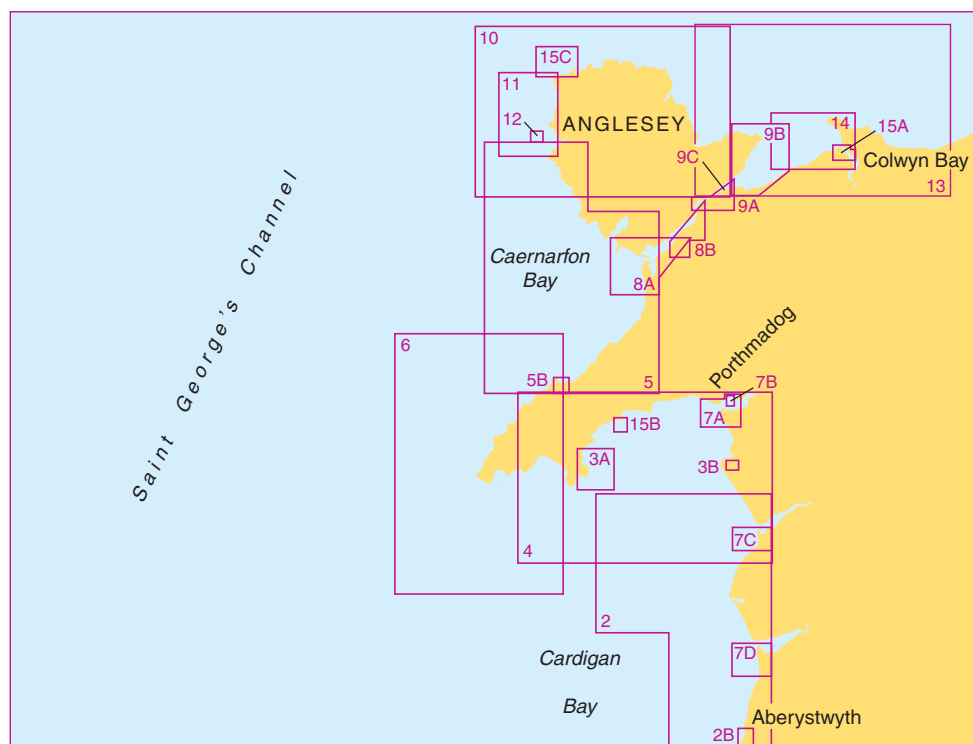




# North West Wales

## Coverage Diagram



5609	Chart Title	Natural Scale 1:
1	Saint George's Channel and Irish Sea, Southern Part	500,000
2A	Aberystwyth to Barmouth	75,000
2B	Aberystwyth	18,000
3	Saint Tudwal's Roads and Mochras Lagoon	
3A	Saint Tudwal's Roads	18,000
3B	Mochras Lagoon	10,000
4	Barmouth to Abersoch	75,000
5A	Caernarfon Bay	75,000
5B	Porth Dinllaen	18,000
6	Lleyn Peninsula, Western Part	50,000
7	Plans in the Northern Part of Cardigan Bay	
7A	Approaches to Porthmadog	25,000
7B	Porthmadog Harbour	7,500
7C	Barmouth	25,000
7D	Aberdovey	25,000

5609	Chart Title	Natural Scale 1:
8	Menai Strait - Western Part	
8A	Western Entrance to Menai Strait	25,000
8B	Caernarfon to Carreg Ginnog	25,000
9	Menai Strait - Eastern Part	
9A	Carreg Ginnog to Bangor	25,000
9B	Eastern Entrance to Menai Strait	25,000
9C	The Swellies	10,000
10	Holy Island to Red Wharf Bay	75,000
11	Approaches to Holyhead	25,000
12	Holyhead Harbour	6,250
13	Red Wharf Bay to Colwyn Bay	75,000
14	Approaches to Conwy	25,000
15	Conwy, Pwllheli and The Skerries	
15A	Conwy	10,000
15B	Pwllheli	12,500
15C	The Skerries	25,000

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

### 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.

### 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.

### HISTORIC WRECK

(53°25'·28N 4°36'·73W)

The site of the historic wreck is protected from unauthorised interference. For details see Annual Notice to Mariners No 16 and ADMIRALTY Sailing Directions.

### WETREP

Tankers of more than 600 dwt carrying heavy crude oil, heavy fuel oil or bitumen and tar and their emulsions are required to participate in the Western European Tanker Reporting System (WETREP). See ADMIRALTY List of Radio Signals for further details.

### SUBMARINE CABLES AND PIPELINES

Mariners should not anchor, trawl or engage in seabed operations in the vicinity of submarine cables and pipelines. 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 a cable may result in legal action. 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.

