



STREAMLINING GIS FOR SPATIAL SCIENTIFIC DATA

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Summary

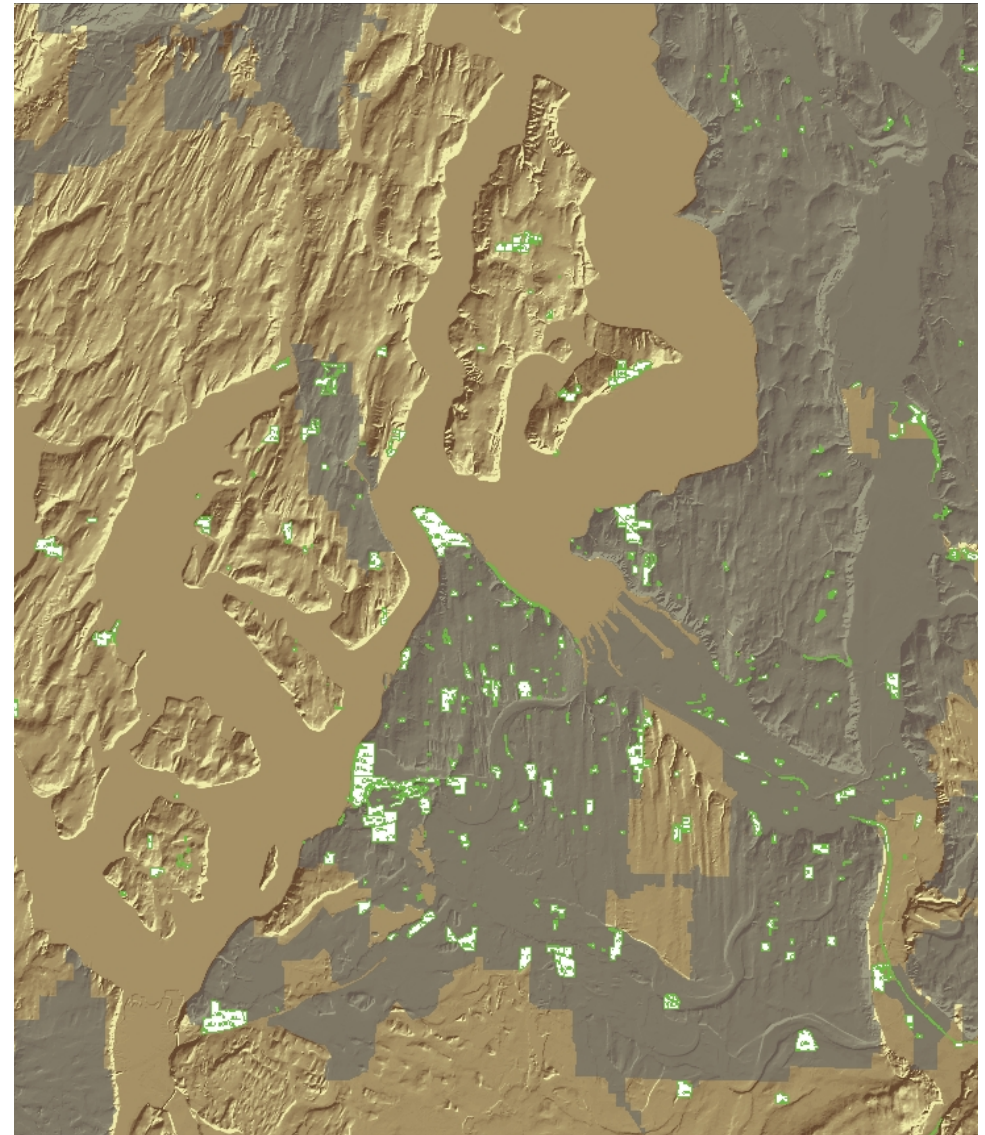
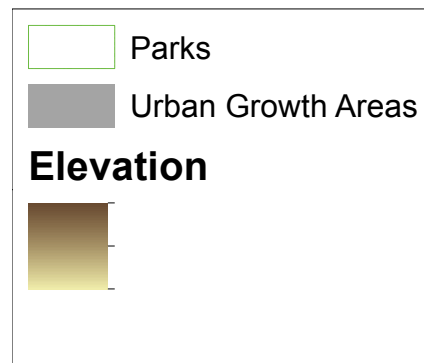
- What is GIS?
 - Why Use GIS
- Streamlining GIS to improve usability
 - Internal at CUW
 - Streamlining Data Management
 - General Utility
 - Streamlining Access to GIS
 - Streamlining Methods

