

Great Lakes Aquatic Habitat Framework

Creating a common spatial grid for sharing
physical, geochemical, and biological data
across the entire Great Lakes Basin

Catherine Riseng, Lacey Mason, Li Wang, Ed Rutherford, Kevin Wehrly,
Jim McKenna, Chris Castiglione, Lucinda Johnson, Scott Sowa,
Mike Robertson, Danielle Forsyth, Beth Sparks-Jackson



GLAHF

Great Lakes Aquatic Habitat Framework



Collaborative, Integrative, Bi-national Project

Funded by:



Mid-Century Ecology Division



UNIVERSITY OF
TORONTO

Natural Resources
Research Institute
UNIVERSITY OF MINNESOTA DULUTH
Driven to Discover

NATURAL RESOURCES
AND ENVIRONMENT
UNIVERSITY OF MICHIGAN

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What is GLAHF?

A GIS database of georeferenced data...

...for Great Lakes coastal, large rivermouth, & open water habitats

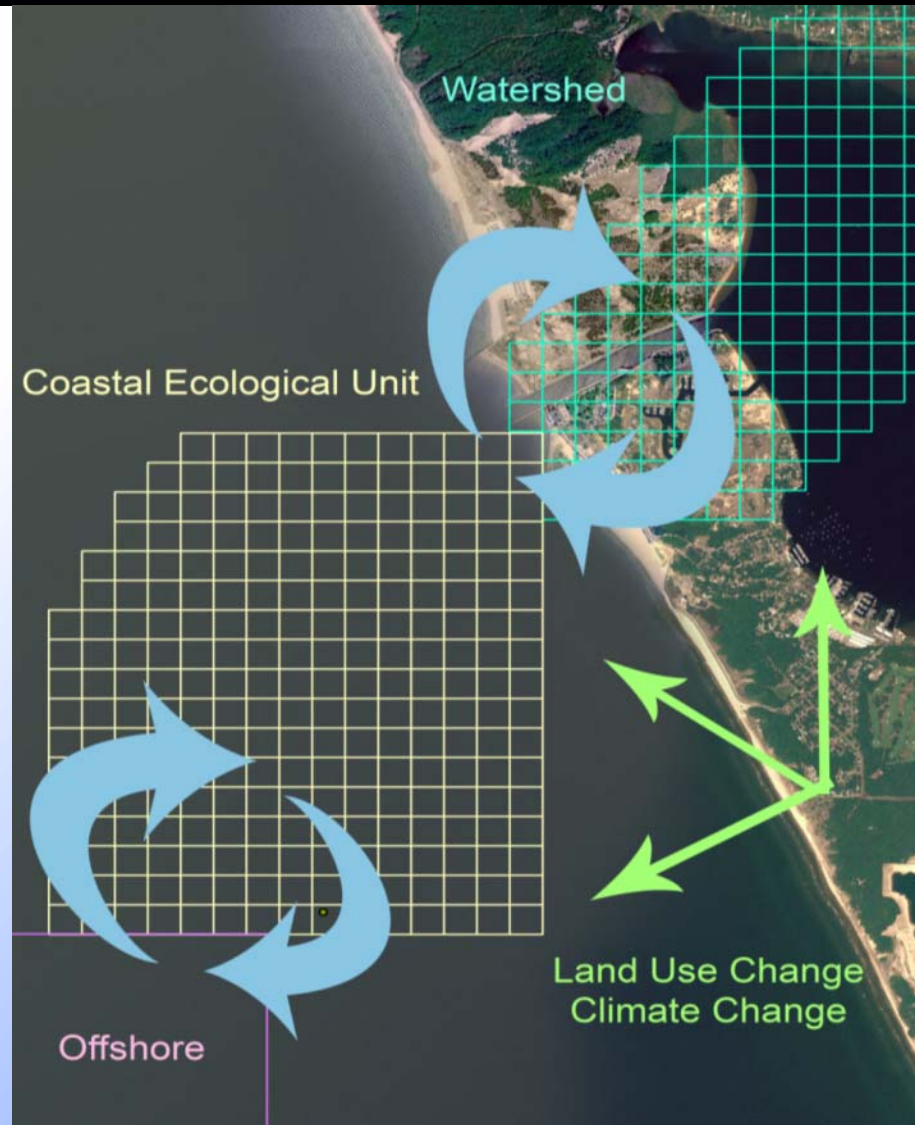
...that consistently integrates habitat data bi-nationally

