

**NATIONAL WEATHER SERVICE INSTRUCTION 10-320**

**June 28, 2017**

**Operations and Services**

**Marine And Coastal Weather Services, NWSPD 10-3**

**SURF ZONE FORECAST AND COASTAL/LAKESHORE HAZARD SERVICES**

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**Certified by:** W/AFS26 (A. Allen)

**Type of Issuance:** Emergency

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**SUMMARY OF REVISIONS:** This instruction supersedes NWSI 10-320, “*Surf Zone Forecast and Coastal/Lakeshore Hazard Services*”, dated February 16, 2017. This instruction includes the following changes:

Section 3.13.4 - Added Tropical Cyclone Local Watch/Warning to section name and replaced the contents with references to the appropriate sections of NWSI 10-601.

Signed

6/14/2017

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Date

Director, Analyze, Forecast, and Support Office

**Surf Zone Forecast and Coastal/Lakeshore Hazard Services**

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## **1 Introduction**

This procedural directive describes routine and non-routine products issued by National Weather Service (NWS) Weather Forecast Offices (WFOs) and Weather Service Offices (WSOs) which are associated with the coastal/lakeshore (beach) and surf zone areas. The surf zone is the narrow area of water between high tide level on the beach and seaward side of the breaking waves. NWS beach and surf zone products are contained within the Surf Zone Forecast (no Valid Time and Event Code (VTEC)) and the Coastal / Lakeshore Hazard Message (VTEC). This instruction provides requirements and guidelines associated with these products, and detailed content and format. Great Lakes offices will issue a Lakeshore Hazard Message with coastal offices issuing a Coastal Hazard Message.

## **2 Surf Zone Forecast (product category SRF)**

### **2.1 Mission Connection**

The Surf Zone Forecast (SRF) provides valuable and life-saving information pertaining to hazards in the surf zone to the beachfront community, including the general public and providers of beachfront safety services, such as lifeguards.

### **2.2 Issuance Guidelines**

#### **2.2.1 Creation Software**

WFOs may produce the SRF using Advanced Weather Interactive Processing System (AWIPS) formatters, the AWIPS text editor, or any other text editor.

#### **2.2.2 Issuance Criteria**

The SRF should be issued for beach areas as defined by the local WFO in concert with Regional Headquarters. Regional and local WFO policy will govern the specific issuance criteria of the SRF. The main audience for the SRF is the public and local public safety officials. See section 2.3.3 for the content of the SRF.

#### **2.2.3 Issuance Time**

Regional policy will govern the issuance of the SRF. Based on user and partner needs and/or requirements, the SRF should be issued at least once per day on a seasonal basis (e.g., Memorial Day weekend through Labor Day); however, the SRF may be issued year round. The season should be determined by the WFO in coordination with neighboring offices and Regional Headquarters.

##### **2.2.3.1 Valid Time**

Surf Zone Forecasts are valid from the time of issuance until the expiration time.

#### **2.2.4 Universal Geographic Code (UGC)**

SRFs will contain land-based zone UGC codes.

#### **2.2.5 Product Expiration Time**

The SRF product expiration time is not more than 24 hours from the initial issuance.

## **2.3 Technical Description**

SRFs will follow the format and content described in this section.

### **2.3.1 Mass News Disseminator (MND) Broadcast Line**

None.

### **2.3.2 MND Header**

The SRF MND Header is “Surf Zone Forecast.”

### **2.3.3 Content**

SRF content should be developed in coordination with local safety agencies which have responsibility for beachfront safety. NWS Regions and WFOs / WSOs will determine the parameters to be included in the SRF. At a minimum, the SRF should contain any headlines for hazardous conditions and forecast information on the wave heights within the surf zone. WFOs / WSOs are encouraged to include additional information on weather conditions, beach/surf zone hazards, and other important beach / surf zone information that fit their local partner and user needs, e.g., rip currents, UV index, surf temperature and tides. For offices which issue the SRF on a seasonal basis, near the end of the season, the SRF should include a message indicating when it will end (current season) and when it will begin next season.

## **2.4 Format**

The SRF is a segmented, free-form, text product and will comply with the requirements of NWSI 10-1701, *Text Product Formats and Codes*. The product format follows, see Appendix A, pages A-2 and A-3 for examples.

This product is available in industry standard encoding and languages, such as American Standard Code for Information Interchange (ASCII), Extensible Markup Language (XML), Wireless Markup Language (WML), and Hypertext Markup Language (HTML).

<u>Product Format</u>	<u>Description of Entry</u>
FPaaii cccc ddhhmm SRF <sub>xxx</sub> <b>AWIPS ID</b>	<b>WMO Heading</b>
SURF ZONE FORECAST NATIONAL WEATHER SERVICE CITY STATE time am/pm lt day mon dd yyyy	<b>NWS Product Name</b> <b>Issuing Office</b> <b>Issuance Time/Date</b>
.FOR THE BEACHES of state...for day...	<b>Optional Statement</b>
stZXXX-XXX>XXX-ddhhmm- county-county-county-county- INCLUDING THE BEACHES OF city...city...city time am lt day mon dd yyyy	<b>UGC Type(Zone)&amp; Expiration Time</b> <b>County Names</b> <b>City Names</b> <b>Issuance Time/Date</b>
Significant Headlines or Long Duration Watches/Warnings Advisories...	
Beach/Surf Zone Hazards (such as)...	
Rip Currents and other dangerous currents...	
Unusual Waves...	
Lightning...	
Waterspout...	
Wave Height...	
Optional parameters as determined by a WFO or Region (such as)...	
Weather Forecast...Air Temperature...Sky Cover/Rain Chances...Wind Speed and Direction...	
Surf Temperature...	
Approximate Times for Tides...	
UV Index...	
\$\$	<b><i>This code ends zone segment</i></b>
FORECASTER ID	<b><i>Optional</i></b>
All times are local.	

**Figure 1:** Surf Zone Forecast (SRF) Format

## 2.5 Relationships Between the SRF and Other WFO products

### 2.5.1 Advisories or Warnings

Forecasters will not use SRFs to issue Advisories or Warnings.

### **2.5.1.1 Coastal Hazard Message (product category CFW)**

Current or expected issuance of Coastal Hazard Messages should be referenced within the SRF. For example, High Surf Advisories should be issued using the CFW but current or expected High Surf Advisories may be referenced within the SRF, as this would be of interest to the beachfront community. See section 3 for additional information regarding Coastal Hazard Messages and the relationship between the SRF and CFW.

When WFOs issue Coastal Flood Warnings, the next scheduled SRF may contain only the Coastal Flood Warning headline and refer users to the CFW product, with a statement such as: “Coastal Flood Warnings are currently in effect. The SRF will resume in its normal format after the Coastal Flood Warnings are discontinued.” See section 3 for additional detail.

### **2.5.1.2 Hazardous Weather Outlook (product category HWO)**

WFOs/WSOs forecasting a high risk of rip currents in the Day 1 forecast period of the SRF will include this information in the Day 1 Marine/Surf portion of the Hazardous Weather Outlook product (HWO); except in Pacific Region and Alaska Region, which do not issue HWOs. See NWSI 10-517, *Multi-purpose Weather Products Specification*. WFOs / WSOs forecasting a high risk of rip currents for the Day 2 period of the SRF with high confidence may include this in the Day 2 Marine/Surf portion of the Hazardous Weather Outlook (HWO).

### **2.5.1.3 Hurricane Local Statements (product category HLS)**

When WFOs/WSOs begin to issue HLSs (NWSI 10-601), the next scheduled SRF will contain only the tropical cyclone headlines and refer users to the HLS, with a statement such as:

“The regularly scheduled SRF will be discontinued as long as tropical cyclone watches and warnings are in effect for the County Warning Area (CWA). Refer to the HLS for the latest watches and warnings in the CWA. The SRF will resume in its normal format after tropical cyclone watches and warnings are discontinued for the CWA.”

Key information normally carried in the SRF, such as surf height and rip currents (as well as other surf zone hazards), should also be included in the HLS.

Pacific Region will continue to issue SRFs when HLSs are in effect.

## **2.6 Rip Currents**

The SRF is the primary product for providing routine rip current information. Rip current information in the SRF should be introduced using the phrase “Rip Current Risk” followed by the text qualifier (See 2.6.1 for definitions).

