UK Hydrographic Office

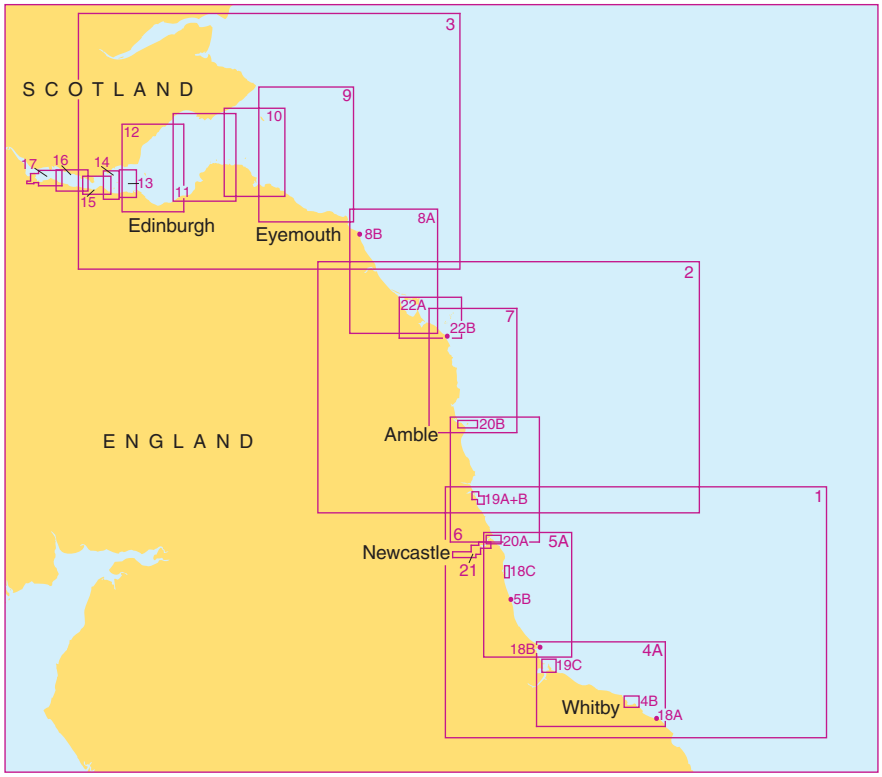
5615

Updated to July 2024

Version 1.0

East Coast: Whitby to Edinburgh

Coverage Diagram



5615	Chart Title	Natural Scale 1:
1	Whitby to Blyth	200,000
2	Blyth to Berwick-upon-Tweed	200,000
3	Saint Abb's Head to Buddon Ness	200,000
4A	Whitby to Hartlepool	75,000
4B	Runswick Bay	25,000
5A	Hartlepool to Tynemouth	75,000
5B	Seaham	12,500
6	Tynemouth to Amble	75,000
7	Amble to Farne Islands	75,000
8A	Holy Island to Saint Abb's Head	75,000
8B	Eyemouth Harbour	7,500
9	Saint Abb's Head to Fife Ness	75,000
10	Firth of Forth Dunbar to Isle of May	50,000
11	Firth of Forth North Berwick to Methil	50,000
12	Firth of Forth Approaches to Edinburgh	50,000

5615	Chart Title	Natural Scale 1:
13	Firth of Forth Granton to Hawkcraig Point	15,000
14	Firth of Forth Hawkcraig Point to Hound Point	15,000
15	River Forth Hound Point to Rosyth	15,000
16	River Forth Rosyth to Bo'Ness	17,500
17A	River Forth Grangemouth Roads	17,500
17B	River Forth Grangemouth and River Carron	10,000
17C	River Forth River Carron	10,000
18A	Whitby Harbour	7,500
18B	Hartlepool	10,000
18C	Sunderland	10,000
19A	Approaches to Blyth	6,250
19B	Blyth	6,250
19C	Entrance to River Tees	20,000
20A	Entrance to River Tyne	7,500
20B	Warkworth Harbour	15,000
21A	River Tyne Royal Quays to Willington Quay	7,500
21B	River Tyne Willington Quay to Wincomblee	12,500
21C	River Tyne Wincomblee to Newcastle Upon Tyne	12,500
22A	Farne Islands to Holy Island	35,000
22B	North Sunderland Harbour	7,500
23	Whitby to Edinburgh	750,000

Notes

Positions are referred to the WGS84 compatible datum, European Terrestrial Reference System 1989 Datum.
Depths are in metres and are reduced to Chart Datum, which is approximately the level of Lowest Astronomical Tide.
Heights are in metres. Underlined figures are drying heights above Chart Datum. Overhead clearance heights are above Highest Astronomical Tide. All other heights are above Mean High Water Springs.
Navigational marks: IALA Maritime Buoyage System-Region A (Red to port)

DATUM

All the charts are referred to WGS84 Datum. Any positions taken from GPS (referred to WGS84) or from ADMIRALTY Notices to Mariners (referred to ETRS89) can be plotted directly on all charts.

LIGHTS

Light stars without legends represent two fixed lights displayed vertically.

OIL AND GAS FIELDS

Production platforms and associated structures, including tanker moorings, storage tankers and platforms on pipelines, generally exhibit Mo(U) lights, aircraft obstruction lights, and audible fog signals. Unauthorised navigation is prohibited within 500 metres of all such structures.

OVERHEAD CABLES

Overhead cables may conduct high voltages; contact with or proximity to these poses extreme danger. Sufficient clearance must be allowed.

OMISSION OF DETAIL

Within the limit marked _ _ _ _ and the coastline, this chart should only be used for planning purposes as features such as depths, platforms, wrecks, pipelines, minor aids to navigation and cables have been omitted. Larger scale ADMIRALTY charts are available for mariners intending to navigate in this area.

RIVER TYNE - DEPTHS

Depths in the river channel and at the berths are subject to silting. For the latest information consult the Harbour Master or the Port of Tyne Vessel Traffic Service.

SUBMARINE CABLES AND PIPELINES

Mariners are advised not to anchor or trawl in the vicinity of submarine cables and pipelines or within 2·5 cables (464 metres) of the Ekofisk Oil Pipeline, the CATS Gas pipeline and the Everest Gas Pipeline. Pipelines are not always buried and their presence may significantly reduce the charted depth. They may also span seabed undulations and cause fishing gear to become irrecoverably snagged, putting a vessel in severe danger. Submarine cables support national infrastructure; damage to them may affect critical services and can result in serious consequences, as well as creating a potential hazard to mariners. Wilful or neglectful damage to cables may result in legal action.

FIRING PRACTICE AREAS

No restrictions are placed on the right to transit the firing practice areas at any time. The firing practice areas are operated using a clear range procedure: exercises and firing only take place when the areas are considered to be clear of all shipping.

VESSEL REPORTING

For details of the following vessel traffic services, see ADMIRALTY List of Radio Signals:
- Tay VTS
- Forth VTS
- Port of Tyne VTS
- Tees and Hartlepool VTS

RIG JACKUP AREA

Oil rigs may be encountered in the area indicated. Unauthorised navigation is prohibited within 500 metres of the oil rigs.

TEES AND HARTLEPOOL PORT AUTHORITY LIMIT

Vessels should not anchor within the Tees and Hartlepool Authority Limits.

HISTORIC AND MILITARY WRECKS

The site of historic and military wrecks are protected from unauthorised interference.

HM Coastguard Services and Safety Information

VHF MARITIME RADIO

Coastguard Maritime Rescue Co-ordination Centres are on constant watch on Channel 16 - the distress, safety and calling channel. Initial calls should normally be on Ch 16.

HM COASTGUARD
HUMBER COASTGUARD (MRCC)
Tel. +44 (0) 1262 672317
MMSI: 002320007
e-mail: zone8@hmcg.gov.uk (FAO Humber Coastguard)

ABERDEEN COASTGUARD (MRCC)
Tel. +44 (0) 1224 592334
MMSI: 002320004
e-mail: zone3@hmcg.gov.uk (FAO Aberdeen Coastguard)

Distress and Safety Communication

Distress - Urgency

A Distress or Urgency message has absolute priority.
Make a call on VHF Channel 16 and give the following essential information:
Distress Call **MAYDAY MAYDAY MAYDAY**

- Name and Call Sign and MMSI number Position
- Nature of Distress
- Type of assistance required
- Type of boat - number of crew - intentions

Urgency (eg. if you break down in bad weather or a crewman requires medical attention)
Call **PANPAN PANPAN PANPAN** and give:

- Name and Call Sign and MMSI number Position
- Nature of Distress
- Type of assistance required
- Type of boat - number of crew - intentions

Other Distress Signals

Other recognised signals are:

- Red flares (parachute, multi stars or hand held) Orange smoke signal
- The flag signal NC
- The morse signal SOS ... --- ... by light
- An article of clothing on an oar
- Slowly and repeatedly raising and lowering outstretched arms
- A square flag with anything resembling a ball above or below it
- Continuous sounding of a siren or whistle will also be recognised, or smoke and flames from the vessel
- The carriage of an Emergency Position Indicating Radio Beacon (406 EPIRB) will improve your chances of being located if conventional means fail. 406 EPIRBs are detected by satellite, in addition to aircraft, and transmitted to a Coastguard Maritime Rescue Co-ordination Centre.