...with a focus on nearshore and coastal areas

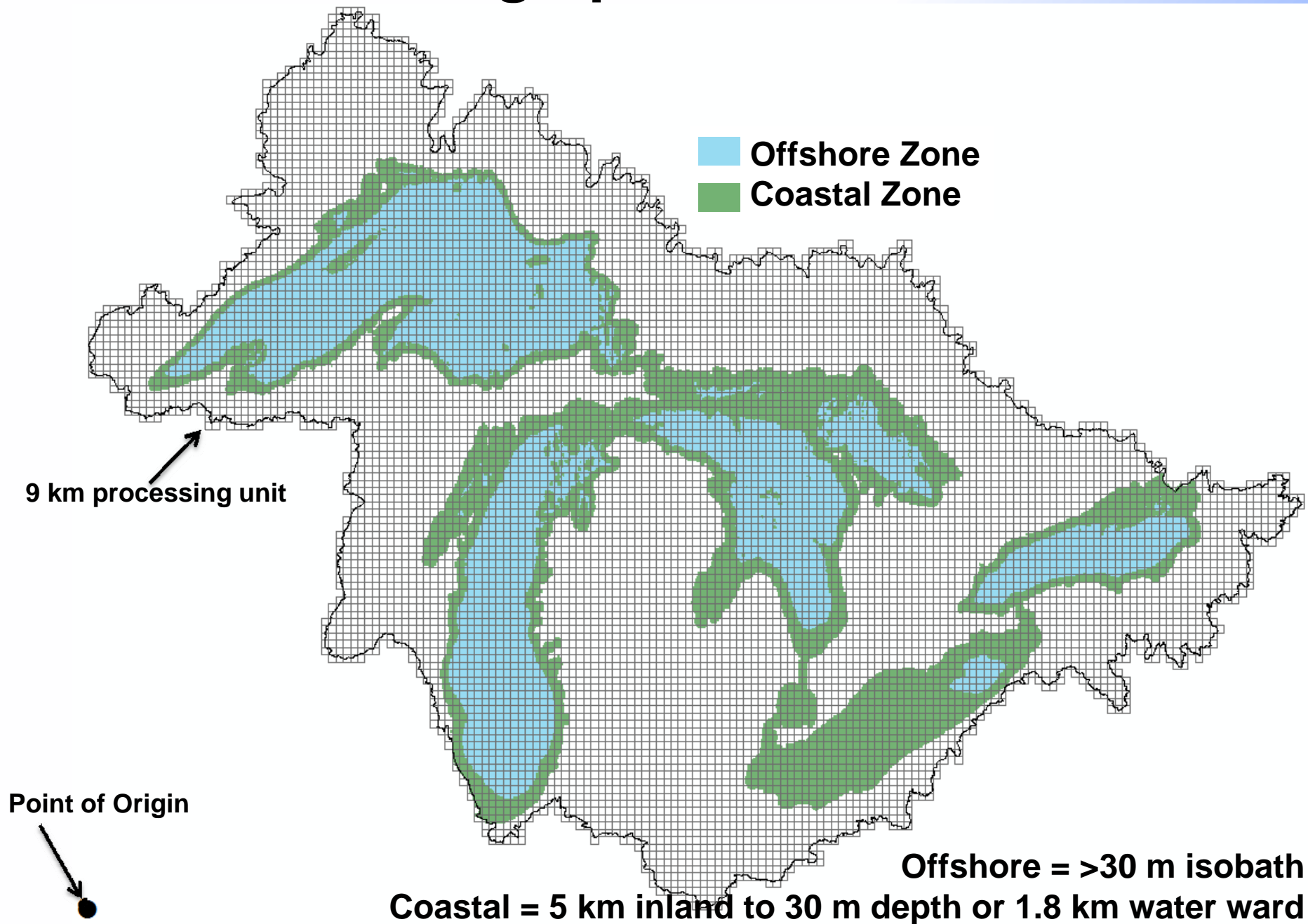


What is GLAHF?

