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The Pilotage Foundation is grateful to John Lawson who was the author of all our Passage Planning routes flowing out from the South Coast of England to Iceland, The Baltic, the Atlantic Islands and the Mediterranean.

This Route was updated by Jeremy Parkinson & Mike Redfern in 2008

Route 5

North Sea crossings English and Scottish ports to Norway, Denmark and Germany

For text version, see below

For interactive Google Map version,

click on pin.



To return to text version, press 'back' button on your browser.

General

The North Sea crossing is just 200M from Shetland to Bergen in the north, 410M from the NE of Scotland to Skagen and 300M from the Humber to the Elbe entrance in the south. Any direct crossing is in clear water except for oil and gas rigs, the shallows of the Dogger Bank which should not incommode yachts and the two Traffic Separation Lanes running off the north coasts of Germany and Holland which must be crossed at some time if going to the Elbe and Kiel Canal.

None of these crossings are navigationally demanding nor affected by natural conditions except wind and sea; the details below are therefore brief.

Weather and sea states

Most of the major Atlantic depressions pass across the N of this region carrying frontal troughs to the S which sweep across the North Sea. Some of these fronts develop secondaries which can become vigorous systems moving quickly E. The progress of the warm fronts can be held up crossing the UK allowing the cold front to catch up and become occluded when the contrast of the weather on each side will be much less pronounced.

The predominant wind direction in the summer months is W to SW in the W becoming NW towards the Danish and S Norwegian coast, then more westerly to the N of Denmark. The percentage of gales or calms in the summer is unlikely to be more than 3%.

Swell is not usually a feature of the shallow North Sea and is predominantly from the N sector and less than 2m high.

The incidence of fog is unlikely to be more than 3% in the N and W becoming less in the E.

Sea temperature increases quickly from an average of 6°C in the winter to 13°C in the N and 16° C in the S in the summer before slowly declining.

Currents

These are of little significance throughout the area and are masked by the tidal streams.

Tidal streams

Generally the flood stream in the North Sea sets southwards and the ebb northwards and are only significant near the east coast of the UK where the maximum flow of up to 2 knots maximum is found off Peterhead. The rate declines steadily to the E and will be less than ½ knot from the middle of the crossing to the Norwegian coast although it exceeds 1 knot on the flood along the N German and Dutch coasts.

Tides

The Spring ranges vary as follows:-

Shetland	1.6m	Bergen	1.2 m
Peterhead	3.0m	Stavanger	0.5 m
Forth	5.0m	Kristiansand	0.3 m
Tyne	4.3m	Skagen	0.4 m
Hull	5.2m	Elbe entrance	3.4 m

The North Sea is subject to storm surges but these are rare in the summer months and are included in the weather forecasts; high pressure can reduce the sea level by up to 0.3m. A good latitude should be allowed in all depth calculations S of Peterhead.

Formalities

See “Formalities” on second page Route 6 for documentation needed on board.

All Scandinavian countries are particularly flag conscious; the appropriate courtesy flag should always be flown and times for hoisting and lowering national colours observed.

All oil and gas installations are surrounded by a 500m exclusion zone which must be respected.

Norway

Yachts must clear in and out with the Customs, usual papers and passports required plus a copy of the International Regulations for the Prevention of Collisions at Sea. Imports of over 1 litre spirits per head are taxed or put into bond. It is possible to check in by telephone. It is now a requirement to apply 2 months in advance for a 90 day permit to sail between May and October, listing all ports of call.

Denmark

The usual EU regulations apply; yachts should report to the Customs on arrival; the duty free allowance is 1.5 litres of spirit per head.

Germany

The usual EU regulations apply and clearance in and out is only required if it is a non-EU vessel or there are non-EU personnel on board.

The use of a motoring cone in German waters and the Kiel Canal is strictly enforced.

Pleasure craft are not allowed within 1M of Traffic Separation Schemes unless crossing them is unavoidable in which case it must be at right angles. German Marine Police can impose on-the-spot fines or confiscate equipment for transgressions and it is important to log all positions, times, courses and weather conditions in case of any dispute.

Search and rescue

Any of the routes are within the UK, South Norwegian, Danish, German or Netherlands Search and Rescue Regions(SRR)s with MRCCs at Aberdeen, Yarmouth, Stavanger, Århus, Bremen and Ijmuiden. The VHF DSC coverage extends to some 60M from the coasts and the gap in between is covered by MF DSC. All countries maintain all weather and inshore lifeboats and there is air or helicopter coverage over much of the area.

Further details can be found in Admiralty Maritime Communications (UK and Baltic), NP 291.

Navtex and weather forecasts

All the routes are covered by Navtex broadcasts from Oostende(M), Ijmuiden(P), Cullercoats(G), Rogaland(L) and Grimeton(I)

Further details of the many weather forecasts available can be found in Admiralty Maritime Communications NP 291 and RYA Weather Forecasts G5/08.