For the Great Lakes, information about dangerous currents and waves should be provided in the SRF using “Swim Risk”. See section 2.7.

When a Moderate or High Risk of Rip Currents is forecast, refer to section 2.5.1.1 for the appropriate way to reference in the CFW and section 2.5.1.2 for the appropriate way to reference in the HWO.

### **2.6.1 Three-Tiered Qualifiers**

Rip Current Outlooks in the SRF (and Rip Current Statement) will use the following, 3-tiered text qualifiers. The qualifiers indicate the likelihood of rip currents occurring. WFOs / WSOs should include the following definitions in their rip current associated text products:

**Low Risk.** The risk for rip currents is low, however, life threatening rip currents often occur in the vicinity of groins, jetties, reefs, and piers.

**Moderate Risk.** Life threatening rip currents are possible in the surf zone.

**High Risk.** Life threatening rip currents are likely in the surf zone.

### **2.6.2 Moderate or High Risk**

WFOs / WSOs forecasting a Moderate or High Risk of Rip Currents will headline this information in the SRF. To ensure maximum notification of users, WFOs / WSOs forecasting a Moderate or High Risk of Rip Currents will refer to section 2.5.1.1 for specifications on how it can be addressed in the CFW, and 2.5.1.2 for how to address in the HWO. Offices may include call to action statements in the SRF.

## **2.7 Swim Risk (Great Lakes)**

WFOs in the Great Lakes use the SRF as the primary product for providing routine information on swimming conditions (waves and currents). Swimming information in the SRF should be introduced using the phrase “Swim Risk” followed by the text qualifier (See 2.7.1 for definitions).

When a High Risk is forecast, refer to section 2.5.1.1 for the appropriate way to reference in the CFW and section 2.5.1.2 for the appropriate way to reference in the HWO.

### **2.7.1 Three- Tiered Qualifiers**

Swim Outlooks in the SRF (and Beach Hazard Statement) will use the following, 3-tiered text qualifiers. The qualifiers indicate the likelihood of dangerous waves and currents. WFOs should include the following definitions in their swim outlook associated text products:

**Low Risk -** Large waves and dangerous currents are not expected, however dangerous currents may exist at any time near piers, breakwalls, and river outlets.

**Moderate Risk –** Breaking waves and currents are expected.

**High Risk –** Life threatening waves and currents are expected.

### **2.7.2 High Risk**

WFOs forecasting a High Swim Risk will headline this information in the SRF. To ensure maximum notification of users, WFOs forecasting a High Swim Risk will refer to section 2.5.1.1 for specifications on how it can be addressed in the CFW, and 2.5.1.2 for how to address in the HWO. Offices may include call to action statements in the SRF.



**2.8 Updates, Amendments and Corrections**

SRFs will be updated when forecast conditions change significantly, especially when hazardous conditions arise. WFOs / WSOs will correct SRFs for format and grammatical errors.

**3 Coastal / Lakeshore Hazard Message (product category CFW)**

**3.1 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.

**3.2 CFW Products**

All CFW products contain VTEC except in Alaska Region where VTEC is not used in marine products. A single segmented product with more than one VTEC can be issued for situations with multiple hazards. See Appendix A, pages A-4 and A-5 for examples. The Event Names and Phenomena Codes are in Table 1.

**Table 1: CFW Products Table**

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 do not 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/BH.S	
Lakeshore Flood Advisory	/LS.Y/		
High Surf Advisory	/SU.Y/		

**3.3 Issuance Guidelines**

**3.3.1 Creation Software**

WFOs / WSOs will use AWIPS Interactive Forecast Preparation System (IFPS) Graphical Hazards Generation (GHG) software to generate CFW products. OCONUS WFOs / WSOs without GHG will use regionally approved software.

**3.3.2 Issuance Criteria**

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

### **3.3.3 Issuance Time**

CFW products are non-scheduled, event-driven products. WFOs / WSOs 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 / WSOs should issue updates at least every six to eight hours until the event ends or is canceled.

### **3.3.4 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.

### **3.3.5 Product Expiration Time**

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

### **3.3.6 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.

### **3.3.7 Warning, Advisory and 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.

## **3.4 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. See Appendix A, pages A-6 and A-7 for examples.

## **3.5 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. See Appendix A, pages A-8 and A-11 for examples.

## **3.6 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. See Appendix A, page A-12 for an example.

## **3.7 High Surf Advisory and Warning**

A High Surf Advisory is issued when breaking wave action in the surf zone becomes a threat to life and property along the coast.

A High Surf Warning is issued when breaking wave action results in an especially heightened threat to life and property along the coast. 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 / WSO.

### **3.7.1 High Surf and Rip Currents**

In many situations, life threatening rip currents occur along with high surf (advisory or warning) conditions. If rip currents are not the primary hazard, then rip current information can be included in a High Surf Advisory or Warning; however, the recommended method to handle this situation is to issue a High Surf Advisory / Warning (SU.Y or SU.W VTEC) in conjunction with a RP.S VTEC as a single segmented product. Both the High Surf and Rip Current Risk headlines should be headlined. See an example in Appendix A, page A-4. If rip currents are the primary hazard then rip current information should be issued using the Rip Current Statement (RP.S VTEC). See section 3.9 for more information on the Rip Current Statement.

### **3.8 Informational Statements**

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 2.5.1.3. A WFO / WSO may choose to not issue informational statements for coastal areas where the shoreline is unsuitable for recreational swimming or difficult to access.

#### **3.8.1 Increasing Awareness of Surf Zone and Beach Hazards**

To further heighten awareness of rip currents or other hazards not meeting Advisory / Warning criteria in the surf zone, WFOs / WSOs can issue appropriate information using the Rip Current Statement (rip currents only) or the Beach Hazards Statement (multiple or other hazards) which are contained within the Coastal/Lakeshore Hazard Message (CFW). The Beach Hazards Statement has been designed to issue information on multiple hazards. If surf conditions are unusual but do not meet criteria, that information may be included in the Beach Hazards Statement. Only rip current information should be included in the Rip Current Statement.

### **3.9 Rip Current Statement**

The Rip Current Statement (VTEC RP.S) informs the public and public safety officials about life threatening rip currents expected to occur. WFOs / WSOs will issue the Rip Current Statement to highlight an increased threat (moderate or high risk) from rip currents. Only rip current information should be included in the Rip Current Statement. Multiple hazards can be conveyed in the Beach Hazard Statement.

Rip Currents are the primary threat along coastal locations of the Gulf Coast and southern U.S. Atlantic. WFOs serving those areas will primarily issue the Rip Current Statement to highlight rip current information. Rip current information may also be highlighted in the Beach Hazard Statement or High Surf Advisory/Warning in certain situations (See section 3.10 for Beach Hazard Statement information and 3.7 for High Surf Advisory/Warning information).

WFOs should use the Surf Zone Forecast or the Beach Hazards Statement to highlight information on other surf zone or beach hazards.

WFOs / WSOs should work with their Regional Headquarters to define seasons in which they will issue the Rip Current Statements.

See Appendix A, pages A-16 and A-17 for examples of Rip Current Statement formatting and content.

### **3.10 Beach Hazards Statement (BHS)**

The Beach Hazards Statement (VTEC BH.S) highlights information on many different beach hazards that do not meet advisory or warning criteria. WFOs / WSOs will issue the BHS to provide additional, more targeted information to its users and partners on hazards along beach / coastal areas and the waters of the surf zone. The BHS can be issued for (but not limited to) dangerous currents in the surf zone, unusually cold water temperatures, potential for lightning along the beach / shoreline, or unusual surf / wave conditions which do not meet advisory criteria. In coordination with other agencies, the product may also be issued to inform users of various types of environmental hazards (e.g., chemical spills, harmful algal blooms, high bacteria levels in the water, or potentially hazardous marine wildlife which may be impacting the area). Regions and WFOs / WSOs should adapt the BHS to serve the needs of their users.

A BHS may be issued for “Dangerous Swimming Conditions” in the surf zone which are created by different types of hazards occurring simultaneously. Hazards such as rough surf, longshore currents, structural currents and rip currents can all combine to create dangerous swimming conditions.

