

Maine & New Hampshire Port Safety Forum

Preparing for Weather Emergencies

Arn M. Hegggers
USCG Sector Northern New England
South Portland, Maine



United States Coast Guard Sector Northern New England Area of Responsibility





Waterfront Facilities, working waterfront & water-dependent businesses



- **Weather forecasting and determining when an emergency situation is likely to arise**
- **Determining best preparation strategies – When do you haul everything out/when do you just batten everything down**
- **Protecting crew working on the water/on the waterfront as storms approach**
- **Protecting upland property from waterborne/airborne hazards**
- **The role of the Coast Guard in emergency situations**
- **When is it appropriate to call in the Coast Guard**
- **What other emergency responders should be called and when**
- **Motivation to prepares: Examples of bad Maine/New England storm**
- **Planning for Today's Storms and Tomorrow's Tides**

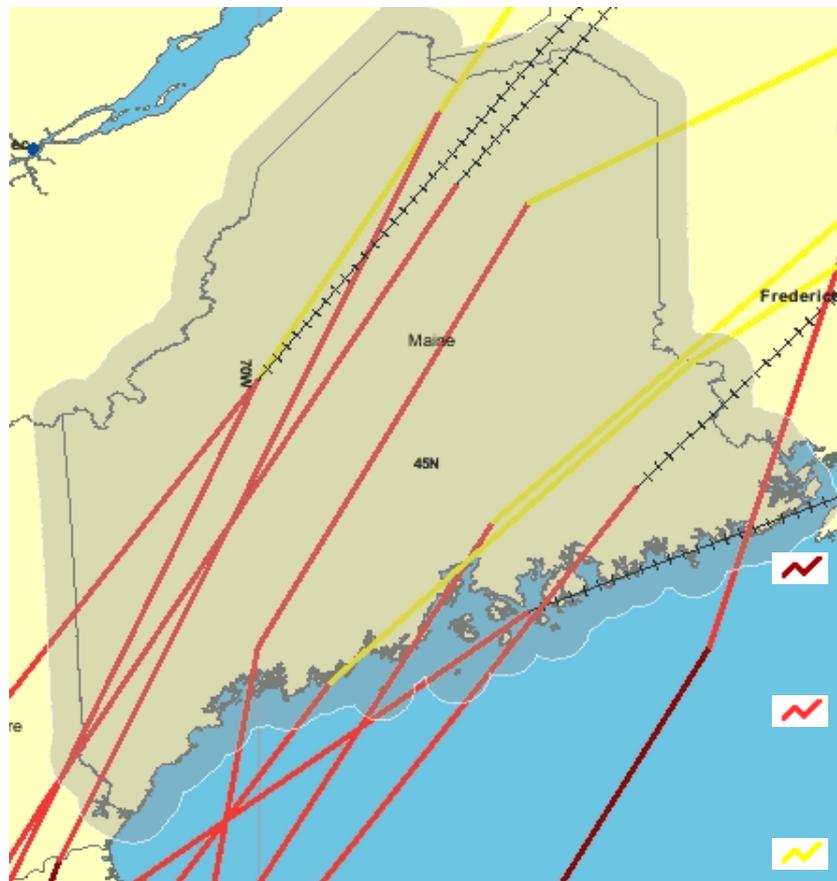




Historical Track of Hurricanes



<http://csc.noaa.gov/hurricanes/#>



- Category 3-5 storm track
- Category 1-2 storm track
- Tropical storm/ depression track





Pre-Season Preparations

- **Send out notices to employees and contractors with equipment at your facility asking them to begin thinking about actions they need to take in the event of a storm.**
- **Notify all employees/contractors of potential storms.**
- **Back up all electronic data files.**
- **Identify safe havens, refuge moorings for boats.**
- **Meet with employees and discuss desired outcomes, how to accomplish (Strategies); and work assignments –who, what, where, when (Tactics).**





Preparation Strategies

- Use the Weather Service warnings and watches as triggers for your preparedness actions.
- Insure facilities and vessels can meet the requirements of each Port Conditions when set. Determine if moored vessels will remain in port.
- Pre Hurricane Season
- Hurricane Watch
- Gale Warnings.
- Storm Warnings.
- Hurricane Warning.





Hurricane Preparedness Activities



- **Become more difficult once winds reach tropical storm force so take action when watches and warnings are issued.**
- **HURRICANE WATCH:** sustained winds of 74 mph or higher are possible within 48 hours.
- **HURRICANE WARNING:** sustained winds of 74 mph or higher expected within 36 hours.
- **Flood Warnings, Flash flood warnings and Tornado Warnings are also common with tropical storms so stay informed.**
- **More people have lost their lives from freshwater flooding inland than other weather hazards related to tropical storms.**



ATLANTIC HURRICANE TRACKING CHART

Always remember

If you live along the coast or in a low-lying area, if you live in a mobile home in an area subject to hurricane water or wind, or if authorities tell you to... Go!

Storm Surge

A storm surge is a dome of water often 50 miles wide that comes sweeping across the coastline near the area where the eye of the hurricane makes landfall. The surge, aided by the hammering effect of breaking waves, acts like a giant bulldozer sweeping away everything in its path. Nine out of ten hurricane deaths are caused by storm surge. That's why it's important to leave well before a hurricane may come your way.

Wind Damage

Hurricane winds can cause significant damage to homes and businesses far from the shore. If you live in an area anywhere near the path of a hurricane, you should take steps to protect property from high winds. Bring in anything from outside that may become airborne in high winds, including toys, lawn chairs, trash cans, coconuts, etc. Cover all windows of your home. If shutters are not installed, use 3/4" marine plywood panels. Tapes do not work, so it is not recommended. Remain inside until authorities tell you the danger has passed.

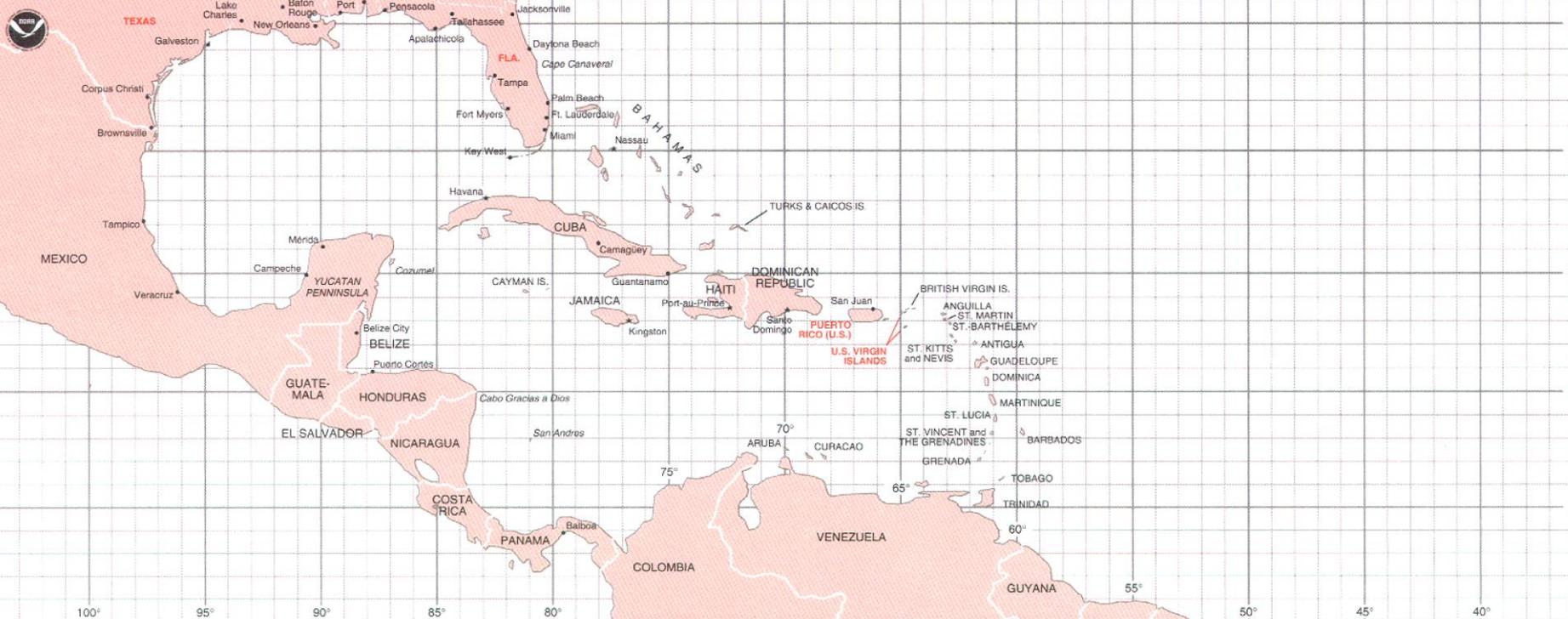
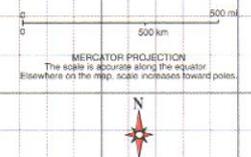
Other Hurricane Effects

Hurricanes can produce flooding far inland, especially if the storm "stalls" or produces a lot of rain. Also, tornadoes can form when hurricanes come on shore. Ask your American Red Cross, National Weather Service, or emergency management office what to do in case of a flood or tornado.

More Information

More information about hurricanes, protection from wind damage, floods, and tornadoes is available from your local American Red Cross chapter, National Weather Service Office, or emergency management agency.

Begin tracking and discussing any named storms in the Bahamas.





www.nhc.noaa.gov/



http://www.nhc.noaa.gov/ National Hurricane Center

- NWS is soliciting comments through Oct 31 on discontinuing the Coded Marine Verification Forecast
- Joint Hurricane Testbed Announcement of Grant Opportunity posted. See the announcement here (PDF)

Eastern Pacific

Atlantic

Atlantic Tropical Cyclone Activity

2:00 pm EDT Thu Sep 11 2014

Current Disturbances and 2-Day Cyclone Formation Chance: ✕ < 30%

Tropical or Sub-Tropical Cyclone: ○ Depression ⊙ Storm

⊙ Post-Tropical Cyclone ✕ Remnants

[Active Storms](#) | [Marine Forecasts](#)

[2-Day Graphical Tropical Weather Outlook](#) | [5-Day Graphical Tropical Weather Outlook](#)

Tropical Depression SIX (click for details)

As of 1100 AM EDT Thu Sep 11 (Advisory # 1)

Maximum Sustained Winds: 30 knots; 35 mph

Minimum Central Pressure: 1007 mb

Located at: 16.2N 37.1W

Movement: northwest at 11 knots; 13 mph

National Weather Service

Atlantic - Caribbean Sea - Gulf of Mexico

[Tropical Weather Outlook \(en Español*\)](#) [Tropical Weather Discussion](#)

200 PM EDT THU SEP 11 2014 805 AM EDT THU SEP 11 2014

○ **Tropical Depression SIX** [Satellite](#) | [Buoy](#) | [NDFD](#) | [Storm Archive](#)

...NEW TROPICAL DEPRESSION FORMS WEST OF THE CAPE VERDE ISLANDS...

