WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP
westcarb.org

WESTCARB Annual Business Meeting

Communication of WESTCARB Research using GIS-Based Web Tools

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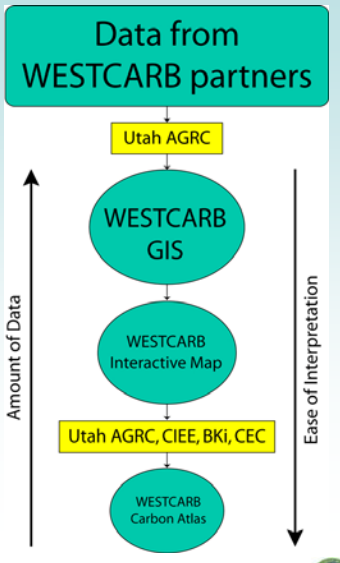
The Evolving WESTCARB GIS

Not just a GIS…

Not just interactive maps (ArcIMS)…

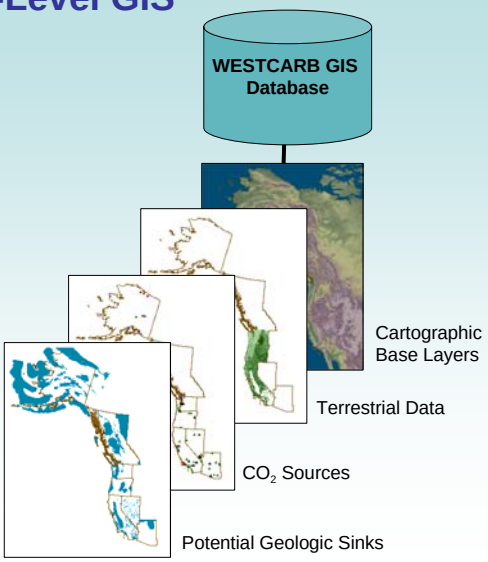
Not just paper maps…

But all of the above.



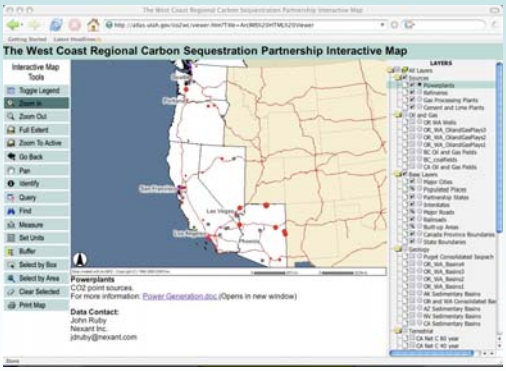
WESTCARB's Multi-Level GIS

- **Level 1:** entire WESTCARB GIS Database
  - Target audience: *e.g.,* stakeholders from science/ industry wishing to do their own analyses



WESTCARB's Multi-Level GIS (cont'd)

- **Level 2:** WESTCARB Interactive Map
  - Select layers from the (Level 1) database available via http://atlas.utah.gov/co2wc/
  - Will include a link that allows one to download data from the (Level 1) database for use in their own GIS
  - Target audience: *e.g.,* stakeholders from science and industry wishing to view, not manipulate, data; GIS-savvy policymakers

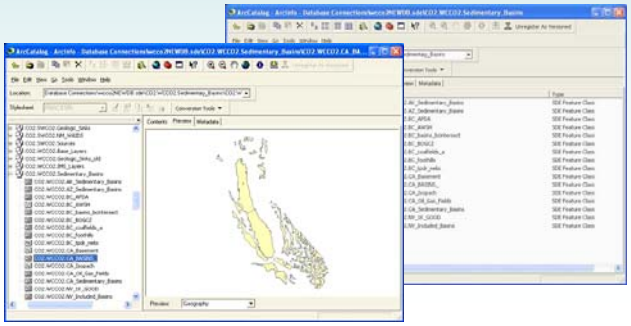


WESTCARB's Multi-Level GIS (cont'd)

- **Level 3:** WESTCARB Carbon Atlas
  - Static maps of carbon sequestration areas of interest
  - Target audience: *e.g.*, "the public", policymakers

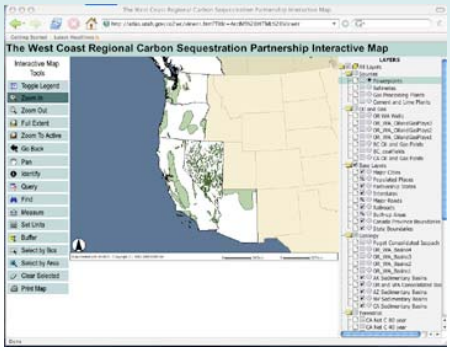
WESTCARB GIS Database

- Database of GIS Layers in ArcGIS Geodatabase Format
  - 168 data layers at present.
  - Provides all data for Carbon Atlas and Interactive Map
  - Data layers are available to stakeholders by request
  - Layers will soon be available by download



