

***NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 6-2004  
APPLICABLE TO NWSI 10-320  
OCTOBER 15, 2010***

***Operations and Services  
Marine and Coastal Weather Services, NWSPD 10-3  
Coastal/Lakeshore Flood Services, NWSI 10-320  
COASTAL FLOOD AND HIGH SURF PRODUCTS***

---

**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

---

**OPR:** W/WR1x4 (J. Lorens)

**Certified by:** W/WR1 (C. Schmidt)

**Type of Issuance:** Routine

---

***SUMMARY OF REVISIONS:*** This directive supersedes NWS Western Region Supplement 6-2004, dated December 14, 2007. Simplified titles to “Coastal Flood and High Surf Products”. Added general information regarding Coastal Flood Watches, Warnings, and Advisories, and High Surf Warnings and Advisories. Additionally, product examples in Appendix B have been updated.

Signed

10/01/10

Vicki Nadolski

Date

Regional Director, Western Region

<u>Table of Contents:</u>	<u>Page</u>
1. Introduction.....	2
2. Coastal Flood Warnings and Advisories.....	2
3. High Surf Advisories and Warnings.....	3
Appendix	
A. WR High Surf Advisory/Warning Criteria.....	A-1
B. Example High Surf Advisory/Warning Products.....	B-1

1. Introduction. This regional supplement provides additional guidance and instructions for Western Region (WR) Weather Forecast Offices (WFOs) regarding Coastal Flood Advisories/Warnings and High Surf Advisories/Warnings. Forecasters will use the Graphical Hazards Generator (GHG) to issue and update Coastal Flood Warnings/Advisories and High Surf Warnings/Advisories. Written instructions cannot address every situation. Operational personnel must exercise initiative and professional judgment to minimize risk to public safety and property in instances when written instructions do not provide appropriate guidance. Personnel must balance safety and needs of customers against frequency of advisories or warnings and possible constraint of travel and commerce. Protection of life and property will take precedence in these decision-making processes.

2. Coastal Flood Warnings and Advisories. Coastal Flooding is the inundation of people, buildings, and coastal structures on land at locations that, under normal conditions, are above the level of high tide. This flooding may impact the immediate oceanfront, bays, sounds, tidal portions of river entrances, and inland tidal waterways. WFOs will use the “Coastal Hazard Message” (AWIPS product ID: CFW) to issue Coastal Flood Watches, Warnings, and Advisories. Coastal Flood Watches, Warnings, and Advisories may be segmented to meet local needs for specific high surf information.

Coastal Flood Watches inform the public that significant impacts due to coastal flooding are possible within the next 12-48 hours. Coastal Flood Warnings inform users that coastal flooding, posing a serious threat to life and property, is occurring, imminent, or highly likely within the first and/or second forecast periods (12-24 hours). Refer to NWS 10-320 for general guidance, information, and examples of Coastal Flood Watches and Warnings.

Coastal Flood Advisories inform customers that minor coastal flooding (not resulting in significant damage), such as that associated with abnormally high astronomical tides, or a combination of wind and high tide, is occurring or possible in the first forecast period. WFOs may also issue Coastal Flood Advisories for the second or third forecast periods when confidence is high or when advance notice is needed to meet user needs.

3. High Surf Warnings and Advisories. High Surf is characterized by observations specific to a geographical area, such as large waves breaking in the surf zone with sufficient energy to erode beaches, move large logs, wash over jetties or exposed rocks, etc. The primary threat from high surf is to people in or near the surf zone, both in the water and along the immediate shoreline. WFOs will use the “Coastal Hazard Message” (AWIPS product ID: CFW) to issue High Surf Advisories and Warnings. High Surf Advisories and Warnings may be segmented to meet local needs for specific high surf information.

3.1 High Surf Warnings. “High Surf Warnings” should be issued when an especially heightened threat to life and/or property exists or is expected. High Surf Warnings are not issued by WFOs San Diego or Los Angeles/Oxnard.

3.2 High Surf Advisories. Refer to NWSI 10-320 for general information and guidance on High Surf Advisories.

3.3 High Surf Advisory/Warning Guidance. Attachment 1 contains guidance for WR WFOs to aid in the issuance of High Surf Advisories and/or High Surf Warnings. The tables in Attachment 1 incorporate deep water significant wave height and dominant period as factors and are based on local customer needs and requirements.

3.4 Valid Time Periods for Issuance and Effective Duration. WFOs should issue High Surf Advisories/Warnings when criteria are expected to be met or exceeded during the first through third forecast periods and valid for the expected duration.

**APPENDIX A - High Surf Advisory/Warning Criteria**

**Note:** Figures in these tables indicate theoretical breaker heights and should be considered as guidance only. Actual breaker height (or wave power) may vary due to influence of other factors (e.g. wave direction, beach slope, or possibly other factors as well).

