Welcome Participants!

Portsmouth Harbor Response Initiative

Coastal Response Research Center
June 27, 2007

Coastal Response Research Center (CRRC) Staff

- Co-Directors:
  - UNH – Nancy Kinner
  - NOAA – Amy Merten
- Research Scientist: Kimberly Newman
- Program Coordinator: Kathy Mandsager
- Program Assistant: Laurie Lalish

Packet Contents

- Agenda
- Participant List
- CRRC 2006 Annual Report
- CRRC Information Sheet
- Other Center Information Sheets

- Other Materials Available:
  - CRRC Projects Information Sheets

Logistics

- Bathrooms
- Fire Exits
- “Help Desk”
- Parking
- Lunch
- CRRC Website **www.crrc.unh.edu**

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Overall 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., national, international)

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Specific CRRC Missions

- Conduct and oversee basic and applied research and outreach on spill response and restoration
- Transform research results into practice
- Encourage strategic partnerships to achieve mission
- Conduct outreach to improve preparedness and response
- Create a learning center for new approaches to spill response and restoration

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Specific CRRC Missions: Portsmouth Harbor Response Initiative

- **Transform research results into practice**
- **Encourage strategic partnerships to achieve mission**
- **Conduct outreach to improve preparedness and response**

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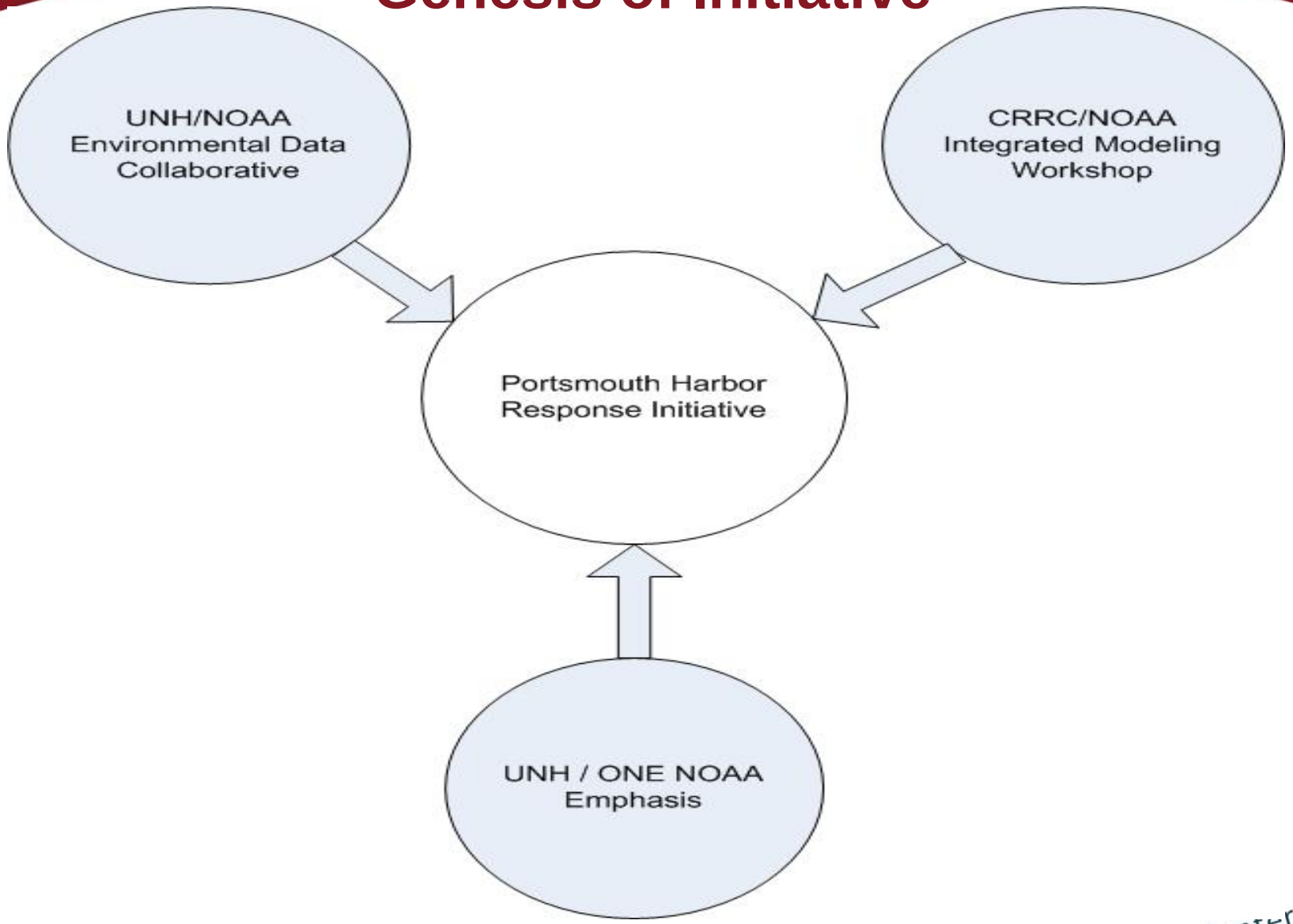
Genesis of Initiative



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Portsmouth Harbor Response Initiative

- Web-Based GIS platform
- “One Stop” Source of Information
- Easy to Use, Fast, Flexible
- Uses:
  - Response
  - Damage Assessment and Restoration
  - Tabletop Exercises and Planning
- Example of Integrated Data Management to Solve Coastal Problems

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Why Portsmouth Harbor?

- Oil/Chemical Activity
- National Estuarine Research Reserve Site and Socioeconomic Interests
- UNH Marine Program Long-Term Research Activity
- Two States Involved / Cooperative
- Local Cooperation Strong
  - Piscataqua River Cooperative
- Active / Cooperative Regional Response Team

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Today's Meeting

- Gather Potential Users
- Introduce Platform Concept to Users
- Show Example of Platform Potential Content
- Gather User Feedback
- Form "Working Group" to Decide Platform Content / Features

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Portsmouth Harbor Response Initiative - Background

1. **Data Collaborative – UNH Complex Systems Research Center**
   - Regional scale data integration and delivery
   - Real-time and static data sets
   - High impact visualization
   - High resolution
   - Fast and flexible zoom feature

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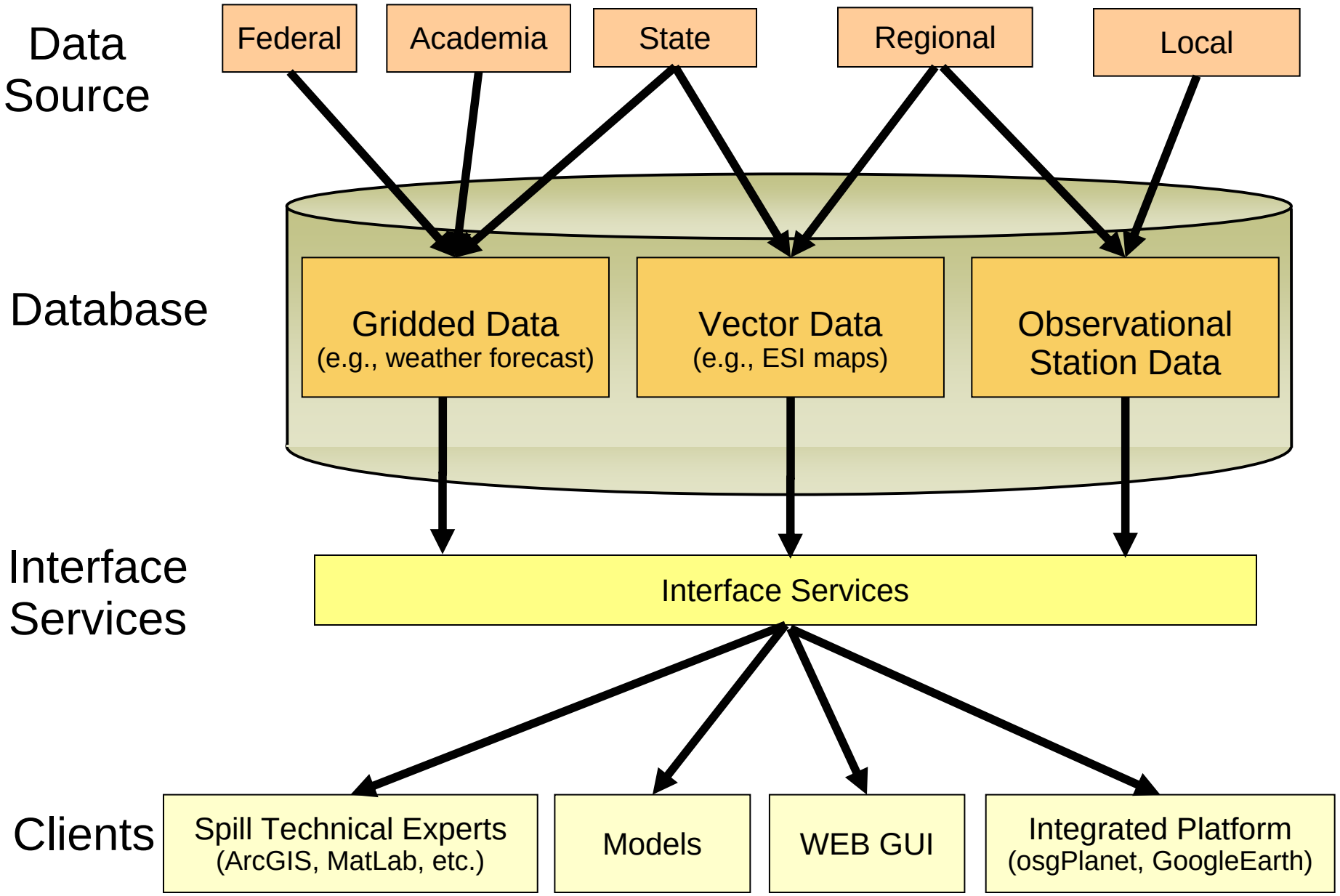
Platform Concept



Adapted from Vorosmarty et al.

