12.6 Weather

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INTRODUCTION

1. The primary function of all NCI Watchkeepers is to spot any vessel or person in difficulty or at risk, whether on land or at sea, and immediately report the essential facts to HMCG.

2. As the weather can have a significant impact on the safety of individuals and vessels in our coastal areas, your ability to understand, report and record weather conditions is important in the role of Watchkeeper.

3. It is essential that Watchkeepers understand the impact on their local areas of:
   - weather systems
   - winds
   - the tides

4. Regular weather recording allows NCI to:
   - give out actual weather details, as recorded in the Logbook, to interested parties
   - keep abreast of developing situations
   - provide actual weather broadcasts on Channel 65 if appropriate to your Station

5. Under no circumstances does NCI ever give out weather-related advice and we never undertake to forecast weather conditions.

SUPPLEMENTARY READING

6. Whilst understanding current weather conditions is a fundamental requirement of effective Watchkeeping, the following supplementary reading is equally necessary:
   - ✓ Radio Skills – Sections 12.4A, B and C
   - ✓ Tides – Section 12.7

RECORDING CURRENT WEATHER

7. A weather report is to be completed at the start and end of each Watch, as well as a minimum of every two hours during the Watch. It must always be recorded at the time of any reportable incident or dramatic change in the weather.

8. All NCI Logbooks contain standardised information to help with recording some of the necessary details of daily operational activities. This information comprises:
   - a sea state table
   - a table of weather descriptions

9. Information to help with completing each of the Logbook weather columns follows below, in the order they appear on the page.

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WIND SPEED AND DIRECTION

10. ***Wind Speed*** – wind speed may be expressed either in knots or as a force number in the Beaufort Scale (see Appendix A).

11. Weather stations show the average wind speed in knots detected over the previous 10 minutes; there is a conversion table in your Station Logbook (see also Appendix A)

12. ***Wind Direction*** – in addition to reading a weather station, wind direction can be ascertained by local indicators such Station flags.

13. Wind Direction is expressed using the points of the compass as the direction from which the wind is blowing. (N, S, SW, E, NW, SSW etc.)

14. When the wind changes direction, it will 'back' or 'veer':
    - **Backing** – wind direction changes anti-clockwise, for example W to SW
    - **Veering** – wind direction changes clockwise, for example N to NE

SEA STATE

15. This is a description of the local sea condition – waves raised by the wind in the immediate vicinity of your Station.

16. Sea state is measured relative to the size of the waves and is expressed as one of 10 categories, set out in the **Douglas Sea Scale**, which runs from calm (zero) to phenomenal (9).

DOUGLAS SEA SCALE

Degree	Wave height (metres)	Description
0	No wave	Calm, glassy
1	0 – 0.1	Calm, rippled
2	0.1 – 0.5	Smooth
3	0.5 – 1.25	Slight
4	1.25 – 2.5	Moderate
5	2.5 – 4	Rough
6	4 – 6	Very rough
7	6 – 9	High
8	9 – 14	Very high
9	14+	Phenomenal

17. It is difficult to estimate wave height from an elevated Station and, although waves breaking on the beach below may provide an indication, it is better to try to judge wave height further out to sea.

18. Sea state will be worse when the wind:
    - is blowing onshore
    - is against the tide, or
    - the water is shallow

SWELL

19. Swell is different to sea state. It refers to waves that develop over a longer period of time than locally generated wind waves, and also over a much larger area. Swell is described as 'None, Low (0-2metres), Moderate (2–4 m), Heavy (over 4m)'.

VISIBILITY

20. Visibility is recorded as the distance that can be seen in nautical miles to seaward.

	Descriptor
V(ery) poor	Visibility less than 1000 metres
Poor	Visibility between 1000 and 2 nautical miles
Mod(erate)	Visibility between 2 and 5 nautical miles
Good	Visibility of more than 5 nautical miles

CLOUD COVER

21. Cloud cover is measured in octas (eighths) with 0 being clear sky and 8 being full cloud cover. If the cloud cannot be seen because of fog, 'Ob' for obscured should be recorded.

BAROMETRIC PRESSURE

22. The dividing line between '*high*' and '*low*' pressure is 1013.2mb. The range in the UK tends to be between 985mb (very low) and 1045 (very high).

23. Regular recording of weather station barometer readings, every two hours, allows the rise or fall in pressure to be established:
    - a steady fall indicates the approach of a depression or frontal system with deteriorating conditions and increasing winds
    - a steady rise usually indicates the above systems are moving away

OUTSIDE TEMPERATURE

24. Temperature is expressed in degrees Celsius.

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ACTUAL WEATHER

25. The final column of your Logbook is for the general weather description. Use of the Beaufort letters provides a quick reference code.