THE USE OF MOBILE TELEPHONES IN DISTRESS AND SAFETY COMMUNICATIONS

The use of mobile telephones in the marine environent offshore is now well established, with users in all areas of the commercial, fishing and leisure communities.

Incidents have occured where vessels requiring assistance from rescue services have used the inland emergency service, or alternatively telephoned direct to request assistance. (e.g. Lifeboat services). This procedure through a mobile telephone is strongly discouraged.

Use of mobile telephones by-passes the existing dedicated well-established international marine distress communications systems.

Mobile telephone coverage offshore is limited and does not afford the same extensive safety coverage as VHF Channel 16. Consequently a greater risk exists of communications difficulties or even a complete breakdown if an accident should occur at the edge of a cell coverage area.

Subsequent on-scene communications would be restricted and delayed if mobile telephone communications were exclusively maintained throughout. There is always a risk that elements of vital information could be lost or misinterpreted by the introduction of further relay links in the communication chain. Mobile telephones are also highly susceptible to failure due to water ingress.

It is not possible to communicate direct to another vessel able to render assistance unless that vessel is also fitted with a mobile telephone and the telephone number is known. Requests for assistance cannot be monitored by other vessels in a position to render assistance.
Valuable time would be lost whilst the relevent Coastguard Rescue Coordination Centre receives and then re-broadcasts the information to all ships on the appropriate distress channel(s).

In the interests of Safety Of Life At Sea (SOLAS), owners of vessels are urged to carry MARINE communications equipment onboard and to use this medium as the primary means of Distress and Safety communications.

Product Specifications

PRODUCT USAGE CAUTION

This product is specifically designed, in conjunction with other charts and publications, as an aid to the navigation of leisure craft and locally regulated workboats and fishing vessels and therefore should be used by competent (preferably qualified) maritime navigators. Although this product contains the best information available at the time of publication, the user should navigate with caution, particularly in areas of shallow or confined waters where the depth of water is likely to change due to local conditions. The information provided in this product comes from the latest source information held and is updated by Notice to Mariners upon receipt of new information critical to safe navigation. To help maintain this product for all users, users are asked to notify the United Kingdom Hydrographic Office of any differences found between what is depicted and actual conditions encountered.

KEEPING THIS CHART UPDATED

Updates for the charts are published using the Notices to Mariners Service on the ADMIRALTY Notices to Mariners page found on our website at admiralty.co.uk/msi. All updates for the latest edition of the chart are listed and can be quickly and easily downloaded. All the charts are derived from standard ADMIRALTY charts. No updates are applied to the charts by the United Kingdom Hydrographic Office or its agents after printing. For those who do not have internet access, please contact Tel. 01823 484444 for assistance.

TIDAL STREAMS

Full details of the tidal streams in the area covered by this folio are given in the following ADMIRALTY Tidal Stream Atlases: NP251 North Sea - Southern Portion and NP220 Rosyth Harbour and Approaches.

PROVIDE UPDATED INFORMATION

To help maintain this product users are asked to notify the United Kingdom Hydrographic Office of any differences found between what is depicted and actual conditions encountered. Users can do this by submitting a Hydrographic Note form, found on our website admiralty.co.uk/msi or by downloading our H-Note App. The H-Note App is freely available to download on Android and iOS devices. For more information please see here:

IMPROVEMENTS TO THIS PRODUCT

ADMIRALTY Small Craft Charts are designed for use on leisure craft and locally regulated workboats and fishing vessels, where the smaller format charts fit more conveniently into the limited space available. Users with specific suggestions for the improvement of this product or ideas for the expansion of the series are requested to forward their comments to:

Customer Services, The UK Hydrographic Office,
Admiralty Way, Taunton. +44(0)1823 484444

E-mail customerservices@ukho.gov.uk

To view all ADMIRALTY Products and services, visit admiralty.co.uk

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T: +44 (0)1823 484444 Find out more at **admiralty.co.uk**

Tidal Stream Information

5615_1

Tidal Streams referred to HW at RIVER TEES ENTRANCE

Hours	Geographical Position	A 55°00'9 N 1 22·2W		B 55°04'5 N 1 16·9W		C 54°54'0 N 1 04·1W		D 54°38'0 N 0 58·1W		E 54°44'0 N 0 47·1W		F 54°41'8 N 0 27·7W		G 54°29'5 N 0 22·1W		H 54°27'0 N 0 06·1W		
Before High Water 6	Directions of streams (degrees)	341	0·8 0·4	340	0·5 0·3	335	0·8 0·4	303	0·8 0·4	306	0·9 0·5	317	1·3 0·6	307	1·4 0·8	318	1·4 0·8	−6
Before High Water 5		325	0·2 0·1	317	0·1 0·0	330	0·6 0·3	303	0·4 0·2	302	0·7 0·4	322	0·9 0·4	308	1·1 0·6	318	1·2 0·7	−5
Before High Water 4		170	0·3 0·1	188	0·3 0·2	315	0·3 0·1		0·0 0·0	305	0·4 0·2	333	0·4 0·2	310	0·8 0·5	314	0·7 0·4	−4
Before High Water 3		158	0·7 0·3	180	0·5 0·2	185	0·2 0·1	111	0·8 0·4	098	0·1 0·1	118	0·3 0·1	313	0·2 0·1	255	0·2 0·1	−3
Before High Water 2		156	0·9 0·4	171	0·7 0·3	162	0·5 0·3	112	1·3 0·7	122	0·5 0·3	134	1·1 0·5	128	0·6 0·3	150	0·7 0·4	−2
Before High Water 1	Rates at spring tides (knots)	162	1·0 0·5	161	0·8 0·4	157	0·8 0·4	109	1·1 0·6	129	0·8 0·5	134	1·4 0·6	132	1·2 0·7	141	1·2 0·7	−1
High Water	Rates at neap tides (knots)	167	0·8 0·4	158	0·6 0·3	156	0·9 0·4	107	0·9 0·5	130	1·0 0·6	132	1·5 0·7	131	1·4 0·8	137	1·4 0·8	0
After High Water 1		163	0·3 0·1	144	0·1 0·1	152	0·7 0·3	110	0·7 0·3	119	0·9 0·5	130	1·1 0·5	129	1·3 0·7	134	1·2 0·7	+1
After High Water 2		000	0·2 0·1	358	0·2 0·1	143	0·3 0·2	097	0·2 0·1	123	0·5 0·3	149	0·5 0·2	123	0·9 0·5	132	0·8 0·4	+2
After High Water 3		350	0·6 0·3	352	0·5 0·3	030	0·1 0·0	278	0·2 0·1		0·0 0·0	290	0·3 0·1	122	0·3 0·2	103	0·2 0·1	+3
After High Water 4		340	0·8 0·4	348	0·8 0·4	344	0·4 0·2	288	0·7 0·4	305	0·4 0·2	311	0·9 0·4	314	0·3 0·2	326	0·5 0·3	+4
After High Water 5		340	1·0 0·5	342	0·8 0·4	340	0·8 0·4	291	1·2 0·6	306	0·8 0·4	311	1·3 0·6	312	0·9 0·5	321	1·0 0·6	+5
After High Water 6		342	0·9 0·9	340	0·6 0·3	336	0·9 0·4	296	1·1 0·6	307	0·9 0·5	312	1·4 0·6	310	1·3 0·7	319	1·4 0·8	+6