### HIGH SPEED CRAFT

High speed craft operate in the area of these charts. Mariners are advised to maintain a good lookout. Some high speed craft generate large waves, which can have a serious impact on small craft and their moorings close to the shoreline and on shallow off-lying banks.

### VESSEL REPORTING

For details of vessel reporting systems, see ADMIRALTY List of Radio Signals.

### 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.

### HISTORIC AND MILITARY WRECKS

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

### SHELLFISH BEDS

Obstructions arising from the cultivation of oysters, mussels and clams may be encountered throughout these areas, the limits of which are marked by perches. Vessels should avoid anchoring or grounding in these areas

## 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

#### BELFAST (MRCC)

Tel. +44 (0) 2891 463933

MMSI: 002320021

e-mail: zone34@hmcg.gov.uk (FAO Belfast Coastguard)

#### HOLYHEAD (MRCC)

Tel. +44 (0) 1407 762051

MMSI: 002320018

e-mail: zone31@hmcg.gov.uk (FAO Holyhead Coastguard)

#### MILFORD HAVEN (MRCC)

Tel. +44 (0) 1646 690909

MMSI: 002320017

e-mail: zone28@hmcg.gov.uk (FAO Milford Haven Coastguard)

### MARITIME SAFETY INFORMATION

Maritime Safety Information (MSI) is broadcast by MILFORD HAVEN and HOLYHEAD COASTGUARD at 0150, 0450, 0750, 1050, 1350, 1650, 1950 and 2250 (local time). By BELFAST COASTGUARD at 0210, 0510, 0810, 1110, 1410, 1710, 2010 and 2310 (local time). This will include gale warnings, local inshore forecasts and navigational warnings. Mariners should listen to the MSI announcement on VHF Ch 16 for details of the working channel to be used for the broadcast.

## 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 environment offshore is now well established, with users in all areas of the commercial, fishing and leisure communities.

Incidents have occurred 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 relevant 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](http://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.

### 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](http://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](mailto:customerservices@ukho.gov.uk)

To view all ADMIRALTY Products and services, visit [admiralty.co.uk](http://admiralty.co.uk)

## Tidal Stream Information

5609\_1

Tidal Streams referred to HW at DOVER

Hours	Geographical Position	A 52°32'6N 5 39·5W	B 53°26'0N 5 33·0W	C 52°44'8N 5 20·2W	D 53°04'8N 5 20·0W	E 53°40'2N 5 09·3W	F 52°24'5N 5 00·5W	G 53°28'5N 4 45·1W	H 53°05'5N 4 44·5W	J 54°06'5N 4 08·5W
Before High Water	Directions of streams (degrees)	356 0·6 0·3 014 2·2 1·1 018 3·0 1·5 023 2·9 1·5 027 2·1 1·0 027 0·8 0·4 189 0·6 0·3	211 0·2 0·1 345 1·0 0·4 351 1·9 0·8 350 2·3 1·0 349 1·9 0·9 353 1·3 0·6 011 0·3 0·1	127 0·2 0·1 019 1·3 0·7 017 2·7 1·5 015 3·4 1·8 013 2·9 1·6 010 1·8 1·0 028 0·4 0·2	006 0·0 0·0 005 0·9 0·5 2·0 1·1 2·6 1·4 2·7 1·5 1·7 0·9 0·3 0·1	231 1·0 0·5 275 0·5 0·3 350 0·6 0·3 025 1·3 0·7 033 1·9 1·0 039 1·7 0·9 043 1·1 0·6	017 0·8 0·5 016 1·7 1·0 017 2·1 1·3 017 2·1 1·2 019 1·7 1·0 025 0·8 0·5 182 0·4 0·2	205 0·3 0·2 055 1·5 0·8 050 3·2 1·6 046 3·8 1·9 049 3·0 1·5 053 1·6 0·8 125 0·1 0·1	002 0·1 0·1 002 1·2 0·7 002 2·0 1·2 002 2·3 1·3 002 1·7 1·0 002 0·9 0·5 182 0·1 0·1	214 0·4 0·2 087 0·5 0·3 074 1·3 0·7 067 1·8 1·0 056 1·6 0·9 049 1·0 0·6 353 0·3 0·2
After High Water	Directions of streams (degrees)	190 1·8 0·9 195 2·9 1·5 201 3·1 1·6 206 2·6 1·3 213 1·5 0·7 292 0·2 0·1	160 0·7 0·3 169 1·6 0·7 170 2·2 1·0 170 2·3 1·0 174 1·6 0·7 183 0·5 0·2	185 0·9 0·5 195 1·3 0·7 197 3·3 1·8 196 3·1 1·7 195 2·0 1·1 185 0·7 0·4	195 1·0 0·5 185 2·0 1·1 180 2·8 1·5 175 2·4 1·3 176 1·4 0·8 180 0·4 0·2	130 0·1 0·1 207 0·6 0·3 213 1·2 0·6 215 1·5 0·8 218 1·7 0·9 223 1·4 0·7	194 1·4 0·8 200 2·1 1·2 201 2·3 1·4 202 1·9 1·1 198 1·0 0·6 025 0·2 0·1	226 1·5 0·8 231 2·9 1·5 231 3·7 1·8 230 2·9 1·5 228 1·9 0·9 223 0·8 0·4	182 1·1 0·6 182 1·9 1·1 182 2·1 1·2 182 1·9 1·1 182 1·1 0·6 182 0·2 0·1	264 0·6 0·4 250 0·9 0·5 241 1·2 0·7 238 1·4 0·8 234 1·2 0·7 228 0·7 0·4

