous water tower stands at Newton Down, 3 miles E of Sker Point.

A small bay lies E of the harbor and is fronted by an extensive sandy drying foreshore. Tusker Rock, which dries, lies 1.7 miles SE of Porthcawl. This drying rock is located at the S edge of a shoal flat and is marked on its S side by a lighted buoy. Fairy Rock, awash, lies about 0.7 mile NW of Tusker Rock and is marked on its W side by a buoy.

Nash Point (51˚24'N., 3˚34'W.), located 7 miles SE of Porthcawl, is a prominent bluff. A conspicuous disused light tower stands close to the edge of the cliff, 0.2 mile SE of the point. A main light is shown from a conspicuous tower, 37m high, standing on flat land, 0.4 mile ESE of the point. A radiobeacon is situated at the light.

The coast extending up to 4.5 miles NW of the point consists of bold cliffs, 30 to 60m high, backed by higher land.

Nash Sands (51˚25'N., 3˚40'W.), composed of sand and gravel, extends WNW for 7.5 miles from a position lying 0.5 mile W of Nash Point. The W part of this bank has a least depth of 2.7m and the E part dries. It is marked at the W and E ends by lighted buoys and on the S side by a buoy. Nash Passage lies between the E end of the bank and a rocky ledge which fronts Nash Point. This channel is about 200m wide and has a least depth of 6.1m in the fairway.

Caution.—During the ebb tide, a very strong race occurs close off the outer breakwater at Porthcawl and attains a rate of 6 knots at springs.

Both tidal currents set obliquely, NW and SE, across Nash Sands. To the S of the sands, the currents set ESE and WNW at rates of up to 4 and 5 knots at springs and 3 knots at neaps.

Nash Sands are subject to frequent change and should be given a wide berth.

Breaksaw Point (51˚23'N., 3˚24'W.), located 6 miles ESE of Nash Point, is composed of low sandhills and forms the W side of the River Thaw, which is shallow. A ledge of limestone boulders and rocks, which dries, fronts the point and extends up to about 0.3 mile seaward.

A conspicuous chimney, 128m high, stands on the point and a light is shown from a low concrete tower standing offshore, 0.5 mile SSW of it. Four prominent chimneys stand near a cement works which is situated on the E bank of the river, 1 mile NNE of the point.

Saint Hilary radio mast, 229m high, stands on a hill, 4.5 miles N of the point, and is very conspicuous from seaward. An aeronautical lightbeacon is shown from this mast. Wenvoe radio mast, 242m high, stands on a hill, 6.5 miles NE of the point, and is also conspicuous from seaward. An aeronautical lightbeacon is also shown from this mast.

Rhoose Point (51˚23'N., 3˚20'W.), located 2.5 miles E of Breaksea Point, is composed of limestone cliffs, 10m high. Conspicuous chimneys stand 0.3 mile N and 0.3 mile WNW of this point. A prominent radio mast, 28m high, stands at the airport, 1.2 miles N of the point.

Barry Island, connected with the mainland, lies 2.3 miles E of Rhoose Point. Barry Harbor is entered between this island and Cold Knap Point, 0.3 mile W. It is silted up and usable only by small boats at HW. A large resort-camp building stands on Nell's Point, the SE extremity of the island.

Breaksea Light-float (51˚20'N., 3˚19'W.), equipped with a racon, is moored about 3 miles SSE of Rhoose Point.

Directions.—The main channel fairway, for vessels transiting the Bristol Channel, lies in the deep water to the N of the Breaksea Light-float and to the N of One Fathom Bank. It then leads E and NE, passing SE of Flat Holm. A secondary channel, used by light-draft vessels not requiring a pilot, leads S of the light-float and S of One Fathom Bank.

Caution.—Due to strong tidal currents and traffic congestion, vessels are strongly advised not to anchor within the pilot boarding ground located N of Breaksea Light-float.

An isolated shoal patch, with a least depth of 8.2m, lies about 0.5 mile SE of the light-float.

Between Nash Point and Breaksea Point, the tidal currents set at rates of about 3 knots at springs. During the strength of the tide, considerable overfalls may be encountered off Breaksea Point.

Barry (51˚24'N., 3˚16'W.)

World Port Index No. 34990

7.29 The port of Barry lies between the NE side of Barry Island and the mainland. It consists of three wet docks which may be entered through a lock or a basin.