5615_2

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Geographical Position	A 55°45'8 N 1 56·5W		B 55°44'9 N 1 48·3W		C 55°36'3 N 1 39·4W		D 55°06'4 N 1 27·5W		E 55°40'0 N 1 19·8W		F 55°23'6 N 1 11·6W		G 55°16'0 N 0 38·1W		
Before High Water 6	Directions of streams (degrees)	326	0·5 0·2	283	1·1 0·6	306	1·7 0·9	344	0·4 0·2	332	1·3 0·6	345	0·9 0·4	328	0·9 0·5	−6
Before High Water 5		335	0·2 0·1	277	0·8 0·4	329	0·4 0·2	318	0·2 0·1	323	1·1 0·5	341	0·6 0·3	323	0·7 0·4	−5
Before High Water 4		090	0·1 0·0	241	0·2 0·1	118	1·1 0·6	240	0·2 0·1	309	0·8 0·4	335	0·2 0·1	317	0·4 0·2	−4
Before High Water 3		133	0·3 0·2	151	0·4 0·2	127	2·2 1·1	210	0·3 0·1	282	0·2 0·1	182	0·3 0·1	218	0·1 0·1	−3
Before High Water 2		143	0·6 0·3	107	0·7 0·4	129	2·4 1·2	188	0·6 0·3	144	0·3 0·1	176	0·7 0·3	161	0·5 0·3	−2
Before High Water 1	Rates at spring tides (knots)	143	0·8 0·4	105	0·8 0·4	129	2·2 1·1	168	0·6 0·3	141	0·9 0·4	172	1·0 0·4	152	0·9 0·5	−1
High Water	Rates at neap tides (knots)	137	0·7 0·4	105	0·8 0·4	128	1·7 0·8	162	0·4 0·2	136	1·1 0·5	168	0·9 0·4	145	1·0 0·5	0
After High Water 1		116	0·6 0·3	103	0·7 0·4	126	0·8 0·4	157	0·3 0·2	140	1·4 0·7	166	0·6 0·3	143	0·8 0·4	+1
After High Water 2		342	0·2 0·1	098	0·4 0·2	335	0·4 0·2	135	0·2 0·1	132	1·0 0·5	151	0·3 0·1	134	0·5 0·3	+2
After High Water 3		314	0·8 0·4	323	0·1 0·0	314	1·4 0·7	015	0·3 0·2	146	0·4 0·2	010	0·3 0·1	069	0·1 0·1	+3
After High Water 4		316	0·9 0·5	293	0·6 0·3	306	2·2 1·1	006	0·6 0·3	309	0·4 0·2	354	0·6 0·3	336	0·4 0·2	+4
After High Water 5		319	0·8 0·4	290	1·0 0·5	300	2·6 1·3	002	0·7 0·3	320	1·1 0·5	355	0·9 0·4	333	0·8 0·5	+5
After High Water 6		315	0·7 0·3	285	1·1 0·6	303	2·3 1·2	349	0·5 0·2	326	1·3 0·6	348	0·9 0·4	329	1·0 0·5	+6

5615_3

Tidal Streams referred to HW at LEITH

Hours	Geographical Position	A 56°27'50 N 1 54·60W		B 56°27'49 N 2 41·59W		C 56°25'89 N 2 36·99W		D 56°19'92 N 1 40·13W		E 56°18'50 N 2 32·09W		F 56°13'30 N 2 16·69W		G 56°13'20 N 2 03·69W		H 56°11'20 N 2 40·09W		J 56°06'20 N 2 33·79W	
Before High Water 6	Directions of streams (degrees)	027	0·7 0·4	101	0·5 0·3	067	0·5 0·2	351	1·0 0·5	347	0·5 0·3	348	0·6 0·3	345	0·8 0·4	061	0·2 0·1	283	0·3 0·2
Before High Water 5		018	0·2 0·1	287	1·4 0·7	158	0·2 0·1	345	0·8 0·4	325	0·2 0·1	340	0·6 0·3	343	0·4 0·2	241	0·2 0·1	279	0·6 0·3
Before High Water 4		201	0·4 0·2	283	1·7 0·9	209	0·9 0·4	027	0·2 0·1	188	0·3 0·1	317	0·5 0·2		0·0 0·0	232	0·7 0·4	275	0·7 0·4
Before High Water 3		193	0·9 0·5	269	1·7 0·9	216	1·2 0·6	173	0·6 0·3	173	0·6 0·2	245	0·3 0·1	176	0·4 0·2	236	0·9 0·4	274	0·6 0·3
Before High Water 2		199	1·1 0·5	266	1·5 0·8	228	1·0 0·5	172	0·8 0·4	167	0·8 0·4	189	0·5 0·2	173	0·8 0·4	250	0·8 0·4	267	0·4 0·2
Before High Water 1	Rates at spring tides (knots)	211	1·1 0·6	267	1·2 0·6	234	0·8 0·4	176	1·0 0·5	157	0·9 0·5	176	0·5 0·3	169	0·9 0·4	255	0·5 0·3	270	0·2 0·1
High Water	Rates at neap tides (knots)	213	0·9 0·5	277	0·7 0·3	243	0·4 0·2	191	0·9 0·5	148	0·8 0·5	164	0·6 0·3	168	0·8 0·4	231	0·3 0·2	130	0·2 0·1
After High Water 1		221	0·4 0·2	063	0·3 0·2	282	0·2 0·1	192	0·7 0·4	134	0·6 0·4	162	0·5 0·2	167	0·5 0·2	066	0·1 0·1	109	0·5 0·2
After High Water 2		350	0·2 0·1	098	1·5 0·8	008	0·6 0·3	119	0·2 0·1	062	0·3 0·2	166	0·3 0·2		0·0 0·0	050	0·5 0·3	098	0·7 0·3
After High Water 3		015	0·6 0·3	100	2·1 1·1	034	1·0 0·5	015	0·3 0·2	016	0·7 0·3	120	0·1 0·1	357	0·4 0·2	055	0·8 0·4	094	0·7 0·3
After High Water 4		024	1·1 0·5	097	2·0 1·0	043	1·2 0·6	351	0·8 0·4	003	1·2 0·5	024	0·5 0·2	353	0·7 0·3	058	0·8 0·4	087	0·5 0·3
After High Water 5		032	1·2 0·6	096	1·8 0·9	059	1·2 0·6	356	1·1 0·6	359	1·1 0·5	010	0·6 0·3	352	0·9 0·4	067	0·6 0·3	074	0·3 0·2
After High Water 6		028	0·9 0·5	100	1·2 0·6	063	0·6 0·3	359	1·0 0·5	353	0·7 0·4	001	0·6 0·3	347	0·8 0·4	066	0·4 0·2	326	0·1 0·0

5615_3 continued

K 56°04'50 N 3 02·39W		L 56°00'00 N 2 08·20W		M 55°50'21 N 1 49·05W		
156	0·1 0·1	296	0·7 0·3	301	1·1 0·5	−6
209	0·4 0·2	292	0·7 0·3	299	0·8 0·4	−5
237	0·8 0·4	292	0·6 0·3	300	0·6 0·3	−4
239	0·7 0·3	272	0·2 0·1	327	0·1 0·1	−3
255	0·5 0·3	129	0·2 0·1	121	0·4 0·2	−2
267	0·4 0·2	113	0·4 0·2	135	0·6 0·3	−1
297	0·2 0·1	119	0·6 0·3	135	0·8 0·4	0
046	0·4 0·2	111	0·6 0·3	130	0·9 0·5	+1
051	0·7 0·4	108	0·6 0·3	122	0·7 0·4	+2
054	0·9 0·4	108	0·4 0·2	101	0·2 0·1	+3
073	0·7 0·3		0·0 0·0	337	0·4 0·2	+4
098	0·3 0·2	296	0·3 0·2	318	0·7 0·4	+5
122	0·1 0·1	296	0·6 0·3	304	0·9 0·5	+6

5615_4A

Tidal Streams referred to HW at RIVER TEES ENTRANCE

Hours	Geographical Position	A 54°41'·3N 1 10·1W		B 54°38'·0N 0 58·1W		C 54°36'·7N 0 34·6W		
Before High Water 6	Directions of streams (degrees)	000	0·0 0·0	303	0·8 0·4	297	1·6 0·9	−6
Before High Water 5		163	0·2 0·1	303	0·4 0·2	302	1·5 0·8	−5
Before High Water 4		198	0·6 0·3		0·0 0·0	307	0·7 0·4	−4
Before High Water 3		200	1·0 0·5	111	0·8 0·4	346	0·3 0·2	−3
Before High Water 2		194	0·8 0·4	112	1·3 0·7	095	0·6 0·4	−2
Before High Water 1	Rates at spring tides (knots)	179	0·5 0·2	109	1·1 0·6	108	1·2 0·7	−1
High Water	Rates at neap tides (knots)	123	0·2 0·1	107	0·9 0·5	113	1·6 0·9	0
After High Water 1		053	0·3 0·2	110	0·7 0·3	120	1·5 0·8	+1
After High Water 2		017	0·4 0·2	097	0·2 0·1	129	1·2 0·7	+2
After High Water 3		012	0·6 0·3	278	0·2 0·1	150	0·5 0·3	+3
After High Water 4		005	0·6 0·3	288	0·7 0·4	252	0·3 0·2	+4
After High Water 5		353	0·6 0·3	291	1·2 0·6	281	1·1 0·6	+5
After High Water 6		321	0·3 0·1	296	1·1 0·6	293	1·6 0·9	+6