5609\_1 continued

Hours	Geographical Position	K 53°42'8N 4 01·0W	L 53°54'0N 3 44·5W
Before High Water	Directions of streams (degrees)	048 0·4 0·2 083 0·7 0·4 084 1·9 1·1 083 2·6 1·5 087 2·0 1·1 090 1·2 0·7	022 0·3 0·2 068 0·7 0·4 078 1·1 0·6 082 1·4 0·7 085 1·3 0·7 096 0·9 0·5
After High Water	Directions of streams (degrees)	147 0·3 0·2 258 0·9 0·5 266 1·6 0·9 270 2·1 1·2 272 1·8 1·0 267 1·2 0·7 255 0·9 0·5	155 0·4 0·2 234 0·9 0·5 250 1·4 0·7 262 1·5 0·8 275 1·2 0·6 292 0·8 0·4 335 0·4 0·2

5609\_2A

Tidal Streams referred to HW at MILFORD HAVEN

Hours	Geographical Position	A 52°43'3N 4 27·8W
Before High Water	Directions of streams (degrees)	250 0·3 0·2 250 0·1 0·0 070 0·2 0·1 070 0·5 0·3 070 0·8 0·4 070 0·9 0·5
After High Water	Directions of streams (degrees)	070 0·6 0·3 070 0·1 0·0 250 0·4 0·2 250 0·7 0·4 250 0·8 0·4 250 0·6 0·3 250 0·4 0·2

5609\_4

Tidal Streams referred to HW at MILFORD HAVEN

Hours	Geographical Position	A 52°43'3N 4 27·8W	B 52°51'5N 4 21·4W
Before High Water	Directions of streams (degrees)	250 0·3 0·2 250 0·1 0·0 070 0·2 0·1 070 0·5 0·3 070 0·8 0·4 070 0·9 0·5	205 0·1 0·0 123 0·1 0·0 097 0·1 0·0 064 0·2 0·1 045 0·4 0·2 035 0·5 0·2
After High Water	Directions of streams (degrees)	070 0·6 0·3 070 0·1 0·0 250 0·4 0·2 250 0·7 0·4 250 0·8 0·4 250 0·6 0·3 250 0·4 0·2	049 0·3 0·1 035 0·1 0·0 230 0·2 0·1 227 0·5 0·2 228 0·4 0·2 238 0·3 0·1 227 0·1 0·1

5609\_5A

Tidal Streams referred to HW at HOLYHEAD

Hours	Geographical Position	A 53°05'5N 4 44·6W	B 52°59'4N 4 40·8W	C 53°07'3N 4 25·3W
Before High Water	Directions of streams (degrees)	182 0·5 0·3 002 0·4 0·2 002 1·5 0·9 002 2·2 1·3 002 2·2 1·3 002 1·5 0·9 002 0·6 0·4	212 1·1 0·6 212 0·2 0·1 032 0·8 0·4 032 1·5 0·8 032 1·8 0·9 032 1·7 0·9 032 1·2 0·6	110 0·2 0·1 040 0·5 0·3 010 0·9 0·4 001 0·9 0·5 357 0·9 0·5 353 0·7 0·3 307 0·2 0·1
After High Water	Directions of streams (degrees)	182 0·4 0·2 182 1·2 0·7 182 2·0 1·2 182 2·1 1·2 182 1·7 1·0 182 1·0 0·6	032 0·4 0·2 212 0·5 0·3 212 1·4 0·7 212 1·8 0·9 212 1·8 0·9 212 1·4 0·7	196 0·5 0·3 190 0·8 0·4 189 0·9 0·5 185 0·8 0·4 182 0·7 0·4 140 0·3 0·1

