

Coastal Response Research Center

Nancy Kinner

University of New Hampshire (UNH)

Michele Jacobi

NOAA ORR

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Coastal Response Research Center (CRRC)

- CRRC is partnership between NOAA's Office of Response and Restoration (ORR) and University of New Hampshire
- CRRC Mission:
 - Develop new approaches to spill response and restoration through research/synthesis of information
 - Serve as a resource for ORR and NOAA
 - Serve as a hub for spill research, development, and technical transfer
 - Oil spill community (e.g., RRTs, internationally)
 - Conduct outreach to improve preparedness and response



Outreach Example: Portsmouth Harbor Response Initiative (PHRI)

- Example of Center interaction with other UNH/NOAA centers (e.g., Joint Hydrographic Center, CICEET, Environmental Data Collaborative)
- Broad integration across oil spill community (e.g., USCG, NOAA, state agencies, potential responsible parties)
- Integrated “modeling” approach to displaying incident information and providing validated data with GIS-based technology
- NOAA ORR detail at UNH for Michele Jacobi of Assessment and Restoration Division

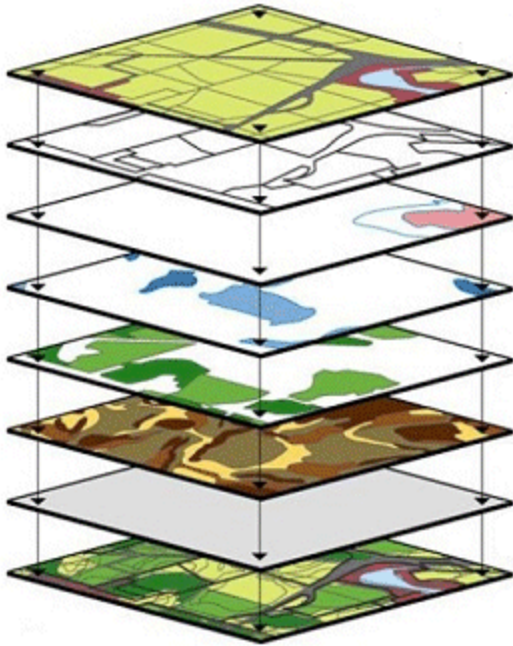


What is GIS?

- Computer hardware and software system designed to collect, manipulate, analyze, and display spatially referenced data for solving complex resource issues.



A Picture is Worth a Thousand Words...



- Diverse datasets can be interlaced on a single map to better visualize a the complex nature of an area



Why Use a Web Based GIS Platform during a Response?

- Integrate and synthesize various types of info
- Provide a common operational picture for situational awareness
- Improve communication and coordination among responders and stakeholders
 - Visualization of a complex situation
- Provide resource managers with the information they need to make better informed decisions



Functional Web GIS Platform for Response

- Package data in a well-designed management, visualization, and analysis tool:
 - Easily accessible - field and command
 - User friendly
 - Quick to display
 - Capable of real-time data display
 - Simple to update/ download from
 - Secure



Project Partners: Technical Advisers

- US Coast Guard
- US EPA
- NH DES
- ME DEP
- NH Fish and Game
- NH Coastal Manager
- NH Div. Emergency Services
- Piscataqua River Cooperative
- NOAA
 - Emergency Response Div.
 - Coastal Services Center
 - Office Coast Survey
 - Weather Service
 - Gulf of ME Ocean Observing System
- UNH
 - JHC
 - CCOM
 - COOA
 - Research Computing

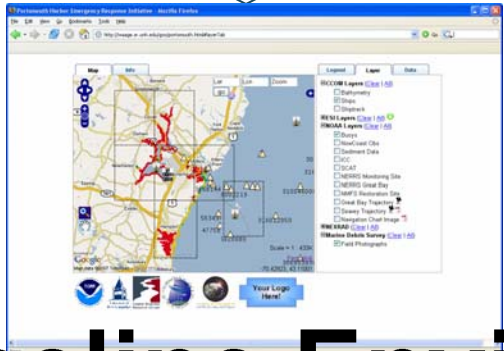
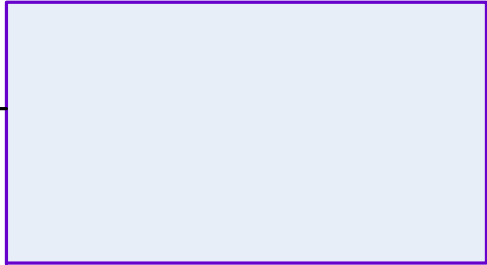
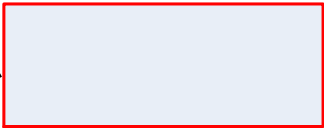


Leveraging Existing Data Resources

- Environmental - contaminant datasets, water quality monitoring sites, protected areas, restoration sites, etc.
- Habitat classifications and species distributions data
- Navigational - electronic navigation charts & scanned paper charts
- Meteorological observations
- Models - trajectories/forecasts



Spill Incident Info
Volume & Chemistry of Spill
Hydrodynamic and Shoreline Data
Resources at Risk



Baseline Environmental Info

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What Has Been Compiled?

- Library of background data
 - Base maps- shoreline data, roads, etc.
 - Imagery
 - Navigational charts
 - Bathymetry surveys
 - Environmental Sensitivity Indices
 - Environmental monitoring sites
 - Weather observation buoys
 - Restoration sites



What Can be Displayed?

- Real-time observations and monitoring data
 - Observation buoys - What is being collected?
 - Re-direct to the data source
- Data links to documents and websites
 - Restoration Project
 - Summary PDFs
 - Websites
- Field data & georeferenced photos
 - International Coastal Clean-up Surveys
 - Specific data marine debris items
 - Photos collected during survey



How Does This Help in Spill Response?

- Hypothetical Spill
 - Uploaded trajectory - movie display
 - Where did it hit relative to ESI layer?
 - See exact classification or download and print map
 - View data sources
 - Show results of Shoreline Cleanup and Assessment Team (SCAT) work
 - Visualize spill relative to ship traffic
 - Gather current weather observations from buoys
 - Display existing environmental contaminant data



Access the Prototype Online at:

<http://www.crrc.unh.edu/workshops/phri/index.htm>



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www.crrc.unh.edu



Practical Implementation of Portsmouth Harbor Response Prototype

- Assist with spill preparedness
 - Display jurisdictional boundaries, specially regulated areas, areas of socio-economic importance
 - Access points for cleanup
 - Staging areas and command centers
 - Regional documentation, points of contact, etc.



Practical Implementation of Portsmouth Harbor Response Prototype

- Assist in coordinating response efforts
 - Visualize magnitude and extent
 - Triage sites for action
 - Track progress of clean-up
 - Access real-time data
 - Upload data from the field and access forms
 - Increase communication



Practical Implementation of Portsmouth Harbor Response Prototype

- Define the extent of potential impacts
 - General habitat and land use information
 - Areas of biological significance - haul outs, rookeries, nesting grounds, essential or critical habitat
 - Species-specific data - biological resources in the region - threatened or endangered?
 - Where is there current monitoring data



Practical Implementation of Portsmouth Harbor Response Prototype

- Assist in Recovery and Restoration
 - Access existing environmental monitoring sites
 - Assist with sampling design
 - Inventory restoration projects
 - Locate long-term monitoring sites
 - Coordinate with regional projects

