County of Humboldt

FLOOD CONTINGENCY PLAN

TO THE

EMERGENCY OPERATIONS PLAN

HUMBOLDT OPERATIONAL AREA

Humboldt County Sheriff's Office
Office of Emergency Services
826 Fourth Street

Adopted 04 December 2012

Eureka, CA 95501 Adopted 04 December 2012

FLOOD CONTINGENCY PLAN

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GENERAL INFORMATION

2 FOREWORD

2.1 Plan Scope and Purpose

The Flood Contingency Plan primarily addresses the Humboldt Operational Area's planned response to a flooding situation affecting Humboldt County. This Plan establishes detailed procedures for response to areas that have flooded or may be jeopardized by potential flooding. The purpose of this Plan is to minimize the loss of life and property through an organized notification and evacuation process and to provide for re-entry into areas that may have been evacuated and/or damaged.

2.2 Plan Authority and Activation

This Plan will be used in conjunction with, and under the authority of, the County of Humboldt Emergency Operations Plan. The Flood Contingency Plan will be implemented upon the decision of the Director of Emergency Services (Humboldt County Sheriff) or the Director's designated representative, when a river level is predicted to reach Flood Stage. The Director will authorize at least a Level 2 activation of the Emergency Operations Center. Level 2 means the Incident Commander, the Command Staff, the Section Chiefs, and those other Branches and Units and Agency Representatives as are appropriate for the immediate situation. The Humboldt County Sheriff's Office, Office of Emergency Services will ensure the Flood Contingency Plan is current and will advise the Director on response procedures. The County of Humboldt's Flood Contingency Plan was adopted by the Humboldt County Board of Supervisors on 04 December 2012 (see Section **18**).

2.3 Plan Priority Use and Organization

The most important operational information in this Flood Contingency Plan is contained in Section **5**, RESPONSE OPERATIONS, which details specific flood-related actions to be undertaken by County departments and by allied Operational Area agencies during a recognized flood event. **The RESPONSE OPERATIONS section should be immediately consulted at the onset of a flood event.**

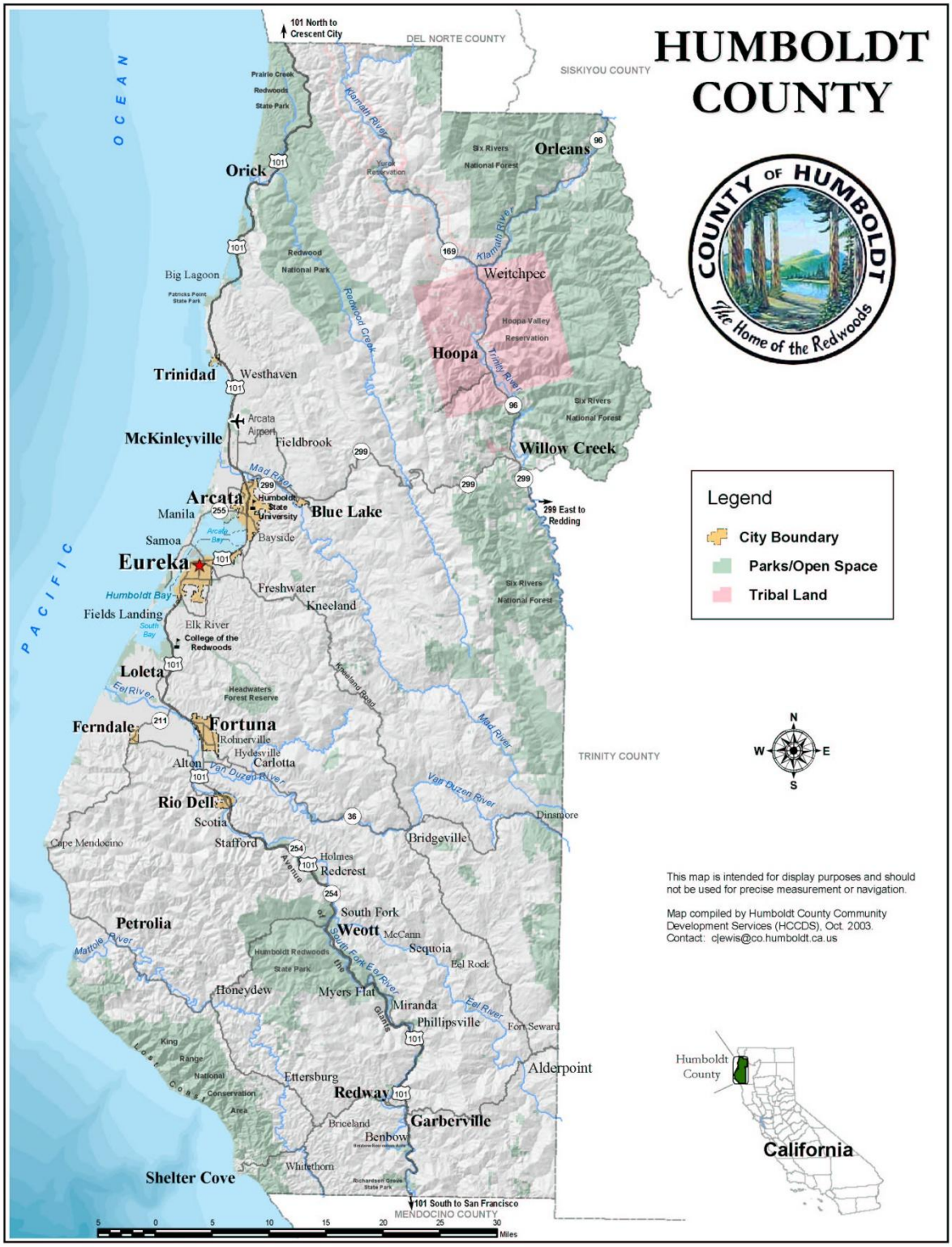
The Plan's Section **3**, SITUATION, provides interesting and useful information pertaining to the flood issue in Humboldt County. Projected vulnerabilities and impacts, specific river issues, and historic events are discussed.

Section **4** of the Plan, PREPARATIONS, details normal ongoing planning and organization in support of probable future flood operations actions. Mitigation measures, flood-related notification/information pathways, alerting systems, and flood- and river-specific issues are reviewed.

2.4 Public Access to Plan

As a public document, this Plan, the County Emergency Operations Plan, and other specific event contingency plans are accessible via the Humboldt County internet web site (**www.co.humboldt.ca.us/sheriff/**).

2.5 Humboldt County Map


HUMBOLDT COUNTY
COUNTY OF HUMBOLDT
The Home of the Redwoods
101 North to Crescent City
DEL NORTE COUNTY
SISKIYOU COUNTY
OCEAN
PACIFIC
Prairie Creek Redwoods State Park
Klamath River
Orick
Six Rivers National Forest
Orleans
Yurok Reservation
Redwood National Park
Big Lagoon
Patricks Point State Park
Weitchpec
Hoopa Valley Reservation
Hoopa
Trinidad
Westhaven
Arcata Airport
McKinleyville
Fieldbrook
Willow Creek
Mad River
Arcata
Humboldt State University
Blue Lake
Manila
Samoa
Bayside
Arcata Bay
Eureka
Humboldt Bay
Freshwater
Kneeland
Fields Landing
South Bay
Elk River
College of the Redwoods
Loleta
Eel River
Headwaters Forest Reserve
Ferndale
Fortuna
Rohnerville
Hydesville
Carlotta
Alton
Van Duzen River
Rio Dell
Scotia
Dinsmore
Cape Mendocino
Stafford
Bridgeville
Holmes
Redcrest
Petrolia
South Fork
Weott
McCann
Sequoia
Humboldt Redwoods State Park
Mattole River
Honeydew
Myers Flat
Miranda
Phillipsville
Fort Seward
Alderpoint
Ettersburg
Redway
Garberville
Briceland
Benbow
Whitethorn
Shelter Cove
101 South to San Francisco
MENDOCINO COUNTY
TRINITY COUNTY
299 East to Redding
Legend
City Boundary
Parks/Open Space
Tribal Land
N
W
E
S
This map is intended for display purposes and should not be used for precise measurement or navigation.
Map compiled by Humboldt County Community Development Services (HCCDS), Oct. 2003.
Contact: cjlewis@co.humboldt.ca.us
Humboldt County
California
5 0 5 10 15 20 25 30
Miles

3 SITUATION

3.1 Flood Vulnerability

The Eel, Klamath, Mad, Mattole, Trinity, Van Duzen Rivers, Redwood Creek, and smaller streams are subject to flooding annually during the winter rainy season, usually from November to March. Heavy rainfall, usually accompanied by high winds, causes the rivers to rise and also causes slides along highways and roads throughout the County, thereby isolating many areas subject to flooding and making evacuation, rescue, and re-supply difficult. Thunderstorms can produce heavy rains which, dumped in a small area over a very short time, can lead to flash flooding.

The major river systems in Humboldt County flood at irregular intervals but generally in response to a succession of intense winter rainstorms. A series of such storms can cause severe flooding in Humboldt County. The worst-case scenario is a series of storms that flood numerous drainage basins in a short time. This situation would overwhelm city and County response and floodplain management departments. Major roads could be blocked or washed out which would prevent critical access for many residents and create isolation problems. High river flows could cause rivers to scour their banks possibly washing out roads and creating more isolation problems. In the case of multi-basin flooding, the County would not be able to make repairs quickly and would need additional resources and assistance to restore critical facilities and infrastructure.

Persons living in flood plains, adjacent to rivers and streams, or residing in canyons susceptible to unexpected flash flooding are all at risk. The risk of personal injury from even moderate flooding is very real. Most flood-related deaths occur from people failing to heed official warnings.

Various water project dams on the Eel, Klamath, Mad, and Trinity Rivers provide some water impoundment capacity during flood events. Water releases from those dams during flood events can have an impact on the severity of downstream flooding.

In addition to the usually smaller landslides associated with area roadways, debris flows of much larger magnitudes are possible during flood events. These debris flows consisting of saturated earth, rocks, and vegetation can travel greater distances than just the immediate vicinity of the slide.

Note: Other severe weather conditions are addressed in the separate Severe Weather Contingency Plan.

3.2 Drainage Basins

The main Humboldt County drainage basins are described below. Additional specific information related to river basins can be found in the Humboldt Operational Area Hazard Mitigation Plan on the County website: http://www.co.humboldt.ca.us/planning/hazardmitigation/default.asp

Eel River Basin (including Van Duzen River)

This 3,260 square mile basin drains a predominately mountainous area covering most of southern Humboldt County and portions of Trinity, Mendocino, Lake, and Glenn Counties. The Eel River is divided into three forks – north, middle, and south. The Van Duzen River drains an area of approximately 430 square miles and empties into the Eel River east of Fortuna. Downstream from the Van Duzen River confluence, the Eel River meanders through a wide and fertile coastal plain before reaching the Pacific Ocean. The Scott Dam is located on the Eel River middle fork in Lake County.

Freshwater Creek Basin

Freshwater Creek drains a small coastal basin of 34 square miles before it enters Ryan Slough. Ryan Slough flows into Eureka Slough which in turn empties into Arcata Bay just north of Eureka.

Humboldt Bay

The configuration of Humboldt Bay protects the majority of coastal communities of Humboldt County from direct exposure to coastal storm flooding. The Samoa Peninsula and South Spit block the effects of normal storm waves and sea swells. A single channel, defined by jetties and seawalls, provides passage for water into and out of Humboldt Bay. The unincorporated community of King Salmon is located on an artificially constructed peninsula along the eastern margin of Humboldt Bay. Old channel dredgings were stockpiled on the site until 1948 when residential development began. The elevation of the King Salmon vicinity is a few inches higher than the normal maximum high tide. Flooding can occur in this area during unusually high tides accompanied by storm surges.

Jacoby Creek Basin

Jacoby Creek is a coastal stream just north of Freshwater Creek which flows into Arcata Bay. The creek drains an area of 16 square miles.

Klamath River Basin

The largest river in the region is the Klamath River which originates in Oregon and drains 12,120 square miles. A 50-mile stretch runs through the mountainous forested northern part of Humboldt County, with its mouth draining to the Pacific Ocean in Del Norte County. The Copco and Iron Gate Dams are located on the Klamath River in Siskiyou County.

Mad River Basin

The Mad River drains an area of approximately 500 square miles in Humboldt and Trinity Counties. The river flows through narrow canyons for the majority of its 100-mile length. The river enters a wide coastal flood plain just north of Arcata and then continues to its confluence with the

Pacific Ocean. The Matthews Dam is located on the Mad River in Trinity County.

Mattole River Basin

The Mattole River Basin encompasses the Cape Mendocino planning watershed in the southern portion of Humboldt County. The Cape Mendocino planning watershed is also known as the Mattole Watershed. Almost all of it lies in Humboldt County with a small portion in Mendocino County. The watershed encompasses 304 square miles. The Mattole River flows through the Mattole Valley before emptying into the Pacific Ocean.

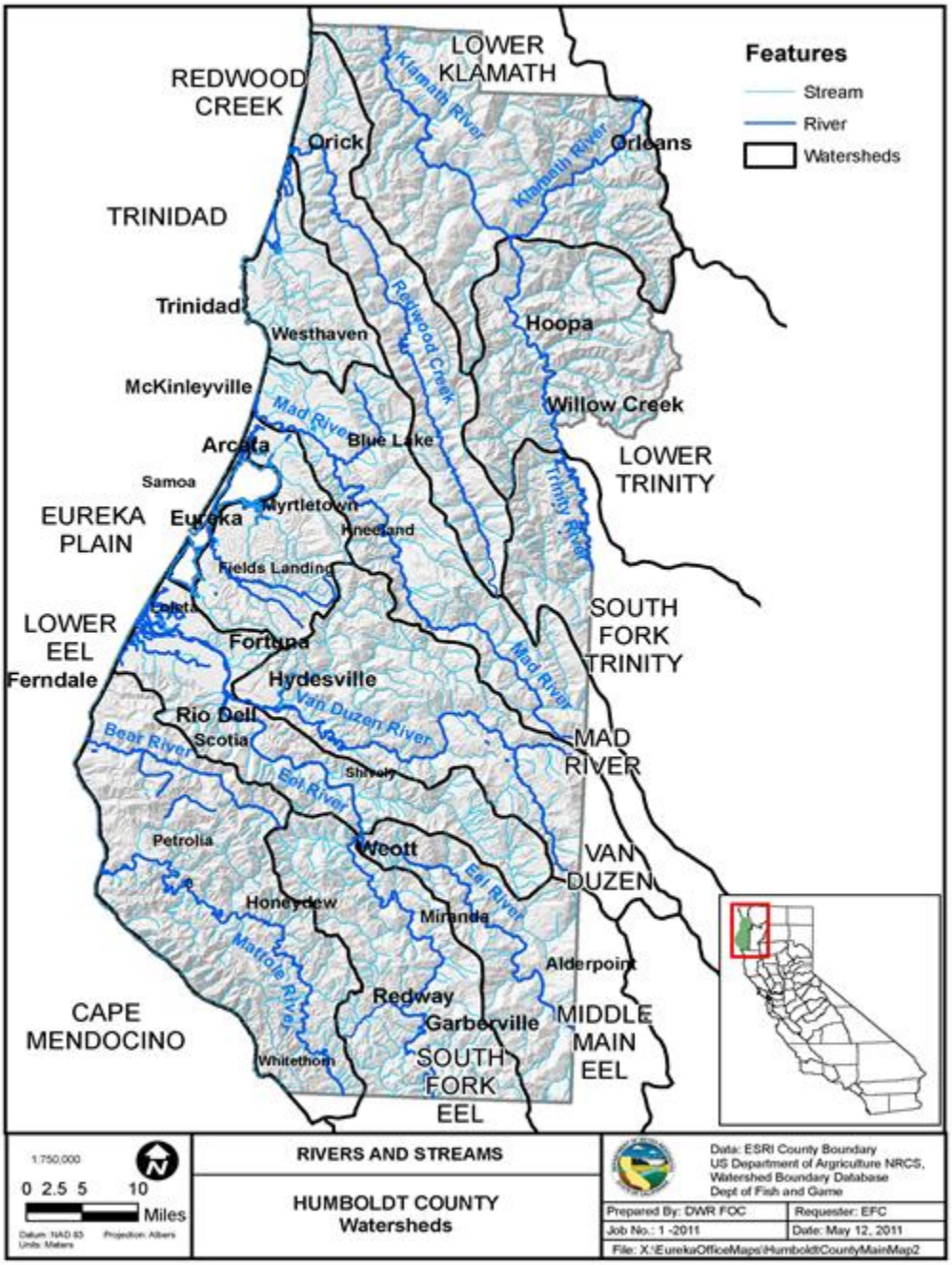
Redwood Creek Planning Watershed

The Redwood Creek planning watershed drains an area of 282 square miles from the center of Humboldt County to its northwestern corner. The creek flows for 65 river miles from its headwaters, located near Board Camp Mountain in central Humboldt County, to the Pacific Ocean near the town of Orick. Redwood National Park occupies the northern half of the watershed.