5609\_6

Tidal Streams referred to HW at MILFORD HAVEN

Hours	Geographical Position	A 52°42'8N 4 54·3W	B 52°53'0N 4 49·7W	C 52°59'4N 4 40·8W
Before High Water	Directions of streams (degrees)	172 1·0 0·5 172 1·9 1·0 172 2·4 1·2 172 2·3 1·2 172 1·6 0·8 172 0·4 0·2	200 2·1 1·1 200 2·9 1·5 200 3·1 1·6 200 2·4 1·2 200 1·3 0·7 020 0·2 0·1	212 0·8 0·4 212 1·5 0·8 212 1·8 0·9 212 1·7 0·9 212 1·2 0·6 212 0·3 0·2
After High Water	Directions of streams (degrees)	352 0·9 0·5 352 1·9 1·0 352 2·3 1·2 352 2·2 1·1 352 1·6 0·8 352 0·7 0·4 172 0·5 0·3	020 1·8 0·9 020 3·0 1·5 020 3·3 1·7 020 2·7 1·4 020 1·5 0·8 020 0·0 0·0 200 1·6 0·8	032 0·7 0·4 032 1·4 0·7 032 1·7 0·9 032 1·7 0·9 032 1·3 0·7 032 0·5 0·3 212 0·4 0·2

5609\_8B

Tidal Streams referred to HW at HOLYHEAD  
(see also ADMIRALTY Sailing Directions NP37)

\* NOTE:- A current of about 0·5kn NE may be expected at these positions

5609\_8

Tidal Streams referred to HW at HOLYHEAD  
(see also ADMIRALTY Sailing Directions NP37)

Hours	Geographical Position	A 53°07'3N 4 25·3W	B 53°07'5N 4 19·8W	C 53°08'7N 4 16·7W	D 53°09'9N 4 15·6W
Before High Water	Directions of streams (degrees)	110 0·2 0·1 040 0·5 0·3 010 0·9 0·4 001 0·9 0·5 357 0·9 0·5 353 0·7 0·3	068 0·4 0·2 083 1·6 0·8 079 4·2 2·1 082 5·1 2·5 090 4·6 2·3 095 2·0 1·0	030 0·3 0·1 044 1·7 0·8 046 2·7 1·3 052 3·6 1·8 050 2·5 1·2 051 1·1 0·5	040 0·2 0·1 030 1·5 0·7 028 2·4 1·2 031 2·5 1·2 032 2·2 1·1 033 1·0 0·5
After High Water	Directions of streams (degrees)	307 0·2 0·1 196 0·5 0·3 190 0·8 0·4 189 0·9 0·5 185 0·8 0·4 182 0·7 0·4 140 0·3 0·1	267 3·5 1·7 267 4·3 2·1 262 3·9 1·9 259 3·2 1·6 262 2·3 1·1 280 1·0 0·5 000 0·0 0·0	223 1·1 0·5 235 2·0 1·0 236 2·9 1·4 224 2·7 1·3 225 1·8 0·9 226 1·2 0·6 000 0·0 0·0	218 1·4 0·7 218 2·1 1·0 212 2·3 1·1 206 1·8 0·9 206 1·3 0·7 204 0·7 0·4 000 0·0 0·0

Hours	Geographical Position	A 53°15'6N 4 05·4W *	B 53°18'3N 4 02·3W *
Before High Water	Directions of streams (degrees)	061 1·3 0·7 060 1·3 0·7 022 0·1 0·0 248 0·6 0·3 244 1·1 0·6 240 1·2 0·7	001 1·0 0·5 234 0·1 0·1 188 1·7 0·9 196 2·0 1·1 203 1·8 1·0 204 1·1 0·6
After High Water	Directions of streams (degrees)	240 1·2 0·7 237 1·1 0·6 246 0·5 0·3 062 0·2 0·1 065 1·3 0·7 063 1·3 0·7 063 1·3 0·7	283 0·1 0·1 014 0·5 0·3 025 0·9 0·5 025 1·2 0·7 026 1·4 0·8 017 1·2 0·6 005 1·1 0·6



## 5609\_10

## Tidal Streams referred to HW at LIVERPOOL (GLADSTONE DOCK)

Hours	Geographical Position	A 53°28'5N 4 45 2W	B 53°19'5N 4 41 9W	C 53°25'1N 4 34 9W	D 53°26'7N 4 20 4W	E 53°22'0N 4 10 1W
Before High Water	Directions of streams (degrees)	203 075 051 047 049 053	044 046 039 021 280 251	044 039 036 032 029 034	126 099 100 101 101 089	096 120 125 129 138 163
High Water	Rates at spring tides (knots)	158 219 230 231 230 228 221	231 225 222 217 211 117 051	256 235 234 233 236 262 027	303 276 276 277 277 276 186	266 304 314 319 317 315 056
After High Water	Rates at neap tides (knots)	047 038 024 211 180	081 089 102 121 244	090 081 144 052 081	077 077 052 052 052	077 077 052 052 052