Rip current information can be included in the BHS in forecast areas where rip currents often occur simultaneously along with other surf zone hazards. For example, coastal WFOs along the U.S. west coast and in the Great Lakes primarily use the BHS (in addition to the SRF) to highlight information on all surf zone and beach hazards because the hazards typically occur simultaneously. If rip currents are the only hazard, a Rip Current Statement (VTEC RP.S) should be issued to address the situation.

WFOs / WSOs should work with their Regional Headquarters to define seasons in which they will issue the BHS.

See Appendix A, pages A-18, A-19, and A-21 for examples of BHS formatting and content.

### **3.11 Technical Description**

CFWs follow the format and content described in this section.

#### **3.11.1 UGC Type**

CFWs will use the (Z) form of the UGC.

### 3.11.2 MND Broadcast Instruction Line

For watches and warnings, the phrase “URGENT – IMMEDIATE BROADCAST REQUESTED” is used.

### 3.11.3 MND Product Type Line

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

### 3.11.4 Content

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

#### 3.11.4.1 Overview Section

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

1. Overview Headline – 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...

2. 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.

#### 3.11.4.2 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.

1. Headline – The CFW headline will include the following elements in the order shown:
  - a. Leading ellipsis (...)
  - b. Valid event names listed in Table 1
  - c. Event action phrase defined in Table 2
  - d. General event beginning day and time phrase
  - e. General event ending day and time phrase
  - f. 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 CANCELED...

Event Action Phrase. The event action phrase in the CFW headline corresponds with the VTEC action code. Table 2 lists appropriate phrases for CFW headlines:

**Table 2: CFW Products Table**

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.		

2. Descriptive Text. This section will provide the following CFW information:
  - a. 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, RIP CURRENT, BEACH HAZARDS) (WATCH / WARNING / ADVISORY/RISK-STATEMENT\*).

\* RISK is used for RIP CURRENTS only

The attribution line is optional for subsequent issuances.

3. 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:
  - a. Cancellation
  - b. Warnings
  - c. Advisories
  - d. Watches
  - e. Informational
  
4. Order of Headlines. If multiple headlines are required in a single segment, then the order of headlines will follow the order of segments above.
  
5. 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 ANOMALY, RIP CURRENT RISK, etc.), Timing, Impact, or others as appropriate.

Each bulleted segment will be followed by:

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

Broadcast Instruction Line used only for watches and warnings.

### 3.11.5 Format

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

**Figure 2:** Generic Format for CFWs

### 3.12 Updates, Cancellations, and Corrections

WFOs / WSOs should 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 / WSOs will issue a CFW to upgrade an advisory to a warning or to downgrade a warning to an advisory.

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

### **3.13 Consistency with other NWS Products**

Forecasters will coordinate and ensure consistency among products within their WFO / WSO, and with neighboring WFOs / WSOs, the River Forecast Center(s) (RFC(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.

#### **3.13.1 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.

#### **3.13.2 Hazardous Weather Outlook (product category 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.

#### **3.13.3 Short Term Forecast (product category 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 / WSO. 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.

#### **3.13.4 Tropical Cyclone Local Watch/Warning Product and Hurricane Local Statement (product category TCV, HLS)**

For guidance on issuing CFW products during tropical cyclone events:

- For the Atlantic Basin and WFO Honolulu, see NWSI 10-601 section 1.1.3.7 Table 2A and 2B.
- For the Pacific Basin (except WFO Honolulu, see NWSI 10-601 section 1.3.3.13 Table 4).

## **4 Water Level Observations and Dissemination**

### **4.1 Tidal Observations**

Real-time access of accurate water-level data is especially important during times of exceptionally high tide. WFOs / WSOs 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/>.

### **4.2 NWS Tide Reports**

WFOs / WSOs that issue routine tide reports should issue them using the AWIPS product identifier TID. 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. See Appendix A, page A-21 for an example.

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

### **4.3 Great Lakes Water Levels**

Data for lake water levels are available from the U.S. Army Corps of Engineers and the NOS.

#### **4.3.1 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. See Appendix A, page A-22 for an example.

**Appendix A Examples of Surf Zone Forecasts and Coastal/Lakeshore Hazard Products**

1 Surf Zone Forecast.....A-2

    Example 1 – Headlining High Surf Advisory, High Risk of Rip Currents,  
        and Minor Coastal Flooding..... A-2

    Example 2 – Moderate Risk of Rip Currents Decreasing.....A-3

2 Multiple CFW VTECs in a Single Product..... A-4

    Example 1 – High Surf Advisory and Rip Current Statement.....A-4

    Example 2 – Coastal Flood Advisory and Rip Current Statement..... A-5

3 Coastal / Lakeshore Flood Watch, Warnings and Advisories.....A-6

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5 NWS Tide Report..... A-22

6 Great Lakes Water Level Report..... A-23



TIDES FOR JUN 19, 2016

AT SAINT SIMONS ISLAND...

LOW TIDE AT 2:33 AM.  
HIGH TIDE AT 8:15 AM.  
LOW TIDE AT 2:24 PM.

\$\$

**Example 2: Moderate Risk of Rip Currents Decreasing**

FZMY50 PGUM 310455  
SRFMY

SURF ZONE FORECAST FOR GUAM AND THE NORTHERN MARIANA ISLANDS  
NATIONAL WEATHER SERVICE TIYAN GU  
255 PM CHST THU MAR 31 2016

.SYNOPSIS...THE RISK OF RIP CURRENTS WILL BE MODERATE ALONG  
EAST FACING REEFS THROUGH FRIDAY...THEN DECREASE TO LOW FRIDAY  
NIGHT OR SATURDAY.

\$\$

GUZ001>004-312000-  
GUAM-ROTA-TINIAN-Saipan-  
255 PM CHST THU MAR 31 2016

.FRIDAY...

COASTAL WINDS.....EAST AT 10 TO 15 MPH.  
SURF ALONG NORTH FACING REEFS.....2 TO 4 FEET.  
SURF ALONG EAST FACING REEFS.....4 TO 6 FEET.  
SURF ALONG SOUTH FACING REEFS.....1 TO 3 FEET.  
SURF ALONG WEST FACING REEFS.....1 TO 3 FEET.  
PRIMARY SWELL.....EAST AT 3 TO 5 FEET.  
PRIMARY PERIOD..... 8 SECONDS.  
SECONDARY SWELL..... NORTH AT AROUND 2 FEET.  
SECONDARY PERIOD.....12 SECONDS.

RIP CURRENT RISK....MODERATE. WAVE CONDITIONS SUPPORT STRONGER OR  
MORE FREQUENT RIP CURRENTS. ALWAYS HAVE A  
FLOTATION DEVICE WITH YOU IN THE WATER.

SEA SURFACE TEMPERATURE AT TANAPAG BUOY...82 DEGREES.  
MAXIMUM AFTERNOON HEAT INDEX.....AROUND 96.

.OUTLOOK...LITTLE CHANGE SATURDAY.

TIDE INFORMATION FOR THE NEXT 24 HOURS...

AT APRA HARBOR, GUAM...

LOW TIDE 0.2 FEET AT 7:21 PM THURSDAY

HIGH TIDE 2.0 FEET AT 2:44 AM FRIDAY

LOW TIDE 1.4 FEET AT 8:01 AM FRIDAY

HIGH TIDE 2.0 FEET AT 12:56 PM FRIDAY

\$\$

## 2 Multiple CFW VTECs in a single product

### Example 1: High Surf Advisory and Rip Current Statement

WHUS42 KJAX 160657

CFWJAX

COASTAL HAZARD MESSAGE

NATIONAL WEATHER SERVICE JACKSONVILLE FL

257 AM EDT SAT APR 16 2016

FLZ033-038-124-125-GAZ154-166-170000-

/O.NEW.KJAX.SU.Y.0002.160416T0657Z-160417T0000Z/

/O.EXT.KJAX.RP.S.0004.000000T0000Z-160418T0000Z/

ST. JOHNS-FLAGLER-COASTAL NASSAU-COASTAL DUVAL-COASTAL GLYNN-

COASTAL CAMDEN-

257 AM EDT SAT APR 16 2016

...HIGH SURF ADVISORY IN EFFECT UNTIL 8 PM EDT THIS EVENING...