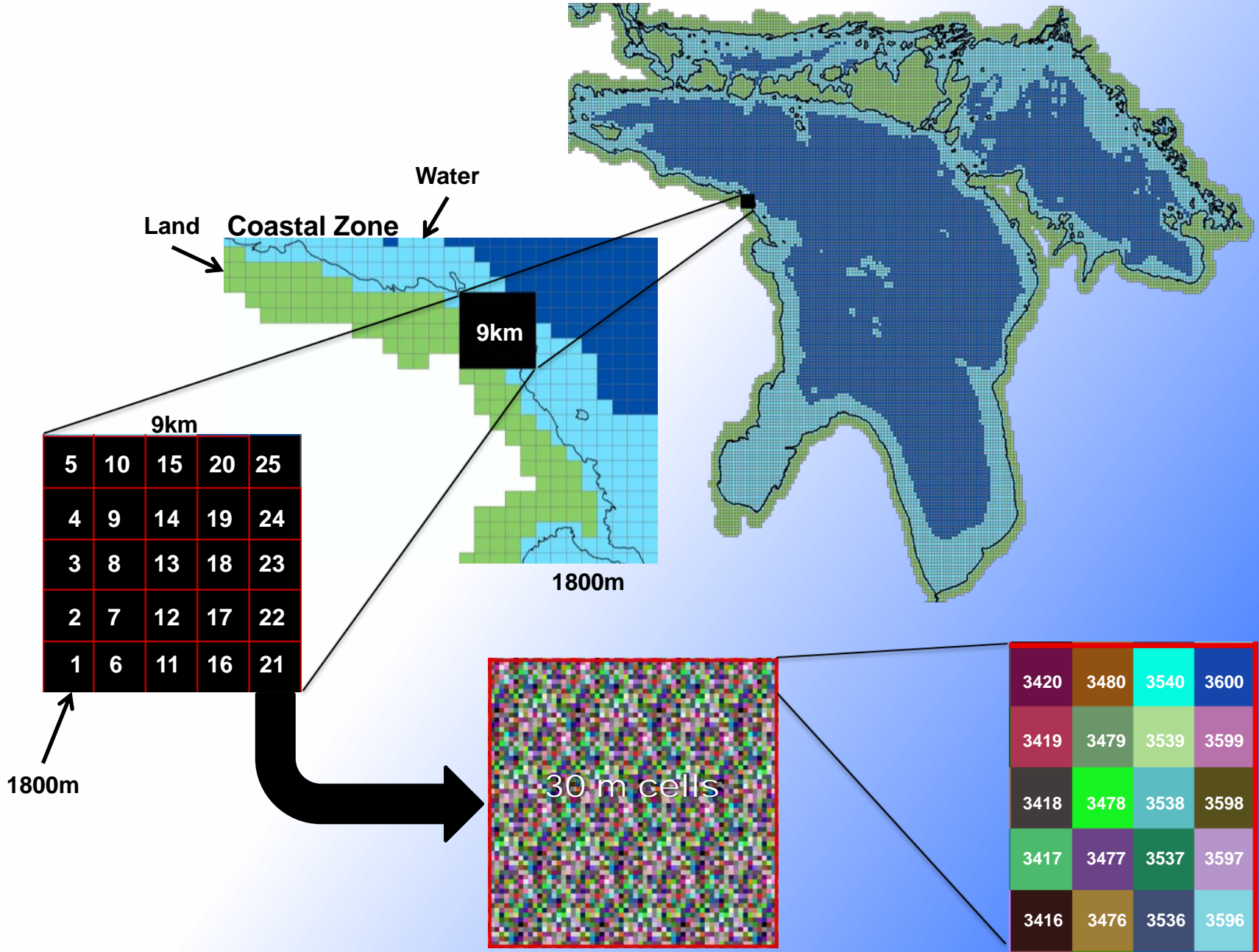
- Spatial framework: gridded network of cells with attributed habitat data
- Provides database structure to define ecological habitat units, support classification, and assessment
- Facilitates linking offshore, coastal and terrestrial process at multiple spatial and temporal scales