## 5609\_11

## Tidal Streams referred to HW at HOLYHEAD

Hours	Geographical Position	A 53°19'5N 4 41 9W	B 53°20'2N 4 36 9W
Before High Water	Directions of streams (degrees)	047 044 046 038 024 266	090 081 089 102 121 244
High Water	Rates at spring tides (knots)	249 228 225 223 217 211 180	243 258 262 277 350 052 081
After High Water	Rates at neap tides (knots)	077 077 052 052 052 052 052	077 077 052 052 052 052 052

## 5609\_12

## Tidal Streams referred to HW at HOLYHEAD

Hours	Geographical Position	A 53°20'22N 4 36 87W
Before High Water	Directions of streams (degrees)	090 081 089 102 121 244
High Water	Rates at spring tides (knots)	243 258 262 277 350 052 081
After High Water	Rates at neap tides (knots)	077 077 052 052 052 052 052

## 5609\_13

## Tidal Streams referred to HW at LIVERPOOL (GLADSTONE DOCK)

Hours	Geographical Position	A 53°22'0N 4 10 1W	B 53°18'3N 4 02 3W	C 53°21'2N 4 00 2W	D 53°19'0N 3 58 5W
Before High Water	Directions of streams (degrees)	096 120 125 129 138 163	278 195 195 202 204 271	115 101 100 109 119 127	063 116 125 133 144 161
High Water	Rates at spring tides (knots)	266 304 314 319 317 315 056	000 023 025 026 018 007 357	244 284 290 295 298 295 087	229 288 309 316 318 334 318
After High Water	Rates at neap tides (knots)	077 077 052 052 052 052 052	077 077 052 052 052 052 052	077 077 052 052 052 052 052	077 077 052 052 052 052 052

## 5609\_14

## Tidal Streams referred to HW at LIVERPOOL (GLADSTONE DOCK)

Hours	Geographical Position	A 53°19'0N 3 58 5W
Before High Water	Directions of streams (degrees)	063 116 125 133 144 161
High Water	Rates at spring tides (knots)	229 288 309 316 318 334 318
After High Water	Rates at neap tides (knots)	077 077 052 052 052 052 052

## 5609\_15

## Tidal Streams referred to HW at HOLYHEAD

Hours	Geographical Position	A 53°25'1N 4 34 9W
Before High Water	Directions of streams (degrees)	308 043 038 036 032 026
High Water	Rates at spring tides (knots)	050 230 236 234 233 236 258
After High Water	Rates at neap tides (knots)	077 077 052 052 052 052 052