Part 1. What is GIS?

- A geographic information system (GIS) [that] lets us visualize, question, analyze, interpret, and understand data to reveal relationships, patterns, and trends. – ESRI
 - Allows its user to find out how topics of interest relate in the world.
 - Different methodology than other scientific research
 - Often relies on pre-existing data from other sources

Why Use GIS?

- Powerful tool for analysis
 - Spatial relationships
- Represent complex topics in a simplified manner.
- Provides framework for cross – disciplinary collaboration

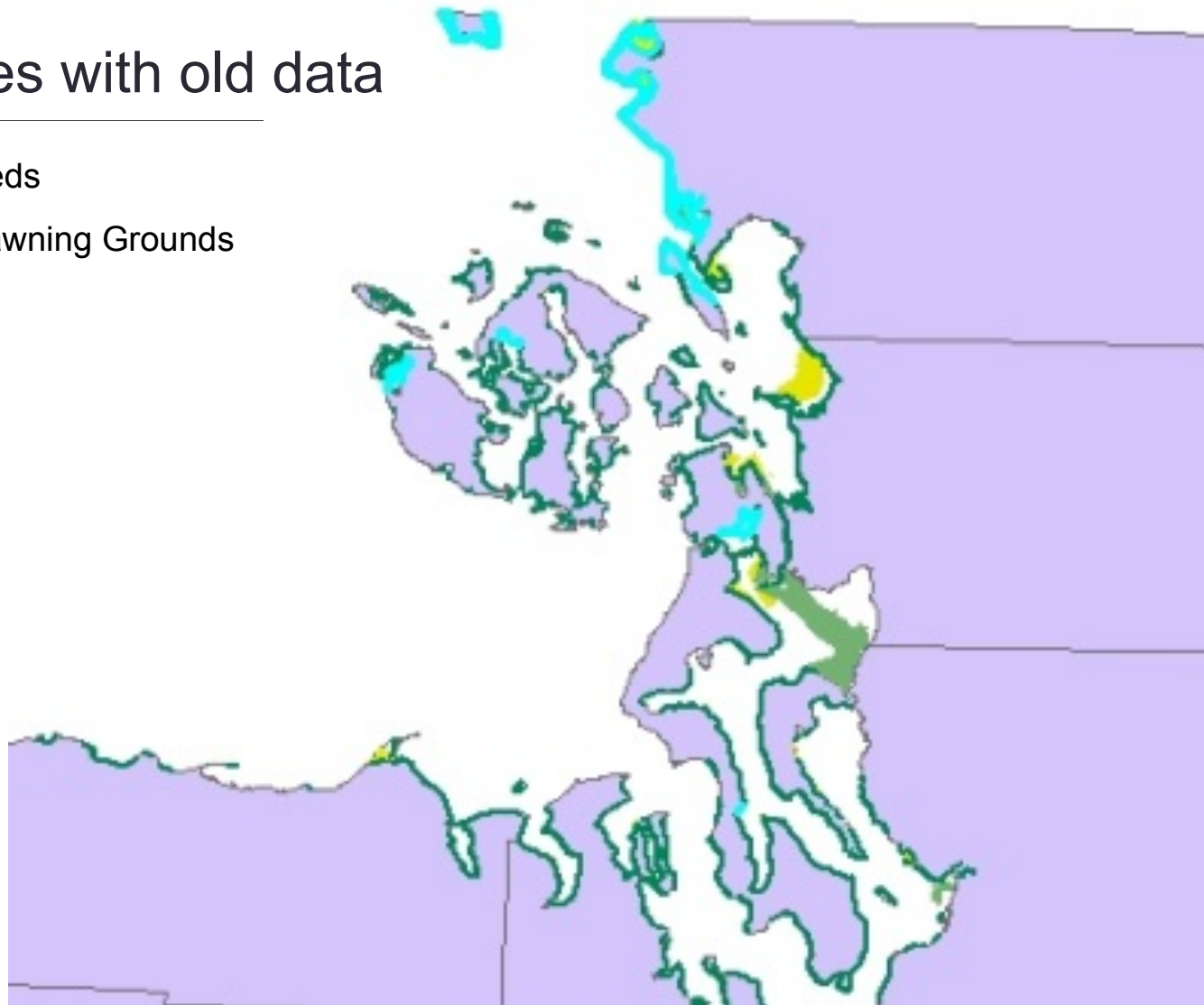


Pierce County UGA's and Parks

For example:

- New analyses with old data

- Eelgrass Beds
- Herring Spawning Grounds





Part 2.
Summer Internship: Streamlining GIS

Streamlining GIS

Goal: Improve utilization of GIS through

- Improving access to data
 - reducing data redundancy
 - Improving access to methods
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- Why is use of GIS limited?
 - GIS data can be a massive burden on storage
 - GIS software is expensive, hard to use
 - GIS data exists in incompatible formats