Geographic Extent



Nested, Hierarchical Spatial Database



Great Lakes Data Layers

Data Super Variables

Topobathymetry/Slope - 3

Geomorphology – 5

Mechanical Energy/Hydraulics - 7

Temperature/Energy - 7

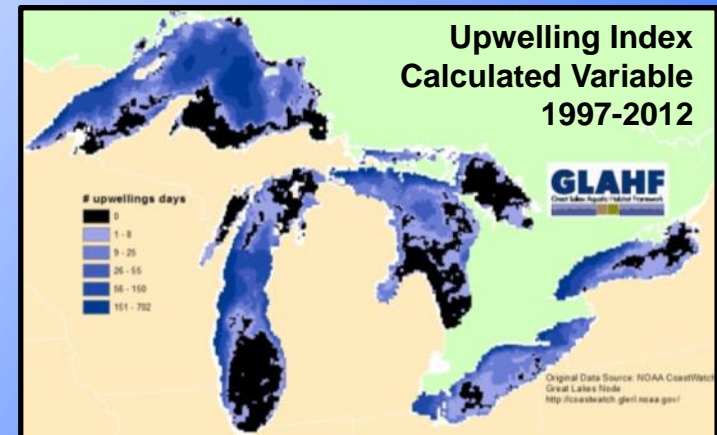
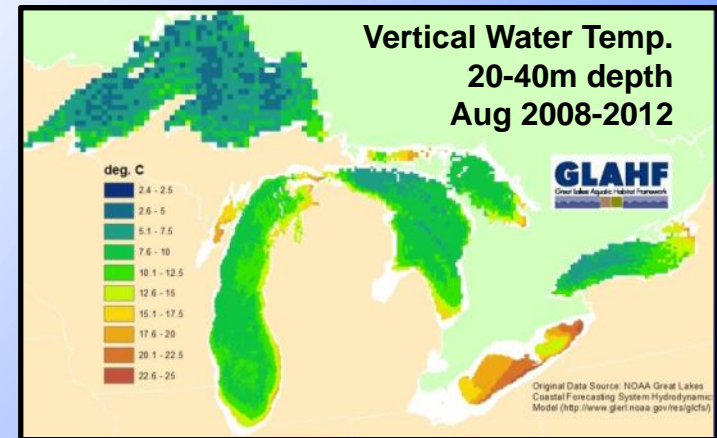
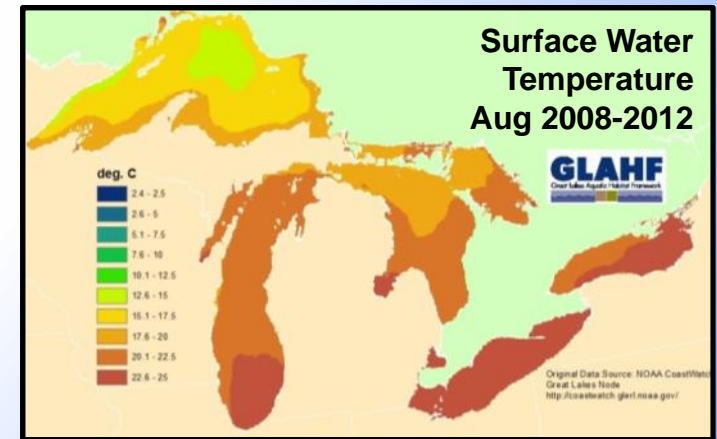
Water Chemistry - 16