Trinity River Basin

As the largest tributary to the Klamath River, the Trinity River drains a total of 2,969 square miles. The majority of this area is in Trinity County. The river flows through a mountainous, heavily forested area in the eastern portion of Trinity County and then through the Willow Creek and Hoopa areas of Humboldt County to its confluence with the Klamath River at Weitchpec. The Lewiston and Trinity Dams are located on the Trinity River in Trinity County.

3.3 Humboldt County Watersheds Map



3.4 Levees

The County maintains levees on the Mad River near the City of Blue Lake, the Eel River near the City of Fortuna, and on Redwood Creek near Orick. The Mad River Levee was built by the Corps of Engineers in 1955, and the Eel River Levee was built by the Corps of Engineers in 1958-1959. Congress authorized construction of the Redwood Creek flood control project with the Flood Control Act of 1962, and construction was completed in 1968. The Redwood Creek levee system is critical infrastructure for the protection of life and property in the community of Orick. Several smaller privately funded and maintained levees provide protection in the upper reaches of Humboldt Bay and elsewhere.

3.5 Flood Impact

The impact from any flooding event will vary based upon a number of factors: source of water; location of water flow; duration/intensity of rainfall or source release; topography; presence and/or effectiveness of flood control systems; changes in land use; vegetation; and

- Injury and death associated with people being trapped in rapidly moving waterways or caught unaware during slow rate of rise conditions.
- Injury and death for individuals attempting to ford (in vehicles or on foot) submerged roadways.
- Damage to critical infrastructure and essential services through inundation.
- Damage to roadways, bridges, and other transportation structures affecting mobility and the ability for people to evacuate flooded areas.
- Release of hazardous materials and start of fires within damaged or affected structures.
- Damage to buildings and structures in the pathway of rising flood waters.
- Public health hazards from contamination of potable water sources; damage to sanitation systems; long-term presence of standing water; vector infestation; and introduction of hazardous materials contaminants.
- Loss of agricultural products and crops from inundation.
- Impact to local economy stemming from loss in agricultural, industrial, and commercial productivity.
- Impact to local economy based upon reduction in tourism.
- Societal impacts involving long-term interruption of normal activity.

Although flooding incidents are generally of short duration, the need for ongoing response and long-term recovery operations cannot be underestimated. Moreover, loss of essential flood control structures, including levees and control devices, may hinder recovery efforts and pose significant problems should additional flooding occur.

3.6 Debris Flows

The term "Debris Flow" does not refer to smaller landslides which commonly impact area roadways during heavy rain events. As used here, debris flows (or debris avalanches) are larger landslides saturated with water that travel rapidly down slopes as muddy slurries. The flowing mud carries rocks, boulders, trees, and anything else in its path as it proceeds downhill. Debris flows can travel longer distances than landslides and are very dangerous.

3.7 Historic Flood Record

Seventy percent of annual precipitation in Humboldt County occurs from November to March; major floods have resulted from successions of intense storms during these months. The two worst recorded flood events in Humboldt County occurred in December 1955 and December 1964. These events caused numerous fatalities and many millions of dollars in damage.

December 1955
The December 1955 flood occurred following weeks of above-normal precipitation in the county. Rainfall measurements reached as high as 24 inches over three days in Cummings. Damage in the Eel River Basin exceeded $22 million. There was one reported fatality and 43,000 acres were flooded. Heavy debris carried by high velocity river flows caused the majority of the damage.

December 1964
Heavy rains accompanied by runoff from an unusually large snowpack led to flooding of the Mad and Eel Rivers in December 1964. Total damage reached $100 million, with entire communities being destroyed and 19 fatalities reported (including Pepperwood, the site of the 1955 fatality). Millions of board feet of lumber, thousands of acres of prime farmland, and 4,000 head of livestock were also lost which caused a tremendous economic impact on the county.

The following section summarizes some of the more recent significant Humboldt County flood events.

January 1995
Flooding caused one death and over $5 million in damages. Flood damages were reported throughout much of the county, but the most severely impacted area was the Eel River Valley. The county received both a Gubernatorial Proclamation and a Presidential Disaster Declaration.

March 1995
Continued winter storms and flooding in the months following the January 1995 event caused an additional $2 million in damage throughout the county. The county received a second Presidential Declaration in March 1995.

December 1996 – March 1997

Heavy flooding resulting from a series of storms caused $16.4 million in damages throughout the county. The county received both a Gubernatorial Proclamation and a Presidential Declaration.

December 2005 – January 2006
A series of severe winter storms resulted in flood, wind, and landslide damage throughout Humboldt County and most of northern and central California. The county received both a Gubernatorial Proclamation and a Presidential Declaration.

3.8 Flooding Event Information

The National Weather Service (NWS) Forecast Office in Eureka issues weather and hydrologic flood warnings and statements. The NWS Eureka Office works in conjunction with the California Department of Water Resources Eureka Flood Center and the California-Nevada River Forecast Center (CNRFC) in Sacramento in making river forecasts, providing for flood warning, and providing communications for the collection and dissemination of such information. A minimum of twice daily during the flood season, the CNRFC and DWR uses a collection of hydrologic models to simulate and project river flows and stages at official river forecast points along the major rivers which meander across Humboldt County. These official river forecasts points are located along the Eel, Klamath, Mad, Trinity, Van Duzen Rivers, and Redwood Creek. Flood Statement and Flood Warnings are also issued for small creeks and rivers such as the Mattole.

Statements and Warnings

Hydrologic Statement - issued when main stem river forecast points are forecast to remain below Flood Stage. Hydrologic Statements contain official river forecasts and related information.

Flood Warning - issued when flooding is expected to threaten life and property and will be reissued if the river forecast changes significantly.

Flood Statement – contains supplemental information, updated observations, and impact information on Flood Warnings. This product may also be used to provide information on elevated stream or river flows, or ponding of water in urban areas, which warrant public notification but not a warning.

Hydrologic (Flood) Outlook – provide information on longer range conditions that could cause flooding or impact water supply.

Flood Categories

Minor Flooding – minimal or no property damage, but possibly some public threat.

Moderate Flooding – some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations.

Major Flooding – extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

Record Flooding – flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.

Note: For expanded definitions, and additional terms, see the Glossary in Section **13.**

3.9 North Coast Area River Monitor and Flood Stages, and Peak Stages of Record

Prior to and during flood events, the CNRFC and DWR monitor real-time river conditions and issue forecasts of river flows and stages at official river forecast points. Each of these official forecast points has predetermined Monitor Stage and Flood Stage criteria based upon known impacts.

Monitor Stage – The stage at which initial action should be considered by concerned interests such as livestock warning, removal of equipment from lowest overflow areas, and patrols or general surveillance of the situation. This level may produce overbank flows sufficient to cause minor flooding of low-lying lands and local roads. When an official gaged river forecast point is forecast to rise to or above its predetermined Monitor Stage height, appropriate officials are notified.

Flood Stage – The stage at which overbank flows are of sufficient magnitude to cause considerable inundation of land and roads and/or threat of significant hazard to life and property. When an official gaged river forecast point is forecast to rise to or above its predetermined Flood State height, appropriate officials are notified.

Prior to and during area flood events, timely Monitor Stage and Flood Stage information is frequently updated and provided to area emergency management entities and to the public by the National Weather Service California Nevada River Forecast Center.

During major storms which result in a threat of potential flooding, the information in Section **3.10**, Specific River Flooding Impacts, should be referenced often and used as a tool for response to flooding events.

Below is a chart of North Coast area river forecast point locations, their corresponding Monitor and Flood Stages, and peak stages of record. See Section **14** for a river forecast sample.

Name	Forecast Location	Monitor Stage	Flood Stage	Peak Stage	Date
Eel River	Fernbridge	14.0'	20.0'	29.5'	12/23/1964
Eel River	Fort Seward	55.0'	N/A	82.6'	12/22/1964
Eel River	Miranda	27.0'	33.0'	46.0'	12/22/1964
Eel River	Scotia	45.0'	51.0'	72.0'	12/23/1964
Klamath River (DN County)	Klamath	30.0'	38.0'	55.3'	12/23/1964
Klamath River	Orleans	32.0'	38.0'	50.3'	12/22/1964
Mad River	Arcata	15.0'	22.0'	30.7'	12/22/1964
Redwood Creek	Orick	26.0'	32.0'	28.2'	01/02/1997
Smith River (DN County)	Jedediah Smith	25.0'	29.0'	38.4'	12/22/1964
Smith River (DN County)	Dr. Fine Bridge	27.0'	33.0'	39.5'	12/22/1964
Trinity River	Hoopa	44.0'	48.0'	57.0'	12/22/1964
Van Duzen River	Bridgeville	13.0'	17.0'	24.0'	12/22/1964

3.10 Specific River Flooding Impacts

The following projected specific river flooding impacts are provided by the National Weather Service office in Eureka, California (http://www.wrh.noaa.gov/eka). The projections presented in these lists are based on historic information. Some specific projections may change over time as new observations and/or new data are acquired.

Eel River at Fernbridge

13.0 Feet Minor flooding of western portions of Cannibal Island Road, Camp Weott Road, and adjacent areas may occur if the time of crest is coincident with an ocean tide of 7.5 feet or greater.

14.0 Feet **Monitor Stage**
Minor flooding of western portions of Cannibal Island Road, Camp Weott Road, and adjacent areas may occur if the time of crest is coincident with an ocean tide of 6.5 or greater.

15.0 Feet Minor flooding of western portions of Cannibal Island Road, Camp Weott Road, and adjacent areas may occur if the time of crest is coincident with an ocean tide of 6.0 or greater.

16.0 Feet Minor flooding of western portions of Cannibal Island Road, Camp Weott Road, and adjacent low-lying areas. Flooding will be enhanced when the crest occurs during times of high tide.

18.0 Feet Flooding of western portions of Cannibal Island Road, Camp Weott Road, and adjacent areas, the Salt River and Old River, and other low-lying slough areas is likely. Minor flooding in these areas is enhanced when crest timing is coincident with high tides and longer duration events.

20.0 Feet **Flood Stage**
Minor and extensive flooding along western portions of Cannibal Island Road, Camp Weott Road, and adjacent areas, the Salt and Old Rivers, and other low-lying slough areas. Flooding in these areas is enhanced when crest timing is coincident with high tides and longer duration events. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels.

22.0 Feet Moderate flooding. The western half of the Eel Delta may be completely flooded especially if the river remains at or above this level for an extended period of time. This includes areas northwest of Loleta and the western portion of Cannibal Island Road. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels.

24.0 Feet Moderate flooding of Highway 211 to Ferndale south of Fernbridge. Much of the Eel Delta may be flooded including areas northwest of Loleta the western portion of Cannibal Island Road. Flooding will be enhanced for longer duration events. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels.

25.0 Feet Major flooding of the Eel River Delta including areas northwest of Loleta and the western portion of Cannibal Island Road. There will be numerous road closures including Highway 211 to Ferndale south of Fernbridge. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels.

26.0 Feet Major flooding of the Eel River Delta including areas northwest of Loleta and the western portion of Cannibal Island Road. There will be numerous road closures including Highway 211 to Ferndale south of Fernbridge. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels.

28.0 Feet Major and extensive flooding of the Eel River Delta including areas northwest of Loleta and the western portion of Cannibal Island Road. There will be numerous road closures including Highway 211 to Ferndale south of Fernbridge. Most roads will be impassable and access will be significantly restricted.

Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels. Everyone should be prepared to take action to protect life and property.

29.5 Feet **Peak stage recorded December 23, 1964.**

30.0 Feet Record level flooding is forecast throughout the Eel Delta. Past floods of this magnitude inflicted heavy damage. There will be numerous road closures including Highway 211 to Ferndale south of Fernbridge. Owners of livestock in low-lying areas of the Eel Delta should take appropriate action to protect livestock from rising river levels. Everyone should be prepared to take action to protect life and property.

Eel River at Fort Seward

27.0 Feet **(**Minimum stage historically required to produce Monitor Stage at Fernbridge. Also dependent on stages at Miranda and Bridgeville.)

36.0 Feet (Minimum stage historically required to produce Flood Stage at Fernbridge. Also dependent on Miranda and Bridgeville peak stages. Miranda needs to be up around 25 feet or higher.)

55.0 Feet **Monitor Stage**

59.0 Feet **(**Likely to produce a stage of 26-27 feet at Fernbridge.)

66.0 Feet (Likely to produce a stage near 28 feet at Fernbridge – Especially if Miranda crests near 28 feet.)

72.0 Feet (Likely to produce a stage near 28.5 feet at Fernbridge.)

78.0 Feet Minor flooding of low-lying areas north of the railroad tracks in Alderpoint and Fort Seward and around the Dobbyns Creek confluence is possible.

82.0 Feet Major flooding of low-lying areas north of the railroad tracks in Alderpoint and Fort Seward and around the Dobbyns Creek confluence is possible.