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

THE NATIONAL WEATHER SERVICE IN JACKSONVILLE HAS ISSUED A HIGH SURF ADVISORY...WHICH IS IN EFFECT UNTIL 8 PM EDT THIS EVENING.

\* WAVES AND SURF...BREAKERS WILL BE UP TO 7 FEET.

\* TIMING...THROUGH THIS EVENING.

\* IMPACTS...LIFE THREATENING RIP CURRENTS ARE LIKELY IN THE SURF ZONE. ROUGH SURF MAY ALSO KNOCK YOU DOWN. REMEMBER TO HEED THE ADVICE OF THE LOCAL BEACH PATROL AND FLAG WARNING SYSTEMS. MINOR BEACH EROSION MAY OCCUR DUE TO THE HIGH SURF.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

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. DO NOT ATTEMPT TO SAVE SOMEONE IN PERIL IF YOU DO NOT KNOW HOW TO ESCAPE RIP CURRENTS

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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**Example 2: Coastal Flood Advisory and Rip Current Statement**

WHUS42 KCHS 191939  
CFWCHS

URGENT - IMMEDIATE BROADCAST REQUESTED  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE CHARLESTON SC  
339 PM EDT SUN JUN 19 2016

GAZ117-119-139-141-SCZ051-200345-  
/O.NEW.KCHS.CF.Y.0016.160619T2300Z-160620T0300Z/  
/O.EXT.KCHS.RP.S.0005.000000T0000Z-160621T0000Z/  
COASTAL BRYAN-COASTAL CHATHAM-COASTAL LIBERTY-COASTAL MCINTOSH-  
COASTAL JASPER-  
339 PM EDT SUN JUN 19 2016

...HIGH RIP CURRENT RISK NOW IN EFFECT THROUGH MONDAY EVENING...  
...COASTAL FLOOD ADVISORY IN EFFECT FROM 7 PM TO 11 PM EDT THIS  
EVENING...

THE NATIONAL WEATHER SERVICE IN CHARLESTON HAS ISSUED A COASTAL  
FLOOD ADVISORY...WHICH IS IN EFFECT FROM 7 PM TO 11 PM EDT THIS  
EVENING.

\* LOCATION...LOW-LYING COASTAL AREAS OF SOUTHEAST GEORGIA AS WELL  
AS COASTAL PORTIONS OF JASPER COUNTY...SOUTH CAROLINA.

\* TIDE LEVELS...WATERS LEVELS ARE EXPECTED TO PEAK AROUND 9.2 FT  
MEAN LOWER LOW WATER AT FORT PULASKI...RESULTING IN SHALLOW  
COASTAL FLOODING.

\* TIMING...THE HIGHEST WATER LEVELS WILL OCCUR WITHIN AN HOUR OF HIGH TIDE. HIGH TIDE AT FORT PULASKI WILL OCCUR AROUND 831 PM.

\* IMPACTS...INUNDATION OF SALTWATER IN AND NEAR LOW-LYING COASTAL AREAS COULD LEAD TO SOME ROAD CLOSURES AND FLOODING OF PROPERTIES. HIGHWAY 80 BETWEEN WILMINGTON ISLAND AND TYBEE ISLAND SHOULD REMAIN OPEN.

\* RIP CURRENTS...WIND AND WAVE CONDITIONS SUPPORT THE DEVELOPMENT OF VERY STRONG RIP CURRENTS WHICH WILL BE LIFE-THREATENING TO ANYONE WHO ENTERS THE SURF.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

NO ONE SHOULD ENTER THE SURF DUE TO STRONG CURRENTS.

BE PREPARED FOR THE POSSIBILITY OF ROAD CLOSURES AND MINOR FLOODING OF PROPERTIES. IF TRAVEL IS NECESSARY...DO NOT ATTEMPT TO DRIVE THROUGH WATER OF UNKNOWN DEPTH.

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### **3 Coastal/Lakeshore Flood Watch, Warnings and Advisories**

#### **Example 1: Lakeshore Flood Watch**

WHUS41 KCLE 012005  
CFWCLE

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE CLEVELAND OH  
405 PM EDT THU OCT 1 2015

...STRONG EAST TO NORTHEAST WINDS MAY BRING COASTAL FLOODING...

.STRONG HIGH PRESSURE IN EASTERN CANADA AND LOW PRESSURE MOVING UP THE SOUTHEASTERN COAST WILL CAUSE NORTHEAST WINDS ON LAKE ERIE TO INCREASE TO 30 KNOTS WITH HIGHER GUSTS BEGINNING TODAY. THIS WILL CONTINUE INTO SATURDAY AND WILL CAUSE LAKE LEVELS TO RISE ON THE WESTERN BASIN TO BETWEEN 5 AND 6 FEET ABOVE LOW WATER DATUM BEGINNING THIS EVENING. IN ADDITION WAVES OF UP TO 10 FEET WILL CONTRIBUTE TO LAKESHORE FLOODING AND BEACH EROSION.



OHZ003-007>009-020415-  
/O.CON.KCLE.CF.A.0001.151002T0100Z-151003T1400Z/  
LUCAS-OTTAWA-SANDUSKY-ERIE OH-  
405 PM EDT THU OCT 1 2015

...COASTAL FLOOD WATCH REMAINS IN EFFECT FROM 9 PM EDT THIS  
EVENING THROUGH SATURDAY MORNING...

\* COASTAL FLOODING...STRONG NORTHEAST WINDS...RISING LAKE LEVELS  
AND WAVES REACHING 10 FEET WILL COMBINE TO INCREASE THE THREAT  
OF LAKESHORE FLOODING AND SIGNIFICANT BEACH EROSION.

\* TIMING...THIS EVENING THROUGH SATURDAY MORNING.

\* IMPACTS...BEACH EROSION AND COASTAL FLOODING IS POSSIBLE.

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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### **Example 2: Coastal Flood Watch**

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE EUREKA CA  
1216 PM PST WED DEC 9 2015

...LARGE SWELL TO IMPACT NORTHWEST CALIFORNIA BEACHES BRINGING  
ENHANCED WAVE RUNUP...

CAZ001-002-100430-  
/O.CON.KEKA.CF.A.0001.151210T1600Z-151210T2100Z/  
REDWOOD COAST-MENDOCINO COAST-  
1216 PM PST WED DEC 9 2015

...COASTAL FLOOD WATCH REMAINS IN EFFECT FROM THURSDAY MORNING  
THROUGH THURSDAY AFTERNOON...

\* COASTAL FLOODING...HIGH ASTRONOMICAL TIDES COMBINED WITH A LARGE SWELL IMPACTING THE NORTHWEST CALIFORNIA COAST MAY RESULT IN COASTAL FLOODING. WAVE RUNUP WILL BE GREATER THAN NORMAL WITH BREAKER HEIGHTS BUILDING TO OVER 20 FEET NEAR THE TIME OF HIGH TIDE. BREAKERS BETWEEN 25 AND 32 FEET WILL BE POSSIBLE THURSDAY AFTERNOON AND NIGHT.

\* TIMING...HIGH TIDE IS BETWEEN 9 AND 11 AM ALONG THE NORTHWEST CALIFORNIA COAST. FLOODING MAY BEGIN AN HOUR BEFORE OR CONTINUE FOR AN HOUR OR TWO AFTER HIGH TIDE.

\* IMPACTS...LOW LYING AREAS MAY EXPERIENCE MINOR FLOODING INCLUDING...BUT NOT LIMITED TO...ROADWAYS IN KING SALMON AND THE ARCATA BOTTOMS. WAVE RUNUP MAY CAUSE WATER TO WASH ONTO SOME NEAR COASTAL ROADS AND PARKING LOTS.

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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### **Example 3: Coastal Flood Warning and Advisory**

WHUS41 KBOX 260903  
CFWBOX

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE TAUNTON MA  
503 AM EDT WED MAR 26 2014

...MINOR TO MODERATE COASTAL FLOODING IS EXPECTED DURING THE MORNING HIGH TIDE CYCLE ACROSS MANY NORTH AND EAST FACING COASTLINES FROM BOSTON TO NANTUCKET...

