Nuka Research & Planning Group, LLC | 10 Samoset St. | Plymouth, Massachusetts 02360 | www.nukaresearch.com

New England Inland Rivers Geographic Response Plans

Merrimack River Initial Work Group Meeting
January 23, 2017

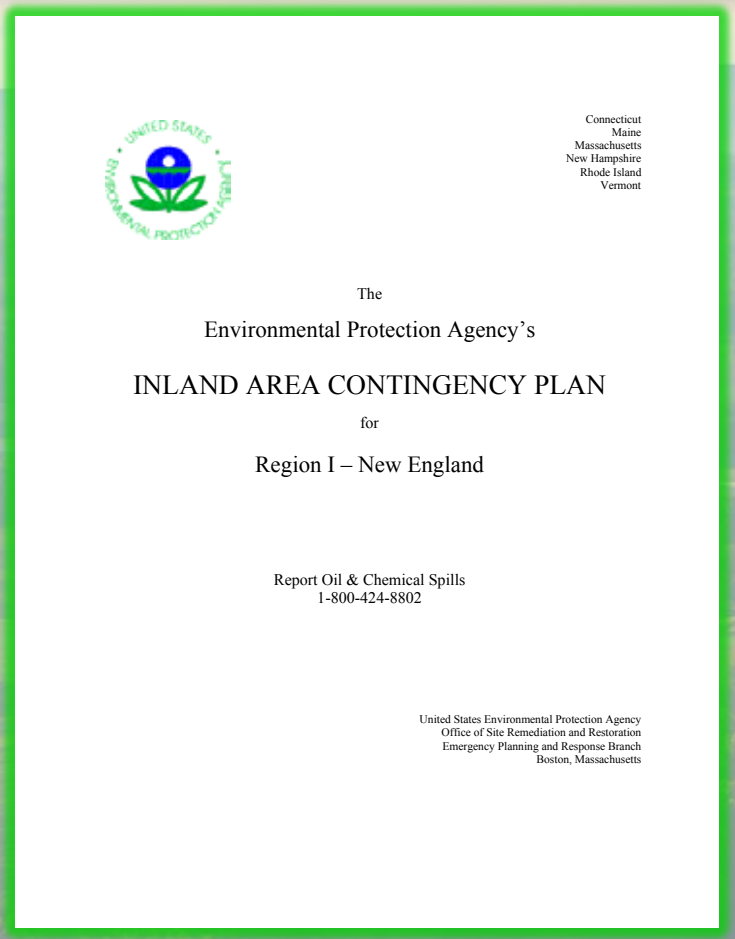
Agenda

- Introductions and Opening Comments
- Project Overview
- Site Selection Process Overview
- GRP Development Process and Project Timeline
- Work Group comments and suggestions

Goals for Today

- What are GRPs?
- How do GRPs fit into the bigger picture of oil spill response?
- How do we establish oil spill protection priorities?
- How are GRPs implemented during an oil spill?
- What process will be used to develop GRPs for the Moose and Androscoggin Rivers?

EPA GRP Project Overview



Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

The

Environmental Protection Agency's

INLAND AREA CONTINGENCY PLAN

for

Region I – New England

Report Oil & Chemical Spills
1-800-424-8802

United States Environmental Protection Agency
Office of Site Remediation and Restoration
Emergency Planning and Response Branch
Boston, Massachusetts

Mike Popovich
Nuka Research and Planning Group, LLC

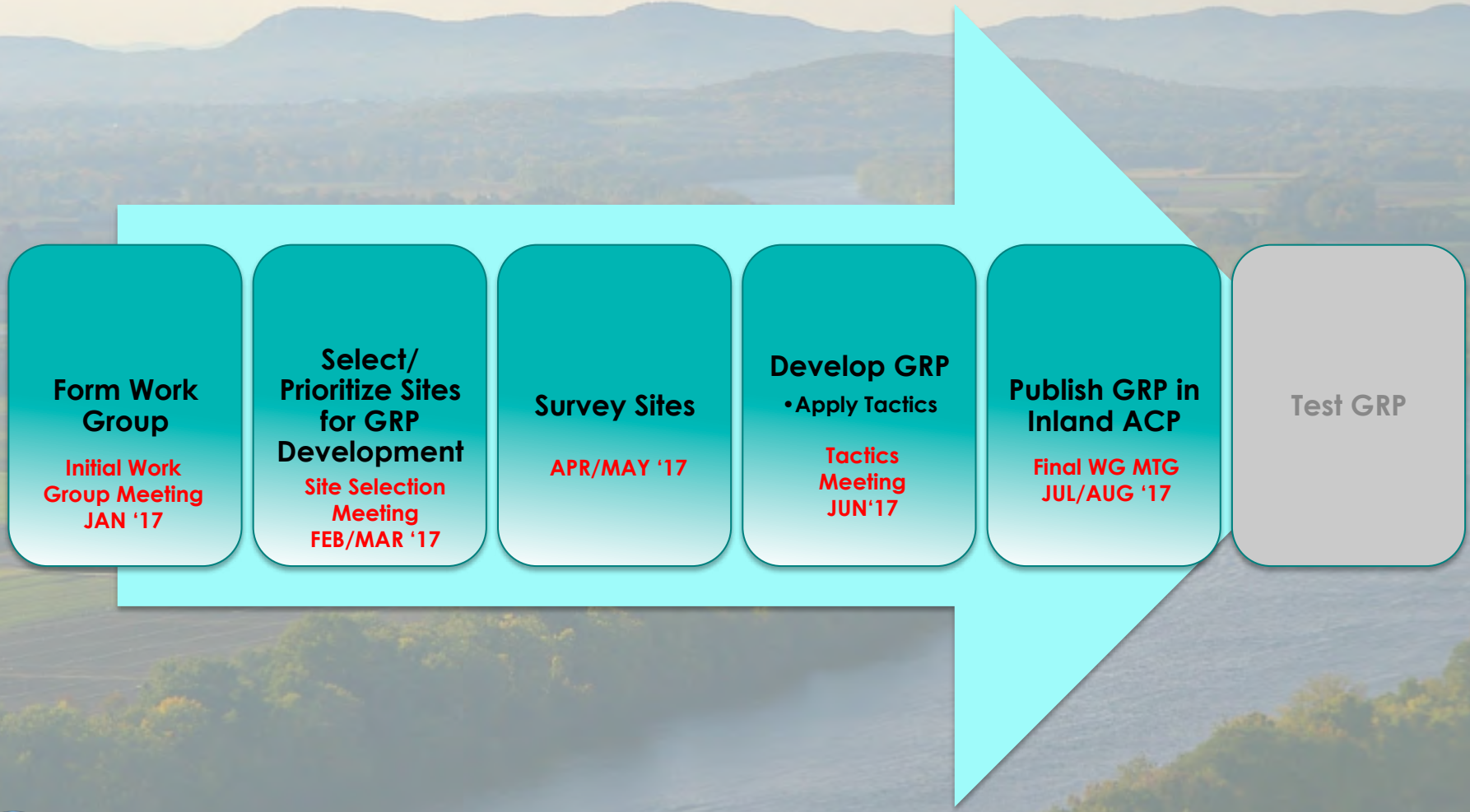
Project Scope

- EPA Region 1
  - Develop 6 GRPs
    - Merrimack River – Hookset, NH to NH/MA border
  - Completion August 2017
  - **Form Work Group**
  - Site Selection
  - Site Surveys
  - Develop Tactics
  - Formulate GRPs
    - GIS
    - Incorporation into Inland ACP

Project Objectives

- Responder-oriented strategies and tactics.
- Reflect protection priorities of agencies, stakeholders, locals.
- Strategies flexible and modifiable to fit the prevailing conditions.
- Follow standard format used in existing EPA inland GRPs.
- Incorporate into GIS.
- Easy to use and update.

GRP Process


Form Work Group
Initial Work Group Meeting JAN '17
Select/ Prioritize Sites for GRP Development
Site Selection Meeting FEB/MAR '17
Survey Sites
APR/MAY '17
Develop GRP
•Apply Tactics
Tactics Meeting JUN'17
Publish GRP in Inland ACP
Final WG MTG JUL/AUG '17
Test GRP

NH DES Marine Oil Spill Program

Carroll Brown
Coastal Oil Spill Program Coordinator, Spill Response and Complaint Investigation Section, New Hampshire DES

History of Geographic Response Plan Development in New Hampshire
January 23, 2017

Carroll Brown

Oil Spill Response Preparedness Coordinator

N.H. Department of Environmental Services

Spill Response and Complaint Investigation Section

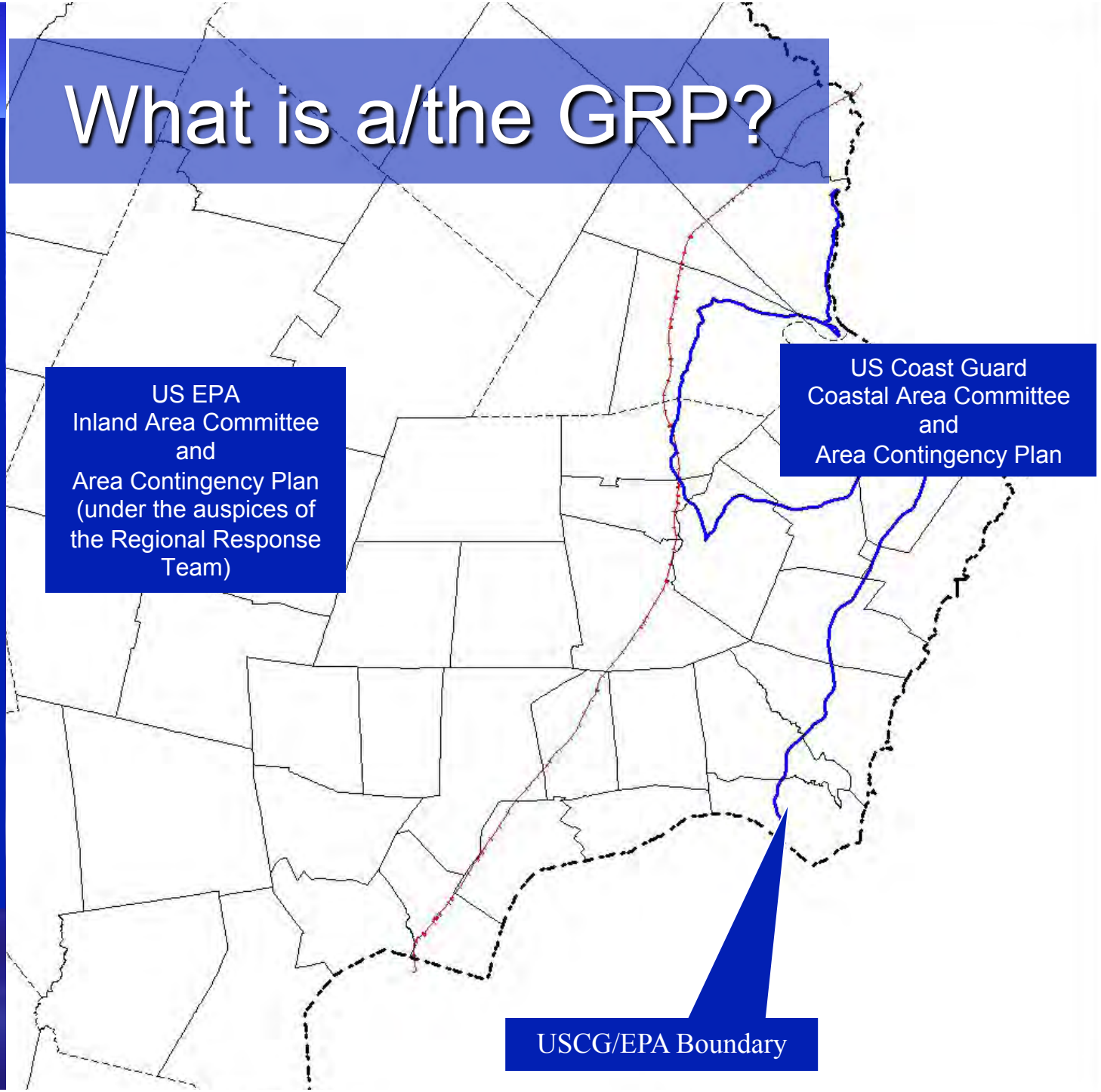
Desk: 603-271-3000; Cell: 603-724-0624

carroll.brownjr@des.nh.gov

What is a/the GRP?

Under Oil Pollution Act of 1990 (OPA90) the term “Area Committee” is a multi faceted group tasked to assure the pre-planning of spill response.

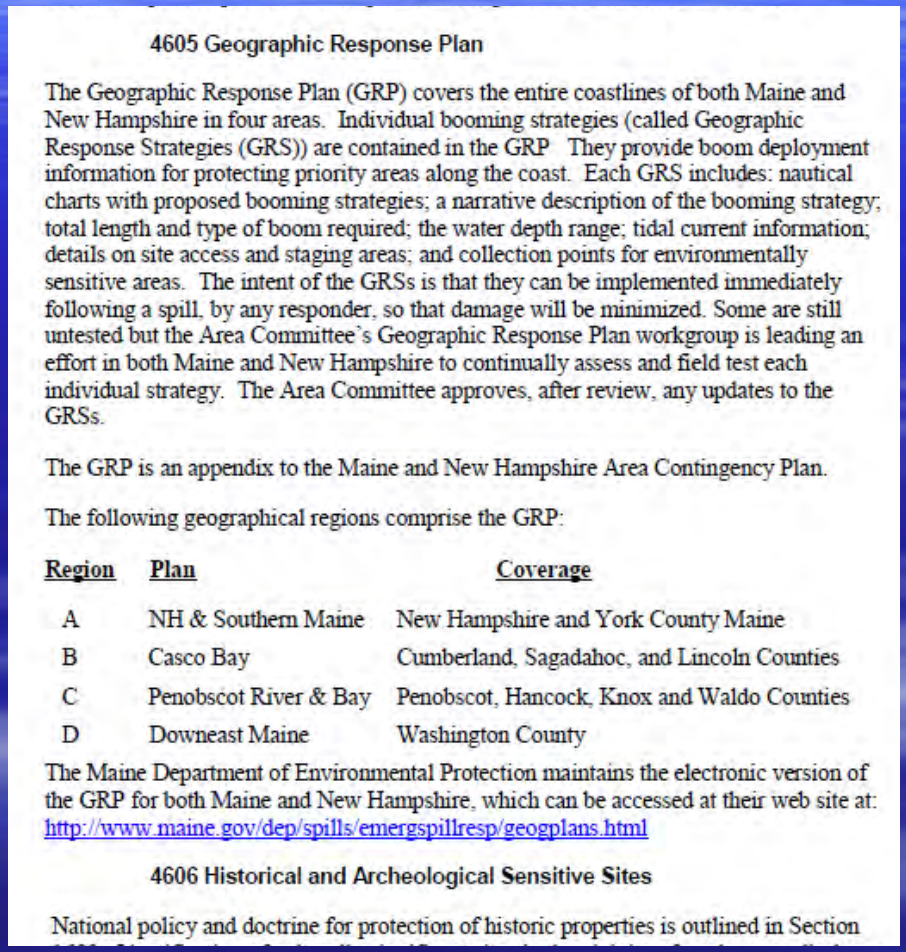
- In all states there are two Area Committees; one coastal, one inland
- The USCG is responsible for spills in the coastal zone and the USEPA in the inland zone.
- The separation of coastal and inland is an officially designated boundary.



What is a/the GRP?

