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**Thames and Estuary (Sailing Directions and Charts)**

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**Courtesy Flag**

Flag, Red Ensign

**Waypoint**

N/A

**Charts**

Tidal Streams: NP249 Navigation: Admiralty, 1607, 1183, 1185, 2484

**Rules & Regulations**

**Hazards**

Shipping using well defined narrow channels, Sandbanks (Hard Sand !), Windfarms, Featureless Landscape

**Tidal Data Times & Range**

Sheerness: HW Dover +0130 , MHWS 5.8m MHWN 4.7m, MLWN 1.5m, MLWS 0.6m

**This site is designed for slower, roaming broadband connections, like you would get at sea, so it needs JavaScript enabled to expand the text. [Click here to show the fast loading version](http://www.visitmyharbour.com/harbours/thames-estuary/thames-estuary/)**

**General Description**

 **The Thames Estuary is an absolutely vast expanse of water punctuated by shallows and channels. It is more than adequately described in the "Approach" section that follows, but this was written more for big ship mariners...continue here for information designed for small craft mariners.**

In this particular area it's essential to have totally up to date charts, as buoyage is changing, and wind farms are springing up frequently.

In this little introduction, we will try and take a look at this more from the point of view of yachtsmen or motorboater, intent on transiting this area. The first thing that has to be said is that before contemplating any kind of passage around this area a very good understanding of the tides need to be had. In the charts that accompany this you will find the NP tidal flow diagrams. Time spent studying these and working up a passage plan will be time well spent.

The next thing that needs to be appreciated is that the surrounding coasts are all low lying, and decent landmarks are very hard to spot. You will be relying very much on the buoyage.

This brings us to the next problem, where the channels tend to run parallel to one another, in the flat featureless seascape it is all to easy to mistake one buoy for another and run yourself up a sandbank. These sandbanks (take it from someone who knows) are about as far from soft accommodating mud as you can imagine.  They are rock hard and you could end up in serious trouble if you are pinned onto one by wind or tide.

Any kind of passage making within the Thames estuary needs to be taken very seriously indeed, this is not the place for a jolly little jaunt up the coast. A passage plan taking into account tides and times of expected arrivals need to be worked up carefully. Sets of carefully selected (and thoroughly checked) waypoints can be used to take you through the channels (or across them if necessary). If crossing channels, always be aware of the tide, and make sure you are following the track on the GPS.

Trust your GPS positions, and treat any buoyage that you see as very suspicious unless it is exactly in the place you are expecting it. Tick off the buoyage as you positively identify it and pass it.  Assume nothing.  In many ways sailing at night in this area is easier, as the buoyage can be identified positively from a greater distance by the light characteristics.

Throw in plenty of huge shipping using the main channels, and even larger levithians congregating and mixing it in the region of the Sunk Gyratory System, passage making for the small craft mariner in this area needs a high level of skill and attention.

The following brief notes for the small craft mariner, maybe of assistance...

**Cross Estuary Route... between North Foreland and and the Harwich area.**

See the overview chart, and also chart number one for greater details. Basically if going from south to north, from North Foreland, a generally NE course is set, and the Kentish Knock E.Cardinal is located and left on your starboard side. A northerly course is then made towards Long Sand Head N.Cardinal buoy, which again is left on your starboard side. From here a course can be shaped up for Harwich. Work out your own lats and longs, and put in your waypoints... this is not the place to be lazy and rely on others work...

This route takes you just inside of the Long Sand Head two way shipping route, and just outside Kentish Knock shallows. Good study of charts and the tides are needed so you don't get swept towards the Kentish Knock sands, or into the shipping channel.

 **To or from N Foreland and the Medway, Thames or the E Swale**

If heading to or from the E Swale, the "Overland" route is well described in the area page covering the North Kent coast. There is adequate water for small craft at the state of the tide.

**[North Kent inc Swale and Medway](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=129&expanded=y" \t "_blank)**

If heading to or from the River Medway or Thames, the big ship Princes Channel is simple to identify and use. There is plenty of room within it to keep out of the way of transiting ships

To or from the Harwich area to the Thames or Medway

Small craft will normally follow the Maplin Sands, and then use Middle Deep and the East Swin (Kings Channel), to arrived at the NE Gunfleet E.Cardinal buoy

A route inshore of this (from the Rivers Blackwater or Crouch), involves using the Wallet, Goldmer Gat, or the Medusa Channel for Harwich or the Walton Backwaters.

This area is described in our East Coast area and Harbour coverage, together with directions to approach the Rivers Crouch and Blackwater from Middle Deep, via the Swin Spitway. (or vise-versa)

**[East Coast (Great Yarmouth to R.Roach)](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=127&expanded=y" \t "_blank)**

**To and from the N Foreland area, and the Essex Rivers**

This is a tricky one that would involve lots of forward planning, especially where the tide is concerned. There is no direct route that does not involve locating and using various Swatchways and Gats to cut across the shallow sandbanks that radiate out of the estuary, like fingers on a hand.

The more experienced yachtsmen may choose to take a route from N Foreland that involves going NNW and passing through Fishermans Gat or Fouglers Gat, then crossing the Sunk Sands, before making for the Swin Spitway. Heavy shipping may well being encountered using Fishermans Gat (the most direct route), and Fouglers Gat is likely in the future to have the huge London Array wind farm encroaching on it.