82.6 Feet **Peak stage recorded December 22, 1964.**

83.0 Feet Major flooding of low-lying areas north of the railroad tracks in Alderpoint and Fort Seward and around the Dobbyns Creek confluence is likely. This stage is likely to produce a stage of near 30 feet at Fernbridge.

South Fork Eel River at Miranda

27.0 Feet **Monitor Stage**

30.0 Feet Minor flooding of portions of the Avenue of the Giants (Highway 254) is possible, especially in the vicinity of Sylvandale and the Myers Flat and Redwood Giants trailer parks.

33.0 Feet **Flood Stage**
Minor flooding of portions of the Avenue of the Giants (Highway 254) is likely in the vicinity of Sylvandale and the Myers Flat and Redwood Giants trailer parks. Minor flooding is also possible near Weott.

35.0 Feet Minor flooding of portions of the Avenue of the Giants (Highway 254) in the vicinity of Sylvandale, Myers Flat, and Weott is likely. Expect closure of Avenue of the Giants (Highway 254) at numerous locations.

38.0 Feet Moderate flooding of portions of the Avenue of the Giants (Highway 254) in the vicinity of Sylvandale, Myers Flat, and Weott with numerous road closures expected. May cause flooding of Phillipsville Road and adjacent low-lying areas.

42.0 Feet Major and extensive flooding of many portions of the Avenue of the Giants (Highway 254) can be expected, especially areas in the vicinity of Sylvandale, Myers Flat, Weott, and Phillipsville. Expect numerous road closures in these areas.

45.0 Feet Major flooding of many communities and roads along the river is expected. Numerous road closures are likely, possibly including US Highway 101 and the Avenue of the Giants (Highway 254). All persons in the vicinity of the river should take appropriate actions to protect life and property.

46.0 Feet **Peak stage recorded December 22, 1964.**

47.0 Feet Record level flooding of all areas along the river. Significant damage to roads, bridges, and structures can be expected. Highway 101 and Avenue of the Giants (Highway 254) will likely be closed. All persons in the vicinity of the river should take appropriate actions to protect life and property.

Eel River at Scotia

45.0 Feet **Monitor Stage**

51.0 Feet **Flood Stage**

52.0 Feet Minor flooding in the Shively area is possible.

55.0 Feet Minor flooding of low-lying areas near Shively is likely with possible closure of portions of the Avenue of the Giants (Highway 254).

62.0 Feet Moderate flooding of many low-lying areas near the river is likely with numerous closures along the Avenue of the Giants (Highway 254).

72.0 Feet **Peak stage recorded December 23, 1964.** Major and extensive flooding of all areas adjacent to the river with possible damage to roads, bridges, and structures. Expect closure of numerous roads including the Avenue of the Giants (Highway 254) and possibly Highway 101.

74.0 Feet Record level flooding of all areas adjacent to the river with significant damage to roads, bridges, and structures expected. Numerous road closures including the Avenue of the Giants (Highway 254) and Highway 101.

Klamath River at Klamath

Note: The Klamath River at Klamath is in Del Norte County. Klamath River flooding impacts are included for reference.

30.0 Feet **Monitor Stage**

34.0 Feet Flooding of lowest lying areas may occur.

38.0 Feet **Flood Stage**
Minor flooding of the access road to Klamath Glen from Highway 101 and other low-lying areas is likely.

40.0 Feet Minor flooding of Highway 101 near Requa Road, the road to Klamath Glen, and adjacent low-lying secondary roads near the delta are likely, especially if the crest is coincident with high tides and strong onshore winds.

42.0 Feet Moderate flooding of Highway 101 near Requa Road, the road to Klamath Glen, and adjacent low-lying secondary roads near the delta are likely. Flooding will be amplified if coincident with high tides and strong onshore winds.

46.0 Feet Major flooding. Numerous road closures are expected including Highway 101 and secondary roads in the area. Major flooding of many homes and businesses will occur. Loss of power is likely due to inundation of transfer station.

49.0 Feet Major and extensive flooding along the river from Blue Creek to the Pacific Ocean. Most roads, including Highway 101, Requa Road, and the road to Klamath Glen are likely to be flooded and impassible.

55.3 Feet **Peak stage recorded December 23, 1964.**

63.0 Feet Major flooding of the delta area below the levee. Most roads will be flooded and impassible including Highway 101 and secondary roads. The forecast level is within 2.5 feet of top of levee protecting Klamath Glen. Any persons living or working

in areas protected by the levee should be prepared to take appropriate action and move to higher ground.

65.5 Feet **TOP OF LEVEE Protecting Town of Klamath Glen.** Major and extensive flooding in all areas from Klamath Glen to the river mouth. The towns of Klamath and Klamath Glen will be under water as will all roads in the vicinity including Highway 101. Any persons living or working in areas protected by the levee should be prepared to take appropriate action and move to higher ground.

Klamath River at Orleans

32.0 Feet **Monitor Stage**

34.0 Feet Possible minor flooding of Highway 96 north of the bridge at Orleans, and other low-lying adjacent areas.

35.0 Feet Minor flooding is likely in lower areas south of Highway 96 near Orleans. Highway 96 will flood north of the bridge at Orleans and possibly near Ishi Pishi Bar.

37.0 Feet Minor flooding in low-lying areas south of Highway 96 near Orleans and of the highway itself north of the bridge at Orleans. Flooding is possible on Highway 96 at Ishi Pishi Bar.

38.0 Feet **Flood Stage**
Extensive minor flooding of low-lying areas south of Highway 96 near Orleans and of the highway itself north of the bridge at Orleans. Flooding is likely near Ishi Pishi Bar and Slate Creek. Water may enter the fire house in southwest Orleans.

40.0 Feet Extensive minor flooding of areas south of Highway 96 near Orleans and of Highway 96 north of the bridge and Orleans, at Ishi Pishi Bar, and near Slate Creek. Flooding of Highway 96 in Orleans is possible. Flooding of the fire house and other buildings on the southwest side of Orleans is expected.

43.0 Feet Moderate flooding. Flood waters are likely to cover Highway 96 in numerous locations and threaten residences and businesses in and around Orleans including Sandy Bar cabins, Riverside Trailer Park, and the downtown area. All persons in the vicinity of the river should take appropriate action and move to higher ground if necessary.

50.3 Feet **Peak stage recorded December 22, 1964.**

Mad River at Arcata

15.0 Feet **Monitor Stage**
Minor flooding begins on the Mad River Beach Road at Tyee City.

18.0 Feet Minor flooding on Mad River Beach Road near Tyee City.

21.0 Feet Minor flooding. Water may flow across Mad River Beach Road and roads to Tyee City especially if the time of the crest is coincident with high tides and strong onshore winds.

22.0 Feet **Flood Stage**
Minor flooding of Mad River Beach Road. Water may flow across roads to Tyee City. Flooding will be aggravated by high tides and strong onshore winds.

23.0 Feet Minor flooding of portions of Mad River Beach Road and adjacent areas which may cause water to flow across roads to Tyee City. Flooding is aggravated by high tides and strong onshore winds.

24.0 Feet Moderate and extensive flooding along Mad River Beach Road and adjacent areas. Flooding is likely of roads to Tyee City. Some homes along the river could be threatened. High tides and strong onshore winds aggravate impacts.

26.0 Feet Moderate flooding along Mad River Beach Road and extensive flooding of farm lands and other roads in the area. Flooding of residential areas of Tyee City and along low-lying roads near the river is likely. Residents in these areas should be prepared to take appropriate action to protect lives and property. High tides and strong onshore winds aggravate impacts.

28.0 Feet Major flooding. Flooding approaches level of December 1955. Past floods of this magnitude have caused extensive flooding of Highway 101 near Janes Road, Tyee City, areas near Giuntoli Lane, Mad River Beach Road, and the Arcata Bottoms. Residents in these areas should be prepared to protect lives and property.

30.0 Feet Major flooding. Flooding approaches level of December 1964. Extensive flooding will occur and will include Highway 101 near Janes Road, Tyee City, areas near Giuntoli Lane, Mad River Beach Road, and the Arcata Bottoms. Residents in these areas should be prepared to take appropriate action to protect lives and property.

30.7 Feet **Peak stage recorded December 22, 1964.**

32.0 Feet Major flooding. This stage exceeds record level of December 1964. Disastrous flooding will occur and will include Highway 101 near Janes Road, Tyee City, areas near Giuntoli Lane, Mad River Beach Road, and the Arcata Bottoms.

Redwood Creek at Orick

26.0 Feet **Monitor Stage**

28.2 Feet **Peak stage recorded January 2, 1997.**

32.0 Feet **Flood Stage**

35.0 Feet The river is within 2 feet of top of levee. Flooding of roads in the Orick area is possible. High tides and strong onshore winds will aggravate effects. Individuals living or working in areas protected by the levee should be prepared to take appropriate action and move to higher ground if necessary.

37.0 Feet **TOP OF LEVEE protecting the town of Orick** and adjacent areas. Major flooding. Many roads in the vicinity of Orick including Highway 101 may be flooded and impassable. High tides and strong onshore winds will aggravate effects. All persons in the area should take appropriate action and move to higher ground if necessary.

38.0 Feet **OVER TOP OF LEVEE**. Major and extensive flooding. The entire delta region will be inundated from Prairie Creek downstream to the mouth. All roads in the vicinity including Highway 101 will likely be flooded and closed to traffic. High tides and strong onshore winds will aggravate effects. All persons in the area should take appropriate action and move to higher ground if necessary.

Trinity River at Hoopa

44.0 Feet **Monitor Stage**
Minor flooding of low-lying areas may occur.

46.0 Feet Minor flooding of many low-lying areas near the river is likely. Minor flooding may occur over Highway 96 between Willow Creek and Hoopa.

48.0 Feet **Flood Stage**
Minor flooding of low-lying areas adjacent to the river including Highway 96 is likely. Significant damage to structures in these areas is possible.

51.0 Feet Extensive minor flooding of all low-lying areas adjacent to the river including Highway 96 both north and south of Hoopa is likely. Significant damage to structures in these areas is possible.

55.0 Feet Moderate and extensive flooding between Willow Creek and Weitchpec and flooding of many homes and businesses in the valley areas. Highway 96 will be closed in numerous locations in this area.

57.0 Feet **Peak stage recorded December 22, 1964.** Major flooding of roads, bridges, and structures in and around low areas of the river is expected. Many road closures are likely including Highway 96 between Willow Creek and Weitchpec. Many homes and businesses in valley areas will be inundated.

Van Duzen River at Bridgeville

13.0 Feet **Monitor Stage**

17.0 Feet **Flood Stage**
Minor flooding in lower portions of Grizzly Creek State Park and along River Bar Road.

18.0 Feet Minor flooding of Highway 36 near Grizzly Creek State Park and in lower portions of the State Park itself. Minor flooding along River Bar Road.

19.0 Feet Minor flooding of Highway 36 near Grizzly Creek State Park, in the State Park parking log, and along River Bar Road in the Starvation Flats area.

20.0 Feet Moderate flooding. Flooding of Highway 36 east of Carlotta and near Grizzly Creek State Park and the Grizzly Creek Bridge. Portions of River Bar Road in the Starvation Flats area may be impassable. Water may reach the State Park office.

21.0 Feet Moderate flooding. Flooding of Highway 36 east of Carlotta and near the Grizzly Creek State Park and the Grizzly Creek Bridge. Portions of River Bar Road in Starvation Flats may be impassable. Water level in Grizzly Creek State Park will approach Highway 36.

23.0 Feet Major flooding. Flooding of Highway 36 east of Carlotta and near Grizzly Creek State Park and the Grizzly Creek Bridge. River Bar Road in the Starvation Flats area will be impassable.

24.0 Feet **Peak stage recorded December 22, 1964.**
Major flooding along Highway 36 from Bridgeville downstream to the mouth. Major and extensive flooding near Highway 101 is highly probable. All persons near the river should be prepared to take appropriate actions to protect life and property.

25.0 Feet Record level flooding. Major flooding along Highway 36 from Bridgeville downstream to the mouth including Highway 101 near the mouth. All persons near the river should be prepared to take appropriate actions to protect life and property.

Smith River at Jedediah Smith
Note: Smith River is in Del Norte County. Smith River flooding impacts are included for reference.

25.0 Feet **Monitor Stage**
Flooding of the lowest-lying areas is possible.

26.0 Feet Flooding along Highway 197 and other low-lying areas is expected.

28.0 Feet Minor flooding along lower portions of Highway 197 and possible flooding of low-lying roads near Gasquet.

29.0 Feet **Flood Stage**
Minor flooding along Highway 197 and low-lying roads near Gasquet is likely.

32.0 Feet Minor flooding likely along Highway 197 and in the Gasquet area, and possible flooding of Highway 199 near Gasquet. Some low-lying homes in these areas may be threatened.

34.0 Feet Moderate flooding along Highway 197 and along Highway 199 in the Gasquet area. Low-lying homes in these areas may be threatened.

35.0 Feet Moderate flooding along Highway 197 and along Highway 199 in the Gasquet area. Low-lying homes in these areas are likely to be threatened.

36.0 Feet Moderate and extensive flooding possible along Highway 197 and along Highway 199 in the Gasquet area. Homes and campgrounds in these areas could be threatened including portions of Jedediah Smith State Park.

37.0 Feet Major and extensive flooding of Highway 197 and along Highway 199 in the Gasquet area. Flooding could damage inflict sever damage to roads, bridges, and structures. All lower areas in and around the river will be flooded. Persons in these areas should be prepared to take appropriate actions to protect life and property.

38.4 Feet **Peak stage recorded December 22, 1964.**

39.0 Feet Record level flooding of all areas near the river. Significant damage to roads, bridges, and other structures near the river is likely. All lower-lying areas in and around the river will be flooded. All persons in these areas should be prepared to take action to protect life and property.

Smith River at Dr. Fine Bridge
Note: Smith River is in Del Norte County. Smith River flooding impacts are included for reference.

27.0 Feet **Monitor Stage**

31.0 Feet Minor flooding of gravel plant near Highway 101 and of South Bank Road, approximately 1 mile upstream from Doctor Fine Bridge.

33.0 Feet **Flood Stage**
Minor flooding of gravel plant and South Bank Road in the vicinity of Highway 101 is likely. Water may flow across low-lying areas into Lake Earl about 4 miles south of the river including areas along Lower Lake Drive.

36.0 Feet Moderate flooding of South Bank Road in the vicinity of Highway 101 is likely. Water can flow across low-lying areas into Lake Earl about 4 miles south of the river, including areas along Lower Lake Drive. Some low-lying residential access roads may be flooded.

38.0 Feet Moderate flooding of Highway 197 and South Bank Road in the vicinity of Highway 101, and low-lying areas between Lake Earl and the river, including areas along Lower Lake Drive is expected. Some access roads and residences in the area between Lake Earl and the river along Lower Lake Drive may be flooded.

39.5 Feet **Peak stage recorded December 22, 1964.**

40.0 Feet Record level flooding with significant damage to roads, bridges, and other structures. Major flooding along Highway 101, Highway 199, South Bank Road, and in low-lying areas between Lake Earl and the river, including areas along Lower Lake Drive is expected. Much of the delta is inundated. Flood waters extend south to Lake Earl.