Tides—Currents.—The tides rise about 11.4m at springs and 8.7m at neaps.

Depths—Limitations.—The entrance between the breakwater heads is 107m wide. A tidal basin lies close within the heads and the entrances to the wet docks are situated in its NW part. Several yacht and small craft moorings lie on the W side of this tidal basin.

A channel, with a least depth of 2.5m, leads into the harbor and through the tidal basin. It has depths of 14m at springs and 12m at neaps. There are two entrances to the wet docks. Lady Windsor Lock, which is generally used, and No. 3 Dock Basin which is used in the event of a breakdown of the lock or in the case of a vessel which is too large for the lock.

Lady Windsor Lock is 197m long, 19.8m wide, and has an average depth of 12.2m over the outer sill at HW. No. 3 Dock Basin provides an entrance which is 183m long, 24.3m wide, and has an average depth of 9.4m over the sill at HW.

No. 1 Dock has 2,920m of total berthage with a least depth of 9.2m alongside. No. 2 Dock has 2,283m of total berthage with a least depth of 9.2m alongside. In addition, No. 3 Dock Basin has 621m of berthage. There are facilities for general cargo, ro-ro, tanker, chemical, reefer, and LPG vessels within the port. Vessels of up to 27,000 dwt, 178m in length, 22.9m beam, and 9.1m draft can be accommodated in the harbor.

Aspect.—A lighted buoy (Merkur), which marks several wrecks, is moored 1.6 miles SSW of the port entrance and vessels should pass to the S and E of it. A prominent light tower, 9m high, stands on the head of the W breakwater.

Pilotage.—Pilotage for the port is not compulsory, except for vessels carrying more than 12 passengers, but is strongly recommended. Pilots can be contacted by VHF and board from launches, which operate from a station at Barry, at a position about 1 mile N of Breaksea Light-float. Vessels should send an

Photograph Courtesy of Jürgen Tronicke

Nash Light

ETA at least 24 hours in advance of their arrival at the light-float. Vessels should request permission by VHF prior to approaching the port entrance.

The Associated British Ports Pilotage Service is based at this station and provides pilots for the South East Wales Pilotage Area which includes the ports of Barry, Cardiff, and Newport and the facilities within the River Usk. Pilots for the port of Bristol are also provided by this station.

Anchorage.—During moderate weather, anchorage can be taken within Barry Roads. A good berth lies in depths of 7 to 10m, gravel and clay, about 0.5 mile SE of the entrance to the port. Anchorage may also be taken off Breaksea Point, but vessels must remain clear of the approach to the pilot boarding place.

Explosive Anchorage Areas, the limits of which are shown on the chart, lie centered 1.8 miles SSW, 3.5 miles ESE, and 4 miles SE of the port entrance. Vessels intending to load or unload explosives in these anchorage areas must inform the port authority 48 hours, or as soon as practicable, in advance.

Caution.—Several dangerous wrecks, which may best be seen on the chart, lie in the vicinity of Barry Roads and the designated anchorage areas. In addition, numerous wrecks lie in the approaches to the port.

An outfall pipeline, marked by a lighted buoy, extends 1.1 miles SSE from the W side of Barry Harbor. Another outfall pipeline extends 0.5 mile SE from a point on the shore, close E of the port entrance.

Vessels navigating in Barry Roads should give the port entrance a wide berth.

Barry to Cardiff

7.30 Lavernock Point (51˚24'N., 3˚10'W.), located 3.5 miles E of Barry, consists of a prominent cliff, 15m high. A small church, with a belfry, stands on the point. The coast between is bordered by low cliffs and rounded slopes. Sully Island lies 0.3 mile offshore, 1.2 miles WSW of Lavernock Point. It stands out conspicuously, although it is only 16m high, and is connected to the coast by a rocky ledge which dries.

A coastal bank, fringed in places with detached patches, extends about 1.5 miles seaward from shore between Rhoose Point and Lavernock Point, and has depths of 7 to 10m. Patches of foul ground and several wrecks lie on this bank and the bottom is very uneven. Sully Ledge, with a least depth of 6.4m, lies within this coastal bank, about 1.7 miles SW of Sully Island. Alldridge Shoal, with a least depth of 5.8m, lies about 0.5 mile SSE of Sully Island and several patches, with depths of 4 to 6m, lie between it and Sully Ledge.