For the less experienced and at night, probably the safest bet is to use the Princes Channel until past the unmistakable Shivering Sands Towers on your starboard side, and then making your way in an NW direction.  This will take you across the Oaze Deep, the Oaze Sand (least depth 3.6m), and on to the SW Barrow W.Cardinal, and then swinging to the NE and using the W.Swin to make the approaches to the Essex rivers.  This is best seen on Chart No. 5.

At some time in the passage a fight against the tides will be on the cards, it cannot be avoided.

Approaches Medway

The approach channel to the River Medway described in the North Kent area and Harbour coverage.

**[North Kent inc Swale and Medway](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=129&expanded=y" \t "_blank)**

 **Approaches to the Thames**

In this general area the main shipping is restricted to the Yantlet Channel that runs fairly centrally between the Isle of Grain and Southend. The area to the north of this including Leigh on Sea, Benfleet and Holehaven, is explored and described thoroughly here:

**[Canvey Area (inc Southend, Leigh on Sea, Benfleet, and Holehaven)](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=68&expanded=y)**

Small craft intending to approach the Thames proper need to keep to the South side of the Yantlet Channel until well past Shellhaven, at which stage they can cross the river to the correct side.

This approach, and the River Thames up to the Thames Barrier, is described thoroughly here, with the appropriate charts.

**[Thames 1, from Holehaven to the Thames Barrier.](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=69&expanded=y)**

From the Thames Barrier to Tower bridge is covered here, again with the appropriate charts:

**[Thames 2, London (Thames Barrier to Tower Bridge)](http://www.visitmyharbour.com/harbours/harbour.asp?hurn=70&expanded=y)**

The following **"Approach"** section describes the whole area in great technical detail, and should be consulted with the aid of a paper chart, for the greatest benefit.

**Use the "Navigation Chart" link to access Area Charts PLUS the NP series Tidal Stream Atlases**

**Finally,** **[free charts on your smartphone](http://www.visitmyharbour.com/charts-on-your-phone.asp%22%20%5Ct%20%22_self)** (technology finally catches up with the web):  View visitMyHarbour charts (free or paid), on your new Android 2.2 phone. ***No downloading, no apps, simply browse and go!***  Find out how it works, which phones, and how much they cost. Get the best deals through us, and we'll give you a years free membership so you can access all our 1667 charts on your phone !  [Click here.](http://www.visitmyharbour.com/charts-on-your-phone.asp%22%20%5Ct%20%22_self)

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**Approach**

**Plan...This sector describes the estuary of the River Thames and the outer passages between Orford Ness and North Foreland. Also included is a description of the channels through the estuary and along the adjacent coasts. The general descriptive sequence is from seaward to the entrance of the River Thames.**

General Remarks

The estuary of the River Thames is entered between Orford Ness and North Foreland. It extends as far W as The Nore (51°29'N., 0°51'E.), at the entrance to the river itself. This triangular space enclosed within these three points is greatly encumbered by shoals and banks, many of which dry. Between these banks are several channels which lead to Harwich and the River Thames. The estuary proper, may be said to be contained between The Naze (51°52'N., 1°17'E.) and Shoebury Ness, 28 miles SW, on its N side, and North Foreland and Garrison Point, 27 miles W, on its S side. In this funnel shaped area are numerous long and narrow shoals which generally run in NE and SW directions.

In using the channels, vessels, as a rule, have to depend on the buoys and beacons which mark the banks and shoals, as, although there are many conspicuous landmarks standing on the N and S shores of the estuary, they are not usually available because of the lowness of the land and the prevailing poor visibility.

Soundings should be taken continuously for, although the charts give the depths at the last survey, changes are often frequent and rapid. It is equally important to be aware of the state of the tide and tidal current conditions. Local knowledge is essential.

Tides...Currents...Tides at the Shivering Sand Tower (51°30'N., 1°05'E.), in the vicinity of Knob Channel, rise about 5.2m at springs and 4.1m at neaps. Negative surges are important as they result in reduced underkeel clearances. They occur in the S part of the North Sea as a result of local S or SW winds and are most frequent during December and January, but are rare in summer. The Thames Estuary is the area most affected by these surges. In February 1968, the level in the estuary was 0.6m below that predicted for 24 hours, the lowest level being 1.8m below that predicted. The largest recorded surge occurred at Sheerness during December 1982, with a level of 2.25m below than predicted, which remained 1m below that predicted for over 12 hours. London VTS broadcasts tidal information, including negative surge predictions.

There is no evidence of any appreciable permanent current in the Thames Estuary. Strong currents may occur during and after tidal surges, which can augment the tidal currents or tend to cancel them out. Between Orford Ness (52°05'N., 1°35'E.) and Kentish Knock (51°39'N., 1°37'E.), there is little or no variation of the times at which the tidal currents begin. However, off North Foreland (51°23'N., 1°27'E.), they begin 1 hour 30 minutes earlier than at Kentish Knock. The times at which the tidal currents begin become progressively later farther W and off the entrances to the River Medway and the River Thames, the tidal currents begin 1 hour 15 minutes later than in the outer approaches.