4 PREPARATIONS

4.1 Flood Event Mitigation and Response Planning

The Humboldt County Emergency Operations Plan (EOP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting Humboldt County. The EOP guides the overall actions of emergency responders and provides a framework into which this Flood Contingency Plan will address specific flood-related response issues.

Mitigation actions involving flooding incidents will normally be broken down into two categories: 1) Pre-flooding readiness, and 2) Emergency response. The extent to which any mitigation operations are conducted will be predicated on the actual situation and the need for government response and actions.

(1) Pre-Flooding Readiness Actions

In this phase, flooding has not occurred but prevailing conditions and forecasts are indicating possible isolated or widespread flooding may take place within a specified time period.

- Close monitoring of weather forecasts and water levels within rivers and levees
- Dissemination of flood awareness and preparedness information to the public through various outlet sources
- Mobilization of response resources
- Possible activation of the Emergency Operations Center in preparation for potential flooding

(2) Flood Emergency Response Actions

In this condition, flooding is occurring or has occurred and immediate mitigation and emergency response measures are required.

- EOC activation (Level 2 minimum) – Level 2 means the Incident Commander, the Command Staff, the Section Chiefs, and those other Branches and Units and Agency Representatives as are appropriate for the immediate situation.
- Deployment of flood fighting and public safety resources throughout impacted areas
- Rescue of persons imperiled or trapped by flood conditions
- Appropriate public information broadcasts
- Initiation of preparatory and emergency evacuation of threatened populations
- Protection of essential services and critical infrastructure

4.2 Flood Event Notification Systems

Due to the sequential pattern of storms needed to cause serious flooding, it is unusual for a flood to occur without warning. Warning times for floods can be between 24 and 48 hours. Flash flooding can be less predictable,

but potential hazard areas can be warned in advance of potential flash flooding danger.

As major storm systems approach, the National Weather Service (NWS), in coordination with the California Department of Water Resources (DWR), monitors weather conditions and real-time precipitation and river stage data; forecasts the amount and timing of expected precipitation; and issues official river forecasts and Hydrologic Statements. Updated a minimum of twice daily, these river forecasts are available as both text products and as Graphical River Guidance Forecast products. Graphical River Guidance Plots provide river stage information for each official forecast point for the next five days following each forecast issuance. As storm events continue with streams and rivers on the rise to threatening levels, these forecasts may be updated on a more frequent basis as needed. Graphical River Guidance Plots can be accessed at these CNRFC and DWR websites:

http://www,cnrfc.noaa.gov
http://cdec.water.ca.gov/guidance_plots/

(Refer to Section **14** for a sample and more details on this product.)

See Section **4.3** for a diagram of the Cooperating Agencies.

National Weather Service

The National Weather Service (NWS) is an agency of the National Oceanic and Atmospheric Administration (NOAA) under the United States Department of Commerce. The California Nevada River Forecast Center (CNRFC) is a field office of the NWS located in Sacramento, California. The CNRFC works in conjunction with the California Department of Water Resources to meet the objectives of the NWS Hydrologic Service Program. The objectives are to provide river and flood forecasts and warnings for the protection of lives and property, and to provide basic hydrologic information for the national economic well being. The website address is: http://www.cnrfc.noaa.gov/.

The NWS Forecast Office located in Eureka is responsible for providing weather forecasts and warnings for Humboldt, Del Norte, Mendocino, and Trinity Counties. The NWS office in Eureka, in conjunction with the CNRFC, issues river flood warnings and statements. The office also advises, and remains in close contact with, the Humboldt County Office of Emergency Services preceding potential flooding and during flooding events. The website address is: http://www.wrh.noaa.gov/eka/.

Department of Water Resources

The mission of the Department of Water Resources (DWR) Division of Flood Management (DFM) is to prevent loss of life and reduce property damage caused by floods and to assist in recovery efforts following any natural disaster. The State-Federal Flood Operations Center (FOC) located in Sacramento, California, is a component of the Division's Flood Operations Branch. Year-round the FOC is the focal point for the gathering, analysis, and dissemination of flood and water-related information to stakeholders. During emergency situations, the FOC provides a facility from which DWR can centrally coordinate emergency response state-wide. The website address is: http://www.water.ca.gov/floodmgmt/. DWR's informational website is known as the California Data Exchange Center (CDEC) and can be

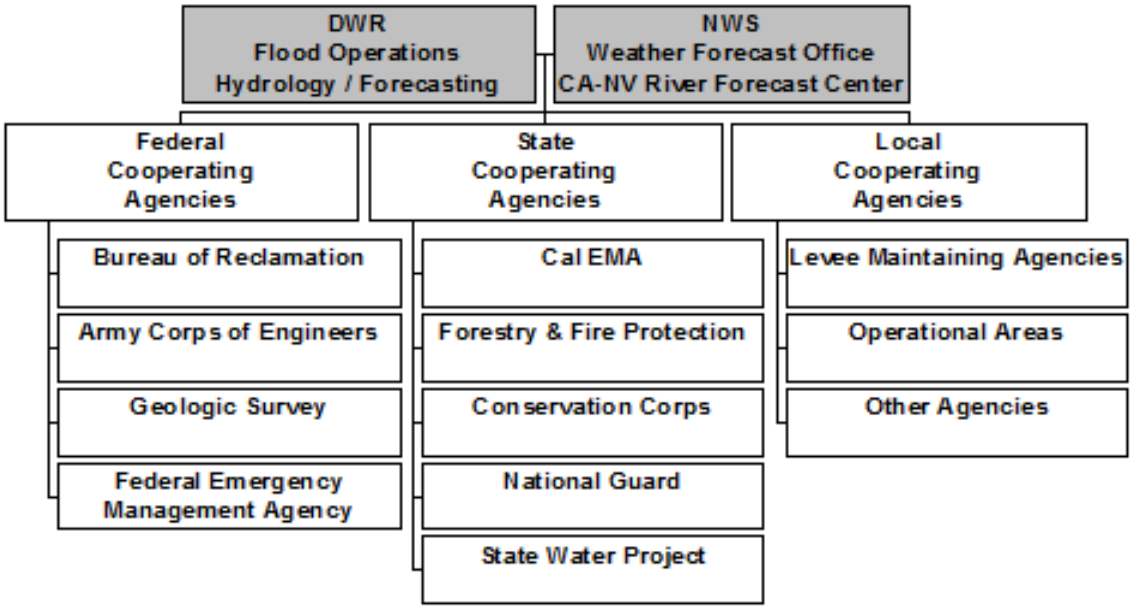
accessed at: http://cdec.water.ca.gov/ CDEC provides a centralized location to store, process, and disseminate real-time hydrologic information as well as forecasts and guidance products.

Humboldt County and the North Coast are very fortunate to have the Flood Center located in Eureka. As the only satellite office of the FOC, the Eureka Flood Center serves as a vital early warning system, and directly advises north coast counties during emergent flood events. Many agencies cooperate with the Department of Water Resources during flood emergencies and some send representatives to work at the Flood Operations Center.

The FOC in Sacramento and the Eureka Flood Center coordinate flood response activities and disseminate flood forecasts and warnings to the local emergency response agencies and the public. Staff are available year-round to provide local support and track incidents with potential flood impacts.

4.3 Cooperating Agencies Diagram

The following diagram provides an overview of key federal, state, and local cooperating agencies. Agencies in the top two boxes are co-located in a joint operation allowing for cooperation at an unprecedented level to take advantage of the resources and expertise of both agencies. Duplication of effort is eliminated and a single message reaches the emergency managers and the public.



4.4 Public Alerting and Warning Systems

Emergency Alert System

The Emergency Alert System (EAS) allows real-time emergency event notifications to the public via radio and television broadcasts. All local radio and television broadcast stations participate in the EAS.

NOAA Weather Radio
NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest NWS office. NWR broadcasts official Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day, 7 days a week.

Working with the Federal Communication Commission (FCC) EAS, NWR is an "All Hazards" radio network which makes it a single source for comprehensive weather and emergency information. It is provided as a public service by NOAA. NWR requires a special radio receiver or scanner capable of picking up the signal.

Telephone Emergency Notification System
A county-wide "reverse calling" or Telephone Emergency Notification System (TENS) is in place and can be utilized for emergency notifications to the public regarding flood conditions. The system has the ability to call and deliver a short recorded message to all publicly-listed land line telephones in the Operational Area or to geographically-targeted areas in the event of an emergency flood situation that requires immediate action.

Responding Agencies
Emergency responders may do a sweep of the affected area using loudspeakers and personal contact.

Local Media
Normal broadcast media (radio/television) can be utilized to inform the public of anticipated threats or possible emergency actions in the near future.

Social Media
Social media is becoming increasingly important to disaster survivors and emergency managers. Several forms of electronic communication, such as web sites for social networking and microblogging, allow users to create online communities to share information, ideas, personal messages, and other content (such as videos).

4.5 Public Information Access

The National Weather Service Weather Forecast Office maintains a website (http://www.wrh.noaa.gov/eka) which displays forecast and warning information for Humboldt, Del Norte, Mendocino and Trinity Counties. On the home page map graphically displays the current watches, warnings, and advisories. Monitor and flood stage and gage information for area rivers is available by selecting the Rivers and Lakes tab (http://water.weather.gov/ahps2/index.php?wfo=eka).

The Department of Water Resources, California Data Exchange Center (CDEC), installs, maintains, and operates an extensive hydrologic data collection network for flood forecasting. The CDEC maintains a website (http://cdec.water.ca.gov/river/rivcond.html) which provides current river

levels. River Forecasts and Guidance Plot Products as described in Section 14 may also be found on the CDEC website at: http://cdec.water.ca.gov/rivforecasts.html and http://cdec.water.ca.gov/guidance_plots/ When access to the internet is unavailable, the public my also obtain River Forecast information through the DWR River Forecast Recording Hotline at 707-445-7855. During the flood season, this River Forecast Recording is updated a minimum of once per day.

The National Weather Service, California Nevada River Forecast Center, maintains a website (http://www.cnrfc.noaa.gov/) which displays River Guidance (flood forecast points). A map shows both monitor stage and flood stage for area rivers, and gage information is available.

EDIS (Emergency Digital Information Service) is available for public access via the internet (www.edis.ca.gov). California emergency managers use EDIS to alert and inform the news media and the public by providing detailed information regarding the emergency. Local emergency public information announcements will be posted on EDIS.

The California Emergency Management Agency's MyHazards website is available to the public (http://myhazards.calema.ca.gov/). This website can be used to discover flood, and other natural, hazards that exist in a particular area. It also provides preparedness information.

The Centers for Disease Control and Prevention web site (www.bt.cdc.gov/disasters/floods/) provides excellent personal safety-related information about preparing for and recovering from flood events.

The Federal Emergency Management Agency publication, "Are You Ready? Guide", gives in-depth preparedness information to citizens (www.fema.gov/areyouready/flood.shtm/).

The U. S. Geological Survey web site (www.usgs.gov/osw/floods/) provides all manner of flooding-related information to the public.

During a flood event in which the Emergency Operations Center is activated, the Public Information Officer may activate a public information line. (268-2530 or 866-360-3605) This line would have a pre-recorded message regarding flood event information.

See Section **15** for press release samples.

The Humboldt County Sheriff's Office of Emergency Services maintains additional emergency related links on its website (www.co.humboldt.ca.us/sheriff/oes).

RESPONSE OPERATIONS

5 CONCEPT OF OPERATIONS

The RESPONSE OPERATONS section should be immediately consulted at the onset of a flood event.

5.1 Emergency Response Objectives

- Notify residents of the impending flood
- Assist in mobilizing community resources to respond to the flood conditions and results
- Evacuate individuals from threatened areas as needed
- Rescue individuals trapped by flood or in the water
- Limit non-resident access to the area
- Provide appropriate security to evacuated areas
- Limit damage to property through salvage and security
- Integrate fire, law enforcement, and emergency medical services to optimize performance under flood conditions
- Expedite the restoration of normal functions in the areas subject to inundation from flooding

5.2 Pre-Emergency Preparations

County departments and Operational Area agencies with responsibilities during a flooding event must ensure their personnel are properly trained. They should identify needed equipment and other resources and pre-position them for an optimum response to emergency situations. Multi-agency and multi-jurisdictional coordination compacts/agreements between Humboldt County and local governments, including special districts and state agencies are in place. Current contact lists for agencies with responsibilities during a flooding event are kept in the Office of Emergency Services. The Flood Contingency Plan is reviewed annually in accordance with guidelines in the Humboldt County Emergency Operations Plan.

The National Weather Service Forecast Office in Eureka, and the CA Department of Water Resources Flood Operations Center, work together to provide forecasts and advise of potential emergent flooding events during major storm systems.

The County of Humboldt has established a policy regarding the use of sandbags during flooding events. In essence, County stocks of sand and sandbags are intended for public infrastructure protection only. However, during specific identified extreme emergency events, the Sandbag Policy also gives the authority to the Director of Emergency Services (Sheriff) or to the Board of Supervisors to allow the limited distribution of excess County stocks of sand and sandbags to the public. (See Section **16**) Directions for filling and laying sandbags are in Section **17**.

The CA Department of Water Resources has flood fight materials, including sand bags, stockpiled within the North Coast region. These materials are available to local government agencies as needed during emergencies upon request.

5.3 Emergency – Contingency Plan Activation

Flood events do not occur without some weather-related warning. Area emergency officials receive early predictive notification hours and even days before significant events occur giving them ample time to implement planning and pre-response efforts.

This Flood Contingency Plan will be activated by the Director of Emergency Services (Humboldt County Sheriff) or the Director's designated representative when any river level is predicted to reach Flood Stage. The Director will authorize at least a Level 2 activation of the Emergency Operations Center. Level 2 means the Incident Commander, the Command Staff, the Section Chiefs, and those other Branches and Units and Agency Representatives as are appropriate for the immediate situation.

5.4 Agency Responsibilities During Flood Operations

Many agencies with operational responsibilities within the Humboldt Operational Area have specific duties to perform during flood events. This section provides a listing of those duties in bullet format. The listings are organized into sections for Humboldt County Departments, local government fire, law, and emergency medical entities, other local government entities, non-governmental organizations, state entities, and federal entities.

Note: See the Humboldt County Emergency Operations Plan for expanded responsibilities.

