EPA United States Environmental Protection Agency

EnviroAtlas: Connecting People, Ecosystems, Health & the Economy

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Geospatial Interest Group
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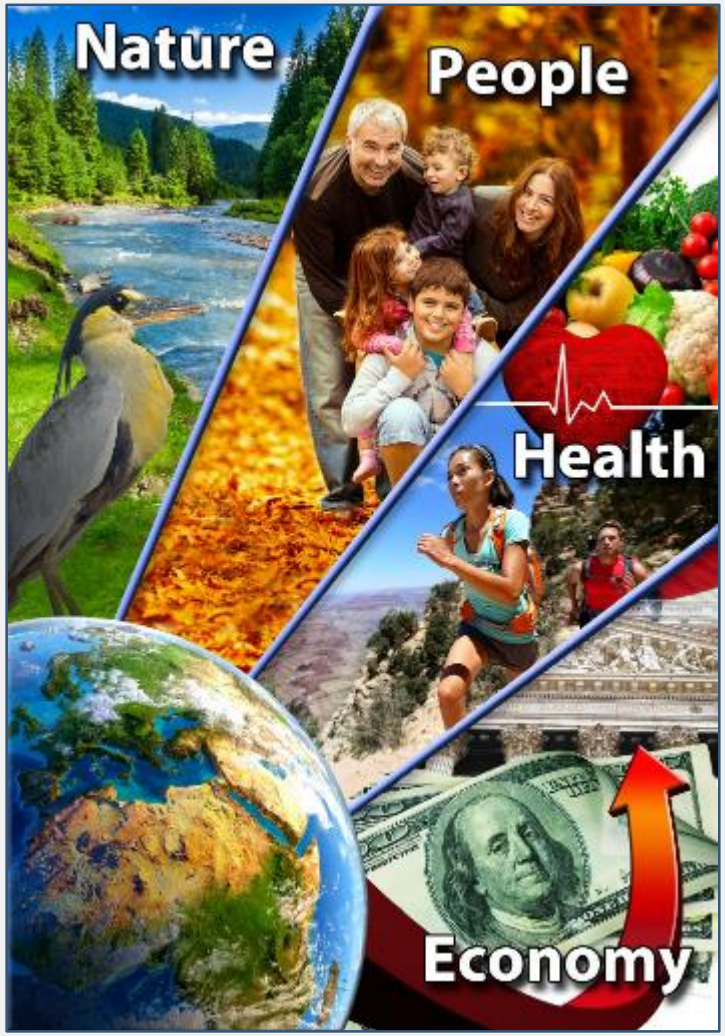
The views expressed in this presentation are those of the author(s) and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.

Why are we Building EnviroAtlas?

- Inform efficient, effective, and equitable decision-making by providing access to consistent environmental, social, and economic data
- Facilitate systems approach to decision-making
- Provide data and tools for researchers and educators
- Synthesize research results to make them readily accessible

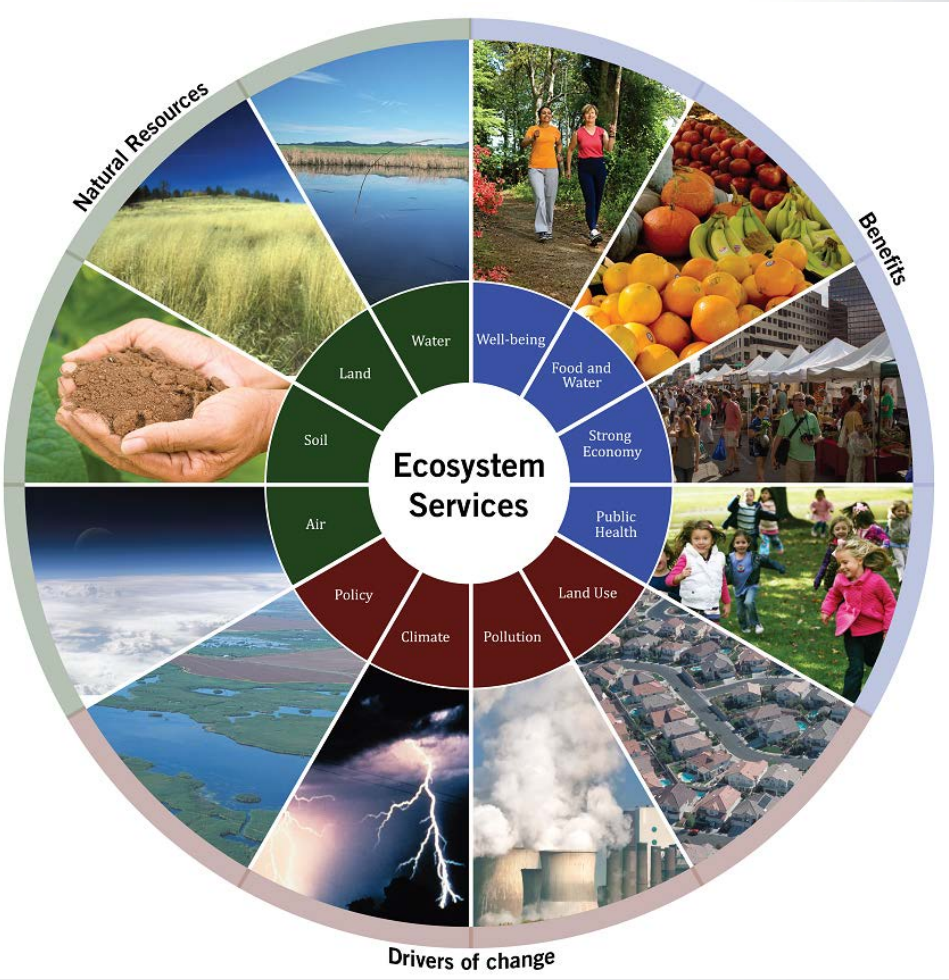


EnviroAtlas

An online tool giving users the ability to view, analyze, and download geospatial data and other resources; designed to inform decision-making, education, and additional research.

Serving data around a common theme:

- Geospatial indicators/indices of EGS
- Supplemental data (e.g., boundaries, land cover, soils, hydrography, impaired water bodies, wetlands, demographics, built infrastructure, roads)
- Analytic and interpretive tools
- Ecosystem marketplace data



Our data are organized into 7 ecosystem service benefit categories.


EPA
United States
Environmental Protection
Agency


USGS
science for a changing world


HARVARD
MEDICAL SCHOOL


FOREST
TRENDS


The
UNIVERSITY
of VERMONT


USDA


MICHIGAN


LandScope
America


MEDICAL
COLLEGE
OF WISCONSIN

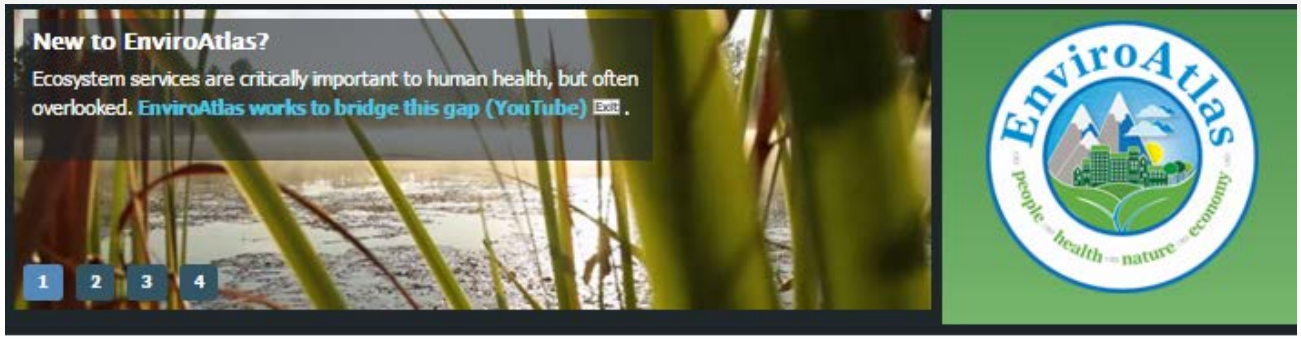

NM
STATE
UNIVERSITY


Duke
UNIVERSITY


SOUTH ATLANTIC
LANDSCAPE CONSERVATION COOPERATIVE

+ more...

www.epa.gov/enviroatlas



EnviroAtlas provides interactive tools and resources for exploring the benefits people receive from nature or "ecosystem goods and services". Ecosystem goods and services are critically important to human health and well-being, but they are often overlooked due to lack of information. Using EnviroAtlas, many types of users can access, view, and analyze diverse information to better understand the potential impacts of various decisions.

New to EnviroAtlas? Start with these resources.

- **Ecosystem Services in EnviroAtlas**
  These benefits underpin almost every aspect of human well-being, including our food and water, security, health, and economy.
- **How to Use EnviroAtlas**
  Demo videos and training documents, including examples of how these tools can be applied in a variety of ways.
- **EnviroAtlas Data**
  Overview of EnviroAtlas data organization, spatial extents, & how to access.