Portsmouth Harbor Response Initiative - Background

2. **Integrated Modeling Workshop – Fall 2006**
   - Response framework
   - Modeling/assessment framework
     - Connect time and length scales
     - Connect physical, chemical and biological parameters
   - Improve decision making across time scales

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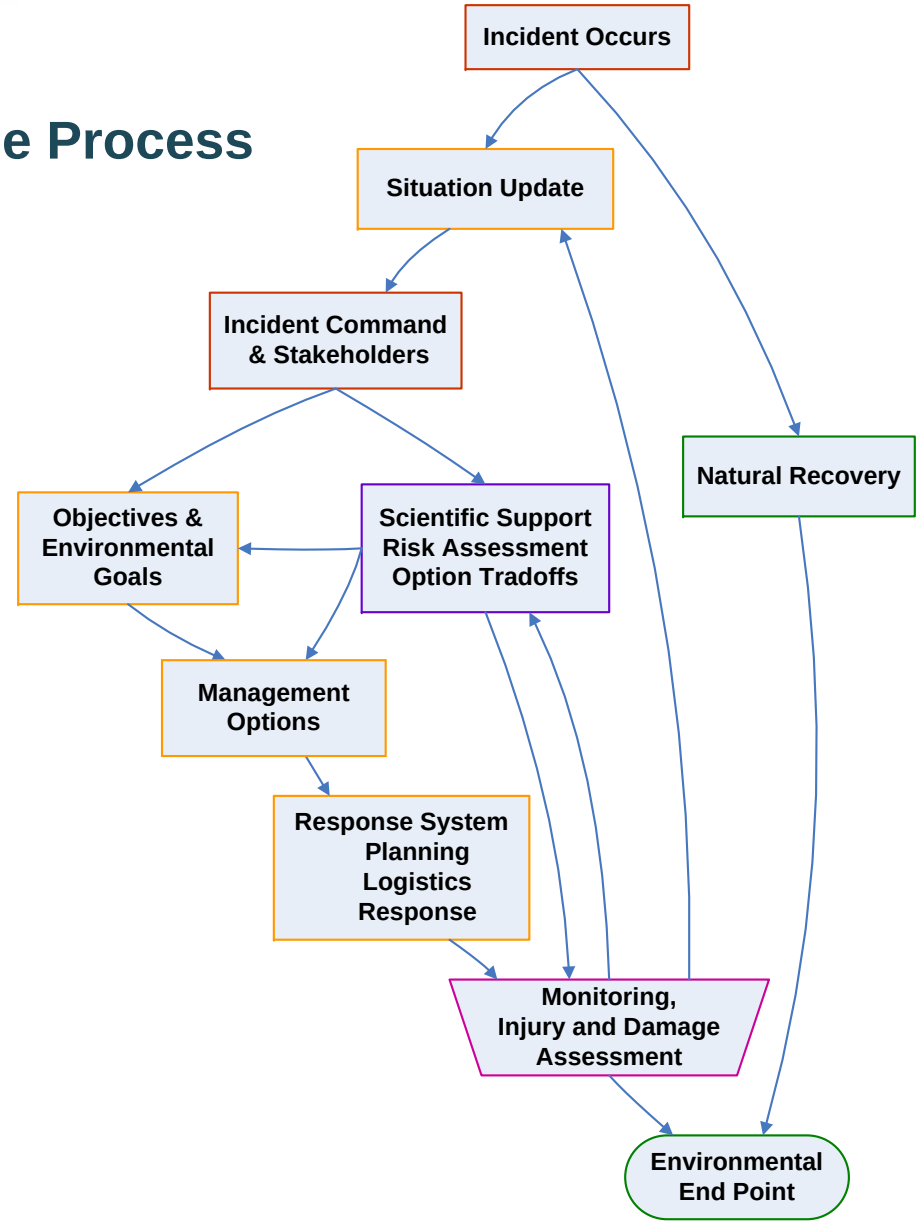
Spill Response Process



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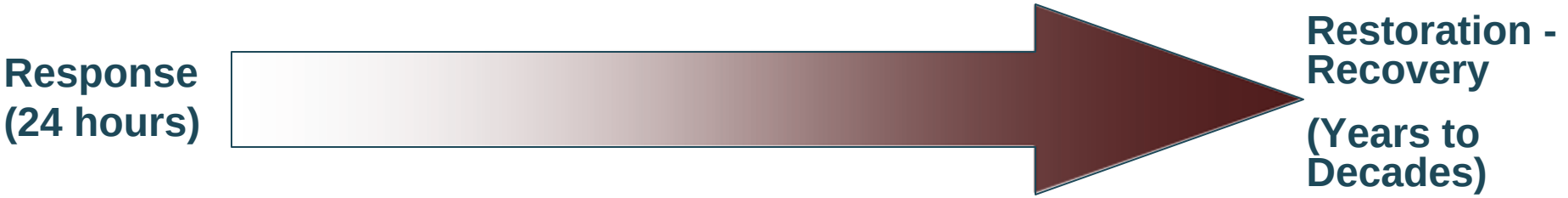
Continuum of "Response" for Natural and Technological Disasters



- Multiple stakeholders and resources
- Information management/information sharing: visualization and transparency
- Complexity of datasets/data needs
- Seamless across time scales
- Fast and flexible
- Ability to build complete picture to improve future response

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Continuum of "Response" for Natural and Technological Disasters

- **Factors that affect recovery endpoints:**
  - **Response times, efficiencies in decision-making, and response options**
  - **Habitat and community resiliencies**
  - **Environmental controls, including other stressors**

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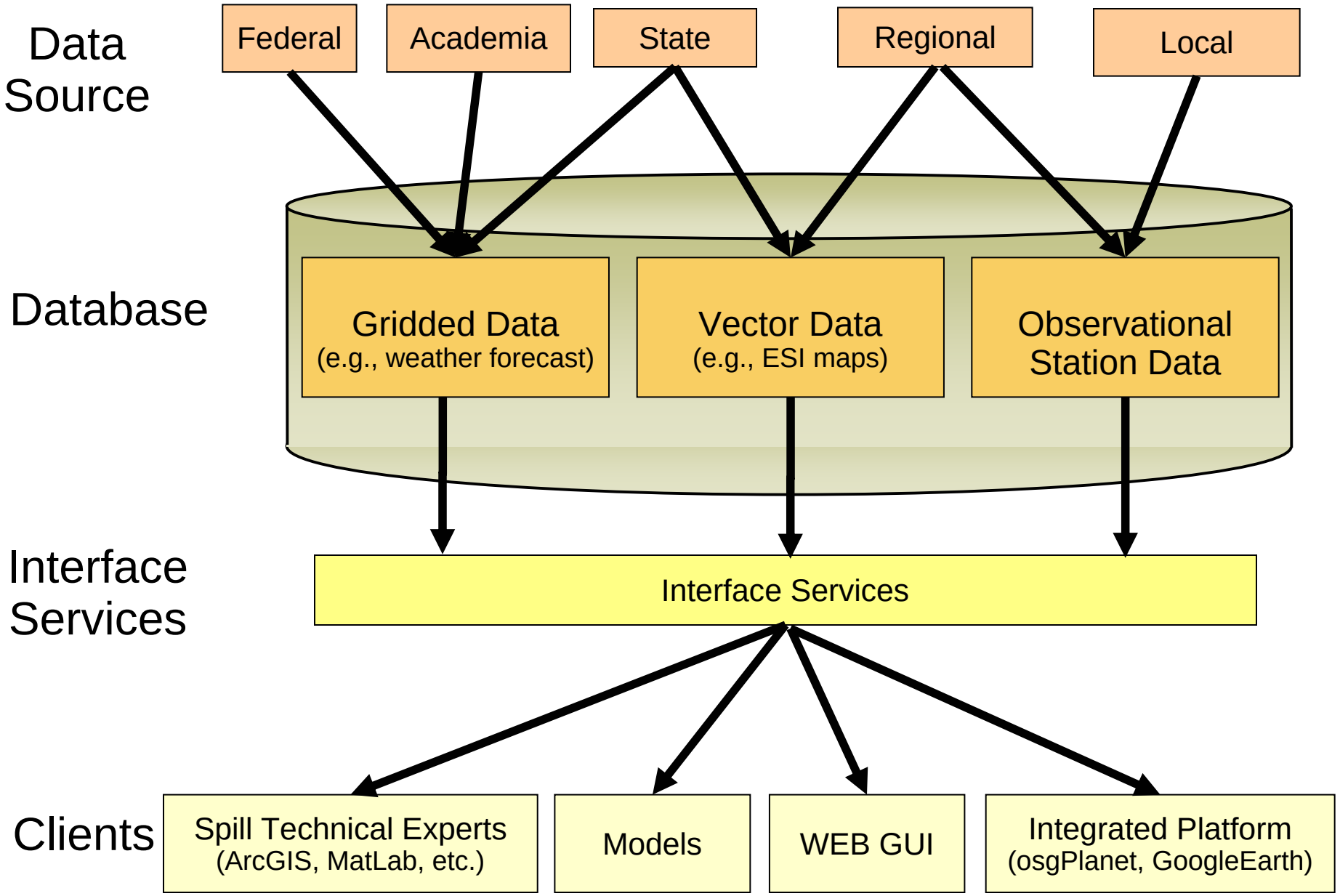
Can we use state-of-the-art technologies to speed the time from spill incident to response decision making?

Platform Concept



Adapted from Vorosmarty et al.

Portsmouth Harbor Response Initiative - Background

3. UNH – NOAA Centers Working to Collectively Solve Common Management Challenge
   - Can we apply the 'data collaborative' technology to improve response capabilities?
   - Use Portsmouth Harbor as a test case
     - Data-rich
     - Critical mass of capabilities UNH – NOAA Centers

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PROGRAM ALIGNMENT WITH NOAA STRATEGIC PLANS

Global/National

Regional (Gulf of Maine)

- NOAA Marine Modeling and Analysis Programs
- Joint Hydrographic Center
- SWATH
- AIRMAP
- Global Wind Demonstration
- Targeted Wind Sensing
- Northeast Center for Atmospheric Science and Policy
- Coastal Ocean Observing Center
- Joint Center for Ocean Observing Technology
- UNH Environmental Data Systems Collaborative