**WFO Seattle (Fall through Spring)**

Note: Moderate beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)																
		≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	≤ 11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	24
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	25	
13	16	17	18	18	19	20	20	21	22	22	23	23	24	25	26	27	
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	29	
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	31	
17	20	21	22	22	23	24	25	25	27	28	29	29	30	31	31	32	
18	21	22	23	23	24	25	26	27	28	29	30	31	31	31	32	33	
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35	
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	36	
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	37	
22	25	25	26	28	28	29	30	31	32	33	34	35	36	37	37	38	
23	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	40	
24	26	27	28	29	30	31	32	33	34	35	36	37	38	38	40	41	
25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	

Warning
Advisory
None

**WFO Seattle (Spring through Fall)**

Note: Moderate beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)																
		≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	≤ 8	11	12	12	13	13	14	14	15	15	16	16	16	17	17	18	18
9	12	13	13	14	14	15	15	16	17	17	18	18	18	19	20	21	
10	13	14	14	14	15	16	17	17	18	19	19	20	20	20	22	23	
11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	24	
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	25	
13	16	17	18	18	19	20	20	21	22	22	23	23	24	25	26	27	
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	29	
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	31	
17	20	21	22	22	23	24	25	25	27	28	29	29	30	31	31	32	
18	21	22	23	23	24	25	26	27	28	29	30	31	31	31	32	33	
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35	
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	36	
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	37	
22	24	25	26	28	28	29	30	31	32	33	34	35	36	37	37	38	
23	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	40	
24	26	27	28	29	30	31	32	33	34	35	36	37	38	38	40	41	
25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	

Warning
Advisory
None

**WFO Portland**

Note: 0° angle of incidence is assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)															
	≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
< 15																
16																
17																
18																
19																
20																
21																
22																
23																
24																
25																

<b>Warning (Wave Power <math>\geq 160 \times 10^4</math> J/ms)</b>
<b>Advisory (Wave Power <math>100-159 \times 10^4</math> J/ms)</b>
<b>None (Wave Power <math>&lt; 100 \times 10^4</math> J/ms)</b>

**WFO Medford**

Note: Moderate beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)															
	≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
≤ 11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	24
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	25
13	16	17	18	18	19	20	20	21	22	22	23	24	25	25	26	27
14	17	18	19	19	20	21	21	22	23	23	25	25	26	26	27	28
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	29	29
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	31
17	20	21	22	22	23	24	25	25	27	28	29	30	30	31	31	32
18	21	22	23	23	24	25	26	27	28	29	30	31	31	31	32	33
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	36
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	37
22	25	25	26	28	28	29	30	31	32	33	34	35	36	37	37	38
23	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	40
24	26	27	28	29	30	31	32	33	34	35	36	37	38	38	40	41
25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

<b>Warning</b>
<b>Advisory</b>
<b>None</b>

**WFO Eureka**

Note: Moderate beach slope assumed.

Significant Deep Water Wave Height (feet)		Dominant Wave Period (seconds)															
		≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		≤ 9	12	13	13	14	14	15	15	16	17	17	18	18	18	19	20
10	13	14	14	14	15	16	17	17	18	19	19	20	20	20	22	23	
11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	24	
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	25	
13	16	17	18	18	19	20	20	21	22	22	23	23	24	25	26	27	
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	29	
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	31	
17	20	21	21	22	23	24	25	25	27	28	29	30	30	31	31	32	
18	21	22	22	23	24	25	26	27	28	29	30	31	31	31	32	33	
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35	
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	36	
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	37	
22	24	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	
23	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	40	
24	26	27	28	29	30	31	32	33	34	35	36	37	38	38	40	41	
25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	

Warning
Advisory
None

**WFO Monterey**

Note: Moderate beach slope assumed.

Significant Deep Water Wave Height (feet)		Dominant Wave Period (seconds)															
		≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		≤ 8	11	12	12	13	13	14	14	15	15	16	16	16	17	17	18
9	12	13	13	14	14	15	15	16	17	17	18	18	19	20	21		
10	13	14	14	14	15	16	17	17	18	19	19	20	20	20	22	23	
11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	24	
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	25	
13	16	17	18	18	19	20	20	21	22	22	23	24	24	25	26	27	
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	29	
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	31	
17	20	21	22	22	23	24	25	25	27	28	29	30	30	31	31	32	
18	21	22	23	23	24	25	26	27	28	29	30	31	31	31	32	33	
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	35	
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	36	
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	37	
≥ 22	25	25	26	28	28	29	30	31	32	33	34	35	36	37	37	38	

Warning
Advisory
None

**WFO Los Angeles / Oxnard (North of Pt. Conception)**

Note: Gentle beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)															
	≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
≤ 4	6	6	7	7	7	7	8	8	8	9	9	9	9	9	9	9
5	7	8	9	9	9	10	10	11	11	11	11	11	11	11	11	11
6	9	9	10	10	11	11	11	12	12	13	13	13	13	13	13	13
≥ 7	10	11	11	12	12	13	13	13	14	14	15	15	15	15	15	15

**Advisory**  
**None**

**WFO Los Angeles / Oxnard (South of Pt. Conception)**

Note: Gentle beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)															
	≤10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3	5	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7
4	6	6	6	7	7	7	8	8	8	9	9	9	9	9	9	9
≥ 5	7	8	9	9	9	10	10	11	11	11	11	11	11	11	11	11

**Advisory**  
**None**

**WFO San Diego**

Note: Gentle beach slope assumed.

