

# Federal tools – Climate change, hazard and other tools for CZ Managers

West Coast Coastal Zone Managers Meeting  
January 2007  
Becky Smyth



**NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

# NOAA Coastal Services Center

## Theme Areas:

- Hazards and Resilient Communities
- Integrated Ocean Observing System
- Watersheds

## Primary Customers:

- State and local coastal resource managers
- Federal, non-governmental and non-profit organizations



# Hazards & Resilient Communities: Tools

- Risk and Vulnerability Assessment Tool
- Hazards Assessment Tool
- Coastal Inundation Visualization Tool



# Hazards & Resilient Communities: Tools

## Community Vulnerability Assessment Tool (CVAT)

- 7 step process for analyzing risk and determining vulnerabilities
- Assessing where these community aspects intersect with high risk areas
- Understanding where to prioritize mitigation projects



# Hazards & Resilient Communities: Tools

## Community Vulnerability Assessment Tool (CVAT)

### Input Data

Hazards  
Critical Facilities  
Societal  
Economic  
Environmental  
Undeveloped Land

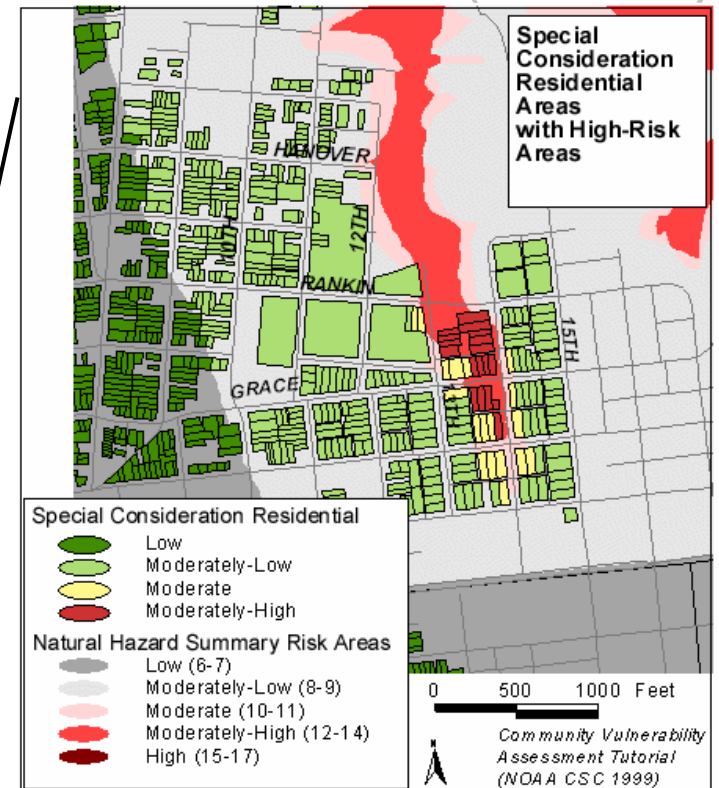


Analysis



### Output Data

- Spatial relationships of all aspects of a community
- A tool for community self-assessment of resilience
- Prioritized mitigation strategies



# Hazards & Resilient Communities: Tools

- Hazards Assessment Tool
  - Shows potential developers and property owners the range of hazards a site might face.
  - Information is provided in the form as a text summary as well as a map.



# Hazards & Resilient Communities: Training

- Risk and Vulnerability Assessment
- Coastal Inundation Mapping \*\*

\*\*In Development



# Hazards & Resilient Communities: Resources

- Coastal Storms Program
  - Pacific Northwest
  - Southern California
- Storm & Shoreline Products for Practitioners  
[http://www.csc.noaa.gov/storm\\_info/](http://www.csc.noaa.gov/storm_info/)





# Hazards & Resilient Communities: Climate Change

- Sectoral Applications Research Program:  
Climate and Coastal Resource  
Management
  - Climate and Climate Information, including  
sea level rise, inundation and extreme storms
  - Impacts and Vulnerability Analysis, Decision  
Support Tools, and Extension



# Hazards & Resilient Communities: Climate Change

- EPA – What you can do
  - [http://www.epa.gov/climate change](http://www.epa.gov/climate_change)
- National Center For Atmospheric Research
  - <http://www.gisclimatechange.org/>
- University of Washington Climate Impacts Group
  - <http://www.cses.washington.edu/cig/fpt/fpt.shtml>