Biological - 5

Rivers/Hydrology – 8

Wetlands/Aquatic Vegetation - 3

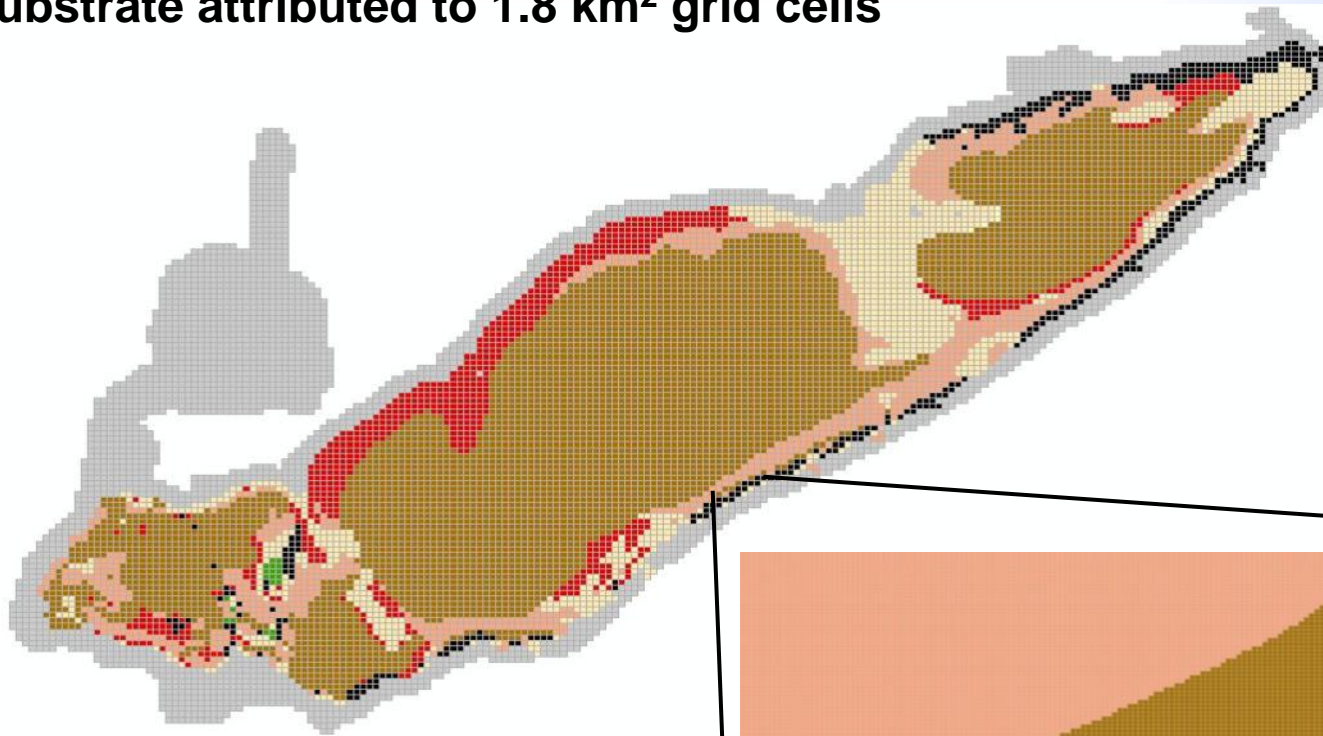
Landscape Variables – 9



Attributed Data – Lake Erie Substrate

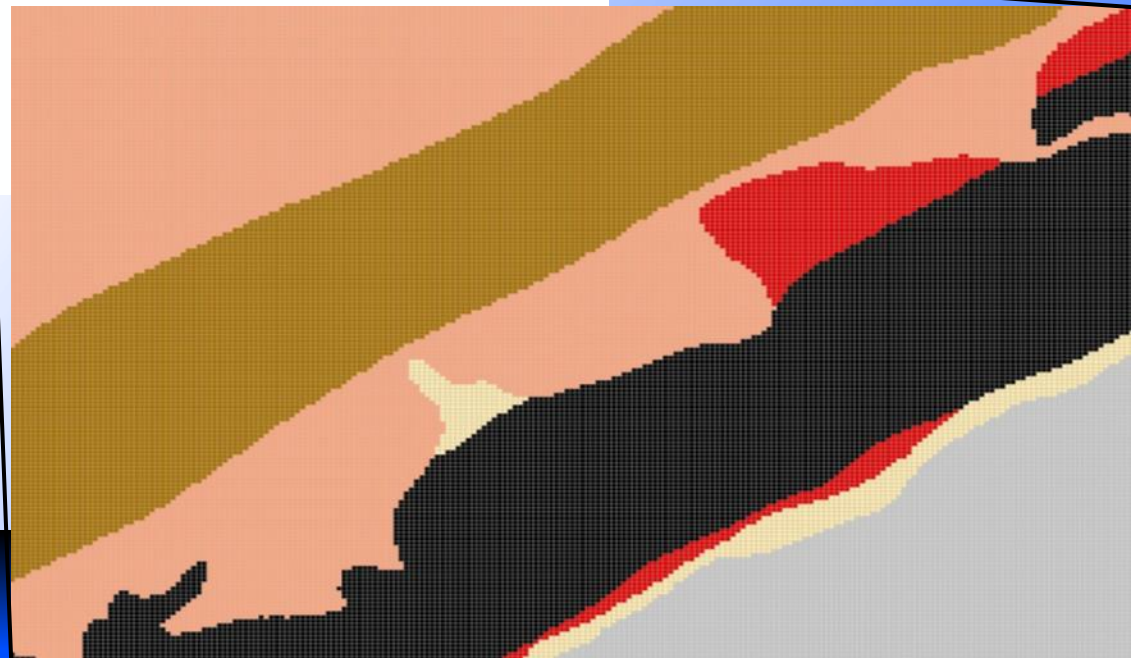
1997 updated by Lake Erie Habitat Task Force & Habitat Solutions