EARTH-OCEAN OBSERVING

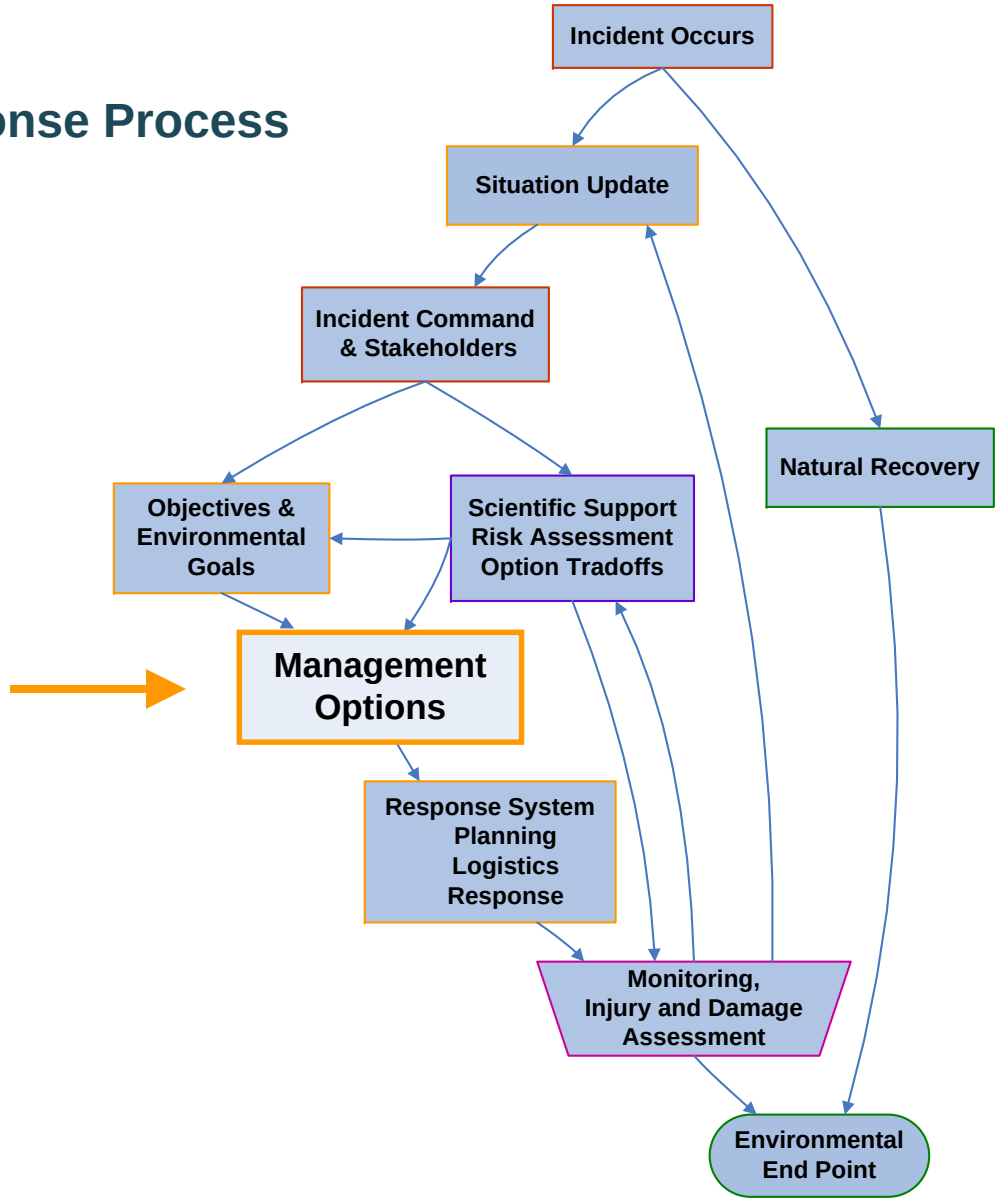
ECOSYSTEM MANAGEMENT & PROTECTION

Regional (Gulf of Maine)

Global/National

- Northeast Consortium
- Atlantic Marine Aquaculture Center
- Sea Grant
- NOAA Regional Coastal Management
- Large Pelagics Center
- Center for Sponsored Coastal Ocean Research—Coastal Ocean Program
- Coastal Response Research Center
- CICEET
- NOAA Coastal Management Leadership

Spill Response Process



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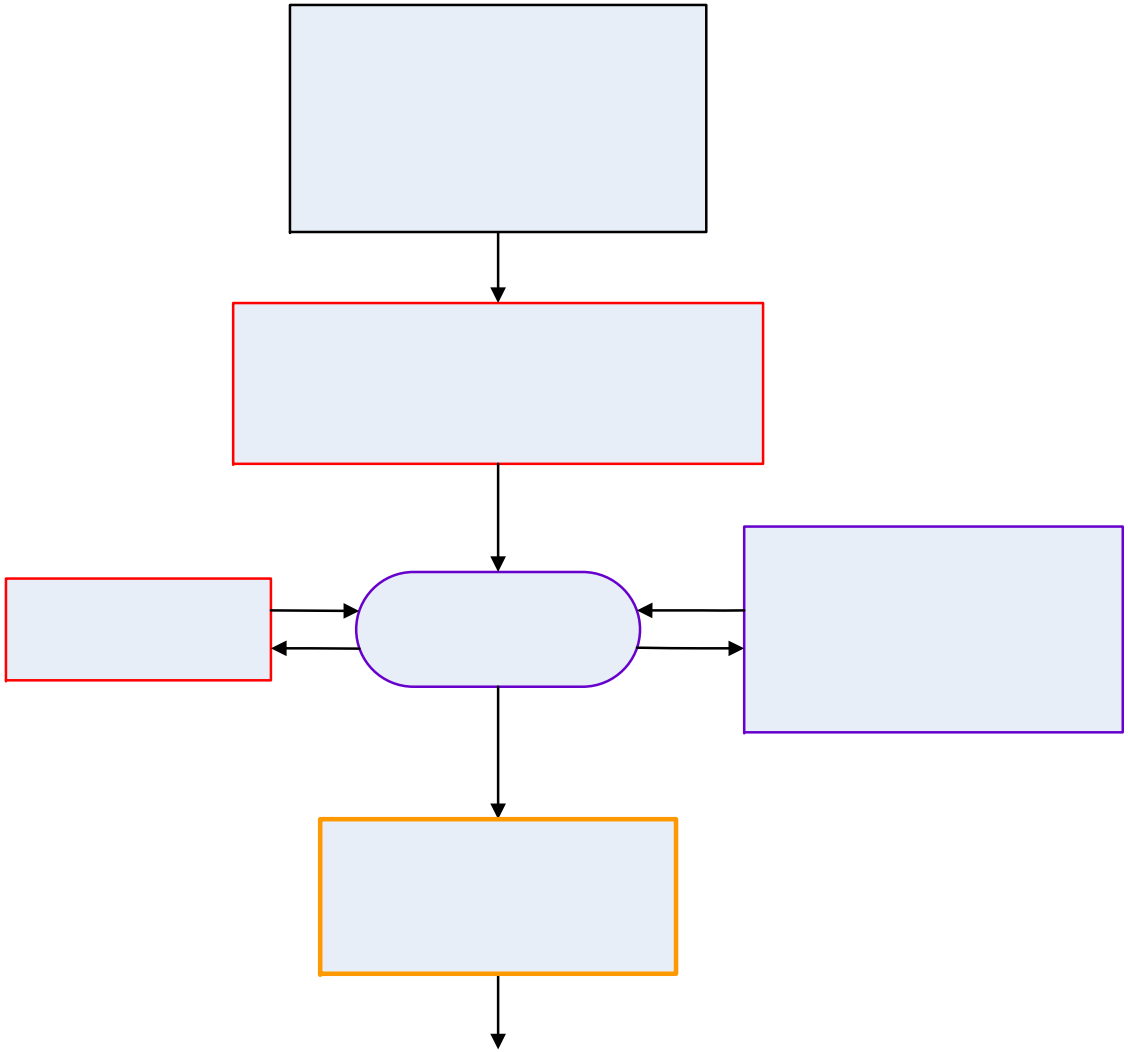

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Baseline Environmental Info (Georeferenced)

- Static & Real-Time
- Physical
- Chemical
- Biological

Information Needs:	Potential Sources:
Electronic nautical charts	CCOM/JHC
Bathymetric data	CCOM/JHC
Coastal/ocean observations	NowCOAST, COOA, CICEET
Environmental Sensitivity Index data	NOAA OR&R
Weather conditions	NOAA Weather, NowCOAST
Regionally specific info	States agencies, NOAA Weather, GOM Ocean Data Partnership, NERACOOS
Vessel traffic data	CCOM/JHC, NowCOAST

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

Information Needs:	Potential Sources:
Incident specifics	State agencies, USCG
Environmental Sensitivity Index data	NOAA OR&R
Community vulnerability info	NOAA CSC
Coastal/ocean observations	NowCOAST, COOA, CICEET, NERACOOS
Scientific support	NOAA OR&R, EPA
Coastal infrastructure at risk	Municipal officials/planners

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Information Needs:	Potential Sources:
Incident specifics	State agencies, USCG
Environmental Sensitivity Index data	NOAA OR&R
Coastal/ocean observations	NowCOAST, COOA, CICEET, NERACOOS
Data management	NOAA OR&R, COOA, EDSC, GOM Ocean Data Partnership
Mapping & visualization tools	NOAA CSC, COOA, CCOM/JHC, NOAA OR&R, NowCOAST, RCC, EDSC, CRRC

Information Needs:	Potential Sources:
Incident specifics	State agencies, USCG
Environmental Sensitivity Index data	NOAA OR&R
Real-time site-specific data	NowCOAST, CCOM/JHC, COOA, CICEET, NOAA CSC
Scientific support	CRRC, NOAA OR&R

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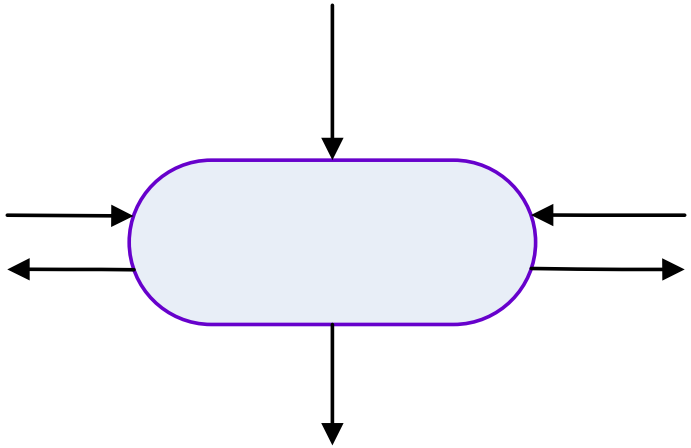

Potential Sources:
NOAA OR&R
COOA
EDSC
RCC
NowCOAST
RARGOM

Outcomes for Today

- Develop user-designed concept of a response visualization, data sharing, decision-making platform
- Define possible uses
- Define data needs and identify datasets
- Define/refine next steps:
  - Work Group participation
  - Time commitment:
    - 3 conference calls between now and December ’07
    - Roll out product to this group Winter ’07/’08

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Today's Activities

- Demonstration – M. Jacobi & B. Braswell
- User-Identified Needs
- Discussion

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Discussion and Demonstration

Presentation Outline

- Introduction to Geospatial Information Systems (GIS)
- Discuss of how web based GIS technology can assist in a response effort
  - Static and real-time
- Demo prototype using Portsmouth Harbor
- Questions and next steps

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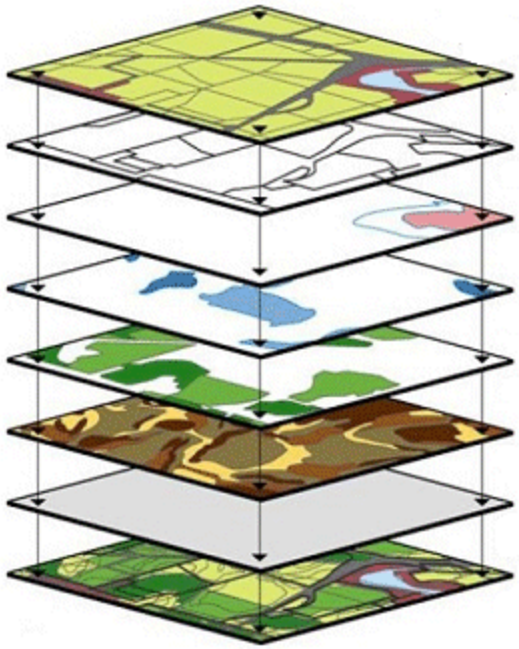
What is GIS?