Lavernock Spit, with a least depth of 2.7m, extends SSW for about 1.5 miles from Lavernock Point and is marked by a lighted buoy. Ranny Spit, marked by a lighted buoy, is the E extremity of an area of shoal ground which extends about 0.5 mile E from Lavernock Point. This area is steep-to on its E side and composed of stones which dry in places.

Penarth Head (51˚27'N., 3˚10'W.), 65m high, is located 2 miles N of Lavernock Point. The shore between consists mostly of rocky ledges and stones which are fringed by drying sands. The nearly perpendicular cliff, which forms the head, is veined by gypsum and a church, with a conspicuous tower, stands on the summit. A pier, about 200m long, extends seaward from a point on the shore 0.3 mile S of the head.

The coast to the N of Penarth Head recedes to form the low and marshy estuary of the River Ely and River Taff. The port of Cardiff lies on the N side of this estuary.

Penarth Harbor, consisting of a wet basin, lies at the mouth of the River Ely and is no longer used by commercial shipping. The basin contains a marina, with extensive facilities for yachts, and is entered through a lock.

7.31 Off-lying dangers.—One Fathom Bank (51˚21'N., 3˚12'W.), with a least depth of 6.7m, lies centered 4 miles SW of Lavernock Point. It is composed of sand and gravel and marked by a lighted buoy. The depths over this bank are subject to constant change due to dredging and tidal actions. A detached shoal, with a least depth of 7.6m, lies about 0.5 mile E of the E end of One Fathom Bank. In addition, several isolated patches, with depths of less than 10m, lie between One Fathom Bank and Breaksea Light-float.

Fairway Shoals (51˚22'N., 3˚10'W.), a shoal bank, lies about 2 miles S of Lavernock Point. It has a least depth of 4.1m and is composed of sand and rock.

Flat Holm (51˚23'N., 3˚07'W.), 26m high, lies 2.5 miles SE of Lavernock Point. Several prominent buildings stand on the N side of this island and a main light is shown from a conspicuous tower, 30m high, standing on the SE side.

Rocky ledges, which dry, front the shores of the island and a bank, with a least depth of 2.7m, extends up to about 0.5 mile W from the W side.

Mackenzie Shoal, with depths of less than 5m, extends up to 1.3 miles SW from the SW side of Flat Holm and is marked by a lighted buoy. New Patch, with a least depth of 2.7m, lies about 0.4 mile NE of Flat Holm. An extensive bank of uneven ground, with depths of less than 9m, extends NE from the vicinity of New Patch and forms the W side of the main channel leading to Newport and Avonmouth.

Tail Patch, with a least depth of 2.7m, lies about 3.2 miles E of Flat Holm. This shoal patch is marked by a lighted buoy and is located near the outer edge of the coastal bank which extends up to 3 miles seaward from the S shore of the Bristol Channel.

The Wolves, consisting of three rocky drying heads, lies about 1 mile NW of Flat Holm and is marked by a lighted buoy.

Flat Holm Shelf, a rocky shoal, lies about 0.3 mile NW of Flat Holm and has a least depth of 3.4m. A narrow passage, with a least depth of 9.1m, leads between this shoal and The Wolves.

Centre Ledge, with a least depth of 3.4m, lies 1.3 miles N of Flat Holm. It is located at the NE end of a bank which extends NE from The Wolves and has depths of less than 9m.

Monkstone (51˚25'N., 3˚06'W.), a drying rock, lies 2.3 miles NNE of Flat Holm, near the edge of the coastal bank. A light is shown from a conspicuous tower, 23m high, standing on this rock.

Steep Holm, lying 2.2 miles S of Flat Holm, has previously been described with the S coast of the Bristol Channel.

Cardiff Grounds, a bank, dries and is constantly changing. It lies nearly parallel to the coast and extends NNE for about 3.5 miles from a position located 1.2 miles E of Lavernock Point. This bank is hook-shaped and its N end curves S to within 1 mile of Monkstone. Lighted buoys are moored off the NE and SW ends of the bank and off the middle of the NW side.

Cardiff (51˚27'N., 3˚10'W.)

World Port Index No. 35010

7.32 The port of Cardiff lies at the E side of the mouth of the River Taff and consists of several large wet docks which can be entered via a lock.

Tides—Currents.—The tides rise about 12.2m at springs and 9.4m at neaps.

Off Lavernock Point, the flood current sets E at a rate of 4.5 knots and the ebb current sets W at a rate of 5 knots. These currents usually cause a considerable overfall in this vicinity.