In the outer part of the estuary, the general direction of the tidal currents is SSW on the flood and NNE on the ebb. Farther in, the tidal currents set in the direction of the channels. There may be eddies towards the sides of these channels and at entrances to swatchways.

**Broadcasts**

Information broadcasts, including state of traffic, visibility, tide heights, and other general marine bulletins are given by London VTS on VHF channel 69 at 15 minutes and 45 minutes past the hour, on VHF channel 68 on the hour and at 30 minutes past the hour, and on VHF channel 14 (Thames Barrier Navigation Centre) at 15 minutes and 45 minutes past the hour.

Caution...Vessels should navigate with extreme caution in the vicinity of Sunk Centre Light Vessel, the Sunk Inner Precautionary Area, and the approaches to Harwich Haven due to the high density of deep-draft vessels and crossing traffic that may be encountered.

Passage through the Thames Estuary requires an adequate underkeel clearance with respect to tidal ranges within the estuary and the possibility of negative surges. Vessels should maintain an underkeel clearance of at least 0.9m on the flood tide and 1.4m on the ebb tide.

It has been reported (August 2007) that Sunk VTS system is not operational until further notice. The Precautionary Areas and associated TSSs at Sunk remain operational.

 **Approaches to the Thames Estuary**

Outer Passage (51°55'N., 1°48'E.) is the channel which leads across the approach to the entrance of the Thames Estuary. It leads from a position about 9 miles E of Orford Ness to a position about 11 miles E of North Foreland, 43 miles S. Inner and Outer Gabbard, Galloper, North Falls, and South Falls banks lie on its E side; Shipwash, Long Sand, and Kentish Knock banks lie on its W side. The channel is 8 miles wide, free of dangers, and connects the coastal routes off the E coast of England to those in the Dover Strait.

The passage has a least depth of 18.1m (1998). However, several wrecks, with lesser depths, lie adjacent to the E and S sides of Shipwash.  Outer Gabbard (51°58'N., 2°03'E.), located 19 miles ESE of Orford Ness, has a least depth of 4.3m; a tide ripple shows over it in calm weather. Several shoal patches, with depths of 16.5 to 18m, lie off its N and S ends.

Outer Gabbard Lighted Buoy (51°58'N., 2°04'E.), equipped with a racon, is moored about 1 mile E of this shoal bank. Inner Gabbard (51°54'N., 1°54'E.), the N end of which lies 14.5 miles ESE of Orford Ness, has a least depth of 3.6m. Lighted buoys mark the N and S ends of this bank; another shoal ridge, with a least depth of 10.6m, lies centreed 4 miles NNE of its N end.

It is reported (2006) that a lighted mast, 80m high, stands near the N end of Inner Gabbard.

Galloper (51°47'N., 1°58'E.), located 23 miles SE of Orford Ness, has a least depth of 2.4m and is about 6 miles long. Its N end is marked by a lighted buoy and its S end is marked by a lighted buoy, equipped with a racon.

North Falls (51°39'N., 1°56'E.), located about 3 miles S of Galloper and 25 miles NE of North Foreland, is about 5.5 miles long. Four Mile Knolls or North Falls Head, the shallowest part of this shoal ridge, lies about 1 mile within its N end and has a least depth of 9.5m; North Falls Tail is the name given to the S end of this ridge.

South Falls (51°25'N., 1°49'E.), located about 13 miles E of North Foreland, lies on the same ridge as North Falls. From South Falls Head, its N extremity, this shoal extends SSW for about 14.5 miles to Tail of the Falls, its S extremity. South Falls has a least depth of 7m and is marked by lighted buoys moored at the N and S ends and along its E side.

Falls Gap (51°33'N., 1°53'E.), 8 miles wide, lies between North Falls and South Falls banks and is the principal channel through the outer chain of shoals to the Outer Passage. Vessels also may pass between the S end of Galloper and Four Mile Knolls.

Inter-Bank Lighted Buoy (51°17'N., 1°52'E.), equipped with a racon, is moored 6 miles NE of the S end of South Falls within a Traffic Separation Scheme.

Caution...It is reported (2005) that, due to the strong currents in the vicinity, vessels have frequently collided with and damaged the lighted buoy marking the S extremity of South Falls (Tail of the Falls).

Drill Stone (51°26'N., 1°42'E.), lying 9.5 miles ENE of North Foreland, has depths of 11 to 18m and is marked by strong ripples. A lighted buoy is moored close E of the shallowest part of this shoal.

Shipwash (51°57'N., 1°37'E.), located at the N end of the W side of the Outer Passage, extends SSW for about 9 miles from a position 4.2 miles SSE of Orford Ness and almost dries in places. Lighted buoys are moored along the E and W sides of this shoal and at its S end. A lighted buoy, equipped with a racon, is moored at its N end.

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

Long Sand (51°38'N., 1°26'E.), a bank about 19 miles long, is divided into two parts by Fisherman’s Gat. Long Sand Head (51°46'N., 1°36'E.), the N extremity of the N part, lies about 7 miles SSE of the S end of Shipwash. Long Sand shoal dries in many places and is marked at its N end and along its NW side by lighted buoys. In addition, several beacons stand on this shoal and may best be seen on the chart.