- **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**

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What Can GIS Do for You?

- **By combining data together one can see the full spectrum of an incident and how one piece of data may impact or relate to another.**

How Has the Technology Advanced?

In the past…

- Software and hardware were cost prohibitive
- Difficult to obtain accurate data
- Advanced training to produce products
- Data limited to working desktop computer
- Limited product output - hard copy maps

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How Has the Technology Advanced?

Today…

- Increased software options available
- Compact and inexpensive data acquisition
- Easy to use interfaces
- Systems are portable and flexible - network interface
- Products are more complex
- Web accessible (ArcIMS, Google Maps, Google Earth)

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Why Use a Web Based GIS Platform during a Response?

- Integrate and synthesize various types of info
- Provide a common operational picture for situation 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

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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

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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**

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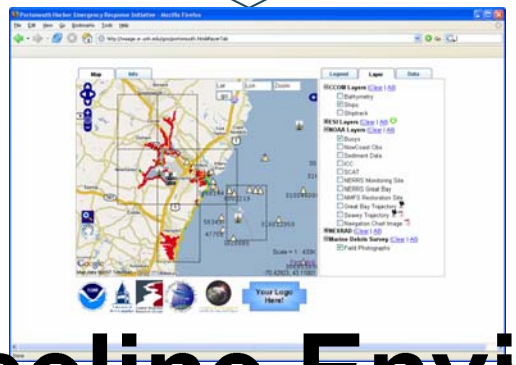
Spill Incident Info
Volume & Chemistry of Spill
Hydrodynamic and Shoreline Data
Resources at Risk



Baseline Environmental Info

Portsmouth Harbor Response Prototype

- Designed using readily available software
  - Can be programmed to meet a variety of user needs
- Google maps-type interface serves as the base
  - Familiar and easy to manipulate
- Based on a limited set of easily available data from UNH and NOAA to demonstrate capabilities

To Fully Develop the Prototype,

We Need Your Input and Feedback!

What Has Been Compiled?

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

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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 in Great Bay**
  - **Uploaded trajectory - movie display**
  - **Where did it hit relative to ESI layer?**
    - **-See exact classification or download and print map**
    - **-View data sources**
  - **Where are the marine protected areas?**
  - **Show results of Shoreline Cleanup and Assessment Team (SCAT) work**
    - **-Field photo display**
    - **-Field sheets**
    - **-SCAT maps and diagrams**

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Environmental Sensitivity Index (ESI) Maps

- Serve as quick references for spill responders and coastal zone managers
- Identify vulnerable coastal locations so protection priorities can be established and cleanup strategies identified
  - Shorelines color-coded to indicate their sensitivity
  - Biological resources depicted by shaded polygons and symbol icons to convey their location and extent
  - Socio-economic resources are mapped (water intakes, marinas, and swimming beaches)

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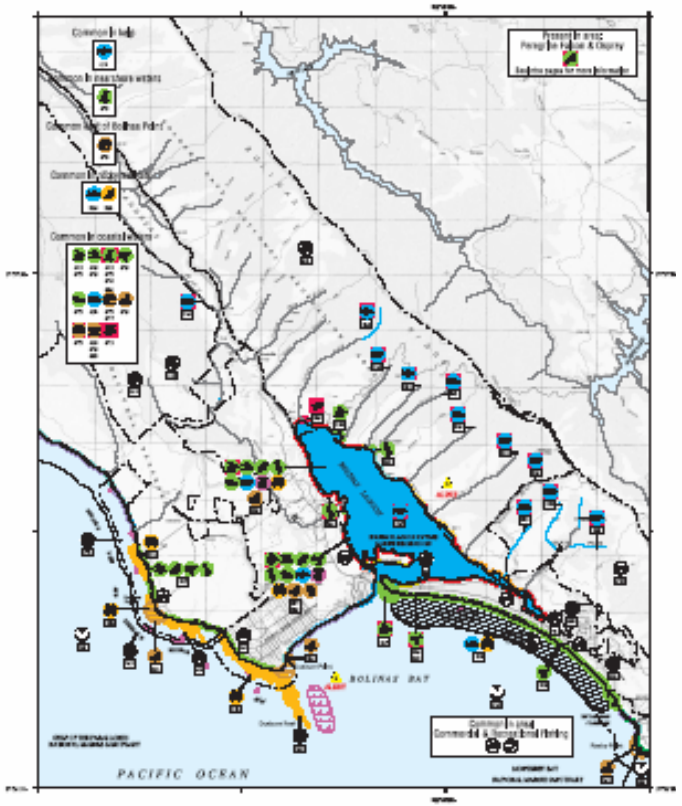
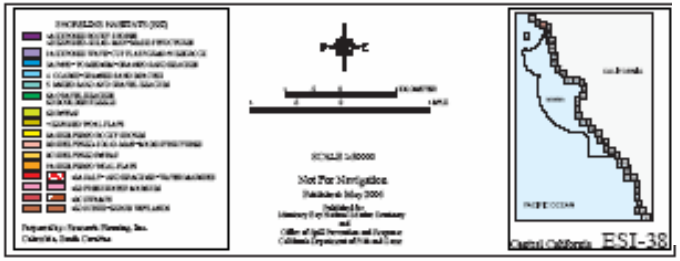
ENVIRONMENTAL SENSITIVITY INDEX MAP





Central California: ESIMAP 38

BIRDS:

ESI	Species	Status	Nesting	Migrating	Wintering
10A	Western snowy plover	T	-	-	-
10B	Marbled murrelet	T	-	-	-
10B	Brandt's cormorant		-	-	-
	Brown pelican	E	-	JUL-NOV	-
	Dabbling ducks		-	MAR-MAY	-
	Diving birds		-	-	-
	Diving ducks		-	MAR-MAY	-
	Gulls		-	-	-
	Osprey		-	MAR-JUL	-
	Raptors		-	APR-OCT	-
	Wading birds		-	-	-
11A	California black rail	T	MAY-JUL	-	-
11A	Gulls		-	-	-
	Raptors		-	APR-OCT	-
	Shorebirds		-	-	-
	Wading birds		-	-	-
11C	Brown pelican	E	-	JUL-NOV	-
11D	Shorebirds		-	-	-
11D	Wading birds		-	-	-
11D	Wading birds	MAR-AUG	MAR-AUG	-	-
11D	Double-crested cormorant	1,100/yr.	-	-	-
11D	Diving birds	15001 imbiv.	MAR-AUG	-	-
	Gulls	20001 imbiv.	MAR-AUG	-	-
	Seabirds	100001 imbiv.	MAR-AUG	-	-
12A	Beach's sedge	LOW	-	-	-
	Coast's grebe	MODERATE	-	MAR-APR	-
			-	MAR-MAY	-
	Common murre	MODERATE	-	-	JUL-SEP
	Cormorants	MODERATE	-	-	-
	Great grebe	LOW	-	MAR-APR	-
			-	MAY-OCT	-
	Gulls	MODERATE	-	-	-
	Horned grebe	LOW	-	OCT-APR	-
	Marbled murr	MODERATE	-	OCT-APR	-
	Salmonids	MODERATE	-	JUL-SEP	-
	Shearwaters	LOW	-	-	-
	Pigeon guillemot	LOW	-	-	-
	Rhinoceros auklet	MODERATE	-	-	-
	Shearwaters	LOW/HIGH	-	-	-
	Surf scoter	MODERATE	-	MAR-APR	-
			-	MAY-OCT	-
	Western grebe	MODERATE	-	MAR-APR	-
			-	MAY-OCT	-
	White-winged scoter	MODERATE	-	MAR-APR	-
			-	OCT-NOV	-
12B	Marbled murrelet	E MODERATE	APR-JUL	-	-
12D	Rocky shorewater	HIGH	-	-	JUN-SEP
12D	Rocky shorewater	MODERATE	-	-	APR-OCT

FISH:

ESI	Species	Status	Spawning	Eggs	Larvae	Juveniles	Adults
13C	Steelhead	T	MAY-JUN	MAY-JUN	MAY-JUN	JAN-DEC	MAY-DEC
13C	Coho salmon	E T LOW	MAY-JUN	MAY-JUN	MAY-JUN	JAN-DEC	MAY-DEC
	Steelhead	T HIGH	MAY-JUN	MAY-JUN	MAY-JUN	JAN-DEC	MAY-DEC
13C	Coho salmon	E T	-	-	-	JAN-DEC	-
	Mussary fish		-	-	-	JAN-DEC	-
	Steelhead	T	-	-	-	JAN-DEC	MAY-DEC
	Surfperch		-	-	-	JAN-DEC	-
13D	Pacific herring	LOW	JAN-MAR	JAN-MAR	-	JAN-DEC	JAN-DEC
13D	California grunion		MAR-AUG	MAR-AUG	-	MAR-AUG	MAR-AUG
	Surfperch		MAY-JUN	MAY-JUN	MAY-JUN	APR-OCT	MAY-DEC
	Striped bass		-	-	-	MAY-DEC	-
	White seabass		APR-AUG	-	-	-	MAY-DEC
13E	Cabezon		MAY-AUG	-	-	JAN-DEC	MAY-DEC
	Lingcod		MAY-AUG	MAY-AUG	-	JAN-DEC	MAY-DEC
	Monkeyface prickleback		JAN-APR	-	-	JAN-DEC	JAN-DEC
	Rubberlip seaperch		-	-	-	-	JAN-DEC
	Striped seaperch		MAY-AUG	-	-	JAN-DEC	JAN-DEC
13I	Black rockfish		JAN-MAY	-	-	APR-OCT	JAN-DEC
	Blue/red/yellow rockfish		MAR-JUN	-	-	MAY-OCT	JAN-DEC
	Blue rockfish		MAY-JUN	-	-	MAY-OCT	JAN-DEC
	Bocaccio		-	-	-	JAN-DEC	-
	Canary rockfish (orange)		-	-	-	JAN-DEC	-
	Chilipepper		-	-	-	JAN-DEC	-
	China rockfish		JAN-APR	-	-	MAY-OCT	JAN-DEC
	Copper rockfish		MAR-JUN	-	-	APR-OCT	JAN-DEC
	Gopher rockfish		MAR-JUN	-	-	APR-OCT	JAN-DEC
	Grass rockfish		JAN-MAR	-	-	MAY-OCT	JAN-DEC
	Gray rockfish		MAR-JUN	-	-	APR-OCT	JAN-DEC
	Olive rockfish		MAR-JUN	-	-	APR-OCT	JAN-DEC
	Vermilion rockfish		MAR-JUN	-	-	MAY-OCT	JAN-DEC
	Widow rockfish		-	-	-	MAY-OCT	-
	Yelloweye rockfish		-	-	-	MAY-OCT	-
13L	California halibut		MAR-JUN	-	MAR-JUN	JAN-DEC	MAY-DEC
	Rockfish		-	-	-	JAN-DEC	-
	White shark		-	-	-	-	JAN-DEC