5.4.1 Humboldt County Departments

Sheriff's Office

- Alert and evacuate people in the areas subject to inundation
- Assist various agencies in search and light rescue
- Maintain law and order in evacuated areas
- Provide security for facilities and resources
- Coordinate traffic control with the California Highway Patrol
- Collect information and report it to the EOC

Office of Emergency Services

- Per the Director of Emergency Services, activate the Emergency Operations Center to the degree necessary
- Coordinate and support the operations of the Emergency Operations Center
- Maintain liaison with:
    - National Weather Service Office Eureka
    - Department of Water Resources
    - California Emergency Management Agency, Coastal Region
    - City and Community EOCs
    - Other involved agencies and organizations
- Request and coordinate mutual aid
- Issue advisory and alerting information to OES Deputy Coordinators in cities and communities
- Prepare emergency proclamation as directed

- Prepare situation reports

Public Works

- Maintain and/or restore County roads
- Coordinate with the California Department of Transportation (Caltrans) for the maintenance of state highways
- Clear debris
- Maintain public facilities
- Assist operators of mass care facilities by providing required engineering services
- Provide technical supervision over emergency construction
- Provide transportation for personnel and materials to assist flood-fight operations
- Provide damage estimates for County facilities
- Assist in heavy rescue
- Maintain an inventory of facilities and equipment at airports throughout the County
- Plan for aerial reconnaissance and resupply in support of emergency operations
- Coordinate aerial operations
- Allocate facilities and equipment at airports to the various users
- Coordinate with the Roads department and the Sheriff's Office the use of highways and roads as emergency landing strips for rotary wing and light fixed wing aircraft
- Monitor conditions and coordinate flood-fighting measures for County-managed levees (Redwood Creek levee in Orick, Mad River levee in Blue Lake, Sandy Prairie levee along Eel River in Fortuna)
- Coordinate with Department of Water Resources and U.S. Army Corps of Engineers regarding levee conditions and flood response actions for levees
- Collect information and report it to the EOC

Department of Health and Human Services

Public Health Branch

- Maintain an inventory of health and medical resources; plan for their emergency allocation
- Determine public health hazards
- Establish standards for control of public health hazards
- Provide technical guidance and supervise activities to control public health hazards
- Coordinate medical treatment for sick and injured persons
- Coordinate with care and shelter agencies on health and medical support in mass care facilities
- Manage the identification and disposition of the deceased in coordination with the Coroner
- Coordinate the disposition of dead livestock with the communities and the Agricultural Commissioner
- Collect information and report it to the EOC

Environmental Health Division

- Determine operational condition of public water and sewer systems
- Dispatch teams to survey potable water systems and determine status of potable water
- Dispatch teams to survey sewage and wastewater treatment systems
- Ensure both water and sanitation systems are continually monitored
- Develop a transportation and distribution strategy for potable water
- Collect information and report it to the EOC

Social Services Branch

- Coordinate the planning for mass care facilities in the cities and communities subject to inundation
- Supervise the operations of mass care facilities throughout the County
- Inventory and allocate temporary housing
- Maintain a register of displaced persons
- Provide rehabilitation and counseling services
- Provide financial and other types of assistance to displaced persons
- Coordinate with the American Red Cross
- Collect information and report it to the EOC

Mental Health Branch

- Identify and assess levels of mental health care needed
- Assess status of Mental Health facilities
- Inspect and assess the status of medications and other consumables for availability and usability
- Plan and coordinate deployment of clinical and support staff to establish sites as needed
- Collect information and report it to the EOC

Agricultural Commissioner

- Initiate request for Secretarial Disaster Designation for agricultural losses
- Establish a food inventory survey with emphasis on isolated areas and those subject to isolation
- Initiate emergency procurement of food and its delivery to isolated areas
- Allocate and distribute USDA donated food to mass care centers
- Estimate damage to livestock and other agricultural resources
- Coordinate with the California Department of Food and Agriculture the procurement and distribution of feed grains for isolated or co-mingled livestock
- Prevent and/or control outbreaks of plant or animal diseases
- Collect information and report it to the EOC

Coroner

- Perform body recovery operations

- Establish a body processing area and a temporary morgue
- Process personal belongings
- Coordinate with appropriate agencies
- Collect information and report it to the EOC

5.4.2 Local Government Fire, Law, EMS

Fire Agencies

- Coordinate search and rescue operations with the Sheriff's Office and among the various fire agencies in the County
- Coordinate fire suppression with particular emphasis in evacuated areas
- Coordinate assistance in first aid
- Assist with protection of property
- Collect information and report it to the EOC

Law Enforcement Agencies

- Assist in alerting and evacuating people
- Direct people to mass care centers when necessary
- Assist with flood-related traffic control
- Assist with evacuation operations
- Maintain law and order during evacuation operations and in evacuated areas
- Provide security for facilities and resources
- Collect information and report it to the EOC

Emergency Medical Services

- Provide triage for injured persons
- Provide aid/medical treatment for injured persons
- Provide transportation of injured persons to the hospital
- Collect information and report it to the EOC

5.4.3 Other Local Government Entities

Care and Shelter Agencies

- Establish and maintain contact with the DHHS Social Services Branch
- Maintain information on the status of all mass care facilities that are operational
- Coordinate with the Public Health representative on medical or sanitation assistance required in support of mass care facilities
- Provide daily reports to the EOC on the status of mass care facilities, including number of occupants and supply levels
- Collect information and report it to the EOC

The local Red Cross and Salvation Army will provide temporary shelter and other basic needs to evacuees where necessary. Area Voluntary Organizations Active in Disaster (VOAD) agencies will provide support as needed.

5.4.4 Other Non-Governmental Organizations

HAM Radio Operators

- Facilitate information flow between locations within the OA and the EOC

- Collect information and report it to the EOC

Office of Emergency Services Deputy Coordinators

- Provide warning information to rural communities
- Provide response and recovery services to rural communities
- Act as contact point between Humboldt County OES and his or her community
- Collect information and report it to the EOC

5.4.5 State Government Entities

California Conservation Corps

- Fill and stockpile sandbags
- Sandbag to protect buildings and structures
- Provide evacuation assistance
- Provide debris removal
- Collect information and report it to the EOC

California Department of Transportation

- Storm patrolling of roads
- Respond to specific incidents
- Deploy road advisory signs and road closed signs
- Deploy barricades
- Remove or repair blocked sections of the highway
- Assist the California Highway Patrol in traffic control
- Coordinate local road damage estimates
- Collect information and report it to the EOC

California Department of Water Resources

- Support local emergency response
- Activate State-Federal Flood Operations Centers in Sacramento and/or Eureka to monitor/evaluate flood event and provide centralized source of information and technical expertise regarding flood conditions and forecasts
- In cooperation with NWS and USGS, operate and maintain precipitation and river gaging stations to provide real-time information to support river forecasts and emergency response agencies
- Ensure public access to water and flood-related information through the maintenance of the CDEC website
- As part of a joint State-Federal river forecasting program with the CNRFC – produce, analyze, and issue joint river forecasts and guidance documents
- As part of a joint State-Federal warning program with the NWS – disseminate weather and hydrologic advisories, warnings, and other high water notification products
- Maintain and manage stockpile of flood fight materials for use by local agencies by request
- Request U. S. Army Corps of Engineers flood assistance on behalf of local agencies under Public Law 84-99 when the emergency exceeds the resources of both the local agency and the State

California Emergency Management Agency

- Coordinate State's response to requests for assistance from Operational Area
- Coordinate State mutual aid efforts when the Governor declares an emergency

California Highway Patrol

- Provide primary responsibility for traffic supervision and control on all state highways in unincorporated areas of the state
- Assist in moving vehicles and pedestrians from hazard areas
- Assist local law enforcement agencies in establishing evacuation routes and traffic control procedures
- Assist in preventing traffic from reentering hazard areas
- Provide traffic control in and around evacuation areas and mass care shelters
- Collect information and report it to the EOC

5.4.6 Federal Government Entities

United States Army Corps of Engineers

- Support immediate emergency response priorities
- Sustain lives with critical commodities, temporary emergency power and other needs
- Initiate recovery efforts by assessing and restoring critical infrastructure
- Provide technical assistance, supplies, and equipment
- Flood fight and rescue operations
- Emergency repair and restoration of flood control works
- Post-flood response
- Collect information and report it to the EOC

United States Coast Guard

- Assist in search and rescue
- Alert water traffic outside and near Humboldt Bar
- Collect information and report it to the EOC

United States National Weather Service Office Eureka

- Issue and disseminate weather forecasts, hydrologic warning, and statements
- In conjugation with the California-Nevada River Forecast Center, analyze and issue river forecasts and guidance products
- Ensure public access to weather and flood-related information through the maintenance of the NWS Eureka website and Facebook
- In collaboration with the Eureka Flood Center, provide centralized source of information and technical expertise regarding flood conditions and forecasts
- Maintain liaison with other involved city, tribal, and community agencies or organizations
- Provide weather forecasts and hydrologic information to the EOC

United States NWS California-Nevada River Forecast Center

- As part of a joint State-Federal river forecasting program with the CA DWR – produce, analyze, and issue joint river forecasts and guidance products
- In conjugation with the NWS office in Eureka, analyze and issue river forecasts and guidance products
- Ensure public access to water and flood-related information through the maintenance of their website

5.5 Radio Communications Shared Channels

The California Emergency Management Agency has licensed the following VHF High Band voice radio channels for use by public safety agencies in California. (The listed "V" channels are also authorized for use by the U. S. Department of Homeland Security.) The available channels are meant for use during emergent events - they are not for everyday use. The appropriate below listed channels should be installed in all public safety radios to be available for use as needed.

DISPLAY	PURPOSE	RX FREQUENCY
CALAW1	California LE Mutual-Aid	154.92000 N
CALAW2	California LE Mutual-Aid	154.93500 N
VLAW31	National LE Mutual-Aid	155.47500 N
CALCORD	California On-Scene Coordination	156.07500 N
VFIRE21	California Fire Mutual-Aid	154.28000 N
VFIRE22	California Fire Mutual-Aid	154.26500 N
VFIRE23	California Fire Mutual-Aid	154.29500 N
VMED28	EMS-Medical Interoperability	155.34000 N
SAR	National SAR Common Channel	155.16000 N
VCALL10	Any Public Safety Interoperability	155.75250 N
VTAC11	Any Public Safety Interoperability	151.13750 N
VTAC12	Any Public Safety Interoperability	154.45250 N
VTAC13	Any Public Safety Interoperability	158.73750 N
VTAC14	Any Public Safety Interoperability	159.47250 N

N = Narrow Band

5.6 Telephone Emergency Notification System (TENS) Activation

The activation of the Telephone Emergency Notification System (TENS) by the Sheriff's Office Dispatch Center is through the EOC. The TENS system will be utilized to notify residents of emergent flooding conditions.

5.7 Post-Emergency Operations

All post-emergency operations in response to flood effects will be in accordance with those procedures established in the Humboldt County Emergency Operations Plan.

6 NOTIFICATION PROCEDURES

Emergency response agencies will use all means available to notify the public within and adjacent to their jurisdictions. Notification methods include activation of the Emergency Alert System, NOAA Weather Radio, activation of the "reverse calling" or Telephone Emergency Notification System, personal contact by responding agencies, and local broadcast media.

7 EVACUATION PROCEDURES

Should the Director of Emergency Services (Sheriff) order an evacuation of persons from flooded or projected flood areas, Operational Area (OA) response agencies shall coordinate their operations through the OA Emergency Operations Center.

All evacuation-related actions will be in accordance with those procedures set forth in the Humboldt County Evacuation Plan.

8 SEARCH AND RESCUE PROCEDURES

All search and rescue operations shall be in accordance with the standard operating procedures of the agency involved. All search and rescue operations shall be coordinated with the Humboldt County Emergency Operations Center to ensure any required additional resource assignments are prioritized and based on need.

9 DAMAGE ASSESSMENT PROCEDURES

All initial damage assessment operations shall be conducted by the agency responsible for field notifications for that areas. Initial assessment results shall be immediately communicated to the Humboldt County Emergency Operations Center for accounting and for response prioritization planning.

10 POST-FLOOD EVENT ACTIONS

As floodwaters begin to recede, the emergency management operations begin transition from the Response Phase into the Recovery Phase. All Recovery Phase actions will be guided by the Humboldt County Emergency Operations Plan, Part 4.

SUPPLEMENTS

11 REFERENCE LINKS

California Data Exchange Center (CDEC) http://cdec.water.ca.gov/

CDEC Graphical River Guidance Plots
http://cdec.water.ca.gov/guidance_plots/

California Department of Water Resources http://www.water.ca.gov/

California Department of Water Resources, Division of Flood Management
http://www.water.ca.gov/floodmgmt/.

California Emergency Management Agency's MyHazards
http://myhazards.calema.ca.gov/).

California Nevada River Forecast Center (CNRFC)
http://www.cnrfc.noaa.gov/.

Humboldt County Emergency Operations Plan and other specific event contingency plans www.co.humboldt.ca.us/sheriff/

Humboldt Operational Area Hazard Mitigation Plan
www.co.humboldt.ca.us/planning/hazardmitigation/default.asp?inc=finaldraft

National Weather Service Office Eureka http://www.wrh.noaa.gov/eka/

NOAA Weather Radio http://www.weather.gov/nwr/

State of California, Emergency Plan, July 2009
http://cms.calema.ca.gov/prep_sep.aspx

12 ACRONYMS

CADWR	California Department of Water Resources
CALEMA	California Emergency Management Agency
CALTRANS	California Department of Transportation
CDEC	California Data Exchange Center
CNRFC	California-Nevada River Forecast Center
DFM	Division of Flood Management
DHHS	Department of Health and Human Services
EAS	Emergency Alert System
EDIS	Emergency Digital Information System
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
FCC	Federal Communication Commission
FEMA	Federal Emergency Management Agency
FOC	Flood Operations Center
NOAA	National Oceanic and Atmospheric Administration
NWR	National Oceanic and Atmospheric Administration Weather Radio
NWS	National Weather Service
OA	Operational Area
OES	Office of Emergency Services
TENS	Telephone Emergency Notification System
USDA	United States Department of Agriculture
VOAD	Voluntary Organizations Active in Disaster
WFO	Weather Service Forecast Office

13 GLOSSARY

Note: Includes some flood-related terms not found in Plan

ACRE-FOOT The volume of water represented by a depth of 1 foot over an area of 1 acre. One acre-foot is equal to 43,560 cubic feet. One acre foot of water is equal to 325,851 gallons of water.

ACTION STAGE The stage which; when reached by a rising stream, lake, or reservoir; represents the level where the NWS or a partner/user needs to take some type of mitigation action in preparation for possible significant hydrologic activity. Action stage can be the same as forecast issuance stage. Monitor stage or caution stage may be used instead of action stage in some parts of the country.

ADVISORY An advisory highlights special weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and, if caution is not exercised, it could lead to situations that may threaten life and/or property.

ANTECEDENT PRECIPITATION This is precipitation which occurred prior to a particular time over a basin. This term is usually applied as a measure of moisture in the top layer of soil which would affect runoff from additional rainfall.

AREAL FLOOD WARNING A flood warning is issued by the NWS for any high flow, overflow, or inundation in a geographic area which threatens life and property and is not covered by a flash flood warning or a main stem river flood warning.

AREAL FLOOD WATCH A flood watch is issued by the NWS to inform the public of the possibility of flooding, typically within a 6 to 48 hour time frame before the event.

BANKFULL STAGE An established gauge height at a given location along a river or stream, above which a rise in water surface will cause the river or stream to overflow the lowest natural stream bank somewhere in the corresponding reach. The term “lowest bank” is, however, not intended to apply to an unusually low place or a break in the natural bank through which the water inundates a small area. Bankfull stage is not necessarily the same as flood stage.