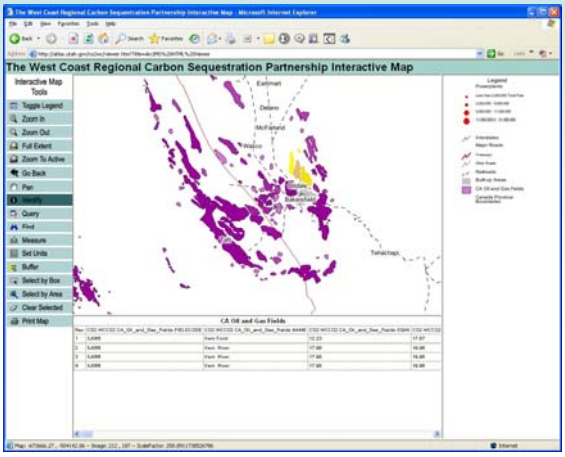
WESTCARB Interactive Map

- A Data Exploration Tool
  - Selected layers from database
  - Geologic and terrestrial maps
  - Provides GIS savvy users with a tool to view data
  - Exploratory GIS tools
  - Metadata
  - Link to download actual data layers



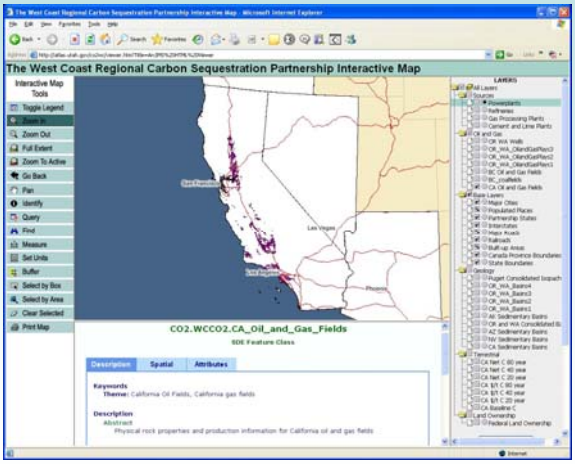
WESTCARB Interactive Map (cont'd)

- Basic GIS Tools
  - Navigation
  - Identify
  - Find
  - Select by Distance
  - Measure
  - Printable Map



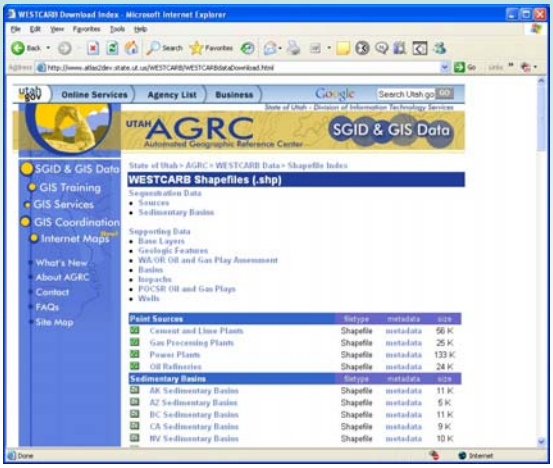
WESTCARB Interactive Map (cont'd)

- Metadata
  - Click on layer name to display metadata
  - Metadata complete to the extent received by AGRC



Downloadable Layers

- All Pertinent Layers Will Be Available
  - Shapefile format
  - Semi–automated updates



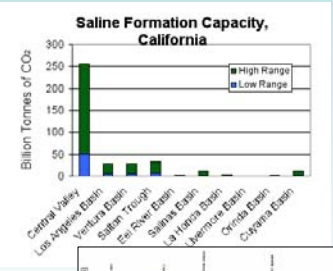
WESTCARB Carbon Atlas

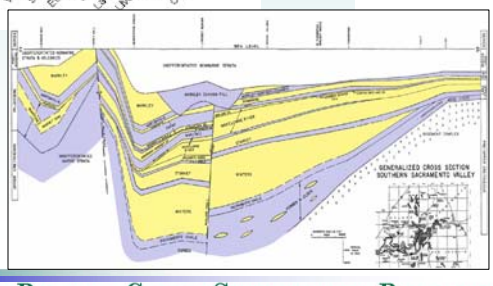
Static Maps, Supporting Text, and Images

- Pilot Projects
- Sources
- Sinks
  - Geological
    - Coal Basins
    - Oil and Gas Formations
    - Saline Formations
  - Terrestrial