Sunk (51°52'N., 1°38'E.) is the deep area lying between the S end of Shipwash and the N end of Long Sand. This area forms a common point of entry for vessels proceeding into the Thames Estuary to the SW and into the approach to Harwich to the NW.  It forms a busy focal point for shipping.

Sunk Centre Light  (51°50'N., 1°46'E.) is moored about midway between Long Sand Head and the S end of Inner Gabbard, in the Sunk Outer Precautionary Area.  Sunk Inner Lighted Buoy (51°51'N., 1°35'E.) is moored about midway between Shipwash and Long Sand, in the Sunk Inner Precautionary Area. It is equipped with a racon.

Storm Lighted Buoy (51°52'N., 1°38'E.) is moored about 2.5 miles NE of Sunk Inner Lighted Buoy, in the N part of the Sunk Inner Precautionary Area.

Kentish Knock (51°39'N., 1°37'E.), a shoal bank about 8 miles long, lies 3 miles E of Long Sand and is separated from it by Knock Deep. This bank dries in places and the sea breaks over the shallowest parts. It is marked on the S and E sides by lighted buoys.

Caution...Several sand waves, which frequently change both in height and position, lie within areas extending 6 miles N from Long Sand Head and 2 miles SSE from Sunk Inner Lighted Buoy. Numerous wrecks, some dangerous, lie in the vicinity of the Outer Passage and may best be seen on the chart.

Directions...

Through Route across the mouth of the Estuary:

When navigating the Outer Passage, which is also known as the Through Route, across the Thames Estuary, the height of the tide and the state of the tidal currents are the most important factors to be considered and the tide tables and charts should be consulted. Near the edge of the shoal banks, the currents are reported to run obliquely over them. In addition, vessels should continuously sound the bottom.

SMALL CRAFT INSTRUCTIONS

**The Precautionary Areas and TSSs mentioned above are all IMO-adopted and may best be seen on the chart.**

Caution...

A Precautionary Area, which may best be seen on the chart, has been established in the vicinity of  the junction of Fisherman’s Gat and Black Deep. Vessels should navigate with extreme caution in this area.

A Precautionary Area, the limits of which are shown on the chart, extends E from the vicinity of Sea Reach  No. 1 Lighted Buoy and into Oaze Deep. Vessels entering this area should do so with extreme caution as large deep-draft vessels, with limited maneuverability, and a high density of other crossing traffic may be encountered. In addition, anchoring within this area is prohibited.

 **Principal Channels**

The Thames can be approached by any one of several passages which lead through the estuary. These passages,in general, lie between the many long and narrow shoals which run in NE to SW directions. The tidal currents generally set through these nearly straight channels and do not make navigation difficult.
In the S part of the estuary, the shoals are much more complicated and broken up than those in the N part and, as a rule, they run in a direction parallel to the S shore.

From the NE, the two principal deep-water routes (Sunk and Trinity) lead in a SW direction into the entrance of Black Deep. This main route to the river via Black Deep then continues trough Knock John Channel, Oaze Deep, and the W end of The Warp. This route should only be used by vessels which, because of their draft or other special circumstances, are unable to use Barrow Deep or Fisherman’s Gat.

An alternate main route, for vessels of less draft, leads from NE and is located NW of Black Deep. It leads through East Swin or King’s Channel, Barrow Deep, Mouse Channel, and The Warp. This route then continues W to the entrance of the dredged channel at Sea Reach.

The passages to the W of the main routes should only be used by vessels with local knowledge. These include Middle Deep, West Swin, East Swin, and the SW continuation of East Swin or King’s Channel.

From the E and SE, the most direct route is through Princes Channel and Oaze Deep. For vessels with deeper drafts, the other main route is through Fisherman’s Gat, Black Deep, Knock John Channel, and Oaze Deep.

The S route passes through South Channel, Gore Channel, Horse Channel, and Four Fathoms Channel. Part of the fairway is not marked by lighted aids and should not be used at night. This route is described with the  North Kent coverage.

Alexandra Channel, at the NW end of Princes Channel, and Queens Channel, at the SE end of Princes Channel, are both unmarked.

Vessels are cautioned not to anchor in the channels, except within the designated areas.

East Swin (King’s Channel) (51°45'N., 1°25'E.) lies between Gunfleet Sand, on its NW side, and Sunk Sand, on its SE side. It is about 3 miles wide at its narrowest point and has a least depth of 12.6m (2001). It is one of the principal channels for vessels approaching from the NE and leads into Barrow Deep, a main channel, and the minor channels of Middle Deep, East Swin, and Whitaker. Tidal currents run, with rates up to 2.5 knots, in the direction of this channel. This passage, along with Barrow Deep, is marked by lighted buoys and presents no navigational difficulties by day or at night.

Sunk Sand (51°40'N., 1°22'E.) extends about 16 miles SW from a position 10 miles SE of The Naze. Its SW extremity joins Knock John and its NE extremity is known as Sunk Head. Several patches on this bank dry up to 2.1m and, from the N, are known as Great Sunk, Little Sunk, Middle Sunk, and South West Sunk.
In addition to the lighted buoys marking this bank, several beacons stand on it and may best be seen on the chart. The submerged remains of Sunk Head Tower lie about 1.3 miles NNE of Sunk Head and are marked by a lighted buoy.

