

# BEAUFORT WIND FORCE SCALE

Specifications and equivalent speeds for use at sea



FORCE	EQUIVALENT miles/hr	SPEED knots	WAVE m	HEIGHT ft	DESCRIPTION	MAP Symbols	US ADVISORY Flags	SPECIFICATIONS FOR USE AT SEA
0	0-1	0-1	0	0	Calm			Sea like a mirror
1	1-3	1-3	.1	.33	Light Air			Ripples with the appearance of scales are formed, but without foam crest.
2	4-7	4-6	.2	.66	Light Breeze			Small wavelets, still short, but more pronounced. Crests have a glassy appearance and do not break
3	8-12	7-10	.6	2	Gentle Breeze			Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered white horses.
4	13-18	11-16	1	3.3	Moderate Breeze			Small waves, becoming larger; fairly frequent white horses.
5	19-24	17-21	2	6.6	Fresh Breeze			Moderate waves, taking a more pronounced long form; many white horses are formed. Chance of some spray.
6	25-31	22-27	3	9.9	Strong Breeze			Large waves begin to form; the white foam crests are more extensive everywhere. Probably some spray.
7	32-38	28-33	4	13	Near Gale			Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.
8	39-46	34-40	5.5	18	Gale			Moderately high waves of greater length; edges of crests begin to berakinto spindrift. The foam is blown in well-marked streaks along the direction of the wind.

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9	47-54	41-47	7	23	Severe Gale			High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.
10	55-63	48-55	9	30	Storm		Storm Warning 	Very high waves with long over-hanging crests. The resulting foam, in great patches, is blown in dense white streaks along the direction of the wind. On the whole the surface of the sea takes on a white appearance. The 'tumbling' of the sea becomes heavy and shock-like. Visibility affected.
11	64-72	56-63	11.5	38	Violent Storm			Exceptionally high waves (small and medium-size ships might be for a time lost to view behind the waves). The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere the edges of the wave crests are blown into froth. Visibility affected.
12	73-83	64-71	14+	46+	Hurricane		Hurricane Warning 	The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected.

"The scale was created in 1806 by Sir Francis Beaufort, a British naval officer.

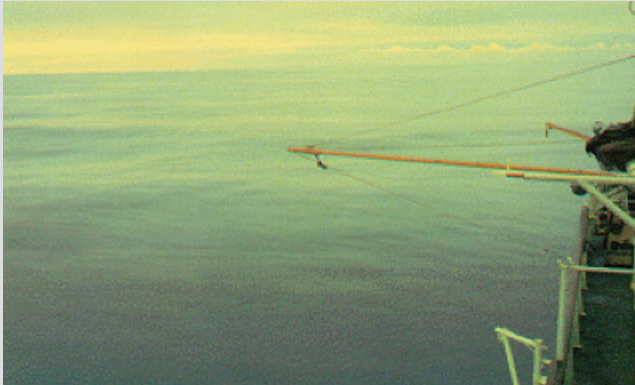
The initial scale did not have wind speeds, but listed a set of qualitative conditions from 0 to 12 by how a naval vessel would act under them - from 'just sufficient to give steerage' to 'that which no canvas could withstand'.

The scale was made a standard part of log entries for Royal Navy vessels in the late 1830s."

From Wikipedia

## SEA STATE

Force 0-5



### Force 0

Sea like a mirror.



### Force 1

Ripples with the appearance of scales are formed, but without foam crests.



### Force 2

Small wavelets, still short, but more pronounced. Crests have a glassy appearance and do not break.



### Force 3

Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered white horses.



### Force 4

Small waves, becoming larger; fairly frequent white horses.



### Force 5

Moderate waves, taking a more pronounced long form; many white horses are formed. Chance of some spray.



## SEA STATE

Force 6-11



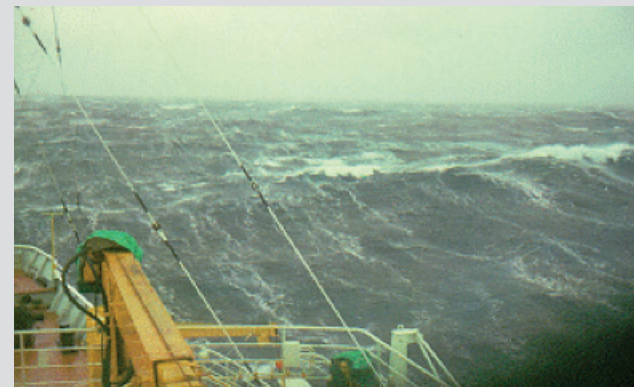
### Force 6

Large waves begin to form; the white foam crests are more extensive everywhere. Probably some spray.



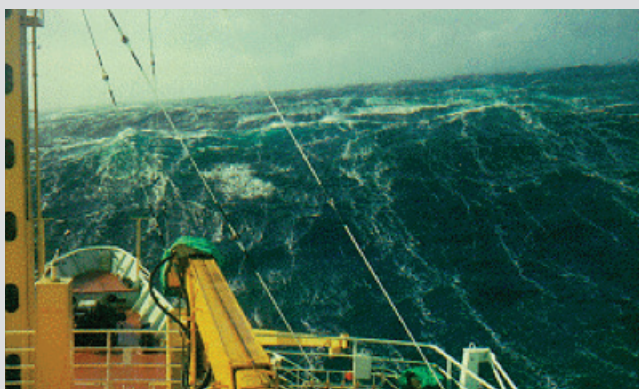
### Force 7

Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.



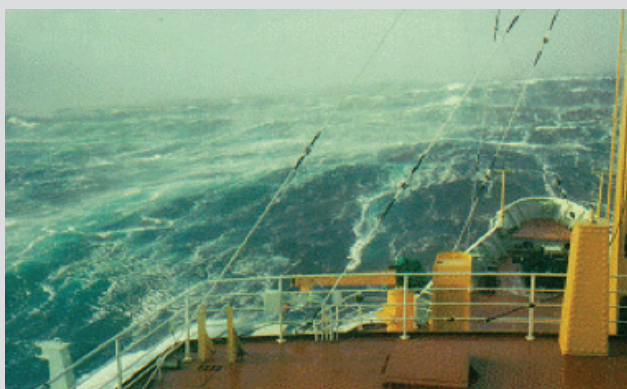
### Force 8

Moderately high waves of greater length; edges of crests begin to break into spindrift. The foam is blown in well-marked streaks along the direction of the wind.



### Force 9

High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.



### Force 10

Very high waves with long over-hanging crests. The resulting foam, in great patches, is blown in dense white streaks along the direction of the wind. On the whole the surface of the sea takes on a white appearance. The 'tumbling' of the sea becomes heavy and shock-like. Visibility affected.



### Force 11

Exceptionally high waves (small and medium-size ships might be for a time lost to view behind the waves). The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere the edges of the wave crests are blown into froth. Visibility affected.

## SEA STATE

Force 12



### Force 12

The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected.

#### Pierson - Moskowitz Sea Spectrum vs Beaufort Force

(Sea State Table)

Force	Sea State	Significant Wave (Ft)	Significant Range of Periods (Sec)	Average Period (Sec)	Average Length of Waves (FT)
1	0	<.5	.5 - 1	1	2
2	1	0.5	1 - 2.5	1.5	9.5
3	2	2	1.5 - 5	3	26
4	3	3.5	2 - 6.5	4	50
5	4	6	2.5 - 8.5	5	80
6	5	8	3 - 10	6-7	130
7	6	18	4 - 13	8-9	220
8	7	32	5.5 - 17	10-12	400
9	8	52	7.5 - 23	13-15	650