Fuel and domestic gas

Norway

Fuel is readily obtainable even in small places. It is generally difficult to have non-Norwegian propane bottles refilled but it is possible at some gas stations – see www.lpgnorge.no Camping Gas is difficult to obtain; It may be necessary to change to Norwegian Propane or Swedish Propane if staying for any length of time. The latter is more easily obtainable in The Baltic if voyaging there.

NB. Camping Gaz is not obtainable in Shetland if voyaging to Norway from there.

Denmark

Fuel is readily available; Calor Gas cannot be bought, exchanged or filled; Camping Gas is available.

Germany

Fuel is readily available, as is Camping Gas.

Domestic Gas

Scandinavian countries, and Germany to a lesser extent use Propane for cooking and heating and it is widely available. It may well be worth turning over to Propane if Butane supplies will not last out the cruise. Most cookers will burn either without adjustment. Apart from in Norway (see above) it is not legal to have non-local bottles refilled

Routeing recommendations

There are three navigational concerns to yachts crossing the North Sea – oil and gas rigs, Traffic Separation Zones along the N German and Dutch coasts and, to a very minor extent, the Dogger Bank. A crossing of the North Sea should not be undertaken without at least one of an up-to-date chart of the 2182a, b or c trio which shows all the oil and gas installations; these also show the Traffic Zones. There is one 13m patch on the Dogger Bank which should be avoided in heavy weather otherwise there is generally 20m or more over it. If crossing from S of the Humber, the offshore banks near the English coast may have to be allowed for.

There are two, becoming three at the W end, Traffic Separation Zones running parallel to the N Dutch and German coasts. They only become a problem if going between the Elbe entrance and the Humber or a port S of it and must be crossed at the designated crossing places.

Any route taken across the North Sea will therefore be more weather-dependent than on any other factor and the direct route can be planned, hopefully, in advance. The only timing consideration is if proceeding through the Kiel Canal when arrival at Elbe Light should be timed for HW Cuxhaven –0500. The Jade, Weser and Limfjord (Thyborøn) entrances are all dangerous in onshore winds and particularly on the ebb. Helgoland and Esjberg are the only ports of refuge in most conditions along the Danish and N German coasts

Arrival and departure ports

Eleven ports have been selected on either side of the North Sea as typical arrival and departure points from N to S. There are many others, particularly on the S and W Norwegian coasts but there are few, apart from those mentioned in the text, on the W Danish coast.

Port names in upper case indicate a port with major marina facilities including slipping and all kinds of repair, electricity and water on the pontoons, fuel available and with the resources of a town or city nearby. Other ports will have many of these facilities but with any omission noted. Calor or Camping Gas are available unless otherwise stated.

Port Categories

Ports are categorised for their accessibility in all weathers and the security of their shelter.

- A Port of refuge in storms; complete shelter.
- A* Qualified storm port of refuge and haven.
- B Port accessible in gales with good shelter
- B* Qualified gale port of refuge and haven.
- C Entry subject to wind, sea and tidal conditions with some shelter inside.

Distance table

	Lerwick	BERGEN	Peterhead	STAVANGER	FIRTH OF FORTH	MANDAL	TYNE	Skagen	HUMBER	Esjberg	Elbe entrance
Lerwick	***	220	160	222	268	305	275	383	376	408	510
BERGEN	200	***	290	115	395	200	545	305	460	***	***
Peterhead	160	290	***	260	117	310	130	410	231	360	400
STAVANGER	222	115	270	***	310	120	330	225	400	***	***
FIRTH OF FORTH	268	395	117	310	***	380	112	520	213	420	430
MANDAL	305	200	310	120	380	***	355	105	375	***	***
TYNE	275	545	130	330	112	355	***	420	101	350	340
Skagen	383	305	410	225	520	105	420	***	450	***	***
HUMBER	376	460	231	400	213	375	101	450	***	310	300
Esjberg	408	***	360	***	420	***	350	***	310	***	***
Elbe entrance	510	***	400	***	430	***	340	***	300	***	***

The distances are direct between any two ports in different columns. Interpolated distances between ports in the same column will not necessarily be correct.

LERWICK A

A busy fishing and oil rig support port which makes considerable effort to welcome visiting yachtsmen. 6.8m in the entrance with 1.5m to 6m alongside a pontoon for up to 15m in yacht harbour which is in centre of the town; yachts of almost any size can be accommodated somewhere; water on pontoon and fuel in any quantity by road tanker; craneage up to 140 tons; handy and very good provisioning; ferry and air connections to the mainland with summer ferries to Norway, Denmark Faeroe and Iceland. Butane unavailable.

BERGEN A

A large commercial port 22M from the open sea and landfall at Marstein with some yacht facilities; unless there is good reason to continue to Bergen, there are small marinas short of the city at Hjellestad and Grimstad with all the usual facilities, duty free fuel, water and provisions; Bergen has its own airport and good rail and road connections for crew changes. Butane unavailable

PETERHEAD A

A busy commercial, oil rig support and fishing port with a small marina with some facilities. Its position and accessibility in all weathers make it a popular stop-over; 2.3m in entrance to the marina; 1 – 2.8m inside; electricity and water at the pontoons but ½M for provisions; no travel lift but heavy craneage; fuel in any quantities by road tanker on demand; lengthy road and no rail connections; Aberdeen airport 25m.