The Interactive Map and Eco-Health Relationship Browser are the flagship EnviroAtlas applications.

- **EnviroAtlas Interactive Map**
  A multi-extent Interactive Map with broad scale data for the lower 48 states and fine scale data for selected communities.
- **EnviroAtlas Eco-Health Relationship Browser**
  An easy-to-use relational browser showing the linkages between ecosystems, the services they provide, and human health.

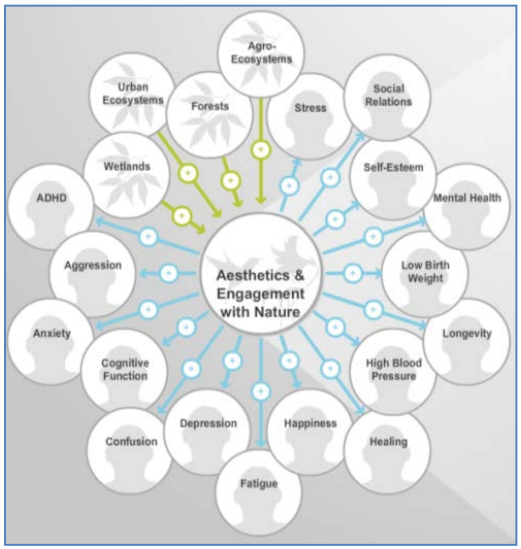
Already familiar with EnviroAtlas and GIS analysis? Explore these resources.

- **EnviroAtlas Tools**
  Access several downloadable GIS toolboxes and ArcMap extensions that work with user-supplied data.
- **EnviroAtlas Data Download**
  EnviroAtlas National and Community data are made freely available for download.
- **Resources for EnviroAtlas Collaborators**
  Information and document templates to guide the development of data, metadata, widgets, tools and fact sheets.

The Eco-Health Relationship Browser

4 ecosystems:

- Forests
- Urban Ecosystems
- Wetlands
- Agro-Ecosystems



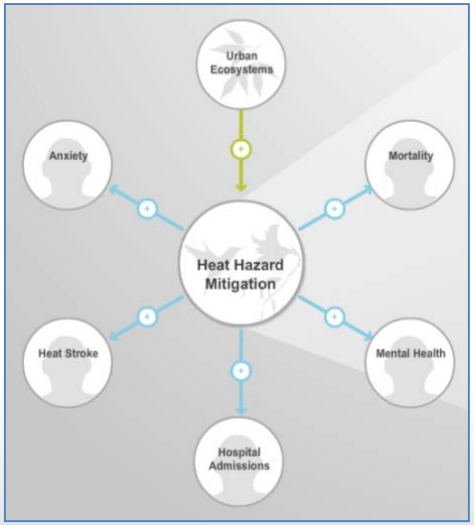
6 Ecosystem Services:

Health promotional services

- Aesthetics & Engagement with Nature
- Recreation & Physical Activity

Buffering services

- Clean Air
- Clean Water
- Heat Hazard Mitigation
- Water Hazard Mitigation



Incl. extensive bibliography (n ~ 300)

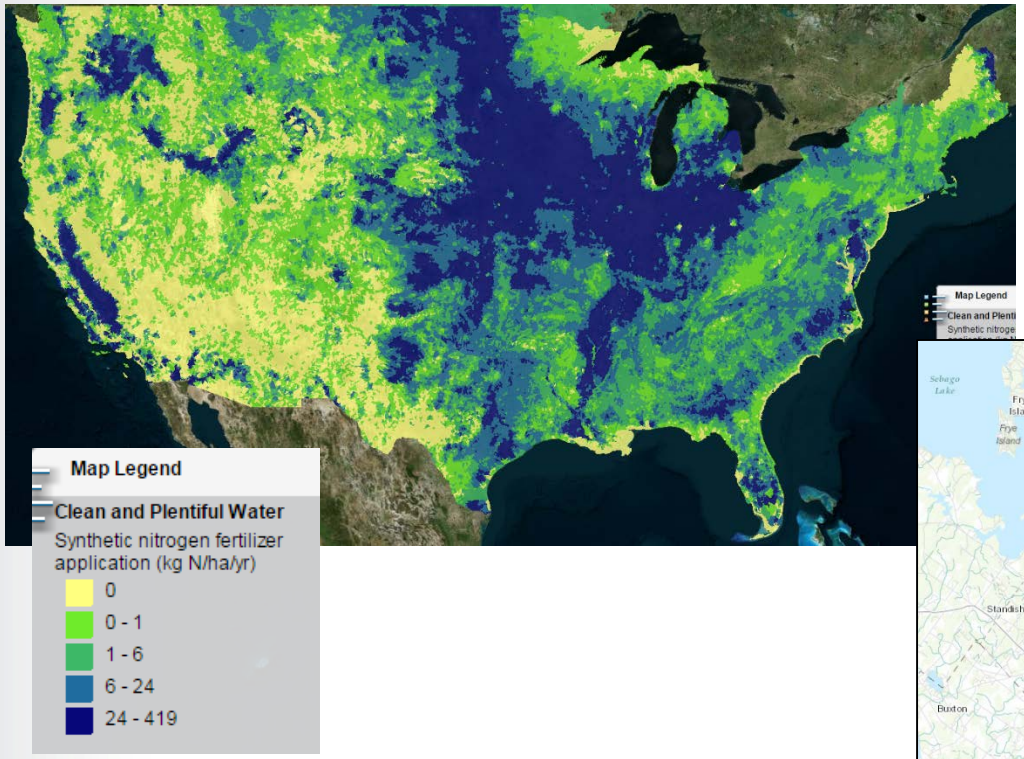
30+ health outcomes:

- Asthma
- ADHD
- Cancers
- Cardiovascular diseases
- Heat stroke
- Healing
- Diabetes
- Obesity
- Social relations
- Stress