HABITAT:

ESI	Species	Status
11B	Seagrass	

INVERTEBRATES:

ESI	Species	Status	Spawning	Eggs	Larvae	Juveniles	Adults
11B	Invertebrates		-	-	-	JAN-DEC	-
11D	Dungeness crab		-	-	-	-	JAN-DEC
11D	Rock shrimp		-	-	-	JAN-DEC	JAN-DEC
11D	Invertebrates		-	-	-	JAN-DEC	JAN-DEC

MARINE MAMMALS:

ESI	Species	Status	Nursing	Feeding	Pupping	Hauling
11B	Harbor seal	250-331 imbiv.	-	-	MAR-JUN	-
11B	Harbor seal	65 imbiv.	-	-	MAR-JUN	-
11B	Harbor seal	625-700 imbiv.	-	-	MAR-JUN	-
11D	California sea lion	15 imbiv.	-	-	-	-
11E	Gray whale	-	-	MAY-JUN	-	-
11D	Bottlenose dolphin	LOW	-	-	-	-
	Dall's porpoise	LOW	-	-	-	-
	Fin whale	E LOW	-	-	-	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
316	Western snowy plover		T	MEDIUM	X	X	X	X			X	X	X	X	X	X	-	-	-
317	Shorebirds				X	X	X	X	X		X	X	X	X	X	X	-	-	-
318	Brandt's cormorant			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Brown pelican	E	E	17-5000 INDIV.	X	X	X	X	X	X	X	X	X	X	X	X	-	JUL-NOV	-
	Dabbling ducks				X	X	X	X	X			X	X	X	X		-	SEP-MAR	-
	Diving birds				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Diving ducks			HIGH	X	X	X	X	X			X	X	X	X		-	SEP-MAY	-
	Gulls				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Osprey				X	X	X	X	X	X	X	X	X	X	X	X	-	FEB-JUL	-
	Raptors				X	X	X	X	X	X	X	X	X	X	X	X	-	AUG-NOV	-
	Wading birds			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
324	California black rail	T			X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
325	Gulls				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Raptors				X	X	X	X	X	X	X	X	X	X	X	X	-	AUG-NOV	-
	Shorebirds				X	X	X	X	X		X	X	X	X	X	X	-	-	-
	Wading birds				X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
327	Brown pelican	E	E		X	X	X	X	X	X	X	X	X	X	X	X	-	JUL-NOV	-
328	Shorebirds				X	X	X	X	X		X	X	X	X	X	X	-	-	-
329	Wading birds			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	FEB-AUG	-	-
330	Double-crested cormorant			1 INDIV.	X	X	X	X	X			X	X	X	X		-	-	-
413	Diving birds			15000 INDIV.		X	X	X	X	X	X						FEB-AUG	-	-
	Gulls			20000 INDIV.		X	X	X	X	X	X						FEB-AUG	-	-
	Seabirds			300000 INDIV.		X	X	X	X	X	X						FEB-AUG	-	-
673	Cassin's auklet			LOW	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Clark's grebe			MODERATE	X	X	X	X				X	X	X	X		-	MAR-APR SEP-NOV	-
	Common murre			MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	JUL-SEP
	Cormorants			MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Eared grebe			LOW	X	X	X	X				X	X	X	X		-	MAR-APR SEP-OCT	-
	Gulls			MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Horned grebe			LOW	X	X	X	X				X	X	X	X		-	OCT-APR	-
	Pacific loon			MODERATE	X	X	X	X	X				X	X	X		-	OCT-MAY	-
	Pelicans			MODERATE			X	X	X	X	X	X	X	X	X	X	-	JUL-NOV	-
	Phalaropes			LOW	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Pigeon guillemot			LOW		X	X	X	X	X	X	X	X				-	-	-
	Rhinoceros auklet			MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Shearwaters			LOW-HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Surf scoter			MODERATE	X	X	X	X				X	X	X	X		-	MAR-APR SEP-DEC	-
	Western grebe			MODERATE	X	X	X	X				X	X	X	X		-	MAR-APR SEP-NOV	-
	White-winged scoter			MODERATE	X	X	X	X					X	X	X		-	MAR-APR	-

