Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

NATIONAL WEATHER SERVICE INSTRUCTION 10-320

OCTOBER 13, 2011

Operations and Services

Marine And Coastal Weather Services, NWSPD 10-3

COASTAL/LAKESHORE HAZARD SERVICES

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

OPR: OS21 (J. Kuhn) **Certified by:** OS21 (T. Pierce)
Type of Issuance: Routine

SUMMARY OF REVISIONS: This directive supersedes NWSI 10-320, Coastal/Lakeshore Hazard Services dated November 20, 2009. This directive includes the following changes:

1. Section 2.3.2.5 – Provided further clarification on issuance of Informational Statements
2. Sections 2.6.1 and 2.6.2 – Provided further clarification on product expiration times.
3. Section 3.4 and 3.5 – Re-wrote entire sections for bullet format.
4. Section 4.0 – Updates for warning/advisory informational products was changed from "at least once every 6 hours" to "at least once every 6 to 8 hours". Updates for Coastal/Lakeshore Flood Watch was changed from "at least every 6 hours" to "at least once every 12 hours".
5. Table 3 was updated with NWSI 10-601 Table 2- CFW Product Actions when Tropical Cyclone Advisories are issued.
6. Added bullet and CAP formats to examples in Appendix A and format template (Figure 1).
7. Minor grammatical changes throughout.

Signed September 29, 2011

David B. Caldwell Date

Director, Office of Climate,

Water, and Weather Services

Coastal/Lakeshore Hazard Services

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Appendix
A. Examples of NWS Coastal/Lakeshore Hazard Products....A1

1. Introduction. This procedural directive describes the Coastal/Lakeshore Hazard Message issued by National Weather Service (NWS) Weather Forecast Offices (WFOs), guidelines associated with this product, and detailed content and format. Great Lakes offices will issue a Lakeshore Hazard Message with coastal offices issuing a Coastal Hazard Message.

2. Coastal/Lakeshore Hazard Message (product category CFW)

2.1 Mission Connection. Coastal/Lakeshore Hazard Message products (AWIPS product category CFW) provide the public with detailed information on significant coastal/lakeshore events. Coastal/Lakeshore events impact land-based and near shore interests along much of the United States coastline.

2.2 CFW Products. All CFW products contain Valid Time Event Code (VTEC). The Event Names and Phenomena Codes are below.

Warnings		Watches	
Coastal Flood Warning	/CF.W/	Coastal Flood Watch	/CF.A/
Lakeshore Flood Warning	/LS.W/	Lakeshore Flood Watch	/LS.A/
High Surf Warning	/SU.W/		
Advisories		**Informational Statements**	
Coastal Flood Advisory	/CF.Y/	Used for coastal/lakeshore hazards that don't meet Advisory, Watch, or Warning criteria, as well as hazards that do not have Advisory, Watch, or Warning criteria (e.g. oil spill, rip current risk, re-directing to HLS). /CF.S/, /LS.S/, /RP.S/	
Lakeshore Flood Advisory	/LS.Y/		
High Surf Advisory	/SU.Y/		

Table 1. CFW products table

2.3 Issuance Guidelines.

2.3.1 Creation Software. Weather Forecast Offices (WFO) will use AWIPS Interactive Forecast Preparation System (IFPS) Graphical Hazards Generation (GHG) software to generate CFW products. OCONUS WFOs without GHG will use regionally approved software.

2.3.2 Issuance Criteria. CFW products are issued to provide the general public and shoreline interests with detailed information on a wide spectrum of coastal/lakeshore hazards. WFOs with Great Lakes or Coastal Waters Forecast areas of responsibility (see NWSI 10-302) issue Coastal/Lakeshore Hazard products.

2.3.2.1 Coastal/Lakeshore Flood Watch. A Coastal/Lakeshore Flood Watch informs users of coastal/lakeshore flooding that may have significant impacts. A watch should be issued 12 to 48 hours in advance.

2.3.2.2 Coastal/Lakeshore Flood Warning. A Coastal/Lakeshore Flood Warning informs users that coastal/lakeshore flooding which poses a serious threat to life and property, is occurring,

imminent, or highly likely in the first to second forecast periods (first 12 to 24 hours). WFOs may occasionally issue warnings valid after the second forecast period when a strong likelihood of the event exists or when a longer advance notice is needed for public response.

2.3.2.3 Coastal/Lakeshore Flood Advisory. A Coastal/Lakeshore Flood Advisory informs users that minor flooding, such as minor tidal overflow, is occurring or is possible within 12 hours. Issuance of Coastal/Lakeshore Flood Advisories is an NWS Regional option.

2.3.2.4 High Surf Advisory and Warning.

a) High Surf Advisories are issued when breaking wave action poses a threat to life and property within the surf zone. The surf zone is the narrow area of water between high tide level on the beach and seaward side of the breaking waves.

b) High Surf Warnings are issued when breaking wave action results in an especially heightened threat to life and property within the surf zone

   High Surf Warnings are a NWS Regional option. High Surf Warnings should be headlined in the SRF, if the SRF is routinely issued by the WFO.

High Surf and Rip Currents - In many situations, a moderate or high risk of rip currents is concurrent with another coastal hazard, in particular high surf. In this situation, the risk of rip currents and high surf may be referenced within the body of the CFW product with VTEC code /SU.Y/ or /SU.W/.

However, in the situation where the Moderate or High Risk of Rip Currents is not coincident with another coastal hazard requiring an Advisory, Watch, or Warning, then the Informational Statement may be used (See 2.3.2.5).

Criteria for moderate and high risk of rip currents are as follows:

Moderate Risk. Wind and/or wave conditions support stronger or more frequent Rip Currents. Only experienced surf swimmers should enter the water.