WESTCARB Carbon Atlas

Static Maps, Supporting Text, and Images: **Saline Formations**





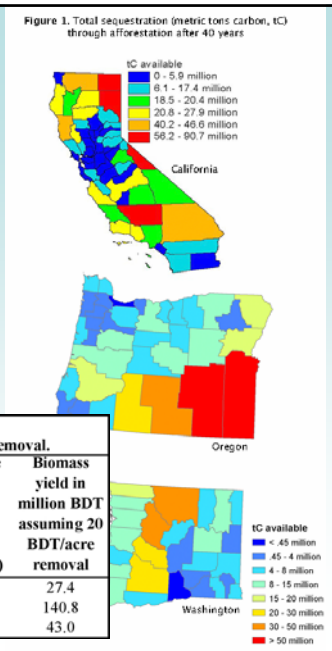
WESTCARB Carbon Atlas

Static Maps, Supporting Text, and Images:
Terrestrial Opportunities

Table 1. Three-state summary of sequestration opportunities.	California		Oregon		Washington	
	Quantity (MMT CO_2)	Area (million acres)	Quantity (MMT CO_2)	Area (million acres)	Quantity (MMT CO_2)	Area (million acres)
Total forestland area		24		26		20
Total rangeland area		57		27		12
Total agricultural land area		10		6.4		10
Afforestation of rangelands (40 years)						
< $2.40/t CO_2			0.489	0.001	0	0
< $2.70/t CO_2	1,610	5.68				
< $5.50/t CO_2	3,017	14.83				
< $10.00/t CO_2			337.3	1.42	877.9	4.3
< $13.60/t CO_2	3,256	17.79				
Afforestation of						
Forest managem						
<= $						
<= $13.						
Forest managem						
widths						

Table 2. Low & mixed-severity fire regime forest suitable for fuel removal.

State	Total area (million acres)	Area on slope <40% (million acres)	Area on slope <40% and <0.25 mi yarding distance (million acres)	Biomass yield in million BDT assuming 20 BDT/acre removal
California	7.02	1.77	1.37	27.4
Oregon	10.33	10.32	7.04	140.8
Washington	3.32	3.31	2.15	43.0

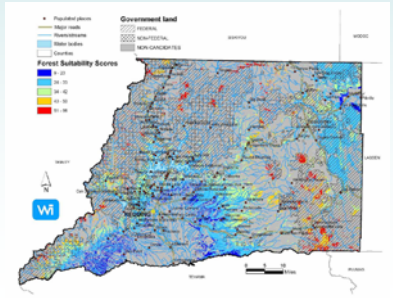


National Carbon Sequestration Atlas

- Provides a View of the Partnership Efforts to Date
  - Overall national view compiled by NATCARB using data provided by partnerships
  - Regional sections created by each partnership
  - For the national view, WESTCARB provided our most current data for:
    - Coal formations
    - Deep saline formations
    - Oil and gas formations
    - Point sources

National Carbon Sequestration Atlas (cont'd)

- For the regional view, WESTCARB provided our most current data for:
  - Pilot Projects
  - Sources
  - Sinks
    - Geological
      - Coal Basins
      - Oil and Gas Formations
      - Saline Formations
    - Terrestrial



National Carbon Sequestration Atlas (cont'd)

Spread 4: Terrestrial Field Test

WESTCARB Region:
Terrestrial Sequestration Pilot Projects

Terrestrial carbon sequestration pilots are initially taking place in Shasta County, California, and Lake County, Oregon. Opportunities for future terrestrial pilots in Washington and Arizona are also being identified. Pilot activities include afforestation (in Shasta County, of rangelands, and in Lake County, with fast-growing species), improved management of forest fuels to reduce emissions from wildfires (and potentially fuel biomass power plants), and conservation-based forest management. Overall objectives are to quantify emission reductions/sequestration attributable to each activity; gather information on costs and benefits to landowners; design measurement, monitoring and verification methods; evaluate the practicality of existing reporting protocols to capture verifiable reductions at reasonable cost to landowners and carbon credit buyers; explore questions of market validation for terrestrial activities; and evaluate environmental co-benefits.

Afforestation
Afforestation pilot projects in Shasta County, California, will provide on-the-ground experience in site preparation, planting and maintenance techniques for afforestation; help refining estimates of net carbon sequestration poter measurements and improved growth models; synthesizing information on costs and benefits to landowners; and providing g landowners considering undertaking afforestation to generate CO2 credits for reporting to the California Climate Action Regi sale to carbon offset credit buyers. In Lake County, Oregon, afforestation pilot activities will explore the feasibility, costs, and benefits of afforestation using hybrid poplar and other fast-growing species.

Improved fuels management/biomass energy
WESTCARB partners will develop new methodologies to quantify gre emissions from wildfires and carbon credits attributable to improved f ment. Pilot projects in Shasta and Lake Counties will remove hazard high fire-risk forestlands and transport them to biomass energy facili data on costs and on changes in carbon stocks.

Conservation-based forest management
In Shasta County, WESTCARB partners will alter forest managemen increase overall carbon stocks on timberlands, including harvesting a ties than mandated by applicable regulations, maintaining riparian bu ing riparian zones to favor large trees and dense canopies, and incre WESTCARB partners will evaluate sequestration potential, project e ticality and effectiveness of existing reporting protocols.

Questions?

http://www.westcarb.org

http://atlas.utah.gov/co2wc/