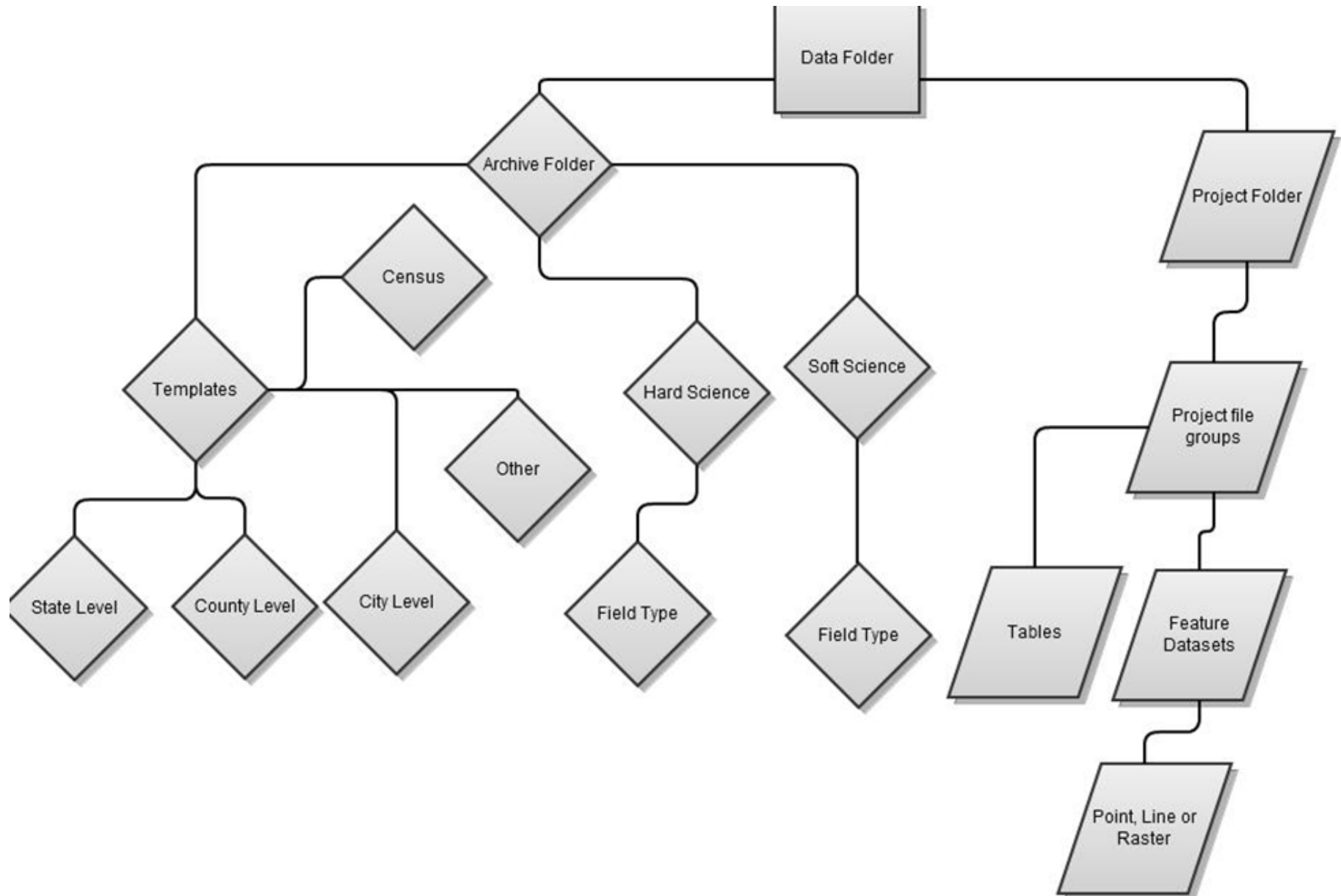
Summer Internship: Streamlining GIS

Streamlining Data Management
Streamlining Access to GIS data
Streamlining Methods

Streamlining Data – Improving internal data management infrastructure

- Standardizing data categorization at the PSI
- Improving file organization
 - standardized folder structure
 - standardized file naming conventions
 - Standardized file layering in map packages
- Alleviating burden on online bandwidth
 - By reducing data download needs