11:00 AM EDT Thu Sep 11	Public Advisory	Aviso Publico	Forecast Advisory	Forecast Discussion	Wind Speed Probabilities
Location: 16.2°N 37.1°W	#1	#1	#1	#1	#1
Moving: NW at 13 mph	1100 AM EDT	1100 AM EDT	1500 UTC	1100 AM EDT	1500 UTC
Min pressure: 1007 mb					
Max sustained: 35 mph					

Hurricane Wind Speed Probability

50-knot Wind Speed Probability

Trop Storm Wind Speed Probability

Wind History

Stay Informed,
visit noaa and
nws sites
often.





NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



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- FORECAST
- PAST WEATHER
- WEATHER SAFETY
- INFORMATION CENTER
- NEWS
- SEARCH
- ABOUT

Local forecast by "City, St" or ZIP code

Go

[Location Help](#)

News Headlines

- Take our abbreviated NWS 2014 Customer Satisfaction Survey

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Enter Your City, ST or ZIP Code

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Emergency Manager's Self Brief Home

[Weather.gov](#) > [Gray - Portland, ME](#) > Emergency Manager's Self Brief Home

Gray - Portland, ME

Weather Forecast Office

- Current Hazards
- Current Conditions
- Radar
- Forecasts
- Rivers and Lakes
- Climate and Past Weather
- Local Programs

NWS Gray Daily Briefing

Updated Thursday, September 11, 2014 at 3:04 AM

Expect scattered showers throughout the day with a chance of a thunderstorm as well. Not expecting any impacts from this system as any storms that develop will be below severe limits and rainfall amounts will also be fairly light .

High pressure and clear skies will return on Friday.

Weather map for 2pm Thursday afternoon.

Related briefing page(s): None

Please note that this general weather briefing slide above is intended only to assist in determining the appropriate web page link to get additional information. For high-impact events, more detailed information will be provided via traditional decision support services.

[Coastal Flooding](#) --- [Fire](#) --- [Flooding](#) --- [Heat](#) --- [Thunderstorms](#) --- [Tropical](#) --- [Winter](#)

This is the home page for emergency managers to do a self briefing. For



<https://HurricaneMapping.com>



HURRICANE MAPPING
SEA ISLAND SOFTWARE

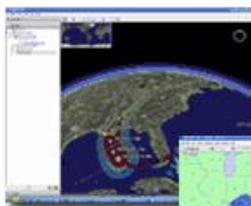
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Click here for free access to tracking data for Florida Hurricane Exercise JONES - May 12 through May 23.

Get immediate access to hurricane and typhoon tracking data through our automated enrollment process.



Shapefile for ESRI's ArcGIS

KML for Google Earth



Are you a GIS professional who needs hurricane, tropical storm, and typhoon data to incorporate into your own mapping programs and datasets?

HurricaneMapping.com offers the most comprehensive and direct solutions-- Live data feeds and historical storm archives in the versatile Shapefile and KML formats for display in ESRI's ArcGIS and Google Earth.

[Learn more about HurricaneMapping's services and how you can enroll with our affordable subscription options>>>](#)

Real-time tracking of storms worldwide using official forecast data from the NHC, CPHC, and JTWC.

Advanced map layers such as wind probabilities and forecast error swaths to help you analyze the threat.

Illustration made quick and easy with presentation-ready symbology and labeling built into the map datasets.

Get details of file formats and map layer specifications >>>

HurricaneMapping.com,
a service of Sea Island Software, Inc.
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Preparations

- **Determine criteria for closing, evacuating, etc.**
- **Fuel up your vehicles and vessels.**
- **Test generator under load to be sure it is operational, fuel tanks, check oil, safely store additional supply of gas and oil.**
- **Ensure an adequate supply of lumber, marine grade plywood, fasteners to protect or secure facilities.**
- **Purchase needed equipment: gloves, chain saws, flashlights, 2-way or VHF-FM radios, NOAA Wx Radio, etc.**
- **Issue 2-way or VHF-FM radios to key employees.**





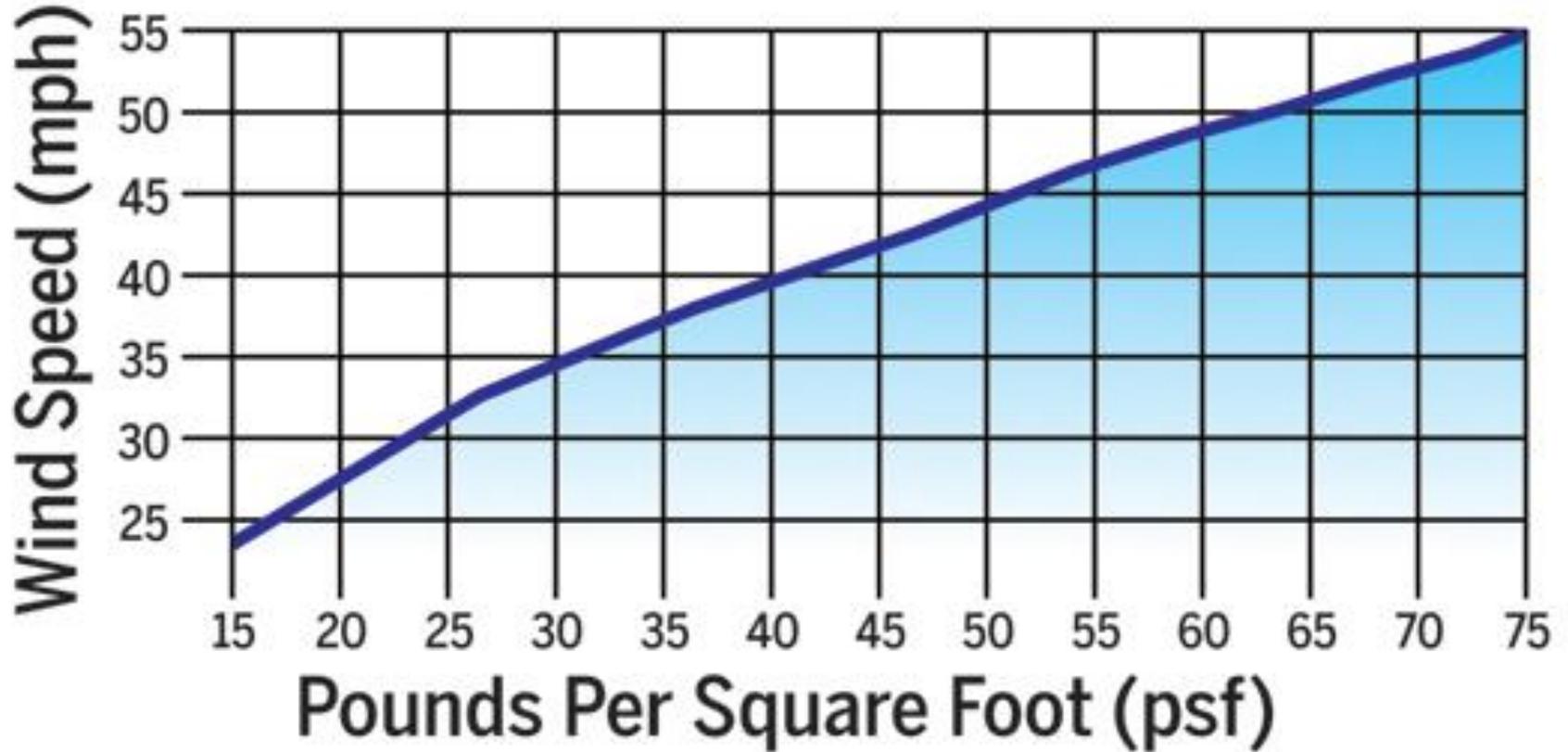
Preparations



- **Monitor storm related Marine Forecasts and Marine Safety Information Broadcasts.**
- **Take a walk around your facility to identify previously undetected flying hazards, etc.**
- **Check vessel stability letters for any specific wind criteria.**
- **Consider ballasting down to reduce freeboard and wind heel.**
- **Evaluate the need to fill land based storage tanks to prevent them from floating off or blowing over.**
- **Consider the impact of potential storm surge, take action to minimize impact. What will you do with debris that ends up on your facility or obstructs your docks?**



Wind Speed / Force



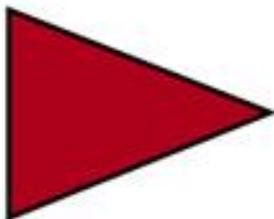


Marine Weather Forecasting

COAST GUARD WARNING DISPLAY SIGNALS

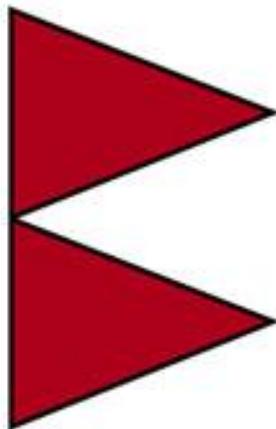
After 18 years, the Coast Guard is reviving a set of warning flags designed to tell boaters when weather conditions could be come dangerous.