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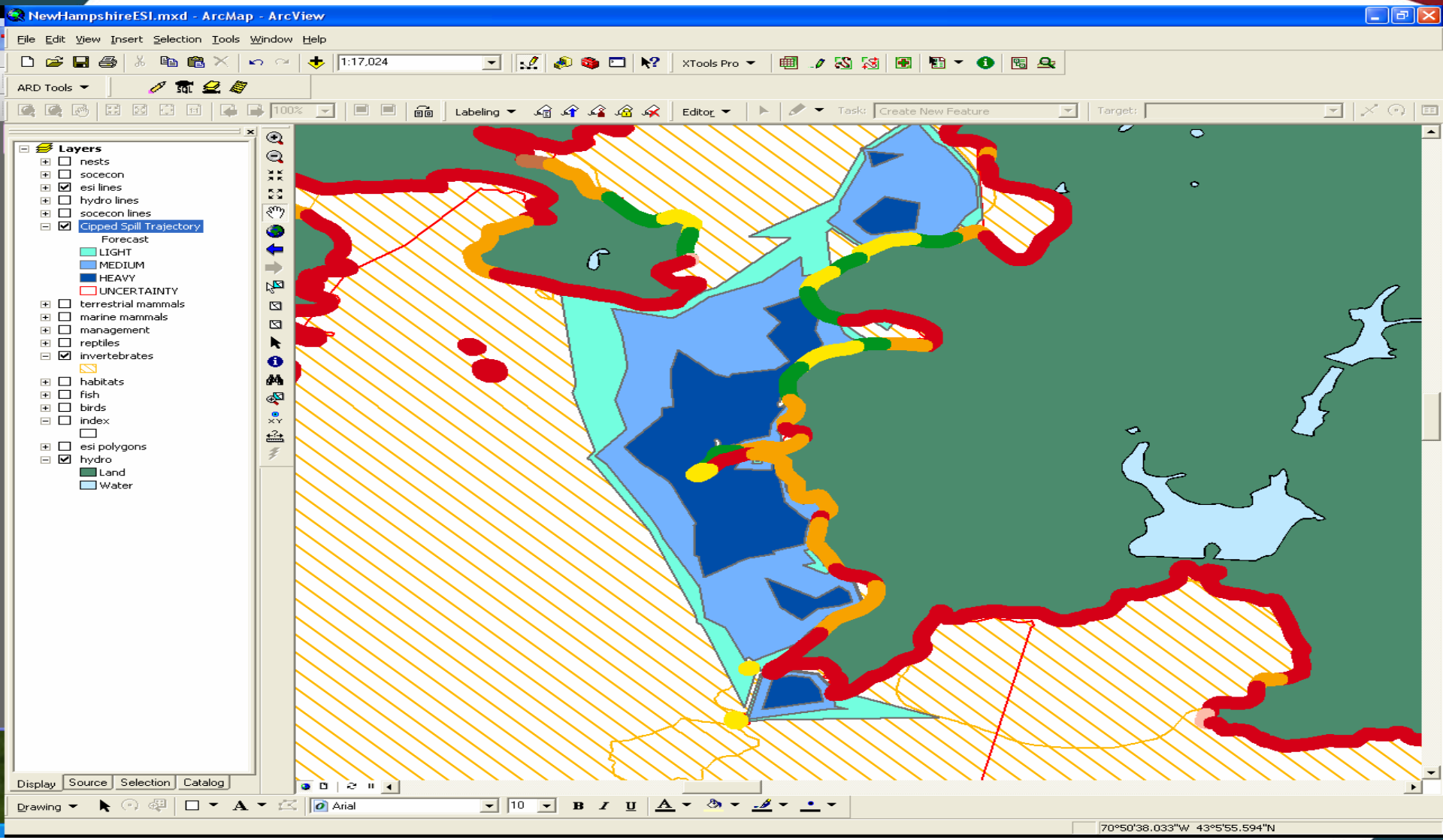
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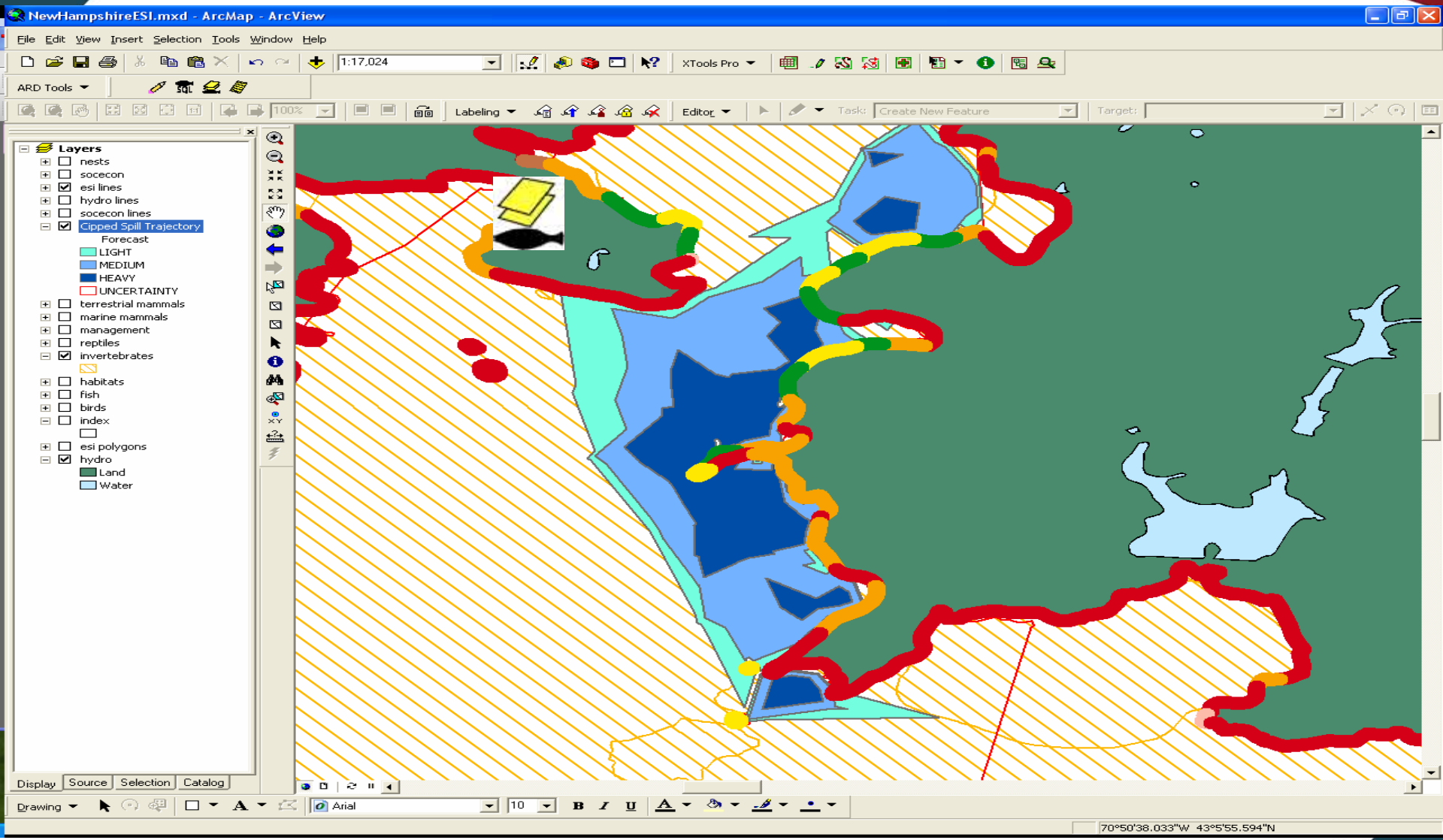
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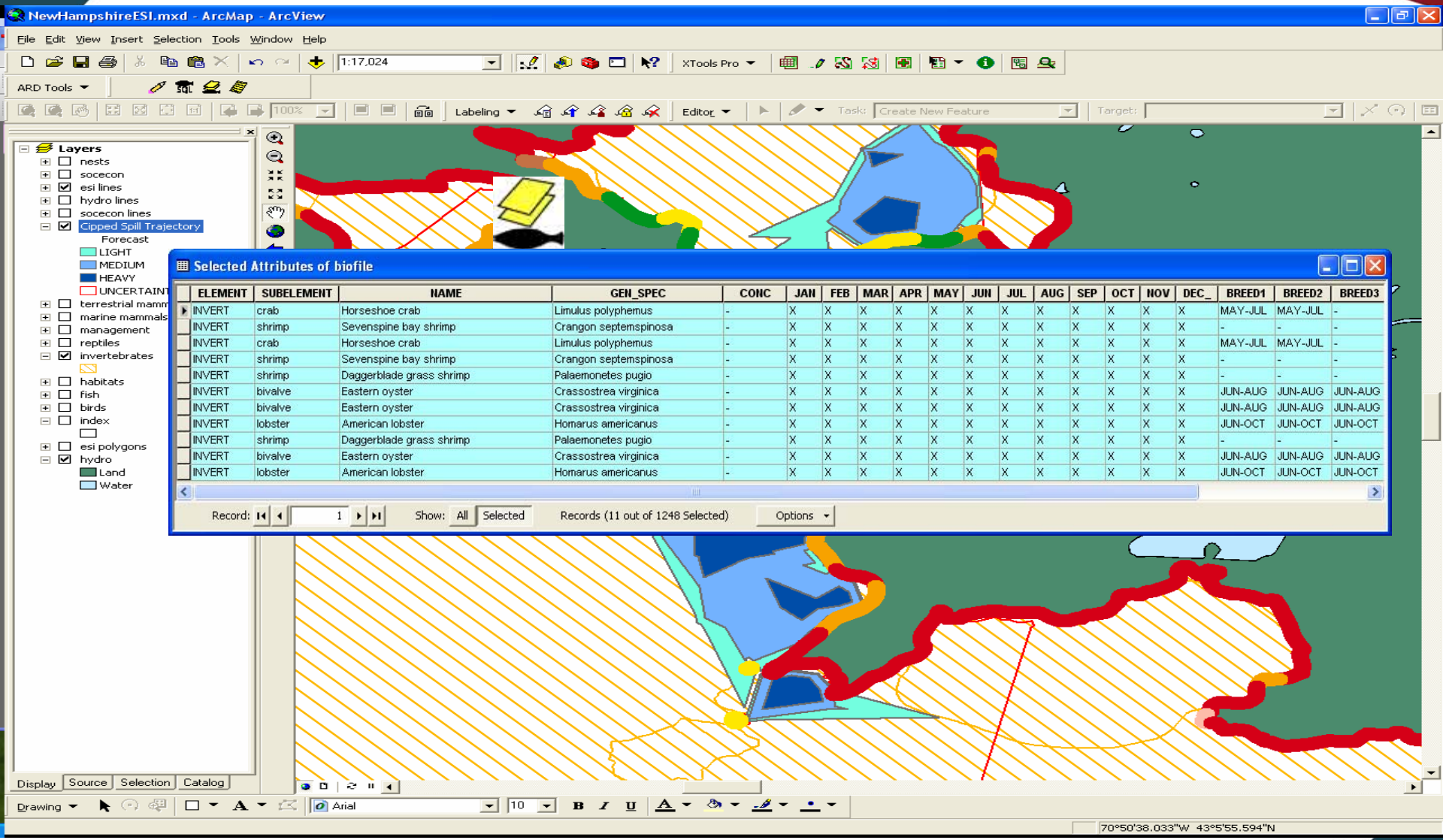
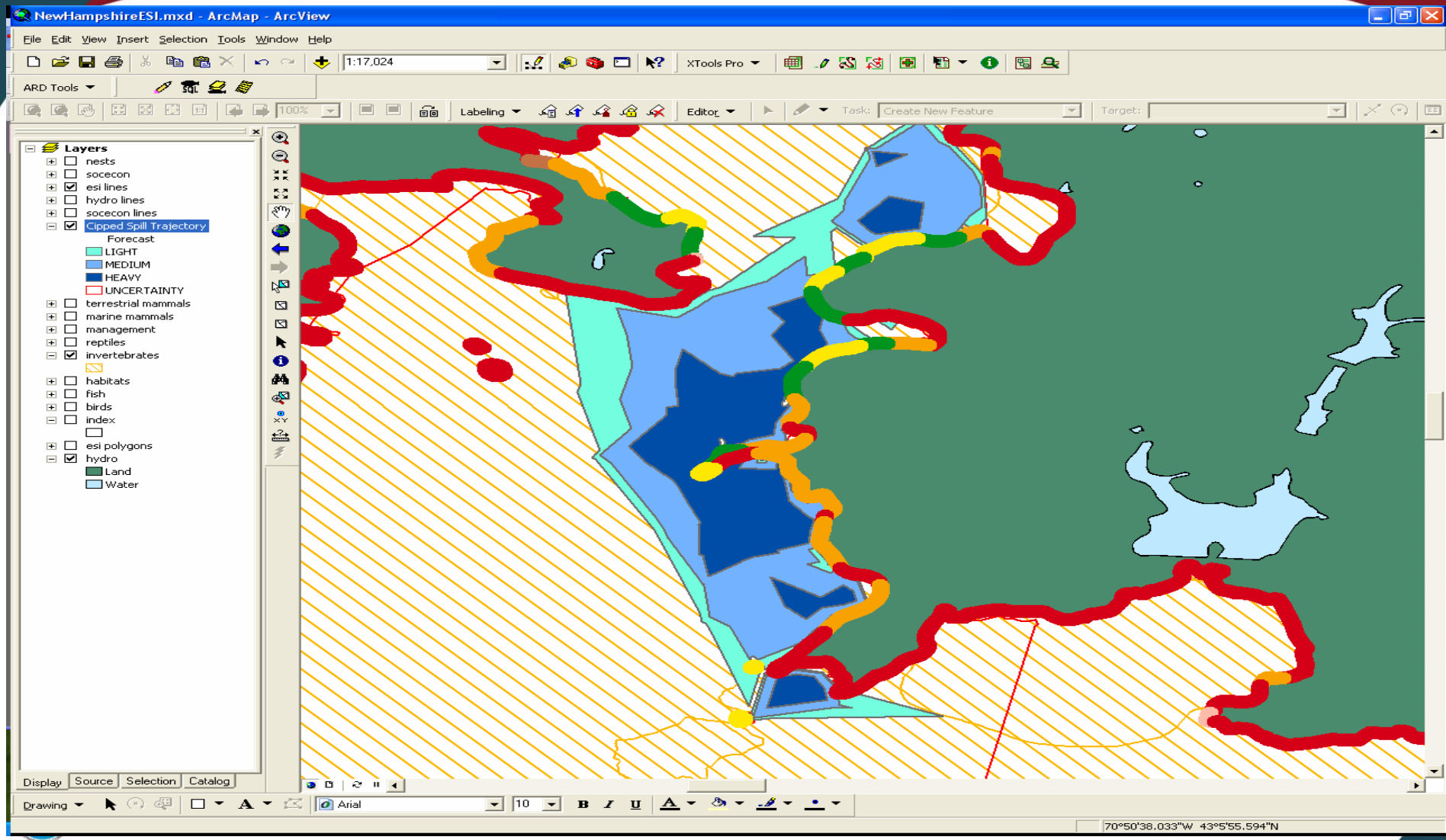