Substrate attributed to 1.8 km² grid cells

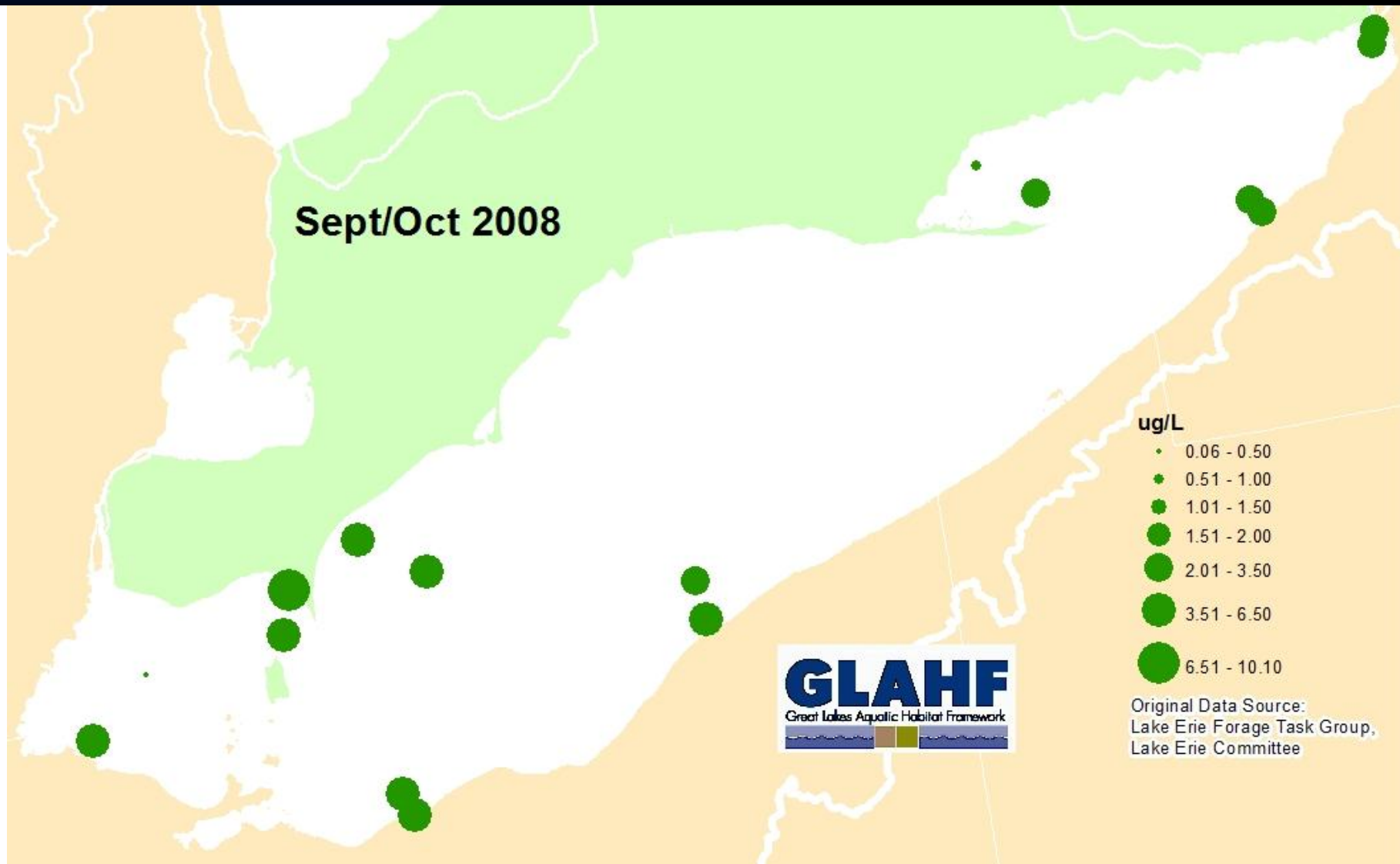


Substrate attributed to 30 m² coastal grid cells