Small craft advisory



25-33 kts
Seas 5-7 ft

Gale



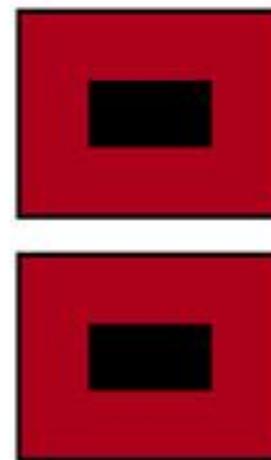
34-47 kts

Storm warning



48-63 kts

Hurricane warning



>63 Kts

Source: National Oceanic & Atmospheric Administration

CHRIS BROZ/STAFF





Preparation Strategies

- **Category 1- 74-95 mph winds is very dangerous, will cause minor damage to exteriors of buildings; broken tree branches; uprooting smaller trees; extensive damage to power lines causing power outages.**
- **Get small boats, floats, boom, out of water, containers away from trees and power lines.**
- **Get underway/leave port. Anchor boats in protected harbors, double up lines/ set additional anchors, increased scope, watch swing circles. Secure or remove all potential flying objects, safely store outside equipment that isn't tied down or securely anchored.**





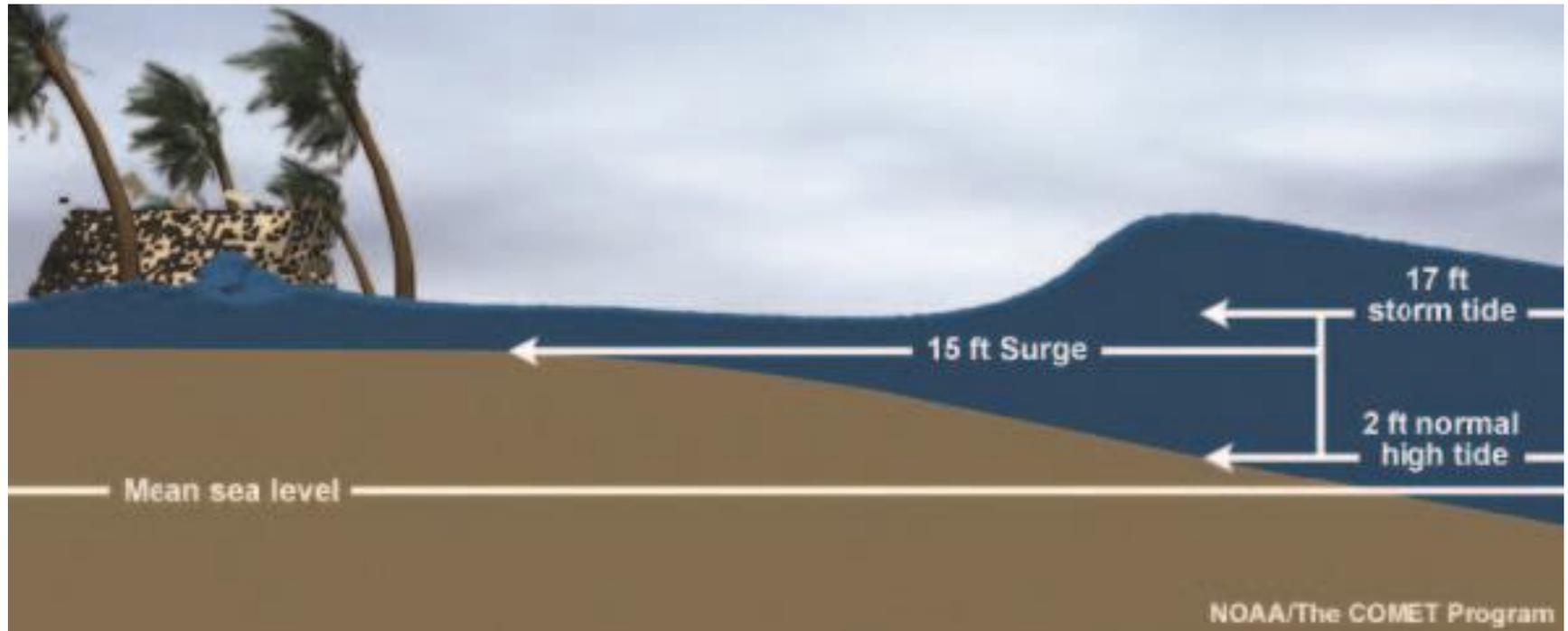
Preparation Strategies

- **Category 2- 96-110 mph winds will cause major damage to exterior of buildings; uprooting of small trees and many roads blocked; guaranteed power outages for long periods of time – days to weeks.**
- **Move vehicles and equipment inland, park away from trees and power lines.**



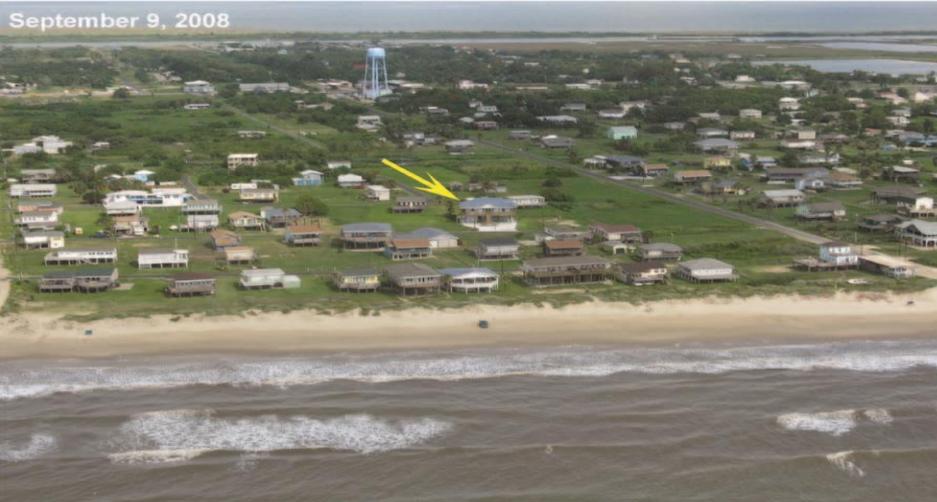


Surge





Ike Surge Damage





Port Condition Whiskey Hurricane Condition 4 72 hour watch



- **Hold meeting with all employees, ensure all required preparations have been completed. Instruct those who will be staying aboard.**
- **Check forecasted tracks on
<http://www.nhc.noaa.gov/>
<http://www.nws.noaa.gov/>**
- **Check status of cranes, boat lifts, ramps, piers, moorings, boats, generator, container stacks, etc.**
- **Test communications with employees, USCG, State and/or local EMA.**
- **Listen for UMIB; advise boat owners who plan to seek places of refuge when they need to leave.**



Port Condition Whiskey Hurricane Condition 4 72 hour watch



- **Identify amount of time needed to relocate company vehicles, containers, floats, boats, equipment. Plan in phases.**
- **Take pictures of pre-storm conditions at your facility to compare with post storm and document damages for insurance and potential small business loans and State disaster declarations.**
- **Verify availability of existing contracts for recovery: cleanup, etc.**
- **Make a plan, build a kit, stay informed.**





Port Condition X-Ray Hurricane Condition 3 48 hour watch



- **Don't forget your family, implement your Family plans at 36 hrs.**
- **Continue to monitor storm track and forecast**
- **Check status of bridge and highway closures, remember you need to leave plenty of time to get off the roads and bridges before they are closed or restrictions implemented.**
- **Determine plans of customers using your facility make sure they know any restrictions you will impose and begin to take action early to mitigate risk.**
- **Insure a supply of drinking water (1 gal / person/ day)**





Port Condition Yankee Hurricane Condition 2 24 hour watch



- **Identify locations where you and your employees plan to evacuate to. Determine a method to verify their safety, during and after the storm.**
- **Continue to track storm and listen to forecasts, take needed steps as conditions change.**
- **Continue to inspect facilities, docks, moorings, etc., resolving hazardous conditions.**
- **Contact vessel owners who have not taken appropriate action, their inaction could cause damage to other customer and your facility. Advise them of actions you will take and cost they will bear.**





Port Condition Yankee Hurricane Condition 2 24 hour watch



- **Check with your community and Harbor Master on any storm restrictions, CG will begin to close ports at Condition 1.**
- **Fill fuel tanks on vessels and vehicles you will need after the storm, if power is lost, you may not be able to fill tanks.**





Port Condition Zulu Hurricane Condition 1 12 hour watch



- **Make final inspection of facilities, docks, moorings, etc., resolving hazardous conditions, securing any identified flying debris.**
- **Board up any doors, windows not previously boarded up.**
- **Make communications check and check emergency power.**
- **Double up mooring lines if not already completed.**
- **Rig extra fenders.**
- **Finalize all preparations.**





<https://homeport.uscg.mil/> Port Directory: Northern New England



Port Status Information

Port Status Information

NORTHERN NEW ENGLAND (PORTLAND, MAINE) F Information

Port	Status	Comments
BAKER ISLAND	● OPEN	
BANGOR/BREWER	● OPEN	
BAR HARBOR	● OPEN	
BATH	● OPEN	
BELFAST	● OPEN	
BOOTHBAY HARBOR	● OPEN	
BUCKSPORT	● OPEN	
BURLINGTON	● OPEN	





Post Storm

- **Check on employees and their families**
- **Contact local EMA Director if you need assistance or can provide assistance to your community.**
- **Begin a damage assessment, take pictures of damage.**
- **Take action to prevent further damage.**
- **Estimate cost of repairs; prioritize repairs to be undertaken.**
- **Let customers know status of your facility.**





Post Storm

- Report missing vessels, docks, etc. that could be obstructions to navigation.
- Report oil/fuel spills.
- Secure source of spills if possible.
- Do you have a business continuity plan that addresses what you will do if you can't reopen. See the SBA Website for checklists, plans, etc.

<http://www.sba.gov/blogs/5-tips-starting-your-hurricane-season-business-continuity-plan>





Calling the CG for assistance

- **Coast Guard vessels will respond for SAR, but remember their vessels have weather limits also and if the conditions are especially hazardous they may not be able to get to you until after the storm subsides.**
- **Local Emergency Management Director, and public safety agencies may be able to assist. Having a good working relationship before hand will help.**



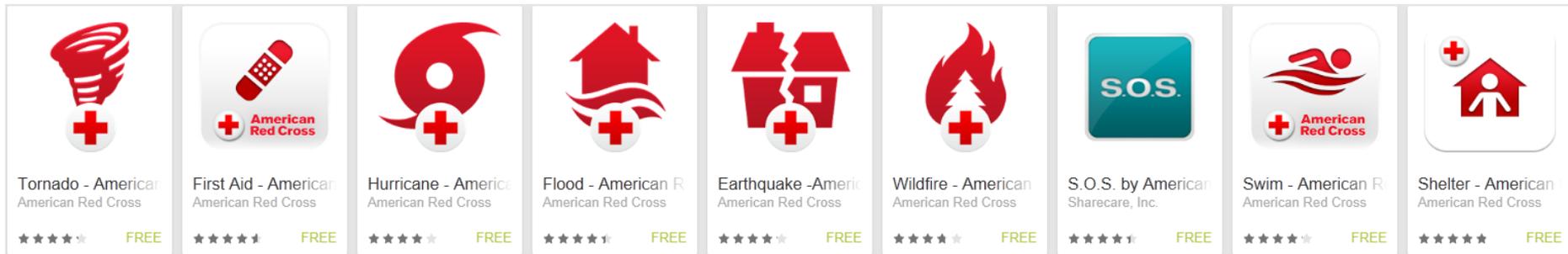


Get these Smart Phone Apps:

Free American Red Cross Emergency Apps apps available for smart phones can be downloaded from app stores.

FEMA also has an app which contains disaster safety tips, an interactive emergency kit list, storable emergency meeting locations, and a map with open shelters and open FEMA Disaster Recovery Centers (DRCs) , just go to:

<https://www.fema.gov/mobile-app>









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The following Slides were Provided by



John Cannon

**National Weather Service,
Gray, Maine**

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THE PATRIOT'S DAY STORM



Sunday morning, April 15th WFO
GYX...all is well...