STAVANGER A

A large commercial port with all the facilities and supplies needed and good communications. However it is 25M from the open sea at Feistein and arrivals may prefer to turn off to Tananger which is only 12M and also Category A with guest berths in the yacht harbour; all the usual facilities, duty free fuel, water, facilities and provisions here with buses to nearby Stavanger airport. Butane unavailable.

FIRTH OF FORTH A

Port Edgar Marina (2.2m depth in entrance) at South Queensferry has all facilities and is well sheltered with access in all weathers on the S shore of the Firth just above the bridges (clearance 44m).

Granton, further East on the south shore (3.8m in entrance, 3.4m alongside) is an alternative but very exposed in Northerlies.

MANDAL A

A well protected river harbour accessible in all conditions; the least depth on the approach is 3m; pontoon berths in the marina, duty free fuel, water and good provisions; Customs on site and a port of entry. Other ports of entry to the E are **Kristiansand** (22M) and **Lillesand** (35M) both without depth restrictions at the entrance but some at the yacht berths at Kristiansand. Butane unavailable.

RIVER TYNE A*

The entrance will be dangerous to small craft in E gales especially on the ebb, otherwise excellent shelter inside with a modern marina 2M up-river at Royal Quays Marina. Lock at all stages of the tide, sill -3.3m, maximum length 42.5m, beam 8m; 30 ton travel lift, chandler and provisions nearby; fuel 24 hours outside lock.

Skagen B*

A large fishing and a harbour of refuge just E of Skagen (The Skaw) but a difficult entrance in SE gales although good shelter inside; fuel, water and provisioning close by; road and rail communications with rest of Denmark.

HUMBER B*

The entrance at Spurn Head can be dangerous to small craft in strong winds from NW through E to S especially on the ebb which can run at up to 5 knots. From Spurn Head to Grimsby marina is 6M which can be locked into HW±2 hrs; few facilities except provisions. Hull marina at Kingston-upon-Hull 17M from Spurn can be entered via a lock HW±3 hrs, has fuel and full facilities and is close to good road and rail connections.

Esjberg B*

The only possible port of refuge on the W Danish coast between the Skaggerak and Helgoland but should not be entered on the ebb in strong westerly winds; a busy ferry port with a 5M approach channel dredged to 9.5m; some depth restrictions in yacht harbour but there is another with approaches dredged to 2.7m; all the usual supplies and facilities and a port of entry.

Entrance to the Elbe C

The entrance to the Elbe is dangerous for small craft in onshore winds particularly on the ebb and should not be attempted in these conditions. **Helgoland** 20M to the NW is an all-weather refuge.

CUXHAVEN A

Cuxhaven is 23M from the Elbe Light and has a well sheltered marina with all facilities but shopping is some distance away and requires the use of bicycles which are loaned free of charge by the marina office.

BRUNSBÜTTEL A

Brunsbüttel is the entrance at the S end of the Kiel Canal and 25M from Cuxhaven. The waiting area outside is in deep water and strong streams but the locks are worked 24 hours for commercial vessels for which yachts may have to wait; there is a small marina inside the locks.

Kiel Canal is 54M from Brunsbüttel to Holtenau with locks at each end; yachts must be under power but may motor sail; radar must be fitted for night passages or in fog; there are several places to stop in transit with usual yacht facilities and supplies.

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Route 5 Waypoint Table

THESE WAYPOINTS SHOULD BE USED FOR PLANNING ONLY AND NEVER FOR NAVIGATION

Waypoints are given to the nearest minute of latitude and longitude and are positioned in clear water off the ports and headlands.

Turning Points (TP) to avoid land or navigational hazards are also noted in the table.

The symbol * between two points denotes that the direct route between them passes over or close to land or other navigational dangers.

Port or point	Lat	Long
LERWICK	60 07N	01 09W
*		*
BERGEN (Marstein)	60 09	04 58E
*		*
PETERHEAD	57 30	01 45W
*		*
STAVANGER (Kvitsøy)	59 04	05 22E
*		*
FIRTH OF FORTH (Bridges)	56 00	03 24W
*		*
MANDAL	58 00	07 28E
*		*
TYNE	55 02	01 22W
*		*
Skagen (TP)	57 46	10 43E
*		*
HUMBER (Spurn Head)	53 33	00 10E
*		*
Esjberg	55 24	08 12E
*		*
Elbe entrance	54 00	08 13E

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Admiralty North Sea (West) Pilot, NP 54

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North Sea, Southern, NP251

North Sea, Flamborough to Pentland, NP 252

Orkney and Shetland Islands, NP 209

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The Cruising Almanac 2007-2008, Cruising Association, Imray

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