5615_5A

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 55°01'·0N 1 03'·1W			B 55°00'·9N 1 22'·2W			C 54°58'·1N 1 13'·4W			D 54°55'·3N 1 19'·6W			E 54°54'·0N 1 04'·1W			F 54°50'·4N 1 17'·5W			G 54°46'·5N 1 14'·7W			H 54°41'·3N 1 10'·1W			
Before High Water 6	330	0·8	0·4	342	0·9	0·4	340	0·8	0·4	356	0·5	0·3	336	0·9	0·4	346	0·6	0·3	339	0·4	0·2	320	0·2	0·1	– 6
Before High Water 5	322	0·6	0·3	338	0·5	0·2	337	0·5	0·3	005	0·2	0·1	331	0·7	0·3	346	0·3	0·1	357	0·2	0·1	140	0·1	0·1	– 5
Before High Water 4	313	0·3	0·2	190	0·1	0·1	000	0·0	0·0	166	0·2	0·1	321	0·4	0·2	156	0·2	0·1	125	0·1	0·0	186	0·4	0·2	– 4
Before High Water 3	192	0·2	0·1	161	0·5	0·2	149	0·5	0·2	179	0·6	0·3	220	0·1	0·1	156	0·5	0·2	166	0·4	0·2	202	0·8	0·4	– 3
Before High Water 2	169	0·7	0·4	156	0·8	0·4	154	0·6	0·3	182	0·9	0·4	164	0·4	0·2	157	0·7	0·3	165	0·6	0·3	198	1·0	0·5	– 2
Before High Water 1	162	1·2	0·7	158	1·0	0·5	161	0·8	0·4	185	0·9	0·4	158	0·7	0·4	160	0·9	0·4	161	0·6	0·3	190	0·6	0·3	– 1
High Water	147	1·0	0·6	165	1·0	0·5	170	0·9	0·4	184	0·6	0·3	156	0·9	0·4	168	0·6	0·3	159	0·4	0·2	161	0·3	0·2	0
After High Water 1	141	0·7	0·4	169	0·6	0·3	174	0·6	0·3	175	0·2	0·1	153	0·8	0·4	180	0·2	0·1	140	0·1	0·1	082	0·3	0·1	+ 1
After High Water 2	113	0·2	0·1	015	0·2	0·1	194	0·2	0·1	025	0·2	0·1	145	0·4	0·2	327	0·2	0·1	355	0·1	0·1	030	0·3	0·2	+ 2
After High Water 3	349	0·4	0·2	351	0·6	0·3	330	0·2	0·1	005	0·5	0·2	100	0·1	0·0	335	0·4	0·2	337	0·3	0·1	015	0·5	0·3	+ 3
After High Water 4	343	0·7	0·4	338	0·8	0·4	349	0·7	0·3	358	0·9	0·4	346	0·4	0·2	340	0·7	0·3	330	0·5	0·2	010	0·6	0·3	+ 4
After High Water 5	339	0·9	0·5	338	1·0	0·5	345	1·0	0·5	000	0·9	0·5	341	0·7	0·4	346	0·9	0·4	334	0·6	0·3	357	0·7	0·3	+ 5
After High Water 6	332	0·8	0·5	342	1·0	0·5	342	0·9	0·4	356	0·7	0·3	338	0·9	0·4	346	0·7	0·3	338	0·5	0·2	341	0·4	0·2	+ 6

5615_6

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 55°06'·4N 1 27'·5W			B 55°04'·5N 1 16'·9W			C 55°00'·9N 1 22'·2W		
Before High Water 6	344	0·4	0·2	340	0·6	0·3	342	0·9	0·4	– 6
Before High Water 5	318	0·2	0·1	339	0·4	0·2	338	0·5	0·2	– 5
Before High Water 4	240	0·2	0·1	195	0·2	0·1	190	0·1	0·1	– 4
Before High Water 3	210	0·3	0·1	184	0·4	0·2	161	0·5	0·2	– 3
Before High Water 2	188	0·6	0·3	176	0·6	0·3	156	0·8	0·4	– 2
Before High Water 1	168	0·6	0·3	166	0·8	0·4	158	1·0	0·5	– 1
High Water	162	0·4	0·2	159	0·7	0·3	165	1·0	0·5	0
After High Water 1	157	0·3	0·2	157	0·4	0·2	169	0·6	0·3	+ 1
After High Water 2	135	0·2	0·1	020	0·1	0·0	015	0·2	0·1	+ 2
After High Water 3	015	0·3	0·2	355	0·4	0·2	351	0·6	0·3	+ 3
After High Water 4	006	0·6	0·3	350	0·7	0·3	338	0·8	0·4	+ 4
After High Water 5	002	0·7	0·3	345	0·8	0·4	338	1·0	0·5	+ 5
After High Water 6	349	0·5	0·2	341	0·7	0·3	342	1·0	0·5	+ 6

5615_7

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 55°39'·9N 1 19'·8W			B 55°39'·5N 1 44'·1W			C 55°36'·3N 1 39'·4W		
Before High Water 6	332	1·3	0·6	340	0·6	0·3	306	1·7	0·9	– 6
Before High Water 5	323	1·1	0·5	011	0·1	0·1	329	0·4	0·2	– 5
Before High Water 4	309	0·8	0·4	147	0·4	0·2	118	1·1	0·6	– 4
Before High Water 3	282	0·2	0·1	156	0·8	0·4	127	2·2	1·1	– 3
Before High Water 2	144	0·3	0·1	158	1·0	0·5	129	2·4	1·2	– 2
Before High Water 1	141	0·9	0·4	160	1·0	0·5	129	2·2	1·1	– 1
High Water	136	1·1	0·5	166	0·7	0·4	128	1·7	0·8	0
After High Water 1	140	1·4	0·7	173	0·3	0·2	126	0·8	0·4	+ 1
After High Water 2	132	1·0	0·5	310	0·2	0·1	335	0·4	0·2	+ 2
After High Water 3	146	0·4	0·2	330	0·8	0·4	314	1·4	0·7	+ 3
After High Water 4	309	0·4	0·2	336	1·0	0·5	306	2·2	1·1	+ 4
After High Water 5	320	1·1	0·5	338	1·0	0·5	300	2·6	1·3	+ 5
After High Water 6	326	1·3	0·6	340	0·8	0·4	303	2·3	1·2	+ 6

5615_8A

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 55°50'·2N 1°49'·0W			B 55°45'·8N 1°56'·5W			C 55°45'·6N 1°58'·2W			D 55°44'·9N 1°48'·3W			E 55°39'·5N 1°44'·1W		
Before High Water 6	297	0·9	0·5	326	0·5	0·2	000	0·2	0·1	283	1·1	0·6	340	0·6	0·3	– 6
Before High Water 5	300	0·6	0·3	335	0·2	0·1	238	0·1	0·1	277	0·8	0·4	011	0·1	0·1	– 5
Before High Water 4	319	0·2	0·1	090	0·1	0·0	210	0·4	0·2	241	0·2	0·1	147	0·4	0·2	– 4
Before High Water 3	118	0·3	0·2	133	0·3	0·2	205	0·5	0·2	151	0·4	0·2	156	0·8	0·4	– 3
Before High Water 2	134	0·6	0·3	143	0·6	0·3	197	0·6	0·3	107	0·7	0·4	158	1·0	0·5	– 2
Before High Water 1	135	0·8	0·4	143	0·8	0·4	194	0·5	0·3	105	0·8	0·4	160	1·0	0·5	– 1
High Water	130	0·9	0·5	137	0·7	0·4	204	0·4	0·2	105	0·8	0·4	166	0·7	0·4	0
After High Water 1	122	0·7	0·4	116	0·6	0·3	315	0·1	0·0	103	0·7	0·4	173	0·3	0·2	+ 1
After High Water 2	105	0·3	0·2	342	0·2	0·1	010	0·2	0·1	098	0·4	0·2	310	0·2	0·1	+ 2
After High Water 3	340	0·3	0·2	314	0·8	0·4	023	0·5	0·3	323	0·1	0·0	330	0·8	0·4	+ 3
After High Water 4	319	0·7	0·4	316	0·9	0·5	037	0·7	0·4	293	0·6	0·3	336	1·0	0·5	+ 4
After High Water 5	305	0·9	0·5	319	0·8	0·4	029	0·5	0·3	290	1·0	0·5	338	1·0	0·5	+ 5
After High Water 6	292	1·2	0·6	315	0·7	0·3	010	0·3	0·2	285	1·1	0·6	340	0·8	0·4	+ 6