- GRP has two meanings:
  1. The overall Geographic Response Plan included in the Area Contingency Plan
  2. A single oil boom strategy pre-designed to protect sensitive environments or to allow for efficient oil spill response. Some call these GRSs (Geographic Response Strategy)

Generally, the term GRP often refers to the collection of individual strategies



4605 Geographic Response Plan

The Geographic Response Plan (GRP) covers the entire coastlines of both Maine and New Hampshire in four areas. Individual booming strategies (called Geographic Response Strategies (GRS)) are contained in the GRP They provide boom deployment information for protecting priority areas along the coast. Each GRS includes: nautical charts with proposed booming strategies; a narrative description of the booming strategy; total length and type of boom required; the water depth range; tidal current information; details on site access and staging areas; and collection points for environmentally sensitive areas. The intent of the GRSs is that they can be implemented immediately following a spill, by any responder, so that damage will be minimized. Some are still untested but the Area Committee's Geographic Response Plan workgroup is leading an effort in both Maine and New Hampshire to continually assess and field test each individual strategy. The Area Committee approves, after review, any updates to the GRSs.

The GRP is an appendix to the Maine and New Hampshire Area Contingency Plan.

The following geographical regions comprise the GRP:

Region	Plan	Coverage
A	NH & Southern Maine	New Hampshire and York County Maine
B	Casco Bay	Cumberland, Sagadahoc, and Lincoln Counties
C	Penobscot River & Bay	Penobscot, Hancock, Knox and Waldo Counties
D	Downeast Maine	Washington County

The Maine Department of Environmental Protection maintains the electronic version of the GRP for both Maine and New Hampshire, which can be accessed at their web site at: http://www.maine.gov/dep/spills/emergspillresp/geogplans.html

4606 Historical and Archeological Sensitive Sites

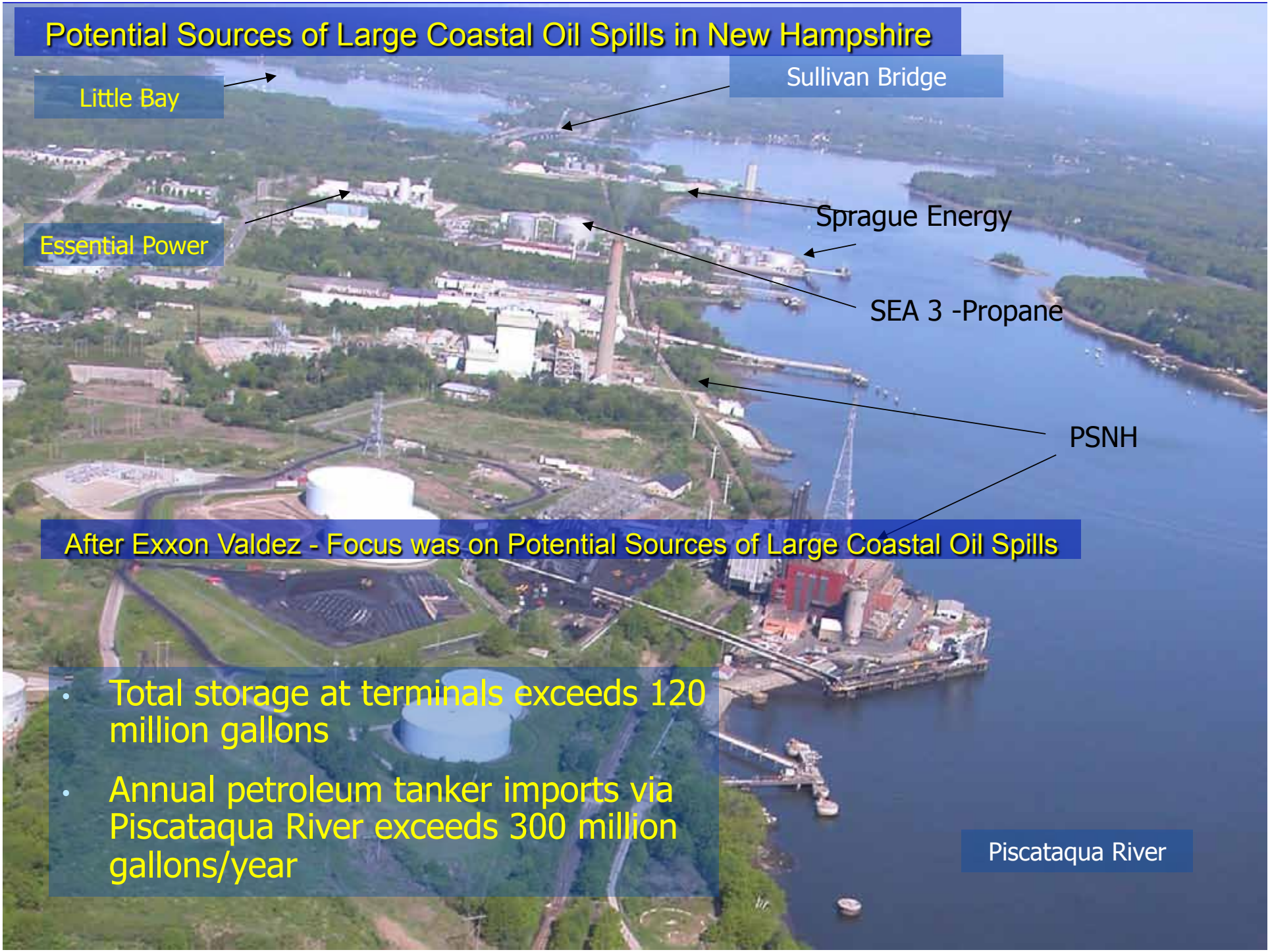
National policy and doctrine for protection of historic properties is outlined in Section

What is a/the GRP?

What's the Point of the GRP?

- To guide initial responders in the early stages of a spill on where to place booms
- Identify sensitive natural, cultural, infrastructure, or economic resources, considered important to protect from oil spills
- Determine before a spill the tactics for boom deployment, staging and recovery in each area

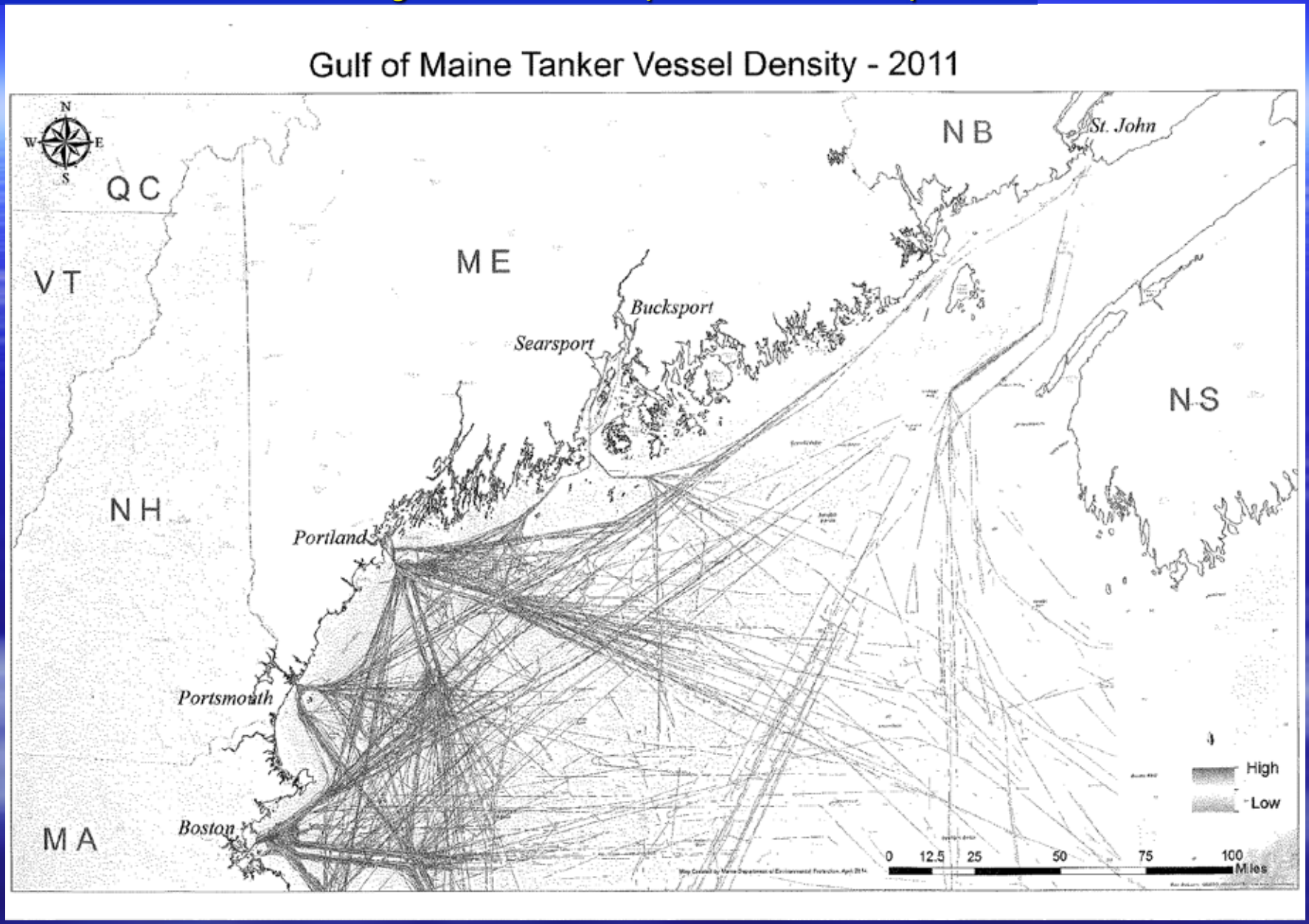
After Exxon Valdez - Focus was on Potential Sources of Large Coastal Oil Spills

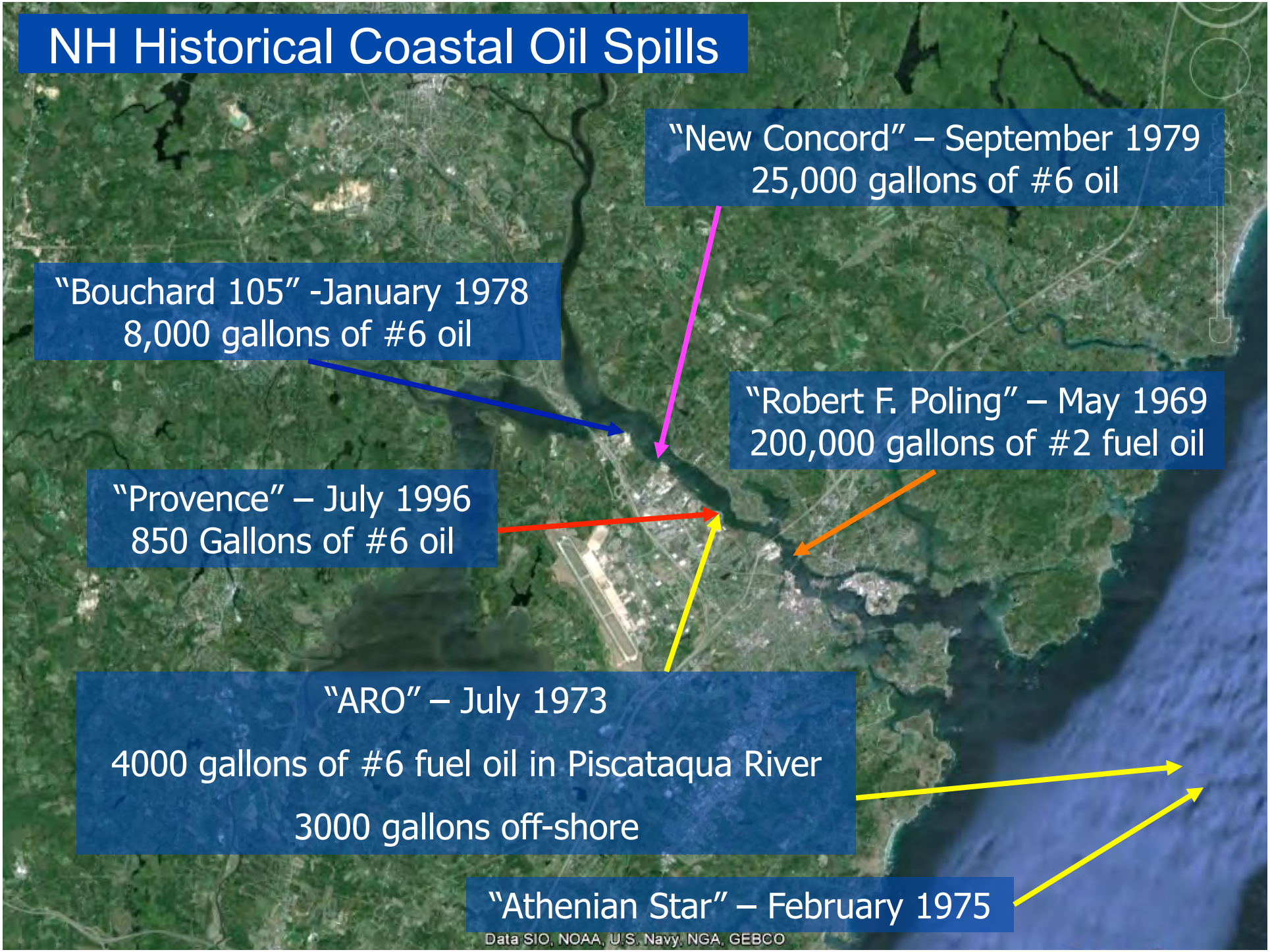

Potential Sources of Large Coastal Oil Spills in New Hampshire
Little Bay
Sullivan Bridge
Essential Power
Sprague Energy
SEA 3 -Propane
PSNH
After Exxon Valdez - Focus was on Potential Sources of Large Coastal Oil Spills
Total storage at terminals exceeds 120 million gallons
Annual petroleum tanker imports via Piscataqua River exceeds 300 million gallons/year
Piscataqua River

Potential Sources of Large Coastal Oil Spills

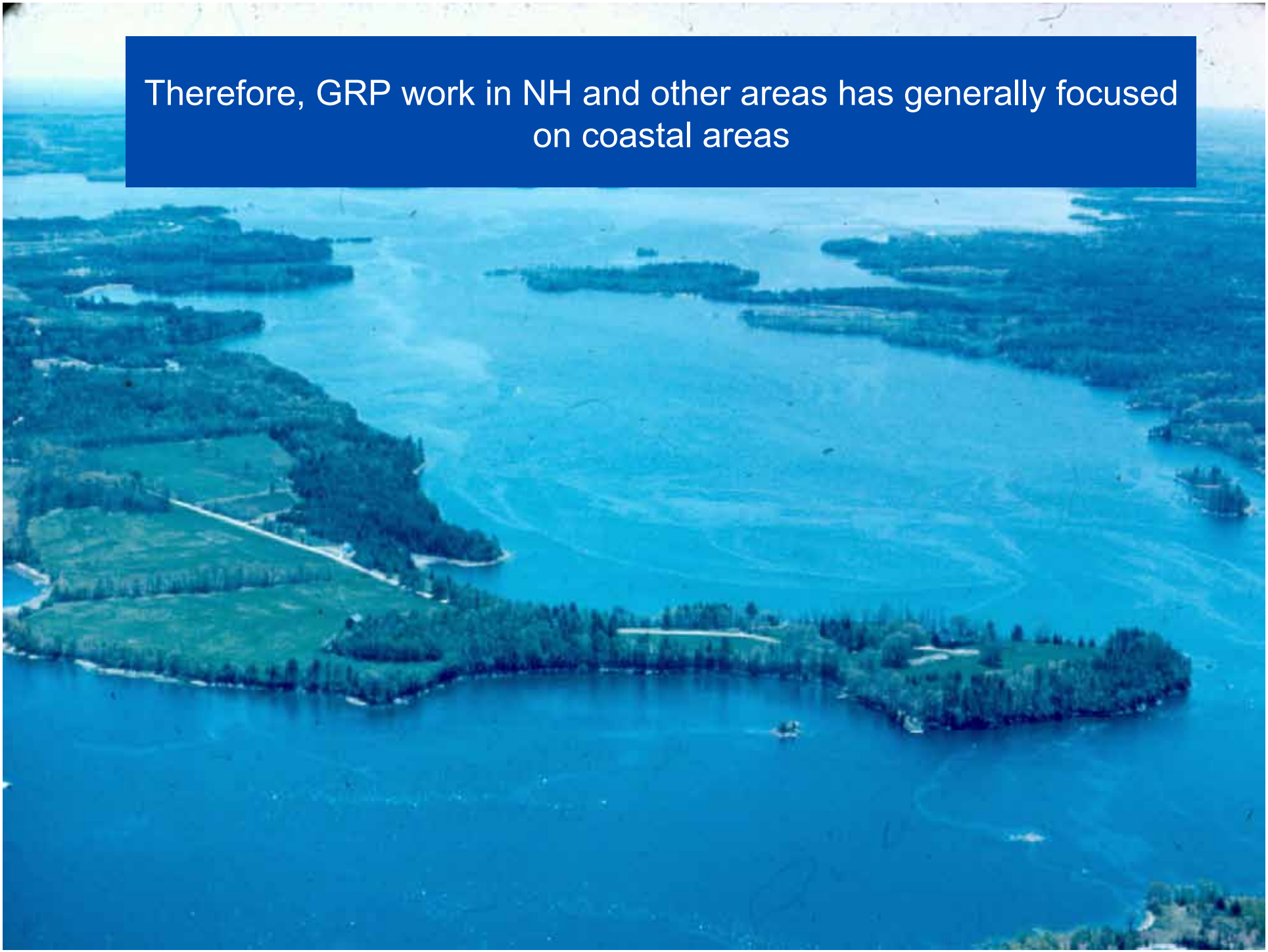
- Vessels delivering petroleum :
- Vessels delivering non-petroleum goods: engine fuel
- Off shore vessels bound for non-NH ports
- Fixed facilities