# Hazards & Resilient Communities: Climate Change

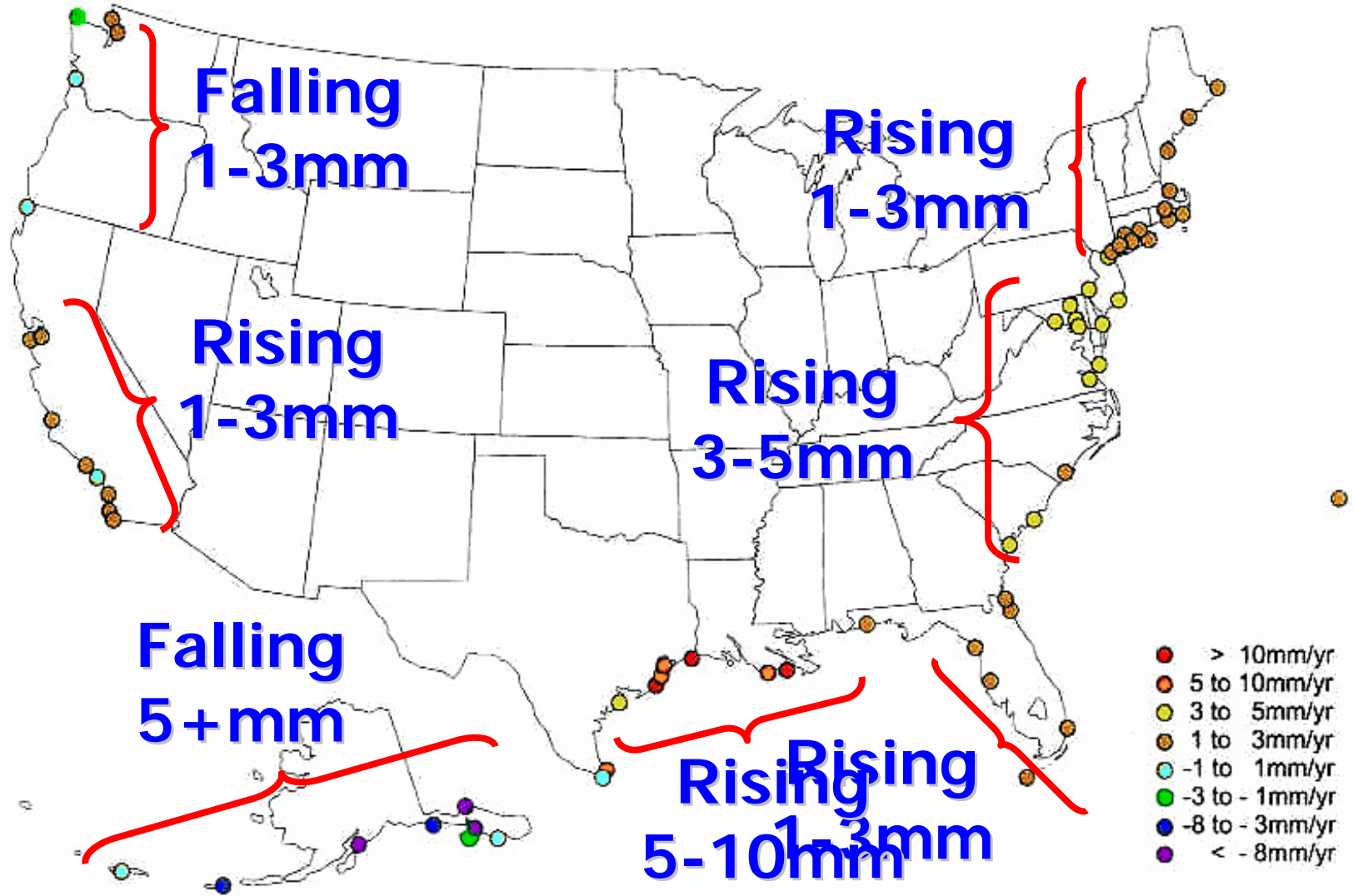
- NOAA water level program
  - <http://tidesandcurrents.noaa.gov>
- Tidal datum and water level datum references for the entire U.S. coastal zone
- Updated nation-wide information on relative sea level and land movement