High Risk. Wind and/or wave conditions support dangerous Rip Currents. Rip Currents are life-threatening to anyone entering the surf.

2.3.2.5 Informational Statement. Informational statements may be used to describe hazards that do not meet Advisory, Watch, or Warning criteria, as well as hazards that do not have Advisory, Watch, or Warning criteria (e.g. rip currents, oil spill). Informational statements can also direct users to a Hurricane Local Statement (HLS) in certain situations. See the HLS discussion in Section 5.4.

Rip Current Risk. To further heighten awareness for a Moderate or High Risk of Rip Currents, rip current information may be disseminated using the Informational Statement (VTEC code /RP.S/). See section 2.3.2.4 for criteria for moderate and high risk of rip currents.

2.4 Issuance Time. CFW products are non-scheduled, event-driven products. WFOs should issue the initial warning, watch, advisory, informational CFW products when a coastal/lakeshore hazardous event is expected to meet or exceed warning, advisory, watch, informational criteria. WFOs should issue updates at least every six to eight hours until the event ends or is canceled.

2.5 Valid Time. CFW products are valid from the time of release or specified time until cancelled, updated, replaced, or until the expiration time of the product. The valid time (event beginning and end time) is placed in the P-VTEC line and described in the headline.

2.6 Product Expiration Time. The product expiration time is the time when users can expect to receive an updated CFW.

2.6.1 Watch Expiration Time. The product expiration time is generally 12 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end. The product expiration time is placed in the UGC string.

2.6.2 Warning, Advisory, Informational Statement Expiration Time: The product expiration time is generally 6 to 8 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end. The product expiration time is placed in the UGC string.

3. Technical Description. CFWs follow the format and content described in this section.

3.1 Universal Geographic Code Type. CFWs will use the (Z) form of the UGC.

3.2 Mass News Disseminator Broadcast Instruction Line. For watches and warnings the phrase "Urgent – Immediate Broadcast Requested" is used.

3.3 Mass News Disseminator Product Type Line. Only two headlines are permitted in the Product Type Line: Coastal Hazard Message or Lakeshore Hazard Message.

3.4 Content. The CFW may contain an overview section, but will include segmented forecast information.

3.4.1 Overview Section. The CFW overview section is optional. If included, it should contain at least one of the following items:

a. Overview Headline - a general headline statement that summarizes the hazardous coastal/lakeshore threat, area affected and expected time of development. The overview headline will begin and end with three periods (...).

Example :

...COASTAL FLOODING POSSIBLE SUNDAY AND SUNDAY NIGHT...

b. Overview Text- a brief, non-technical description of the developing CFW event. The description may include the location and movement of large scale weather features (e.g., fronts, low pressure systems). Place a period "." before the first line of this descriptive information

3.4.2 Segmented Forecast Information. Each segment of the CFW will include a coastal/lakeshore hazard headline followed by a descriptive text describing why the product was issued. Each segment describes a specific hazardous CFW event(s) for the same geographical area.

a. Headline. The CFW headline will include the following elements in the order shown:
(1) Leading ellipsis (...)
(2) Valid event names listed in Table 1.
(3) Event action phrase defined in Table 2.
(4) General event beginning day and time phrase.
(5) General event ending day and time phrase.
(6) Trailing ellipsis (...)

Generic Headline Format:

Used when CFW event is in effect:
…<CFW event name> <event action phrase> FROM <event beginning date and time phrase> TO <event ending date and time phrase>…

Used when CFW event product issuance time equals event beginning time:
…<CFW event name> <event action phrase> UNTIL <event ending date and time phrase…

Used to cancel a watch, warning, or advisory prior to event beginning date and time:
...<CFW event name> IS CANCELLED...

Event Action Phrase. The event action phrase in the CFW headline corresponds with the VTEC action code. Only the following event action phrases in Table 2 will be used in CFW headlines:

VTEC Action Code	Description	Required Event Action Phrase	Include Time/Date phrase?
NEW	Initial Issuance	IN EFFECT	Yes
EXA	Expansion of event area	IN EFFECT	Yes
EXB	Expansion of event area and change to event valid time	IN EFFECT	Yes
CON	Continuation or update of event	REMAINS IN EFFECT	Yes
EXT	Extend/shorten event start and/or ending date/time	NOW IN EFFECT	Yes
EXP	Event approaching the expiration time. Used up to 30 minutes prior to event end time. *Note: Not valid for Watches.	WILL EXPIRE AT	Yes
	Event has expired. Used up to 30 minutes after event expiration time has passed. *Note: Not valid for Watches.	HAS EXPIRED	No
CAN	Event canceled prior to event end time	IS CANCELLED	No
UPG	Upgrade watch to warning/advisory or advisory to warning. No headline. *Note: Warnings cannot be upgraded.		

Table 2. Event action phrases for CFW headlines.

b. Descriptive Text. This section will provide the following CFW information:

(1) National Weather Service attribution line. For the initial issuance, include the following phrase to begin the text:

THE NATIONAL WEATHER SERVICE IN [WFO NAME or LOCATION] HAS ISSUED A (e.g., COASTAL FLOOD, LAKESHORE FLOOD, HIGH SURF) (WATCH/WARNING/ADVISORY).

The attribution line is optional for subsequent issuances.

c. Order of Segments. Informational CFWs are usually placed last in the order of segments. This order was designed to place the most important or time sensitive information near the beginning of the message. Order of segments is:

(1) Cancellation
(2) Warnings
(3) Advisories
(4) Watches
(5) Informational

d. Order of Headlines. If multiple headlines are required in a single segment, then the order of headlines will follow the order of segments above.

e. Bullet Format. Bullet format CFWs help ensure brevity and more efficient communication of critical information. Bullets should be one or two sentences and used to present critical information for a coastal/lakeshore hazardous event. Bullets can be locally or regionally defined in order to meet user needs but generally consist of some or all of the following: Hazard Type (i.e. COASTAL FLOODING, LAKESHORE FLOODING, SURF, WAVES, TIDAL ANAOMALY, RIP CURRENT RISK, etc…), Timing, Impact, or others as appropriate.