Potential Sources of Large Coastal Oil Spills in New Hampshire




NH Historical Coastal Oil Spills
"New Concord" – September 1979
25,000 gallons of #6 oil
"Bouchard 105" -January 1978
8,000 gallons of #6 oil
"Robert F. Poling" – May 1969
200,000 gallons of #2 fuel oil
"Provence" – July 1996
850 Gallons of #6 oil
"ARO" – July 1973
4000 gallons of #6 fuel oil in Piscataqua River
3000 gallons off-shore
"Athenian Star" – February 1975
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Therefore, GRP work in NH and other areas has generally focused on coastal areas



NH GRP Development History

Task 1

4 Regional workshops held in 1998+

- Federal agencies, state agencies, local, conservation groups, Piscataqua River Cooperative, harbormasters, pilots, industry, etc.
- Collaborative decisions on identifying areas needing protection based on workgroup input, including:
  - Environmental/habitat/species
  - Historical
  - Critical infrastructure (water intakes, etc)
- Designed DRAFT individual strategies to protect those areas (booming strategies)

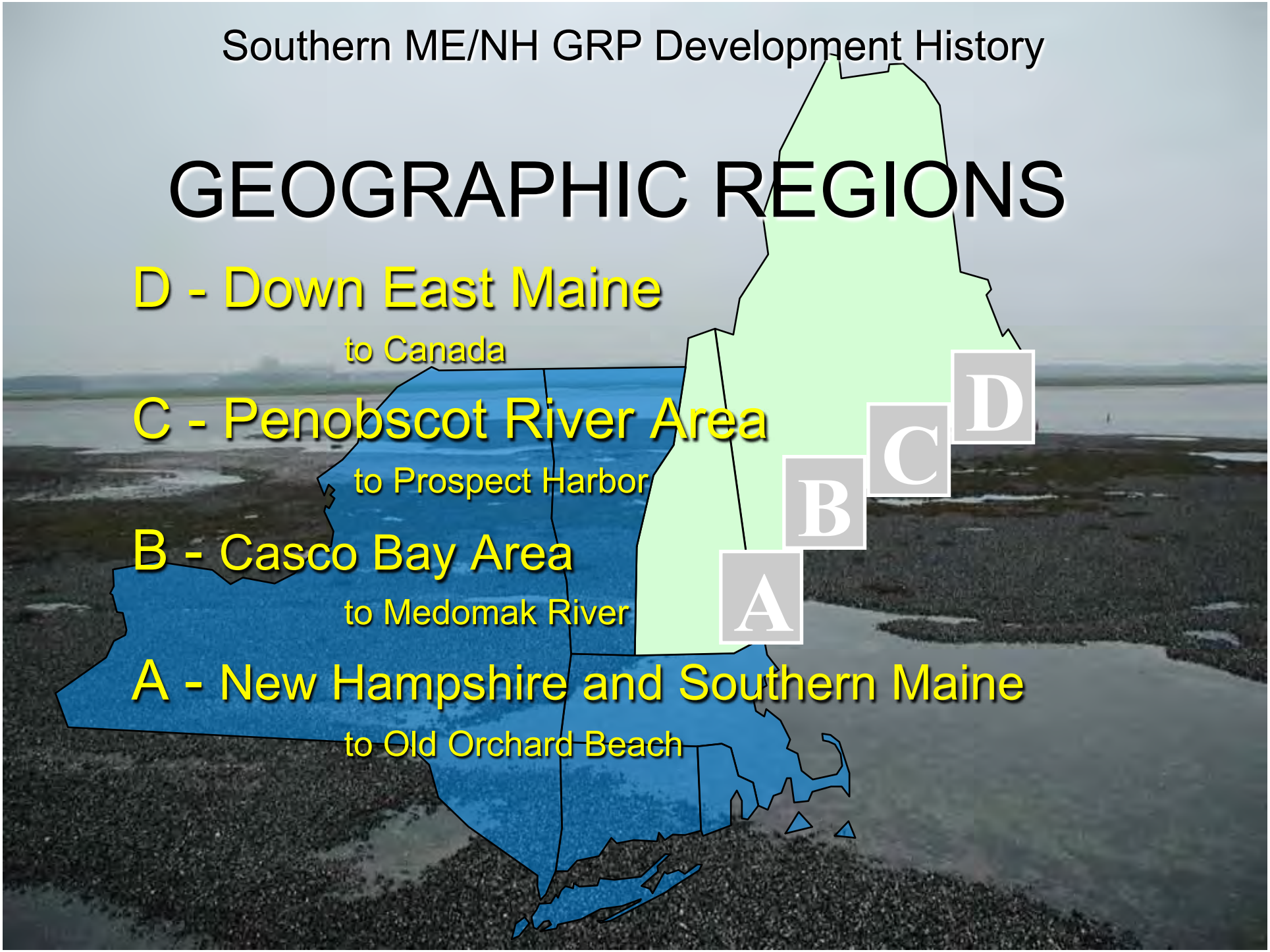
Southern ME/NH GRP Development History

Task 2

- Creation of paper and electronic versions of Draft GRPs
  - Workgroups design paper format and software to manage and print GRPs.
    - Maine DEP maintains paper and electronic versions.
    - The Area Committee official version of the GRPs can be found at the ME DEP web-site http://www.maine.gov/dep/rwm/grp_web/disclaimer.htm
  - Each coastal GRP strategy is 2 pages; a map and a description
  - Inland versions differ (there is no standard)

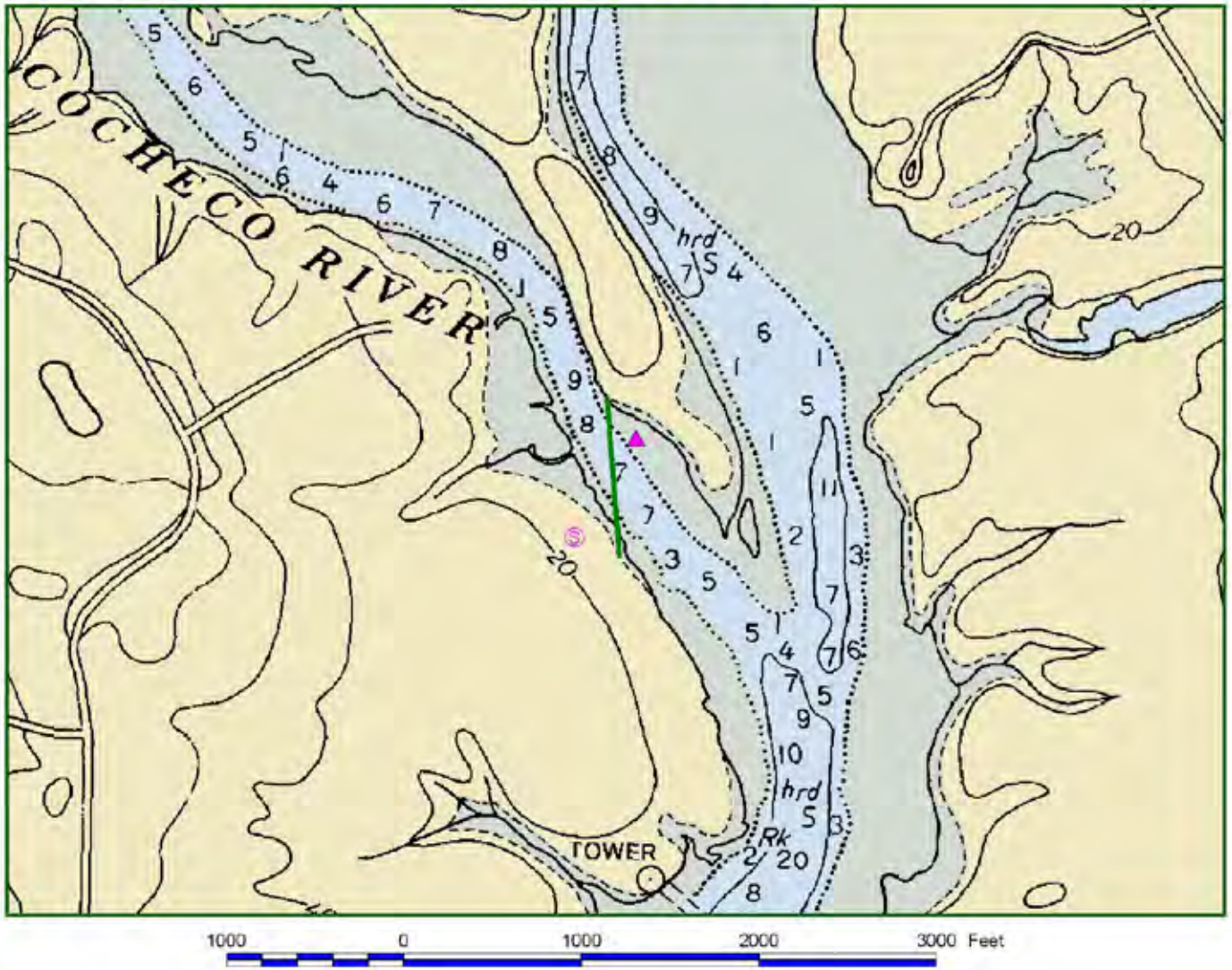
Southern ME/NH GRP Development History

GEOGRAPHIC REGIONS



SIDE 1 - MAP

A-25-1 Cocheco River



N
W E
S

LEGEND

- Harbor Boom
- Intertidal Boom
- Open Water Boom
- Permanent Moorings
- Staging Area
- Command Post
- Collection Recovery Point
- Skimmer
- Response Vessel
- Vacuum Truck

Note: Not to be used for navigational purposes

Area Contingency Plan
Geographic Response Plan Annex
Point of Contact
US Coast Guard MSO Portland, ME
800-410-6548

Created: August 28, 2001 @ 09:01

SIDE 2 - DATA COMPONENTS

- Location Name
- Strategy #
- NOAA Chart
- Latitude
- Longitude
- Water Depth Range
- Max Current Range
- Nearest Boat Ramp
- Strategy Type
- Type of Boom
- Total Length of Boom
- Strategy Description
- Site Access
- Staging Areas
- Collection Points

Cocheco River

Site, Strategy & Chart #	A-25	A-25-1	13285_1
Port Region	New Hampshire and Southern Maine		
Latitude & Longitude	43° 10.635 N	70° 49.631 W	
Water Depth Range	0 - 15		
Max Current (knots)	*Flood*	*Ebb* 0.75	*Source* Estimated
Nearest Boat Ramp	3/4 of a mile, Salmon Falls Bridge Ramp		
Response Strategy Type	Exclusion		
Type of Boom	Harbor Boom		
Total Length of Boom	1,300 *feet*	*Unless otherwise indicated, the boom length given is straight line distance as measured on the map. Actual length required will vary with conditions, and increase with current.*	

Strategy Implementation

This is a one piece exclusionary configuration 1,300 feet long.
1. Establish communications with Command Center.
2. Use river current to assist deployment.
3. By boat connect boom to north shore at 43° 10.743 N / 70° 49.571 W.
4. Connect other end to south shore at 43° 10.534 N / 70° 49.602 near the end of Cullen Bay Road on Dover Point.
6. Observe deployment for stability.
7. If this is deployed prepare to recover oil at Salmon Falls Bridge?

Site Access	By boat or By Salmon Falls Bridge Boat Ramp.	
Staging Areas	Salmon Falls Bridge, Rt. 95 North, to 236 west, to 101 West	
Collection Points	None	
Environmental Concerns	Nesting between April and August: American black duck, Canada goose, Mallard Other birds that frequent the area include may include:Blue-winged teal, Great blue heron, Greater yellowlegs, Lesser yellowlegs, Marsh wren and Virginia rail.	
ESI *Map #*	6	
Shoreline Types	10A - Salt and brackish water marshes	9A - Sheltered tidal flats
Other Comments		

Task 3

Verification/Testing of Strategies

- Two workgroups subsequently formed in Maine and Southern Maine/ NH to review, test and update local strategies
  - Initial review of GRP
  - Site Visit
  - Table top redesign
  - Actual Testing; use annual equipment deployment exercises or state agency resources
  - PSNH provided testing for several years
  - Industry Testing under their Facility Response Plan exercises

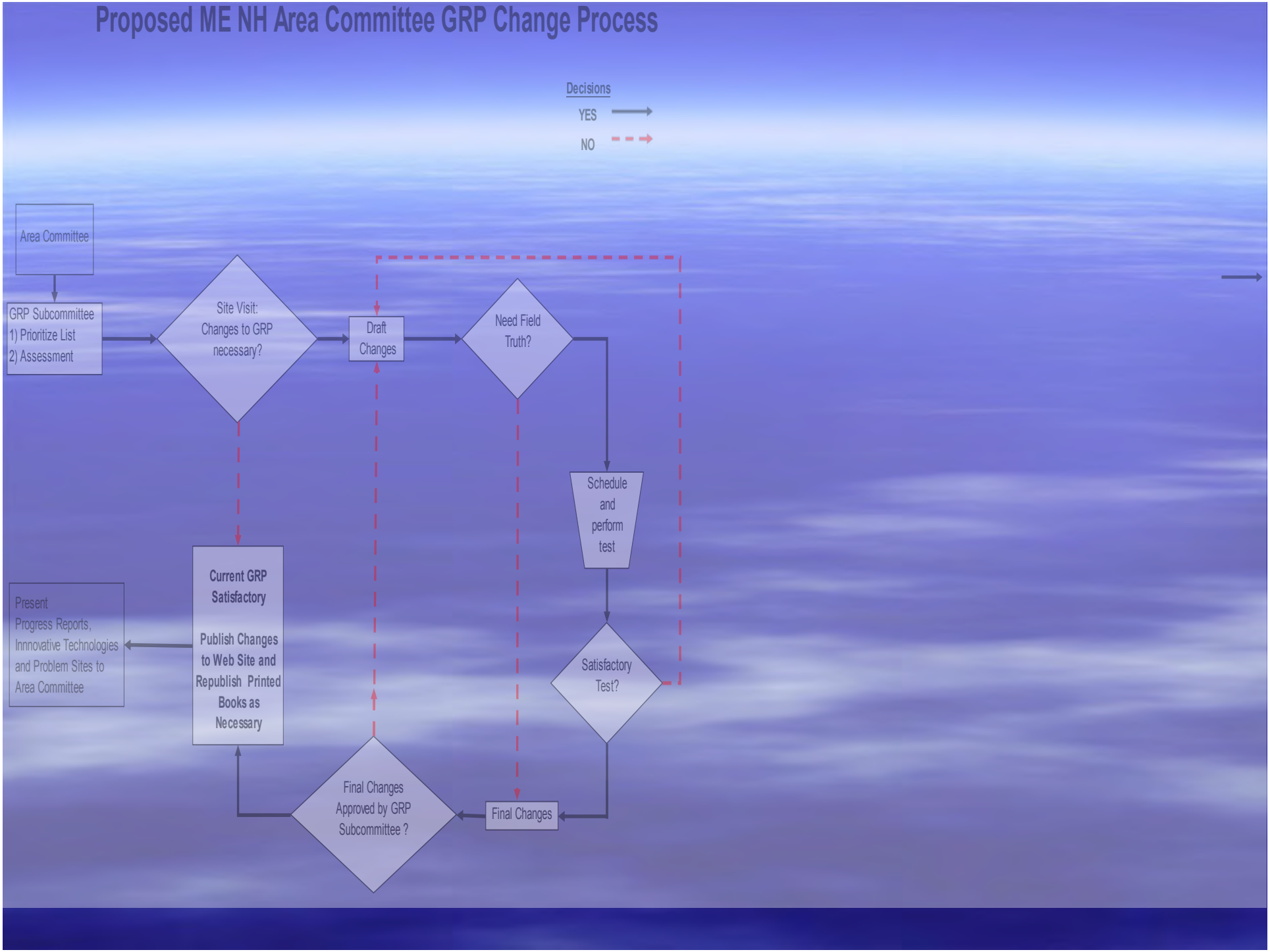
Current NH GRP Committee

- Members of Portsmouth Oil Spill Response Workgroup NH GRP Committee
  - Sector NNE New Castle
  - NH DES
  - Maine DEP
  - Eversource
  - Independent
  - Portsmouth Naval Ship Yard