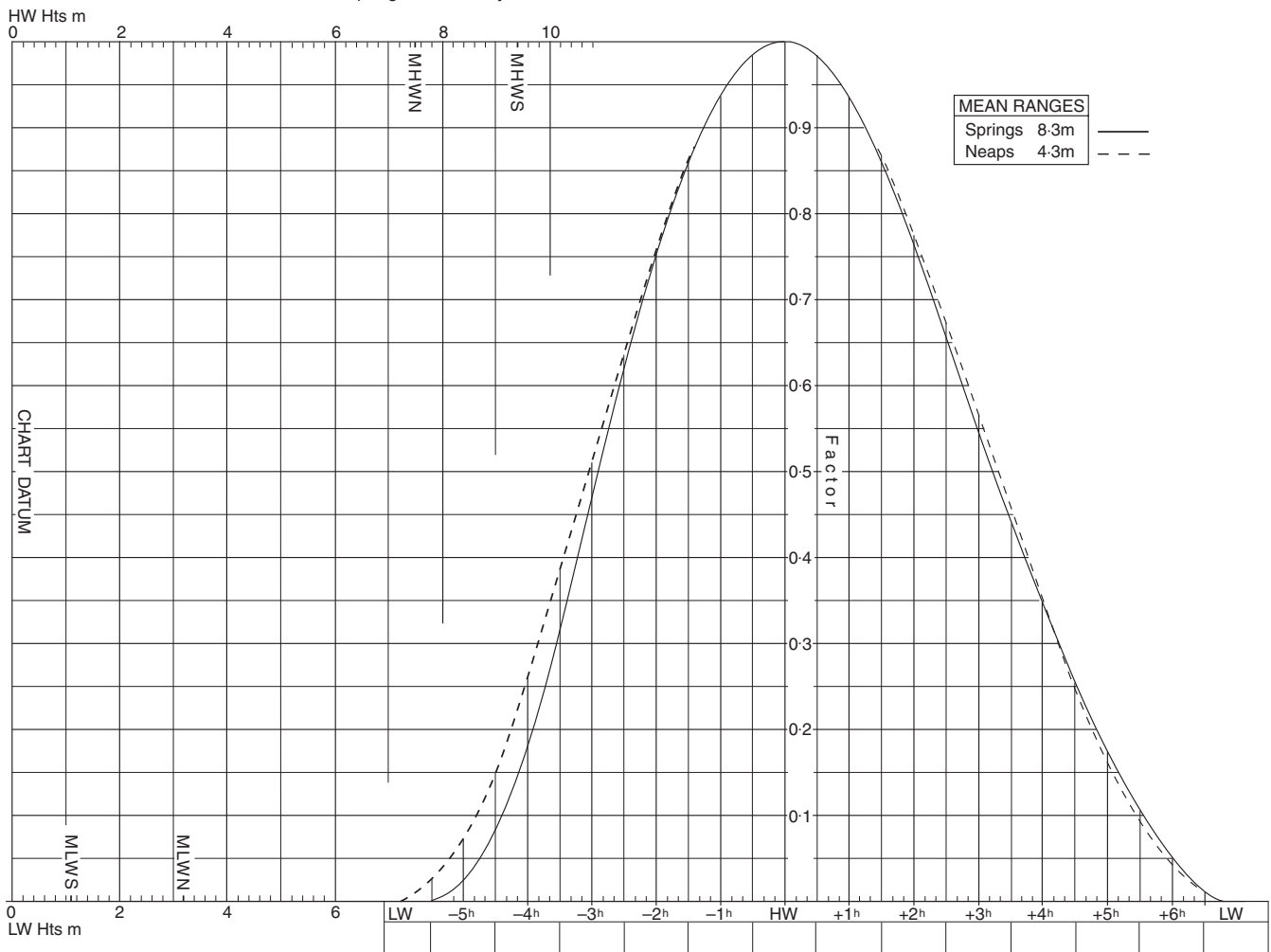
## TIME &amp; HEIGHT DIFFERENCES FOR PREDICTING THE TIDE AT SECONDARY PORTS

PLACE	Lat. N	Long. W	TIME DIFFERENCES				HEIGHT DIFFERENCES (IN METRES)			
			High Water	Low Water		Zone UT(GMT)	MHWS	MHWN	MLWN	MLWS
<b>LIVERPOOL (GLADSTONE DOCK) .....</b>	<b>53 27</b>	<b>3 01</b>	<b>0000 and 1200</b>	<b>0600 and 1800</b>	<b>0200 and 1400</b>	<b>0700 and 1900</b>	<b>9.4</b>	<b>7.5</b>	<b>3.2</b>	<b>1.1</b>
<i>River Mersey</i>										
Seacombe (Alfred Dock) .....	53 24	3 01	+0007	+0007	+0000	+0000	-0.1	-0.1	-0.3	-0.2
<b>Wales</b>										
Colwyn Bay .....	53 18	3 43	-0015	-0015	⊙	⊙	-1.6	-1.4	⊙	⊙
Llandudno .....	53 20	3 50	-0019	-0021	-0031	-0038	-1.7	-1.6	-0.9	-0.6
<b>HOLYHEAD .....</b>	<b>53 19</b>	<b>4 37</b>	<b>0000 and 1200</b>	<b>0600 and 1800</b>	<b>0500 and 1700</b>	<b>1100 and 2300</b>	<b>5.6</b>	<b>4.4</b>	<b>2.0</b>	<b>0.7</b>
Conwy .....	53 17	3 50	+0025	+0035	+0120	-0105	+2.3	+1.8	+0.6	+0.4
<i>Menai Strait</i>										
Beaumaris .....	53 16	4 05	+0025	+0010	+0055	+0035	+2.0	+1.6	+0.5	+0.1
Menai Bridge .....	53 13	4 10	+0030	+0010	+0100	+0035	+1.7	+1.4	+0.3	0.0
Port Dinorwic .....	53 11	4 13	- 0015	- 0025	+0030	0000	0.0	0.0	0.0	+0.1
Caernarfon .....	53 09	4 16	- 0030	- 0030	+0015	- 0005	- 0.4	- 0.4	- 0.1	- 0.1
Fort Belan .....	53 07	4 20	- 0040	- 0015	- 0025	- 0005	- 1.0	- 0.9	- 0.2	- 0.1
Trwyn Dinmor .....	53 19	4 03	+0025	+0015	+0050	+0035	+1.9	+1.5	+0.5	+0.2
Moelfre .....	53 20	4 14	+0025	+0020	+0050	+0035	+1.9	+1.4	+0.5	+0.2
Amlwch .....	53 25	4 20	+0020	+0010	+0035	+0025	+1.6	+1.3	+0.5	+0.2