Code	Meaning		Code	Meaning
Fair	Fair (no precipitation)		**GR**	Hail
BR	Mist – visibility >1000metres		**RA**	Rain
DZ	Drizzle		**SN**	Snow
FG	Fog – visibility <1000metres		**SQ**	Squall
HZ	Haze		**TS**	Thunderstorm

26. Providing weather reports to HMCG should only be done when:

- it is requested by HMCG
- weather conditions have significantly deteriorated, for example, a sudden loss of visibility through smoke or fog
- on opening and closing the station. This should be offered but may be declined if the officers are too busy

27. When requested (for example by local sea-users and coastal walkers who might telephone or use Channel 65), it is the current weather conditions only and within the vicinity of your Station, which are to be provided. Advice must not be offered as to whether conditions are safe for any water-borne or coastal activity.

28. Stations may make regular broadcasts of the local weather and sea state information but must not include a forecast of any kind.

MARITIME SAFETY INFORMATION (MSI) BROADCASTS

29. The Maritime and Coastguard Agency (MCA) is responsible in the UK for broadcasting MSI, which includes marine weather forecasts and navigational warnings. They are broadcast on VHF by the Maritime Rescue Coordination Centre (MRCC) every three hours.

30. The MSI broadcasts are made on an area-designated VHF channel following an initial brief announcement on Channel 16 which will nominate the VHF channel for your area. Appendix B sets out terminology used.

31. The **Inshore Waters Forecast** has a standardised format and is for an area up to 12 miles offshore.

32. **Gale Warnings** relate to sea areas and are issued when winds of Force 8 and above are forecast. They are also issued for winds less than force 8 but when gusts to force 9 are expected.

33. **Strong Wind Warnings** relate to Inshore Waters and are issued when winds of Force 6 or more are forecast. The warnings are valid only until the next inshore forecast.

34. Should an element of the forecast be expected to change during the validity of the MSI broadcast, the timing of that change is expressed in the following terms:
    - **Imminent** – expected within six hours of time of issue
    - **Soon** – expected within six to twelve hours of time of issue
    - **Later** – expected more than twelve hours from time of issue

35. Maritime Safety Information (MSI) broadcasts should be recorded in the Logbook when '*Gale*' and '*Strong Wind*' warnings are forecast for your local area. The entry should be underlined in red ink and must include the:
    - time of issue
    - time the forecast is valid from
    - time the forecast is valid to

RELAYING INSHORE WATERS FORECASTS

36. The MCA and NCI have agreed that our Stations may relay the Inshore Waters Forecast (IWF) for their specific area to mariners, subject to the following conditions:
    - NCI must not broadcast the IWF; it may only be relayed using Channel 65 in response to a ***specific*** request from a mariner who, for reasons beyond their control, has not been able to obtain it directly from HMCG
    - NCI stations must take all necessary steps to ensure that they have the latest version of the IWF forecast and they relay it precisely
    - All IWFs which are relayed by NCI, must begin "*This forecast is issued by the Met Office on behalf of the Maritime and Coastguard Agency*". The relay must conclude with "*Forecast Ends*". A template is available to download from NCI's website.
    - NCI Stations must be aware that the forecast supplied to the MCA is under copyright to the Met Office and is a commercial agreement between the two organisations. Any deviation from the above conditions would infringe that agreement and could result in the withdrawal of permission for NCI to relay that forecast
    - NCI has agreed to record the number of times our staff relay the forecast, from which locations and to seek clarity from the mariner as to any difficulty in them obtaining the forecast through normal MCA / HMCG processes. This is to support HMCG's technical review of any geographical areas of concern
    - The IWF relay given must be for your Station's local area only

37. Stations without computer access should make arrangements for Watchkeepers to access this information from a smartphone if possible, otherwise they can record the routine HMCG broadcasts on VHF, to which all Stations have access.

38. Each request for a forecast relay is to be recorded in the Logbook and should include the reason why the vessel has been unable to access the forecast from the regular HMCG broadcasts.

39. In order to assist Watchkeepers, a template for recording the IWF, with compulsory wording, must be kept readily available in the Station close to the Channel 65 radio.