Gunfleet Sand (51°45'N., 1°15'E.) is the NE part of a shoal which extends SW from a position 6 miles ESE of The Naze. This shoal is about 14 miles long and mostly dries. It is steep to on its SE and NW sides.

Gunfleet Old Lighthouse (51°46'N., 1°20'E.), a disused structure, is 13m high. It stands on the SE side of Gunfleet Sand and is conspicuous. The ruins of a beacon, awash at HW, stand on the shoal, 1.2 miles NNE of the above lighthouse.

Barrow Deep (51°38'N., 1°14'E.), the SW continuation of East Swin or King’s Channel, lies between East Barrow and West Barrow, on its NW side, and the SW end of Sunk Sand, Knock John, and North Knob, on its SE side. At the SW end, this channel is separated from Oaze Deep by the Mouse and Oaze shoals.
The fairway is about 16 miles long and is marked by lighted buoys. It leads into Mouse Channel at the SW end.There are depths greater than 12m in most parts of this channel, except in the vicinity of Knob Gat.

Barrow No. 3 Lighted Buoy (51°42’N., 1°20’E.), equipped with a racon, is moored close NE of the N end of N Middle Shoal and marks the N entrance to the channel.

Knob Gat (51°32'N., 1°05'E.), a very narrow side channel, connects Barrow Deep and Oaze Deep. It is unmarked and passes between the NE end of Mouse Shoal and the SE end of North Knob Shoal. It is reported (2004) that this channel is normally not used by commercial vessels.

Mouse Channel (51°32'N., 1°01'E.) leads WSW across a bar lying at the SW end of Barrow Deep into The Warp. It is marked by lighted buoys and has a least depth of 6.3m (2003).

The Warp (51°30'N., 0°55'E.) is a focal point for all routes leading into the River Medway and the River Thames. It is about 1.2 to 2 miles wide and has irregular depths. Mouse Channel and West Swin lead into the NE side. Oaze Deep leads into the SE side. The entrance to Yantlet Dredged Channel, marked by Sea Reach No. 1 Lighted Buoy, lies at the W side.

Black Deep (51°40'N., 1°25'E.) leads between Sunk Sand, on its NW side, and Long Sand, on its SE side. It is about 19 miles long and 1.5 miles wide, but the fairway narrows to almost 0.5 mile where it leads into Knock John Channel. There are generally least depths in this channel of 12.2 to 13.1m, but fluctuations on the sand and gravel ridges sometimes result in less depths than charted. This channel should only be used by vessels which, because of their draft or other special circumstances, cannot use Barrow Deep or Fisherman’s Gat.

Knock John Channel (51°33'N., 1°09'E.), which leads from Black Deep into Oaze Deep, lies between Knock John and North Knob, on its NW side, and Tizard Bank and Knob Shoal, on its SE side. The fairway is 0.2 mile wide and has a least depth of 12.3m. This channel should only be used by deep-draft vessels which, because of their draft or other special circumstances, are unable to use Barrow Deep.

A Deep Water Route, which may best be seen on the chart, leads through this channel and into Oaze Deep. Oaze Deep (51°30'N., 1°02'E.) lies between Mouse and Oaze shoals, on its N side, and Red Sand and The Cant, on its S side. This channel, which has general depths of 13 to 21m in the fairway, may be entered from Barrow Deep, Knock John Channel, or Knob Channel.

A Deep Water Route, which may best be seen on the chart, leads through Oaze Deep to the S part of The Warp and the entrance to the River Thames.

East Barrow (51°38'N., 1°11'E.), a shoal marked by a beacon, dries over its greater part.

West Barrow (51°35'N., 1°08'E.) dries up to 2.6m. This shoal is separated from East Barrow by Barrow Swatchway, an unmarked narrow passage, which has a least depth of 5.5m (2001) in the fairway. Barrow Swatchway leads from Barrow Deep into South West Reach and should only be used by vessels with local knowledge.

Knock John (51°34'N., 1°09'E.), which dries up to 1.3m, and North Knob (51°33'N., 1°08'E.), which dries up to 0.5m, lie on the SE side of Barrow Deep and are a SW continuation of Sunk Sand. Both of these shoals lie on a ridge which extends SW from Sunk Sand and has depths of less than 5.5m.

Knock John Tower (51°34'N., 1°10'E.), a twin concrete fort structure, 18m high, stands off the SE side of Knock John shoal and is very conspicuous.

Mouse (51°32'N., 1°04'E.), a very narrow detached shoal, lies 2 miles SE of West Barrow and 3 miles WSW of North Knob. It has a least depth of 3.9m and is marked on the SE side by a lighted buoy.

Oaze (51°30'N., 1°00'E.), with a least depth of 3m, is a SW extension of Mouse. This narrow shoal is marked on the SE side by a lighted buoy (see Caution below).

Red Sand (51°29'N., 1°01'E.), lying on the S side of Oaze Deep, is a narrow tongue with drying areas at its centre. Red Sand Towers (51°29'N., 1°00'E.), connsisting of a group of seven concrete towers, is situated about 1 mile NW of Red Sand and is conspicuous.

The Cant (51°28'N., 0°55'E.), with depths of less than 5.5m, is an extensive shoal which lies off the coast and forms the S limit of the main channel. It is marked by a beacon and numernumerous pieces of wreckage, some of which dry, that lie on this shoal.