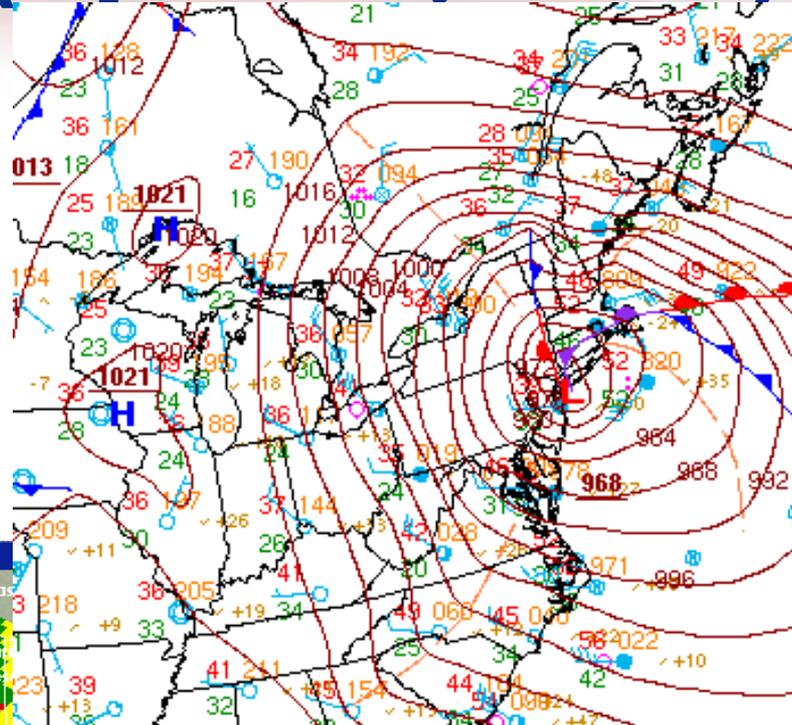


The Saco Library on a Red Flag Warning Day

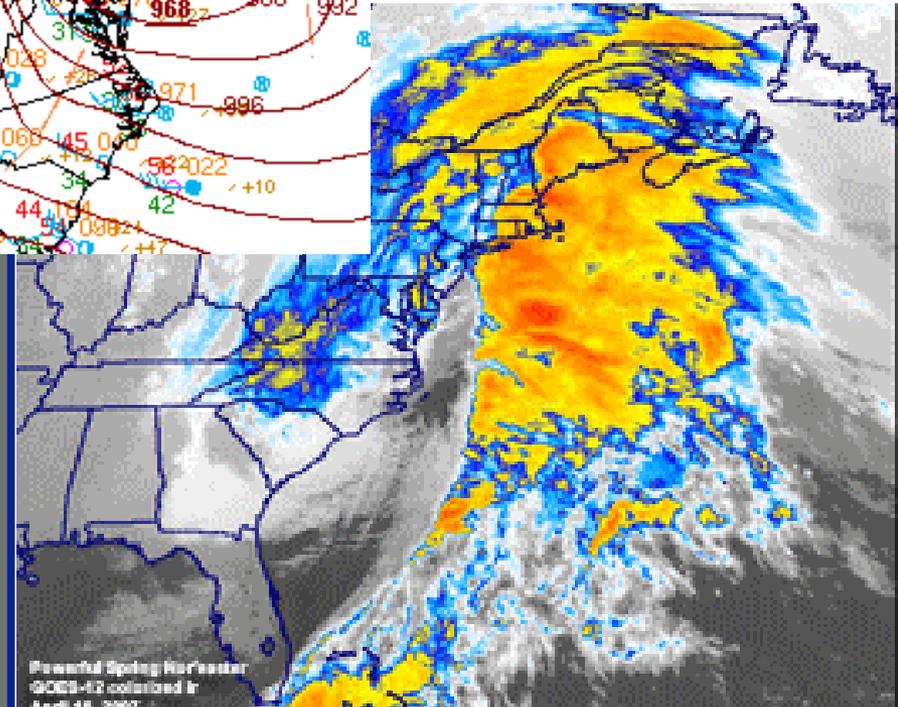
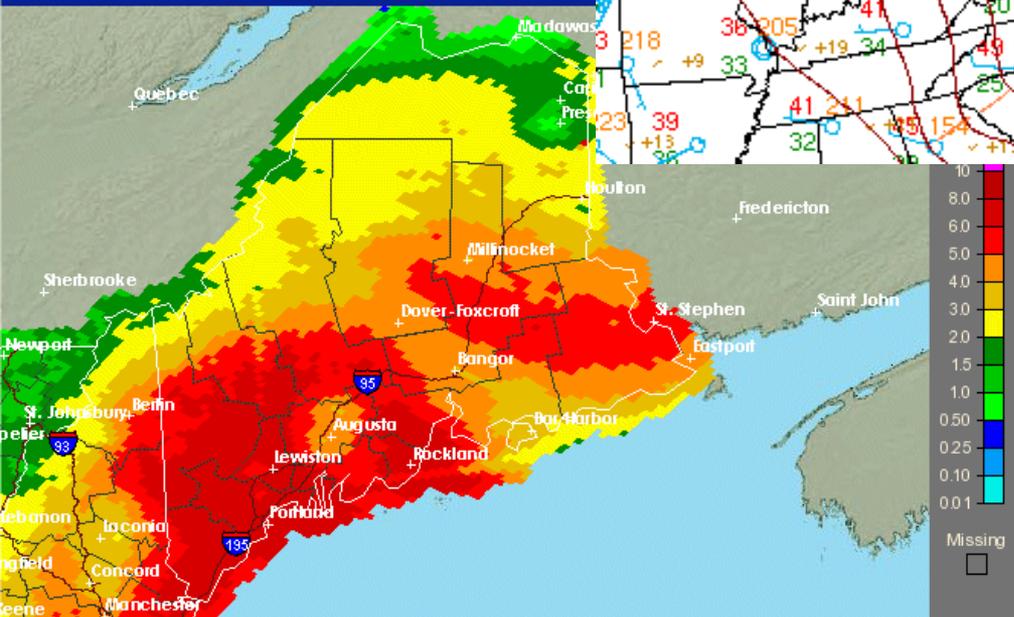




24 hours later (April 16, 2007)



Observed Precipitation - Valid 4/18/2007 1200 UTC





Monday morning April 16th 2 hours before high tide



Snowpack melts fast and is almost gone
by 10 am: 6.52" rain Saco



Camp Ellis, Monday April 16th 9 am





Camp Ellis





Images of Saco and Ocean Park



...a fun drive home from the midnight shift...





**Fresh water flooding,
Monday April 16th, 830 am**





**“Ocean Park” April 16th
around 10 am**

**Coastal Flood Photos Courtesy
Bill Edwards:
Mainecoastimages.com**





Library









Road Washouts





Wind Damage (Category 2 hurricane)











Utility Repairs





Post Storm Camp Ellis





Hurrevac:

<http://www.seaislandsoftware.biz>



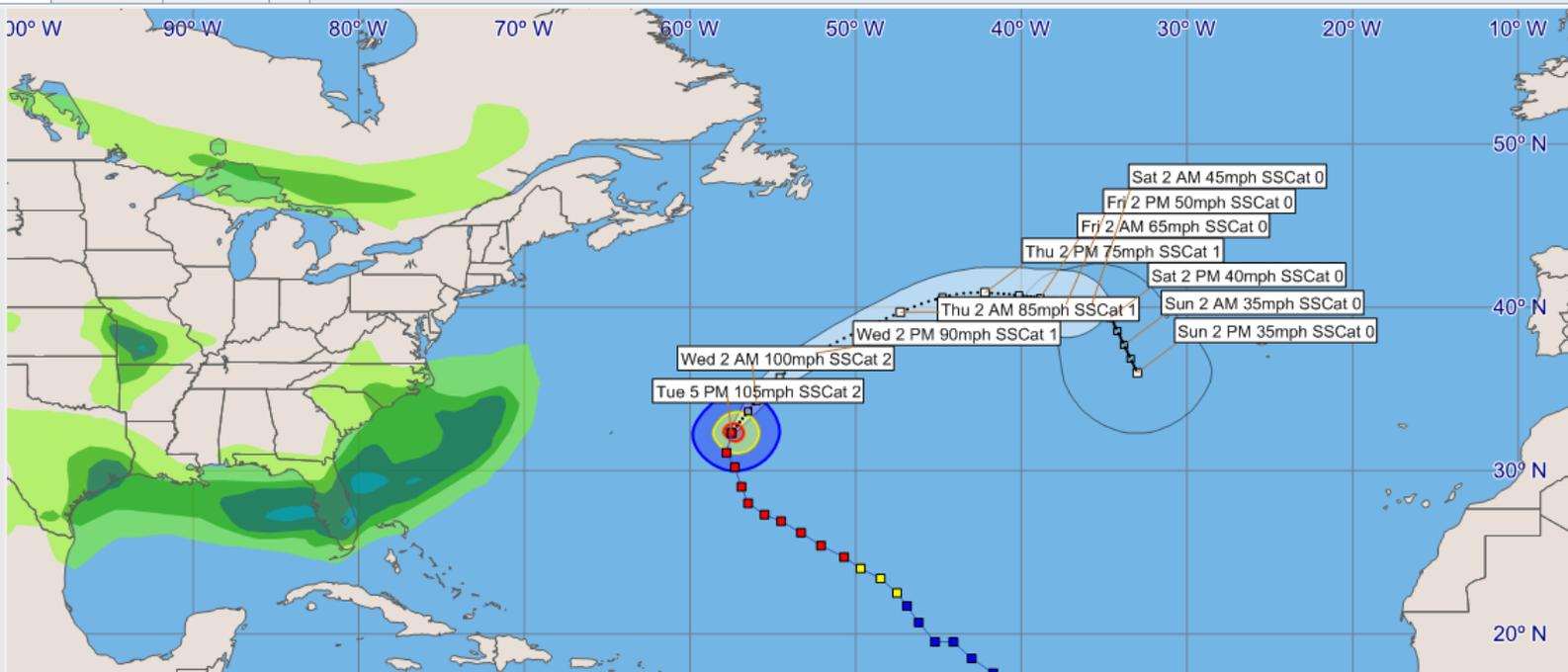
HURREVAC (v.1.4.2) Hurricane Decision Support for Emergency Management

Setup Update Now PDF

Current Archives Map Advisory Outlook (+)

- Atlantic(1)
 - EDOUARD #22
- East Pacific(2)
- Central Pacific
- West Pacific & N. Indian(1)
- South Pacific & S. Indian
- Wind Probabilities
- Surge Probabilities
- Rain
- Rivers
- Tide Gages