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Appendix A

THE BEAUFORT SCALE					
Beaufort Number	**Knots**	**Mph**	**Descriptor**	**Observed Sea Effects**	**Observed Land Effects**
0	Under 1	Under 1	Calm	Sea like a mirror	Calm; smoke rises vertically
1	1-3	1-3	Light air	Ripples only	Smoke drift shows wind direction, not wind vanes
2	4-6	4-7	Light breeze	Small wavelets, not breaking	Wind felt on face; leaves rustle; ordinary wind vane moves
3	7-10	8-12	Gentle breeze	Large wavelets, crests begin to break, a few white horses	Leaves/twigs in constant motion; wind extends light flag
4	11-16	13-18	Moderate breeze	Small waves growing longer, frequent white horses	Raises dust/loose paper; small branches moved
5	17-21	19-24	Fresh breeze	Moderate waves, many white horses, perhaps some spray	Small trees in leaf sway; created wavelets on inland waters
6	22-27	25-31	Strong breeze	Large waves, white foam crests more extensive, some spray	Large branches in motion; walking against wind felt
7	28-33	32-38	Near gale	Sea heaps up, white foam streaks begin blowing from crests	Whole trees in motion; inconvenience felt in walking against wind
8	34-40	39-46	Gale	Moderately high waves, crests break into spindrift with foamy streaks	Breaks twigs; generally impedes progress
9	41-47	47-54	Severe gale	High waves with tumbling crests, dense streaks of foam, spray may affect visibility	Slight structural damage occurs; chimney pots and slates removed
10	48-55	55-63	Storm	Very high waves, heavy tumbling sea, visibility affected by spray	Seldom experienced inland; trees uprooted; considerable structural damage
11	56-63	64-72	Violent storm	Exceptionally high waves, sea completely covered with long white patches of foam, visibility affected	Very rarely experienced; accompanied by widespread damage
12	64 and over	73 and over	Hurricane	Air filled with foam & spray, sea white with driving spray, visibility seriously affected	

Appendix B

MET OFFICE MARINE FORECASTING TERMINOLOGY	
Gale Warnings	
Gale	Winds of at least Beaufort force 8 (34–40 knots) or gusts reaching 43–51 knots
Severe Gale	Winds of force 9 (41–47 knots) or gusts reaching 52–60 knots
Storm	Winds of force 10 (48–55 knots) or gusts reaching 61–68 knots
Violent Storm	Winds of force 11 (56–63 knots) or gusts of 69 knots or more
Hurricane Force	Winds of force 12 (64 knots or more). **Note**: The term used is '*hurricane force*', the term 'hurricane' on its own means a true tropical cyclone, not experienced in British waters
Imminent	Expected within six hours of time of issue
Soon	Expected within six to 12 hours of time of issue
Later	Expected more than 12 hours from time of issue
Visibility	
Very Poor	Visibility less than 1,000 metres
Poor	Visibility between 1,000 metres and 2 nautical miles
Moderate	Visibility between 2 and 5 nautical miles
Good	Visibility more than 5 nautical miles

PLEASE NOTE

THE FOLLOWING PAGES ARE NOT PART OF THE OFFICIAL TRAINING MANUAL BUT ARE LOCALLY PRODUCED ADDITIONS THAT COULD BE OF USE

Record observed weather at the beginning of the day, every TWO hours thereafter and at the end of the day.
Record on the logbook page in use at the time, not necessarily the first page of the watch.

Wind Direction

Use compass points

eg N, NNE, NE, ENE

E, ESE, SE, SSE,

S, SSW, SW, WSW,

W, WNW, NW, NNW,

Wind Force

Use the Beaufort Scale

0	less than 1 knot	Calm
1	1 - 3	Light Air
2	4 - 6	Light Breeze
3	7 - 10	Gentle Breeze
4	11 - 16	Moderate Breeze
5	17 - 21	Fresh Breeze
6	22 - 27	Strong Breeze
7	28 - 33	Near Gale
8	34 - 40	Gale
9	41 - 47	Severe Gale
10	48 - 55	Storm
11	56 - 63	Violent Storm
12	64+	Hurricane

Sea

Use a descriptive term as follows:

Calm (Glassy)	Wave height 0 meters
Calm (Rippled)	0 - 0.1 m
Smooth	0.1 - 0.5 m
Slight	0.5 - 1.25 m
Moderate	1.25m - 2.5 m
Rough	2.5 - 4 m
Very Rough	4 - 6 m
High	6 - 9 m
Very High	9 - 14 m
Phenomenal	1 4+ m

Swell

Use a descriptive term as follows

None	
Low	0 - 2 m
Moderate	2 - 4 m
Heavy	over 4 m

Visibility

Record Minimum visibility SEAWARD in Nautical miles

Cloud Cover

Record in Octas from 0 (Completely clear sky) to 8 (Complete cloud cover)

If Misty or Foggy and the sky cannot be seen do not record 8, record sky Obscured (SKY Ob)

Barometric Pressure

Record pressure in millibars, correct as necessary to make it equivilent to sea level

Temperature

Record External temperature and wind chill if possible, in degrees celcius

Weather

record from the following

Fair (No precipitation)	TS - Thunderstorm
DZ - Drizzle	HZ - Haze
RA - Rain	BR - Mist
SN - Snow	FG - Fog
GR - Hail	SQ - Squall