Caution...A Restricted Zone, the limits of which are shown on the chart, is situated at the SW end of Oaze shoal. Vessels, other than fishing or pleasure craft, are to avoid this zone.

**Fisherman’s Gat (51°35'N., 1°22'E.)...**

leads NW for 4 miles across the S end of Long Sand and into Black Deep. This channel forms the main approach route from the E and SE. The fairway, which is marked by lighted buoys, is about 0.3 mile wide and has a least depth (2002) of 7.9m (see Caution below).

Outer Fisherman Lighted Buoy (51°34'N., 1°25'E) is moored 3.2 miles NNW of Outer Tongue Lighted Buoy and marks the seaward entrance of the channel.

Outer Tongue Lighted Buoy (51°31'N., 1°26'E), equipped with a racon, is moored about 8.2 miles N of North Foreland and marks the S approach to Fisherman’s Gat.

**Foulger’s Gat (51°38'N., 1°26'E.),...**

a narrow channel, leads N for about 3 miles across Long Sand and connects the S end of Knock Deep to Black Deep. This channel has a least depth of 4.6m and is only used by small craft. Its N and S entrances are marked by lighted buoys.

Tizard Bank (51°33'N., 1°13'E.) and Knob Shoal (51°32'N., 1°10'E.) lie on the SE side of Knock John Channel and also form the NW side of Knob Channel. Tizard Bank, with a least depth of 0.8m, lies on a spit, with depths of 6.2 to 9.2m, which extends WSW from the W end of Long Sand. Knob Shoal is a narrow ridge which extends WSW for about 5 miles from Tizard Bank and has a least depth of 1.3m.

Middle Deep (51°40'N., 1°12'E.) leads between East Barrow, on its SE side, and The Middle, on its NW side. It is free from dangers except for a shoal depth of 3.9m lying at the NE end, 2 miles WSW of Barrow No. 3 Lighted Buoy. The W end of this channel leads S through a passage into the NE end of West Swin. This passage is marked by lighted buoys, but is obstructed by several wrecks swept to a least depth of 3.4m. Another shallow passage leads from the W end of Middle Deep between Maplin Spit and Barrow into South West Reach.

Middle Deep, which is not marked by buoys, should only be used by vessels with local knowledge.

The Middle (51°40'N., 1°10'E.), with a least depth of 0.4m, is a steep-to and narrow shoal which separates Middle Deep from East Swin. NE Middle is an extension of The Middle and has a least depth of 1.6m. North Hook is the name given to that part of this shoal which lies between The Middle and NE Middle.

Maplin Spit (51°36'N., 1°06'E.) is located on the S side of the SW end of Middle Deep. The NE part of this shoal dries and its SW part has depths of less than 1.8m.

**Caution...A Precautionary Area, which may best be seen on the chart, is situated in the vicinity of the junction of Fisherman’s Gat and Black Deep. Vessels should navigate with extreme caution within this area.**

West Swin (51°33'N., 1°01'E.), the SW continuation of Middle Deep, leads between Maplin Sands, on its NW side, and West Barrow, on its SE side. South West Reach is the NE part of West Swin. Shoe Hole, a small deep, lies between South West Reach and West Swin. The fairway through West Swin, which is marked by lighted buoys, has depths of 10 to 20m and leads into The Warp.

East Swin (51°40'N., 1°09'E.), a continuation of East Swin or King’s Channel, leads between The Middle, on its SE side, and Whitaker Spit and Foulness Sands, on its NW side. A swatchway at the SE end of this channel leads into Middle Deep. There are least depths of 5.2m in East Swin and 4m in the swatchway.
However, numerous shallow wrecks and obstructions lie in the vicinity and make this passage dangerous to all vessels except small craft with local knowledge. Whitaker Spit and Foulness Sands are described with the East Coast coverage.

Knock Deep (51°38'N., 1°32'E.), which forms an approach to Fisherman’s Gat from the NE, leads between Long Sand and Kentish Knock. It is 10 miles long and 2.2 miles wide, with depths of 10 to 20m in the fairway. This channel may be used, but is not recommended as it is unmarked.

North Edinburgh Channel (51°33'N., 1°19'E.) leads WNW and W between Long Sand and Shingles Patch into Knob Channel. This channel is unmarked and is no longer used by commercial shipping.

South Edinburgh Channel (51°32'N., 1°15'E.) leads NW between Shingles Patch, on the E side, and North Shingles, on the W side. This channel is unmarked and is no longer used by commercial shipping.

Shingles Patch (51°32'N., 1°18'E), a shoal which forms the SW side of the North Edinburgh Channel, dries in places up to 0.8m.

Shingles (51°31'N., 1°13'E), an extensive drying shoal, lies W of the South Edinburgh Channel. It consists of North Shingles and West Shingles, which lie on the S side of Knob Channel, and South Shingles, which lies on the N side of Princes Channel and Alexandra Channel.

Knob Channel (51°31'N., 1°10'E.), which leads from the Edinburgh Channels into Oaze Deep, lies between Tizard Bank and Knob Shoal, on its NW side, and Shingles and Shivering Sand, on its SE side. The fairway, which is 0.5 to 0.7 mile wide, is marked by lighted buoys.