- STORM FEATURES
- MAP ANNOTATIONS
- BROWSERS
- UTILITIES



Hurricane Edouard - Tuesday, September 16, 2014 5 PM EDT Advisory #22

Center Location: 32.3 N 57.5 W Maximum Sustained Winds: 105 mph (Cat 2) Movement: 15 mph N

forecast positions Potential Track Area: day 1-3 day 4-5 Wind Extents: at current location

Sustained Wind Speeds: tropical storm >= 34kt/39mph strong tropical storm >= 50kt/58mph hurricane >= 64kt/74mph

Quantitative Precipitation Forecast for the 24-hour period beginning Tuesday 9/16/2014 8PM EDT (inches)



Log Status

New Storm Plot data has been downloaded

Lat: 7.344N

Lon: 88.61W

5





The following slides were Provided by

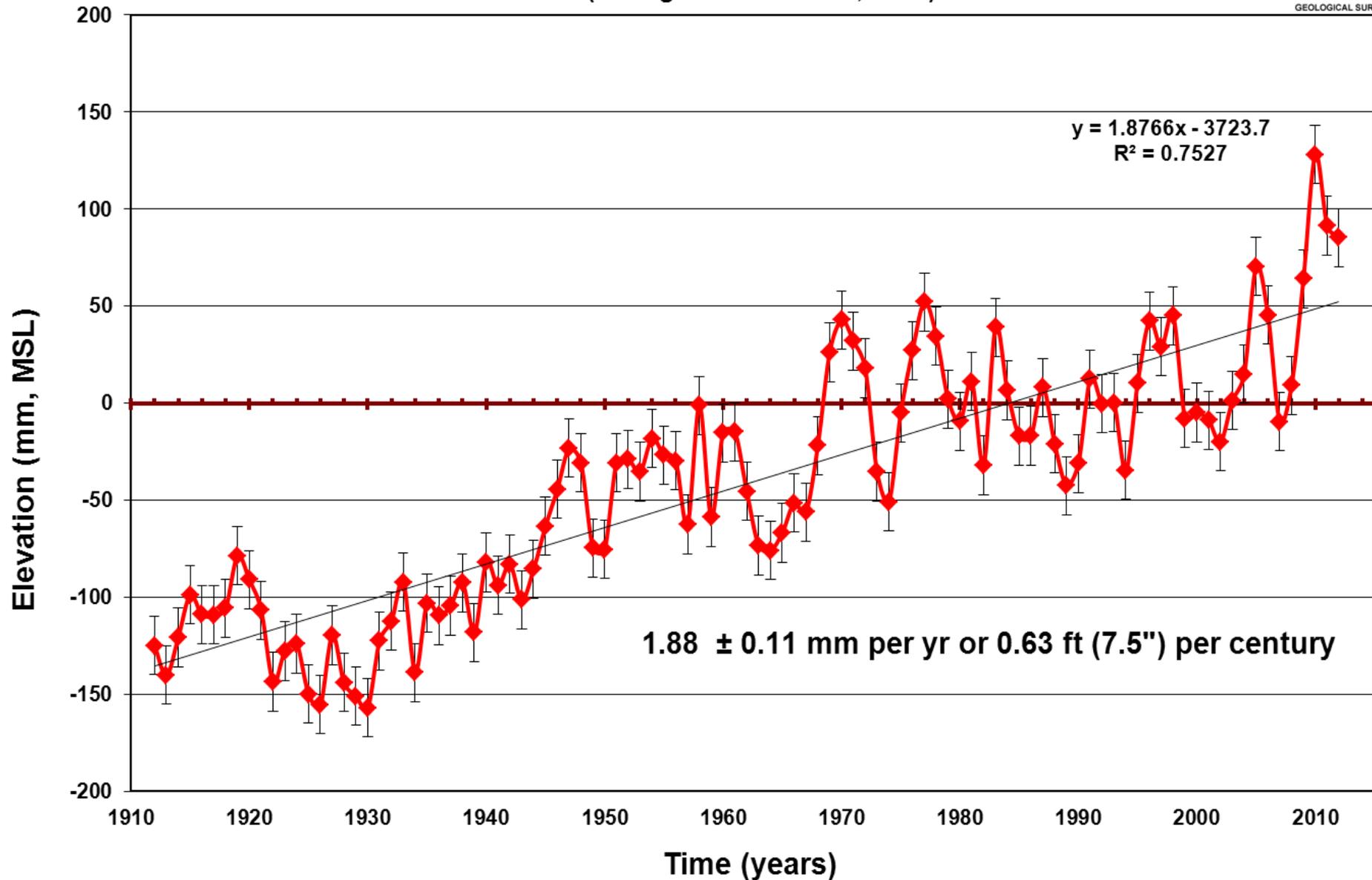


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Sea Level, Portland, Maine

1912-2012 (through December 31, 2012)



Data courtesy of NOAA CO-OPS, www.tidesandcurrents.noaa.gov

P.A. Slovinsky, Maine Geological Survey, March 11, 2013

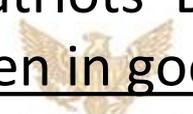




Sea Level and Storm Surge Summaries



- Latest scientific predictions for SLR: 1 ft 2050, 2-3 ft by 2100, or more, highly dependent on future ice sheet input; the **State of Maine has adopted 2 feet as a middle of the road prediction by the year 2100 for Coastal Sand Dunes.**
- **Plan for Today's Storms and Tomorrow's Tides**
- Storm surges of 2-3 feet are relatively common, but only cause damage when they **coincide with high tides.**
- There is only about a one foot difference between the “10 year” event and the “100 year” event ; thus, a one-foot rise in sea level by 2050 would cause the “100 year” event to come about every 10 years because sea level rise significantly lowers the recurrence interval of storms.
- A **two-foot rise in sea level** would result in water levels roughly equal to the 2007 Patriots’ Day Storm during astronomically high tides even in good weather.





More Examples of Vulnerability Assessments...

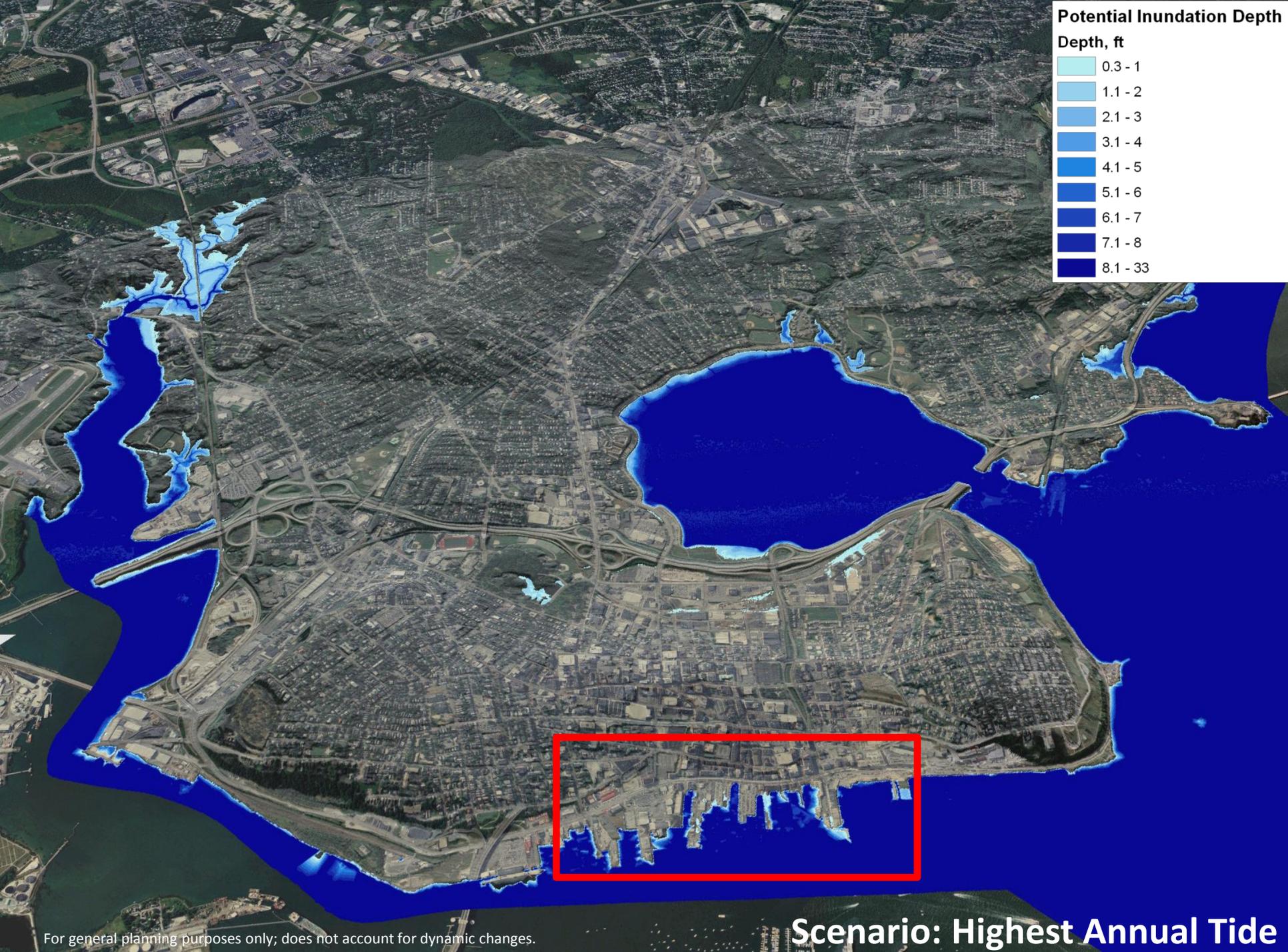
- **Sea level rise scenarios (by 2100, or a “phased” approach):**
 - **0.3 meters (1 foot)**
 - **0.6 meters (2 feet)**
 - **1.0 meters (3.3 feet)**
 - **1.8 meters (6 feet)**
- “Scenario-based” Approaches

Additional highlighted Projects:

City of Portland

City of South Portland





For general planning purposes only; does not account for dynamic changes.