Each bulleted segment will be followed by:

a) Brief precautionary/preparedness action statement (CTA).
b) Explanation of a watch/warning/advisory/risk (rip currents).

3.5 Format

Product Format	Description of Entry
WHaaii cccc ddhhmm	(WMO Heading)
CFWxxx	(AWIPS ID)
URGENT - IMMEDIATE BROADCAST REQUESTED (+)	(Broadcast Instruction Line)
COASTAL/LAKESHORE HAZARD MESSAGE	(Product Name)
NATIONAL WEATHER SERVICE city state	(Issuing Office)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...<Overview headline statement>...	(Optional)
.<General non precipitation weather synopsis>	(Optional - 1 to 3 paragraphs)
stZ001-005>015-ddhhmm-	(UGC: Z & expiration time)
/k.aaa.cccc.pp.s.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/	(P-VTEC Line(s))
zone st-zone st-zone st-	(Zone Names)
INCLUDING <THE CITIES OF> location...location	(City/Location - optional)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...WATCH, WARNING, ADVISORY, INFORMATIONAL HEADLINE (S)...	
<Descriptive Text>	(Optional after initial issuance)
NWS attribution line	
* Bullet1 * Bullet2 * Bullet3 * Etc.	Type, Order, and Number of bullets may be locally or regionally set.
PRECAUTIONARY/PREPAREDNESS ACTIONS...	CTA Begin Marker
(Call to Action (CTA) statements-Use blank lines between multiple CTAs)	
&&	CTA End Marker
$$	(UGC Delimiter)
Name/Initials/Forecaster ID	(Optional after last segment)

Figure 1. Generic format for CFWs

[+] Broadcast Instruction Line used only for watches and warnings

4. Updates, Cancellations, and Corrections. WFOs will update CFWs as follows:

a) Coastal/Lakeshore Flood Watch: at least once every 12 hours until the event ends or is canceled, or when there is a change in timing, areal extent, or expected conditions.

b) Warning/advisory/informational products: at least once every 6 to 8 hours until the event ends or is canceled, or when there is a change in timing, areal extent, or expected conditions.

Watches are either upgraded into warnings or advisories, or canceled. WFOs will issue a CFW to upgrade an advisory to a warning or to downgrade a warning to an advisory.

WFOs will issue a CFW to cancel a warning, advisory, or watch when the forecaster believes there's no longer a threat of the coastal/lakeshore hazard.

5. Consistency with other NWS Products. Forecasters will coordinate and ensure consistency among products within their WFO, and with neighboring WFOs, the River Forecast Center(s), and the National Centers. For example, coordination with the RFC ensures product consistency when the combined effects of river discharge and storm surge or tidal piling affect river outlets to increase the severity of coastal/lakeshore flooding.

5.1 Zone, Coastal/Surf Zone Forecasts. CFW advisory/watch/warning products will be headlined in associated public zone forecasts. CFW advisory/watch/warning products will not be headlined in routine marine forecasts but should be headlined in Surf Zone Forecasts.

5.2 Hazardous Weather Outlook (AWIPS Product HWO). The HWO provides the public, media, and emergency managers with early notice of potentially hazardous conditions. Events valid within 48 hours may be referenced in the HWO, directing users to the CFW products for specific details on events. Coastal hazards not expected within 48 hours may be addressed in the HWO as an outlook product. See NWSI 10-517 for details on the HWO.

5.3 Short Term Forecast (AWIPS Product NOW). The Short Term Forecast provides users with a plain language description of current and short-term weather and flooding conditions for the County Warning Area (CWA) of a WFO. To comply with the intention of the product, coastal hazard information in the Short Term Forecast will be as brief as possible. Therefore, the Short Term Forecast augments, but does not replace, the CFW and its more specific details. See NWSI 10-517 for details on the NOW.

5.4 Hurricane Local Statement (AWIPS Product HLS). If no CFW products were issued by the WFO prior to the issuance of a tropical cyclone watch or warning, then no CFW products will be issued when tropical cyclone watches or warnings are in effect.

Complications occur when a CFW product is in effect and tropical cyclone watches and/or warnings are issued. The basic premise is if the threat level of a tropical cyclone product equals

or exceeds the threat level of an existing CFW, then the CFW will be discontinued. Below are details that are further summarized in Table 3.

- A CFW product is in effect for a Coastal Flood Advisory or Coastal Flood Warning and/or High Surf Advisory or High Surf Warning and a tropical cyclone watch is issued - CFW will continue as standalone product along with HLS product.

- A CFW product is in effect for a Coastal Flood Advisory or Coastal Flood Warning and/or High Surf Advisory or High Surf Warning and a tropical cyclone warning is issued - CFW will be canceled and users directed to the HLS for further information on coastal hazards.

- A CFW product is in effect for a Coastal Flood Watch and a tropical cyclone watch or warning is issued - CFW will be canceled and users directed to the HLS for further information on coastal hazards.

Initial Coastal WFO Product in Effect	Tropical Cyclone Watch/Warning Subsequently Issued via the HLS	Continue CFW Issuance	Cancel CFW
Coastal Flood Watch	TC Watch		X
Coastal Flood Watch	TC Warning		X
Coastal Flood Advisory	TC Watch	X	
Coastal Flood Advisory	TC Warning		X
Coastal Flood Warning	TC Watch	X	
Coastal Flood Warning	TC Warning		X
High Surf Advisory	TC Watch	X	
High Surf Advisory	TC Warning		X
High Surf Warning (Pacific, Western Regions only)	TC Watch	X	
High Surf Warning (Pacific, Western Regions only)	TC Warning		X

Table 3. CFW Product Actions when Tropical Cyclone Advisories are subsequently issued. Also see related table in NWSI 10-601.

