NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 6-2004
APPLICABLE TO NWSI 10-320
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Operations and Services
Marine and Coastal Weather Services, NWSPD 10-3
Coastal/Lakeshore Flood Services, NWSI 10-320

HIGH SURF AND COASTAL FLOOD ADVISORY AND WARNING PROGRAM

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

OPR: W/WR1x4 (J. Lorens) **Certified by:** W/WR1 R. Douglas
Type of Issuance: Routine

SUMMARY OF REVISIONS: This directive supersedes NWS Western Region Supplement 6-2004 dated October 17, 2005.

The following changes were made in this issuance:

1. Added revised High Surf Advisory /High Surf Warning guidance tables incorporating wave period.
2. Added definitions for Coastal Flooding and High Surf.

Signed 12/11/07
Robert Tibi Date
Acting Director, Western Region

Table of Contents: Page

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, back bays, sounds, tidal portions of river mouths, and inland tidal waterways.

2.1 Coastal Flood Warnings, Watches, and Statements. Refer to NWSI 10-320 for general guidance and procedures, and examples.

2.2 Coastal Flood Advisories. A Coastal Flood Advisory informs 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 customer requirements. See NWSI 10-320, Appendix B for Coastal Flood Advisory examples.

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 the surf zone. High surf presents dangers to persons in the surf zone, both in the water and along the immediate shoreline. WFOs will use the Coastal Hazard Message (PIL: 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. The tables in Appendix A contain guidance for WR WFOs to aid in the issuance of High Surf Advisories and/or High Surf Warnings. These tables 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 is expected to be met or exceeded during the first through third forecast periods, and valid for the expected duration.

APPENDIX A - High Surf Advisory and Warning Guidance

Note: Figures in these tables indicate theoretical breaker heights (or wave power) 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, etc.).

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*)

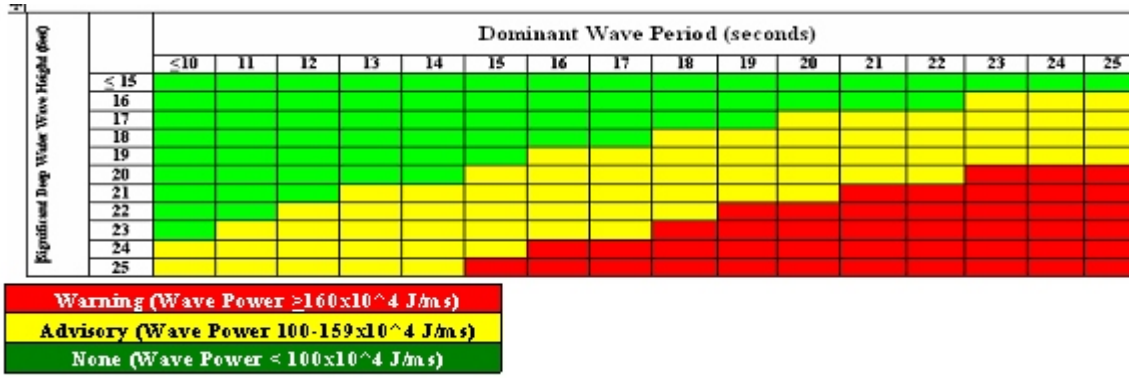
Note: Moderate beach slope assumed.

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.



WFO Medford

Note: Moderate beach slope assumed.

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	2
≤ 9	12	13	13	14	14	15	15	16	17	17	18	18	18	19	20	2
10	13	14	14	14	15	16	17	17	18	19	19	20	20	20	22	2
11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	2
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	2
13	16	17	18	18	19	20	20	21	22	22	23	23	24	25	26	2
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	2
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	2
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	3
17	20	21	21	22	23	24	25	25	27	28	29	30	30	31	31	3
18	21	22	22	23	24	25	26	27	28	29	30	31	31	31	32	3
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	3
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	3
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	3
22	24	25	26	27	28	29	30	31	32	33	34	35	36	37	37	3
23	25	26	27	28	29	30	31	32	33	34	35	36	37	37	38	4
24	26	27	28	29	30	31	32	33	34	35	36	37	38	38	40	4
25	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	4

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	
≤ 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	18	19	20	
10	13	14	14	14	15	16	17	17	18	19	19	20	20	20	22	
11	14	15	15	16	17	17	18	19	19	20	21	21	22	22	22	
12	15	16	17	17	18	19	19	20	21	21	22	22	23	24	24	
13	16	17	18	18	19	20	20	21	22	22	23	24	24	25	26	
14	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	
15	18	19	20	20	21	22	23	23	24	25	26	26	27	27	28	
16	19	20	20	21	22	23	24	24	25	26	27	28	29	29	30	
17	20	21	22	22	23	24	25	25	27	28	29	30	30	31	31	
18	21	22	23	23	24	25	26	27	28	29	30	31	31	31	32	
19	22	23	24	24	25	26	27	28	29	30	31	32	33	33	34	
20	23	24	25	25	26	27	28	29	30	31	32	33	34	34	35	
21	24	25	25	26	27	28	29	30	31	32	33	34	35	35	36	
≥ 22	25	25	26	28	28	29	30	31	32	33	34	35	36	37	37	