Review and Approval Process

- Workgroups meet regularly to review and eventually present GRPs to the Area Committee for approval/updates

Proposed ME NH Area Committee GRP Change Process



Written Record of Process

GRP Inspection Notes

Page 42 -12/2/2015

A-24-1 Upper Piscataqua River

Site Visit	Test
2001	none
2003	none
2004	
2005	Spring Ex. 2006
2006	2006
2007	2007

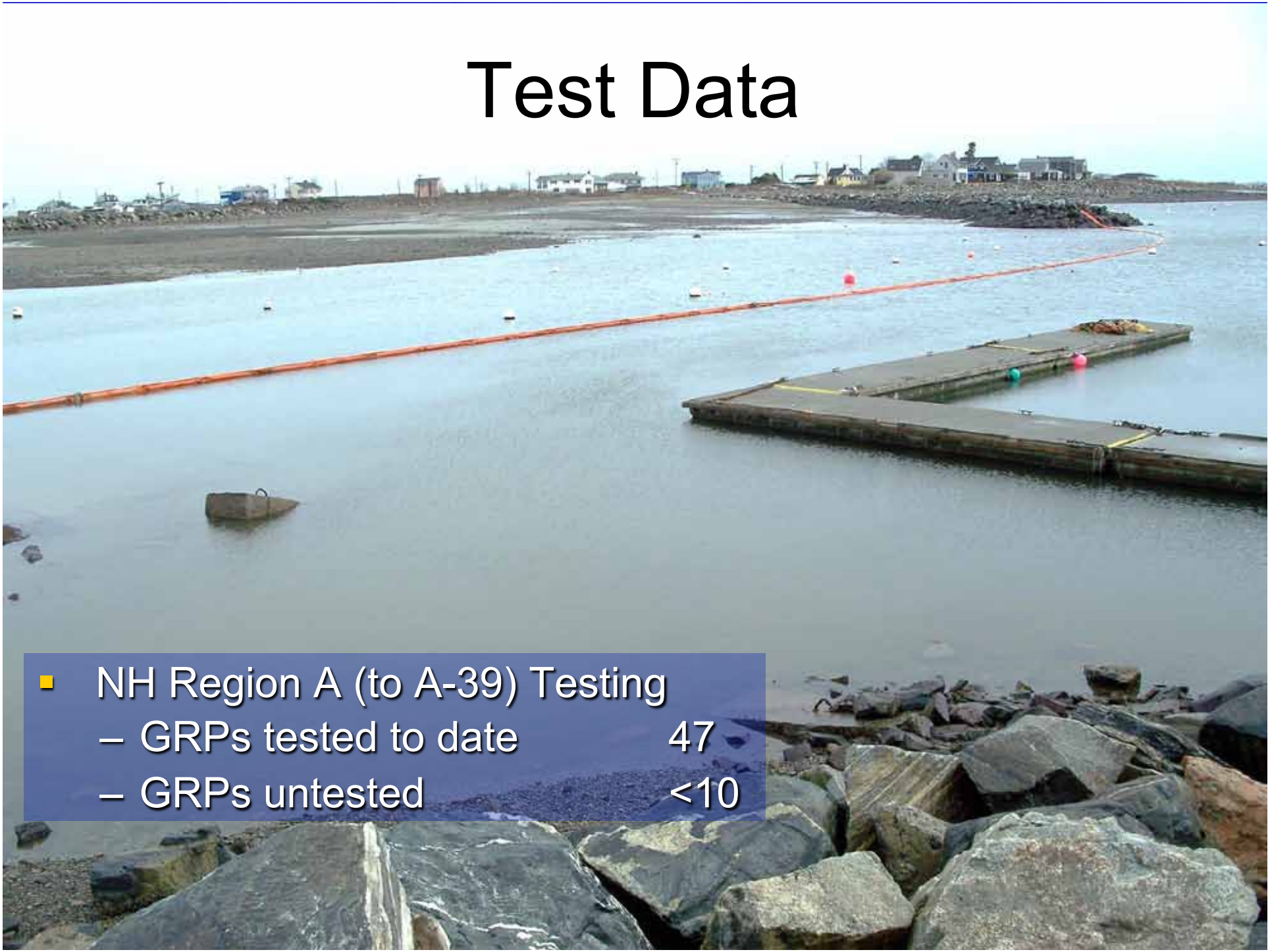
Previous tests: This not been done. Difficulty determining the exact location for the booms.

1. These should be moved downstream, although this would lengthen the booms.
2. The collection areas as marked are likely not reasonable, far too steep, no roads/boat ramps.
3. Maybe this should be a series of deflection booms.
4. There are boat ramps on the NH side, maybe this should be where the collection points are located; but this will considerably lengthen the booms

Committee Decision: Reconfigure

- Significant change needed for this area. Total redesign likely needed.
- 5.25.05 notes: table to next meeting, will need considerable reworking
- 7.19.05 field trip
  - Team agreed that deploying two legs totally across the river, but in the opposite direction from the original is still the best solution. The Maine side simply does not have reasonable access.
  - The first leg northern end is at 43 08.667 N and 70 50.050 W. This is at a rock outcrop at a dirt "boat" ramp. The southern end of the leg is at a long wooden pier or the old boat ramp just to the north of the pier at 43 08.458 N and 70 49.811 W.
  - The second leg northern end has two choices 1) is at the base of a dock at 43 08.269 N and 70 49.921 W or 2) the next house to the north. The southern end of this leg is just to the north of Stacey Creek on the Maine side.
- Spring TTX/EDX 2006 – Strategy was partially implemented, marginally successful.
- 6-27-06 field trip
  - NH side, the road that was previously a potential location for collection is no longer in existence.
  - There is a dirt road to the North of a large field adjacent to a 21' depth mark, see map, possible location for collection

Test Data



- NH Region A (to A-39) Testing
  - GRPs tested to date 47
  - GRPs untested <10

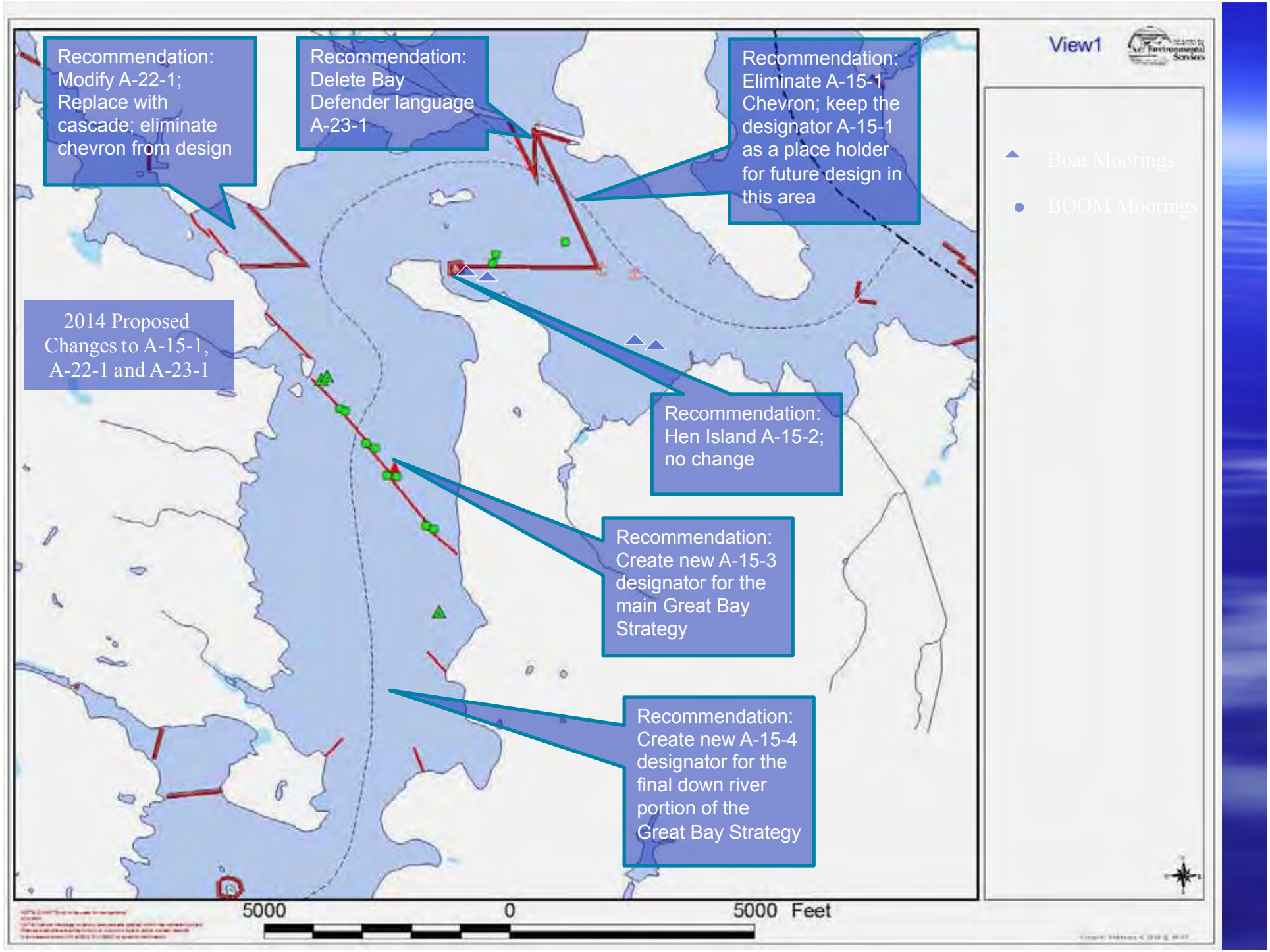
Region A Project Status

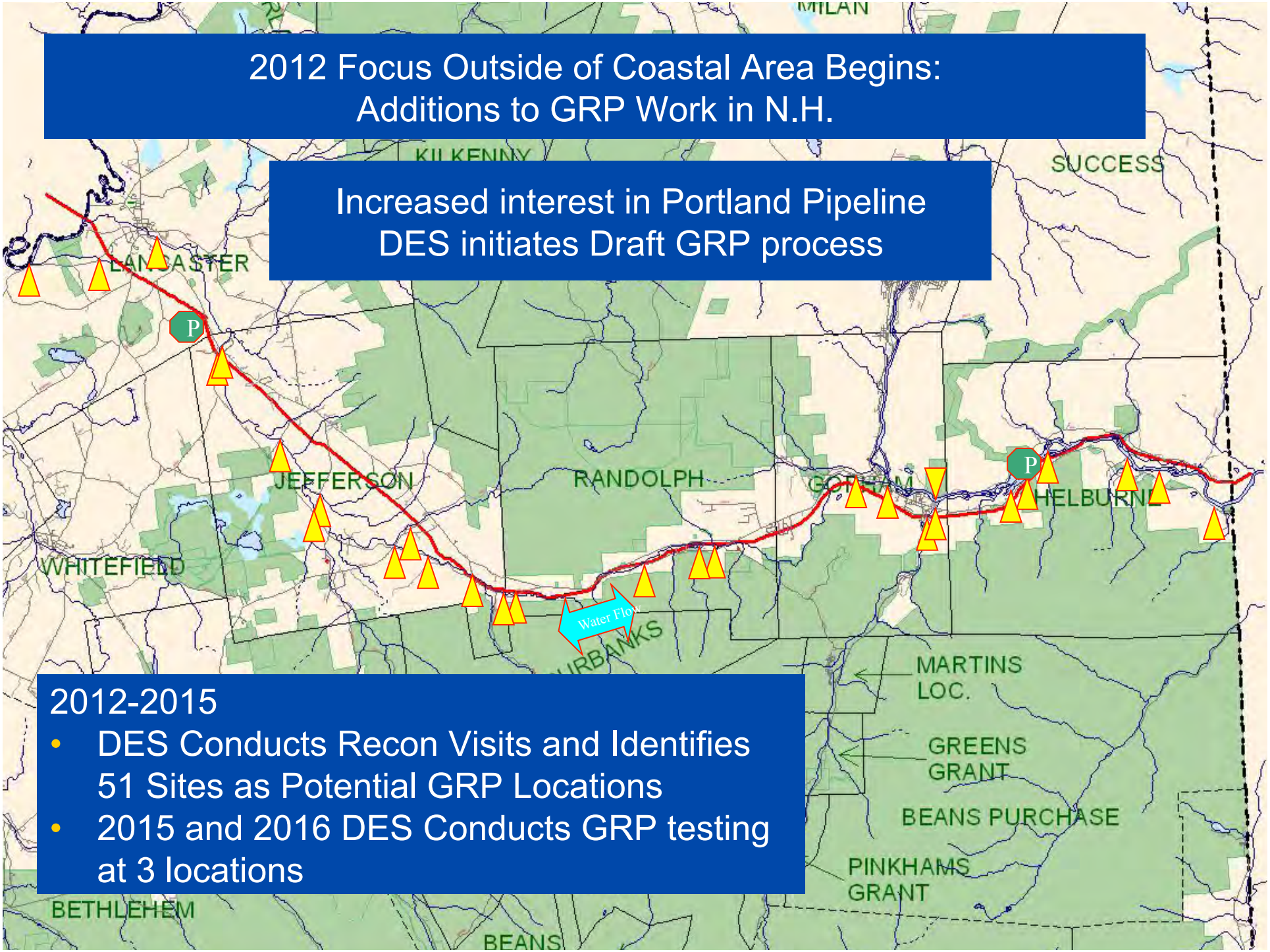
- 2003
  - Visited all 52 Sites, 39 by water
  - Tested 3 GRPs
- 2004
  - Tested 14 GRPs & Documented Changes
  - Revised Map Data and Text Format
- Year 2005
  - Created 6 New GRPs,
  - Tested 9,
  - Documenting Changes
- 2006
  - Visited most sites
  - Tested 4 GRPs
- 2007
  - Visited 25 sites
  - Tested 3
- 2008
  - Visited
  - Tested
  - **Began major re-design of Great Bay Protection Strategy (each year through 2015)**
- 2009
  - Visited most sites
  - Tested ?? GRPs
- 2010
  - Tested 14 GRPs
- 2011
  - Visited most sites
  - Documenting Changes
- 2012
  - Visited most sites
  - Tested 8-12 GRPs
- 2013
  - Visited 20+ sites
  - Tested 8 - 12
  - Considered new freshwater sites
- 2014
  - Visited most sites
  - Tested 8-12
  - Finalized proposed changes
  - Added 6 strategies for rail
- 2015
  - Visited
  - Tested 10 - 12