5615_9

Tidal Streams referred to HW at LEITH

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 56°06'·2 N 2 33·8W			B 56°16'·9 N 2 23·5W			C 56°13'·3 N 2 16·7W			D 56°00'·0 N 2 08·2W		
Before High Water 6	283	0·3	0·2	344	0·6	0·3	348	0·6	0·3	296	0·7	0·3	– 6
Before High Water 5	279	0·6	0·3	315	0·3	0·2	340	0·6	0·3	292	0·7	0·3	– 5
Before High Water 4	275	0·7	0·4	221	0·3	0·2	317	0·5	0·2	292	0·6	0·3	– 4
Before High Water 3	274	0·6	0·3	236	0·4	0·2	245	0·3	0·1	272	0·2	0·1	– 3
Before High Water 2	267	0·4	0·2	201	0·5	0·2	189	0·5	0·2	129	0·2	0·1	– 2
Before High Water 1	270	0·2	0·1	192	0·5	0·2	176	0·5	0·3	113	0·4	0·2	– 1
High Water	130	0·2	0·1	162	0·4	0·2	164	0·6	0·3	119	0·6	0·3	0
After High Water 1	109	0·5	0·2	149	0·4	0·2	162	0·5	0·2	111	0·6	0·3	+ 1
After High Water 2	098	0·7	0·3	103	0·3	0·1	166	0·3	0·2	108	0·6	0·3	+ 2
After High Water 3	094	0·7	0·3	032	0·5	0·2	120	0·1	0·1	108	0·4	0·2	+ 3
After High Water 4	087	0·5	0·3	021	0·5	0·3	024	0·5	0·2		0·0	0·0	+ 4
After High Water 5	074	0·3	0·2	010	0·6	0·3	010	0·6	0·3	296	0·3	0·2	+ 5
After High Water 6	326	0·1	0·0	348	0·6	0·3	001	0·6	0·3	296	0·6	0·3	+ 6

5615_10

Tidal Streams referred to HW at LEITH

Hours	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	A 56°06'·2 N 2 33·8W			B 56°09'·6 N 2 38·9W			C 56°11'·2 N 2 40·1W		
Before High Water 6	283	0·3	0·2	085	0·3	0·2	061	0·2	0·1	– 6
Before High Water 5	279	0·6	0·3	263	0·2	0·1	241	0·2	0·1	– 5
Before High Water 4	275	0·7	0·4	262	0·7	0·4	232	0·7	0·4	– 4
Before High Water 3	274	0·6	0·3	260	0·9	0·5	236	0·9	0·4	– 3
Before High Water 2	267	0·4	0·2	259	0·9	0·5	250	0·8	0·4	– 2
Before High Water 1	270	0·2	0·1	259	0·8	0·4	255	0·5	0·3	– 1
High Water	130	0·2	0·1	265	0·4	0·2	231	0·3	0·2	0
After High Water 1	109	0·5	0·2	001	0·1	0·1	066	0·1	0·1	+ 1
After High Water 2	098	0·7	0·3	073	0·5	0·3	050	0·5	0·3	+ 2
After High Water 3	094	0·7	0·3	079	0·9	0·5	055	0·8	0·4	+ 3
After High Water 4	087	0·5	0·3	083	1·0	0·5	058	0·8	0·4	+ 4
After High Water 5	074	0·3	0·2	085	0·9	0·5	067	0·6	0·3	+ 5
After High Water 6	326	0·1	0·0	085	0·5	0·3	066	0·4	0·2	+ 6

5615_11 Tidal Streams referred to HW at LEITH

Hours	Geographical Position	A 56°04·1 N 2 53·2W		B 56°05·4 N 2 53·2W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)			
Before High Water 6		054	0·8 0·4	061	0·3 0·2	−6
Before High Water 5		054	0·3 0·2	252	0·2 0·1	−5
Before High Water 4		236	0·3 0·2	249	0·6 0·3	−4
Before High Water 3		236	0·7 0·4	249	0·8 0·4	−3
Before High Water 2		236	1·0 0·5	248	0·8 0·4	−2
Before High Water 1		237	1·0 0·5	244	0·7 0·4	−1
High Water		236	0·9 0·5	238	0·4 0·2	0
After High Water 1		234	0·5 0·3	188	0·1 0·1	+1
After High Water 2			0·0 0·0	073	0·4 0·2	+2
After High Water 3		059	0·5 0·3	067	0·8 0·4	+3
After High Water 4		056	1·0 0·5	065	1·0 0·5	+4
After High Water 5		055	1·1 0·6	064	0·9 0·4	+5
After High Water 6		054	1·0 0·5	063	0·5 0·3	+6

5615_12 Tidal Streams referred to HW at LEITH

Hours	Geographical Position	A 56°04·5 N 3 02·4W		B 56°06·3 N 3 06·8W		C 56°00·6 N 3 07·3W		D 56°02·4 N 3 10·2W		E 56°01·9 N 3 16·5W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)									
Before High Water 6		156	0·1 0·1		0·0 0·0	290	0·1 0·0	135	0·3 0·2	060	0·2 0·1	−6
Before High Water 5		209	0·4 0·2	237	0·3 0·1	272	0·4 0·2	209	0·3 0·1	234	0·4 0·2	−5
Before High Water 4		237	0·8 0·4	236	0·6 0·3	260	1·0 0·5	255	1·0 0·5	241	1·5 0·8	−4
Before High Water 3		239	0·7 0·3	236	0·7 0·4	264	0·7 0·3	258	1·1 0·6	246	1·5 0·8	−3
Before High Water 2		255	0·5 0·3	241	0·5 0·3	263	0·4 0·2	264	0·8 0·4	247	0·9 0·5	−2
Before High Water 1		267	0·4 0·2	243	0·4 0·2	250	0·2 0·1	263	0·7 0·3	246	0·6 0·3	−1
High Water		297	0·2 0·1	250	0·2 0·1	225	0·1 0·0	268	0·4 0·2	243	0·4 0·2	0
After High Water 1		046	0·4 0·2	055	0·3 0·2	077	0·6 0·3	039	0·2 0·1	124	0·1 0·1	+1
After High Water 2		051	0·7 0·4	061	0·5 0·3	080	0·8 0·4	055	0·8 0·4	070	1·0 0·5	+2
After High Water 3		054	0·9 0·4	061	0·6 0·3	085	0·8 0·4	066	1·2 0·6	059	1·6 0·8	+3
After High Water 4		073	0·7 0·3	056	0·6 0·3	092	0·5 0·2	078	1·1 0·5	052	1·3 0·7	+4
After High Water 5		098	0·3 0·2	057	0·5 0·2	095	0·2 0·1	092	0·7 0·4	052	0·7 0·3	+5
After High Water 6		122	0·1 0·1	080	0·1 0·1		0·0 0·0	126	0·4 0·2	056	0·3 0·2	+6

5615_13 Tidal Streams referred to HW at ROSYTH

Hours	Geographical Position	A 56°01·10N 3 17·19W		B 56°01·90N 3 16·48W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)			
Before High Water 6		077	0·9 0·5	065	0·1 0·0	−6
Before High Water 5		248	0·1 0·1	235	0·5 0·3	−5
Before High Water 4		260	0·9 0·4	241	1·5 0·8	−4
Before High Water 3		259	1·2 0·6	247	1·4 0·7	−3
Before High Water 2		254	1·0 0·5	247	0·8 0·4	−2
Before High Water 1		264	0·6 0·3	247	0·6 0·3	−1
High Water		255	0·4 0·2	240	0·3 0·2	0
After High Water 1		280	0·1 0·1	113	0·2 0·1	+1
After High Water 2		075	0·5 0·2	069	1·1 0·6	+2
After High Water 3		082	1·0 0·5	057	1·7 0·9	+3
After High Water 4		076	1·3 0·6	052	1·2 0·6	+4
After High Water 5		080	0·9 0·5	052	0·6 0·3	+5
After High Water 6		077	0·5 0·3	057	0·3 0·1	+6