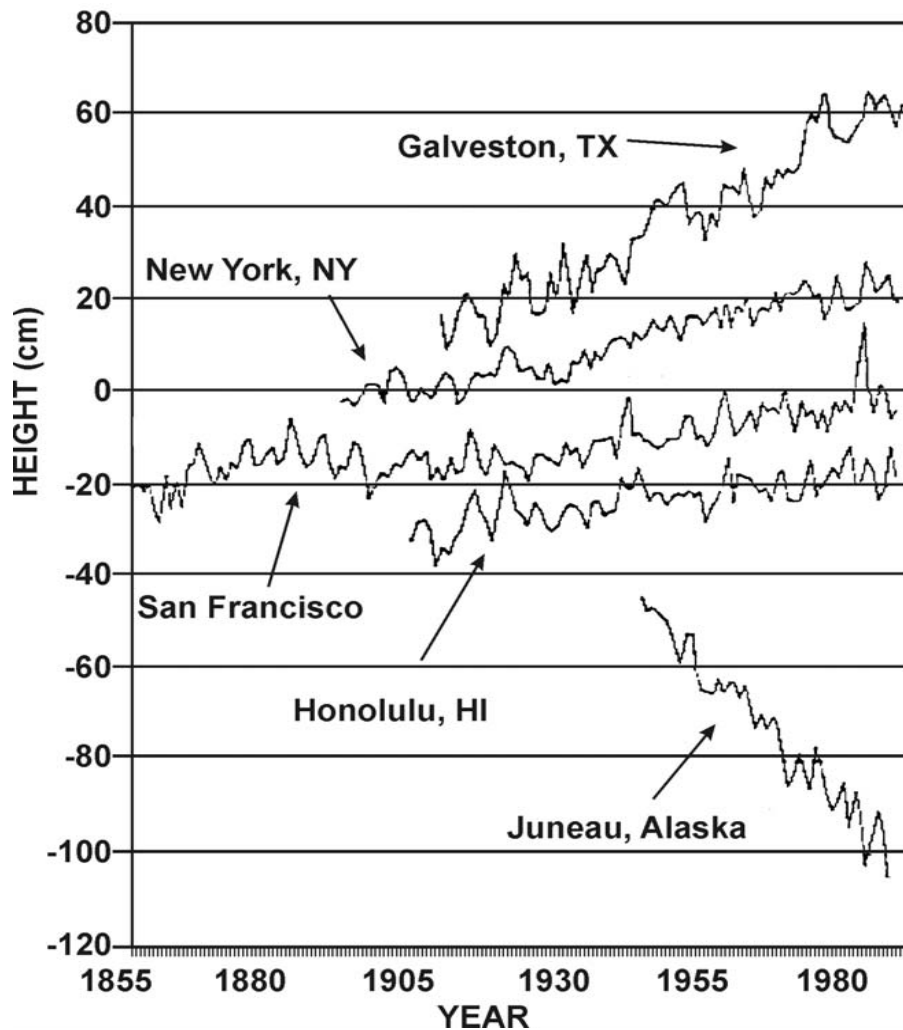


# LONG TERM SEA LEVEL TRENDS FOR THE UNITED STATES

(Accepted Global Sea Level Rise is 2mm/yr)