ELEMENT	SUBELEMENT	NAME	GEN_SPEC	CONC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC_	BREED1	BREED2	BREED3
INVERT	crab	Horseshoe crab	Limulus polyphemus	-	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	MAY-JUL	-
INVERT	shrimp	Sevenspine bay shrimp	Crangon septemspinosa	-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
INVERT	crab	Horseshoe crab	Limulus polyphemus	-	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	MAY-JUL	-
INVERT	shrimp	Sevenspine bay shrimp	Crangon septemspinosa	-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
INVERT	shrimp	Daggerblade grass shrimp	Palaemonetes pugio	-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
INVERT	bivalve	Eastern oyster	Crassostrea virginica	-	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	JUN-AUG	JUN-AUG
INVERT	bivalve	Eastern oyster	Crassostrea virginica	-	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	JUN-AUG	JUN-AUG
INVERT	lobster	American lobster	Homarus americanus	-	X	X	X	X	X	X	X	X	X	X	X	X	JUN-OCT	JUN-OCT	JUN-OCT
INVERT	shrimp	Daggerblade grass shrimp	Palaemonetes pugio	-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
INVERT	bivalve	Eastern oyster	Crassostrea virginica	-	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	JUN-AUG	JUN-AUG
INVERT	lobster	American lobster	Homarus americanus	-	X	X	X	X	X	X	X	X	X	X	X	X	JUN-OCT	JUN-OCT	JUN-OCT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Forecast
LIGHT
MEDIUM
HEAVY
UNCERTAINTY
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marine mammals
management
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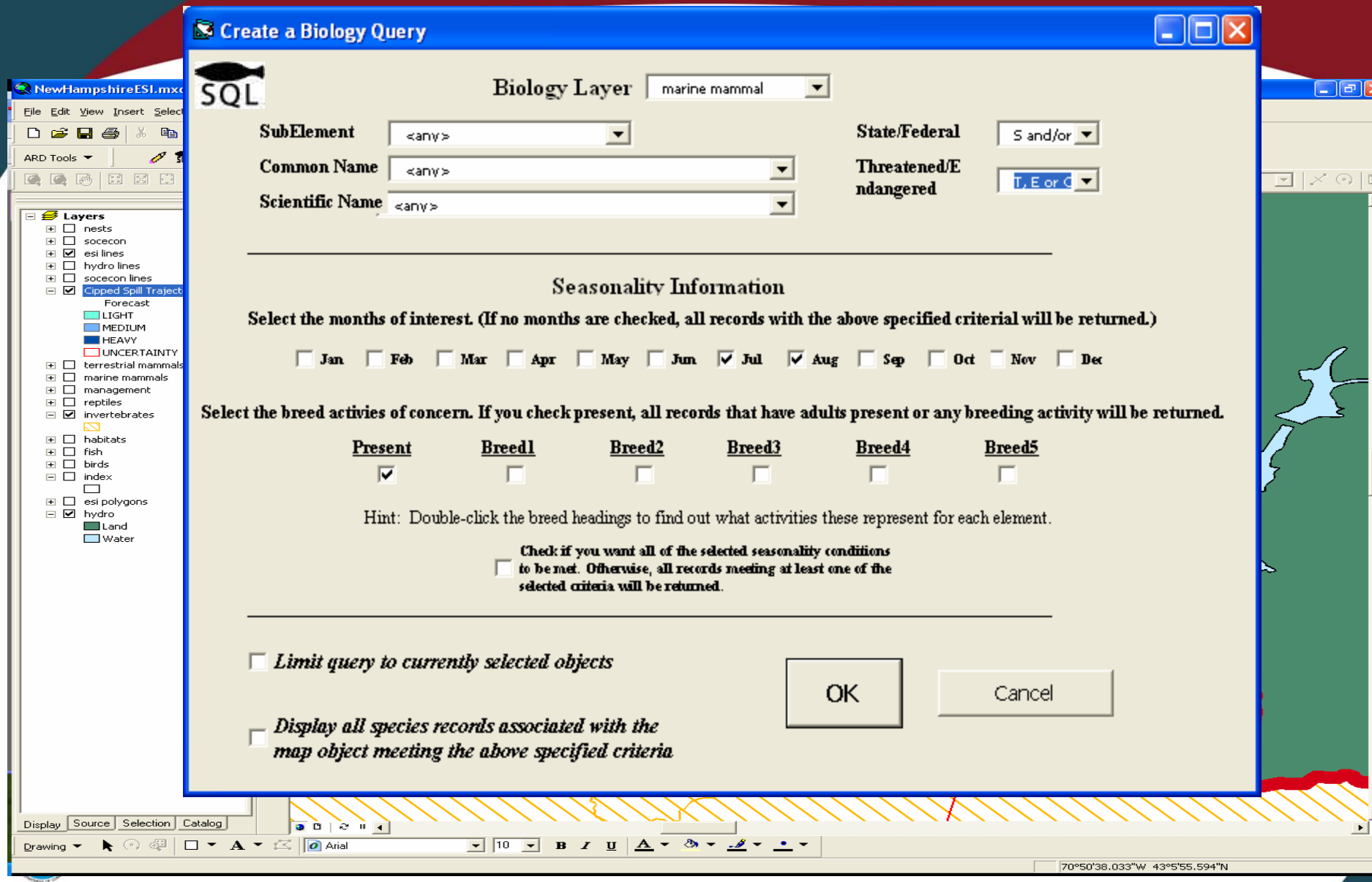
Create a Biology Query
SQL
Biology Layer
marine mammal
SubElement
<any>
Common Name
<any>
Scientific Name
<any>
State/Federal
S and/or
Threatened/Endangered
T, E or C
Seasonality Information
Select the months of interest. (If no months are checked, all records with the above specified criterial will be returned.)
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Select the breed activies of concern. If you check present, all records that have adults present or any breeding activity will be returned.
Present Breed1 Breed2 Breed3 Breed4 Breed5
Hint: Double-click the breed headings to find out what activities these represent for each element.
Check if you want all of the selected seasonality conditions to be met. Otherwise, all records meeting at least one of the selected criteria will be returned.
Limit query to currently selected objects
Display all species records associated with the map object meeting the above specified criteria
OK
Cancel
NewHampshireESI.mxd
File Edit View Insert Select
ARD Tools
Layers
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esi lines
hydro lines
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Forecast
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HEAVY
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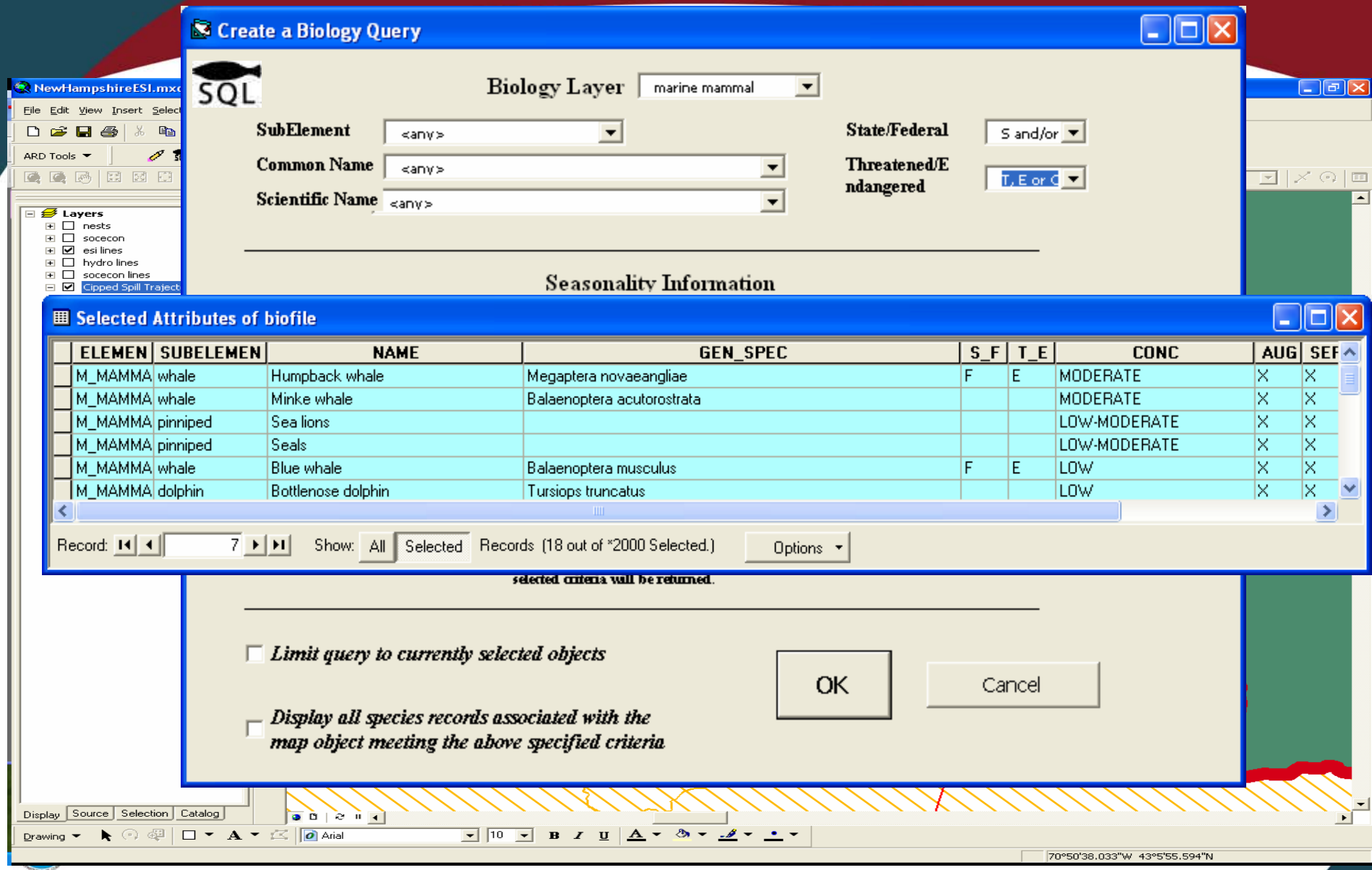
Create a Biology Query
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Biology Layer
marine mammal
SubElement
<any>
Common Name
<any>
Scientific Name
<any>
State/Federal
S and/or
Threatened/Endangered
T, E or C
Seasonality Information
Selected Attributes of biofile
ELEMEN SUBELEMEN NAME GEN_SPEC S_F T_E CONC AUG SEF
M_MAMMA whale Humpback whale Megaptera novaeangliae F E MODERATE X X
M_MAMMA whale Minke whale Balaenoptera acutorostrata MODERATE X X
M_MAMMA pinniped Sea lions LOW-MODERATE X X
M_MAMMA pinniped Seals LOW-MODERATE X X
M_MAMMA whale Blue whale Balaenoptera musculus F E LOW X X
M_MAMMA dolphin Bottlenose dolphin Tursiops truncatus LOW X X
Record: 7
Show: All Selected
Records (18 out of *2000 Selected.)
Options
selected criteria will be returned.
Limit query to currently selected objects
Display all species records associated with the map object meeting the above specified criteria
OK
Cancel
NewHampshireESI.mxd
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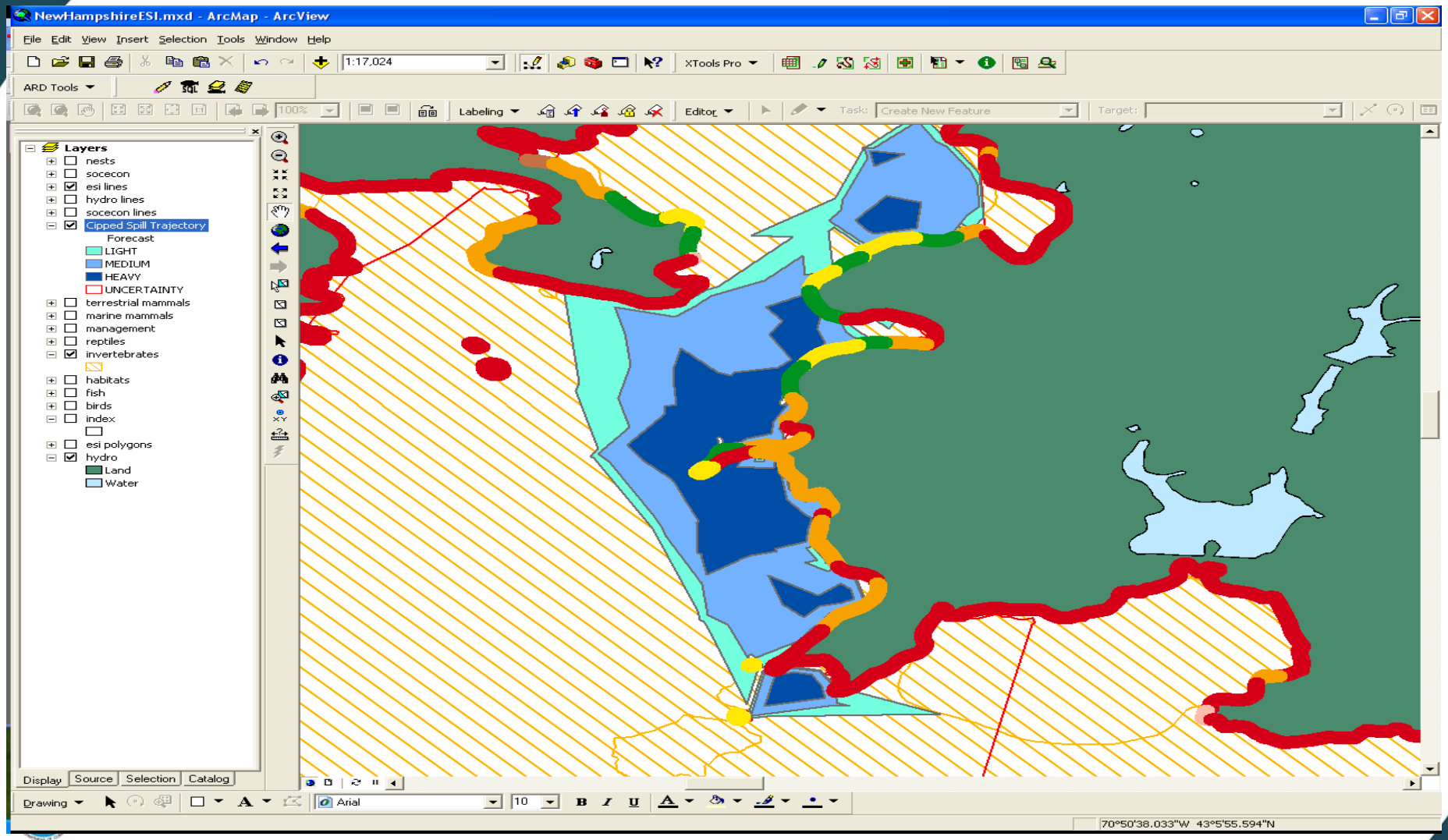
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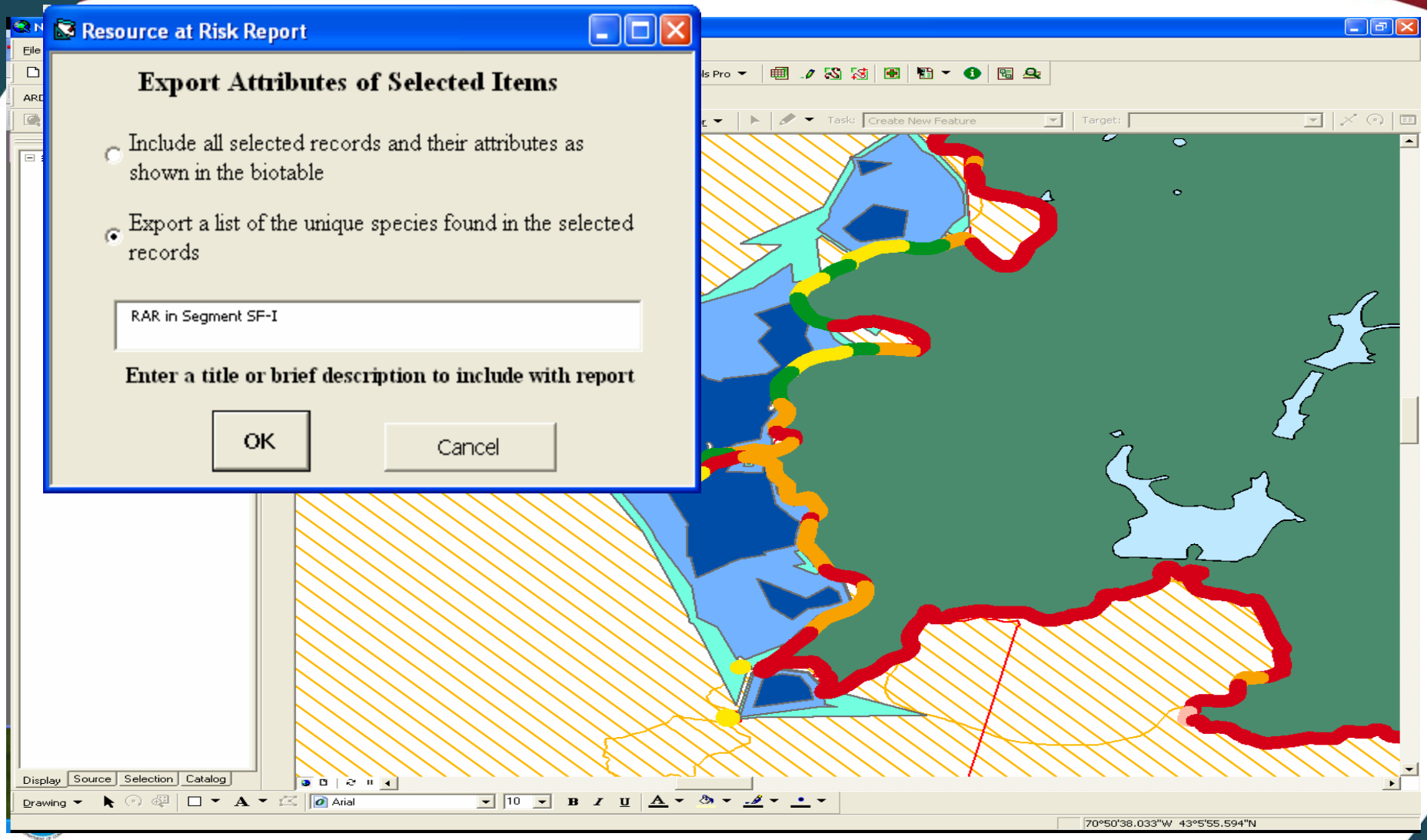
Resource at Risk Report
Export Attributes of Selected Items
Include all selected records and their attributes as shown in the biotable
Export a list of the unique species found in the selected records
RAR in Segment SF-I
Enter a title or brief description to include with report
OK
Cancel
Display
Source
Selection
Catalog
Drawing
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RAR_exportbird .txt