Example of Possible Folder Structure



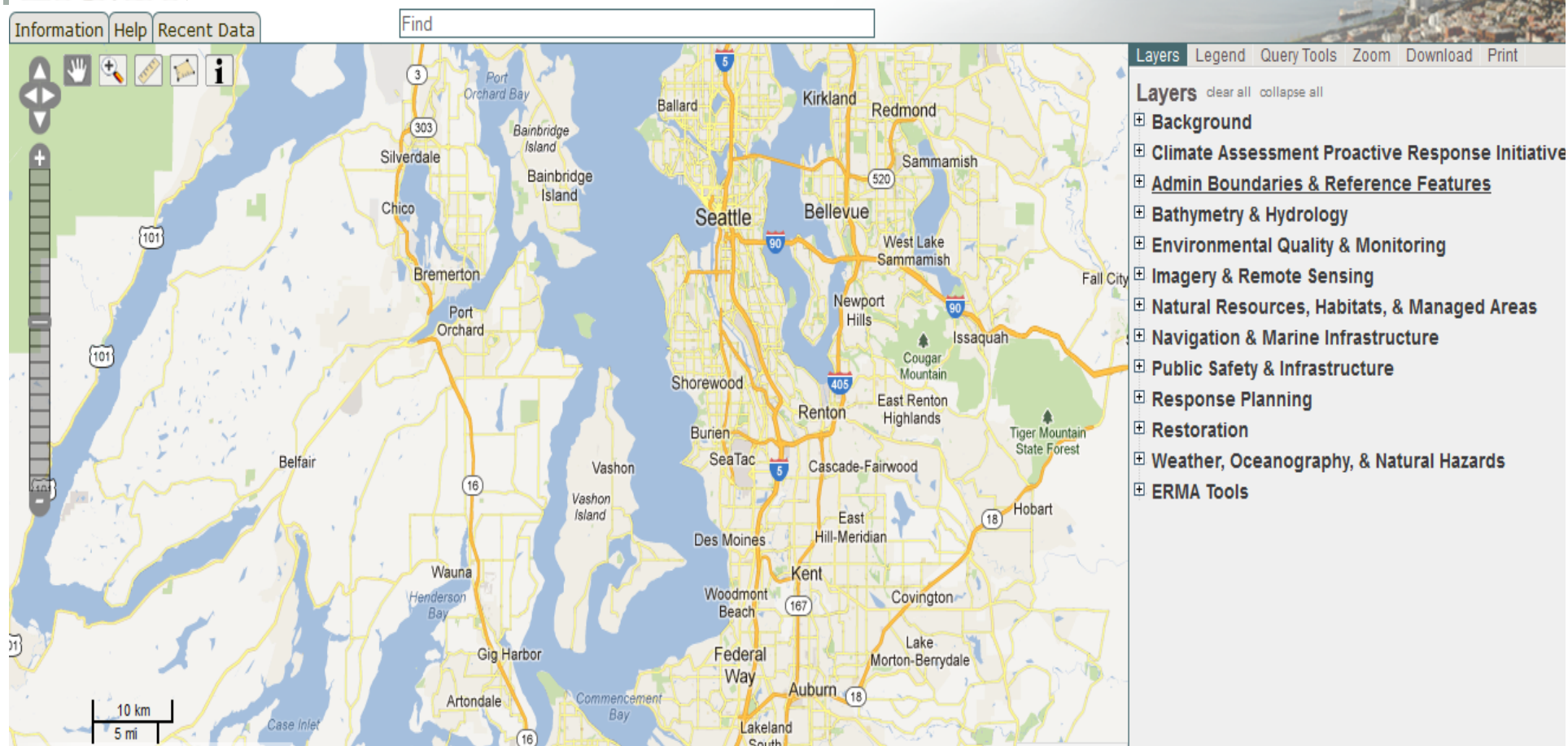
Streamlining Access

2 Projects:

- Stormwater NPDES mapping and upload to ERMA
- PSBC Water Flow Analysis – upload to ERMA