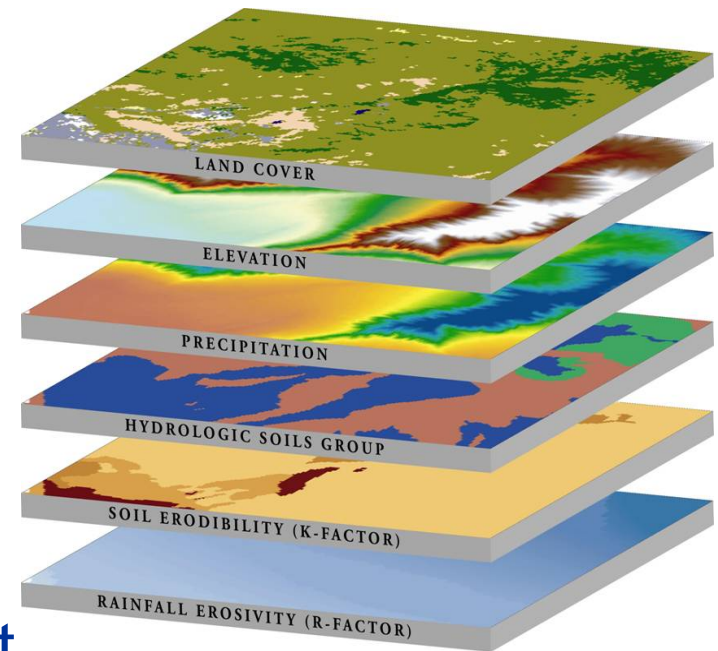


# RELATIVE SEA LEVEL CHANGE AT SEVERAL LOCATIONS IN THE U.S.



# Watershed Planning: Tools

- Impervious Surface Analysis Tool (ISAT)
  - *Estimates* the percentage of a given area covered by impervious surfaces
- Nonpoint-Source Pollution and Erosion Comparison Tool
  - Screening tool that produces estimates of storm runoff, pollutant loads, and sediment loads
  - Allows comparisons of different land cover and land use *scenarios*



# Watershed Planning: Tools

- Habitat Priority Planner
- Digital Coast: Legislative Atlas
- Coastal Ecosystem Restoration



# Watershed Planning: Tools

## Habitat Priority Planner

- A GIS-based tool designed to help coastal officials make and prioritize decisions about habitat restoration and conservation.
- What does the tool do?
  - Scores habitat patches based on user selected evaluation criteria such as fragmentation and other indicators of habitat quality
  - Identify and rank potential restoration and conservation sites
  - Analyze “what if” scenarios for proposed changes in land use or land cover