Finally, if tropical cyclone advisories are discontinued and coastal hazards are expected behind the departing tropical cyclone, then CFW products will be issued as appropriate.

6. Water Level Observations and Dissemination

6.1 Tidal Observations. Real-time access of accurate water-level data is especially important during times of exceptionally high tide. WFOs should maintain close contact with officials in coastal communities having access to, and interest in, water-level data augmenting official gauging systems/networks. Forecasters should be familiar with terminology associated with tide measurements.

The National Ocean Service (NOS) collects and distributes real-time tidal observations and predictions.

The NOS Center for Operational Oceanographic Products and Services web site includes Physical Oceanographic Real Time System and Predictions with current tidal observations and daily high and low water tide predictions for tidal reference stations. The web site is:

http://www.co-ops.nos.noaa.gov/

6.2 NWS Tide Reports. WFOs that issue routine tide reports should issue them using the TID AWIPS header. Other offices that only issue tide reports on an as-needed basis during significant coastal events may append the tide data to a Coastal/Lakeshore Message.

Reference tide reports to standard datums used by the NOS. For most areas the reference tidal datum is Mean Lower Low Water (MLLW).

6.3 Great Lakes Water Levels. Data for lake water levels are available from the U.S. Army Corps of Engineers and the NOS.

6.4 NWS Great Lakes Water Level Report. Some WFOs disseminate periodic water level reports, while other offices only issue reports on an as-needed basis. Water level reports are issued using the AWIPS product identifier OMR.

APPENDIX A - Examples of NWS Coastal/Lakeshore Hazard Products

1. Coastal/Lakeshore Flood Warnings
2. Coastal/Lakeshore Flood Advisories
3. Coastal/Lakeshore Flood Watches
4. Coastal/Lakeshore Hazard Message – to cancel an Advisory and Warning
5. Informational Coastal Hazard Message for High Risk of Rip Currents
6. High Surf Advisory
7. Coastal Hazard Message with Multiple Functions
8. Tide Report
9. Great Lakes Water Level Report

1. Examples of Coastal/Lakeshore Flood Warnings

Example Coastal Flood Warning

WHUS41 KGYX 280146
CFWGYX

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE GRAY ME
946 PM EDT TUE APR 27 2010

MEZ023-024-NHZ014-280500-
/O.UPG.KGYX.CF.Y.0016.000000T0000Z-100428T0500Z/
/O.NEW.KGYX.CF.W.0010.100428T0146Z-100428T0500Z/
COASTAL YORK-COASTAL CUMBERLAND-COASTAL ROCKINGHAM-
946 PM EDT TUE APR 27 2010

...COASTAL FLOOD WARNING IN EFFECT UNTIL 1 AM EDT WEDNESDAY...

THE NATIONAL WEATHER SERVICE IN GRAY HAS ISSUED A COASTAL FLOOD WARNING...WHICH IS IN EFFECT UNTIL 1 AM EDT WEDNESDAY. THE COASTAL FLOOD ADVISORY IS NO LONGER IN EFFECT.

* COASTAL FLOODING: AN ASTRONOMICAL HIGH TIDE OF 11.2 FEET COMBINED WITH A MODEST STORM SURGE JUST OVER ONE FOOT WILL RESULT IN COASTAL FLOODING IN AND NEAR PORTLAND HARBOR.

* TIMING: LATE THIS EVENING…ESPECIALLY NEAR HIGH TIDE AT 1107 PM.

* IMPACTS: MINOR FLOODING WILL OCCUR ALONG THE SIDE STREETS AND NEAR THE WHARF AND HAMPTON. IN NEW HAMPSHIRE…SOME SPLASH-OVER IS POSSIBLE IN THE CAMP ELLIS AREA OF SACO.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD WARNING MEANS THAT FLOODING IS OCCURRING OR IMMINENT. COASTAL RESIDENTS IN THE WARNED AREA SHOULD BE ALERT FOR RISING WATER...AND TAKE APPROPRIATE ACTION TO PROTECT LIFE AND PROPERTY.

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Example Lakeshore Flood Warning

WHUS43 KIWX 111503
CFWIWX

URGENT - IMMEDIATE BROADCAST REQUESTED
LAKESHORE HAZARD MESSAGE
NATIONAL WEATHER SERVICE NORTHERN INDIANA
1103 AM EDT MON JUL 11 2011

...DANGEROUS RAPIDLY CHANGING WATER LEVELS ARE EXPECTED THIS AFTERNOON AND INTO THE EARLY EVENING HOURS...

.DANGEROUS RAPIDLY CHANGING WATER LEVELS ARE EXPECTED THIS AFTERNOON IN RESPONSE TO THE LINE OF SEVERE THUNDERSTORMS THAT CROSSED THE LAKE LATE THIS MORNING. WATER LEVELS WILL HAVE LARGE FLUCTUATIONS THROUGH AT LEAST EARLY THIS EVENING ALONG ALL COASTAL BEACHES. EXPECT DANGEROUS RIP CURRENTS TOO.

INZ003-MIZ077-112315-
/O.NEW.KIWX.LS.W.0001.110711T1503Z-110712T0000Z/
LA PORTE-BERRIEN-
1103 AM EDT MON JUL 11 2011 /1003 AM CDT MON JUL 11 2011/

...LAKESHORE FLOOD WARNING IN EFFECT UNTIL 8 PM EDT /7 PM CDT/ THIS EVENING...