5615_14 Tidal Streams referred to HW at ROSYTH

Hours	Geographical Position	A 56°01·10N 3 17·19W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	
Before High Water 6		077	0·9 0·5	−6
Before High Water 5		248	0·1 0·1	−5
Before High Water 4		260	0·9 0·4	−4
Before High Water 3		259	1·2 0·6	−3
Before High Water 2		254	1·0 0·5	−2
Before High Water 1		264	0·6 0·3	−1
High Water		255	0·4 0·2	0
After High Water 1		280	0·1 0·1	+1
After High Water 2		075	0·5 0·2	+2
After High Water 3		082	1·0 0·5	+3
After High Water 4		076	1·3 0·6	+4
After High Water 5		080	0·9 0·5	+5
After High Water 6		077	0·5 0·3	+6

5615_15 Tidal Streams referred to HW at ROSYTH

Hours	Geographical Position	A 56°00·70N* 3 27·38W		B 55°59·90N* 3 24·68W		C 56°00·10N* 3 24·48W		D 55°59·90N* 3 24·18W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)							
Before High Water 6		090	0·3 0·2	182	0·3 0·1	120	0·2 0·2	126	0·2 0·1	−6
Before High Water 5		325	0·4 0·2	262	0·5 0·3	271	0·6 0·2	228	0·4 0·2	−5
Before High Water 4		301	2·0 1·0	271	1·4 0·8	281	1·4 0·6	265	1·2 0·6	−4
Before High Water 3		288	2·6 1·3	275	1·7 0·9	294	1·2 0·5	283	1·4 0·7	−3
Before High Water 2		280	1·7 0·9	299	0·4 0·2	293	0·8 0·3	286	0·7 0·4	−2
Before High Water 1		285	0·5 0·3	304	0·2 0·1	275	0·5 0·2	264	0·4 0·2	−1
High Water		189	0·4 0·2	300	0·1 0·1	260	0·2 0·0	256	0·3 0·2	0
After High Water 1		128	1·3 0·7	084	1·1 0·6	106	1·2 0·8	100	0·8 0·4	+1
After High Water 2		113	1·8 0·9	090	1·4 0·7	102	2·3 1·3	105	1·6 0·9	+2
After High Water 3		113	2·2 1·1	094	1·1 0·6	101	2·2 1·3	106	1·5 0·8	+3
After High Water 4		115	1·9 1·0	107	0·3 0·2	093	1·6 1·0	111	0·8 0·4	+4
After High Water 5		110	1·0 0·5	118	0·3 0·2	095	0·8 0·5	113	0·5 0·3	+5
After High Water 6		104	0·4 0·2	174	0·2 0·1	111	0·4 0·3	120	0·2 0·1	+6

* Current included

5615_16 Tidal Streams referred to HW at ROSYTH (current included)

Hours	Geographical Position	A 56°00'·70N 3°27'·38W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	
Before High Water 6		090	0·3 0·2	−6
Before High Water 5		325	0·4 0·2	−5
Before High Water 4		301	2·0 1·0	−4
Before High Water 3		288	2·6 1·3	−3
Before High Water 2		280	1·7 0·9	−2
Before High Water 1		285	0·5 0·3	−1
High Water		189	0·4 0·2	0
After High Water 1		128	1·3 0·7	+1
After High Water 2		113	1·8 0·9	+2
After High Water 3		113	2·2 1·1	+3
After High Water 4		115	1·9 1·0	+4
After High Water 5		110	1·0 0·5	+5
After High Water 6		104	0·4 0·2	+6

5615_22A

Tidal Streams referred to HW at RIVER TYNE (NORTH SHIELDS)

Hours	Geographical Position	A 55°39'·5N 1 44·1W		B 55°36'·3N 1 39·4W		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)			
Before High Water 6	340	0·6	0·3	306	1·7	0·9	-6
Before High Water 5	011	0·1	0·1	329	0·4	0·2	-5
Before High Water 4	147	0·4	0·2	118	1·1	0·6	-4
Before High Water 3	156	0·8	0·4	127	2·2	1·1	-3
Before High Water 2	158	1·0	0·5	129	2·4	1·2	-2
Before High Water 1	160	1·0	0·5	129	2·2	1·1	-1
High Water	166	0·7	0·4	128	1·7	0·8	0
After High Water 1	173	0·3	0·2	126	0·8	0·4	+1
After High Water 2	310	0·2	0·1	335	0·4	0·2	+2
After High Water 3	330	0·8	0·4	314	1·4	0·7	+3
After High Water 4	336	1·0	0·5	306	2·2	1·1	+4
After High Water 5	338	1·0	0·5	300	2·6	1·3	+5
After High Water 6	340	0·8	0·4	303	2·3	1·2	+6

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Tidal Streams referred to HW at DOVER

Hours	Geographical Position	A 56°30'·0 N 1°12'·1W		B 56°30'·0 N 0 44'·0 E		C 56°00'·0 N 0°34'·1W		D 56°00'·0 N 2 24'·0E		E 55°10'·0 N 0°41'·9E		F 54°18'·4 N 3 02'·2 E		
	Ddirection of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)											
Before High Water 6	036	0·4	0·3	053	0·3	0·2	078	0·4	0·2	092	0·3	0·2	135	0·6	0·3	106	0·2	0·1	– 6
Before High Water 5	012	0·6	0·4	023	0·5	0·3	028	0·3	0·2	069	0·4	0·2	082	0·3	0·2	102	0·4	0·2	– 5
Before High Water 4	015	0·8	0·5	021	0·6	0·4	003	0·6	0·4	058	0·5	0·3	019	0·4	0·2	094	0·4	0·2	– 4
Before High Water 3	003	0·8	0·5	013	0·6	0·4	355	0·7	0·4	055	0·4	0·3	355	0·7	0·4	103	0·4	0·2	– 3
Before High Water 2	357	0·6	0·3	002	0·4	0·2	336	0·6	0·3	037	0·3	0·2	345	0·9	0·5	059	0·4	0·2	– 2
Before High Water 1	342	0·1	0·1	356	0·2	0·1	333	0·5	0·3	012	0·2	0·1	335	0·9	0·5	066	0·2	0·1	– 1
High Water	220	0·2	0·1	310	0·3	0·2	297	0·3	0·2	269	0·2	0·1	307	0·6	0·3	343	0·1	0·0	0
After High Water 1	205	0·5	0·3	208	0·4	0·3	230	0·3	0·2	247	0·4	0·2	275	0·4	0·3	297	0·2	0·1	+ 1
After High Water 2	189	0·8	0·5	194	0·6	0·4	187	0·5	0·3	236	0·5	0·3	203	0·4	0·2	258	0·5	0·3	+ 2
After High Water 3	180	0·9	0·5	205	0·7	0·4	181	0·6	0·4	233	0·5	0·3	185	0·7	0·4	250	0·6	0·3	+ 3
After High Water 4	177	0·7	0·4	191	0·5	0·3	161	0·6	0·4	230	0·3	0·2	170	1·0	0·5	253	0·4	0·2	+ 4
After High Water 5	168	0·3	0·2	162	0·2	0·1	153	0·5	0·3	180	0·2	0·1	151	0·9	0·5	245	0·2	0·1	+ 5
After High Water 6	048	0·2	0·1	050	0·2	0·1	117	0·4	0·3	110	0·2	0·1	140	0·7	0·4		0·0	0·0	+ 6