A VERY POWERFUL OCEAN STORM WILL PRODUCE A STORM SURGE OF 2 TO 3 FEET AND WAVES 15 TO 25 FEET A SHORT DISTANCE OFFSHORE. HIGHEST SURGE AND WAVE ACTION WILL BE IN THE VICINITY OF THE CAPE AND NANTUCKET...WHERE A COASTAL FLOOD WARNING REMAINS IN EFFECT. A COASTAL FLOOD ADVISORY REMAINS POSTED FOR BOSTON TO PLYMOUTH AND

THE NORTHEAST AND EAST FACING SHORELINE OF MARTHA/S VINEYARD.

MAZ022-024-261400-  
/O.CON.KBOX.CF.W.0002.140326T1000Z-140326T1400Z/  
BARNSTABLE MA-NANTUCKET MA-  
503 AM EDT WED MAR 26 2014

...COASTAL FLOOD WARNING REMAINS IN EFFECT UNTIL 10 AM EDT THIS MORNING...

- \* LOCATION...NORTH SIDE AND OCEAN SIDE OF CAPE COD AND THE NORTH AND EAST SHORELINES OF NANTUCKET.
- \* COASTAL FLOODING...MINOR TO MODERATE COASTAL FLOODING IS EXPECTED. A STORM SURGE OF 2.5 TO 3 FEET IS LIKELY WITH WAVES UP TO 25 FEET JUST EAST OF CAPE COD AND NANTUCKET.
- \* TIMING...AROUND THE TIME OF THE MORNING HIGH TIDE WHICH OCCURS 8 TO 9 AM AT MOST LOCATIONS IN THE WARNING AREA.
- \* IMPACTS...A NUMBER OF VULNERABLE SHORE ROADS INCLUDING SEVERAL ABOUT THE NANTUCKET HARBOR AREA WILL BE SUBJECT TO FLOODING. SIGNIFICANT EROSION IS ALSO LIKELY ALONG THE CAPE COD BAY AND OCEAN SIDES OF CAPE COD AS WELL AS THE EAST SIDE OF NANTUCKET.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD WARNING IS ISSUED WHEN MODERATE OR MAJOR COASTAL FLOODING IS EXPECTED. MODERATE COASTAL FLOODING PRODUCES WIDESPREAD FLOODING OF VULNERABLE SHORE ROADS AND/OR BASEMENTS DUE TO THE HEIGHT OF STORM TIDE AND/OR WAVE ACTION. NUMEROUS ROAD CLOSURES ARE NEEDED. LIVES MAY BE AT RISK FOR PEOPLE WHO PUT THEMSELVES IN HARMS WAY. ISOLATED STRUCTURAL DAMAGE MAY BE OBSERVED.

&&

&&

ALL TIDE HEIGHTS ARE RELATIVE TO MEAN LOWER LOW WATER.  
TIME OF HIGH TOTAL TIDES ARE APPROXIMATE TO THE NEAREST HOUR.

SANDWICH HARBOR

TOTAL	ASTRO				
TIDE	DAY/TIME	TIDE	SURGE	WAVES	FLOOD

/FT/ /FT/ /FT/ /FT/ CATEGORY

\$\$

MAZ015-016-019-023-261400-  
/O.CON.KBOX.CF.Y.0004.140326T1000Z-140326T1400Z/  
SUFFOLK MA-EASTERN NORFOLK MA-EASTERN PLYMOUTH MA-DUKES MA-  
503 AM EDT WED MAR 26 2014

...COASTAL FLOOD ADVISORY REMAINS IN EFFECT UNTIL 10 AM EDT THIS  
MORNING...

\* LOCATION...MASSACHUSETTS EAST COAST FROM BOSTON TO PLYMOUTH.

\* COASTAL FLOODING...MINOR COASTAL FLOODING IS LIKELY. AN  
ISOLATED POCKET OF MODERATE COASTAL FLOODING IS POSSIBLE  
BETWEEN HULL AND PLYMOUTH.

\* TIMING...AROUND THE TIME OF THE MORNING HIGH TIDE WHICH OCCURS  
NEAR 8 AM AT MOST LOCATIONS IN THE ADVISORY AREA.

\* IMPACTS...FLOODING OF ESPECIALLY VULNERABLE SHORE ROADS MAY  
CAUSE BRIEF CLOSURES AROUND THE TIME OF HIGH TIDE. SOME  
EROSION IS ALSO POSSIBLE TO SHORELINES EXPOSED TO HIGH WAVE  
ACTIVITY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A COASTAL FLOOD ADVISORY IS ISSUED FOR MINOR COASTAL FLOODING OF  
THE MOST VULNERABLE SHORE ROADS AND/OR BASEMENTS DUE TO THE  
HEIGHT OF STORM TIDE OR WAVE SPLASHOVER. THE MAJORITY OF ROADS  
REMAIN PASSABLE WITH ONLY ISOLATED CLOSURES. THERE IS NO  
SIGNIFICANT THREAT TO LIFE AND ANY IMPACT ON PROPERTY IS MINIMAL.

&&

&&

ALL TIDE HEIGHTS ARE RELATIVE TO MEAN LOWER LOW WATER.  
TIME OF HIGH TOTAL TIDES ARE APPROXIMATE TO THE NEAREST HOUR.

TOTAL	ASTRO				FLOOD
TIDE	DAY/TIME	TIDE	SURGE	WAVES	
/FT/	/FT/	/FT/	/FT/	CATEGORY	

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**Example 4: Lakeshore Flood Warning**

WHUS41 KBUF 102207  
CFWBUF

URGENT - IMMEDIATE BROADCAST REQUESTED  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE BUFFALO NY  
507 PM EST SUN JAN 10 2016

NYZ010-019-085-110300-  
/O.UPG.KBUF.LS.Y.0001.000000T0000Z-160111T0300Z/  
/O.NEW.KBUF.LS.W.0001.160110T2207Z-160111T0300Z/  
NORTHERN ERIE-CHAUTAUQUA-SOUTHERN ERIE-  
507 PM EST SUN JAN 10 2016

...LAKESHORE FLOOD WARNING IN EFFECT UNTIL 10 PM EST THIS  
EVENING...

THE NATIONAL WEATHER SERVICE IN BUFFALO HAS ISSUED A LAKESHORE  
FLOOD WARNING...WHICH IS IN EFFECT UNTIL 10 PM EST THIS EVENING.  
THE LAKESHORE FLOOD ADVISORY IS NO LONGER IN EFFECT.

\* LOCATIONS...LAKE ERIE SHORE IN CHAUTAUQUA AND ERIE COUNTIES.

\* LAKE SHORE FLOODING...STRONG WINDS BEHIND A COLD FRONT HAVE  
PUSHED WATER LEVELS UP TO NEAR 8 FEET ABOVE LOW WATER DATUM AT  
BUFFALO. WATER LEVELS SHOULD LEVEL OFF BETWEEN 8 AND 9 FEET THIS  
EVENING BEFORE DIMINISHING BY 10 PM.

\* TIMING...THROUGH LATE THIS EVENING.

\* IMPACTS...ELEVATED WATER LEVELS COULD POSE A HAZARD TO ANY  
REMAINING DOCKED BOATS AND VESSELS IN AREA HARBORS. ANYONE NEAR  
OR AT THE SHORELINE SHOULD BE PREPARED FOR SUCH ELEVATED WATER  
LEVELS. ROUTE 5 IN THE TOWN OF HAMBURG MAY BE IMPACTED. WAVES  
ARE EXPECTED TO BUILD TO 12 TO 15 FEET WHICH MAY SPLASH OVER IN  
LOCATIONS TYPICALLY VULNERABLE...EVEN AFTER THE LAKE LEVELS  
BEGIN TO FALL.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A LAKESHORE FLOOD WARNING MEANS LAKESHORE FLOODING IS OCCURRING,

IS IMMINENT, OR IS EXPECTED TO OCCUR. PEOPLE IN THE WARNING AREA SHOULD TAKE IMMEDIATE ACTION TO PROTECT LIFE AND PROPERTY. LISTEN TO LOCAL RADIO...TELEVISION...OR NOAA WEATHER RADIO FOR FURTHER INFORMATION.