In Cardiff Roads, the flood current sets NE at a rate of 1.5 knots at springs and 1 knot at neaps. The ebb current sets SW at a rate of 2.5 knots at springs and 1.5 knots at neaps.

Depths—Limitations.—An entrance channel, with a dredged depth of 1.2m, leads through the flats fronting the estuary to the harbor entrance.

Queen Alexandra Dock is entered through a lock, 259m long and 27.4m wide, which has depths over the outer sill of 12.8m at springs and 9.9m at neaps. The dock has 2,240m of total berthage and a normal depth of 11.3m.

Roath Dock has 2,932m of total berthage and a normal depth of 11m. It is entered from Queen Alexandra Dock through a passage which is 27.4m wide and has a depth of 10.4m over the sill.

Roath Basin is 305m long, 167m wide, and has a normal depth of 11m. It is entered from Roath Dock through an inner lock which is 183m long, 24.4m wide, and has a depth of 10.4m over the sill. Vessels of up to 158m in length and 21.3m beam can enter this basin.

The passage, which connects the wet docks, and the inner lock are both spanned by swing bridges. Roath Basin can also be entered through a sea lock which is 105m long, 24.4m wide, and has a depth of 10.7m over the sill at springs. It is reported (1993) that this lock is not normally used.

There are facilities for general cargo, ro-ro, bulk, container, passenger, and tanker vessels. Vessels of up to 35,000 dwt, 198m in length, 26.9m beam, and 10.4m draft can be accommodated within the harbor.

Aspect.—A conspicuous building, 101m high, stands 2 miles NNW of the outer lock entrance and a prominent silo stands at the NE end of Roath Dock. A prominent group of oil tanks is situated on the SE side of the outer lock. The approach channel is marked by lighted buoys and indicated by a lighted range which may best be seen on the chart.

Pilotage.—Pilotage for the port is not compulsory, except for vessels carrying over 12 passengers, but it is strongly recommended. Pilots can be contacted by VHF and board from launches, which operate from Barry, about 1 mile N of Breaksea Light-float. (See Barry Pilotage.)

Anchorage.—The outer anchorage roadstead lies between Centre Ledge and Monkstone Rock. It has depths of 11 to 15m, and the bottom is rocky in places. Less water was reported (1986) in the N part of this roadstead. Anchorage can be affected by the strong tidal currents.

Good anchorage, in depths of 10 to 18m, can also be taken about 0.5 mile SE of Centre Ledge. For suitable vessels, a small anchorage area lies between Flat Holm and New Patch.

Cardiff and Penath Roads, lying on the NW side of Cardiff Grounds, afford sheltered anchorage, in a limited space, in depths of 6 to 10m. The S entrance to this roadstead leads over a sand bar, with a least depth of 4.1m, and several shallow wrecks lie at its E side.

Anchorage in the approach channel is prohibited.

Directions.—The port should be approached via the fairway which leads N of One Fathom Bank, NW of Fairway Shoals and The Wolves, and then N between Ranny Spit and the SW end of Cardiff Grounds. Vessels may also approach from the E via the fairway which leads between Centre Ledge and New Patch and then turns N.

Caution.—A very strong flood current sets NE across the passage leading between Ranny Spit and the SW end of Cardiff Grounds. Care is necessary to avoid being swept towards the shoal banks in this vicinity.

The range lights may be difficult to identify due to the proximity of other lights in the area. At certain stages of the tide the front range light is obscured by the Cardiff Bay Barrage, currently (1997) under construction.

Cardiff to Newport

7.33 Peterstone Flats (51˚30'N., 3˚02'W.) are the continuation of the shallow flats which extend NE from Cardiff Grounds. These flats occupy the whole of the N side of the approach to Newport and extend up to 2.5 miles offshore.

A bank, with depths of less than 5m, extends up to about 4 miles offshore and fronts the entire stretch of coast between Cardiff and Newport. This stretch of coast is backed by low and level ground for a considerable distance inland and is protected by embankments.

Welsh Hook (51˚31'N., 2˚55'W.), a spit, lies off the SE side of the entrance to Newport and dries up to 4.3m. Usk Patch, which dries up to 2.2m, lies at the W extremity of this spit and forms the E side of the channel which leads NE and NNW across the flats to the mouth of the River Usk.