THE NATIONAL WEATHER SERVICE IN NORTHERN INDIANA HAS ISSUED A LAKESHORE FLOOD WARNING...WHICH IS IN EFFECT UNTIL 8 PM EDT /7 PM CDT/ THIS EVENING.

* LAKESHORE FLOODING...RAPID CHANGES IN WATER LEVELS ARE EXPECTED THIS AFTERNOON AND INTO THE EARLY EVENING HOURS.

* TIMING...THROUGH 8PM EDT/7PM CDT THIS EVENING.

* IMPACTS...HIGH RISK OF RIP CURRENTS AND WATER LEVELS MAY SURGE TO UNUSUALLY HIGH LEVELS ON AREA BEACHES SEVERAL TIMES.

PRECAUTIONARY/PREPAREDNESS ACTIONS...
A LAKESHORE FLOOD WARNING MEANS THAT FLOODING IS OCCURRING OR IMMINENT ALONG THE LAKE. RESIDENTS ON OR NEAR THE SHORE IN THE WARNED AREA SHOULD BE ALERT FOR RISING WATER...AND TAKE APPROPRIATE ACTION TO PROTECT LIFE AND PROPERTY.

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2. Example of Coastal/Lakeshore Flood Advisories

Example Coastal Flood Advisory

WHUS42 KCHS 171843
CFWCHS

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE CHARLESTON SC
243 PM EDT TUE MAY 17 2011

SCZ049-050-180200-
/O.NEW.KCHS.CF.Y.0005.110518T0000Z-110518T0200Z/
COASTAL COLLETON-CHARLESTON-
243 PM EDT TUE MAY 17 2011

...COASTAL FLOOD ADVISORY IN EFFECT FROM 8 PM TO 10 PM EDT THIS EVENING...

THE NATIONAL WEATHER SERVICE IN CHARLESTON HAS ISSUED A COASTAL FLOOD ADVISORY...WHICH IS IN EFFECT FROM 8 PM TO 10 PM EDT THIS EVENING.

* TIDE LEVELS: THE HIGH TIDE WILL REACH AROUND 7.0 TO 7.2 FEET MEAN LOWER LOW WATER IN THE CHARLESTON HARBOR.

* TIMING: HIGH TIDE IS AT 859 PM IN THE CHARLESTON HARBOR...AND THE GREATEST IMPACT FROM SHALLOW COASTAL FLOODING WILL OCCUR ABOUT AN HOUR BEFORE AND AFTER THE HIGH TIDE.

* IMPACTS: SHALLOW SALT WATER FLOODING WILL OCCUR IN TYPICAL FLOOD-PRONE LOCATIONS ACROSS COASTAL PORTIONS OF CHARLESTON AND COLLETON COUNTIES...INCLUDING BUT NOT LIMITED TO CAPE ISLAND... BULL ISLAND...ISLE OF PALMS...SULLIVANS ISLAND... DOWNTOWN CHARLESTON...FOLLY BEACH...KIAWAH ISLAND AND EDISTO BEACH. SALT WATER WILL ALSO INUNDATE AREA BEACHES WHERE MINOR EROSION IS POSSIBLE.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD ADVISORY INDICATES THAT WINDS AND TIDES WILL

COMBINE TO GENERATE SOME SALT WATER FLOODING OF LOW-LYING AREAS NEAR THE COAST. SHALLOW COASTAL FLOODING BEGINS ALONG THE SOUTHERN SOUTH CAROLINA COAST WHEN TIDES IN THE CHARLESTON HARBOR REACH 7.0 FEET MEAN LOWER LOW WATER AND ALONG THE NORTHERN GEORGIA COAST WHEN TIDES REACH 9.2 FEET MEAN LOWER LOW WATER AT FORT PULASKI.

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Example Lakeshore Flood Advisory

WHUS43 KMQT 310222
CFWMQT

URGENT - IMMEDIATE BROADCAST REQUESTED
LAKESHORE HAZARD MESSAGE
NATIONAL WEATHER SERVICE MARQUETTE MI
1022 PM EDT MON MAY 30 2011

...RAPID CHANGES IN WATER LEVEL NEAR LAKE SUPERIOR...

.A COMPLEX OF THUNDERSTORMS THAT PASSED OVER LAKE SUPERIOR THIS AFTERNOON HAS CAUSED A SEICHE ON LAKE SUPERIOR. OBSERVERS AND AUTOMATED STATION REPORTS INDICATE LAKE LEVELS HAVE VARIED BY AS MUCH AS 4 TO 6 FEET IN ONLY A COUPLE OF HOURS AT SOME LOCATIONS.

MIZ001-003>007-311200-
/O.NEW.KMQT.LS.Y.0001.110531T0222Z-110531T1200Z/
KEWEENAW-NORTHERN HOUGHTON-BARAGA-MARQUETTE-ALGER-LUCE-
1022 PM EDT MON MAY 30 2011

...LAKESHORE FLOOD ADVISORY IN EFFECT UNTIL 8 AM EDT TUESDAY...

THE NATIONAL WEATHER SERVICE IN MARQUETTE HAS ISSUED A LAKESHORE FLOOD ADVISORY...WHICH IS IN EFFECT UNTIL 8 AM EDT TUESDAY.

* LAKE SHORE FLOODING: EXPECT MINOR LAKE SHORE FLOODING IN SOME AREAS...ESPECIALLY SHALLOW BAYS...DURING TIMES WHEN THE WATER LEVELS RISE SIGNIFICANTLY.

* TIMING: LAKE SUPERIOR WATER LEVELS WILL CONTINUE TO VARY BY A FEW FEET THROUGH THE NIGHT. THE VARIATIONS IN WATER LEVEL SHOULD DIMINISH WITH TIME.