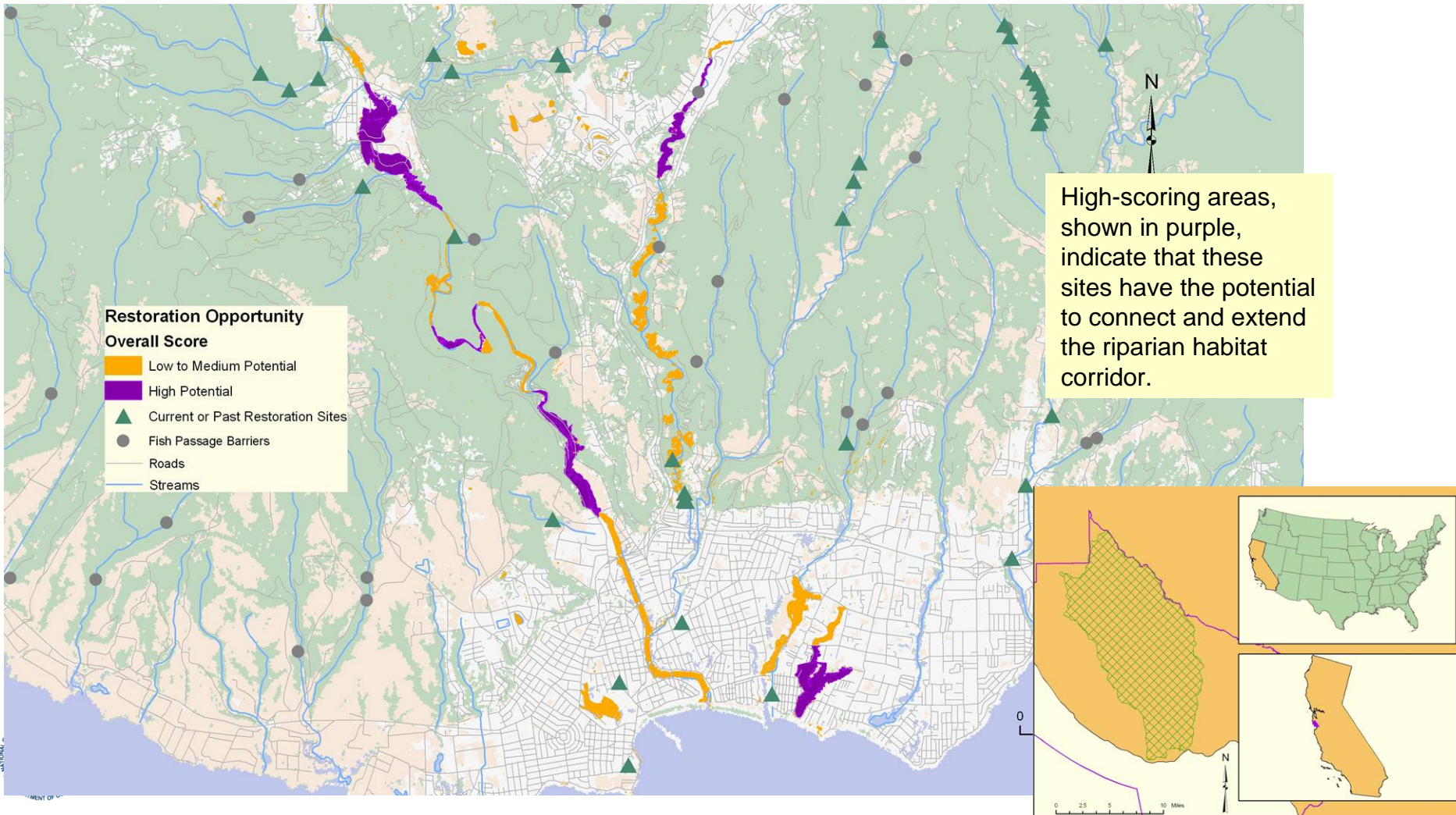




# Watershed Planning: Tools

## Habitat Priority Planner

### San Lorenzo Watershed – Restoration Opportunities



# Watershed Planning: Tools

## Digital Coastal: Legislative Atlas

- Web-based mapping tool to support regional management of ocean and coastal resources
- Mapping state legislation in CA, HI, and New England
  - Web site for the Gulf of Mexico





- Center Home
- GIS Integration & Development
- Digital Coast: Legislative Atlas**
- Coastal and Ocean Governance
  - How the Coasts and Oceans are Governed
  - Search Coastal and Ocean Legislation
  - Map of National Regulations
- Gulf of Mexico
  - Explore the Gulf of Mexico
- Southeast
  - Explore the Southeast
- Spatial Data Download



**DIGITAL COAST:**  
*Legislative Atlas*

The Legislative Atlas allow users to identify what coastal and ocean laws apply at specific locations and to see relationships to natural and socio-economic resources in that region.

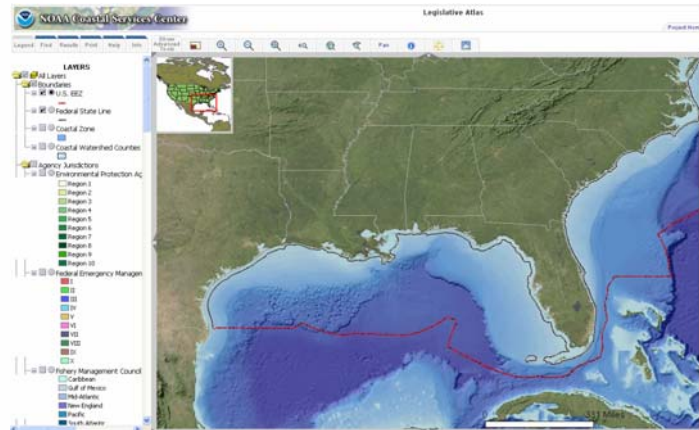
Select your region of interest to view and download data and information related to coastal and ocean resource management.

[Search Coastal and Ocean Laws](#) [Explore the Gulf of Mexico](#) [Explore the Southeast](#)

**What is the Legislative Atlas?**

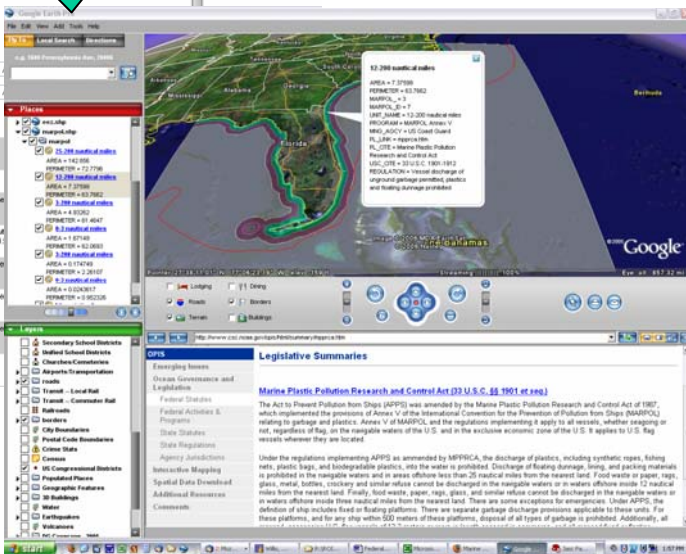
There are a growing number of regional collaborations among federal, state, and local agencies forming around the country to address management issues that cut across existing political and jurisdictional boundaries. The Legislative Atlas supports regional ocean and coastal management efforts by mapping key state and federal laws and jurisdictional boundaries. Use this site to find:

- Searchable database of coastal and ocean legislation
- State and Federal legislative and agency summaries
- Downloadable spatial data and maps



ArcIMS site

**Explore laws in Google Earth**



- Center Home
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**View Laws**

Find a law by selecting one or more filters below.