BASE FLOW Water which percolates down to the water table and eventually discharges into the stream through a spring or seepage. This is not included in direct runoff from excess precipitation. (This is also known as groundwater flow.)

CREST STAGE The highest value of river stage or stream flow attained in a flood.

CUBIC FEET PER SECOND (CFS) A unit of measurement of discharge equal to stream flow of one cubic foot per second past a given location.

DANGER STAGE The Stage at which the flow in a flood control project is greater than maximum levee design capacity and where there is extreme danger with threat of significant hazard to life and property in the event of levee failure.

DATA POINT In the context of hydrologic observations, a location on a river/stream for which observed data is input to RFC or WFO hydrologic forecast procedures, or included in public hydrologic products. Flood forecasts and warnings are not issued for data points. (See forecast point.)

DISCHARGE The rate at which a volume of water passes a given point (e.g. 5,000 cfs).

DRAINAGE BASIN A part of the earth's surface that is occupied by one drainage system having a common outlet for its surface runoff. It can be defined above any arbitrary point on any waterway which consists of a surface stream and all its tributaries. (Same as watershed, catchment, or river basin.)

DRAINAGE FLOODING Ponding of water at or near the point where it fell due to improper or limited drainage.

DROUGHT A prolonged period of below normal precipitation and consequently below normal runoff. In major droughts, economic losses are incurred by man (e.g. agriculture and manufacturing are impacted due to the unavailability of water) and biological losses are incurred by the environment (flora and fauna ecosystems are impacted).

EVAPOTRANSPIRATION Water which enters the atmosphere through evaporation (from all water, soil, snow, ice, vegetation and other surfaces) plus transpiration (water escaping from a living plant through its growth processes). Transpiration is the principle mechanism by which water on land areas is returned to the atmosphere; where evaporation is the principle mechanism over water.

FLASH FLOOD A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the country. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters.

FLASH FLOOD WARNING A flash flood warning is issued by the NWS when flooding is imminent or likely. It is reserved for those short-term and rapidly

developing events which require immediate action to protect life and property, such as dangerous small stream or urban flooding and dam or levee failures.

FLASH FLOOD WATCH A flash flood watch is issued by the NWS to inform the public of the possibility of flooding, typically within a 6 to 48 hour time frame before the event. It is reserved for short-term flood and flood events that develop quickly.

FLOOD Any high flow, overflow, or inundation by water which causes or threatens damage.

FLOOD CATEGORIES Terms defined for each forecast point which describe or categorize the severity of flood impacts in the corresponding river/stream reach. The first three of these flood categories – minor, moderate, and major flooding – are bounded by an upper and lower stage The severity of flooding at a given stage is not necessarily the same at all locations along a river reach due to varying channel/bank characteristics or presence of levees on portions of the reach. Therefore, the upper and lower stages for a given flood category are usually associated with water levels corresponding to the most significant flood impacts somewhere in the reach. The flood categories used in the NWS are:

MINOR FLOODING - minimal or no property damage, but causes public inconvenience or possibly some public threat. (Also known as nuisance flooding.)

MODERATE FLOODING - some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations may occur.

MAJOR FLOODING - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations may occur.

RECORD FLOODING - flooding which equals or exceeds the highest stage or discharge observed at a given site during the period of record keeping. The highest stage on record is not necessarily above the other three flood categories – it may be within any of them or even less than the lowest (also known as flood of record).

Note: all three of the lower flood categories (minor, moderate, major) do not necessarily exist for a given forecast point. For example, at the level where a river reaches flood stage, it may be considered moderate flooding. However, at least one of these three flood categories must start at flood stage.

FLOOD PLAIN The low land that borders a river or stream, which is usually dry but has been inundated by the waterway in the past.

FLOOD POTENTIAL OUTLOOK In hydrologic terms, an NWS outlook that is issued to alert the public of potentially heavy rainfall that could send area rivers and streams into flood or aggravate an existing flood.

FLOOD STAGE An established gauge height for a given location at which a rise in water surface level begins to create a hazard to lives, property, or commerce. The issuance of flood (or in some cases flash flood) warnings is linked to flood stage. Flood stage is not necessarily the same as bank full stage.

FLOOD STATEMENT This text product is issued by the local NWS office to follow up and expand the information in a river flood warning, aerial flood warning, or aerial flood advisory. The statement will also be used to terminate a river flood warning, areal flood warning, or areal flood advisory.

FORECAST POINT A location along a river or stream for which hydrologic forecast and warning services are provided by a WFO. The observed/forecast stage or discharge for a given forecast point can be assumed to represent conditions in a given reach.

GAUGE DATUM A horizontal surface used as a zero point for measurement of stage or gauge height. This surface usually is located slightly below the lowest point of the stream bottom such that the gauge height is usually slightly greater than the maximum depth of water. Because the gauge datum is not an actual physical object, the datum is usually defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gauge is set to agree with the reference marks. Gauge datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gauge datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gauge readings can be converted to elevations above the national datum by adding the elevation of the gauge datum to the gauge reading (e.g. datum equals 3412.6 feet above NGVD of 1929). Data are always chosen so there will never be negative stages.

GAUGE HEIGHT The level of the water surface above an established arbitrary point or datum (i.e. not the bottom) at a given location (same as stage).

GAUGING STATION A particular site on a stream, river, canal, lake, or reservoir where systematic observations of stage and/or stream flow are observed.

GROUNDWATER Subsurface water in the saturated zone or water table. Supplies water wells, springs, and base flow of rivers.

HEADWATERS The upstream portions of a river basin (i.e. near the source or beginning of the river). It can also be thought of as all parts of a river basin except the main stem river and the main tributaries.

HUNDRED YEAR FLOOD This is the magnitude of flood which has one chance in one hundred (a one percent chance) of being exceeded in any future one-year period. As the occurrence of floods is random in time, there is no guarantee that there will not be two one hundred year floods within a given year, or that there will be one within a given century.

The boundary of the one-hundred year flood zone is used by the Federal Emergency Management Agency (FEMA), to designate “Special Flood Hazard Areas”. These areas are plotted on “Flood Insurance Rate Maps” (FIRMS), which are used in determining flood risk to structures in the flood plain for flood insurance purposes.

HYDROGRAPH This is a graph showing stage, discharge, or other property of a river, stream, lake, or reservoir with respect to time.

HYDROLOGIC RIVER STATEMENT This text product is issued by the local NWS office for forecast points for any rise in flow that is expected to reach or exceed monitor stage but remain below flood stage. This product is used to inform the public of flooding in which there is not a serious threat to life or property.

LOCAL FLOODING Flood conditions which occur over a relatively limited area.

MAINSTEM The major reach of a river or stream formed by the smaller tributaries which flow into it.

MONITOR STAGE The stage which; when reached by a rising stream, lake, or reservoir; represents the level where the NWS or a partner/user needs to take some type of mitigation action in preparation for possible significant hydrologic activity. Action stage can be the same as forecast issuance stage.

QUANTITATIVE PRECIPITATION ESTIMATE (QPE) The estimate of the amount of rainfall or rainfall rates based on radar measurements or satellite data.

QUANTITATIVE PRECIPITATION FORECAST (QPF) A forecast of the amount of precipitation which will fall during a specific time period. These precipitation amount forecast values can then be used as input to hydrologic models for river forecasting purposes.

RAINFALL EXCESS This is the portion of a storm’s rainfall which falls at intensities exceeding the capacity of the soil to soak it up (the infiltration capacity of soil). The rainfall which produces the runoff hydrograph at a stream flow measuring point.

REACH A section of river or stream between an upstream and downstream location, for which the stage or flow measured at a point somewhere along the

section (e.g., gaging station or forecast point) is representative of conditions in that section of river or stream.

RIVER FLOODING Inundation of a normally dry area along a river (usually the main stem) due to increased water level or discharge. Because the drainage areas of main stem rivers are large, they do not flash flood like their smaller tributary streams.

River flooding occurs more than a few hours after the causative event of the flood (usually widespread heavy precipitation and/or snowmelt). In many cases the end of flash flooding along tributary streams may be followed by or coincide with river flooding (i.e. heavy precipitation which initially causes flash flooding on tributaries goes on to cause river flooding on the large rivers). Because of the longer time factor, river flooding usually can be forecast with much greater accuracy than flash flooding.

RIVER FLOOD WARNING A flood warning for a main stem river is issued by the NWS for any high flow, overflow, or inundation event threatening life and or property which can be quantified at specific locations and is not accounted for in areal flood or flash flood warning products.

RIVER FLOOD WATCH A flood watch is issued by the NWS to inform the public of the possibility of flooding, typically within a 6 to 48 time frame before the event, at specific forecast points on a river.

RIVER GAUGE REACH This is the stretch of river on which the stage and/or flow at a particular gauge is characteristic of stage and/or flow along that stretch. (Stream flow, depth, drainage area, and slope are fairly uniform along this stretch; there are no major inflows, diversions, dams, etc.

RUNOFF This is the part of precipitation which flows toward stream on the surface of the ground or within the soil and eventually appears in surface streams and rivers (i.e. precipitation which becomes stream flow.) The amount of runoff is affected by two different sets of factors: meteorological and physical.

Meteorological factors affecting runoff include:

1) Type of precipitation.
2) Rainfall intensity.
3) Rainfall amount.
4) Rainfall duration.
5) Distribution of rainfall over the basin.
6) Direction of storm movement.
7) Antecedent precipitation and resulting soil moisture.

8) Other meteorological and climatic conditions which affect evapotranspiration such as temperature, wind, relative, humidity, and season.

Physical basin characteristics affecting runoff include:

1) Land use.
2) Vegetation.
3) Soil type.
4) Drainage area.
5) Basin shape.
6) Elevation.
7) Slope.
8) Topography.
9) Direction of orientation.
10) Drainage network patterns.
11) Ponds, lakes, reservoirs, sinks, etc. in the basin which prevent runoff from continuing downstream.

SACRAMENTO MODEL A dynamic model run on a computer which accounts for all water entering, stored in, and leaving a basin. Though many parameters are used in this accounting process, precipitation has the main impact on runoff.

SMALL STREAM FLOODING Nuisance flooding of very small creeks and stream due to excessive rainfall over small drainage areas. This type of flooding should not be confused with flash flooding. Usually 0.5 to 1.0 inch of rainfall in an hour is sufficient to cause some small stream flooding.

SNOW SURVEY A process of measuring the depth, water content, and density of snow at various selected points on a drainage basin to determine the amount of water stored in the form of snow. This information is then used to forecast subsequent runoff.

SOIL MOISTURE Water diffused in the upper part of unsaturated soil above the water table. Soil moisture is released by transpiration of plants, evaporation, or interflow.

STAGE The level of the water surface of a river or stream above an established datum (not the bottom) at a given location. (See also gauge height.)

STREAM FLOW Water flowing in a stream channel at a particular point and time. Usually expressed in cubic feet per second (CFS).

UNIT HYDROGRAPH The hydrograph of direct runoff from a storm uniformly distributed over the drainage basin during a specified unit of time. The

hydrograph is reduced in vertical scale to correspond to a volume of runoff from the drainage basin equal to one inch during this time.

The unit hydrograph concept is based on three assumptions:

1) Since the physical properties of a basin (shape, size, slope, soils, etc.) are constant, there should be considerable similarity in the shape of the hydrographs from storms of similar rainfall characteristics.

2) For a storm of the same duration, but with a different amount of runoff than the unit hydrograph, the storm hydrograph is assumed to have the same time base as the unit hydrograph, and flow approximately proportional to the runoff volume of the unit hydrograph.

3) When unit hydrographs of the same duration (e.g. one hour) are added together for a series of bursts of excess rainfall, or from continuous excess rainfall of variable intensity, a hydrograph of storm discharge would result.

URBAN FLOODING Nuisance flooding of streets, underpasses, basements, and other low-lying urban areas. This flooding should not be confused with flash flooding. This type of flooding is usually due to poor drainage or limited drainage capacity of urban systems. The amount and rate of precipitation that causes urban or small stream flooding is usually constant for a specific community. In general, 0.5 to 1.0 inch of precipitation in one hour will cause at least minor urban/small stream flooding in most urbanized areas. Over one inch of rainfall in an hour will cause general urban flood problems and may cause flash flooding.

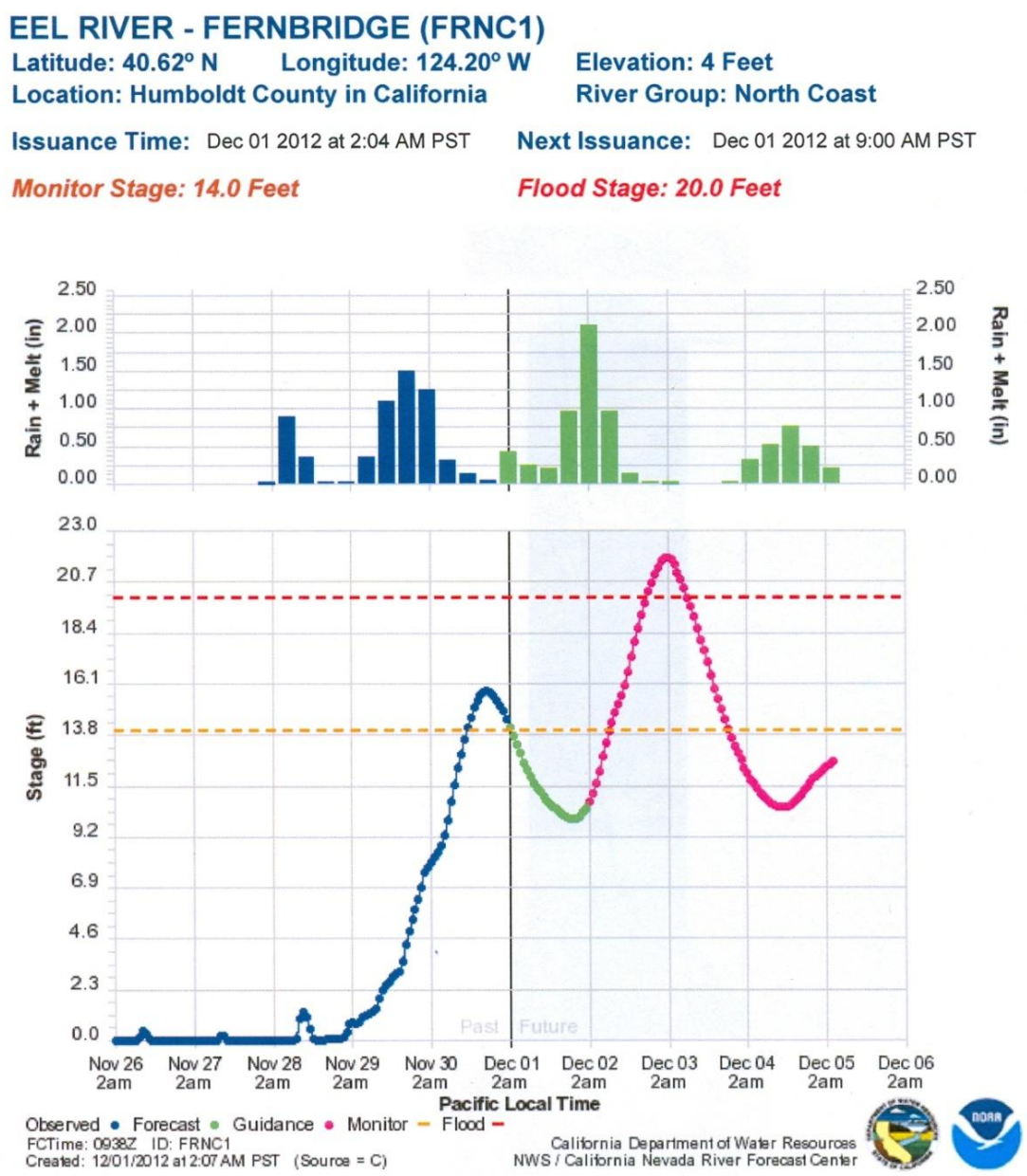
WATER TABLE The water table is the upper surface of soil which is completely saturated. Water below this surface is called ground water; water above it is called soil moisture.