* IMPACTS: SUDDEN WATER LEVEL RISES MAY WASH SMALL BOATS ONSHORE AND CAUSE MINOR FLOODING IN LOW LYING AREAS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A LAKESHORE FLOOD ADVISORY INDICATES THAT ONSHORE WINDS WILL GENERATE FLOODING OF LOW AREAS ALONG THE LAKESHORE.

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3. Examples of Coastal/Lakeshore Flood Watches

Example Lakeshore Flood Watch

WHUS43 KMKX 010301
CFWMKX

URGENT - IMMEDIATE BROADCAST REQUESTED
LAKESHORE HAZARD MESSAGE
NATIONAL WEATHER SERVICE MILWAUKEE/SULLIVAN WI
901 PM CST MON JAN 31 2011

...STRENGTHENING NORTHEAST GALE WINDS WILL PRODUCE A PROLONGED PERIOD OF LARGE DAMAGING WAVES...

.NORTHEAST WINDS WILL INCREASE TO GALE FORCE BY THE MIDDLE OF TUESDAY AFTERNOONAND PERSIST THROUGH WEDNESDAY MORNING. A DEEPENING LOW PRESSURE SYSTEM TO THE SOUTH WILL CREATE A PROLONGED PERIOD OF STRONG NORTHEAST WINDS WHICH WILL PUSH LAKE WATERS UP AGAINST THE WEST AND SOUTHWEST SHORES CREATING LARGE WAVES.

WIZ052-060-066-071-072-011115-
/O.CON.KMKX.LS.A.0001.110202T0000Z-110203T0000Z/
SHEBOYGAN-OZAUKEE-MILWAUKEE-RACINE-KENOSHA-
901 PM CST MON JAN 31 2011

...LAKESHORE FLOOD WATCH REMAINS IN EFFECT FROM TUESDAY EVENING THROUGH WEDNESDAY AFTERNOON...

* LAKESHORE FLOODING: A PROLONGED PERIOD OF STRONG NORTHEAST WINDS WILL PUSH LAKE WATERS UP AGAINST THE WEST AND SOUTHWEST SHORES...RAISING OVERALL LAKE LEVELS ONE HALF FOOT WITH WAVE HEIGHTS REACHING 10 TO 15 FEET

* TIMING: TUESDAY EVENING THROUGH WEDNESDAY AFTERNOON.

* IMPACTS: LARGE WAVES WILL PUSH WATER OVER NEAR-LAKE ROADWAYS...AS WELL AS CREATE FREEZING SPRAY THAT WILL COAT THEM WITH ICE. THE LARGE WAVES WILL ALSO PRODUCE WIDESPREAD SHORELINE EROSION...AND DAMAGE SHORELINE STRUCTURES IN UNPROTECTED AREAS. THE PROLONGED INTENSE WAVE ACTION MAY BREAK UP SOME ICE COVERED AREAS...PUSHING THE ICE ONTO THE SHORE CAUSING THE POTENTIAL FOR MORE DAMAGE.

PRECAUTIONARY/PREPAREDNESS ACTIONS...
A LAKESHORE FLOOD WATCH MEANS THAT CONDITIONS ARE FAVORABLE FOR LAKESHORE FLOODING TO DEVELOP. RESIDENTS ON OR NEAR THE SHORE SHOULD TAKE ACTION TO PROTECT PROPERTY...AND LISTEN FOR LATER STATEMENTS OR WARNINGS.

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Example Coastal Flood Watch

WHUS46 KEKA 281934
CFWEKA

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE EUREKA CA
1234 PM PDT TUE SEP 28 2010

CAZ001-002-290345-
/O.NEW.KEKA.CF.A.0001.100930T0300Z-101001T0300Z/
REDWOOD COAST-MENDOCINO COAST-
1234 PM PDT TUE SEP 28 2010

...COASTAL FLOOD WATCH IN EFFECT FROM WEDNESDAY EVENING THROUGH THURSDAY EVENING...

THE NATIONAL WEATHER SERVICE IN EUREKA HAS ISSUED A COASTAL FLOOD WATCH...WHICH IS IN EFFECT FROM WEDNESDAY EVENING THROUGH THURSDAY EVENING.

* COASTAL FLOODING: A NW SWELL OF 18 TO 22 FEET AT 18 SECONDS WILL COMBINE WITH 40 KNOT WESTERLY WINDS AND HIGH TIDES UP TO 9.4 FEET TO

PRODUCE COASTAL FLOODING.

* TIMING: THE GREATEST THREAT WILL OCCUR DURING HIGH TIDES AT 640 AM PDT THU AND 440 PM PDT THU.

* IMPACTS: FLOOD PRONE AREAS...SUCH AS KING SALMON...WILL EXPERIENCE SIGNIFICANT FLOODING WITH WATERS ENTERING HOMES IN THE LOWEST LYING AREAS FOR A FEW HOURS SURROUNDING HIGH TIDES.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD WATCH MEANS THAT CONDITIONS FAVORABLE FOR FLOODING ARE EXPECTED TO DEVELOP. COASTAL RESIDENTS SHOULD BE ALERT FOR LATER STATEMENTS OR WARNINGS...AND TAKE ACTION TO PROTECT PROPERTY.

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4. Examples of Coastal/Lakeshore Hazard Messages – to cancel an Advisory and Warning

Example Coastal Hazard Message to cancel an existing Advisory

WHUS41 KLWX 271024
CFWLWX

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC
624 AM EDT FRI MAY 27 2011

DCZ001-MDZ007-011-013-014-VAZ052>054-271130-
/O.CAN.KLWX.CF.Y.0025.000000T0000Z-110527T1200Z/
DISTRICT OF COLUMBIA-HARFORD-SOUTHERN BALTIMORE-PRINCE GEORGES-
ANNE ARUNDEL-PRINCE WILLIAM/MANASSAS/MANASSAS PARK-FAIRFAX-
ARLINGTON/FALLS CHURCH/ALEXANDRIA-
624 AM EDT FRI MAY 27 2011

...COASTAL FLOOD ADVISORY IS CANCELLED...