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	2
≤4	6	6	7	7	7	7	8	8	8	9	9	9	9	9	9	
5	7	8	9	9	9	10	10	11	11	11	11	11	11	11	11	1
6	9	9	10	10	11	11	11	12	12	13	13	13	13	13	13	1
≥7	10	11	11	12	12	13	13	13	14	14	15	15	15	15	15	1

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	2
3	5	5	5	6	6	6	6	7	7	7	7	7	7	7	7	
4	6	6	6	7	7	7	8	8	8	9	9	9	9	9	9	
≥5	7	8	9	9	9	10	10	11	11	11	11	11	11	11	11	1

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	2
3	4	5	5	5	5	6	6	6	6	6	6	6	6	6	7	
4	5	6	6	6	6	6	7	8	8	8	8	9	9	9	9	
5	6	6	7	7	8	8	8	9	9	9	10	10	10	11	11	1
6	6	7	8	8	9	9	10	10	11	11	11	11	12	12	12	1
≥7	8	8	9	9	10	10	11	11	12	12	12	13	13	14	14	1

Advisory
None

APPENDIX B - Example High Surf Products

Example High Surf Advisory:

FZUS68 KMFR 081640
CFWMFR

COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE MEDFORD OR
938 AM PDT FRI APR 8 2006

ORZ021-082300-
/O.NEW.KMFR.SU.Y.0005.060408T1640Z-060409T0900Z
SOUTH CENTRAL OREGON COAST-
INCLUDING THE CITIES OF...COOS BAY...COQUILLE...PORT ORFORD...
POWERS...REEDSPORT
938 AM PDT FRI APR 8 2006

...HIGH SURF ADVISORY IN EFFECT THROUGH TONIGHT...

DEEPENING LOW PRESSURE APPROACHING THE NORTHERN OREGON COAST WILL GENERATE BUILDING SEAS ALONG THE SOUTHERN OREGON COAST. SEAS ARE EXPECTED TO RISE FROM AROUND 14 FEET TO A PEAK AROUND 20 FEET BY 10 PM THIS EVENING. THE HIGHEST SEAS WILL NEARLY COINCIDE WITH HIGH TIDE WHICH WILL OCCUR AT APPROXIMATELY 1230 AM. SEAS WILL GRADUALLY LOWER LATE TONIGHT...AND CONTINUE TO DIMINISH TO AROUND 12 FEET BY SATURDAY AFTERNOON.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL RADIO OR TELEVISION STATIONS...OR YOUR CABLE TELEVISION PROVIDER FOR THE LATEST IN WEATHER INFORMATION.

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ORZ022-082300-
/O.NEW.KMFR.SU.Y.0005.060408T1640Z-060409T0900Z
CURRY COUNTY COAST-
INCLUDING THE CITIES OF...BROOKINGS...GOLD BEACH
938 AM PDT FRI APR 8 2006

...HIGH SURF ADVISORY IN EFFECT THROUGH TONIGHT...

DEEPENING LOW PRESSURE APPROACHING THE NORTHERN OREGON COAST WILL GENERATE BUILDING SEAS ALONG THE SOUTHERN OREGON COAST. SEAS

ARE EXPECTED TO RISE FROM AROUND 14 FEET TO A PEAK AROUND 24 FEET BY 11 PM THIS EVENING. THE HIGHEST SEAS WILL NEARLY COINCIDE WITH HIGH TIDE WHICH WILL OCCUR AT APPROXIMATELY 1230 AM. SEAS WILL GRADUALLY LOWER LATE TONIGHT...AND CONTINUE TO DIMINISH TO AROUND 12 FEET BY LATE SATURDAY AFTERNOON.

STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL RADIO OR TELEVISION STATIONS...OR YOUR CABLE TELEVISION PROVIDER FOR THE LATEST IN WEATHER INFORMATION.

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Example High Surf Warning:

WHUS46 KEKA 141507
CFWEKA

COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE EUREKA CA
810 AM PDT FRI JAN 14 2006

CAZ001-CAZ002-142200-
/O.NEW.KEKA.SU.W.0007.060114T1507Z-060114T2300Z
REDWOOD COAST CA-MENDOCINO COAST CA-

...HIGH SURF WARNING IN EFFECT UNTIL 300 PM PDT THIS AFTERNOON...

THE NATIONAL WEATHER SERVICE IN EUREKA CA HAS ISSUED A HIGH SURF WARNING.

A VERY STRONG STORM SYSTEM IN THE EAST PACIFIC HAS GENERATED DANGEROUSLY LARGE SWELL THAT WILL IMPACT THE NORTHERN CALIFORNIA COAST TODAY. COMBINED SEAS WILL PEAK AT 25 TO 30 FEET LATE THIS MORNING INTO THE EARLY AFTERNOON. THE SWELL IS EXPECTED TO SUBSIDE BELOW 20 FEET TONIGHT.

BEACHES...JETTIES...ROCKS...AND PIERS ON EXPOSED COASTLINE WILL BE DANGEROUS TODAY. LARGE WAVES CONTAIN TREMENDOUS FORCE AND CAN SWEEP INDIVIDUALS INTO THE FRIGID AND TURBULENT WATERS. PERSONS ARE ADVISED TO REMAIN AWAY FROM THESE AREAS UNTIL THE WAVES SUBSIDE.

STAY TUNED TO NOAA WEATHER RADIO AND OTHER LOCAL MEDIA FOR FURTHER DETAILS OR UPDATES.

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