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**Example 5: Lakeshore Flood Advisory**

WHUS43 KIWX 101550  
CFWIWX

LAKESHORE HAZARD MESSAGE  
NATIONAL WEATHER SERVICE NORTHERN INDIANA  
1050 AM EST SUN JAN 10 2016

INZ003-MIZ077-110000-  
/O.CON.KIWX.LS.Y.0001.000000T0000Z-160111T0000Z/  
LA PORTE-BERRIEN-  
1050 AM EST SUN JAN 10 2016 /950 AM CST SUN JAN 10 2016/

...LAKESHORE FLOOD ADVISORY REMAINS IN EFFECT UNTIL 7 PM EST  
/6 PM CST/ THIS EVENING...

\* LAKE SHORE FLOODING...NORTHWEST GALES AND 8 TO 12 FOOT WAVES  
WILL RESULT IN SOME BEACH EROSION AND MINOR LAKESHORE FLOODING  
TODAY.

\* IMPACTS...THE COMBINATION OF HIGH WAVES... ONSHORE WINDS... AND  
HIGH LAKE WATER LEVELS WILL RESULT IN SOME BEACH EROSION AND  
MINOR FLOODING ALONG THE LAKESHORE. THE HIGH WAVES WILL WASH  
OVER PIERS AND JETTIES.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A LAKESHORE FLOOD ADVISORY INDICATES THAT STRONG ONSHORE WINDS  
WILL GENERATE FLOODING OF LOW AREAS ALONG THE LAKESHORE. PEOPLE  
SHOULD STAY OFF PIERS AND JETTIES TO AVOID BEING SWEEPED INTO THE  
LAKE.

&&

\$\$

**Example 6: Coastal Hazard Message with Multiple Functions**

WHUS41 KOKX 240426  
CFWOKX

URGENT - IMMEDIATE BROADCAST REQUESTED  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE NEW YORK NY  
1126 PM EST SAT JAN 23 2016

...SOME REMAINING COASTAL FLOODING AND CONTINUED ROUGH SURF...

NYZ179-241230-  
/O.CAN.KOKX.CF.W.0003.000000T0000Z-160124T0500Z/  
/O.NEW.KOKX.CF.Y.0004.160124T1100Z-160124T1700Z/  
/O.CON.KOKX.SU.Y.0001.000000T0000Z-160124T2300Z/  
SOUTHERN NASSAU-  
1126 PM EST SAT JAN 23 2016

...HIGH SURF ADVISORY REMAINS IN EFFECT UNTIL 6 PM EST SUNDAY...  
...COASTAL FLOOD ADVISORY IN EFFECT FROM 6 AM TO NOON EST  
SUNDAY...  
...COASTAL FLOOD WARNING THAT WAS IN EFFECT FOR TONIGHT IS  
CANCELLED...

THE NATIONAL WEATHER SERVICE IN UPTON HAS ISSUED A COASTAL FLOOD  
ADVISORY...WHICH IS IN EFFECT FROM 6 AM TO NOON EST SUNDAY. THE  
COASTAL FLOOD WARNING THAT WAS IN EFFECT FOR TONIGHT HAS BEEN  
CANCELLED AS HIGH TIDE TONIGHT HAS PASSED.

\* LOCATIONS...COASTAL LOCATIONS ADJACENT TO THE SOUTH SHORE OF  
NASSAU COUNTY ON LONG ISLAND.

\* TIDAL DEPARTURES...TIDAL DEPARTURES OF 2 TO 3 FEET ABOVE  
ASTRONOMICAL TIDES.

\* TIMING...MINOR COASTAL FLOODING FOR SUNDAY MORNING HIGH TIDE  
CYCLE.

\* BEACH IMPACTS...ELEVATED WATER LEVELS AND LARGE BREAKING WAVES  
ON THE SHORE OF LONG ISLAND MAY RESULT IN EROSION OF DUNES AND  
LOCALIZED OVERWASH FOR THE BARRIER BEACHES.

\* COASTAL FLOOD IMPACTS...FLOODING OF THE MOST VULNERABLE SHORE

ROADS AND/OR BASEMENTS DUE TO HEIGHT OF STORM TIDE OR WAVE SPLASHOVER. MAJORITY OF ROADS REMAIN PASSABLE. THERE IS NO SIGNIFICANT THREAT TO LIFE AND ANY IMPACT ON PROPERTY IS MINIMAL.

...SOUTH SHORE BAYS WATER LEVELS FOR SUNDAY MORNING...

COASTAL.....	TIME OF.....	FORECAST TOTAL.....	FLOOD.....
LOCATION.....	HIGH TIDE.....	WATER LEVEL.....	CATEGORY..
.....(MLLW/NGVD).....			

FREEPORT GAUGE NY....	821 AM.....	5.3-5.7/4.5-4.9.....	MINOR.....
POINT LOOKOUT NY.....	724 AM.....	5.9-6.3/.....	MINOR.....
JAMAICA BAY NY.....	823 AM.....	7.9-8.3/.....	MINOR.....
E ROCKAWAY NY.....	730 AM.....	6.3-6.7/.....	MINOR.....

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.

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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**Example 7: Lakeshore Hazard Message to Cancel Lakeshore Warning**

WHUS43 KIWX 252104  
CFWIWX

LAKESHORE HAZARD MESSAGE  
NATIONAL WEATHER SERVICE NORTHERN INDIANA  
404 PM EST THU FEB 25 2016

INZ003-MIZ077-252215-  
/O.CAN.KIWX.LS.W.0001.000000T0000Z-160226T0300Z/  
LA PORTE-BERRIEN-  
404 PM EST THU FEB 25 2016 /304 PM CST THU FEB 25 2016/

...LAKESHORE FLOOD WARNING IS CANCELLED...

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



THE THREAT OF LAKESHORE FLOODING HAS DIMINISHED ALONG THE SOUTHEASTERN SHORES OF LAKE MICHIGAN. THEREFORE THE LAKESHORE FLOOD WARNING HAS BEEN CANCELLED. WAVE HEIGHTS WILL CONTINUE TO SLOWLY SUBSIDE.

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**Example 8: High Surf Advisory**

WHHW40 PHFO 021330  
CFWHFO  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE HONOLULU HI  
330 AM HST TUE FEB 2 2016

...HIGH SURF ADVISORY FOR NORTH AND WEST FACING SHORES OF NIIHAU KAUAI OAHU AND MOLOKAI AND FOR NORTH FACING SHORES OF MAUI...

.THE CURRENT LARGE NORTHWEST SWELL WILL CONTINUE ACROSS MOST NORTH AND WEST FACING SHORES OF THE SMALLER ISLANDS THIS MORNING. A REINFORCING NORTHWEST SWELL ARRIVING LATER TODAY WILL LEAD TO ANOTHER BOOST OF SURF HEIGHTS...POSSIBLY REACHING THE HIGH SURF WARNING CRITERIA ALONG SOME SHORELINES...LATE THIS AFTERNOON OR THIS EVENING.

HIZ001>003-006>008-012-013-017-019-020-030230-  
/O.CON.PHFO.SU.Y.0011.000000T0000Z-160203T1600Z/  
NIIHAU-KAUAI WINDWARD-KAUAI LEEWARD-WAIANAE COAST-  
OAHU NORTH SHORE-OAHU KOOLAU-MOLOKAI WINDWARD-MOLOKAI  
LEEWARD-  
MAUI WINDWARD WEST-MAUI CENTRAL VALLEY-WINDWARD HALEAKALA-  
330 AM HST TUE FEB 2 2016

...HIGH SURF ADVISORY REMAINS IN EFFECT UNTIL 6 AM HST WEDNESDAY...

\* SURF...ALONG NORTH FACING SHORES OF NIIHAU KAUAI OAHU MOLOKAI AND MAUI...15 TO 20 FEET THIS MORNING...THEN BUILDING TO 20 TO 24 FEET THIS AFTERNOON AND EVENING. ALONG WEST FACING SHORES OF NIIHAU KAUAI OAHU AND MOLOKAI...10 TO 14 FEET THIS MORNING... THEN BUILDING TO 12 TO 18 FEET THIS AFTERNOON AND EVENING.

\* TIMING...THROUGH EARLY WEDNESDAY MORNING.

\* IMPACTS...MODERATE...EXPECT STRONG BREAKING WAVES...SHORE BREAK...AND STRONG LONGSHORE AND RIP CURRENTS MAKING SWIMMING DIFFICULT AND DANGEROUS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

BEACHGOERS...SWIMMERS...AND SURFERS SHOULD HEED ALL ADVICE GIVEN BY OCEAN SAFETY OFFICIALS AND EXERCISE CAUTION.