E & W Grounds Lighted Buoy (51˚27'N., 3˚00'W.), equipped with a racon, is moored 4.2 miles NE of Monkstone. It marks the main channel at a junction, known as The Bridge, where the fairway divides into two branches, Newport Deep and Bristol Deep.

Newport Deep passes along the E side of Peterstone Flats and leads N to Newport. Bristol Deep leads E to the port of Bristol.

Caution.—Several dangerous wrecks lie within 1.5 miles of the E & W Lighted Buoy and may best be seen on the chart.

Depths in the vicinity of The Bridge are constantly changing and care should be taken when navigating in this area.

Several outfall pipelines, marked by buoys, extend up to 0.7 mile seaward from the stretch of shore lying between Cardiff and Newport.

Newport (51˚33'N., 2˚59'W.)

World Port Index No. 35015

7.34 The port of Newport lies within the mouth of the River Usk and includes two large wet docks, which are entered through a lock, and several river berths which dry.

Tides—Currents.—The tide rises about 12.1m at springs and 9m at neaps. The flood current attains a rate of about 3 knots in the river.

Depths—Limitations.—A shallow entrance channel leads over the flats and into the lock. It has depths at the lock entrance of 13.8m at springs and 10.7m at neaps. The lock is 305m long and 30.4m wide.

Alexandra South Dock, which is entered via the lock, normally has a depth of 10.7m. Alexandra North Dock normally has a depth of 8.2m and is entered from Alexandra South Dock through a passage, 18.2m wide. These two wet docks provide 5,569m of total berthage and have facilities for container, general cargo, reefer, timber, bulk, and ro-ro vessels. Vessels of up to 39,200 dwt, 244m in length, 29.8m beam, and 10.2m draft can be accommodated.

Bellport, a former dry dock, is entered at the E side of the river, 2 miles above the entrance. A private container wharf, 213m long, is situated in the dock and has depths alongside of 8.5m at springs and 5.2m at neaps. Vessels of up to 2,200 dwt can be handled.

Several more small wharves, with depths of 7 to 10m alongside at springs, are situated along the river as far as Newport Bridge, 3.5 miles above the entrance.

Aspect.—A power station with three conspicuous chimneys, the tallest being 133m high, stands on the E side of the river entrance. The conspicuous pylons of the overhead power cable are 115m high and stand on each side of the river entrance. A sector light, indicating the approach channel, is shown from a prominent tower, 13m high, standing 0.9 mile SE of the entrance to the lock. The fairway of the entrance channel is marked by lighted buoys.

Pilotage.—Pilotage for the port is not compulsory, except for vessels carrying over 12 passengers, but it is strongly recommended. Pilots can be contacted by VHF and board from launches, which operate from Barry, about 1 mile N of Breaksea Light-float. (See Barry Pilotage.)

Vessels over 50 grt and all vessels carrying fare-paying passengers should contact Newport Radio by VHF at least 30 minutes before arrival at the West Usk lighted buoy, on passing the West Usk lighted buoy, on passing the outer pierhead (for vessels bound for river wharves), and on arrival at the berth.

Anchorage.—Newport Deep, extending N of the E & W Grounds Lighted Buoy, provides good anchorage in depths of 6 to 9m. The holding ground is thick clay and mud, and the tidal currents are not strong.

Caution.—A transporter bridge, with a vertical clearance of 54m, spans the river, 2.5 miles above the entrance.

A road bridge, with a vertical clearance of 13m under the center of the arch, spans the river, 3.5 miles above the entrance.

Several submarine pipelines and cables lie across the river and can best be seen on the chart.

An overhead power cable, with a vertical clearance of 64m, spans the river near the mouth. Two power cables, with vertical clearances of 54 and 53m, span the river close S of the transporter bridge.

Head of Bristol Channel

7.35 **English Grounds** (51˚26'N., 2˚57'W.), which include Clevedon Flats, fronts the S shore between Sand Point and Clevedon, 5.5 miles NE. This bank extends up to about 3.5 miles offshore and has depths of less than 5m, with a considerable part of it drying. North West Elbow and North Elbow, the NW and N edges of the bank, are marked by lighted buoys which are moored on the S side of the main fairway channel.

Welsh Grounds (51˚31'N., 2˚52'W.) fronts the low-lying N shore between Gold Cliff, located 3 miles E of Newport, and Sudbrook Point, 7 miles NE. This bank extends S for about 3 miles from the shore. Middle Grounds is composed of West Middle and North Middle Ground and forms the SW extension of Welsh Grounds.