Proposed Changes to Region A GRPs

GRP #	Title	Changes
A-01-1	Hampton Harbor and Blackwater River	Changed, based on visit and discussion. Put more details in text side.
A-01-2	Little River Marsh South of Little Boars Head	New, based upon site visits and discussion. Previously unidentified site of concern.
A-01-3	Chapel Brook on Bass Beach	New, based upon site visits and discussion. Previously unidentified site of concern.
A-01-4	Golf Course Creek on Bass Beach	New, based upon site visits and discussion. Previously unidentified site of concern.
A-01-5	Eel Pond on Sawyers Beach	New, based upon site visits and discussion. Previously unidentified site of concern.
A-02-1	Rye Harbor	Changed, based on field test and visits. Added additional booming for more protection.
A-03-1	Parson's Creek at Concord Point	Changed, based on field test and visits. Reconfigured and added additional booming for more protection.
A-04-2	Seavey Creek and Berrys Brook	Changed, based on field tests and visits, Divided into 2 scenarios. Added additional booming for more protection.
A-04-3	Witch Creek	New, based on field test. Previously unidentified site of concern.
A-04-4	Sagamore Creek	New, based on field test. Previously unidentified site of concern.
A-06-1	Goat to New Castle Island (delete)	Deleted, Shoreline change. No longer any flow through this area.
A-10-1	Between Shaftmasters and TyCom	Changed, based on visit and discussion. Minor technical improvements.
A-11-1	Sprague Avery Lane Terminal (flood)	Changed, based on field tests. Added details in text, and corrected map to match.
A-11-2	Sprague Avery Lane Terminal (ebb)	Changed, based on field tests. Minor technical improvements.
A-12-1	Between Sprague River Road & Avery Lane Terminals	Changed, based on visit and discussion. Added details in text, and corrected map to
A-13-1	Sprague River Road Terminal (flood)	Changed, based on field tests. Minor technical improvements.
A-13-2	Sprague River Road Terminal (ebb)	Changed, based on field tests. Added details in text, and corrected map to match.

Committees Maintain Ongoing Review and Updates


Recommendation: Modify A-22-1; Replace with cascade; eliminate chevron from design
Recommendation: Delete Bay Defender language A-23-1
Recommendation: Eliminate A-15-1 Chevron; keep the designator A-15-1 as a place holder for future design in this area
2014 Proposed Changes to A-15-1, A-22-1 and A-23-1
Recommendation: Hen Island A-15-2; no change
Recommendation: Create new A-15-3 designator for the main Great Bay Strategy
Recommendation: Create new A-15-4 designator for the final down river portion of the Great Bay Strategy
View1
Boat Moorings
BOOM Moorings
5000
0
5000 Feet


2012 Focus Outside of Coastal Area Begins:
Additions to GRP Work in N.H.
Increased interest in Portland Pipeline
DES initiates Draft GRP process
2012-2015
• DES Conducts Recon Visits and Identifies 51 Sites as Potential GRP Locations
• 2015 and 2016 DES Conducts GRP testing at 3 locations
MILAN
KILKENNY
SUCCESS
LANCASTER
P
JEFFERSON
RANDOLPH
GORHAM
P
SHELBURNE
WHITEFIELD
Water Flow
MARTINS LOC.
GREENS GRANT
BEANS PURCHASE
PINKHAMS GRANT
BETHLEHEM
BEANS

2012 Focus Outside of Coastal Area Begins: Additions to GRP Work in N.H.

- Sudden Initiation of Crude Oil Shipments by Rail through NH.
- 2013 DES initiates Draft GRP process in area of Rail
- 2015 DES Conducts strategy testing at 1 location

Focus Outside of Coastal Area Begins: Additions to GRP Work in N.H.

Inland Area Committee through USEPA Funds Initiates Additions to GRP Work in Region 1, Including New Hampshire.

Why Aren't There GRPs for Every Stream, River and Pond, bridge crossing and ANYWHERE there could be a spill?
AMOSKEAG
BEVERAGES
224-3348
US DOT 142574
Hackney
Cost and Time Involved in the GRP Process
Risk of Large Spill

QUESTIONS?

GRP Test: Androscoggin River 2016

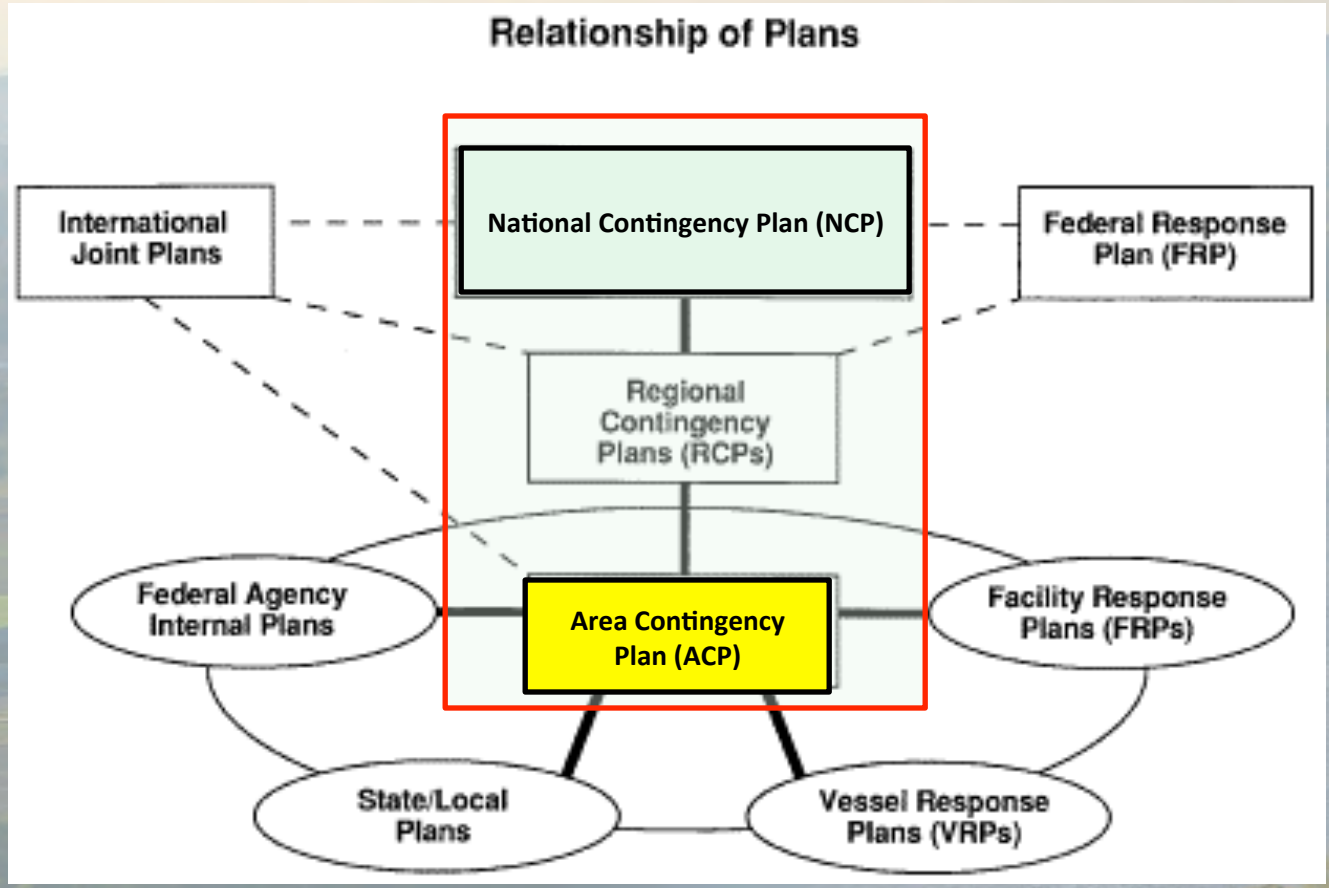
US Environmental Protection Agency

James Carew
Contingency Planner
EPA Region 1 EPRB

Laws and Regulations

- Contingency Plans & Area Committees
  - Clean Water Act (CWA) 311(j)
    - » Basis for NCP
  - Oil Pollution Act of 1990 (OPA 90)
    - » Amended CWA
    - » Required Area Contingency Plans address Worst Case Discharge
  - National Contingency Plan – 40 CFR 300.105
    - » Requires Federal agencies to plan for emergencies; develop procedures for response to oil/hazardous substances; coordinate efforts; coordinate with state/local governments and private entities

Contingency Plans



Area Contingency Plans

- What is an ACP?
  - "…preplanning of joint response efforts, including appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife"

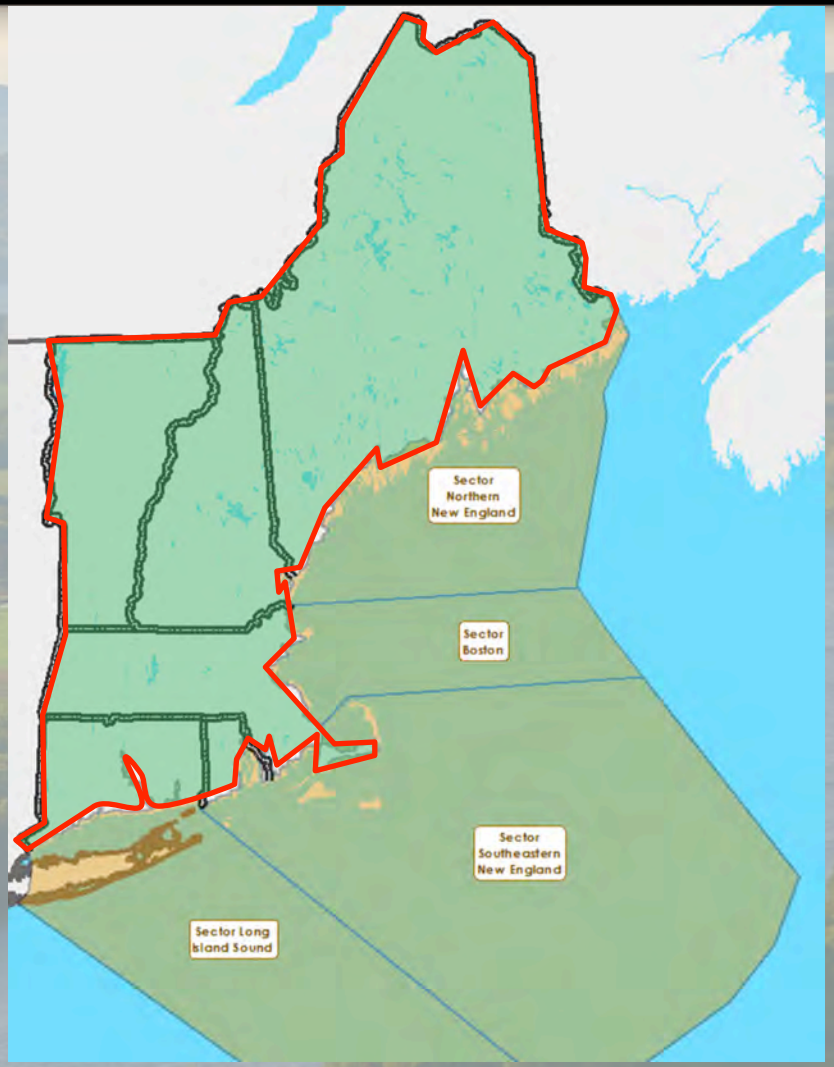
    CWA 311(j)(4)(B)(ii)
  - "Reference document prepared for the use of all agencies engaged in responding to environmental agencies in a defined geographic area."

    EPA Area Contingency Planning Handbook

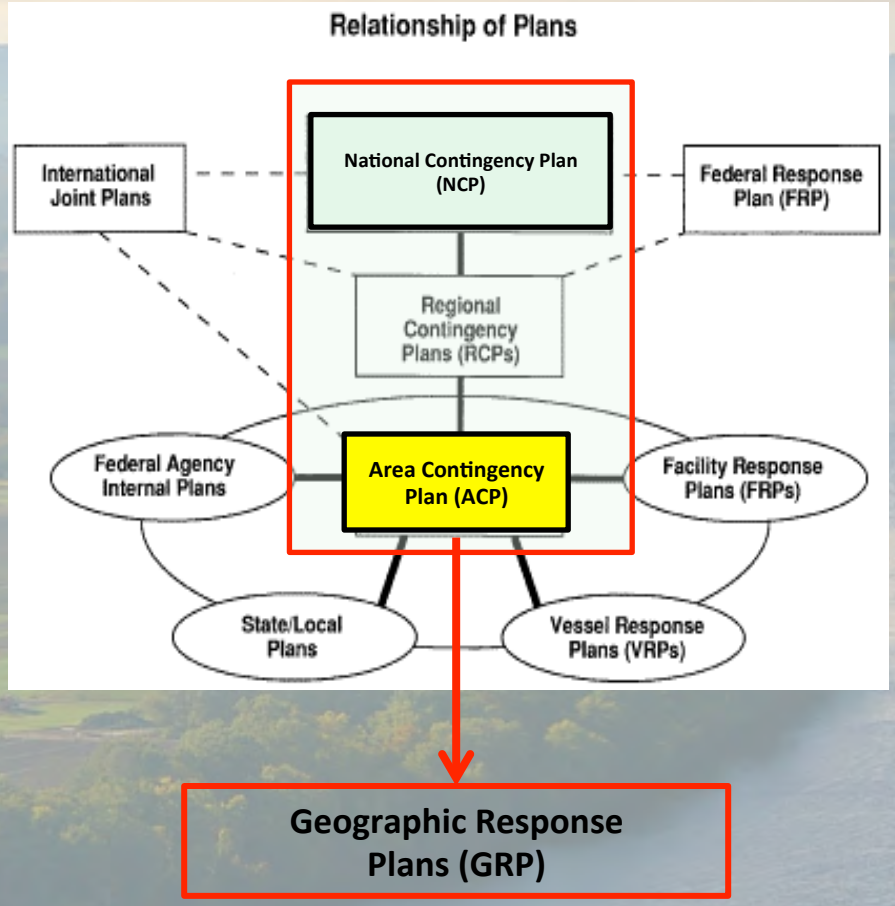
Region 1 ACPs

- 4 Coastal Zone ACPs
  - Coast Guard lead
    - ME/NH Area Committee
    - Plymouth to Salisbury Area Committee
    - RI/Southeastern MA Area Committee
    - Long Island Sound Area Committee
- 1 Inland Zone ACP
  - EPA lead
    - Inland Area Committee

    (RRT serves as Inland Area Committee)

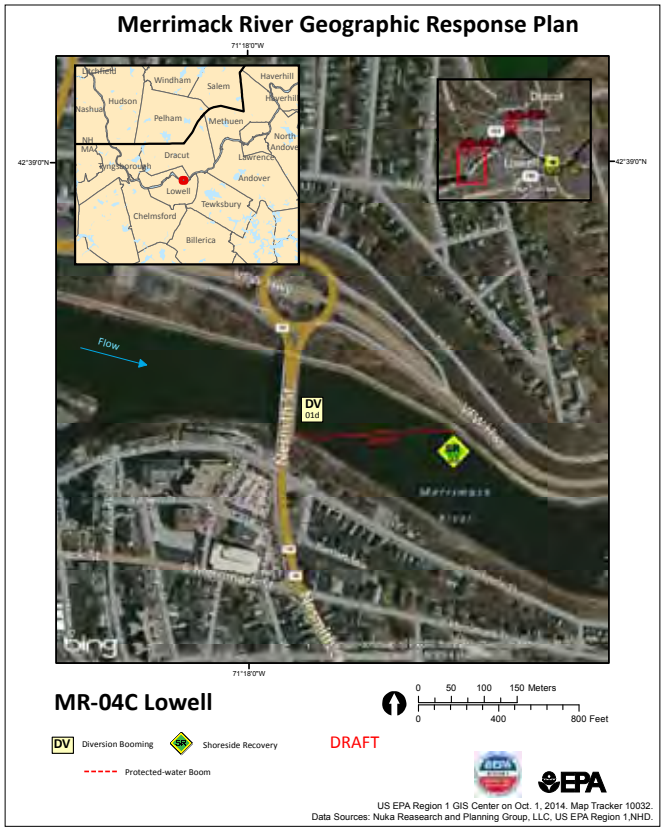


Geographic Response Plans



Geographic Response Plans

- GRPs will be integrated into Inland ACP
- Change of Scale
- Intended for initial response



Version: September 2014

Geographic Response Plans

- What are the advantages of using GRPs?
  - Provide a starting point for local responders
  - Strategies tailored to a small geographic area
  - Developed by experienced pollution responders
  - Helps Unified Command made response decisions
    - » Helps to prioritize response actions
    - » Pre-identifies collection and staging areas
    - » Assists with Resource Management
  - Available to all responders

Review

- Laws and Regulations
- Hierarchy of plans
- Area Contingency Plans (ACP)
- Geographic Response Plans (GRP)
  - Integrated into ACP
  - How GRPs are used

Questions?