… many more

EnviroAtlas includes an Interactive Map

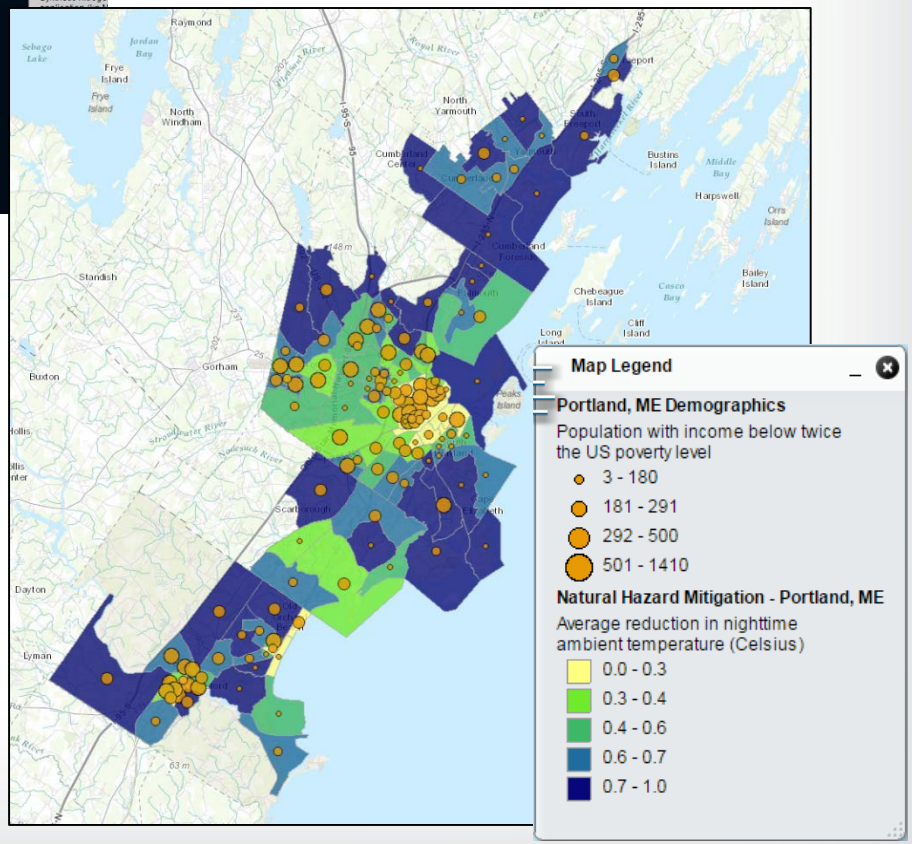
300+ map layers available online

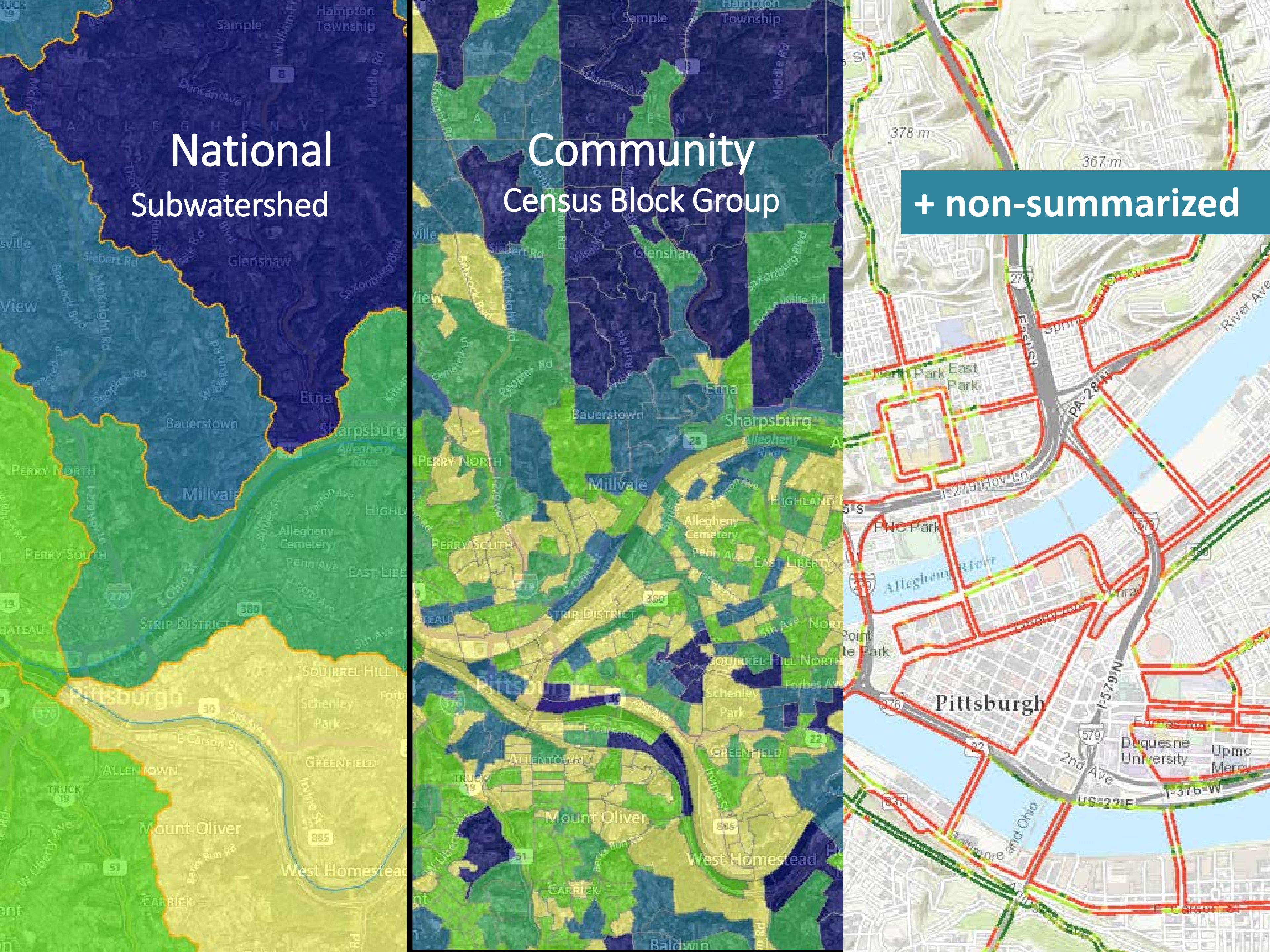


National: Wall-to-wall coverage for conterminous US; summarized by ~90,000 drainage basins (12-digit HUCs).

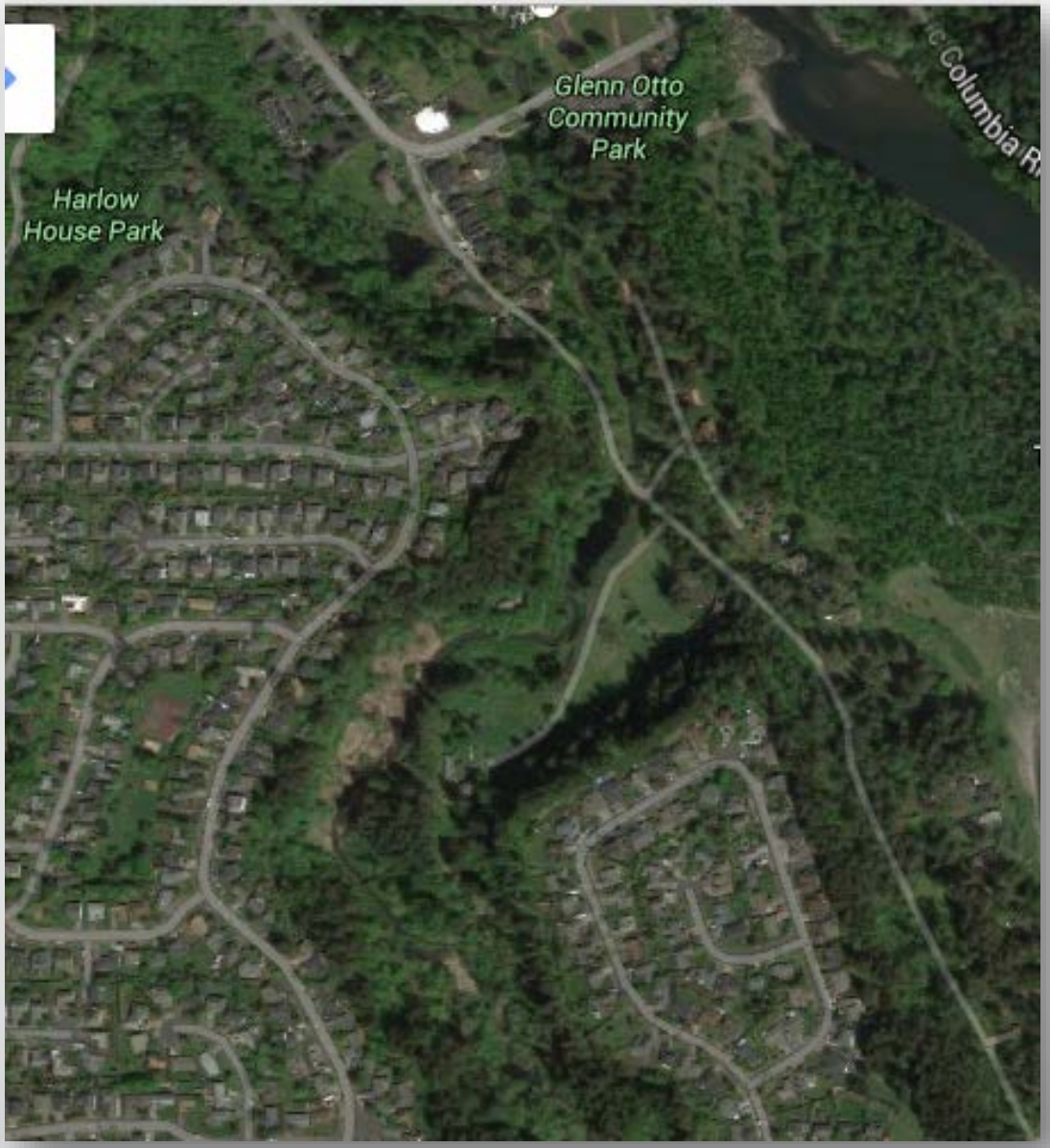
Community: High resolution component for 50 populated places; summarized by US census block group. 100+ data layers