ERMA: increasing access to GIS data



ERMA is maintained and owned by NOAA

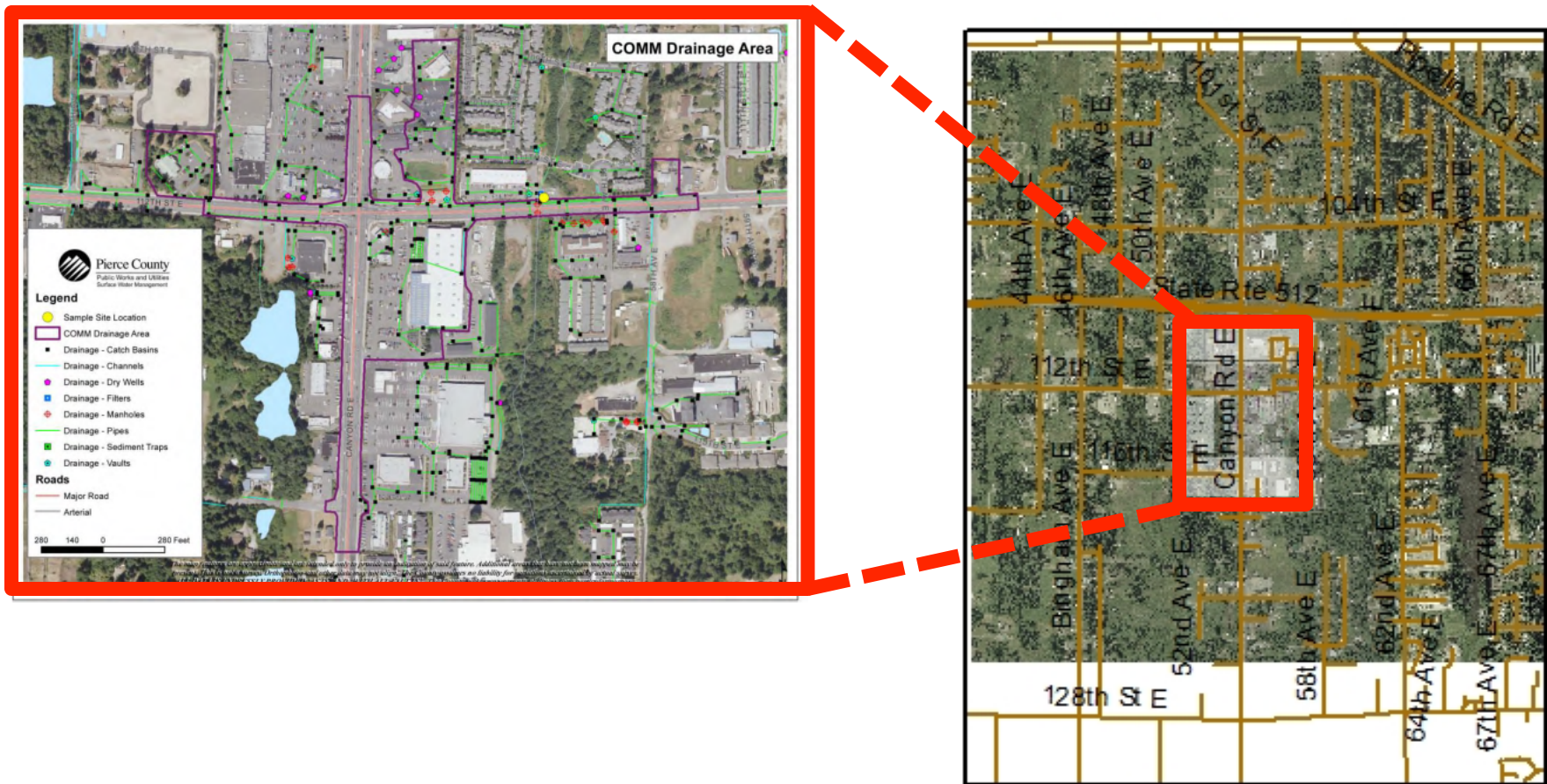
- Improved public access to data
- Result broadens research potential with data