Shivering Sands (51°30'N., 1°04'E.)...

with depths of less than 10m, is the NE extension of Red Sand. Shivering Sand Towers (51°30'N., 1°05'E.) consist of a group of seven conspicuous concrete towers which are 17m high and stand about 50m apart. Lighted buoys are moored close N and S of the group; a tide pole is situated at the N tower.

**Princes Channel (51°29'N., 1°15'E.)...**

lies between Shingles and Girdler, on the N side, and Tongue, Ridge, Pan Sand, and Kentish Flats, on the S side.  It is the most direct route to the river for vessels approaching from the E and SE. Vessels which, because of their draft, cannot use this channel may use Fisherman’s Gat.

The fairway, about 10 miles long, is marked by lighted buoys and has depths of 7 to 24m in its E part. A least depth of 5.3m lies in its W part. From the W end of this channel, vessels can pass either N into Knob Channel or W into Oaze Deep.

Princes Approach Lighted Buoy (51°28.6'N., 1°23.3'E) is moored about 4.2 miles W of NE Spit Lighted Buoy and marks the seaward approach to the channel. Outer Princes Lighted the fairway entrance.

Tongue Sand Tower (51°30'N., 1°22'E), in ruins, is situated on the N side of the E approach to Queens Channel and Princess Channel, 3 miles WSW of Outer Tongue Lighted Buoy. This structure is marked by lighted buoys moored close N and S of it.

North East Spit (51°27'N., 1°28'E), located in the SE approach to Princes Channel, is a curved ridge, which extends NE and N from the E end of Margate Sand. This ridge, which has depths of less than 10m, is reported to be moving slowly seaward at a rate of 20m each year.

NE Spit Lighted Buoy (51°28'N., 1°30'E), marking the NE extremity of North East Spit, is moored about 5.7 miles NNE of North Foreland.

Alexandra Channel (51°30'N., 1°10'E.), which is unmarked, leads NNW from the W part of Princes Channel into Knob Channel. It passes over a shallow bar between Shingles and Girdler.

Girdler, which dries, lies about 2.5 miles E of Shivering Sand Tower. Tongue and Ridge, located on the S side of Princes Channel, both dry. They are two parts of the same shoal which extends for about 4.5 miles.

Pan Sand (51°28'N., 1°10'E.), located W of Tongue and Ridge, dries 1.5m and is marked by a beacon. This shoal, along with Tongue and Ridge, also forms the N side of Queens Channel.

Caution...An offshore wind farm is constructed on Kentish Flats, at the S side of Princes Channel. The farm, consisting of 30 turbine towers, is centred about 6.5 miles NNE of Whitstable (51°22'N., 1°02'E.). Three submarine power cables extend in a S direction from the farm to the shore.

Queens Channel (51°28'N., 1°18'E.) is separated from Princes Channel by Tongue, Ridge, and Pan Sand shoals. It is not marked and is more in the nature of a bight within a group of shoals than a channel, as the W end terminates in Kentish Flats through which there are only shallow passages.

Margate Sand, Wedge, and Woolpack lie on the S side of the channel. The fairway at the E entrance is about 1.5 miles wide and has depths of 10m which, though irregular, decrease towards Pan Sand Hole, 10 miles W.

A narrow and unmarked channel, with a least depth of 1.9m, leads NW from Queens Channel into Princes Channel between Ridge and Pan Sand. A passage, with a least depth of 2.7m, connects Pan Sand Hole, at the edge of Kentish Flats, to Four Fathoms Channel; it passes between East Middle Sand and East Spaniard. Another passage, with a least depth of 3m, connects Pan Sand Hole to the W end of Princes Channel; it passes SW of South Girdler Beacon (51°28'N., 1°07'E.), on Kentish Flats, before leading NNW.

Margate Sand (51°26'N., 1°20'E.) extends WSW for about 10 miles from a position 4.5 miles N of North Foreland and dries in places, up to 2.7m. It is marked by lighted buoys moored at the E, SE, and S sides. Last, a sand bank which dries, lies close to the SW end of Margate Sand. Woolpack, with a least depth of 0.3m, is located about 1.5 miles W of Last.

**Thames**

Plan...This sector describes the River Thames from its entrance at The Nore to London Bridge. Also included within this sector is a description of the River Medway and the Port of Chatham. The general descriptive sequence is from seaward.

General Remarks

The River Thames, the most important though not the largest river in Great Britain, rises from three sources which unite near Lechlade (51°42'N., 1°41'W.), where the counties of Gloucester, Wiltshire, Berkshire, and Oxfordshire border on each other. Then, in a winding course and receiving several tributaries, the river takes a general E direction for about 180 statute miles to its estuary at The Nore about 42 nautical miles below London Bridge, where it unites with the River Medway. The river is about 240m wide at London Bridge, 450m wide at Woolwich, and 1,300m wide at Gravesend.

The Thames, from London to The Nore, is in many places retained within its present limits by embankments. The surface of the river at HW is often up to 1m higher than the surrounding countryside. A dredged and buoyed channel leads from The Nore to London Bridge.