Bristol Deep, the main fairway channel, lies between English Grounds and Welsh Grounds and leads E and NE to Bristol. The Bridge, the junction of Bristol Deep and Newport Deep, lies close SW of West Middle Ground.

Denny Island (51˚31'N., 2˚47'W.), a conspicuous rock, lies on the SE side of Welsh Grounds. It is 6m high and is marked by a beacon.

Denny Shoal, a large portion of which dries, lies 1.7 miles SE of Denny Island on the N side of the approach to the River Avon.

Black Nore Point (51˚29'N., 2˚48'W.) is located 9 miles NE of Sand Point. A main light is shown from a structure, 11m high, standing on this point and the prominent tower of a school is situated close S of it.

Two conspicuous radio masts, which can be seen from a considerable distance, stand 0.5 mile inland, 4.5 miles SW of the point.

Portishead Point, marked by a light, is located 1.2 miles NE of Black Nore Point. A conspicuous building stands 0.7 mile SSW of this point.

Portishead Dock, which is entered through a lock, lies 0.5 mile E of the point. It is reported (1990) that dredging has not been maintained in the vicinity of this dock and it is no longer used by commercial shipping.

The mouth of the River Avon lies 2 miles NE of Portishead Point.

Caution.—Spoil ground areas, which may best be seen on the chart, lie close E and 0.7 mile SE of Denny Island.

Welsh Grounds and the banks extending W from it dry to considerable heights and are constantly changing. These banks

are composed of sand which is hard and firm during the falling tide, but becomes unstable when the tide starts to rise.

Denny Shoal is subject to frequent changes. At times, this shoal has moved S and encroached into the fairway channel.

Vessels approaching the head of the Bristol Channel should remember that many of the dangers bordering the fairway, which appear formidable on the chart, disappear as such with the considerable rise of tide.

Three disused oil berths, with abandoned submarine pipelines, lie within Redcliff Bay, which is entered 0.5 mile SW of Black Nore Point.

Bristol (51˚30'N., 2˚42'W.)

World Port Index No. 35070

7.36 The Port of Bristol includes the Royal Portbury Dock, Avonmouth Docks, the River Avon, and the Bristol City Docks. The City of Bristol is centered on the NE bank of the river about 7 miles above the entrance.

Tides—Currents.—The tides at Avonmouth rise about 13.1m at springs and 10m at neaps.

In the vicinity of the E & W Grounds Lighted Buoy, the flood tidal current divides, partly taking an E course into Bristol Deep and partly taking a NE course into Newport Deep. The ebb currents from these channels unite in the same area.

The flood and ebb currents attain maximum rates of 4 knots at springs and 2.5 knots at neaps. In King Road, the flood current attains a maximum rate of 5 knots at springs and the ebb a rate of 4 knots. Eddies are sometimes formed off Portishead Point during the flood current.

Depths—Limitations.—Bristol City Docks, which are entered 6 miles above the river mouth, are no longer used by commercial shipping. Marinas, with extensive facilities for pleasure craft and yachts, are situated within these docks.

Avonmouth Docks lie on the NE side of the river mouth and are entered through a lock which is 267m long, 30.1m wide, and has depths over the sill of 14m at springs and 10.8m at neaps. The Royal Edward Dock is entered from the lock and has 3,755m of total quayage with depths of 7.9 to 11m. An oil basin lies at the NW side of this wet dock. Except when vessels are entering or leaving, this basin is closed at its entrance by a movable oil boom in order to retain any spillage. Vessels of up to 209.7m in length, 29m beam, and 10.4m draft can be accommodated in this dock.

Avonmouth Dock is entered from Royal Edward Dock by a passage, 25.9m wide. It has 1,463m of total quayage and a depth of 8.5m. Vessels of up to 170m in length, 22.9m beam, and 8m draft can be accommodated in this dock.

Royal Portbury Dock lies on the SW side of the river mouth. It is entered through a lock which is 365.7m long, 42.7m wide, and has depths on the outer sill of 17.7m at springs and 14.5m at neaps. This wet dock has 1,795m of total quayage and depths of 13.2 to 14.5m, although depths may be less due to silting. Vessels of up to 289.5m in length, 39.6m beam, and 13.2m draft can be accommodated in this dock.