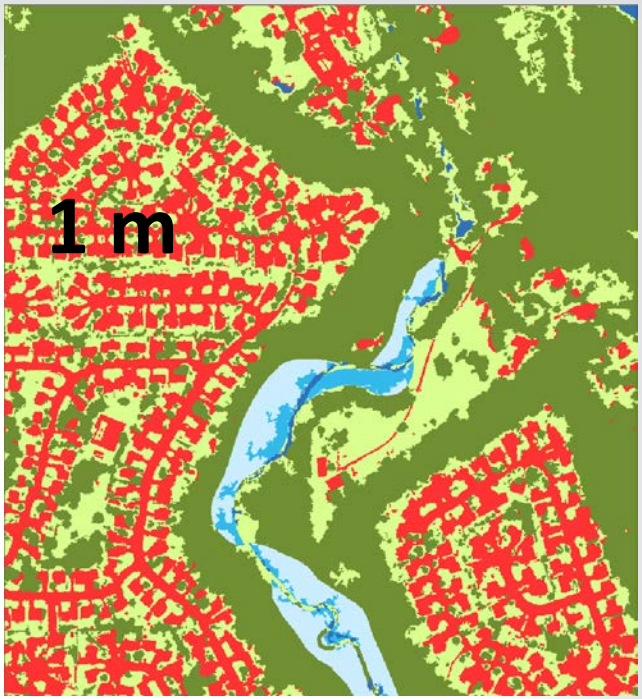
Pictured: Greater Portland, ME

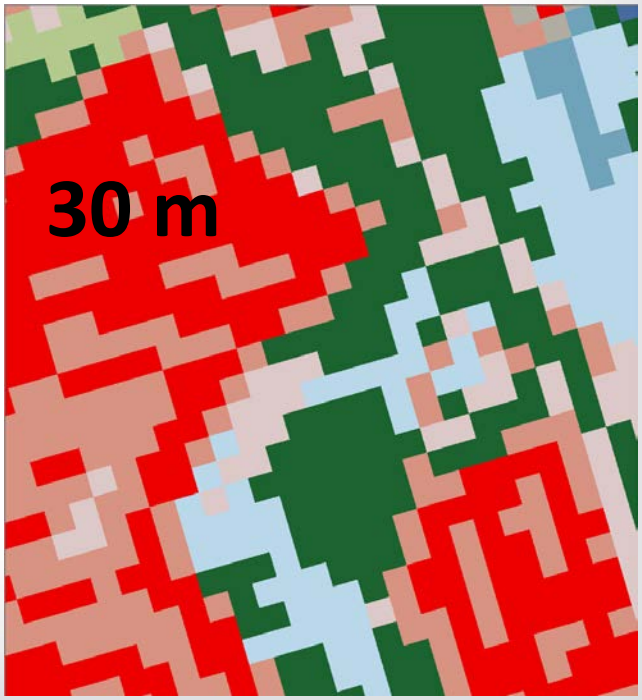



National
Subwatershed
Community
Census Block Group
+ non-summarized

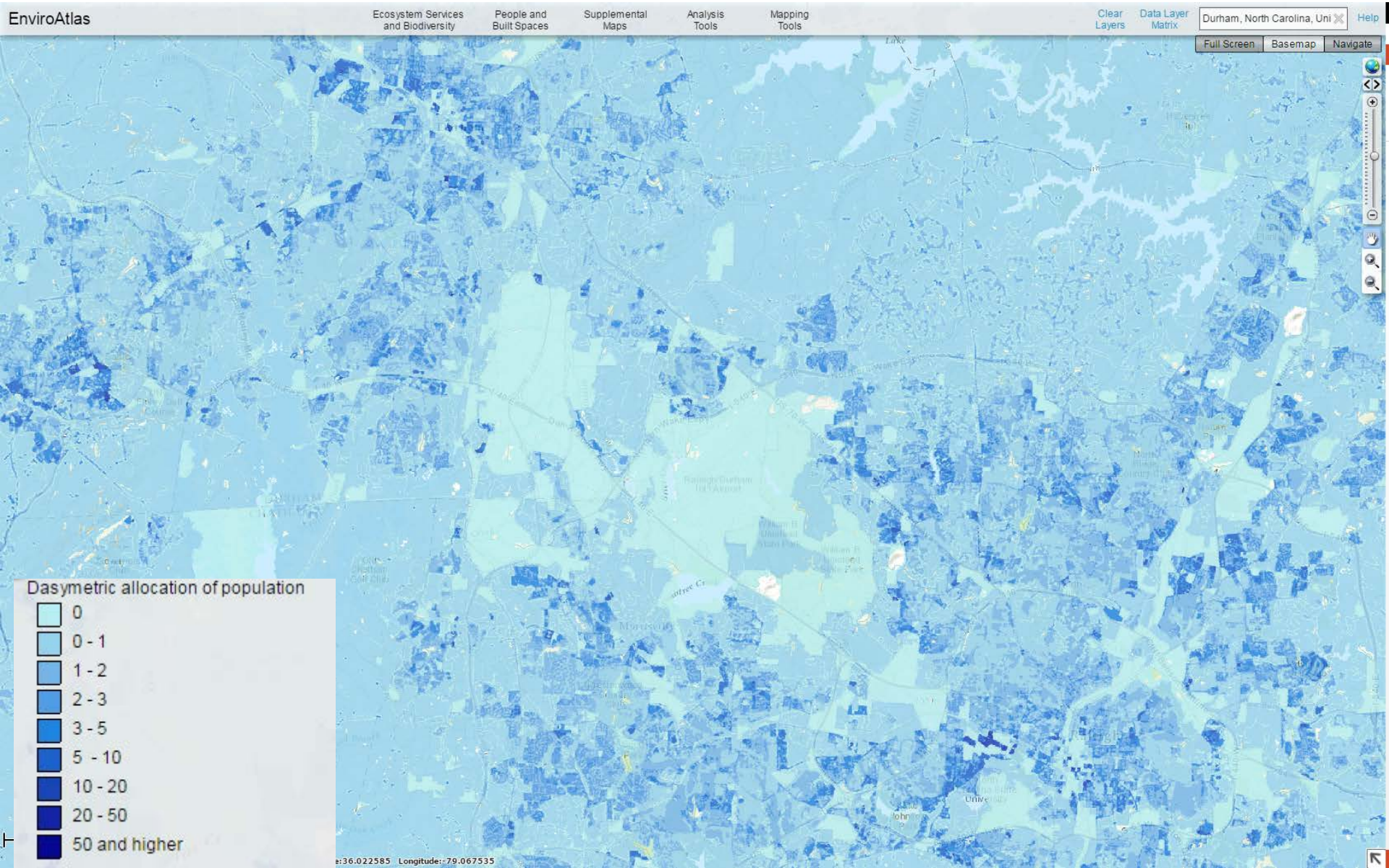
Land Cover is an Important Input



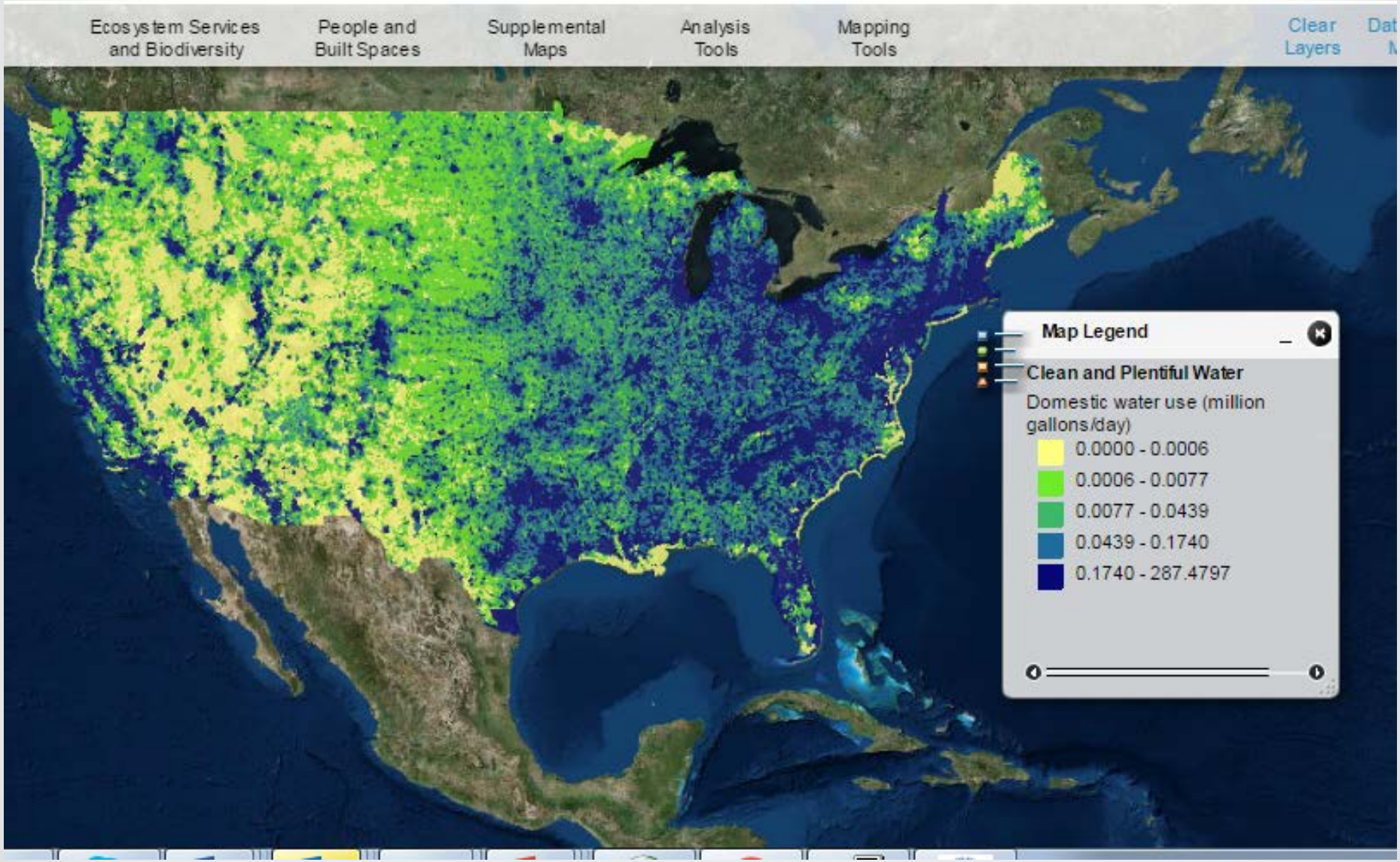




People are also an important input



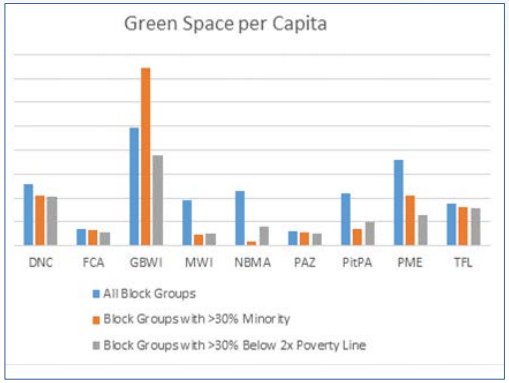
Multi-Sector Current and Future Water Demand