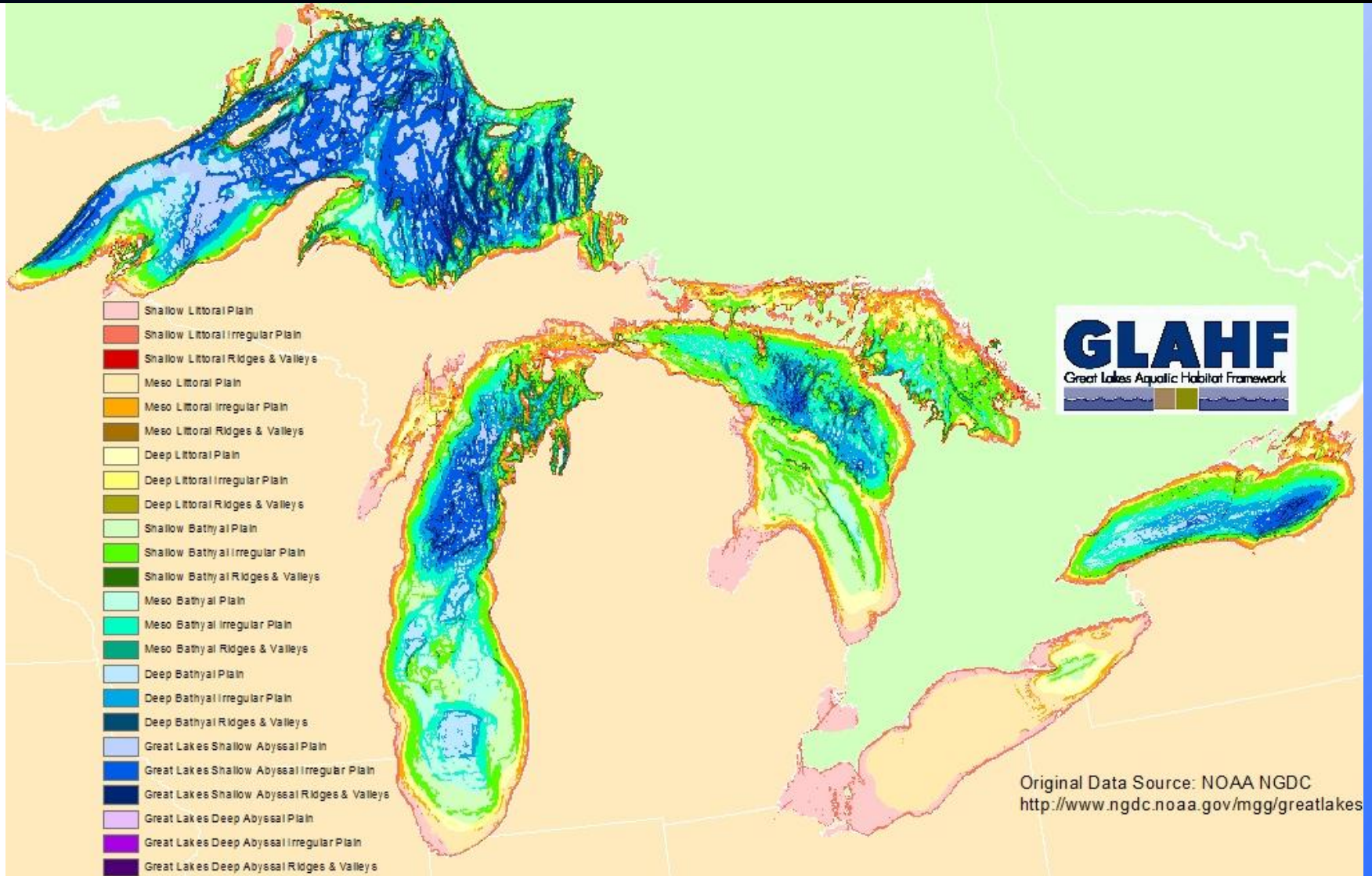
- cohesive clay
- island
- mud
- rock
- sand/gravel
- sand/mud
- undefined