Scenario: Highest Annual Tide



Existing and Potential Future Flooding in Portland



Based on Flood Stage

Scenario	Flood Stage Elevation (MLLW)	# times flood stage exceeded	% of Total High Tides	Hours of Inundation (above flood level)
2011 Year	12 ft*	11	1.6%	8
+0.3 m (1 ft) SLR	11 ft	98	13.9%	141
+0.6 m (2 ft) SLR	10 ft	281	39.8%	570
+1.0 m (3.3 ft) SLR	8.7 ft	612	86.7%	1759
+1.8 m (5.9) ft SLR	6.1 ft	702	99.4%	3782

* Flood stage is indicated as 12 feet MLLW (source: NWS) Based only on data from 2011 NOAA CO-OPs Inundation Analysis Tool

Potential Impacts to Piers



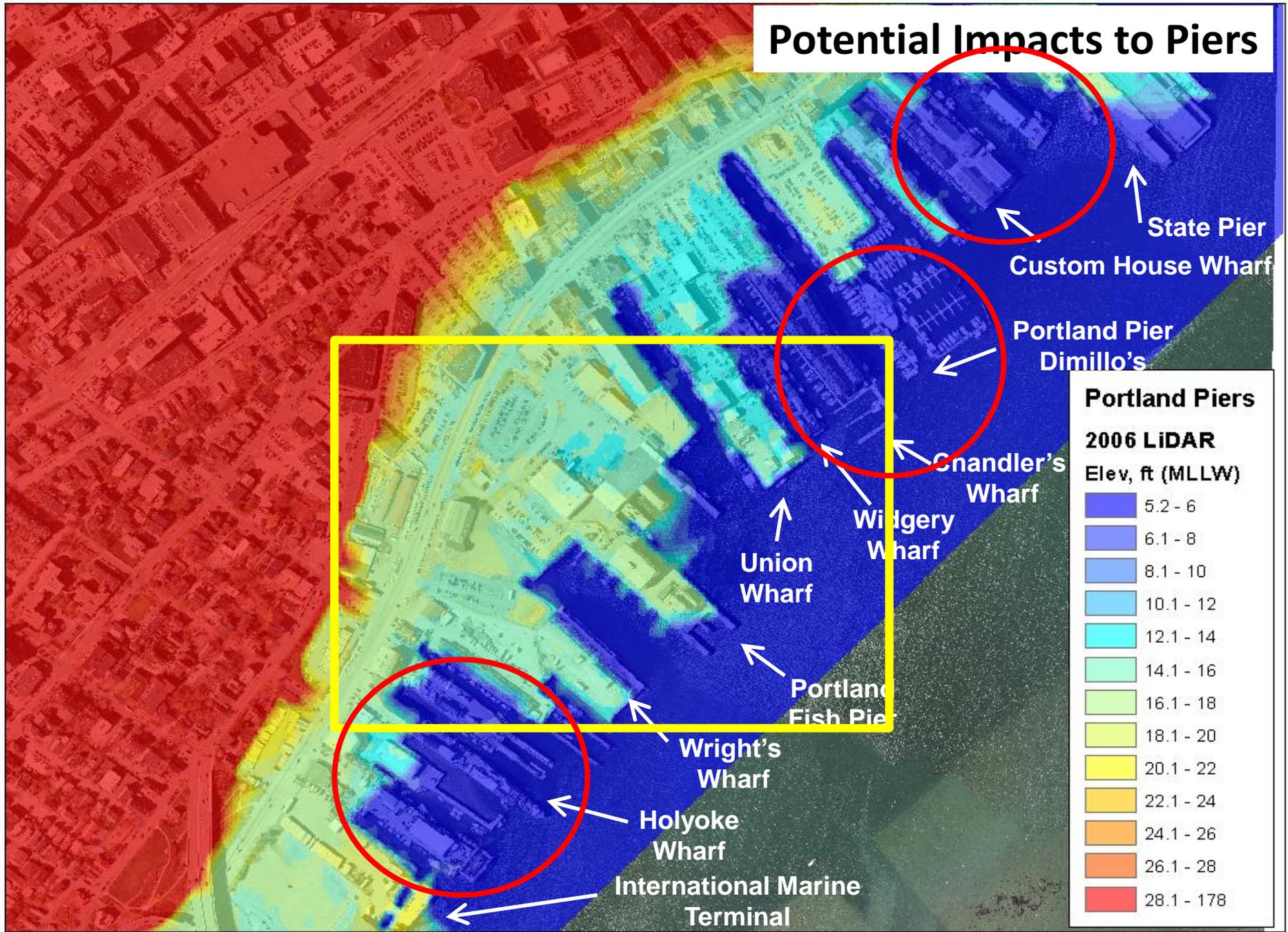
↑
Union
Wharf

↑
Portland
Fish Pier

↑
Wright's
Wharf

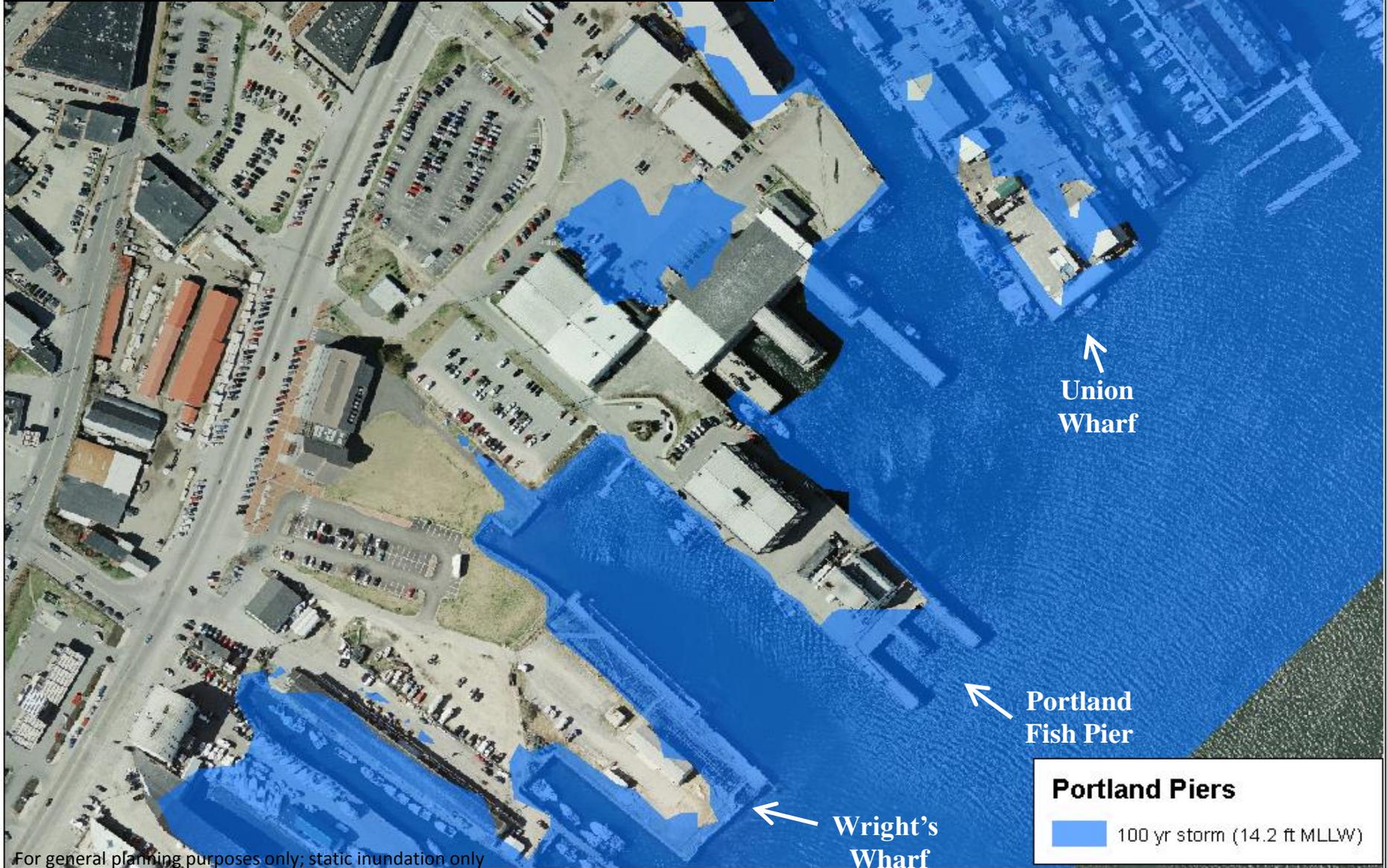
Portland Piers

Potential Impacts to Piers



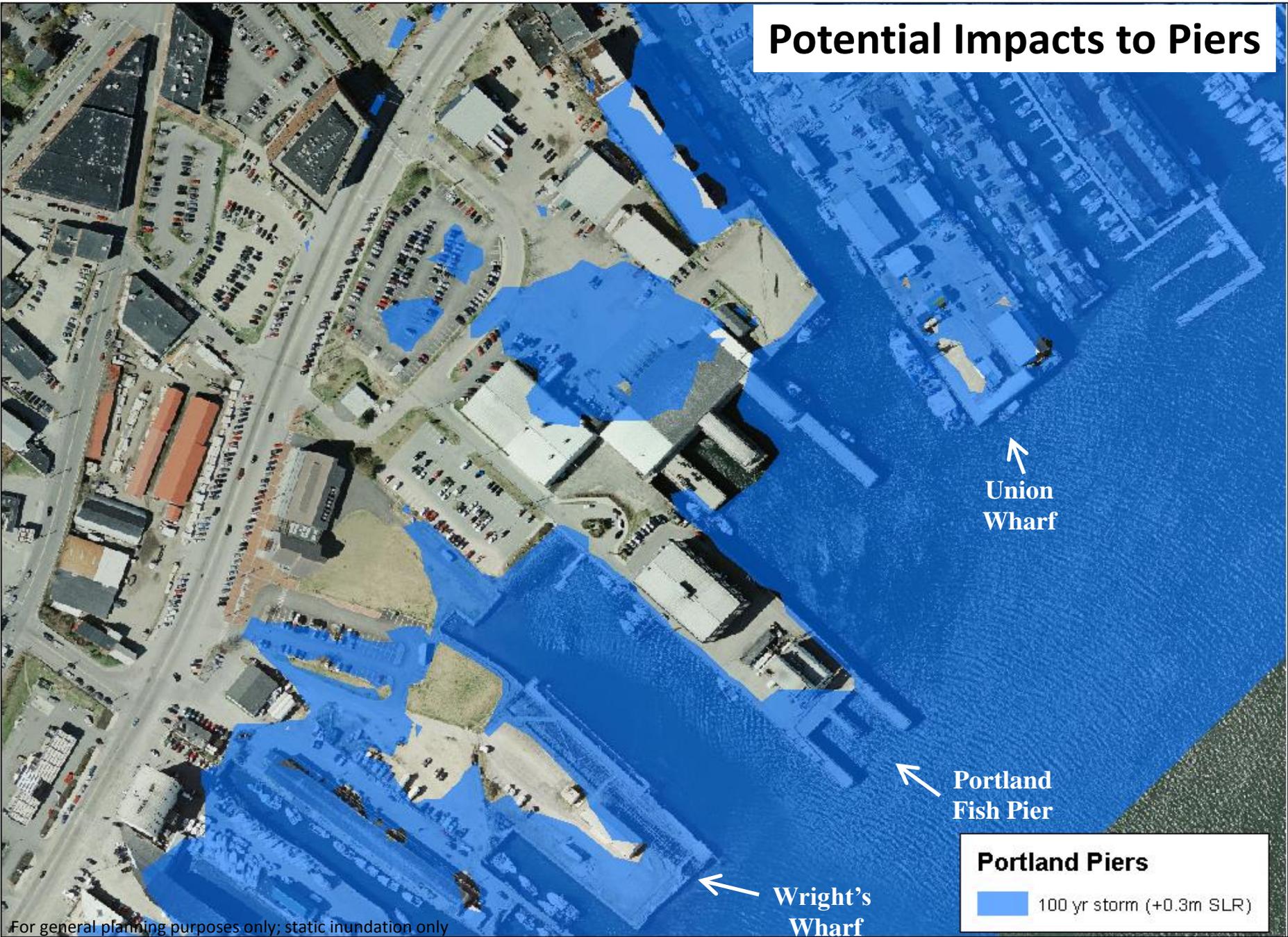
Datum	Scenario	Historic	0.3 m	0.6 m	1.0 m	1.8 m
NAVD (ft)	100-year	9.0	10.0	11.0	12.3	15.0
MLLW (ft)	100-year	14.2	15.2	16.2	17.5	20.2