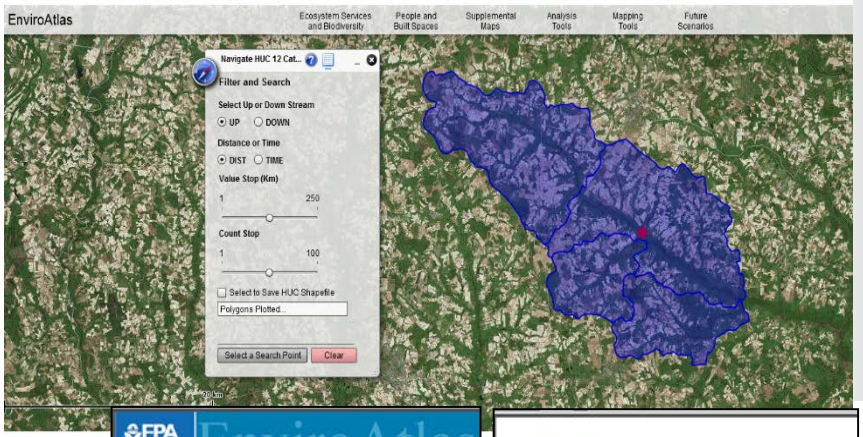


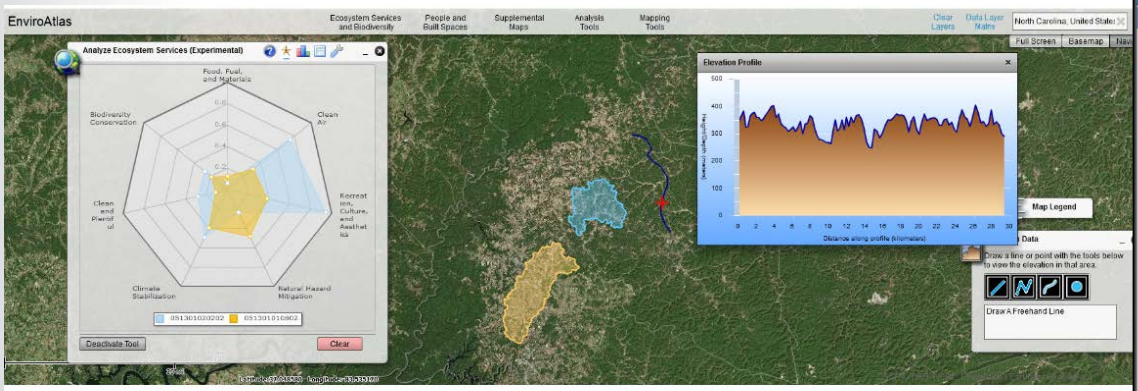
Is there easy access to parks in this community?

Also Includes: Analysis Tools, Guides, and Information

- Eco-Health Browser
- Mapping and analysis tools
- User added data
- Downloadable GIS toolboxes
- Use cases
- Guides for classroom and HIAs
- Standardized Interpretive fact sheets for every data layer

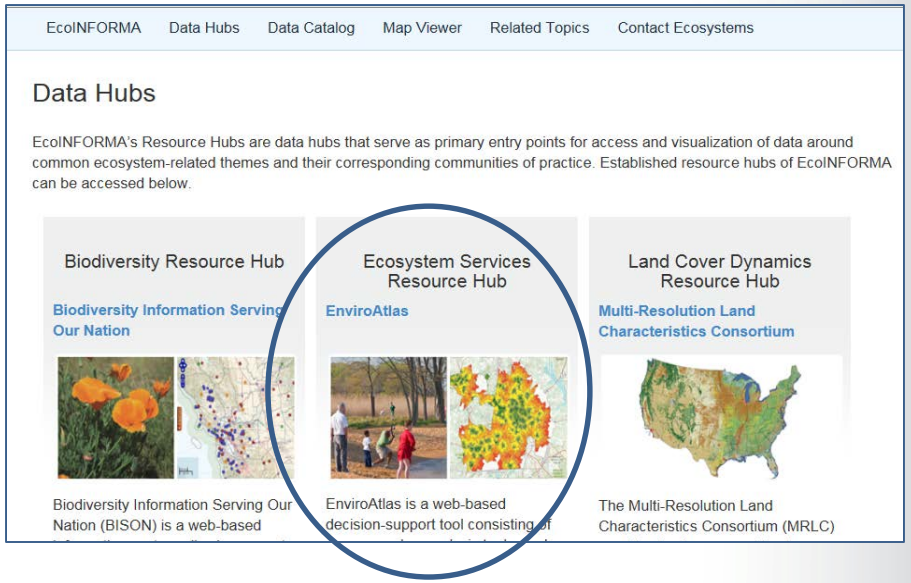






EnviroAtlas Facilitates Data Access through Multiple Means

- **Access data via published web services:**
  - No download required, users always using most current data.
  - EcoINFORMA
  - Climate Resilience Toolkit
  - Data Basin
  - Climate.Data.gov
  - ESRI
  - Community mapping portals,
    - e.g., Durham, NC
  - EPA Geoplatform



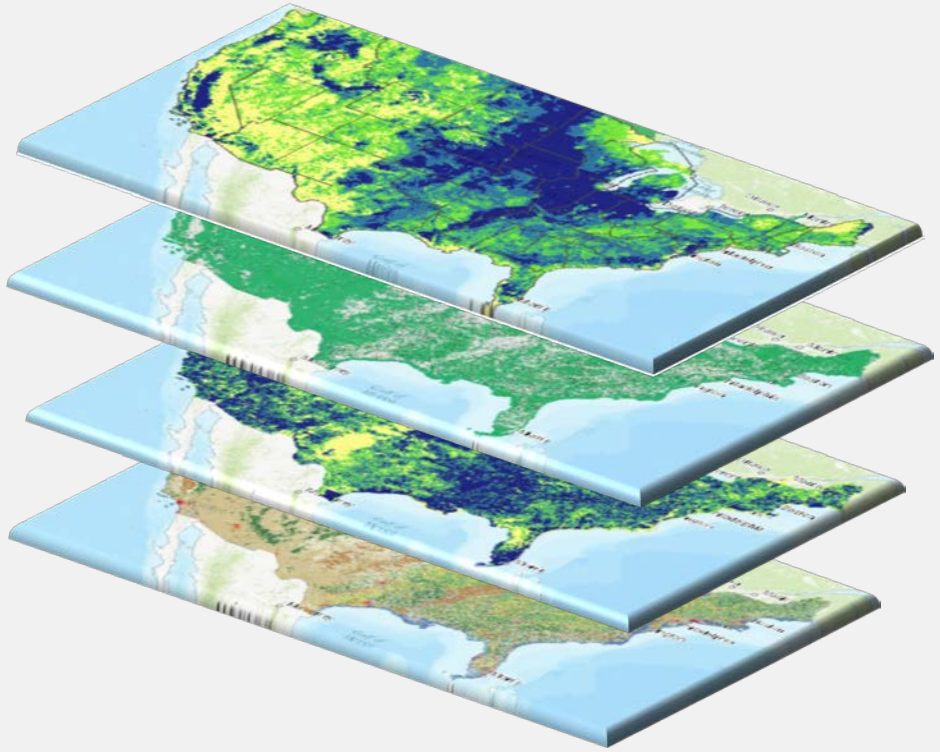
- **Access data via EnviroAtlas interactive map:**
  - Interactive analysis tools
  - Additional context

- **Download the data and run:**

EPA United States Environmental Protection Agency

Summary

- Broadly applicable across scales, topic areas, uses
- Provides streamlined access to wealth of data
- Consistent format and documentation
- Ability for technology transfer
- Provides connectivity context