Select laws concerning this state:	All States	Select laws in this region:	
Select laws concerning this issue:	All Issues	Select laws from this agency:	
OR Select a Law:	All Laws		
Law Name	State	Issues	Agencies
<a href="#">Shoreland Zoning Act</a>	FED	Historic and Cultural Resources	National Park Service
<a href="#">Act to Prevent Pollution from Ships</a>	FED	Environmental Quality	U.S. Coast Guard
<a href="#">Antiquities Act</a>	FED	Historic and Cultural Resources	Bureau of Land Management
<a href="#">Archaeological Resources Protection Act</a>	FED	Historic and Cultural Resources	U.S. Department of Agriculture Department of Defense U.S. Department of Interior
<a href="#">Atlantic Coastal Fisheries Cooperative Management Act</a>	FED	Fisheries	U.S. Department of Commerce Department of Interior
<a href="#">Atlantic Shrimp Bait Construction Act</a>	FED	Fisheries	U.S. Department of Commerce Department of Interior
<a href="#">Atlantic Tuna Convention Act of 1975</a>	FED	Fisheries	U.S. Department of Commerce
<a href="#">Clean Vessel Act of 1972</a>	FED	Environmental Quality	U.S. Coast Guard

**Search laws in online database**

**Stream data directly to Desktop GIS**

# Watershed Planning: Training

- Strategic Conservation Planning\*\*
- Coastal Community Planning & Development ~New
- Ecosystem Based Management\*\*

\*\* In Development



# Watershed Planning: Tools

- CityGreen: Analyze urban ecosystems
  - <http://www.americanforests.org/productsandpubs/citygreen/>
- INDEX: Design, visualize, analyze, compare and rank alternative planning scenarios
- What If?: Non-technical analysis of alternative planning scenarios
  - <http://www.what-if-pss.com/>



# Watershed Planning: Tools

- Ecosystem Management Decision Support System: Integrated landscape evaluation
  - <http://www.institute.redlands.edu/emds/>
- SPECTRUM: Analyze alternative resource management scenarios
  - [http://www.fs.fed.us/institute/planning\\_center/spectravision.html](http://www.fs.fed.us/institute/planning_center/spectravision.html)



# Watershed Planning: Tools

- Water Erosion Prediction Project: Assess soil and water conservation management options in small watersheds
  - [http://topsoil.nserl.purdue.edu/nserlweb/weppmain/wep\\_p.html](http://topsoil.nserl.purdue.edu/nserlweb/weppmain/wep_p.html)
- GENeration and analysis of model simulation SCeNarios: Models river basin water quantity and quality based on management scenarios
  - <http://water.usgs.gov/software/genscn.html>



# Watersheds: Conservation & Restoration Planning Tools

- FRAGSTATS: Computes landscape metrics
  - <http://www.umass.edu/landeco/research/fragstats/fragstats.html>
- Geographic Information System Tools for Conservation Planning: Incorporates landscape, species, and habitat relationships
  - <http://umesc.usgs.gov/management/dss/>
- Vista: Conservation decision support system
  - <http://www.natureserve.org/prodServices/vista.jsp>





# General Training Courses

- Intro to GIS & Coastal Applications
- Metadata
- Remote Sensing
- Project Design & Evaluation
- Public Involvement & Conflict Mgmt
- Negotiating for Coastal Resources



# General Products & Services

- Integrated Ocean Observing System:
  - Alaska Ocean Observing System (AOOS)
  - Central And Northern California Ocean Observing System (CenCOOS)
  - Southern California Coastal Ocean Observing System (SCCOOS)
  - Northwest Association of Networked Ocean Observing System (NANOOS)
  - Pacific Islands Integrated Ocean Observing System (PacIOOS)
  - Pacific Coast Ocean Observing System (PaCOOS)
- Coastal Change Analysis Program
- Benthic Habitat Mapping & Classification