TIME & HEIGHT DIFFERENCES FOR PREDICTING THE TIDE AT SECONDARY PORTS

PLACE	Lat. N	Long. W	TIME DIFFERENCES High Water		Low Water		HEIGHT DIFFERENCES (IN METRES) MHWS	MHWN	MLWN	MLWS
			Zone UT(GMT)							
RIVER TEES ENTRANCE	**54 38**	**1 09**	**0000 and 1200**	**0600 and 1800**	**0000 and 1200**	**0600 and 1800**	**5·5**	**4·3**	**2·0**	**0·9**
Bridlington	54 05	0 11	+0100	+0050	+0055	+0050	+0·6	+0·4	+0·3	+0·2
Whitby	54 29	0 37	+0020	+0020	+0018	+0017	+0·1	+0·1	+0·2	+0·1
River Tees										
Middlesborough (Dock Entrance)	54 35	1 13	0000	+0002	0000	-0003	+0.1	+0.2	+0.1	-0·1
Tees (Newport) Bridge	54 34	1 16	-0002	+0004	+0005	-0003	+0·1	+0.2	0.0	-0·1
Hartlepool	54 42	1 12	-0004	-0004	-0006	-0006	-0.1	-0.1	-0·2	-0·1
Seaham	54 50	1 19	-0015	-0015	-0015	-0015	-0.3	-0.2	0·0	-0·2
RIVER TYNE (NORTH SHIELDS)	**55 00**	**1 26**	**0200 and 1400**	**0800 and 2000**	**0100 and 1300**	**0800 and 2000**	**5.0**	**3.9**	**1·8**	**0·7**
River Tyne										
Newcastle-Upon-Tyne	54 58	1 36	+0003	+0003	+0008	+0008	+0.3	+0.2	+0.1	+0·1
BLYTH	55 07	1 29	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS			
Coquet Island	55 20	1 32	-0010	-0010	-0020	-0020	+0·1	+0·1	0.0	+0·1
Amble	55 20	1 34	-0013	-0013	-0016	-0020	0.0	0.0	+0·1	+0·1
North Sunderland (Northumberland)	55 35	1 39	-0048	-0044	-0058	-0102	-0.2	-0.2	-0.2	0.0
Holy Island	55 40	1 48	-0043	-0039	-0105	-0110	-0.2	-0.2	-0·3	-0·1
Berwick	55 46	1 59	-0053	-0053	-0109	-0109	-0.3	-0.1	-0.5	-0·1
LEITH	**55 59**	**3 11**	**0300 and 1500**	**0900 and 2100**	**0300 and 1500**	**0900 and 2100**	**5.6**	**4.4**	**2.0**	**0·8**
Scotland										
Eyemouth	55 52	2 05	-0005	+0007	+0012	+0008	-0·4	-0·3	0·0	+0·1
Dunbar	56 00	2 31	-0005	+0003	+0003	-0003	-0.3	-0.3	0·0	+0.1
Fidra	56 04	2 47	-0001	0000	-0002	+0001	-0·2	-0.2	0.0	0.0
Cockenzie	55 58	2 57	-0007	-0015	-0013	-0005	-0.2	0·0	⊙	⊙
Granton	55 59	3 13	0000	0000	0000	0000	0·0	0.0	0·0	0.0
River Forth										
GRANGEMOUTH	56 02	3 41	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS			
ROSYTH	**56 01**	**3 27**	**0300 and 1500**	**1000 and 2200**	**0300 and 1500**	**0900 and 2100**	**5.8**	**4.7**	**2.2**	**0·8**
River Forth										
Kincardine	56 04	3 43	+0015	+0030	-0030	-0030	0.0	-0.2	-0.5	-0·3
Alloa	56 06	3 48	+0040	+0040	+0025	+0025	-0.2	-0.5	⊙	-0·7
Stirling	56 07	3 56	+0100	+0100	⊙	⊙	-2.9	-3.1	-2.3	-0·7
LEITH	**55 59**	**3 11**	**0300 and 1500**	**0900 and 2100**	**0300 and 1500**	**0900 and 2100**	**5.6**	**4.4**	**2.0**	**0·8**
Firth of Forth										
Burntisland	56 03	3 14	+0013	+0004	-0002	+0007	+0.1	0.0	+0.1	+0.2
Kirkcaldy	56 07	3 09	+0005	0000	-0004	-0001	-0.3	-0.3	-0.2	-0·2
Methil	56 11	3 00	-0005	-0001	-0001	-0001	-0.1	-0.1	-0.1	-0.1
Anstruther Easter	56 13	2 42	-0018	-0012	-0006	-0008	-0.3	-0.2	0.0	0.0

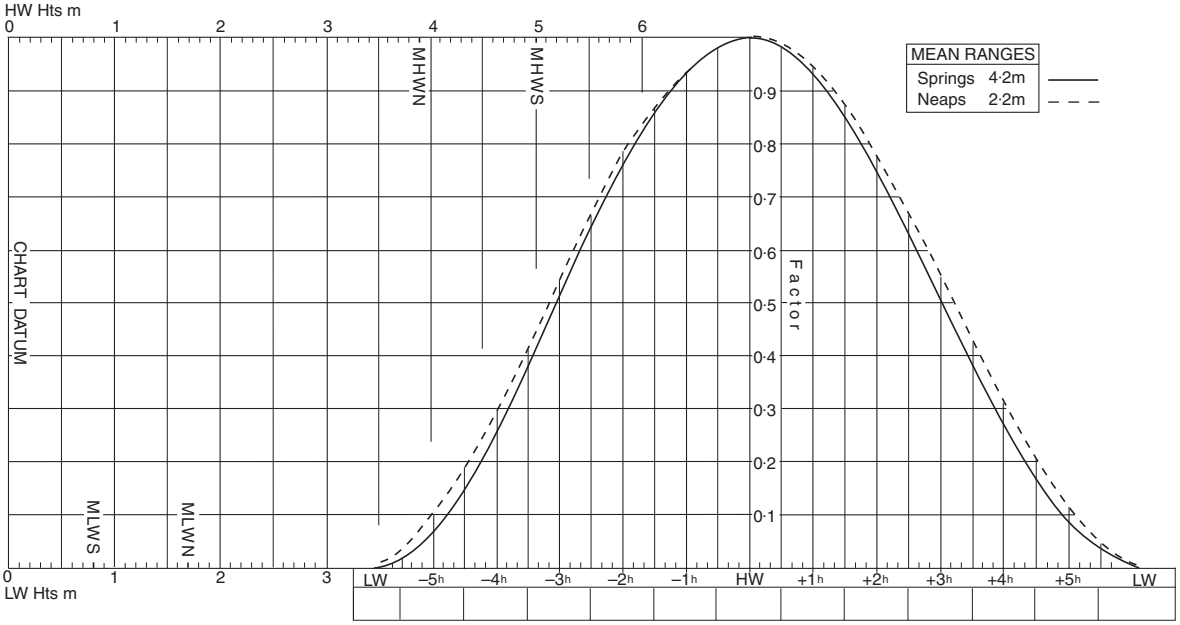
⊙ No data

Non-Reference Standard Ports				
STANDARD PORT	**MHWS**	**MHWN**	**MLWN**	**MLWS**
BLYTH	5.0	3.9	1.7	0.8
GRANGEMOUTH	5.8	4.6	2.0	0.6