Geographic Response Plans

Mike Popovich

Nuka Research & Planning Group

Why develop GRPs?

Kennebec River Geographic Response Plan
Hallowell KR-03
EPA
Kennebec River
1,600 ft. of boom and associated equipment are required to implement all of the tactics in this GRP. Responders should always consider on-scene conditions before deploying GRP tactics. Tactics may not be safe or effective under certain conditions. Responder safety should always be the first priority.
Version: June 2016
Page 1 of 4
Nuka Research and Planning Group, LLC
Data Sources: Nuka Research & Planning Group, LLC, US EPA Region 1

- Standardize tactics and terminology
- Field tool for local responders
- Training and preparedness value
- Foster local buy-in and create realistic expectations for protecting sensitive areas from oil spill impacts

GRP Basics

A GRP is…

- ☑ **A map-based response strategy to protect sensitive areas from oil spills**
- ☑ **A consensus plan developed in a non-emergency setting**
- ☑ **A tactical plan for use by first responders and…**
  - Unified Command Staff
  - Spill Response Contractors and Oil Spill Removal Organizations

A GRP is NOT…

- ⊘ **Not a mandate for protection or response**
- ⊘ **Not a performance standard**
- ⊘ **Not the only sites that will or should be protected**
- ⊘ **Not a substitute for best professional judgment**
- ⊘ **Not final until field verified**

GRP Layout

- Page 1- **Tactics Map**
- Some GRPs have single tactics map, some have 2-3
- **Each site (map) approx 1mile in length**

Pages 2 & 3: Tactics Tables

ID	Location and Description	Response Strategy	Implementation
KR-03-01 DV	**Hallowell** Hallowell Boat Landing Lat. 44° 17.057'N Lon. 69° 47.309'W	**Divert and Collect – Shoreside** Position boom in the identified configuration to intercept oil before it migrates further downriver and divert oil to riverbank for recovery. Consider source location and river flow patterns when selecting tactics and deployment strategies. Adjust the angle and length of boom depending on oil trajectory, river flow rate, and wind.	Deploy 1,200 ft. of 12" – 18" boom in a cascade array (4-300 ft sections) at the proper angle to divert incoming oil to the collection site. Set up shoreside recovery systems. Deploy passive recovery using sorbents at collection point to minimize leakage. Adjust the angle and length of boom and the shoreside collection site depending on oil trajectory. When implementing the Diversion tactic, responders must ensure that skimming systems and temporary oil storage devices are available to implement the shoreside recovery tactic. Tend as necessary based on river flow conditions.
KR-03-02 DF	**Chelsea** Ferry Rd. Lat. 44° 17.256'N Lon. 69° 47.194'W	**Deflection** Set boom to deflect oil away from sensitive environmental area on east side of Kennebec River and toward diversion and collection site downriver.	Deploy 300 ft of 12" – 18" boom as depicted from the point along the eastern shore of the river north of the Ferry Rd. boat ramp. Oil will be deflected away from sensitive water resources and toward the diversion and collection site downriver. Set anchors every 200 ft. Tend throughout the tide.
KR-03 SR	Same as KR-03-01	**Shoreside Recovery** - Remove spilled oil that has been diverted to the designated recovery site accessible from shore.	Deploy skimming system(s) appropriate for the operating environment and temporary oil storage system in designated location. Oil spill contractor resources will be required to implement Shoreside Recovery tactics.

Kennebec River Geographic Response Plan
Hallowell KR-03

ID	Response Resources	Staging Area Site Access	Resources Protected	Special Considerations
KR-03-01 DV	**Deployment** ***Equipment (All sites)*** 1,200 ft 12" – 18" boom 6 anchor systems 4 anchor stakes (doubled at each shoreside anchor point) 1 shoreside recovery systems ***Vessels*** 2 skiffs ***Personnel/Shift*** 8 total (1 vessel operator + 1 responder per vessel, 4 shoreside responders) **Tending** ***Vessels*** 1 skiff ***Personnel/Shift*** 4 total (1 vessel operator + 1 responder per vessel, 2 shoreside responders)	**Hallowell Public Boat Launch**, 200 Water St., Hallowell, ME.	**Fish/Birds**-Atlantic Salmon, Wild Brook Trout **Threatened/Endangered Species**-Threatened Species Habitat, Habitat of Special Concern, Rare Plants **Cultural**-Historical/Archaeological Sites **Habitat**- Sand & Gravel Aquifers, Wetlands, Man-Made Structures **Human use**- Boat Ramp or Marina, Conservation Area, Infrastructure, Groundwater Source	River conditions including flow rate and water depth vary depending on time of year and heavy rain and/or snowfall. Survey site prior to deployment and modify deployment tactics and techniques as appropriate based on observed river conditions. If ice is present GRP tactics and strategies must be reevaluated. Vessel operators should have local knowledge and experience operating in riverine environments.. Site surveyed: 04/12/16. **Field tested: not yet.**
KR-03-02 DF	**Deployment** ***Equipment*** 400 ft 12" – 18" boom 2 anchor systems 1 anchor stake ***Vessels / Personnel/Shift*** Same as KR-03-01	**Ferry Rd. Boat Launch**, - 188 Ferry Rd., Chelsea, ME	Same as KR-03-01	Same as KR-03-01
KR-03 SR	**Deployment** ***Equipment (All sites)*** 1 shoreside recovery system ***Vehicles*** 1 truck or truck with trailer ***Personnel/Shift**** 2-5 shoreside responders (depending on recovery system and hours of operation)	Same as KR-03-01	Same as KR-03-01	Same as KR-03-01

Page 4: Site Photos/Contacts

Page 4- Site Photos & Local Contacts

Kennebec River Geographic Response Plan
Hallowell KR-03

EPA

Site Photographs and Contact Information

Hallowell boat ramp access

View downriver from boat access ramp.

View upriver from Hallowell boat ramp.

Contact Information:

Hallowell Fire Department: 207-623-2860
Hallowell Water/Sewer Department: 207-622-3993
Hallowell Conservation Commission: 207-623-3163
Hallowell Harbormaster: 207-557-055
Buckeye Pipeline: 207-873-6921
Maine DEP (Oil Spill): 800-482-0777
Maine DEP (HazMat Spill): 800-452-4664
Maine Dept of Inland Fisheries & Wildlife (Augusta): 800-452-4664
Maine Dept. of Marine Resources: 207-941-4449
Maine Drinking Water Program: 207-557-4214
Maine Historic Preservation Commission: 207-287-2132
National Response Center: 800-424-8802

Shore side access at Granite City Park.

Kennebec and Penobscot River GRPs have been incorporated into EPA Region One's Inland Area Contingency Plan (ACP) and is available at the following website: **https://nrtqa.ert.org/site/doc_list.aspx?site_id=38** or accessed via QR reader-enabled smartphones by scanning the QR code at right.

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Data Sources: Nuka Research & Planning Group, LLC, US EPA Region 1

GRP Usage

Kennebec River Geographic Response Plan
Hallowell KR-03

EPA

1,600 ft. of boom and associated equipment are required to implement all of the tactics in this GRP. Responders should always consider on-scene conditions before deploying GRP tactics. Tactics may not be safe or effective under certain conditions. Responder safety should always be the first priority.

Nuka Research and Planning Group, LLC
Data Sources: Nuka Research & Planning Group, LLC, US EPA Region 1

EPA REGION 1 EMERGENCY RESPONSE

nuka

GRP Usage

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KR-03-02 DF	**Chelsea** Ferry Rd. Lat. 44° 17.256'N Lon. 69° 47.194'W	**Deflection** Set boom to from sensiti area on east River and to collection si	**Ferry Rd. Boat Launch**, - 188 Ferry Rd., Chelsea, ME	Same as KR-03-01	Same as KR-03-01
KR-03 SR	Same as KR-03-01	**Shoreside** Remove spi been diverte recovery sit shore.	Same as KR-03-01	Same as KR-03-01	Same as KR-03-01

Site Selection & Prioritization

Mike Popovich

Nuka Research & Planning Group

Site Selection & Prioritization

- Two steps
  1. **Select Sites for Consideration**
  2. **Prioritize/Select Sites for Development**
- Site Consideration Criteria
  - **Risk of Oil Spills**
  - **Vulnerability**
  - **Environmental/Economic/Historical Sensitivity**

Site Selection

- Identify candidate sites
  - Compile available data on sensitivities*
  - Solicit input from agencies, stakeholders, locals, industry, and responders.
  - Build Site Selection Matrix
- Prioritize sites
  - Work group consensus
- Survey candidate sites.
- Finalize site selection and delineation based on field surveys.

Site Selection Matrix

U.S. EPA Region I - Exeter, Squamscott, and Lamprey Rivers
GRP Site Selection Matrix Key

Fish	Invertebrates	Birds	Threatened/ Endangered Species	Cultural Resources	Human Use	Land Mgt. Designations	Riverine Habitat
A = Anadromous	LCS = Lobster, Crabs, Shrimp	N = Nests or nesting sites nearby	ST = Sturgeon (Shortnose/Atlantic)	HA = Historical/Archaeological Site	BR = Boat Ramp or Marina	ACEC = Areas of Critical Environmental Concern	BD = Bedrock
C = Catadromous (American eels)	SU = Shellfish & Urchins	SE = Seabirds, gulls	E* = Endangered/Threatened	TL = Native American Tribal Lands	B = Public Beach	CA = Conservation Area/Lands	G = Gravel
F = Finfish		SH = Shorebirds	EH = Endangered Species Habitat	TS = Tribally sensitive medicinal,	LD = Lock & Dam	CH = Critical Habitat (Nat'l Heritage Program: Estimated Habitats of Rare Wildlife)	HRN** = Highest Ranked Wildlife Habitat in NH
AC = Arctic Char		IW = Inland Wading Bird & Waterfowl Habitat	US = Unlisted Species of Concern (Habitat)		PH = port or harbor	NER = National Estuarine Reserve	HRR** = Highest Ranked Wildlife Habitat in Region
WT = Wild Brook Trout			SC* = Special Concern (Habitat)		P= Park	NHA = Natural Heritage Area	MM = Man-Made Structures

					PW = Public Drinking Water Supply	POS = Protected Open Space	R = Rocky Bank
						WP = Wellhead Protection Areas	SG = Sand & Gravel Aquifers

Anadromous Fish = alewives, herring, shad, perch
Finfish = haddock, cod flounder, dogfish, pollock, monkfish, silverside/smelt
Shellfish & Urchins = clams, mussels, scallops, quahogs, urchins
Shorebirds = plovers, sandpipers, herons, bitterns, ibises, egrets, cranes, coot, rails

Water Intake = Public Water System surface water intakes & emergency surface water intakes
Groundwater Source = Commercial, Non-Commercial, or Community
Infrastructure = Hospital, Nursing Home/Elder Care, School, Day-Care, Urban/Community Garden Agricultural Land, Religious Retreat Center, Camping, Composted soil storage/distro Areas

* - Endangered, Threatened, and Species/Habitat of Special Concern are all grouped as Species of Greatest Conservation Need in NH.
** - Highest Ranked Wildlife Habitat indicates where wildlife habitat is in best relative condition in NH, particularly for Species of Greatest Conservation Need

1/22/17

FINAL

Site Selection Matrix

U.S. EPA Region I - Exeter, Squamscott, and Lamprey Rivers
Geographic Response Plan (GRP) Site Selection Matrix

GRP #	Site Name	Fish	Birds	Threatened/ Endangered Species	Cultural Res.	Human Use	Land Mgt	Riverine Habitat	Spill Threat High/Medium/Low	Site Accessibility High/Medium/Low
SQ-01	**Newfields***		IW, SE, SH	SC*		BR, IF, WI, PW	CA, WP	HRN, W	H	
ER-01	**Linden St/RT 108/Great Brook**			SC*		PW	CA, WP	HRN, HRR, W	H (due to railroad upstream)	
ER-02	**Exeter/Gilman Park/Norris Brook**			SC*		IF, LD, PW	CA, P, WI, WP	HRN, HRR, MM, V, M, W	M	
LR-01	**Wadleigh Falls**					IF, LD, PW	CA	HRN, HRR, V, W	L	Secondary after Rte 87 boat ramp
LR-02	**Newmarket/Newmarket/ Stagecoach Rd**	A,C		SC*	HA	IF, LD, BR, RF	CA, P, WI, WP	HRN, HRR, MM, M, V, W	H	Somewhere in the vicinity of the dam in Newmarket
	Pickpocket Dam					LD		V	L	
	Route 111 Bridge								L	
	River Rd.*		IW, SE, SH					W	H	
	Epping* Rte 125 and 27					IF, PW		M, V, W	M	Collect at Rte 87 boat Ramp?
	Wiswall Falls					LD, PW		V	L	Good collection
	Packers Falls					LD		V	L	

NOTE: Locations in BOLD were chosen for GRP development during Site Selection Meeting on 24FEB16.