Demo

www.epa.gov/enviroatlas

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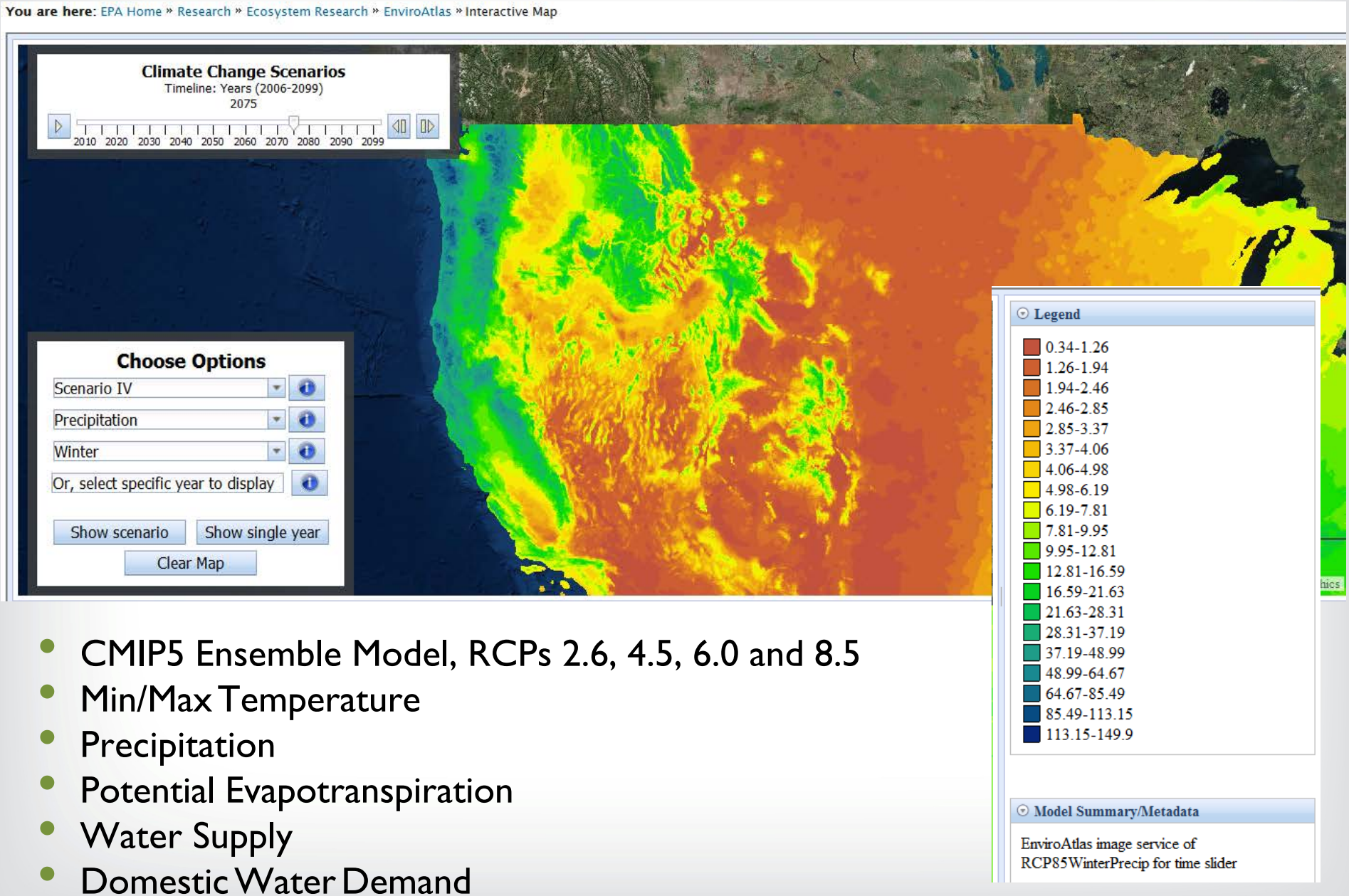
neale.anne@epa.gov

Coming to EnviroAtlas Soon and Not-so Soon

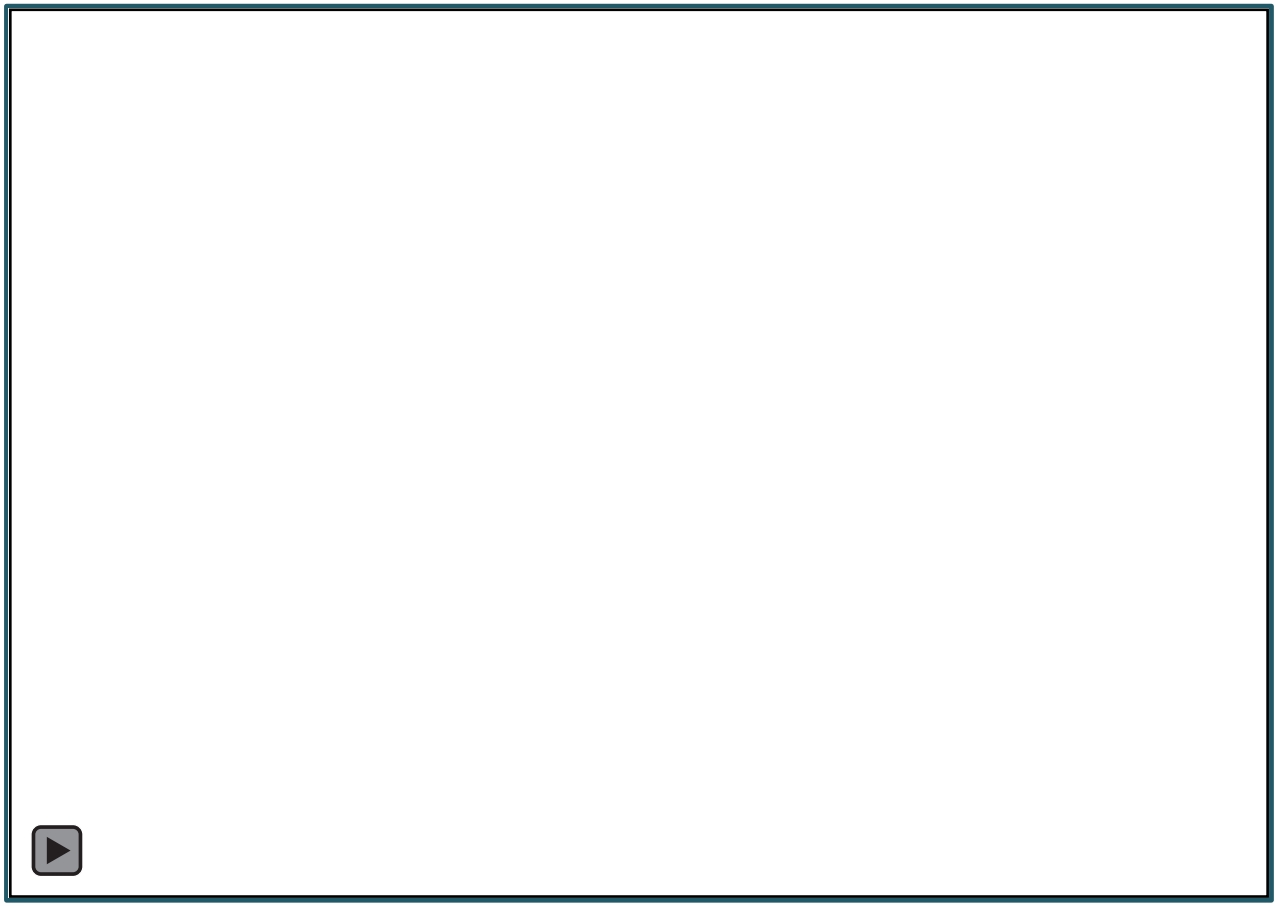
- Climate change metrics
- Watershed navigation
- Sophisticated multi-metric analysis
- Future land use scenarios
- Summarized point discharges
- Recreation demand
- More spatially explicit riparian buffer metrics
- Runoff and recharge metrics
- Multi-Sector Sustainability Web Browser
- Remote-sensing derived harmful algal bloom data (close to real-time)
- Drought projections & impacts
- Flood plain mapping
- Pesticide loadings to streams