Cemaes Bay .....	53 25	4 27	+0020	+0025	+0040	+0035	+1.0	+0.7	+0.3	+0.1
Trearddur Bay .....	53 16	4 37	- 0045	- 0025	- 0015	- 0015	- 0.4	- 0.4	0.0	+0.1
Porth Trecastell .....	53 12	4 30	- 0045	- 0025	- 0005	- 0015	- 0.6	- 0.6	0.0	0.0
Llanddwyn Island .....	53 08	4 25	- 0115	- 0055	- 0030	- 0020	- 0.7	- 0.5	- 0.1	0.0
Trefor .....	53 00	4 25	- 0115	- 0100	- 0030	- 0020	- 0.8	- 0.9	- 0.2	- 0.1
Porth Dinlläen .....	52 57	4 34	- 0120	- 0105	- 0035	- 0025	- 1.0	- 1.0	- 0.2	- 0.2
Porth Ysgaden .....	52 54	4 39	- 0125	- 0110	- 0040	- 0035	- 1.1	- 1.0	- 0.1	- 0.1
Bardsey Island .....	52 46	4 47	- 0220	- 0240	- 0145	- 0140	- 1.2	- 1.2	- 0.5	- 0.1
<b>MILFORD HAVEN .....</b>	<b>51 42</b>	<b>5 03</b>	<b>0100 and 1300</b>	<b>0800 and 2000</b>	<b>0100 and 1300</b>	<b>0700 and 1900</b>	<b>7.0</b>	<b>5.2</b>	<b>2.5</b>	<b>0.7</b>
<i>Cardigan Bay</i>										
Aberdaron .....	52 48	4 43	+0210	+0200	+0240	+0310	- 2.4	- 1.9	- 0.6	- 0.2
St. Tudwal's Roads .....	52 49	4 29	+0155	+0145	+0240	+0310	- 2.2	- 1.9	- 0.7	- 0.2
Pwllheli .....	52 53	4 24	+0210	+0150	+0245	+0320	- 1.9	- 1.6	- 0.6	- 0.1
Criccieth .....	52 55	4 14	+0210	+0155	+0255	+0320	- 2.0	- 1.8	- 0.7	- 0.3
Porthmadog .....	52 55	4 08	+0235	+0210	⊙	⊙	- 1.9	- 1.8	⊙	⊙
Barmouth .....	52 43	4 03	+0207	+0200	+0300	+0233	- 2.0	- 1.5	- 0.6	0.0
Aberdovey .....	52 33	4 03	+0215	+0200	+0230	+0305	- 2.0	- 1.7	- 0.5	0.0
Aberystwyth .....	52 24	4 05	+0145	+0130	+0210	+0245	- 2.0	- 1.7	- 0.7	0.0

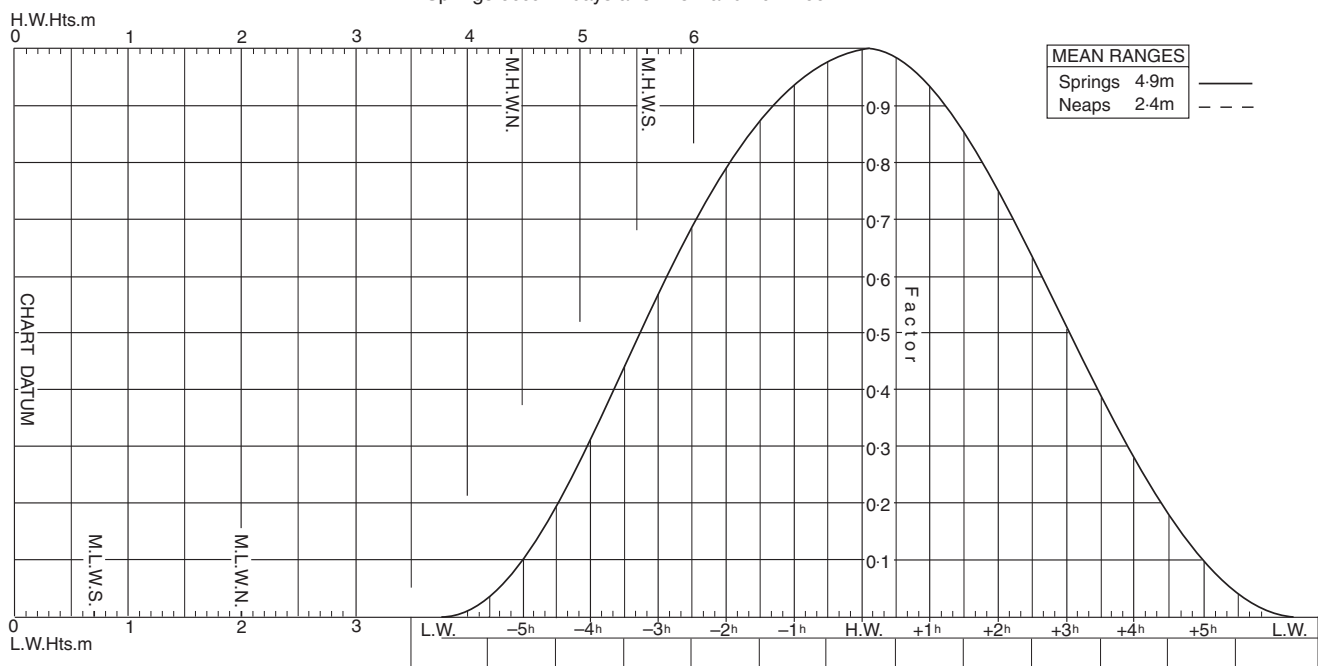
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# Tidal Curve Diagrams