Streamlining Access

Storm Water Project- NPDES

- Department of Ecology special condition S8.D for National Pollutant Discharge Elimination System Phase I Permits
- Monitoring Conventional Parameters, Organics, metals, Pesticides, Nutrients

- data often disorganized
- some sample sites had no coordinate reference
 - Georeferencing



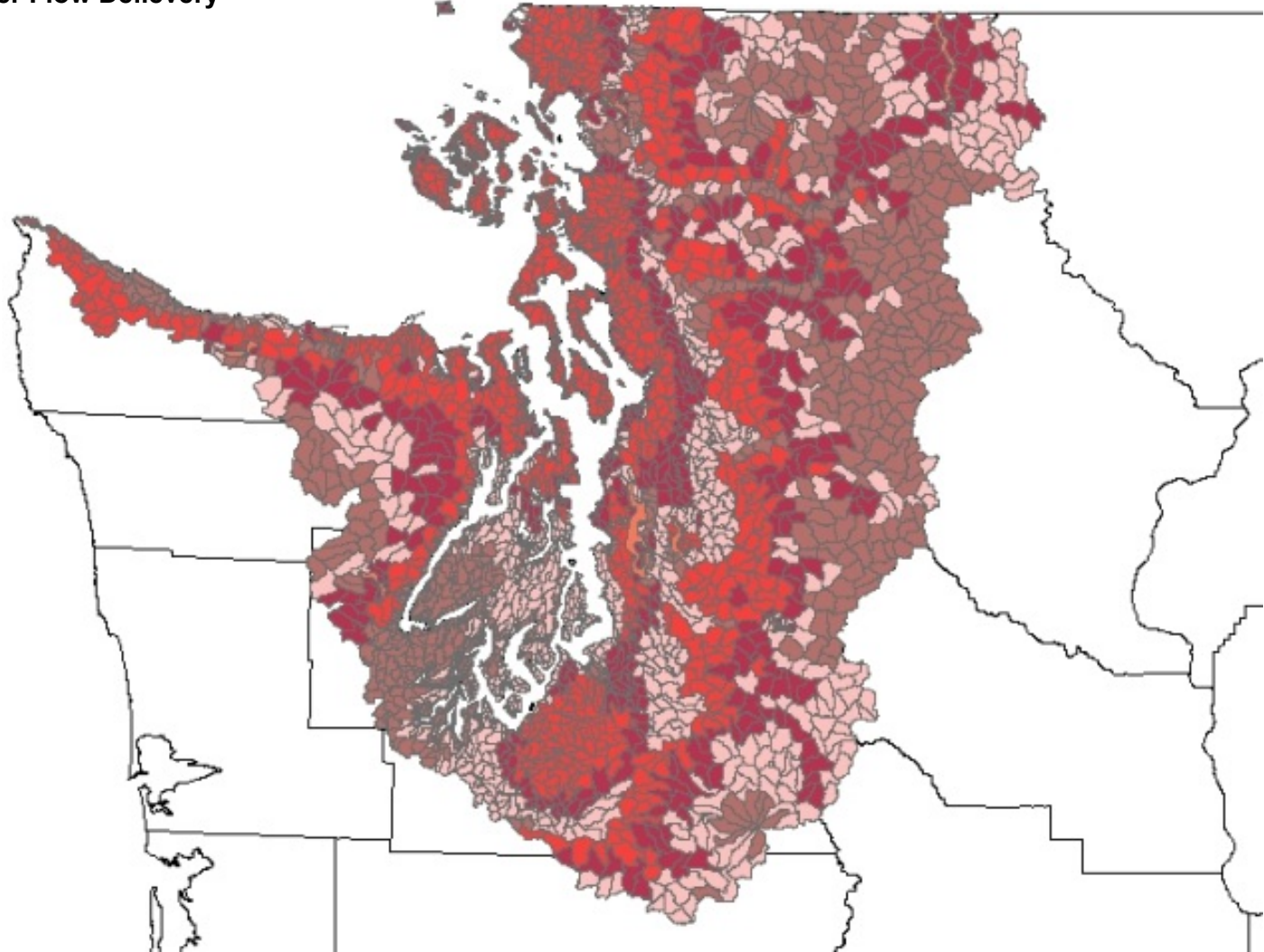
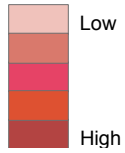
Streamlining Access

PSWC Water Flow & Water Quality – upload data to ERMA

- Puget Sound Watershed Characterization Project
 - Analysis completed by Department of Ecology
 - Assessment of Water flow/ Water quality degradation and importance by watershed
- By placing data on ERMA, data are available to non-GIS users