***** - *Location pre-identified by NH DES for potential GRP development prior to this project*

General Source material included:
1. New Hampshire Environmental Sensitivity Index Map NH-5 (Eastern portion of Exeter, Squamscot, and Lamprey only)
2. EPA Region I Inland ACP
3. New Hampshire Fish & Game Wildlife Habitat Land Cover Maps
4. NH GRANIT View
5. Work Group member input

***** - Included SC Habitat based on Bald Eagle distribution in NH (Source: NH Wlidlife Action Plan (WAP) Appendix A)

1/22/17

FINAL

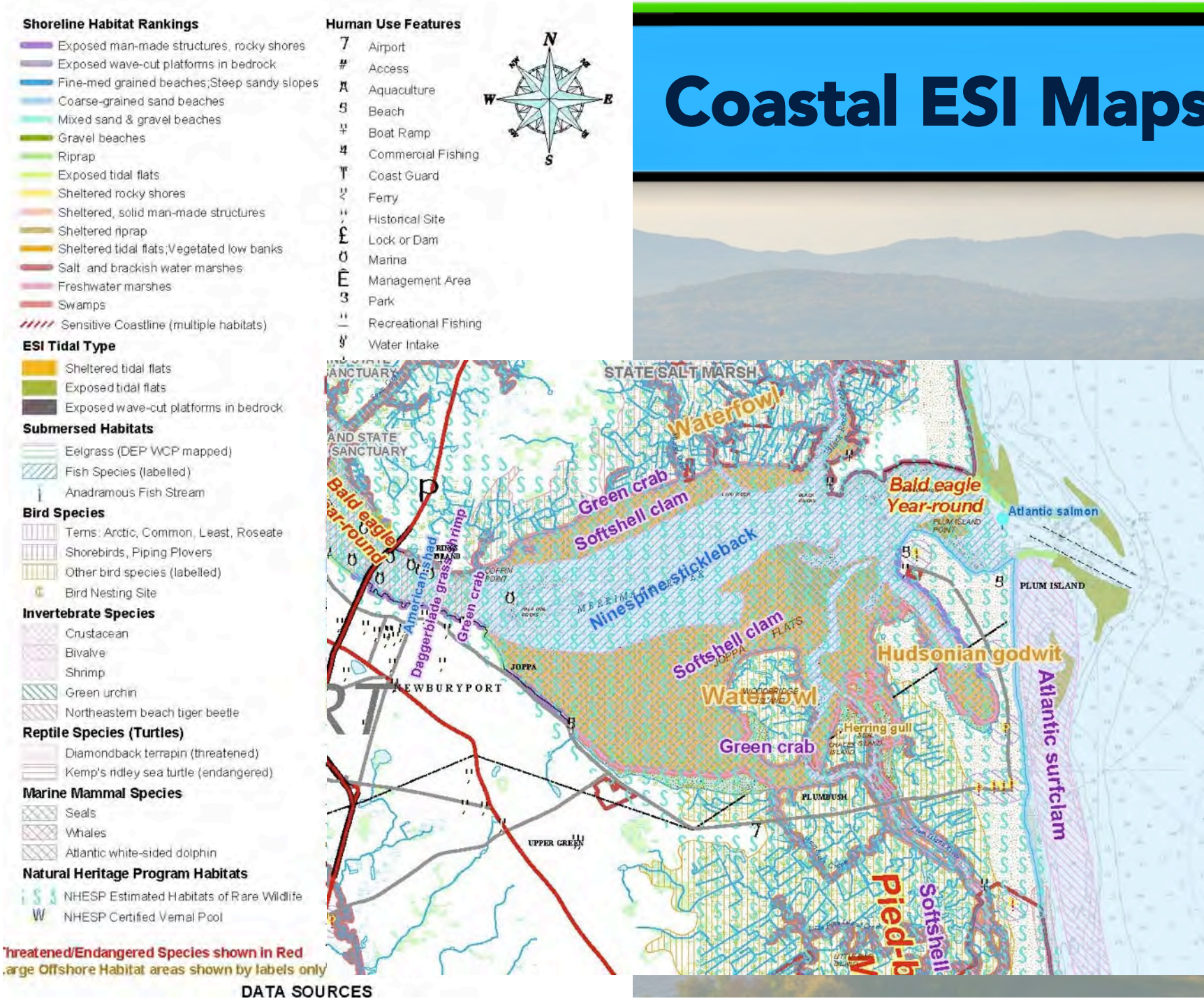
Merrimack River- Risks

- Rail Lines
- Vessels
- Shoreside
  - Facilities
  - Vehicles

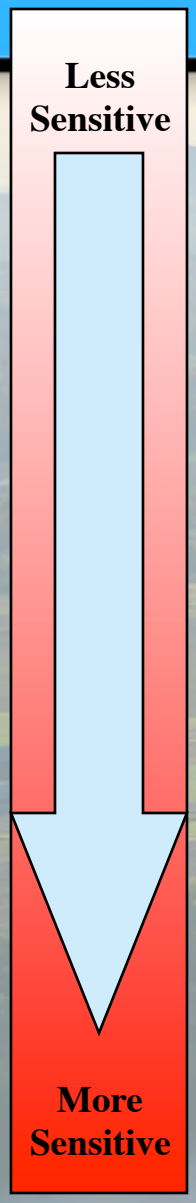
Data Sources for Inland River Environmental Sensitivity

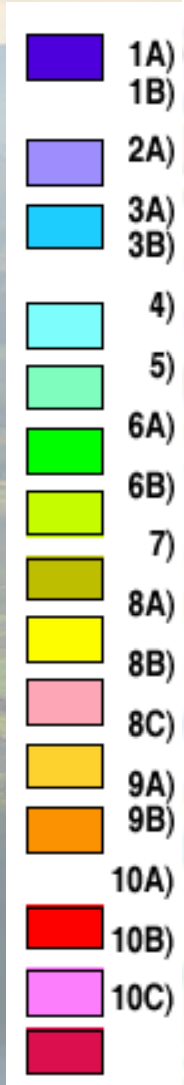
- Environmental Sensitivity Index
- Biological Resource Data
  - Endangered species
  - Critical habitat
- Cultural and Historical Resources
- Human Use

Coastal ESI Maps



Coastal ESI Rankings

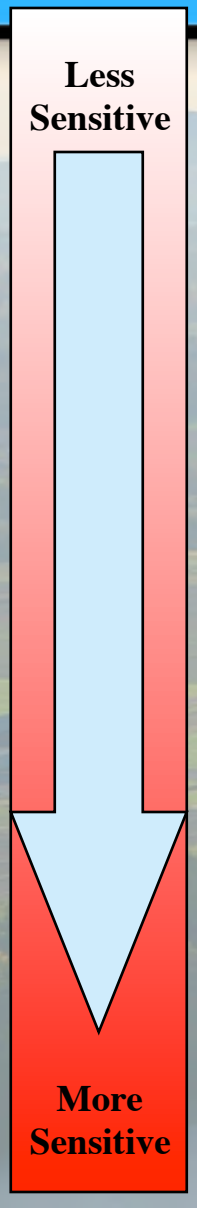




Shoreline Habitat Rankings

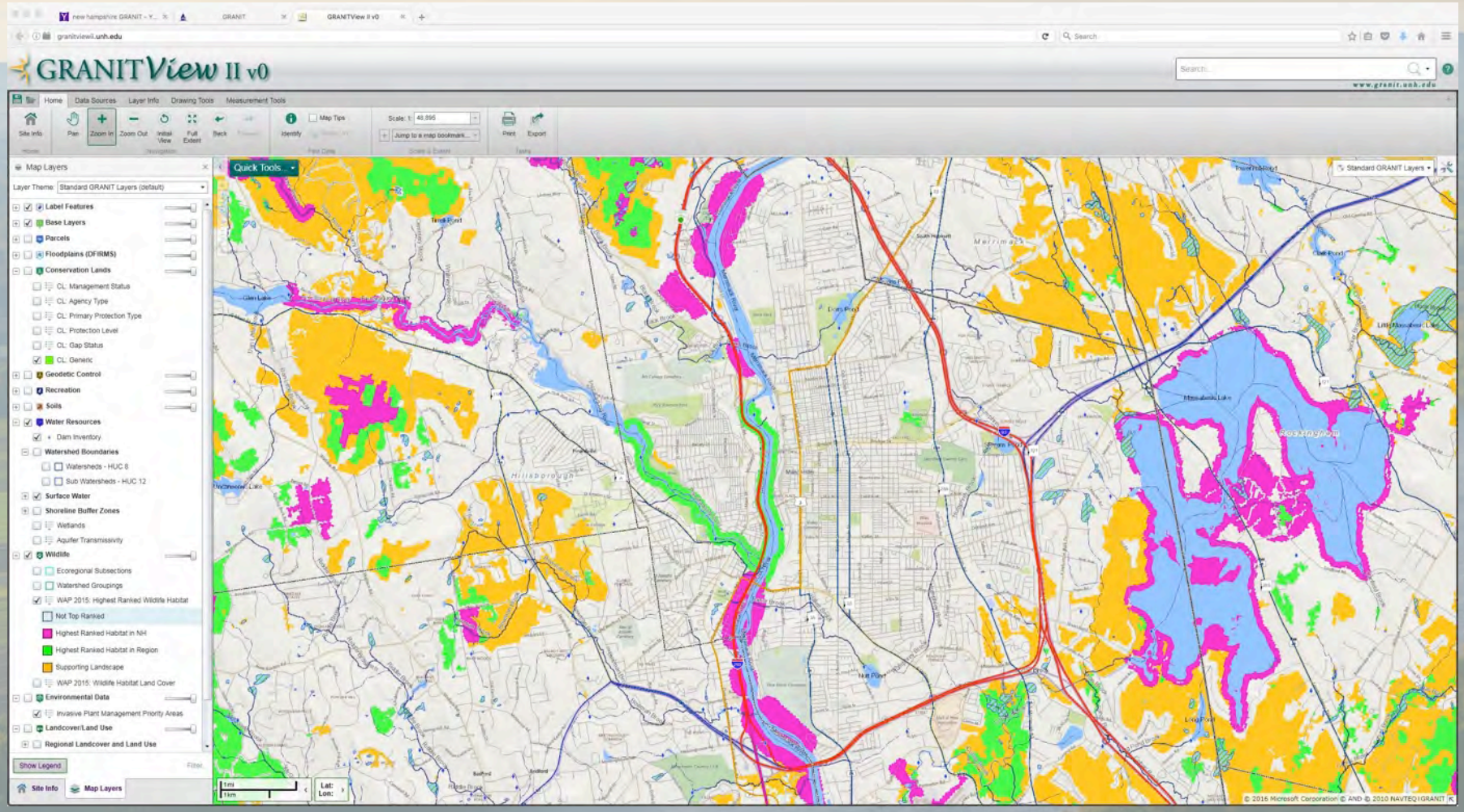
- Exposed man-made structures, rocky shores
- Exposed wave-cut platforms in bedrock
- Fine-med grained beaches;Steep sandy slopes
- Coarse-grained sand beaches
- Mixed sand & gravel beaches
- Gravel beaches
- Riprap
- Exposed tidal flats
- Sheltered rocky shores
- Sheltered, solid man-made structures
- Sheltered riprap
- Sheltered tidal flats;Vegetated low banks
- Salt and brackish water marshes
- Freshwater marshes
- Swamps
- Sensitive Coastline (multiple habitats)

Inland Waterway ESI Rankings



- Bedrock
- Manmade Structures
- Sand
- Mixed Sand & Gravel Sediment
- Gravel
- Vegetated Shoreline
- Mud
- Wetlands

NH GRANIT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Map Layers
Layer Theme: Standard GRANIT Layers (default)
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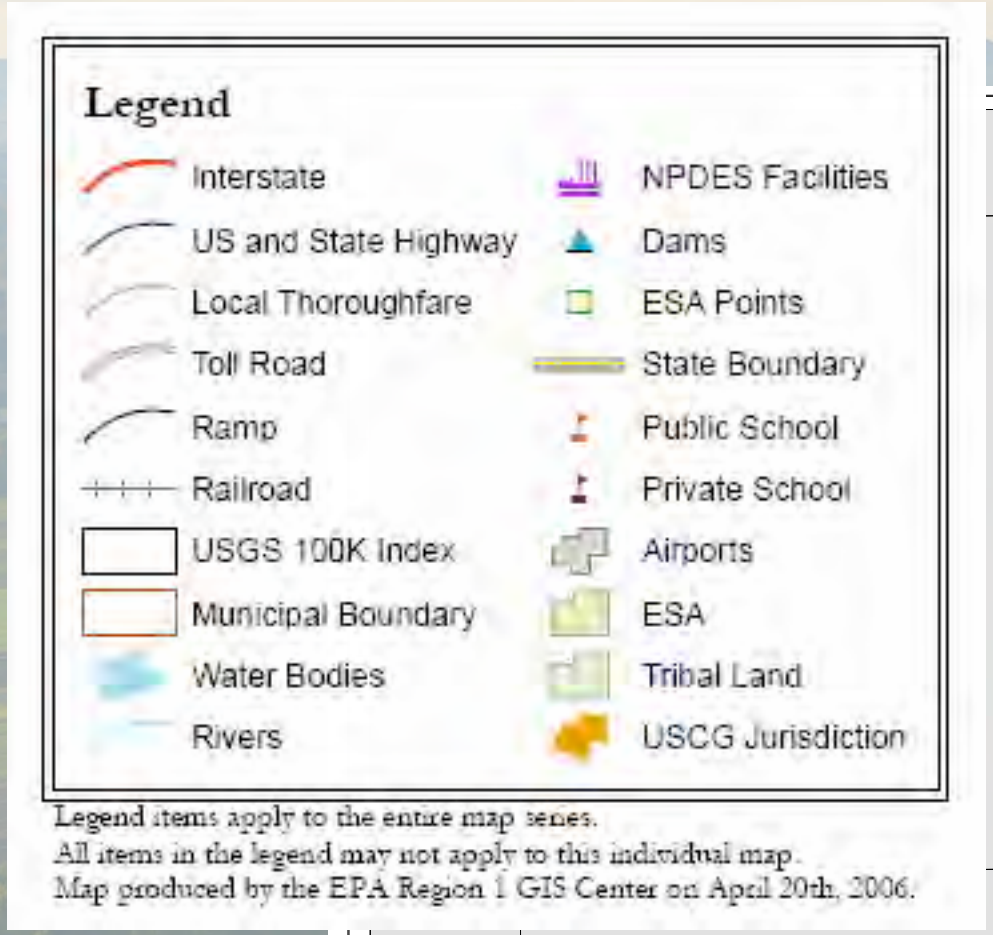
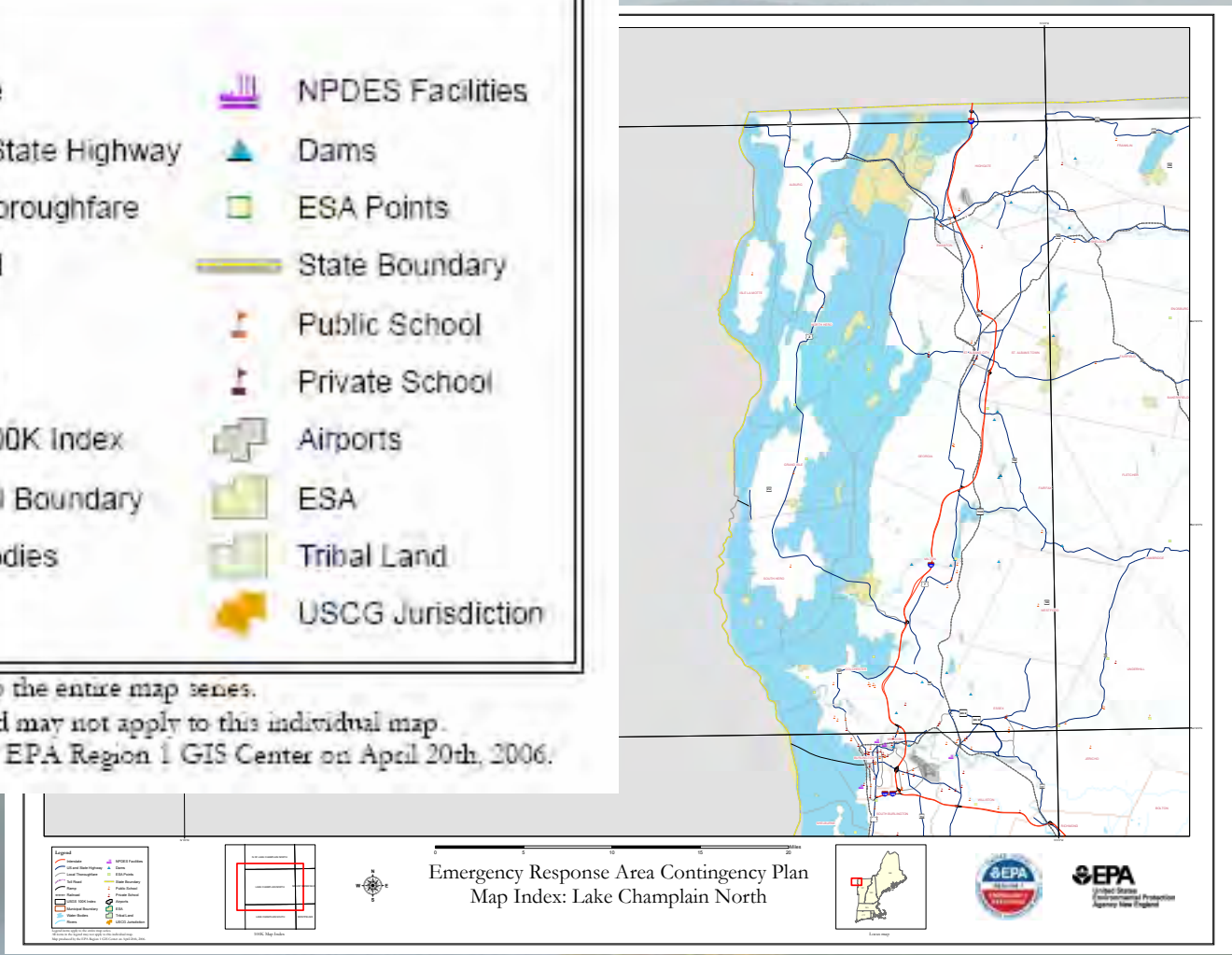
CL: Agency Type
CL: Primary Protection Type
CL: Protection Level
CL: Gap Status
CL: Generic
Geodetic Control
Recreation
Soils
Water Resources
Dam Inventory
Watershed Boundaries
Watersheds - HUC 8
Sub Watersheds - HUC 12
Surface Water
Shoreline Buffer Zones
Wetlands
Aquifer Transmissivity
Wildlife
Ecoregional Subsections
Watershed Groupings
WAP 2015: Highest Ranked Wildlife Habitat
Not Top Ranked
Highest Ranked Habitat in NH
Highest Ranked Habitat in Region
Supporting Landscape
WAP 2015: Wildlife Habitat Land Cover
Environmental Data
Invasive Plant Management Priority Areas
Landcover/Land Use
Regional Landcover and Land Use
Show Legend
Site Info
Map Layers
Quick Tools...
Standard GRANIT Layers
© 2016 Microsoft Corporation © AND © 2010 NAVTEQ I GRANIT