Coming Soon: Climate Scenarios

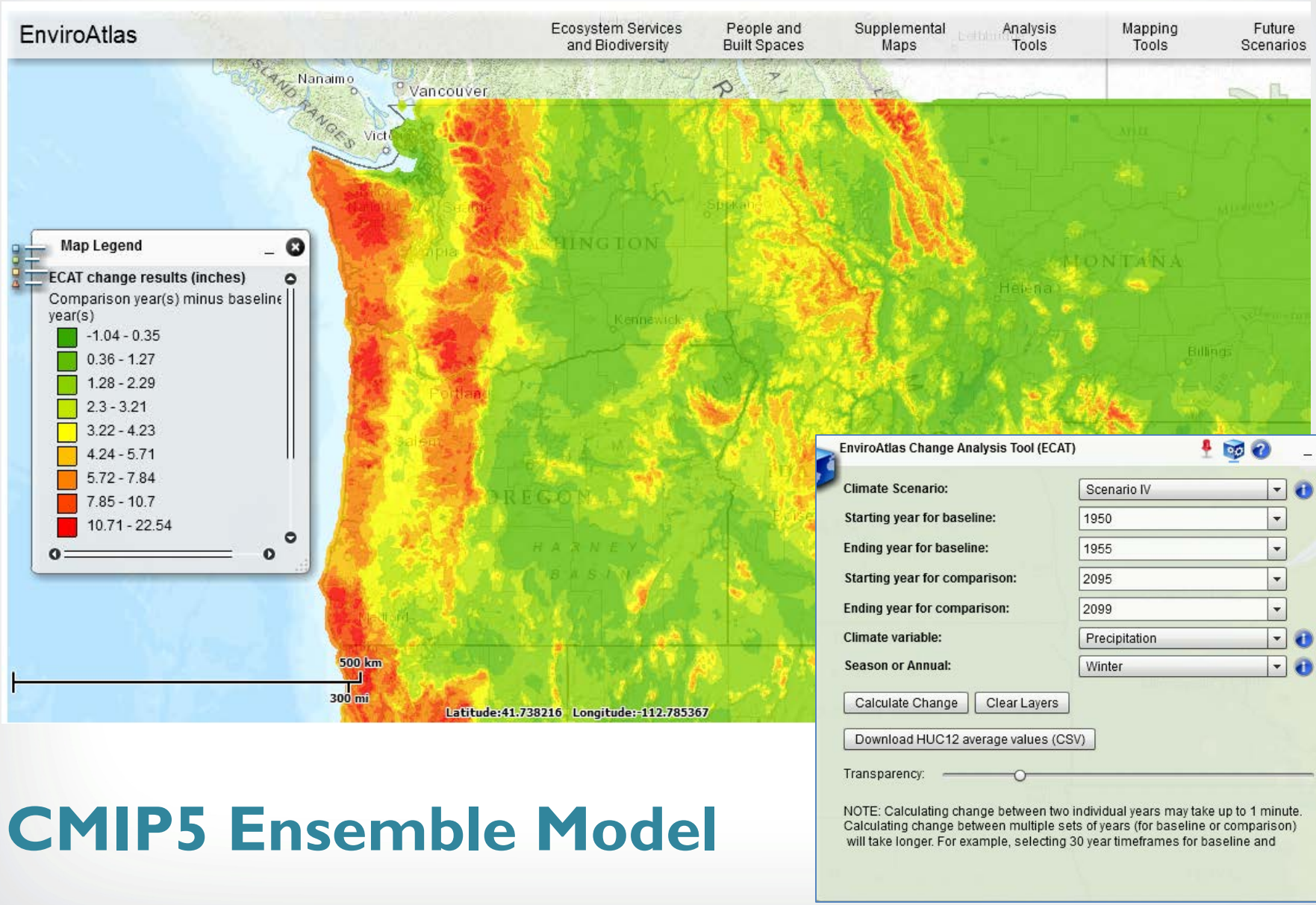


- CMIP5 Ensemble Model, RCPs 2.6, 4.5, 6.0 and 8.5
- Min/Max Temperature
- Precipitation
- Potential Evapotranspiration
- Water Supply
- Domestic Water Demand

Coming Soon: Climate Scenarios

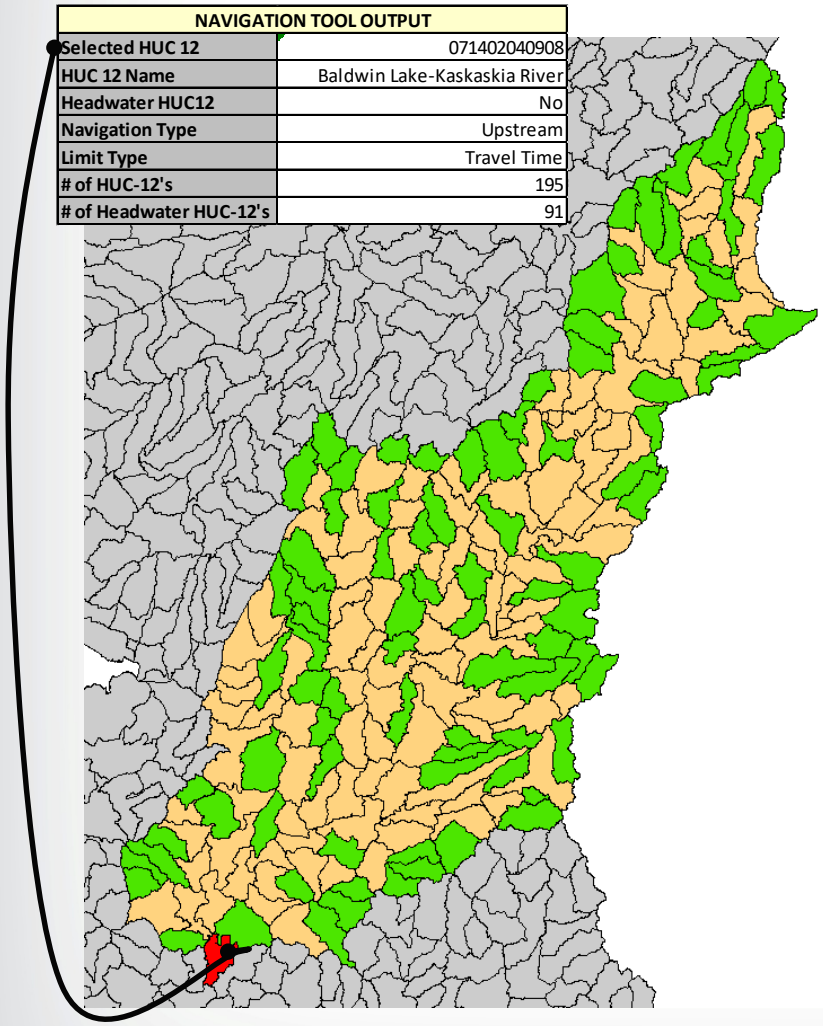


EnviroAtlas Change Analysis Tool



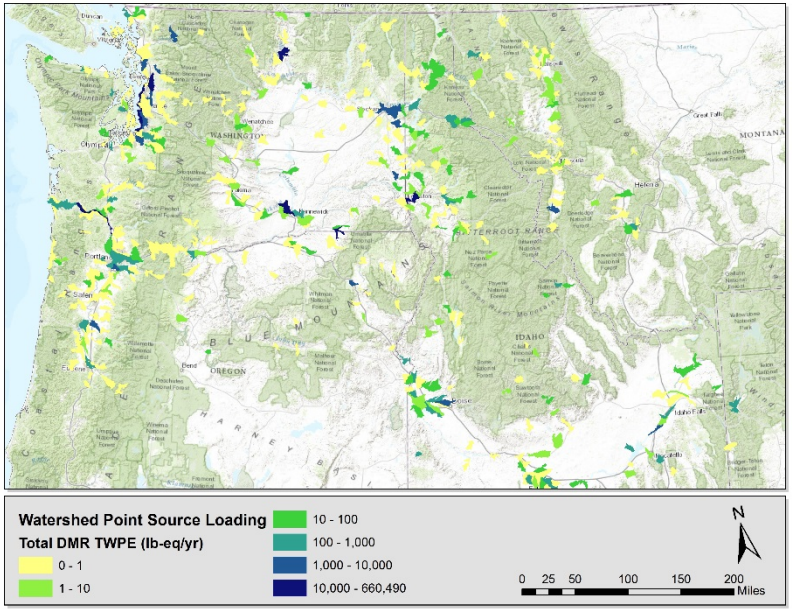
CMIP5 Ensemble Model

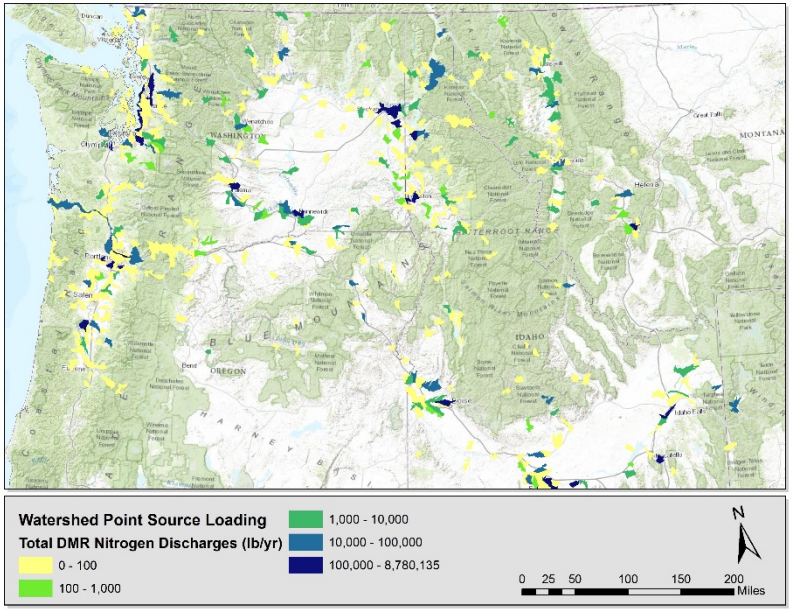
HUC Navigator Tool

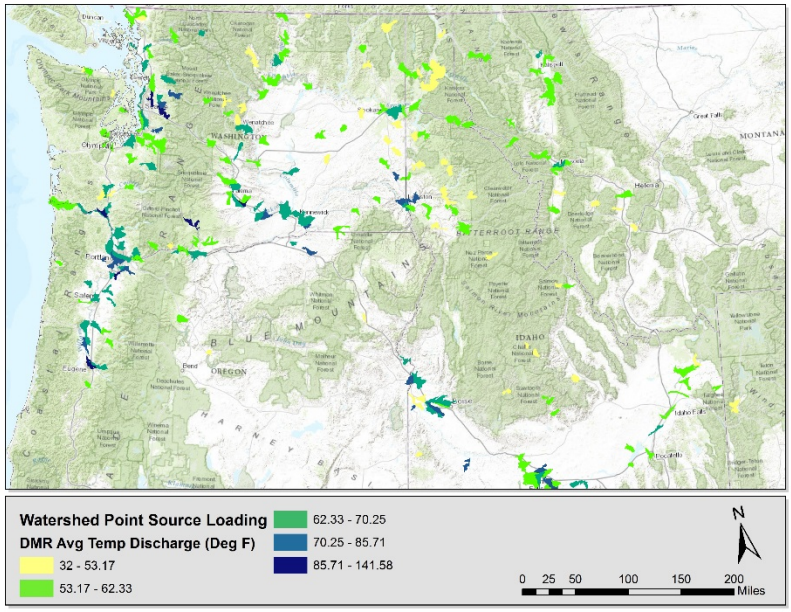


- Navigate up or downstream
- Navigate by time of travel or distance
- Identify headwater HUCS
- Identify sinks (no outflow)
- Identify terminal HUC and outlet