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#### **4 Informational Statements**

##### **Example 1: Rip Current Statement**

URGENT - IMMEDIATE BROADCAST REQUESTED  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE MIAMI FL  
415 AM EDT TUE MAY 3 2016

FLZ172-173-031800-  
/O.CON.KMFL.RP.S.0022.000000T0000Z-160503T1800Z/  
COASTAL BROWARD-COASTAL MIAMI-DADE-  
415 AM EDT TUE MAY 3 2016

...HIGH RIP CURRENT RISK REMAINS IN EFFECT UNTIL 2 PM EDT THIS AFTERNOON...

\* TIMING...THROUGH EARLY AFTERNOON.

\* IMPACTS...RIP CURRENTS WILL CONTINUE TO CREATE DANGEROUS CONDITIONS FOR SWIMMERS ALONG THE BEACHES OF BROWARD AND MIAMI-DADE COUNTIES.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

THERE IS A HIGH RISK OF RIP CURRENTS.

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...BEACH PATROL  
FLAGS AND SIGNS.

IF YOU BECOME CAUGHT IN A RIP CURRENT...YELL FOR HELP. REMAIN  
CALM...DO NOT EXHAUST YOURSELF AND STAY AFLOAT WHILE WAITING FOR  
HELP. IF YOU HAVE TO SWIM OUT OF A RIP CURRENT...SWIM PARALLEL TO  
SHORE AND BACK TOWARD THE BEACH WHEN POSSIBLE. DO NOT ATTEMPT TO  
SWIM DIRECTLY AGAINST A RIP CURRENT AS YOU WILL TIRE QUICKLY.

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**Example 2: Rip Current Statement Highlighting Beach Flags and Closing of a Beach**

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE TALLAHASSEE FL  
709 AM EDT MON APR 7 2014

...THERE IS A HIGH RISK OF RIP CURRENTS AT THE BEACHES OF THE FLORIDA  
BIG BEND AND PANHANDLE TODAY...

...THERE IS A HIGH RISK OF RIP CURRENTS AT THE BEACHES OF BAY AND GULF  
COUNTIES ON TUESDAY AND A MODERATE RISK OF RIP CURRENTS AT THE  
BEACHES OF WALTON AND FRANKLIN COUNTIES...

.A DEVELOPING LOW PRESSURE SYSTEM OFF TO OUR WEST WILL MOVE  
NORTHEASTWARD INTO THE OHIO RIVER VALLEY TODAY. A LONG AND  
PERSISTENT FETCH OF INCREASING SOUTHEAST TO SOUTHERLY WINDS ARE  
EXPECTED TO REACH 15 TO 20 MPH WITH HIGHER GUSTS AT THE AREA BEACHES.  
THIS WILL PRODUCE A LARGE AREA OF BREAKING WAVES OF 3 TO 5 FEET WITH  
SOME HIGHER SETS AT THE PANHANDLE BEACHES TODAY AND 2 TO 4 FEET  
WITH HIGHER SETS AT THE BIG BEND BEACHES. ALTHOUGH WINDS WILL  
BECOME BRIEFLY OFFSHORE ACROSS THE BEACHES LATER TONIGHT AND ON  
TUESDAY...THEY ARE EXPECTED TO INCREASE OUT OF THE WEST AGAIN BY  
LATE IN THE DAY. THEREFORE...WE STILL EXPECT A HIGH RISK OF RIP  
CURRENTS TO CONTINUE AT THE BAY AND GULF COUNTY BEACHES ON  
TUESDAY...WITH A DECREASE TO A MODERATE RISK AT THE BEACHES OF  
WALTON AND FRANKLIN COUNTIES.

FLZ108-112-114-115-081100-  
/O.NEW.KTAE.RP.S.0022.140407T1200Z-140408T1100Z/  
SOUTH WALTON-COASTAL BAY-COASTAL GULF-COASTAL FRANKLIN-  
709 AM EDT MON APR 7 2014 /609 AM CDT MON APR 7 2014/

...A HIGH RIP CURRENT RISK IS IN EFFECT THROUGH TUESDAY MORNING...

THE NATIONAL WEATHER SERVICE IN TALLAHASSEE HAS ISSUED A HIGH RIP CURRENT RISK...WHICH IS IN EFFECT THROUGH TUESDAY MORNING.

\* LOCATION...THE BEACHES OF WALTON...BAY...GULF...AND FRANKLIN COUNTIES.

\* TIMING...TODAY AND TONIGHT.

\* BEACH FLAGS...FORECAST TO BE DOUBLE RED WITH THE BEACHES CLOSED.

\* SURF...3 TO 5 FEET WITH HIGHER SETS AT THE PANHANDLE BEACHES AND 2 TO 4 FEET.

\* IMPACTS...THE SURF AND RIP CURRENTS WILL BE LIFE THREATENING TO ANYONE ENTERING THE WATER TODAY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

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**Example 3: Beach Hazards Statement for Dangerous Swimming Conditions**

WHUS43 KGRR 061949  
CFWGRR

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE GRAND RAPIDS MI  
349 PM EDT MON JUN 6 2016

MIZ037-043-050-056-064-071-070400-  
/O.NEW.KGRR.BH.S.0003.160607T0900Z-160608T0000Z/  
MASON-OCEANA-MUSKEGON-OTTAWA-ALLEGAN-VAN BUREN-  
349 PM EDT MON JUN 6 2016

...BEACH HAZARDS STATEMENT IN EFFECT FROM 5 AM TUESDAY THROUGH TUESDAY EVENING...

THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS ISSUED A BEACH HAZARDS STATEMENT...WHICH IS IN EFFECT FROM LATE TONIGHT THROUGH TUESDAY EVENING.

\* HIGH WAVE ACTION... STRONG CURRENTS AND DANGEROUS SWIMMING CONDITIONS EXPECTED.

- \* STRONG STRUCTURAL CURRENTS POSSIBLE.
- \* STRONG LONGSHORE CURRENTS POSSIBLE.
- \* RIP CURRENTS POSSIBLE.
- \* LOCATION...BEACHES FROM ST. JOSEPH TO MANISTEE.
- \* OVERVIEW/POTENTIAL IMPACTS...NORTHWEST WINDS WILL INCREASE TO 15 TO 25 MPH TUESDAY AND CAUSE WAVE HEIGHTS TO BUILD TO 3 TO 5 FEET.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

HIGH WAVE ACTION MAKES SWIMMING DIFFICULT AND CAN TIRE EVEN A STRONG SWIMMER QUICKLY.

STRUCTURAL CURRENTS FORM ALONG PIERS WHERE LONGSHORE CURRENTS AND WAVE ACTION FLOW INTO THE STRUCTURE. STRUCTURAL CURRENTS CAN SWEEP YOU OUT INTO DEEPER WATER ALONG THE PIER STRUCTURE.

A LONGSHORE CURRENT IS A LAKE CURRENT THAT MOVES PARALLEL TO SHORE. LONGSHORE CURRENTS CAN BE STRONG ENOUGH TO PREVENT SWIMMERS FROM BEING ABLE TO KEEP THEIR FEET ON THE BOTTOM... MAKING IT DIFFICULT TO RETURN TO SHORE.

RIP CURRENTS ARE POWERFUL CHANNELS OF WATER FLOWING QUICKLY AWAY FROM SHORE...WHICH OCCUR MOST OFTEN AT LOW SPOTS OR BREAKS IN SANDBARS. RIP CURRENTS CAN SWEEP YOU INTO DEEPER WATER.

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**Example 4 – Beach Hazards Statement for Elevated Surf and Rip Currents**

WHUS46 KLOX 310144  
CFWLOX

COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE LOS ANGELES/OXNARD CA  
644 PM PDT MON MAY 30 2016

...ELEVATED SURF AND STRONG RIP CURRENTS EXPECTED ACROSS SOUTH

FACING BEACHES WEDNESDAY THROUGH THURSDAY EVENING...

.A LONG PERIOD SOUTHERLY SWELL GENERATED FROM A STORM COMPLEX SOUTH

OF THE EQUATOR WILL MOVE INTO THE COASTAL WATERS BY WEDNESDAY MORNING. A LONG PERIOD SWELL OF AROUND 4 FEET WILL BRING ELEVATED SURF AND DANGEROUS RIP CURRENT CONDITIONS...ESPECIALLY ACROSS SOUTH FACING BEACHES.