Tidal Curve Diagrams

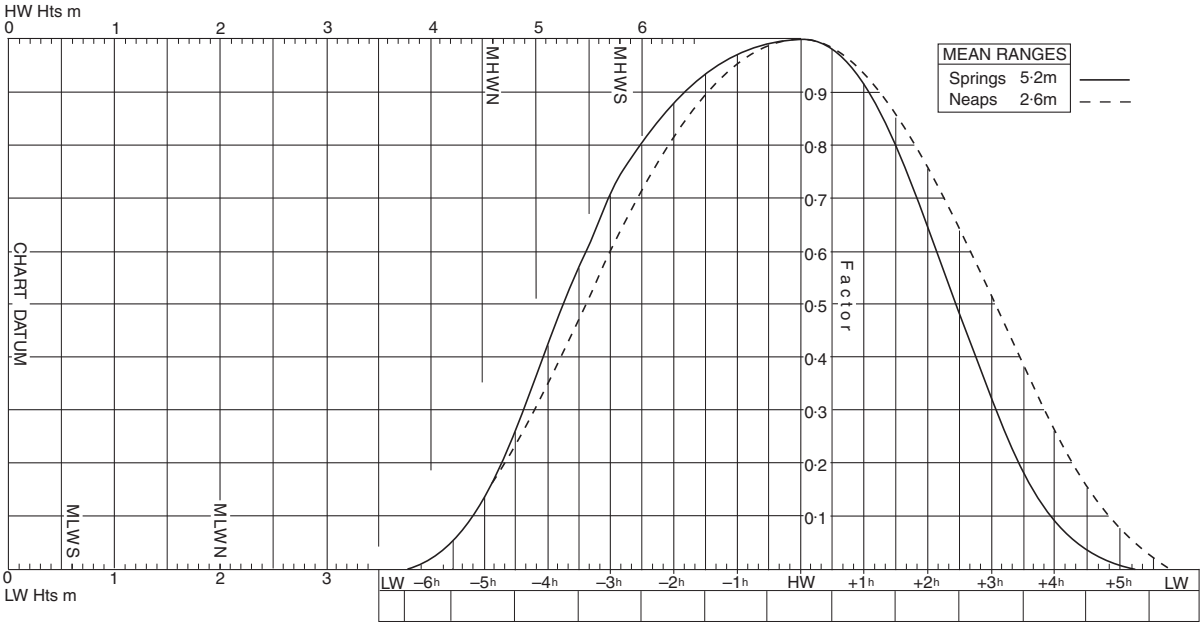
BLYTH

MEAN SPRING AND NEAP CURVES
Springs occur 2 days after New and Full Moon



GRANGEMOUTH

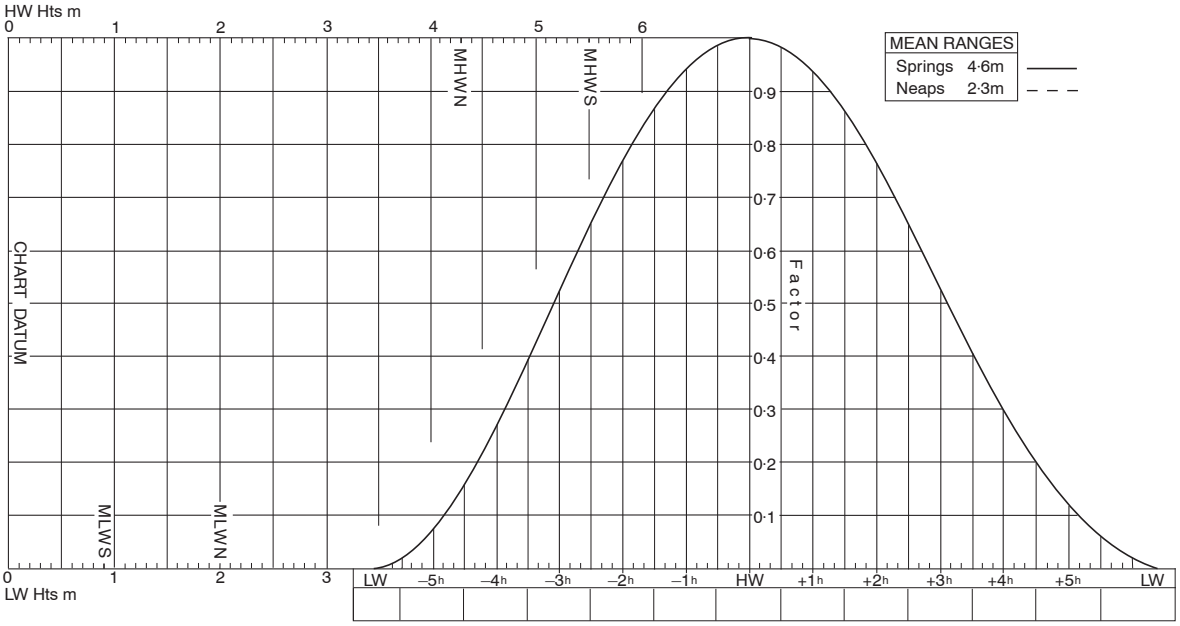
MEAN SPRING AND NEAP CURVES
Springs occur 2 days after New and Full Moon



RIVER TEES ENTRANCE

MEAN SPRING AND NEAP CURVES

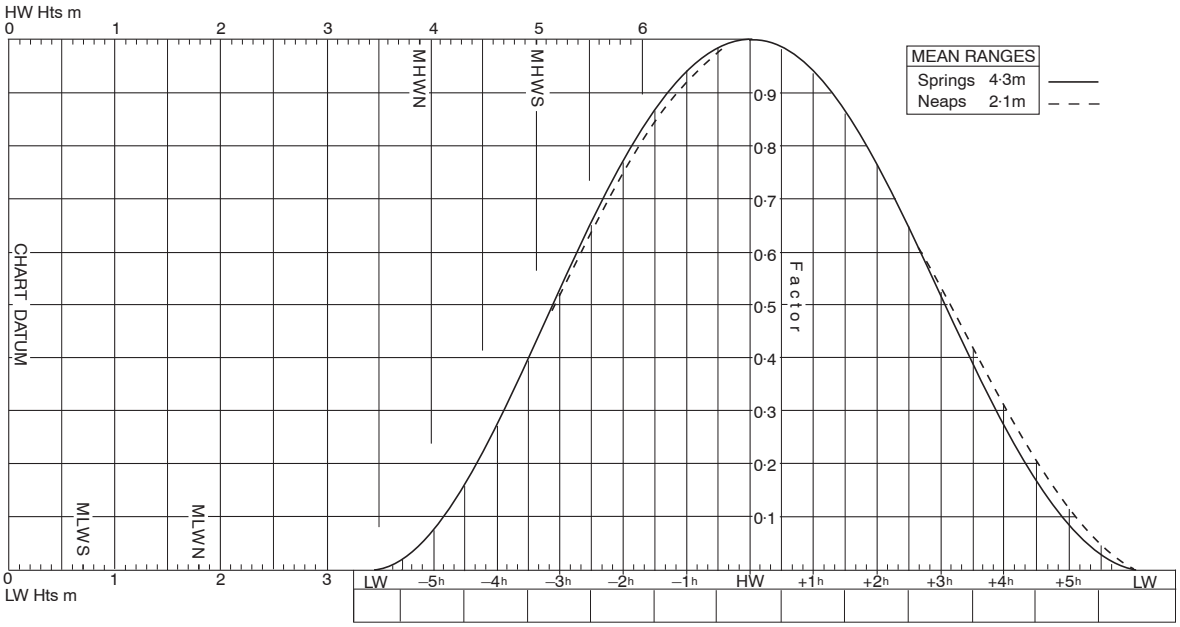
Springs occur 2 days after New and Full Moon



RIVER TYNE (NORTH SHIELDS)

MEAN SPRING AND NEAP CURVES

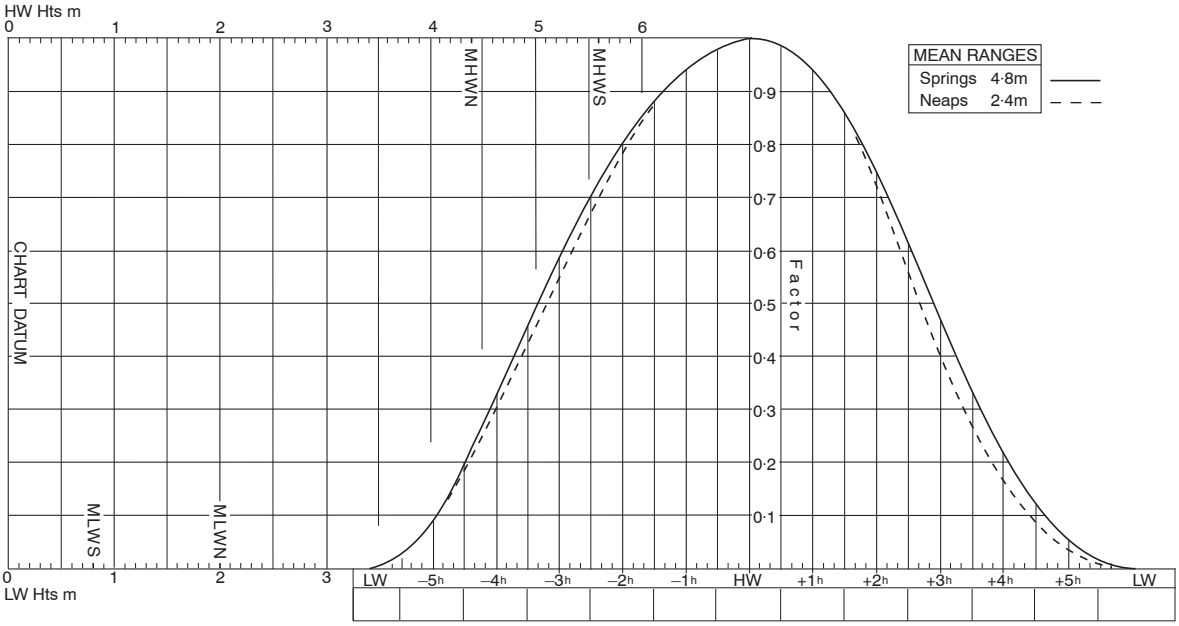
Springs occur 2 days after New and Full Moon



LEITH

MEAN SPRING AND NEAP CURVES

Springs occur 2 days after New and Full Moon



ROSYTH

MEAN SPRING AND NEAP CURVES

Springs occur 2 days after New and Full Moon