	A	B	C	D	E	F	G	H	I	J	K	L	M
23	SUBELEMENT	NAME	GEN_SPEC	S_F	T_E	CONC	AUG	SEP	G_SOURCE	BREED2	BREED3	BREED4	BREED5
24	alcid	Cassin's auklet	Ptychoramphus aleuticus			LOW	X	X	103	-	-	N/A	N/A
25	diving	Clark's grebe	Aechmophorus clarkii			MODERATE		X	103	SEP-APR*	-	N/A	N/A
26	alcid	Common murre	Uria aalge			MODERATE	X	X	103	-	JUL-SEP	N/A	N/A
27	diving	Cormorants	Phalacrocorax sp.			MODERATE	X	X	103	-	-	N/A	N/A
28	diving	Eared grebe	Podiceps nigricollis			LOW		X	103	SEP-APR*	-	N/A	N/A
29	diving	Grebes				HIGH		X	103	SEP-APR*	-	N/A	N/A
30	gull_tern	Gulls				MODERATE	X	X	103	-	-	N/A	N/A
31	diving	Horned grebe	Podiceps auritus			LOW		X	103	OCT-APR	-	N/A	N/A
32	diving	Loons	Gavia spp.			HIGH			103	OCT-MAY	-	N/A	N/A
33	alcid	Marbled murrelet	Brachyramphus marmoratus	S/F	E/T	MODERATE	X	X	103	-	-	N/A	N/A
34	diving	Pacific loon	Gavia pacifica			MODERATE			103	OCT-MAY	-	N/A	N/A
35	diving	Pelicans	Pelecanus spp.			MODERATE	X	X	103	JUL-NOV	-	N/A	N/A
36	shorebird	Phalaropes	Phalaropus spp.			LOW	X	X	103	-	-	N/A	N/A
37	alcid	Pigeon guillemot	Cepphus columba			LOW	X	X	103	-	-	N/A	N/A
38	alcid	Rhinoceros auklet	Cerorhinca monocerata			MODERATE	X	X	103	-	-	N/A	N/A
39	waterfowl	Scoters	Melanitta spp.			HIGH		X	103	SEP-APR*	-	N/A	N/A
40	pelagic	Shearwaters				LOW-HIGH	X	X	103	-	-	N/A	N/A
41	pelagic	Sooty shearwater	Puffinus griseus			MODERATE	X	X	103	-	APR-OCT	N/A	N/A
42	waterfowl	Surf scoter	Melanitta perspicillata			MODERATE		X	103	SEP-APR*	-	N/A	N/A
43	diving	Western grebe	Aechmophorus occidentalis			MODERATE		X	103	SEP-APR*	-	N/A	N/A
44													

RAR_exportbird

Display Source Selection Catalog

Drawing Arial 10

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How Does This Aid Spill Response?

- **Hypothetical Spill in Great Bay**
  - **Uploaded trajectory - movie display**
  - **Where did it hit relative to ESI layer?**
    - **-See exact classification or download and print map**
  - **Where are the marine protected areas?**
  - **Show results of SCAT**
    - **-Field photo display**
    - **-Field sheets**
    - **-SCAT maps and diagrams**

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How does this Help in Spill Response?

- **Hypothetical spill near Seavey Point**
  - **Zoom to point feature**
  - **Display or download trajectory map**
  - **Open Responder Chart for the area**
  - **Visualize spill relative to ship traffic**
  - **Gather current weather observations from buoys**
  - **Display existing environmental contaminant data**

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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.**

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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

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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

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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

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Discussion

- Develop user-designed concept of a response visualization, data sharing, decision making platform
- Define possible uses
- Define data needs and identify datasets

Access the Prototype Online at:

www.crrc.unh.edu/workshops/PHRI/index.htm