CAZ041-087-310945-

/O.NEW.KLOX.BH.S.0018.160601T1300Z-160603T0500Z/

LOS ANGELES COUNTY COAST INCLUDING DOWNTOWN LOS ANGELES-

CATALINA AND SANTA BARBARA ISLANDS-

644 PM PDT MON MAY 30 2016

...BEACH HAZARDS STATEMENT IN EFFECT FROM WEDNESDAY MORNING THROUGH THURSDAY EVENING...

THE NATIONAL WEATHER SERVICE IN LOS ANGELES/OXNARD HAS ISSUED A BEACH HAZARDS STATEMENT FOR STRONG RIP CURRENTS AND ELEVATED SURF...WHICH IS IN EFFECT FROM WEDNESDAY MORNING THROUGH THURSDAY EVENING.

\* HAZARDS...SURF BUILDING FROM 4 TO 6 FEET WITH LOCAL SETS TO 7 FEET ACROSS SOUTH FACING BEACHES EARLY WEDNESDAY MORNING THEN SUBSIDING LATE THURSDAY EVENING INTO FRIDAY MORNING. THERE WILL ALSO BE STRONG RIP CURRENTS AND LONGSHORE CURRENTS. SOME BEACHES LIKELY AFFECTED WILL INCLUDE ZUMA BEACH...MALIBU...AND AROUND POINT MUGU.

\* IMPACTS...THERE IS AN INCREASED RISK OF OCEAN DROWNING. RIP CURRENTS CAN PULL SWIMMERS AND SURFERS OUT TO SEA. SNEAKER WAVES CAN SUDDENLY WASH PEOPLE OFF OF BEACHES AND ROCK JETTIES.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A BEACH HAZARDS STATEMENT IS ISSUED WHEN THREATS TO BEACH AND SURF ZONE SAFETY ARE EXPECTED OR OCCURRING. CAUTION SHOULD BE USED WHEN IN OR NEAR THE WATER. STAY NEAR OCCUPIED LIFEGUARD TOWERS AND NEVER SWIM ALONE. IF CAUGHT IN A RIP CURRENT...SWIM PARALLEL TO THE SHORE.

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**Example 5: Beach Hazards Statement for Red Tide**

WHUS42 KTBW 291520  
CFWTBW

URGENT - IMMEDIATE BROADCAST REQUESTED  
COASTAL HAZARD MESSAGE  
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL  
1120 AM EDT FRI MAY 29 2015

FLZ160-162-165-292330-  
/O.NEW.KTBW.BH.S.0001.150529T1520Z-150530T1800Z/  
COASTAL SARASOTA-COASTAL CHARLOTTE-COASTAL LEE-  
1120 AM EDT FRI MAY 29 2015

...BEACH HAZARDS STATEMENT NOW IN EFFECT THROUGH FRIDAY EVENING...

A BEACH HAZARDS STATEMENT IS IN EFFECT FOR POTENTIALLY HIGH  
RESPIRATORY IRRITATION ASSOCIATED WITH FLORIDA RED TIDE IN SOME  
AREAS OF CHARLOTTE AND LEE COUNTIES THROUGH SATURDAY.

\* RED TIDE HAZARDS...POSSIBLE RESPIRATORY IRRITATION IN SOME  
COASTAL AREAS.

FOR RED TIDE FORECAST INFORMATION VISIT  
[HTTP://TIDESANDCURRENTS.NOAA.GOV/HAB](http://tidesandcurrents.noaa.gov/hab) (ALL LOWER CASE).

\* RED TIDE POTENTIAL IMPACTS... SYMPTOMS MAY INCLUDE  
COUGHING...SNEEZING...AND TEARING EYES. PEOPLE WITH RESPIRATORY  
CONDITIONS SUCH AS ASTHMA...EMPHYSEMA AND OTHER PULMONARY  
DISEASES...MAY BE MORE SENSITIVE. IRRITATION MAY VARY LOCALLY AND  
THROUGHOUT THE DAY. IF YOU EXPERIENCE UNCOMFORTABLE  
SYMPTOMS...CONSIDER GOING TO AN UNAFFECTED BEACH NEARBY.

\* FLORIDA RED TIDE RESPIRATORY IRRITATION TIMING/LOCATION...NOAA  
FORECAST:

SOUTHERN SARASOTA COUNTY: GULF COAST...POSSIBLE FRIDAY AND  
SATURDAY. BAY REGIONS...POSSIBLE SATURDAY.

NORTHERN/SOUTHERN CHARLOTTE COUNTY: GULF COAST...POSSIBLE FRIDAY  
AND SATURDAY. BAY REGIONS OF SOUTHERN CHARLOTTE...POSSIBLE FRIDAY  
AND SATURDAY.

NORTHERN/CENTRAL/SOUTHERN LEE COUNTY: GULF COAST AND BAY  
REGIONS...POSSIBLE FRIDAY AND SATURDAY.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

\* FLORIDA RED TIDE OBSERVATIONS...YOU CAN FIND UNAFFECTED BEACHES  
BY CHECKING REPORTS OF RECENT...LOCAL OBSERVATIONS AND DATA:  
MOTE MARINE LABORATORY (MOTE) DAILY BEACH CONDITIONS-  
[HTTP://WWW.MOTE.ORG/BEACHES](http://www.mote.org/beaches) AND THE FLORIDA FISH AND WILDLIFE  
CONSERVATION COMMISSION (FWC) RED TIDE STATUS-  
[HTTP://MYFWC.COM/REDTIDESTATUS](http://myfwc.com/redtidestatus).

\* FLORIDA RED TIDE HEALTH INFORMATION...CONSULT THE FLORIDA  
DEPARTMENT OF HEALTH-  
[HTTP://WWW.FLORIDAHEALTH.GOV/ENVIRONMENTAL-HEALTH/AQUATIC  
TOXINS/RED-TIDE.HTML](http://www.floridahealth.gov/environmental-health/aquatic-toxins/red-tide.html) OR CALL THE POISON CONTROL CENTER: 1-800  
222-1222.

INCLUSION OF EXTERNAL LINKS DOES NOT CONSTITUTE ENDORSEMENT BY  
THE DEPARTMENT OF COMMERCE (DOC)/(NOAA) OF THESE EXTERNAL WEB  
SITES OR THE INFORMATION...PRODUCTS OR SERVICES CONTAINED THEREIN.

\* FLORIDA RED TIDE INFORMATION SOURCES...RED TIDE FORECASTS ARE  
PROVIDED BY THE NATIONAL OCEAN SERVICE WITH DATA PROVIDED BY THE  
FWC AND MOTE.

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## **5 NWS Tide Report**

SOUS42 KCHS 231245  
TIDCHS

TIDE REPORT  
NATIONAL WEATHER SERVICE CHARLESTON SC  
845 AM EDT MON MAY 23 2016

SCZ050-052-231545-  
CHARLESTON-TIDAL BERKELEY-  
845 AM EDT MON MAY 23 2016

THE UPCOMING TIDES FOR CHARLESTON HARBOR SC...



HIGH TIDE AT 9:38 AM TODAY...  
LOW TIDE AT 3:37 PM TODAY...  
HIGH TIDE AT 10:05 PM TODAY...  
LOW TIDE AT 4:28 AM TUE...

&&

ASTRONOMICAL TIDE HEIGHTS IN MLLW.

MON 9:38 AM 4.8 FEET HIGH  
MON 3:37 PM 0.2 FEET LOW  
MON 10:05 PM 5.8 FEET HIGH  
TUE 4:28 AM 0.2 FEET LOW

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## 6 Great Lakes Water Level Report

SXUS83 KDTX 220825  
OMRDTX

GREAT LAKES WATER LEVELS  
NATIONAL WEATHER SERVICE DETROIT/PONTIAC MI  
425 AM EDT SUN MAY 22 2016

THE FOLLOWING ARE THE AVERAGE LAKE LEVELS FORECAST FOR THIS WEEK.

LAKE            LEVEL... INCHES FROM CHART DATUM

SUPERIOR	12
MICHIGAN AND HURON	31
ST CLAIR	43
ERIE	46
ONTARIO	36

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