THE NATIONAL WEATHER SERVICE IN STERLING VIRGINIA HAS CANCELLED THE COASTAL FLOOD ADVISORY.

HIGH TIDE HAS OCCURRED ON THE MARYLAND CHESAPEAKE BAY AND UPPER

TIDAL POTOMAC RIVER. THIS MEANS THAT THE COASTAL FLOOD THREAT HAS ENDED FOR THIS MORNING.

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Example Lakeshore Hazard Message to Cancel Lakeshore Warning

WHUS43 KIWX 112335
CFWIWX

URGENT - IMMEDIATE BROADCAST REQUESTED
LAKESHORE HAZARD MESSAGE
NATIONAL WEATHER SERVICE NORTHERN INDIANA
735 PM EDT MON JUL 11 2011

INZ003-MIZ077-120045-
/O.CAN.KIWX.LS.W.0001.000000T0000Z-110712T0000Z/
LA PORTE-BERRIEN-
735 PM EDT MON JUL 11 2011 /635 PM CDT MON JUL 11 2011/

...LAKESHORE FLOOD WARNING IS CANCELLED...

THE NATIONAL WEATHER SERVICE IN NORTHERN INDIANA HAS CANCELLED THE LAKESHORE FLOOD WARNING.

WAVE HEIGHTS WILL CONTINUE TO SUBSIDE OVER THE NEXT SEVERAL HOURS AS WINDS WEAKEN FURTHER. THE RISK FOR LAKESHORE FLOODING HAS SUBSIDED AS A RESULT. THOSE WANDERING ONTO THE BEACHES SHOULD USE CAUTION IN AREAS WITH LOCALLY HIGHER WAVES.

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5. Example Informational Coastal Hazard Message for High Risk of Rip Currents

WHUS44 KBRO 280951
CFWBRO

COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE BROWNSVILLE TX
500 AM CDT SAT MAY 28 2011

...HIGH RISK OF RIP CURRENTS EXPECTED ALONG THE LOWER TEXAS COAST THIS WEEKEND...

.PERSISTENT SOUTHEAST FLOW BETWEEN STRONG HIGH PRESSURE IN THE CENTRAL GULF OF MEXICO AND A TROUGH OF LOW PRESSURE ALONG THE LEE

OF THE SIERRA MADRE MOUNTAINS WILL MAINTAIN LONG PERIOD SWELLS IN THE WESTERN GULF...AND ELEVATED ROUGH SURF ON THE LOWER TEXAS COAST THROUGH SUNDAY.

TXZ251-256-257-282100-
/O.NEW.KBRO.RP.S.0002.110528T1000Z-110530T0000Z/
KENEDY-COASTAL WILLACY-COASTAL CAMERON-
500 AM CDT SAT MAY 28 2011

...RIP CURRENT RISK IN EFFECT THROUGH SUNDAY EVENING...

* TIMING...LARGE SOUTHEASTERLY SWELLS WILL CONTINUE TO PRODUCE DANGEROUS RIP CURRENTS WILL THROUGH SUNDAY. THE RISK WILL BE ENHANCED DURING THE MORNING HOURS EACH DAY WHEN HIGH TIDES OCCUR. ELEVATED SURF WITH BREAKING WAVES OF 3 TO 5 FEET WILL COMPOUND THE THREAT.

* IMPACTS...RIP CURRENTS ARE MOST LIKELY ON THE SOUTH SIDE OF THE ISLA BLANCA JETTIES AT ISLA BLANCA PARK ON SOUTH PADRE ISLAND...WITH STRONG LONGSHORE CURRENTS FROM THE RESORTS TO THE PUBLIC BEACH ACCESS POINTS NORTH OF TOWN. PRIOR EVENTS RESULTED IN NUMEROUS WATER RESCUES AND SOME DROWNINGS IN THESE LOCATIONS. THESE CURRENTS CAN IMPERIL EXPERIENCED SWIMMERS. POOR OR INEXPERIENCED SWIMMERS SHOULD REMAIN IN WAIST DEEP OR LOWER WATER.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

THERE IS A HIGH RISK OF RIP CURRENTS THROUGHOUT THIS MEMORIAL DAY WEEKEND.

RIP CURRENTS ARE POWERFUL CHANNELS OF WATER FLOWING QUICKLY AWAY FROM SHORE...WHICH OCCUR MOST OFTEN AT LOW SPOTS OR BREAKS IN THE SANDBAR AND IN THE VICINITY OF STRUCTURES SUCH AS GROINS...JETTIES AND PIERS. HEED THE ADVICE OF LIFEGUARDS AND THE BEACH PATROL. PAY ATTENTION TO FLAGS AND POSTED SIGNS.

IF YOU BECOME CAUGHT IN A RIP CURRENT...DO NOT PANIC. REMAIN CALM AND BEGIN TO SWIM PARALLEL TO SHORE. ONCE YOU ARE AWAY FROM THE FORCE OF THE RIP CURRENT...BEGIN TO SWIM BACK TO THE BEACH. DO NOT ATTEMPT TO SWIM DIRECTLY AGAINST A RIP CURRENT. EVEN A STRONG SWIMMER CAN BECOME EXHAUSTED QUICKLY.

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6. Example High Surf Advisory

WHHW40 PHFO 071330
CFWHFO

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE HONOLULU HI
330 AM HST SAT MAY 7 2011

...HIGH SURF ADVISORY FOR EAST FACING SHORES OF KAUAI OAHU MOLOKAI MAUI AND THE BIG ISLAND...