EPA Inland Area Contingency Plan Maps





Other Data Sources

- Natural resource/trustee agencies
- Municipalities
- Conservation organizations
- Field Surveys

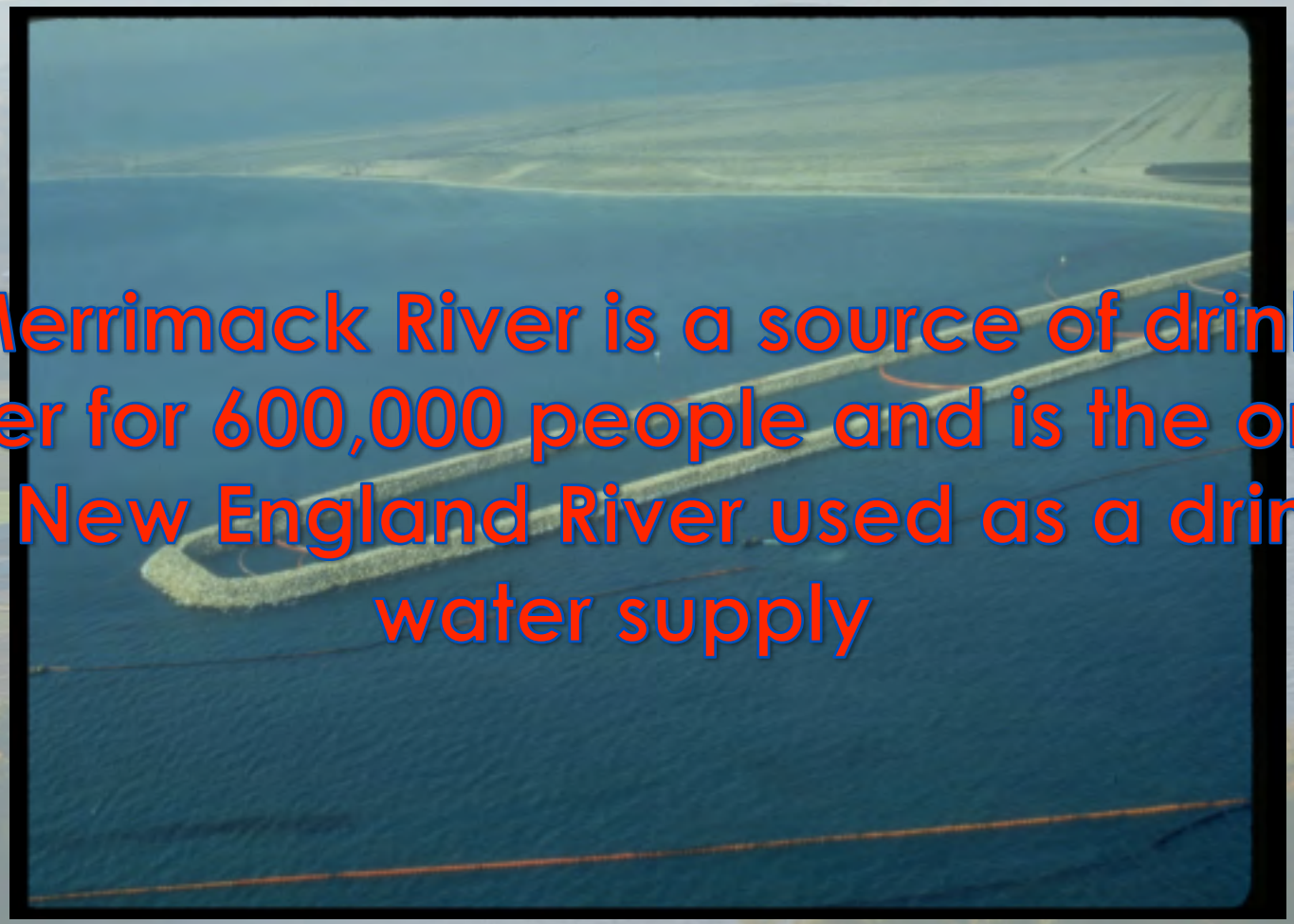
How does sensitivity data inform GRP Prioritization?

- Sensitivity data
  - Objective
  - Quantitative/Semi-quantitative
- Prioritization
  - Subjective
  - Qualitative

Setting protection priorities

- What is most important?
  - To whom?
- What is protectable?
- What takes longest to recover?

#1 Priority Persian Gulf

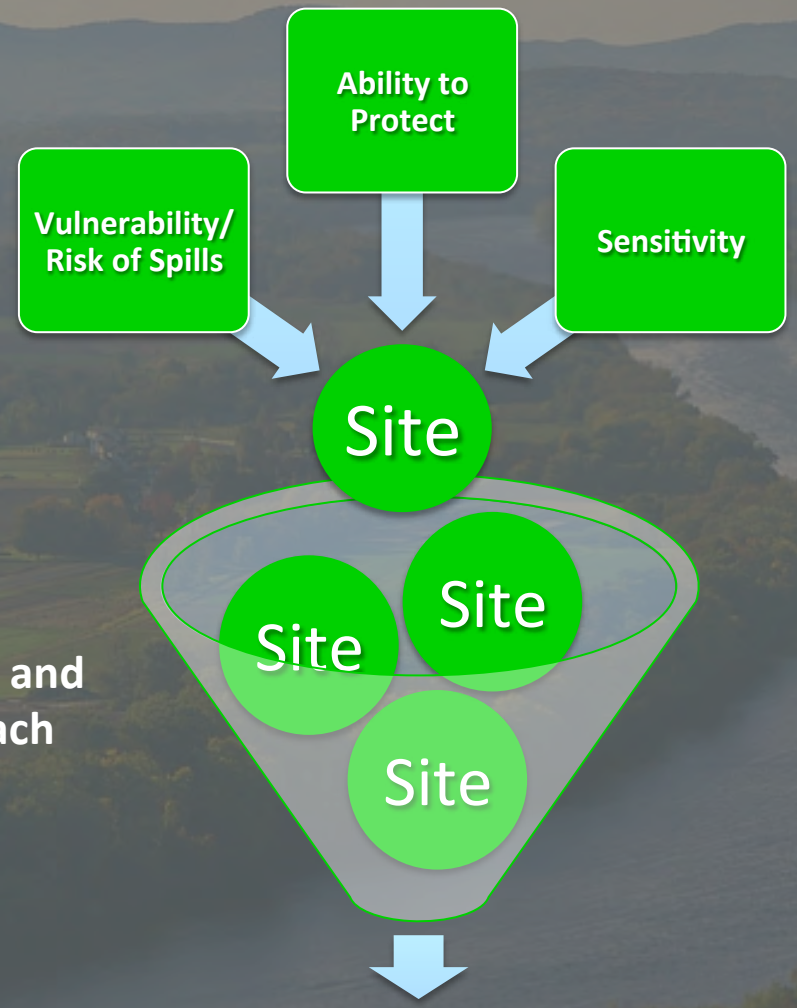


The Merrimack River is a source of drinking water for 600,000 people and is the only major New England River used as a drinking water supply

Site Selection

- Relies on Feedback from Work Group Members
- What sites are important to you?
- GRPs can reflect
  - Sites that should be protected
  - Oil Recovery Sites
    - Logical Control Points

Site Selection/Prioritization



Balance Objectivity and Subjectivity to reach <u>Consensus</u>

Final Sites for GRP Development

Site Surveys & GRP Development

Mike Popovich

Nuka Research & Planning Group

Site Survey Process

Field survey teams

- 4-6 people
- Vessel or shore
- Local rep
- State rep
- Federal rep
- Commercial Response Contractor/OSRO
- Stakeholder/resource agency

GRP Site Survey Process

Gather site information

- Water circulation and flow
  - Currents
  - Tides (eastern end)
- Shoreline types
- Resources-at-risk
- Recreational and commercial use
- Proximity to population centers/sensitive populations
- Seasonal changes
  - Flow
  - Depth

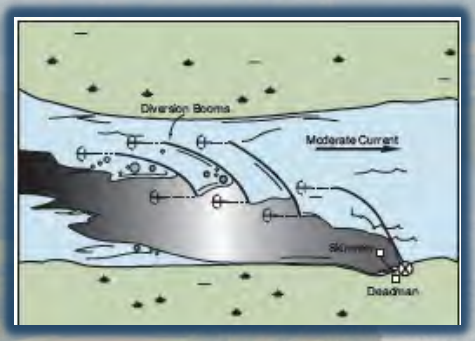
GRP Site Survey Process

Identify potential tactics:

- Boom configurations
- Anchor points
- Shoreside collection and Staging areas
- State/Local response resources

GRP Booming Tactics

- Three most common tactics:
  - Exclusion
  - Diversion
  - Deflection

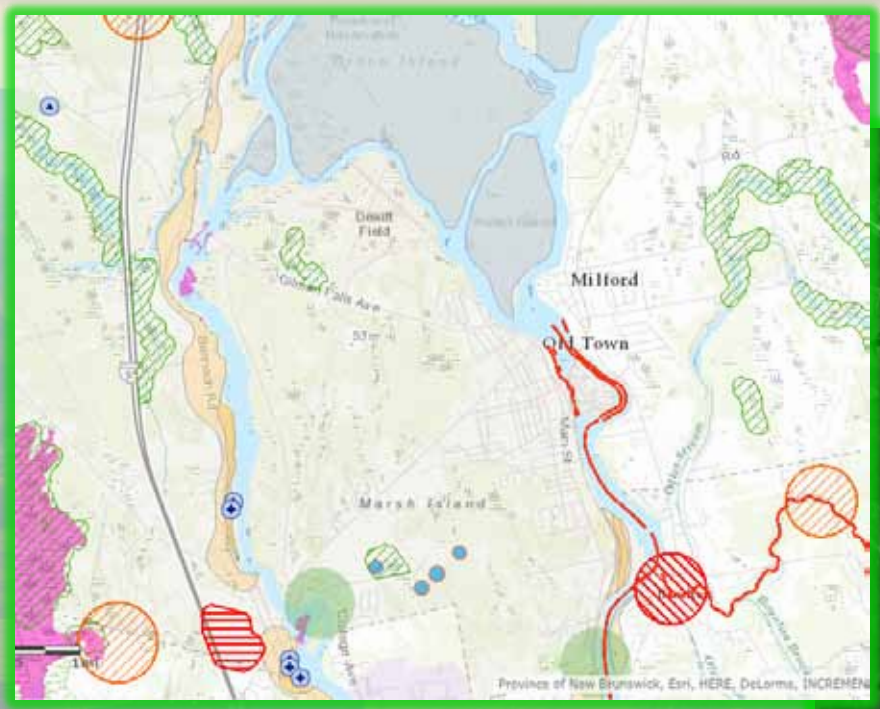


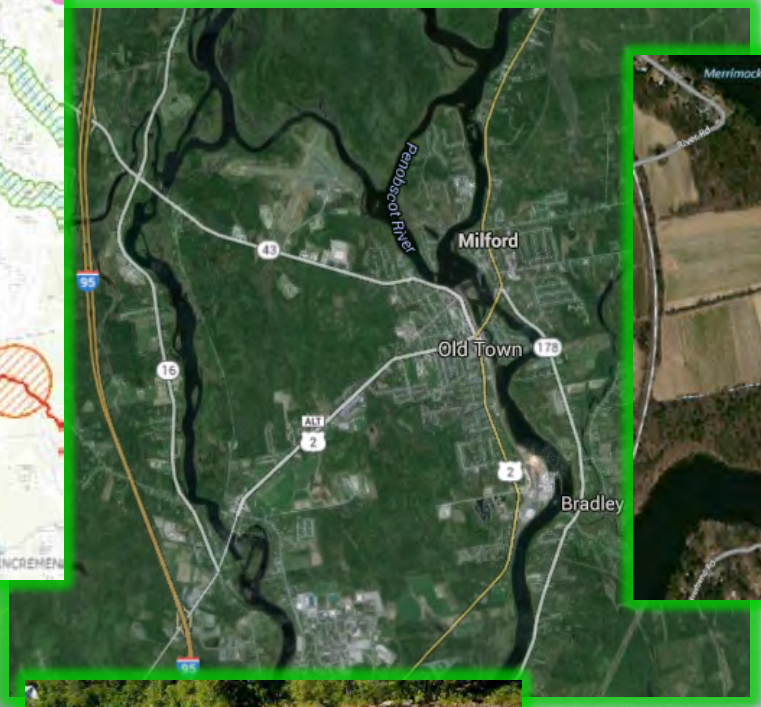
EX DV DF

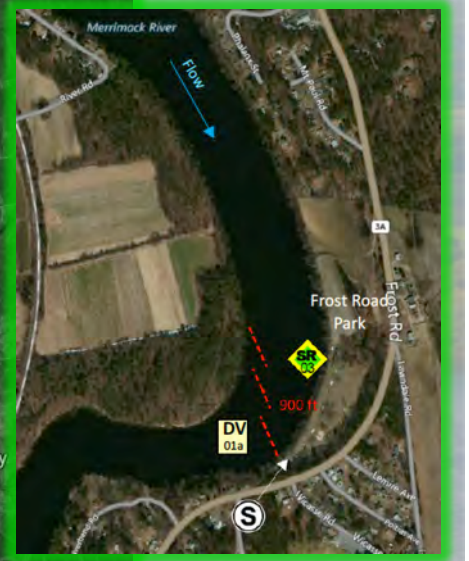
- Free Oil and Shoreside Recovery tactics – **Local First Responders not expected to implement**

FO SR

Applying Tactics to GRP







Draft GRP by applying/ adapting to each site

EX DV SR

Future Meetings

- Site Selection Meeting- *FEB/MAR 2017*
  - Input on dates/times/location?
- Site Surveys- *APR/MAY 2017*
  - Will establish preliminary schedule at site selection meeting
  - Tactics Sub-Group Meeting to review tactics
- GRP Review Meeting- *JUL/AUG 2017*
  - Draft GRPs posted to website for review prior to meeting
  - Final comment period

Questions?

New England Inland Rivers
Geographic Response Plans

Project website:

www.inlandgrpne.com