Potential Impacts to Piers



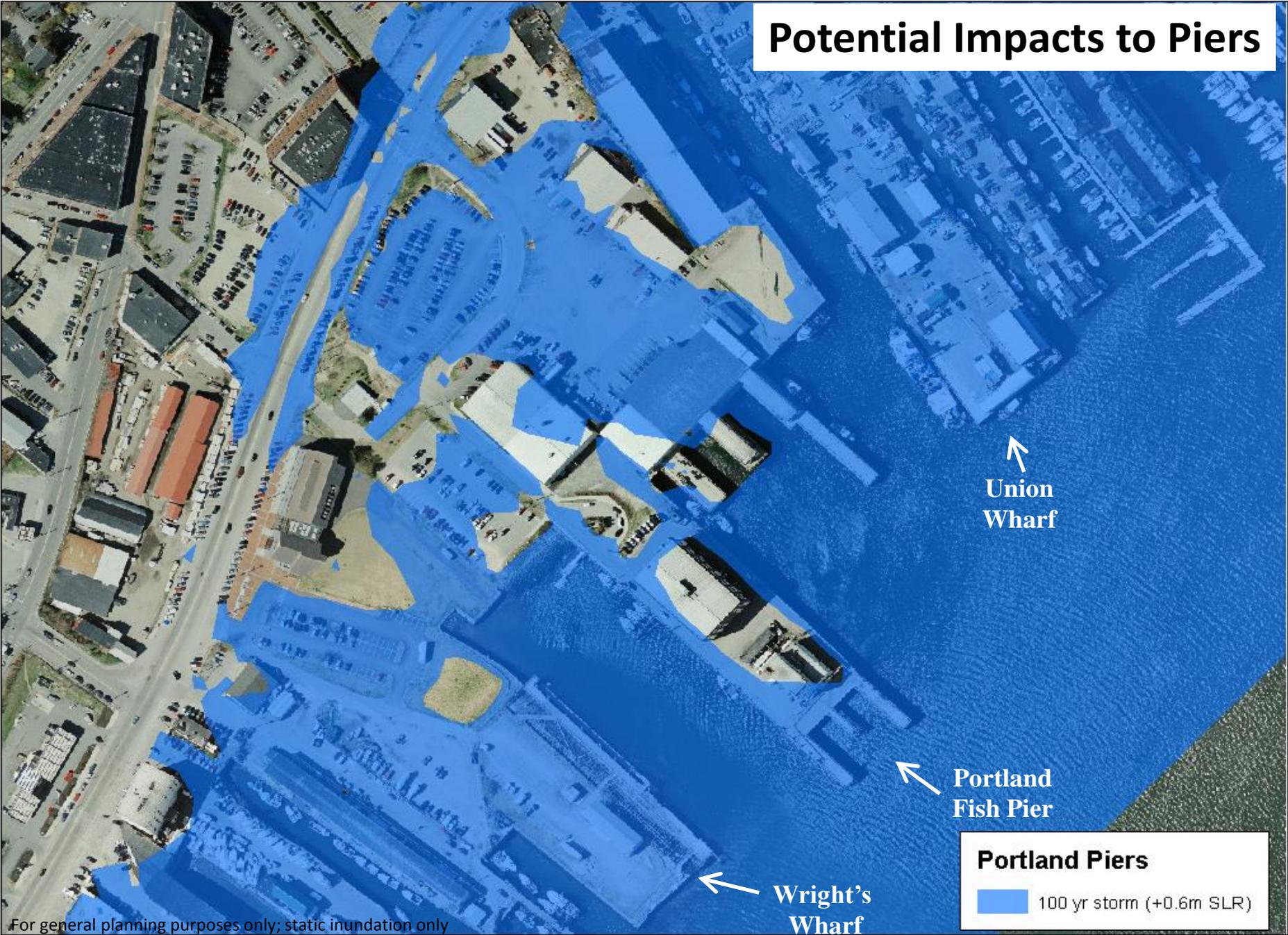
For general planning purposes only; static inundation only

Potential Impacts to Piers



For general planning purposes only; static inundation only

Potential Impacts to Piers



↑
Union
Wharf

↖
Portland
Fish Pier

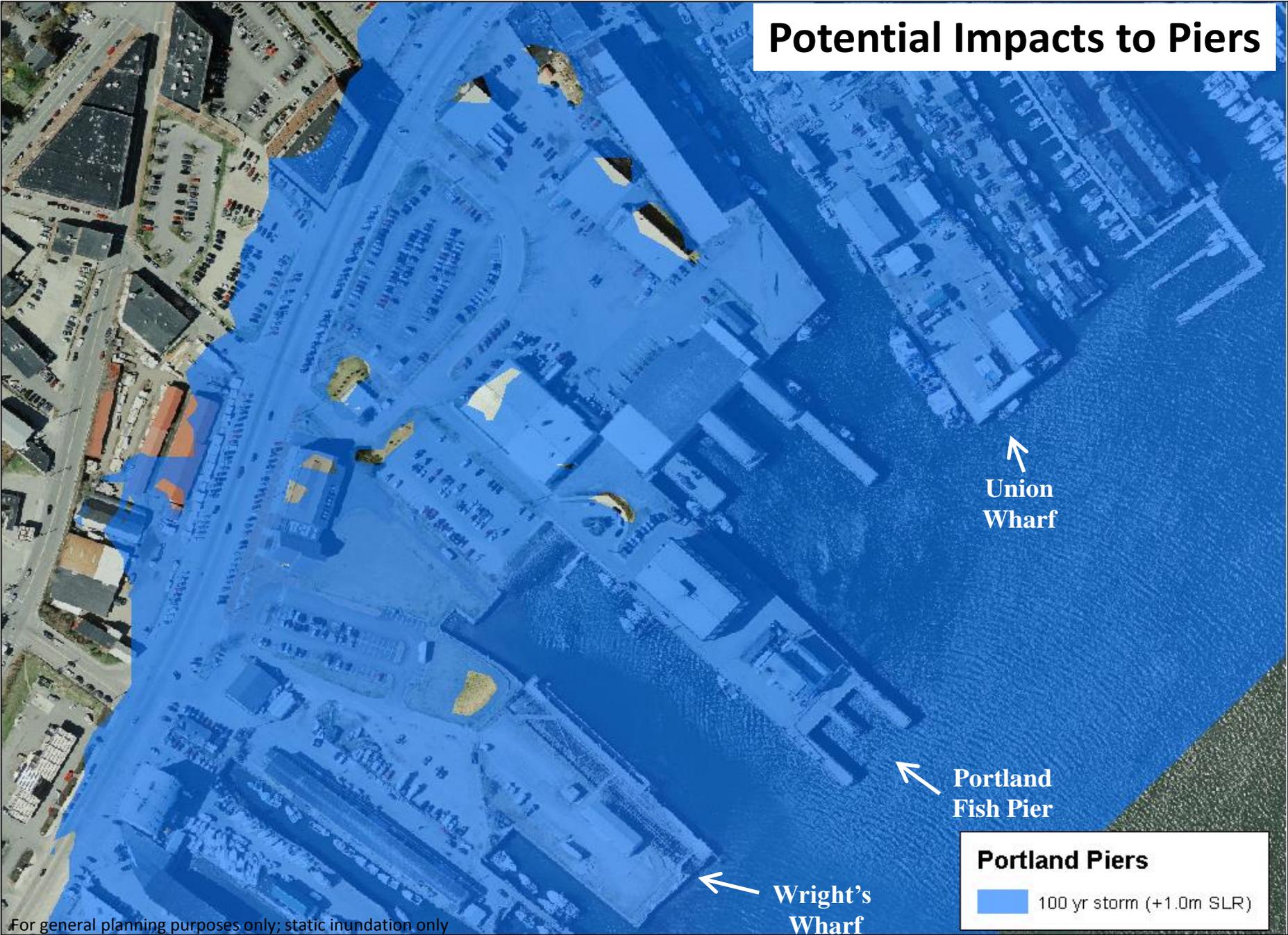
↖
Wright's
Wharf

Portland Piers

■ 100 yr storm (+0.6m SLR)