.STRONG TRADE WINDS ARE BRINGING ROUGH AND CHOPPY SURF TO EAST FACING SHORES.

HIZ002-008-009-012-017-020-024-025-080230-
/O.CON.PHFO.SU.Y.0025.000000T0000Z-110508T0400Z/
KAUAI WINDWARD-OAHU KOOLAU-OLOMANA-MOLOKAI WINDWARD-
MAUI WINDWARD WEST-WINDWARD HALEAKALA-SOUTH BIG ISLAND-
BIG ISLAND NORTH AND EAST-
330 AM HST SAT MAY 7 2011

...HIGH SURF ADVISORY REMAINS IN EFFECT UNTIL 6 PM HST THIS EVENING...

* SURF...WAVE HEIGHTS OF 6 TO 8 FEET ARE EXPECTED FOR EAST FACING SHORES.

* TIMING...HIGH SURF WILL CONTINUE THROUGH THIS EVENING.

* IMPACTS...ROUGH AND CHOPPY SURF CONDITIONS ARE EXPECTED.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

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

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7. Examples of Coastal Hazard Message with multiple functions

Example CFW to cancel Coastal Flood Warning, cancel Coastal Flood Advisory, continue Coastal Flood Advisory

WHUS41 KOKX 190309
CFWOKX

URGENT - IMMEDIATE BROADCAST REQUESTED
COASTAL HAZARD MESSAGE
NATIONAL WEATHER SERVICE NEW YORK NY
1109 PM EDT WED MAY 18 2011

...MINOR COASTAL FLOODING ACROSS COASTAL AREAS OF WESTERN LONG ISLAND SOUND...

NYZ179-190415-
/O.CAN.KOKX.CF.W.0004.000000T0000Z-110519T0400Z/
SOUTHERN NASSAU-
1109 PM EDT WED MAY 18 2011

...COASTAL FLOOD WARNING IS CANCELLED...

THE NATIONAL WEATHER SERVICE IN UPTON HAS CANCELLED THE COASTAL FLOOD WARNING.

HIGH TIDE HAS PASSED AND COASTAL FLOODING IS NO LONGER ANTICIPATED.

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NJZ006-NYZ072-074-075-080-178-190415-
/O.CAN.KOKX.CF.Y.0009.000000T0000Z-110519T0400Z/
HUDSON-NEW YORK (MANHATTAN)-RICHMOND (STATEN ISLAND)-
KINGS (BROOKLYN)-SOUTHWESTERN SUFFOLK-SOUTHERN QUEENS-
1109 PM EDT WED MAY 18 2011

...COASTAL FLOOD ADVISORY IS CANCELLED...

THE NATIONAL WEATHER SERVICE IN UPTON HAS CANCELLED THE COASTAL FLOOD ADVISORY.

HIGH TIDE HAS PASSED AND COASTAL FLOODING IS NO LONGER ANTICIPATED.

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CTZ009-010-NYZ071-073-078-176-177-190700-
/O.CON.KOKX.CF.Y.0009.000000T0000Z-110519T0700Z/
SOUTHERN FAIRFIELD-SOUTHERN NEW HAVEN-SOUTHERN WESTCHESTER-
BRONX-
NORTHWESTERN SUFFOLK-NORTHERN QUEENS-NORTHERN NASSAU-
1109 PM EDT WED MAY 18 2011

...COASTAL FLOOD ADVISORY REMAINS IN EFFECT UNTIL 3 AM EDT
THURSDAY...

A COASTAL FLOOD ADVISORY REMAINS IN EFFECT UNTIL 3 AM EDT
THURSDAY.

* LOCATIONS...COASTLINE ALONG WESTERN LONG ISLAND SOUND

* TIDAL DEPARTURES...AROUND 1 FT ABOVE NORMAL DURING THE TIMES
  OF HIGH TIDE TONIGHT.

* TIMING...11 PM TO 3 AM TONIGHT.

* IMPACTS...WIDESPREAD MINOR COASTAL FLOODING.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD ADVISORY INDICATES THAT ONSHORE WINDS AND TIDES
WILL COMBINE TO GENERATE FLOODING OF LOW AREAS ALONG THE SHORE.

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8. Example NWS Tide Report

SOUS42 KCHS 091315
TIDCHS
SCZ045-050-052-092000-

CHARLESTON TIDE REPORT
NATIONAL WEATHER SERVICE CHARLESTON SC
915 AM EDT SAT JUL 9 2011

HERE ARE THE NEXT FOUR PREDICTED TIDES IN THE CHARLESTON HARBOR.
THERE WILL BE A...HIGH TIDE AT 3:44 PM SAT FOLLOWED BY
A...LOW TIDE AT 10:02 PM SAT. THE NEXT HIGH TIDE WILL

BE AT 3:45 AM SUN AND THE NEXT LOW TIDE WILL BE
AT 10:08 AM SUN.

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PREDICTED TIDES ARE GIVEN IN MLLW.

TIDE:	SAT	3:44 PM 5.9 HIGH
	SAT	10:02 PM 0.3 LOW
	SUN	3:45 AM 5.0 HIGH
	SUN	10:08 AM -0.4 LOW

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9. Example Great Lakes Water Level Report

SXUS08 KDTX 281504
OMRDTX

GREAT LAKES WATER LEVELS
NATIONAL WEATHER SERVICE DETROIT/PONTIAC MI
725 AM EDT FRI JUL 1 2011

THE FOLLOWING ARE THE MEAN LAKE LEVELS FORECAST OVER THE NEXT WEEK.

LAKE LEVEL...	INCHES FROM CHART DATUM
SUPERIOR	-1
MICHIGAN AND HURON	9
ST CLAIR	30
ERIE	41
ONTARIO	44

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