The port includes facilities for ro-ro, container, general cargo, bulk, timber, tanker, and LPG vessels.

Aspect.—Conspicuous chimneys stand 0.3 and 0.7 mile ESE of the N end of Royal Edward Dock. Several conspicuous silos stand at a molasses terminal situated 0.3 mile ESE of the SE corner of Royal Portbury Dock. A group of white spherical tanks stands 0.2 mile N of the N end of Royal Edward Dock and is conspicuous. In addition, numerous prominent grain silos and tanks stand in the vicinity of Avonmouth Docks.

A prominent overhead conveyor system is situated at the SE side of Royal Portbury Dock. A prominent signal station, with a radar mast, stands on the N side of the lock entrance at Avonmouth Docks. Avonmouth Bridge spans the river 1.5 miles above the entrance.

Several lighted ranges aid vessels in their approaches to the lock entrances and may best be seen on the chart.

Pilotage.—Pilotage is compulsory for vessels of 85m or more in length, vessels of 70m or more in length carrying dangerous substances in bulk, vessels carrying explosives of 1 metric ton or more in quantity, and all passenger vessels.

Pilots are provided by the Bristol Pilotage Service and can be contacted by VHF. They generally board from launches, operating from Barry, about 1 mile N of Breaksea Light-float. Pilots will also board about 5 miles N of Ilfracombe by prior arrangement.

Vessels should send an ETA at least 10 hours in advance for boarding at Breaksea Light-float and 24 hours in advance for boarding off Ilfracombe. Vessels should then establish contact with the pilot station by VHF 1 hour before arrival at the boarding place.

Regulations.—The Port of Bristol maintains a Vessel Traffic Service Scheme (VTS). The VTS procedures apply to all vessels over 50 grt and smaller vessels intending to use any of the locks. Other vessels may participate if they wish.

When at Barry Roads, all inbound vessels should send the following information to Avonmouth Signal Station if not previously included in the ETA message sent to the pilot station:

Name of vessel, draft, destination dock, details of dangerous cargo, time of passing Breaksea Light-float, and ETA at dock entrance.

All vessels participating in the VTS should report to the Avonmouth Signal Station by VHF on passing the Breaksea Light-float (inbound only), the E and W Grounds Lighted Buoy (inbound only), and at the additional calling-in points which are indicated on the chart.

Vessels should also report their intention to anchor and, subsequently, their moored position.

Anchorage.—Newport Deep, extending N of the E & W Grounds Lighted Buoy, provides good anchorage in depths of 6 to 9m. The holding ground is thick clay and mud, the tidal currents are not strong, and there is little sea. Deeper water may be found nearer to the lighted buoy.

Directions.—Bristol Deep lies between English Grounds and Welsh grounds and extends E and NE to the vicinity of Portishead Point. King Road extends between Portishead Point and the mouth of the River Avon. This channel is bounded on its N side by Welsh Grounds and Denny Shoal.

Caution.—The fairway channel leading through King Road is constantly changing and extreme care should be taken when navigating in this area.

A prohibited anchorage area, the limits of which are shown on the chart, lies within King Road and the approaches to the locks.

River Severn

7.37 The River Severn, which is about 220 miles long, is the second largest river in England. The small ports of Chepstow, Lydney, and Gloucester, the latter including Sharpness, lie along this river. The River Wye flows into the NW side of the River Severn, 7 miles above Avonmouth Docks, and both rivers are spanned by the Severn Bridge, a large suspension road bridge. This bridge has vertical clearances of 36.6m over the River Severn and 15.8m over the River Wye. An overhead power cable spans both rivers close S of the bridge and has vertical clearances of 41m over the River Severn and 20.4m over the River Wye.

The Second Severn Crossing Bridge, with a vertical clearance of 37m, spans the River Severn about 2.5 miles S of the Severn Bridge. All traffic must pass between the main supports. Mariners should be aware that on certain angles of approach to the Second Severn Crossing Bridge, both visual and radar navigation may be affected by "blind sectors" caused by the bridge structures.

A bar extends between the shoal banks and across the main channel of the river. It lies about 0.5 mile N of the entrance to Avonmouth Docks and has a least depth of 3.9m. A channel, 6.5 miles long, leads between the extensive drying banks which front the shores, to the Severn Bridge. Above the bridge, the main channel is encumbered by banks, rocky shelves, and patches which dry up to 1.5m in places. The River Severn is navigable by commercial vessels as far as Sharpness, 8.5 miles above the bridge. Above Sharpness, navigation is not suitable by other than small craft at HW.