WATER YEAR October 1 through September 30.

14 SAMPLE RIVER FORECAST DOCUMENTS

14.1 Guidance Plot

The example guidance plot below is for the Eel River at Fernbridge forecast point during a flood event. It shows the observed rain and snow melt and forecast rain and snow melt with the resulting graph of the actual observed stream flow from the previous five days (blue line) and forecast stream flow over the next five days (green and magenta line). More information on using these plots can be found in the Overview to Guidance Plots included in this section. These Guidance Plots can be found at the following Internet sites: http://www.cnrfc.noaa.gov or http://cdec.water.ca.gov/guidance_plots/



14.2 Graphical Plot Forecast Text Product

Below is an example of the text product that accompanies the graphical plot forecasts. The North Coast text product includes forecast points for the Smith, Eel, Mad, Van Duzen, Klamath Rivers and other rivers in Siskiyou County and in Oregon. The information for the Eel River at Fernbridge corresponding to the previous sample actual flood event graphical product is highlighted in gray in the corresponding text product below. The stage (FT) and stream flow (CFS) values in the text product are also reflected in the guidance plot.

```
NORTH COAST FORECAST
NATIONAL WEATHER SERVICE / CALIFORNIA-NEVADA RFC / SACRAMENTO CA
CALIFORNIA DEPARTMENT OF WATER RESOURCES / SACRAMENTO CA
204 AM PLT SAT DEC 01 2012

NEXT ISSUANCE:     SATURDAY, DECEMBER 01, 2012 AT  9AM PLT

FORECASTS THROUGH: WEDNESDAY, DECEMBER 05, 2012 AT  4AM PLT

ATTENTION... THE FOLLOWING STAGES OF PARTICULAR SIGNIFICANCE
             HAVE OCCURRED OR ARE FORECAST TO OCCUR:
FLOOD STAGE
        EEL RIVER - FERNBRIDGE (FRNC1) IN 42 HRS

MONITOR STAGE
        SMITH RIVER - DR FINE BRIDGE (FTDC1) IN 31 HRS
        VAN DUZEN RIVER - GRIZZLY CREEK (BRGC1) IN 24 HRS
        SF EEL RIVER - MIRANDA (MRNC1) IN 35 HRS

*********************************************************************
SITUATION SUMMARY:
*********************************************************************
RIVER
   LOCATION               STAGE    FLOW      TIME    DATE         LEAD
   (NWSLI)                (FT)     (CFS)     (PT)  (MM/DD/YY)    TIME
--------------------      -----  --------    ----  ----------    ------
SMITH RIVER          OBS   15.9   23,600 AT   1AM   12/01/12      (18)
   JEDEDIAH SMITH SP >MS   25.0          NOT EXPECTED
   (CREC1)           >FS   29.0          NOT EXPECTED
                     MAX   23.2   60,400 AT  10AM   12/02/12 IN  32 HRS

SMITH RIVER          OBS   22.1   25,300 AT   1AM   12/01/12      (18)
   DR FINE BRIDGE    >MS   27.0          BY   9AM   12/02/12 IN  31 HRS
   (FTDC1)           >FS   33.0          NOT EXPECTED
                     MAX   27.7   62,000 AT  11AM   12/02/12 IN  33 HRS

SPRAGUE RIVER        OBS    3.8      244 AT   1AM   12/01/12      (24)
   BEATTY            >MS    7.5          NOT EXPECTED
   (BTYO3)           >FS    8.5          NOT EXPECTED
                     MAX    6.6      946 AT  10AM   12/03/12 IN  56 HRS

WILLIAMSON RIVER     OBS    3.7      630 AT   1AM   12/01/12      (24)
   CHILOQUIN         >MS    8.0          NOT EXPECTED
   (WMSO3)           >FS    9.0          NOT EXPECTED
                     MAX    4.4    1,200 AT   4AM   12/05/12 IN  98 HRS

SCOTT RIVER          OBS    8.5    1,820 AT   1AM   12/01/12      (24)
   FORT JONES        >MS   12.0          NOT EXPECTED
   (FTJC1)           >FS   15.0          NOT EXPECTED
                     MAX   10.2    3,260 AT   4PM   12/02/12 IN  38 HRS
```

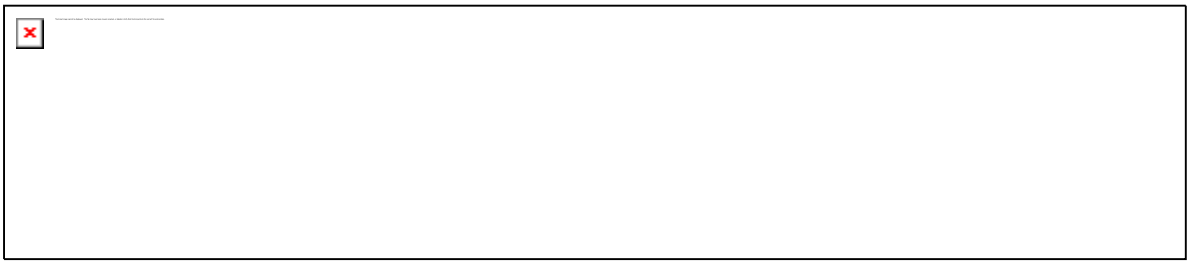
KLAMATH RIVER	OBS	6.4	6,000	AT	1AM	12/01/12		(24)
SEIAD VALLEY	>MS	13.0		NOT EXPECTED				
(SEIC1)	>FS	15.0		NOT EXPECTED				
	MAX	8.5	10,000	AT	10PM	12/02/12	IN	44 HRS
KLAMATH RIVER	OBS	12.2	23,200	AT	1AM	12/01/12		(24)
ORLEANS	>MS	32.0		NOT EXPECTED				
(ONSC1)	>FS	38.0		NOT EXPECTED				
	MAX	18.4	54,200	AT	8AM	12/02/12	IN	30 HRS
TRINITY RIVER	OBS	20.5	15,300	AT	1AM	12/01/12		(24)
HOOPA	>MS	44.0		NOT EXPECTED				
(HOOC1)	>FS	48.0		NOT EXPECTED				
	MAX	26.6	36,000	AT	4PM	12/02/12	IN	38 HRS
KLAMATH RIVER	OBS	20.9	57,300	AT	1AM	12/01/12		(24)
KLAMATH	>MS	30.0		NOT EXPECTED				
(KLMC1)	>FS	38.0		NOT EXPECTED				
	>DS	59.0		NOT EXPECTED				
	MAX	28.5	119,000	AT	9PM	12/02/12	IN	43 HRS
REDWOOD CREEK	OBS	14.6	3,220	AT	1AM	12/01/12		(24)
ORICK	>MS	26.0		NOT EXPECTED				
(ORIC1)	>FS	32.0		NOT EXPECTED				
	MAX	19.6	12,700	AT	10AM	12/02/12	IN	32 HRS
MAD RIVER	OBS	10.4	5,410	AT	1AM	12/01/12		(24)
ARCATA	>MS	15.0		NOT EXPECTED				
(ARCC1)	>FS	22.0		NOT EXPECTED				
	MAX	14.2	14,100	AT	4PM	12/02/12	IN	38 HRS
VAN DUZEN RIVER	OBS	5.7	5,280	AT	1AM	12/01/12		(18)
GRIZZLY CREEK	>MS	13.0		BY	2AM	12/02/12	IN	24 HRS
(BRGC1)	>FS	17.0		NOT EXPECTED				
	MAX	16.0	30,400	AT	10AM	12/02/12	IN	32 HRS
EEL RIVER	OBS	21.5	32,800	AT	1AM	12/01/12		(24)
FORT SEWARD	>MS	55.0		NOT EXPECTED				
(FTSC1)	MAX	36.5	119,000	AT	5PM	12/02/12	IN	39 HRS
SF EEL RIVER	OBS	12.9	7,620	AT	1AM	12/01/12		(24)
MIRANDA	>MS	27.0		BY	1PM	12/02/12	IN	35 HRS
(MRNC1)	>FS	33.0		NOT EXPECTED				
	MAX	28.0	60,700	AT	3PM	12/02/12	IN	37 HRS
EEL RIVER	OBS	27.9	74,900	AT	1AM	12/01/12		(24)
SCOTIA	>MS	45.0		NOT EXPECTED				
(SCOC1)	>FS	51.0		NOT EXPECTED				
	MAX	44.2	210,000	AT	10PM	12/02/12	IN	44 HRS
EEL RIVER	**OBS**	**14.5**		**AT**	**1AM**	**12/01/12**		**(24)**
FERNBRIDGE	**>MS**	**14.0**		**AT**	**CURRENT TIME**			*****
(FRNC1)	**>FS**	**20.0**		**BY**	**8PM**	**12/02/12**	**IN**	**42 HRS**
	MAX	**21.8**		**AT**	**2AM**	**12/03/12**	**IN**	**48 HRS**

DEFINITIONS:
OBS MOST RECENT OBSERVATION (MAY BE ESTIMATED)
MS MONITOR STAGE
FS FLOOD STAGE
DS DANGER STAGE (LEVEED LOCATIONS ONLY)
MAX MAXIMUM FORECAST WITHIN PERIOD
LEAD TIME FORECASTS WITHIN THIS PERIOD (HOURS) ARE CONSIDERED RELIABLE ENOUGH TO INITIATE PHYSICAL MITIGATION EFFORTS.
* EVENT EXCEEDS MS/FS/DS WITHIN LEAD TIME PERIOD

14.3 Overview to Guidance Plots

The top graphic plot depicts 10 days of rain plus snowmelt (rain+melt) in inches. The first 5 days are observed and the latter 5 days are forecast. Unless labeled otherwise, the values are reflective of the average over the entire watershed above this location on the river. Observed rain+melt is computed from observed precipitation and air temperature. Forecast rain+melt is computed from forecast precipitation, air temperature, and snowline elevation.

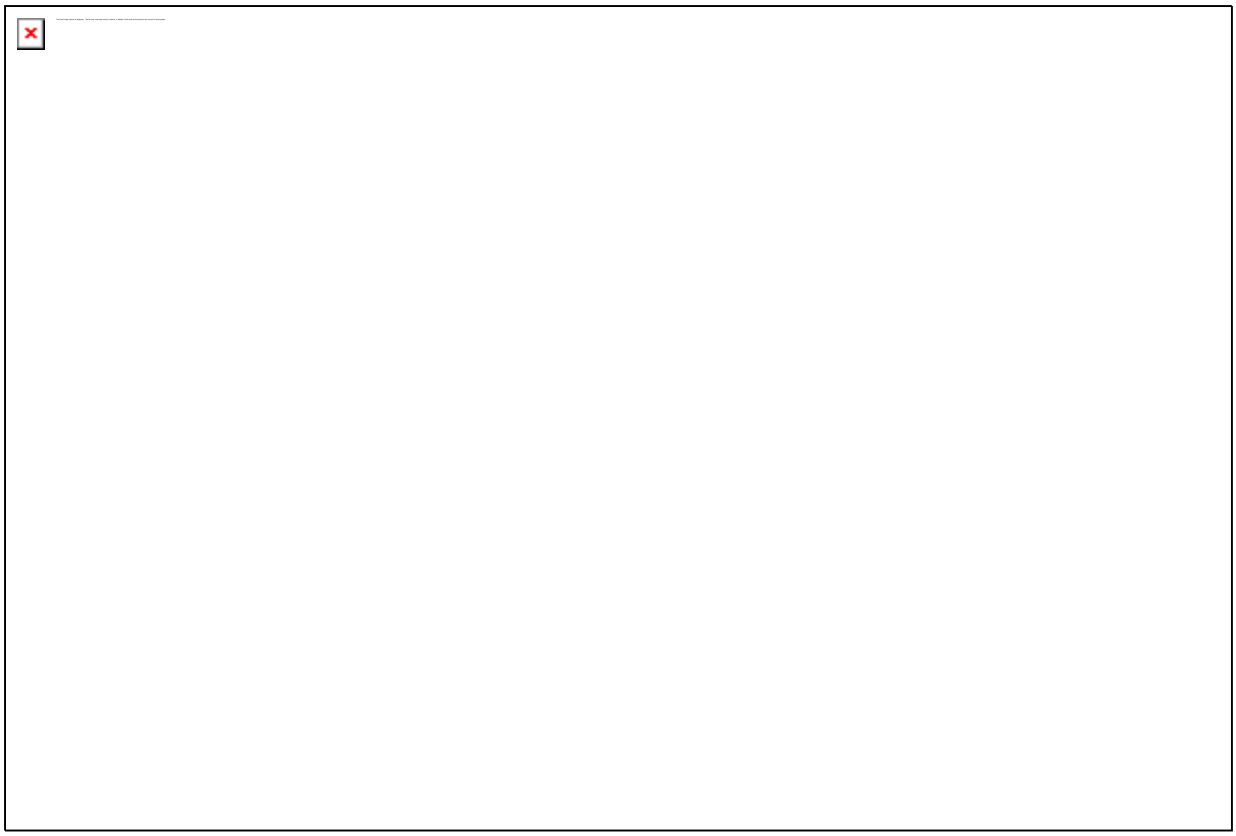
Rain+melt is different from precipitation because, depending upon the air temperature, precipitation can fall as either rain or snow and can also include snowmelt. When a storm system brings a mixture of rain and snow over a watershed, the rain portion (and any associated melt) will appear on this graph. This rain+melt input is then processed through a soil moisture model which accounts for surface and subsurface features and dryness. When the soil profile is dry, observed or forecast rain+melt may not appear as runoff. Once the soil profile becomes wet, rain+melt input will result in runoff. The amount and timing of that runoff is a function of the individual watershed characteristics. Changes in runoff are shown in the bottom half of the graphic.