Between Gravesend and Tower Bridge (51°30'N., 0°04'W.), the only obstructions in the main fairway are the Thames Tidal Barrier in Woolwich Reach, where traffic is controlled, and the Queen Elizabeth II Bridge, which spans the river 10 miles below the barrier. Between Tower Bridge and Richmond Bridge, situated 14.5 miles upstream at the limit of tidal navigation, the river is spanned by 28 fixed bridges.

The Port of London (51°27'N., 0°21'E.) comprises all tidal waters of the River Thames and Tilbury Docks, excluding that part of the estuary under the jurisdiction of the Medway Ports Authority.

Note...The Nore (51°29'N., 0°51'E.) is a name frequently used to refer to the area lying N of the Isle of Sheppey where The Warp leads into the approach channels for the River Medway and Sea Reach.

Tides...Currents....Tides at Tilbury rise about 6.4m at springs and 5.3m at neaps.

Tides at Woolwich rise about 6.4m at springs and 5.4m at neaps. Tides at London Bridge rise about 7.1m at springs and 5.9m at neaps. In the River Thames and the River Medway, the sea level is raised by strong and long continued N and NW winds; the opposite effect is caused by strong and long continued SSE and S winds. Both the duration and the velocity of the ebb tidal current are increased during and after heavy rain; the flood current is correspondingly reduced. At all bends in the river channel, the tidal currents, both on the ebb and the flood, set towards the outer bank; the current is weak and eddies may form behind the point on the inner sides of the bends. In Sea Reach, the flood current is reported to attain a velocity up to 3 knots at springs and the ebb current up to 3.5 knots.

Caution...
A Precautionary Area, the limits of which are shown on the chart, extends E from the vicinity of Sea Reach No. 1 Lighted Buoy and into Oaze Deep. Vessels entering this area should do so with extreme caution as large deep-draft vessels, with limited maneuverability, and other crossing traffic, may be encountered. In addition, anchoring within this area is prohibited. Several submarine gas pipelines lie across the river channel and may best be seen on the chart. Several submarine cables lie across the river channel and may best be seen on the chart. Ferries cross the river channel at several points and may best be seen on the chart.
Several foul and spoil ground areas lie within the river adjacent to the fairway and may best be seen on the chart. Dredging is periodically carried out within the river channels; information on the latest depths should be obtained from Port Control London or Woolwich Radio.

Sea Reach to London Bridge
Sea Reach (51°29'N., 0°48'E.), at the entrance to the river, extends W for 12 miles from its entrance abreast Shoebury Ness to Lower Hope Point (51°29'N., 0°28'E.). It varies in width from about 4 miles at its E end to about 1 mile at its W end.
However, the width of the navigable channel is reduced by sand banks and mud flats, which dry and extend from the shore on both sides of the river. A major oil facility complex is situated at the NW end of this reach and includes Canvey Island, Holehaven, Coryton, and Thameshaven. This complex is commonly referred to in its entirety as “Shell Haven.”

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Yantlet Dredged Channel is entered from The Warp or Oaze Deep and leads through Sea Reach. It has depths of 12.5m at its E end and 10m at its W end.
Leigh Channel, lying N of Yantlet Dredged Channel, leads W and WNW from The Warp to the promenade pier which extends S from Southend on Sea. This channel, which is not marked, lies between Southend Mud Flat and Leigh Middle and narrows at its W end. Ray Gut, with depths of 0.3 to 4m, leads from the W end of Leigh Channel to Leigh on Sea, situated 2.4 miles W of Southend.

Southend on Sea, situated 2.5 miles WNW of Shoebury Ness, is a resort town which is partly built on elevated ground and faced with cliffs. A promenade pier, which has a depth of 5.5m alongside its head, extends 1.4 miles S from about the middle of the town and is prominent. A conspicuous hotel stands near the root of the pier. The coast between Southend and Leigh consists of cliffs, but they are not conspicuous because of the buildings. Leigh, a yachting and fishing boat centre, stands on the side of a hill.
A prominent water tower stands 3 miles W of the town.

Isle of Grain (51°27'N., 0°42'E.), located on the S side of Sea Reach, is part of the main coast, and is low, flat, and embanked. Grain stands on its E end and Yantlet Creek empties into the river, 2 miles NW of this village. London Stone, a monument, and a beacon stand on either side of the entrance to the creek. Prominent landmarks in this vicinity include the buildings of Whitehouse Farm and White Hall Farm near Grain; the water tower at Windhill Green, 3.2 miles WNW of Grain; and Lees Tower, standing on the coast, 1 mile NNW of Grain.

Conspicuous landmarks include the church tower at St. Mary’s Hoo, 4.5 miles W of Grain, and the chimney, 244m high, standing at the power station, 0.5 mile SSW of Grain.

The N shore of the Isle of Grain is fronted by Grain Spit, Yantlet Flats, and Blyth Sands, which dry 0.3 to 3.6m and extend up to 0.7 mile offshore. Nore Sand, marked by a lighted buoy, lies 1.6 miles NE of Grain. This bank has a least depth of 2.5m and is separated from Grain Spit by a swatchway.

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**More Info**

Warning, much of the text on this page has been adapted from material intended mainly for big ship mariners (NGA Sailing Directions). It's suitability for small craft must be left in the hands of the individual skipper. As with everything else on this site, the information is not to be used for navigation purposes, but may be useful in the passage planning stages.

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