For general planning purposes only; static inundation only

Potential Impacts to Piers



↑
Union
Wharf

↖
Portland
Fish Pier

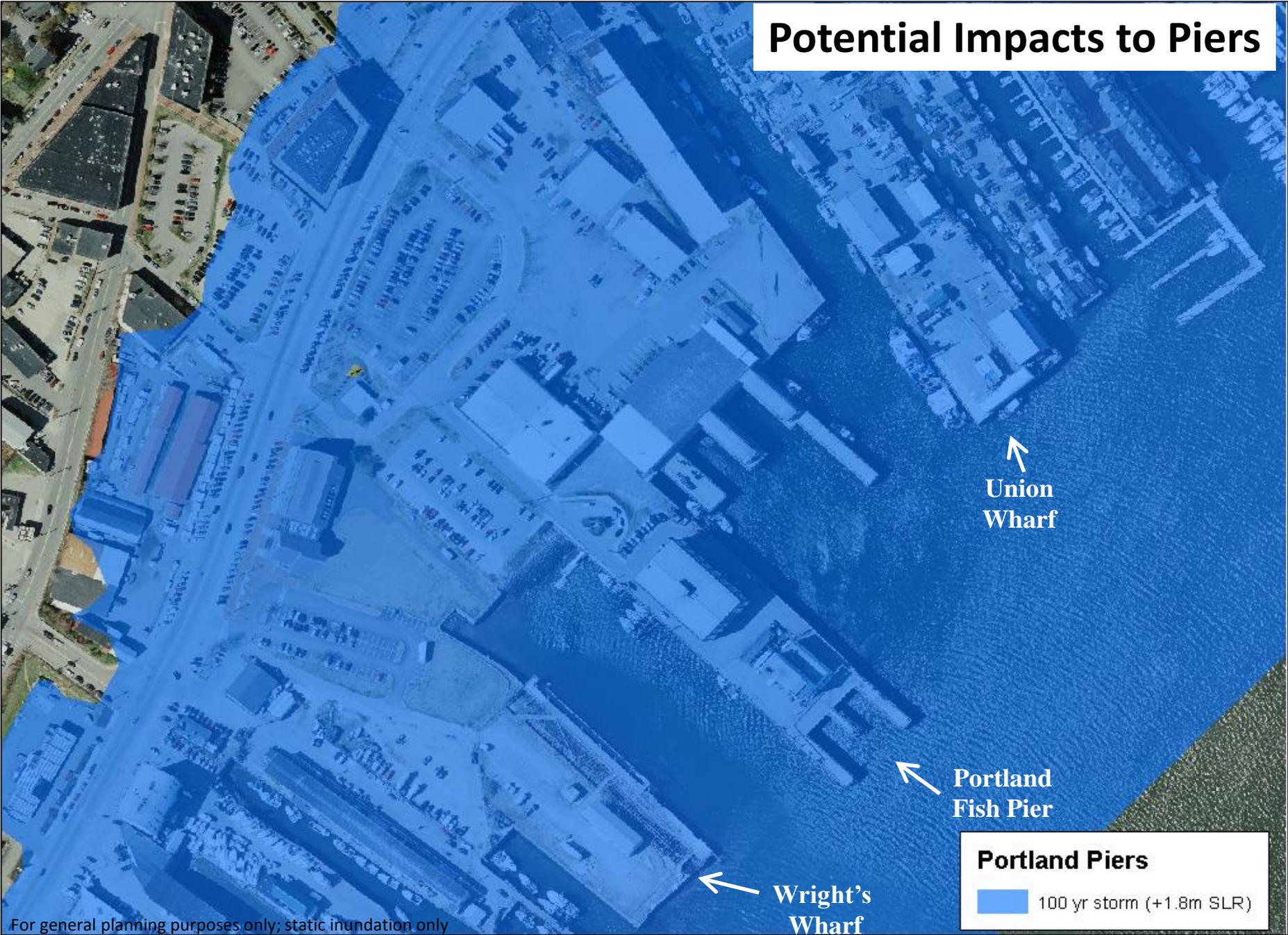
↖
Wright's
Wharf

Portland Piers

■ 100 yr storm (+1.0m SLR)

For general planning purposes only; static inundation only

Potential Impacts to Piers



For general planning purposes only; static inundation only



Some Preliminary Planning Elevations...



Inundation Scenario	Sea Level Rise (SLR) Scenarios				
	Existing	+1 ft	+2 ft	+3.3 ft	+6 ft
Highest Annual Tide	11.8	12.8	13.8	15.1	17.8
1% storm event	14.1	15.1	16.1	17.4	20.1
Category 1 (MT)*	11.4	12.4	13.4	14.7	17.4
Category 1 (HT)*	16.5	17.5	18.5	19.8	22.5
Category 2 (MT)*	17.1	18.1	19.1	20.4	23.1
Category 2 (HT)*	21.9	22.9	23.9	25.2	27.9

all elevations referenced to MLLW

** derived from SLOSH MOM output*

No impacts

Low to Moderate impacts

Severe impacts

Critical Infrastructure:

Pier infrastructure at risk starting at ~15 ft MLLW (i.e., 1% storm + 1 ft)

Other infrastructure at risk starting at ~16 ft MLLW (i.e., 1% storm + 2 ft)



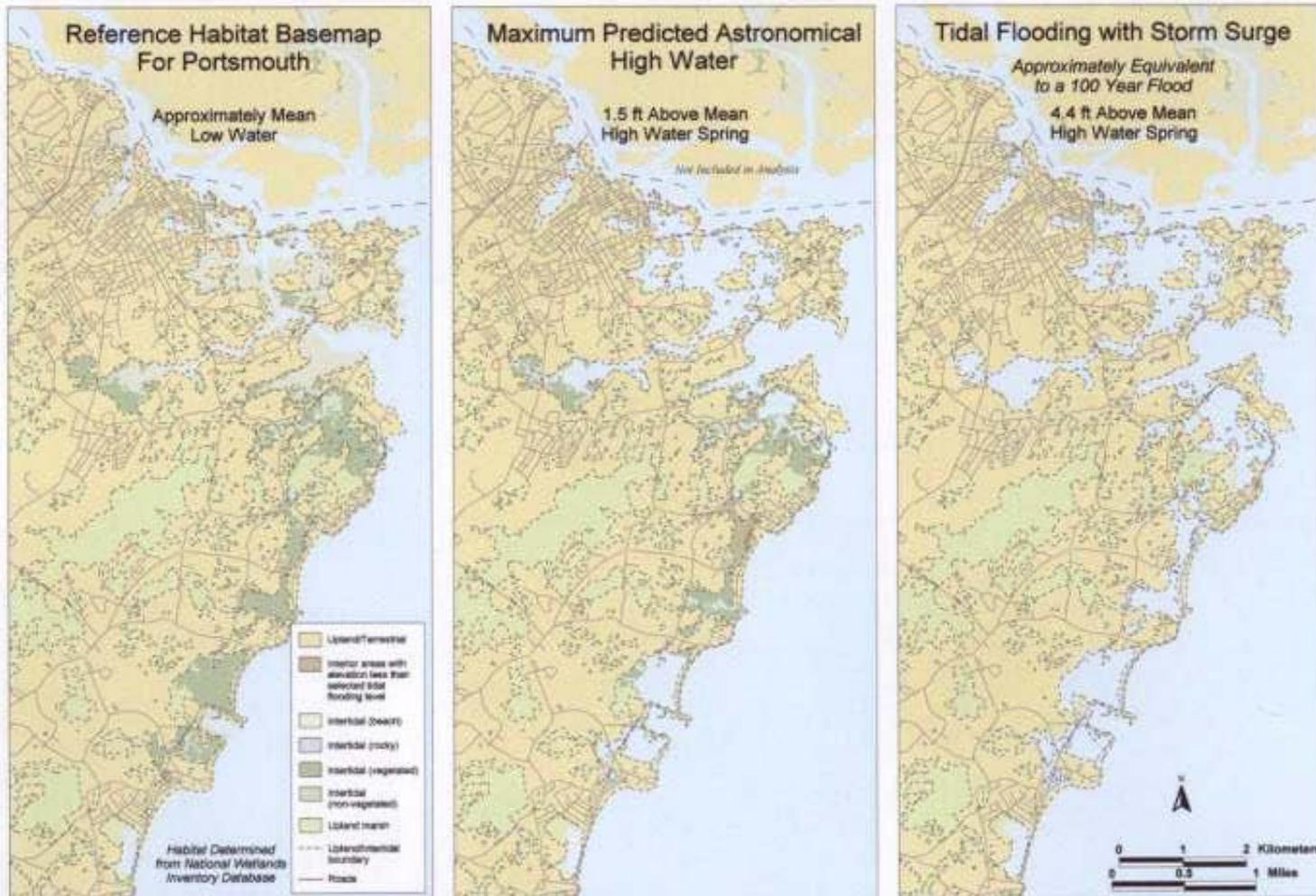


Figure 12. Maps illustrating low-lying areas around Portsmouth below tidal flooding elevations for maximum predicted astronomical high water and approximately a 100-year tidal flooding event.

Managing a Business

▶ [Leading Your Company](#)

▶ [Growing Your Business](#)

▶ [Exporting](#)

▼ [Running a Business](#)

▶ [Managing Business Finances & Accounting](#)

▶ [Marketing](#)

▶ [Sales](#)

▶ [Human Resources](#)

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▶ [Insurance](#)

▼ [Emergency Preparedness](#)

[Disaster Assistance](#)

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[Disaster Recovery Plan](#)

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▶ [Green Business Guide](#)

▶ [Energy Efficiency](#)

▶ [Doing Business Abroad](#)

▶ [Size Standards](#)

▶ [Business Law & Regulations](#)

▶ [Getting Out](#)



Emergency Preparedness

ARTICLE

Emergency Preparedness

The resources below can help you develop a plan to protect your employees, lessen the financial impact of disasters, and re-open your business quickly to support economic recovery in your community.

! If you need disaster assistance immediately, visit our [Disaster Assistance page](#).

General Preparedness Information

- [Create a preparedness program for your business](#)
- [Identify critical business systems \[PDF\]](#)
- [Create an emergency communications plan \[PDF\]](#)
- [Test your business systems](#)
- [Enroll in the Red Cross Ready Rating Program](#)
- [Build a disaster preparedness kit](#)
- [Learn about SBA's Disaster Assistance programs \(online course\)](#)

Specific Disaster Information



SBA Direct:

Find what matters most *to you...*

Find information on:

(Select your topics)

- Starting a business
- Getting a loan
- Government contracts
- Disaster assistance

GET RESULTS ▶

Get Local Assistance Right in Your Area

Counseling, mentoring, and training from an SBA District Office, SCORE Chapter, Small Biz Development Center or Women's Biz Center in your area.

FIND RESOURCES ▶

Recent Blogs About Managing a Business:

[Small Business Exporting – Insights from National Small Business Week](#)

[Health Care Changes: A New Tool for Small Business Owners](#)

[Maternity Leave Benefits – What Are Your Small Business Obligations and Options?](#)



Resources

- <http://www.sba.gov/prepare>
 - <http://www2.agilityrecovery.com/assets/SBA/hurricaneprepsba.pdf>
 - <http://www.ready.gov/business>
- <http://www.boatus.com/hurricanes/brochure.asp>
- <http://disaster.ifas.ufl.edu/PDFS/CHAP07/DR-0718-web.pdf>
- <http://www.ncwaterways.com/businessassistance/Regulatory/Waterfront/Hurricane-preparedness-plan.PDF>





Resources

- <http://www.nws.noaa.gov/os/severeweather/resources/ttl6-10.pdf>
- <http://www.nws.noaa.gov/os/hurricane/resources/TropicalCyclones11.pdf>
- <https://homeport.uscg.mil/mycgp/portal/ep/portDirectory.do?tabId=1&cotpld=42>
- Hurrevac:
<http://www.seaislandsoftware.biz>