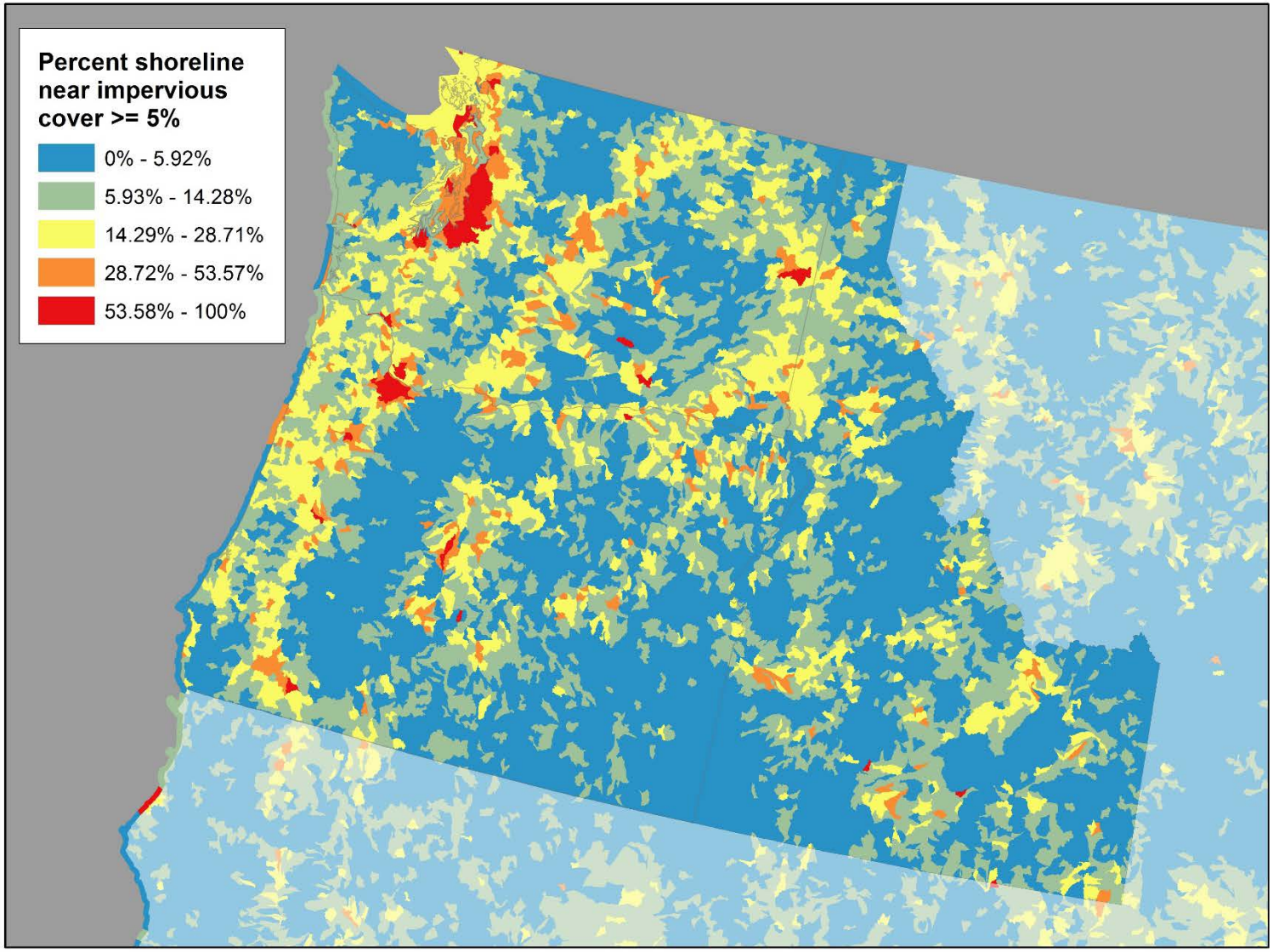
Summarized Point Source Discharges





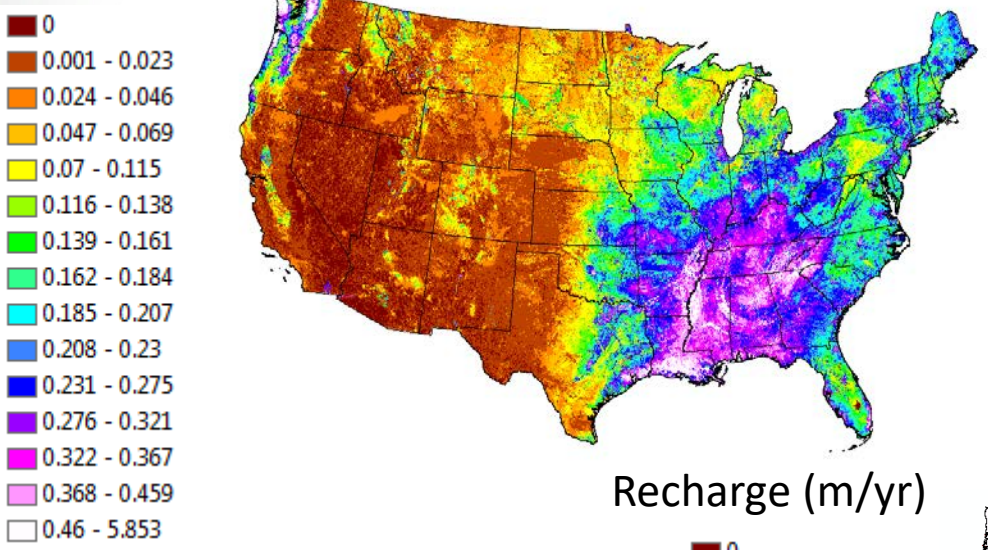


Percentage of Stream and Water Body Shoreline Lengths that have Impervious Surface Cover >= 5% within 30 meters

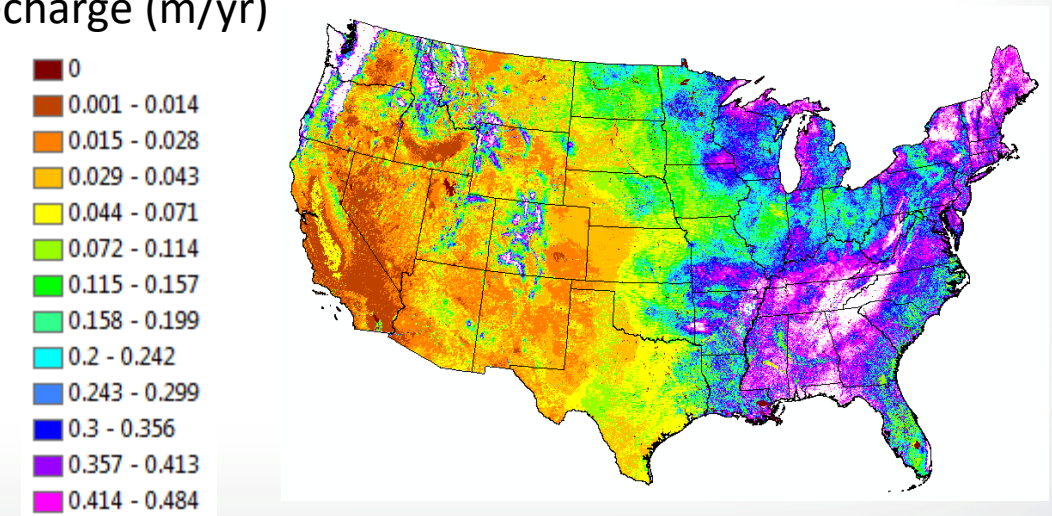


Empirical-regression Based Annual Estimates of Runoff and Recharge 2013, Preliminary Results

Runoff (m/yr)



Recharge (m/yr)



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Thank You

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