Significant Deep Water Wave Height (feet)	Dominant Wave Period (seconds)															
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	4	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7
4	5	6	6	6	6	6	7	8	8	8	8	9	9	9	9	9
5	6	6	7	7	8	8	8	9	9	9	10	10	10	11	11	11
6	6	7	8	8	9	9	10	10	11	11	11	11	12	12	12	13
≥ 7	8	8	9	9	10	10	11	11	12	12	12	13	13	14	14	14

**Advisory**  
**None**

**APPENDIX B - Example High Surf Products**

**Example High Surf Advisory:**

000  
WHUS46 KEKA 071025  
CFWEKA

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE EUREKA CA  
225 AM PST SAT NOV 7 2009

...DANGEROUS SURF THROUGH THE WEEKEND...

CAZ001-002-072330-  
/O.EXT.KEKA.SU.Y.0007.000000T0000Z-091108T1700Z  
REDWOOD COAST-MENDOCINO COAST-  
225 AM PST SAT NOV 7 2009

...HIGH SURF ADVISORY IN EFFECT UNTIL 9 AM PST SUNDAY...

LARGE NORTHWEST SWELL WILL CONTINUE TO POUND THE SHORELINE OF  
NORTHERN CALIFORNIA TODAY. BREAKER HEIGHTS RANGING FROM 22 TO 28  
FEET ARE EXPECTED TODAY.

THE SWELL IS EXPECTED TO DIMINISH IN MAGNITUDE TONIGHT THROUGH  
SUNDAY MORNING. HOWEVER... .THE LONG PERIOD NATURE OF THESE WAVES  
WILL CONTINUE TO CREATE A THREAT FOR LARGE AND DANGEROUS SURF.

BOATERS ARE STRONGLY URGED TO POSTPONE RECREATIONAL ACTIVITY AND  
AVOID TRAVERSING BAY AND HARBOR ENTRANCES.

PERSONS VENTURING OUT TO THE SHORELINE ARE URGED TO EXERCISE  
EXTREME CAUTION. AVOID WALKING ON JETTIES AND KEEP BACK FROM THE  
WATERS EDGE. WAVES MAY RISE UP UNEXPECTEDLY AND SWEEP YOU INTO THE  
TURBULENT AND FRIGED WATERS.

PRECAUTIONARY/PREPARENESS ACTIONS. . .

A HIGH SURF ADVISORY MEANS THAT HIGH SURF WILL AFFECT BEACHES IN THE  
ADVISORY AREA. . .PRODUCING RIP CURRENTS AND LOCALIZED BEACH EROSION.

&&

\$\$



**Example High Surf Warning:**

000  
WHUS46 KSEW 071145  
CFWSEW

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE SEATTLE WA  
345 AM PST SAT NOV 7 2009

WAZ516-517-080000-  
/.O.CON.KSEW.SU.W.0001.000000T0000Z-0901108T000Z  
NORTH COAST-CENTRAL COAST-  
345 AM PST SAT NOV 7 2009

...HIGH SURF WARNING REMAINS IN EFFECT UNTIL 4 PM PDT THIS AFTERNOON...

...A HIGH SURF WARNING REMAINS IN EFFECT UNTIL 4 PM PST THIS AFTERNOON.

POWERFUL WAVES OF 25 TO 28 FEET WILL CONTINUE TO IMPACT THE NORTH AND CENTRAL COAST TODAY. THESE WAVES WILL BE SEPARATED BY 15 TO 20 SECONDS.

WAVES OF THIS SIZE PUSH LARGE AMOUNTS OF WATER INTO THE COASTLINE AND INTO HARBORS...COVES AND INLETS. THE MOST LIKELY PLACE FOR PROBLEMS TO OCCUR IS RIGHT ALONG THE BEACHES...WHERE LOW LYING ROADS COULD HAVE SHALLOW WATER OVER THEM...AND SOME LEVEES OR REVETMENTS COULD SEE WATER SPLASHING OVER THE TOP.

COASTAL INLETS...INCLUDING GRAYS HARBOR...CAN EXPECT TO SEE TIDE LEVELS RUNNING ABOUT A FOOT HIGHER THAN TIDE TABLE PREDICTIONS. TIDE TABLES FOR ABERDEEN PREDICT HIGH TIDES OF 8.8 FEET AT 441 AM THIS MORNING...AND 10.4 FEET AT 339 PM THIS AFTERNOON. COASTAL FLOODING AT ABERDEEN BEGINS AT 14.0 FEET...SO EVEN AN EXTRA FOOT OR MORE SHOULD NOT CAUSE PROBLEMS IN GRAYS HARBOR.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

THESE WAVES ARE POWERFUL ENOUGH TO SWEEP UNWARY BEACH WALKERS OUT TO SEA. PEOPLE CAN BE SERIOUSLY INJURED BY DEBRIS...SUCH AS LOGS...TOSSED ABOUT IN THE WAVES.

\$\$