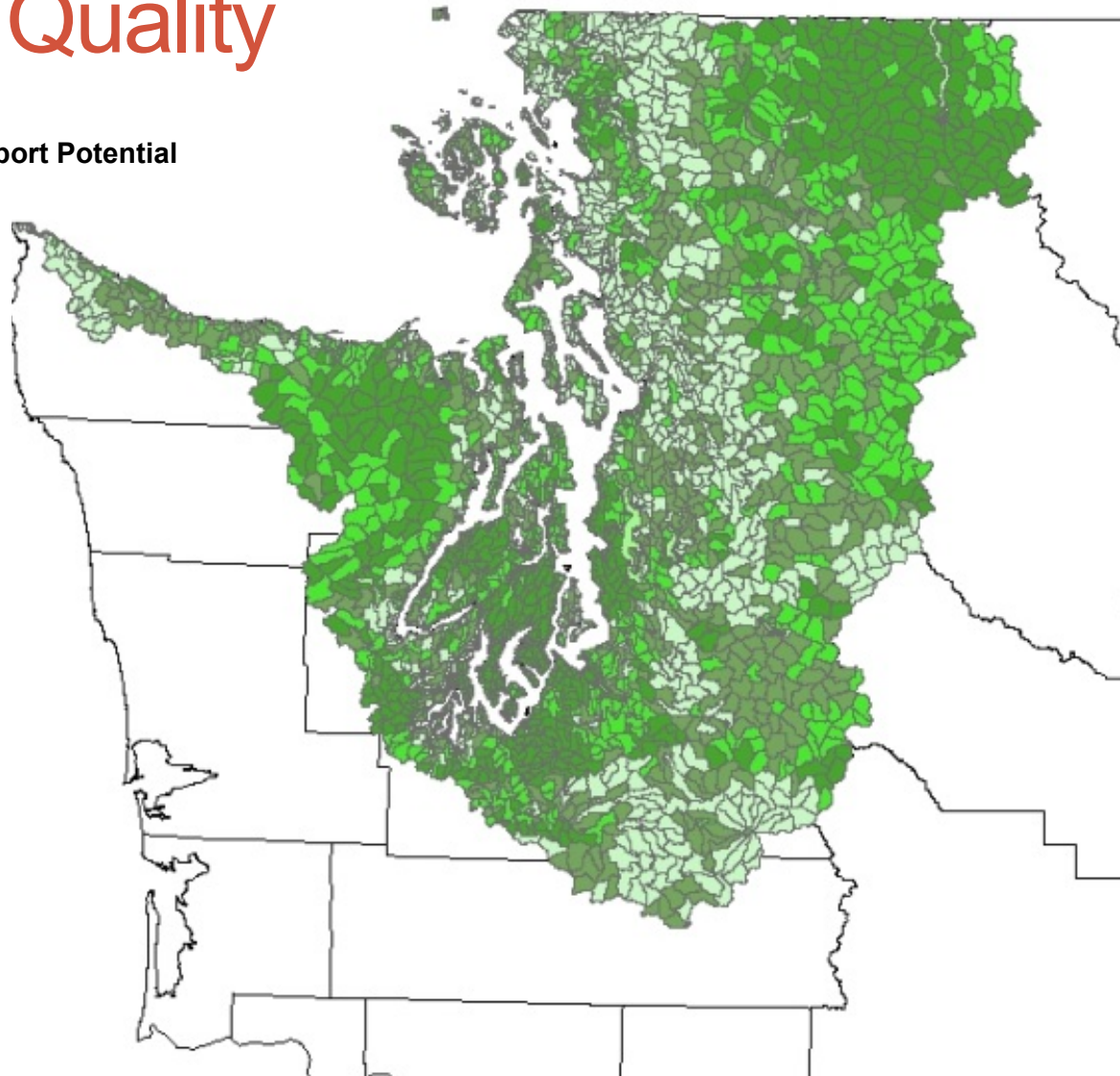
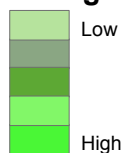
Water Flow

Importance to Water Flow Delivery



Water Quality

Nitrogen Export Potential



Land Development/Ecological Importance Project



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- The map displays a coastal region with various land use categories. A large blue area represents waterbodies, including a major bay and surrounding waters. Land is color-coded: yellow for 'Indicator Base Lands' (high ecological function and high development pressure), red for 'High Pressure, Low Ecological Function' areas, and green for 'Low Pressure Lands' (both high and low ecological function). White areas represent 'WRIAs' (Water Resource Inventory Areas). The map shows a complex pattern of these categories, with high-pressure, low-function areas concentrated in the central and eastern parts of the bay area, and indicator base lands scattered throughout the surrounding landmass.
- Indicator Base Lands**
High Ecological Function &
High Development Pressure
 - High Pressure, Low Ecological Function**
 - Low Pressure Lands**
high & low ecological function
 - WRIAs**
 - Waterbodies**

Map not to be used for local planning or decision making

**Analysis: Ken Pierce,
WDFW**

Streamlining Methods



- Issue: Analysis has not been replicated
 - Compiled data
 - Reproduced analysis
 - Develop and document the methods
- To support future analysis for updating indicators

Conclusion

- Organizing internal data is an art
- Uploading and visualizing data online is time consuming
- GIS methods are different
- Great potential for GIS at CUW

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Questions?