The lower graphic shows a total of 10 days of streamflow comprised of observed (blue), forecast (green), and guidance (magenta) periods. The axis on the left is river stage in feet, and the axis on the right is discharge in cubic feet per second (cfs). The observed period covers the previous 5 days and is preliminary and subject to change later .

The future period also covers 5 days and is comprised of a forecast (green) and guidance (magenta) period. The duration of the forecast period varies from location to location. More predictable locations (and events) will have a longer forecast period, and less predictable locations (and events) will have a shorter forecast period. The guidance period begins at the end of the forecast period and extends through 5 days. Guidance values may contain significant uncertainty due to future weather and/or reservoir regulation. Actual conditions may be significantly above or below those described in the guidance portion of the hydrograph.

This information is provided for planning purposes only and should influence decisions such as how often to monitor future forecasts.



15 PRESS RELEASE SAMPLES

NOTE: These are sample message notes that may be used in any order or modified to suit the specific situation for a public announcement. All announcements should be timely and updated as the situation changes.

a. Significant rainfall from last evening and today may cause local area river levels to rise above flood stage. The weather forecast is calling for additional _____ inches of rainfall over the next _____ hours. Residents should continue to monitor local radio, television, or NOAA Weather Radio for updated weather forecasts and flood information. Weather information may be obtained by calling the National Weather Service recorded forecast line at (707) 443-7062.

b. The _____ River at (insert forecast point) is forecast to rise to _____ feet which is above flood stage by _____ (a.m. or p.m.) on _____.

c. Today's high tide is forecast to rise to _____ feet at _____ (a.m. or p.m.) on _____. If you live in the area of _____ (give boundaries) near the _____ River, flooding is very possible and you are advised to take precautions to protect yourself and your property.

d. The NWS office in Eureka has issued a flood warning for the _____ River at (insert forecast point). If you live in the area of _____ (give boundaries) near the _____ River, you are advised to (take precautions to protect yourself and your property) (evacuate as soon as possible). Owners of livestock should take appropriate action to protect livestock from rising river levels.

e. Please check on your neighbors to make sure they have received this flood warning. If you are physically unable to evacuate on your own, ask a neighbor to help or call _____.

f. Be sure to take essential items: medicine, special foods, personal items, baby supplies, clothing, money, and valuable papers. Do not overload your car. Secure your home before you leave.

g. Never drive through flooded roadways. Do not bypass or go around barricades.

h. If you cannot stay with relatives or friends, shelter will be available at _____.

i. Pets are not allowed in the shelter. However, veterinarians will be standing by to examine and shelter your pets. Do not allow your pet to run loose. If you cannot make arrangements for your large animals, (give instructions).

j. The Humboldt County Director of Emergency Services (Humboldt County Sheriff) has declared a Local Emergency due to the flooding conditions that have occurred on _____.

k. Stay tuned to your local radio stations or NOAA Weather Radio for current information.

l. The _____ Road is closed and will remain closed for an undetermined period. (Always pair this note with the road information note below.)

m. For information on County road conditions and closures, call _____. For information on all State highways, call 1-800-427-7623.

n. PREPAREDNESS/PROTECTIVE ACTION RECOMMENDATIONS:
North Coast residents should consider taking the following preventive measures in case of future flooding.

- Prepare by collecting a supply of food, water, clothing, bedding, toiletries, and emergency equipment such as a flashlight, extra batteries, portable radio, and first aid kit. Obtain household bleach for water purification. Fill your car with gas.
- Collect any special needs such as diapers, baby food, formula, pet food, and drug prescriptions.
- Individuals should make sure that storage facilities are filled and that backup emergency power is available when possible.
- Farmers and ranchers should obtain animal feed and be prepared to move animals to higher ground in case of additional flooding.
- Collect sandbagging supplies and prepare sandbags.
- If you are on high ground, stay inside and listen to local radio/TV for evacuation routes and instructions. If you need to evacuate, lock your windows and doors.
- Watch out for washouts, fallen wires, fallen trees, etc. Do not cross flowing water (on foot or in a car).
- Be prepared for flash floods, which can happen with little or no warning. Have a plan and act at once when authorities give you information.

o. Ranchers who have lost livestock should contact the Agriculture Department at _____ for proper disposal procedures. Ranchers who need assistance with stranded cattle or emergency feeding should contact _____ at the _____, at _____.

p. All municipal water supplies in Humboldt County are safe. The Public Health Branch cautions residents in flood areas that may have contaminated wells or springs to cook with boiled water only. Discard any food which has been in contact with flood water. Wells that are flooded should be disinfected prior to use. Contact Environmental Health for assistance at _____.

16 SANDBAG POLICY

Note: This Policy was adopted on January 20, 2004, by the Humboldt County Board of Supervisors.

Policy Regarding Sandbags
County of Humboldt

Purpose

This will establish policies and procedures for the use of sand and sandbags for public infrastructure protection during a declared disaster or emergency. This also establishes policies and procedures for specific instances where public stocks of sand and/or sandbags can be provided for private property protection efforts.

Scope

This policy applies to all County Departments, without exception.

Policy

For normal operations and for annual preparedness efforts, on-hand stocks of sand and sandbags under County control are intended for public infrastructure protection only. The Director of Emergency Services (Sheriff) or the Board of Supervisors may, upon a "Declaration of a Local Emergency in Humboldt County", and/or during any period in which an imminent threat of extreme wide-area flooding is identified for specific locations, take action to provide available sand and/or sandbags to the residents of the unincorporated areas of the County. Any public assistance to private persons will be based on the need to mitigate the immediate effects of the emergency or disaster, will be limited to stocks not needed for public infrastructure protection, and will terminate upon cessation of the immediate threat.

Outreach Support

The Director of Emergency Services (Sheriff) and the Board of Supervisors will support public outreach actions to inform the residents of the unincorporated areas of the County of this policy and other flood-planning mitigation programs. The outreach actions will stress planning and self-reliance by individual citizens. It is important that property owners and residents prepare in advance and take the steps necessary to protect their personal property. Outreach actions can include issuing Public Safety Announcements, providing printed material stressing preparedness and proper flood fighting actions for private citizens, planning for the implementation of this policy, and partnering efforts with other governmental agencies and private organizations. A current listing of area sand and sandbag suppliers will be promulgated to the public as part of the outreach effort. That listing will be updated annually by Public Works personnel and appended to this document at its annual review.

General Procedures

During a declared emergency and at the discretion of the Director of Emergency Services (Sheriff) or the Board of Supervisors, sand and/or sandbags, in excess of that which is needed for protection of public assets and for public safety, may be provided to the general public for emergency use. The provision of sand and/or sandbags will be terminated upon cessation of the immediate threat created by the declared emergency or disaster. Sand and/or sandbags will be provided from available County stocks and distributed at predetermined locations. During immanent emergency events and when approved by the Director of Emergency Service or the Board of Supervisors, sand and/or sandbags may be provided to the citizens of the unincorporated areas of the County subject to any restrictions placed by the order and limited to the availability of stocks on hand.

Specific Procedures – Annual Preparedness Actions and Normal Operations

The Board of Supervisors, as part of the County of Humboldt annual budget process, will review the provisions of this policy and determine the funding which will be provided for sand and/or sandbag procurement. Sufficient stocks of sand and/or sandbags will be procured by the Department of Public Works prior to the winter months to handle their expected use by the County for public infrastructure protection during declared emergency flooding events.

Specific Procedures – Disaster, State of Emergency Determination

When a state of emergency has been declared for Humboldt County by the Director of Emergency Services (Sheriff) or by the Board of Supervisors, the County may provide sand and/or sandbags from available County stocks to citizens of the unincorporated areas of the County if it is determined by the Sheriff, in consultation with the Director of Public Works, that there is excess stock beyond that which is necessary for the protection of public assets. Specific locations and procedures for sand and sandbag acquisition will be promulgated to the public at that time.

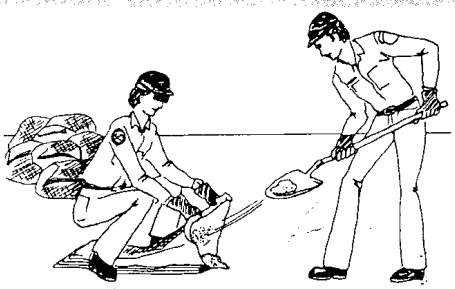
Specific Procedures – Long-term Planning by County Government

The Humboldt County Board of Supervisors have recognized the need to have sufficient stocks of sand and sandbags available for public infrastructure protection and, when possible, to assist the citizens residing in the unincorporated areas of the County. As the procurement of sand and sandbags is difficult, if not impossible, during the times of their greatest need, sufficient planning and resources should be expended to have those needed items on hand prior to the emergency event. It should be the goal of the County to have at least 100,000 sand bags on hand for public infrastructure protection prior to each winter season. Sandbags needed for private property protection could be accessed from those stocks if it is determined that the entire stock is not necessary for protection of public assets.

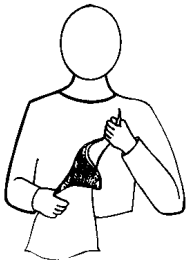
17 SANDBAG FILLING AND LAYING DIRECTIONS

HOW TO: Fill a sandbag & build a sandbag barrier

Work with another person, with one of you holding the bag while the other shovels sand or other material. The first shovelful is placed on the edge of the bag to keep the bag open. The bag holder should bend at the waist, with elbows resting on knees. The shoveler gets rounded scoops of sand and fills the bag **to just one-third full**. Avoid injury by not twisting while shoveling.



b. Fold over the open end of the bag in a triangle to prevent sand from leaking out. Close-knit burlap bags are recommended.

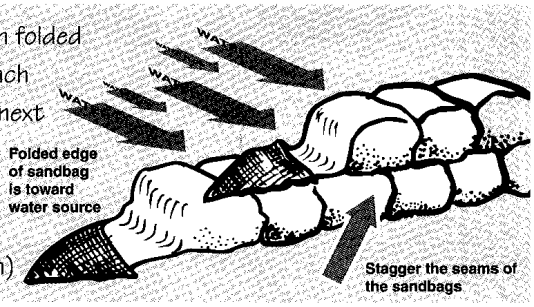


c. Your finished bags will look like this:

sandbag, 1/3 full, open end folded over - top view

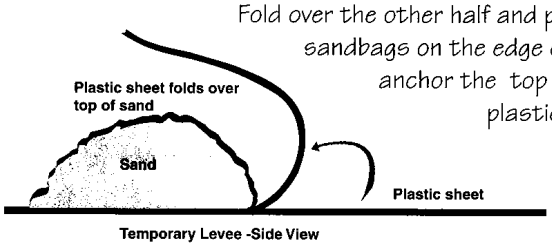
sandbag, open end folded over - side view

d. Place a line of bags with the folded side up, with folded edges facing the direction of water flow. Stomp each bag into place. Like you would with bricks, stagger the next layer of bags over the folded tops of the bags underneath. Stomp each layer of bags. To give the structure stability, the base should be 1.5 times wider than the height. (Example, 6 ft. wide by 4 ft. high)

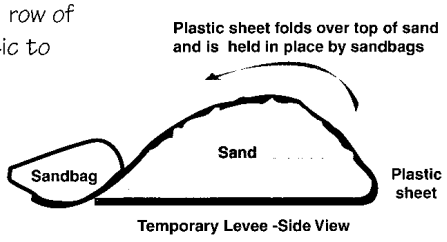


e. When you don't have time to build a sandbag barrier, use a temporary levee to raise low areas. Prepare ahead by buying 20-foot-wide sheets of plastic (6-10 mil thickness). Lay out the length you need and place sand, dirt, or gravel on the half facing your property.

Fold over the other half and place a solid row of sandbags on the edge of the plastic to anchor the top edge of the plastic sheet.

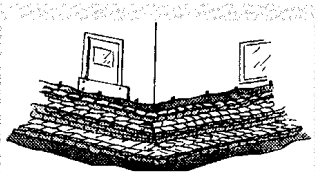


Temporary Levee -Side View



Temporary Levee -Side View

f. In locations where water could rise with no current, such as at lake shores, lay visquine plastic on the ground and up to walls, and form a half pyramid of sandbags. Cover doors and vents with plywood.



18 FLOOD CONTINGENCY PLAN ADOPTION

This Plan was adopted on 04 December 2012 by the Humboldt County Board of Supervisors.

AGENDA ITEM NO.
C-20

SHERIFF'S OFFICE
COUNTY OF HUMBOLDT
826 FOURTH STREET
EUREKA, CALIFORNIA 95501-0516 PHONE (707) 445-7251

For the meeting of: December 4, 2012

Date: **November 2, 2012**

To: **Board of Supervisors**

From: **MICHAEL T. DOWNEY, SHERIFF**

Subject: **County Flood Contingency Plan**

RECOMMENDATION(S):

That the Board of Supervisors approve the County of Humboldt Flood Contingency Plan, prepared by the Sheriff's Office of Emergency Services as directed by the Humboldt County Disaster Council..

SOURCE OF FUNDING: None

DISCUSSION:

During a significant incident or declared local emergency event, the overall priority of the County and of emergency management agencies is to provide maximum protection to public health and property. The County, acting as the lead local government entity under California's Standardized Emergency Management System, is responsible for coordinating the overall local government organized response to emergent hazard events. In support of that primary effort as delineated in the Humboldt County Emergency Operations Plan, the Flood Contingency Plan provides specific flood impact-related information and recommended actions direction to Operational Area government entities to guide coordinated response efforts.

The new Flood Contingency Plan is an original document; it is not a re-write of an old plan. Its content is the result of discussions with, and recommendations by, numerous Operational Area government entities. Of particular note is the inclusion of incremental flood impact projections at specific points along all major rivers in Humboldt County. That valuable response-related information is provided through a combined effort of the local offices of the U. S. National Weather Service and the California Department of Water Resources. The new Plan also provides specific supplemental flood-related information to support the overall flood response efforts of Operational Area entities.

Included in the Humboldt County Disaster Council duties, as defined in Ordinance 2447, is the responsibility "...to develop and recommend for adoption by the Board of Supervisors, emergency and mutual aid plans..." The Disaster Council guided the Flood Contingency Plan preparation efforts of the Sheriff's Office of Emergency Services. In its September 21, 2012, meeting, the Disaster Council directed the Sheriff's Office of Emergency Services to make final Disaster Council-identified changes to the draft Plan and to submit it to the Board of Supervisors for final review and

Prepared by Linda Modell CAO Approval Cheryl Dillingham

REVIEW:
Auditor _____ County Counsel _____ Personnel _____ Risk Manager _____ Other _____

TYPE OF ITEM:
_____ Consent
_____ Departmental
_____ Public Hearing
_____ Other _____

PREVIOUS ACTION/REFERRAL:

Board Order No. _____

Meeting of: _____

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT
Upon motion of Supervisor Sundberg
Seconded by Supervisor Lovelace
And unanimously carried by those members present,
The Board hereby adopts the recommended action contained in this report.

Dated: December 4, 2012
Kathy Hayes, Clerk of the Board
By: Tracy Downing