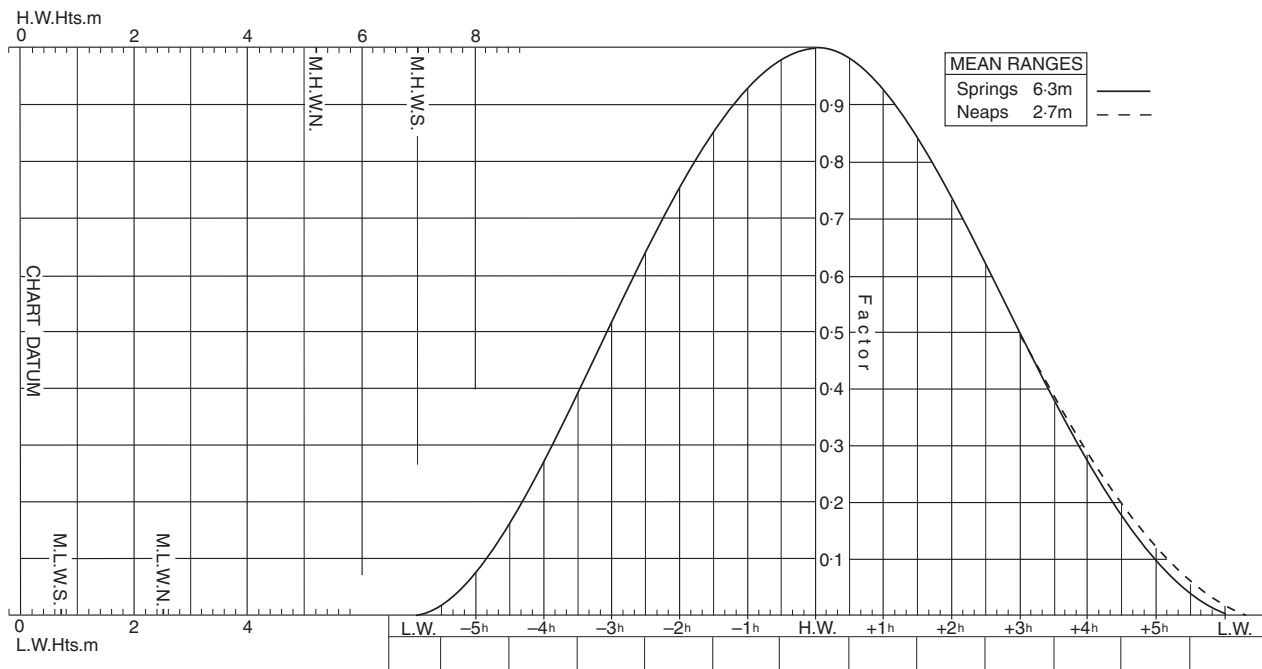
**LIVERPOOL (GLADSTONE DOCK)**  
MEAN SPRING AND NEAP CURVES  
Springs occur 2 days after New and Full Moon



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



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



For guidance on the use of Standard Curve Diagrams, see ADMIRALTY Tides Tables NP201(A).

**TIDAL STREAMS**

Full details of tidal streams in the area covered by these charts are given in ADMIRALTY Tidal Stream Atlas NP256.