7.38 Tides—Currents.—The tides off Sharpness rise about 9.3m at springs and 5.8m at neaps.

In the vicinity of the Severn Bridge, the tidal currents attain maximum rates of 7 knots at springs and 3 knots at neaps. Off the entrance to Sharpness, the flood tidal current attains a maximum rate of 6 knots at springs and the ebb current a rate of 4 knots.

The River Severn is subject to a bore which usually commences about 2 miles above Sharpness. It is not considered dangerous to boats provided that they are afloat in the middle of the river. Under favorable conditions, this bore can reach a height of 2m and attain a rate of 13 knots.

Caution.—Due to the shifting nature of the sands and the strength of the tidal currents, vessels should not attempt to navigate above Avonmouth Docks without local knowledge or the services of a pilot.

7.39 River Wye (51˚37'N., 2˚40'W.) discharges into the River Severn at Beachley Point. Chepstow is situated 2 miles above the river entrance where a railroad bridge spans the river. Two overhead cables, with a minimum vertical clearance of 16.8m, span this river between Chepstow and the Severn Bridge.

At Chepstow, there are depths in the river of 14m at MHWS and 10.9m at MHWN. There are two wharves which can accommodate vessels of up to 900 dwt, 60m in length, 9m beam, and 4.3m draft. It was reported (1993) that these wharves were in a state of disrepair.

Lydney Harbor (51˚43'N., 2˚30'W.) lies on the W bank of the River Severn, 8 miles above the mouth of the River Wye. The town stands NW of the harbor and 1 mile inland. The harbor consists of a tidal basin and two wet docks. The basin is 82m long and has an entrance, 10.1m wide. The lower wet dock, which is 238m long and 32m wide, is entered from the basin by a lock, 7.3m wide. The upper wet dock, which is 259m long and 26.8m wide, is entered from the lower dock by a canal. This canal is 0.6 mile long and 22m wide.

The lock has a depth of 4m over the upper sill, the lower dock has a depth of 3.9m, and the upper dock has a depth of 3.6m. Vessels too large to enter via the lock can use the combination of the tidal basin and the lock.

It was reported (1990) that siltation had taken place within the harbor and the depths could not be relied upon. In addition, the opening of both lock and tidal basin gates could not be achieved. The harbor is reported to be no longer used by commercial vessels, but is only used by yachts and small craft.

7.40 Sharpness (51˚43'N., 2˚29'W.) lies on the SE side of the river opposite Lydney Harbor. This harbor consists of a tidal basin and a wet dock. The Port of Gloucester includes the wet docks at Sharpness and at Gloucester which are connected by the Gloucester and Sharpness Canal. The wet dock at Gloucester is reported (1993) to be no longer used for commercial shipping.

Entry to the wet dock at Sharpness is via a tidal basin and a lock. The tidal basin entrance, which is 17.4m wide and protected by two piers, has a depth of 8.8m over the sill at MHWS. The basin is 166m long and 76m wide. It is used as a lock when vessels exceeding 91m in length are being docked.

The lock, which is entered from the tidal basin, is 97.5m long, 17.4m wide, and has a depth of 6.7m over the upper sill. The wet dock has 4,000m of quayage and a depth of 6.7m (fresh water). There are facilities for ro-ro, general cargo, bulk, and container vessels. In addition, a marina is situated within the wet dock. Vessels of up to 8,000 dwt, 16.7m beam, and 6.5m draft can be accommodated on suitable tides.

The Gloucester and Sharpness Canal (51˚43'N., 2˚29'W.), which is 16.5 miles long, has an average width of 26.2m and depths of 3.6 to 4.2m. The minimum width of the canal is 10.4m, between the masonry piers of the narrowest bridge. It is spanned by several swing bridges with a minimum vertical clearance of 32m. Vessels not exceeding 64m in length, 10m beam, and 3.5m draft can navigate the canal. The wet dock at Gloucester has 3,000m of quayage, but is only used by small craft and barges and is reported to be no longer open to commercial traffic.

Pilotage.—Pilotage for Sharpness is compulsory. Vessels should send an ETA at least 24 hours in advance. Pilots can be contacted by VHF and board from launches, operated from Barry, about 1 mile N of Breaksea Light-float.