Water Chemistry – Chlorophyll-a Lake Erie Forage Task Group



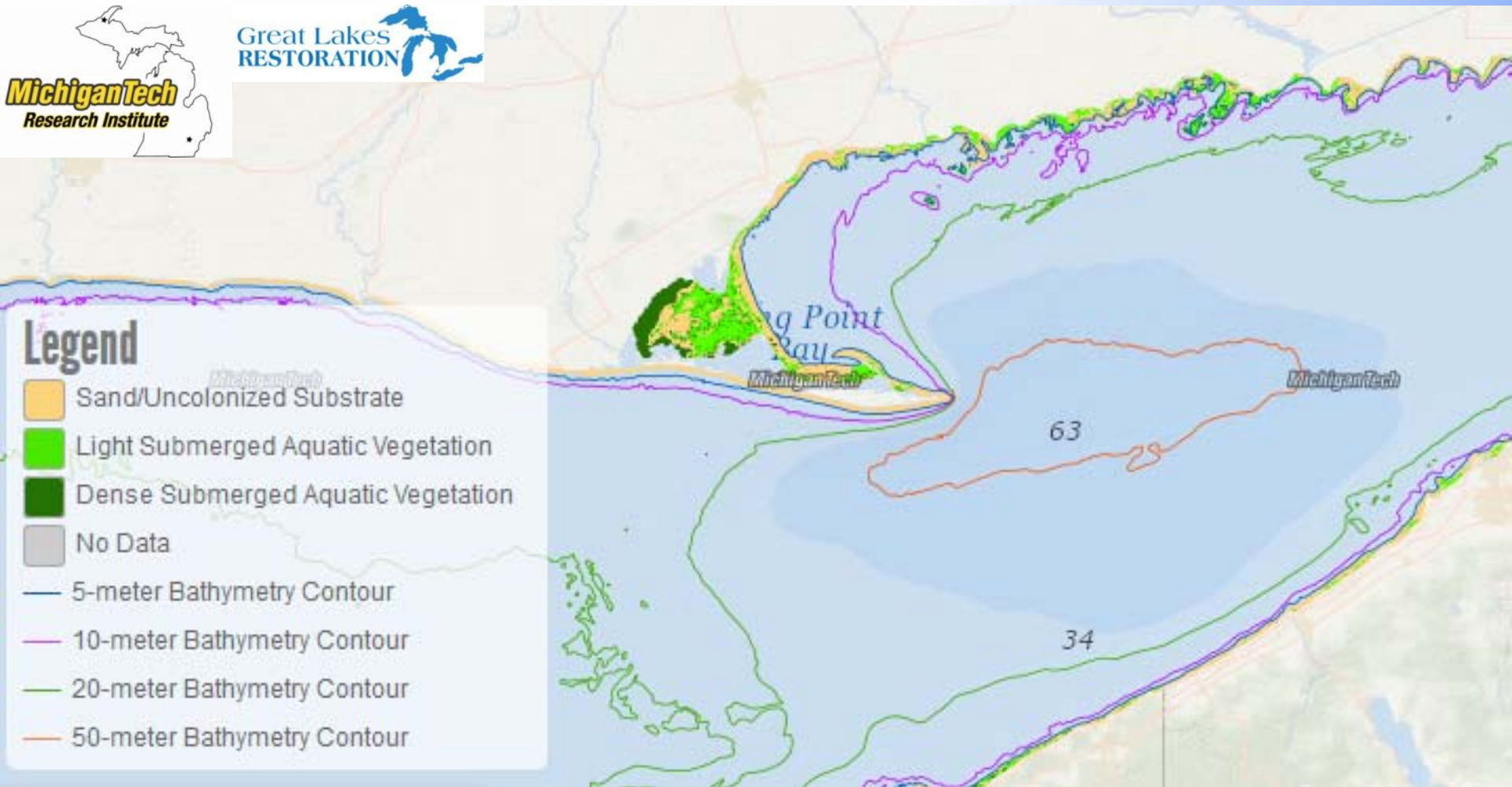
Great Lakes Geoforms



Ice Cover



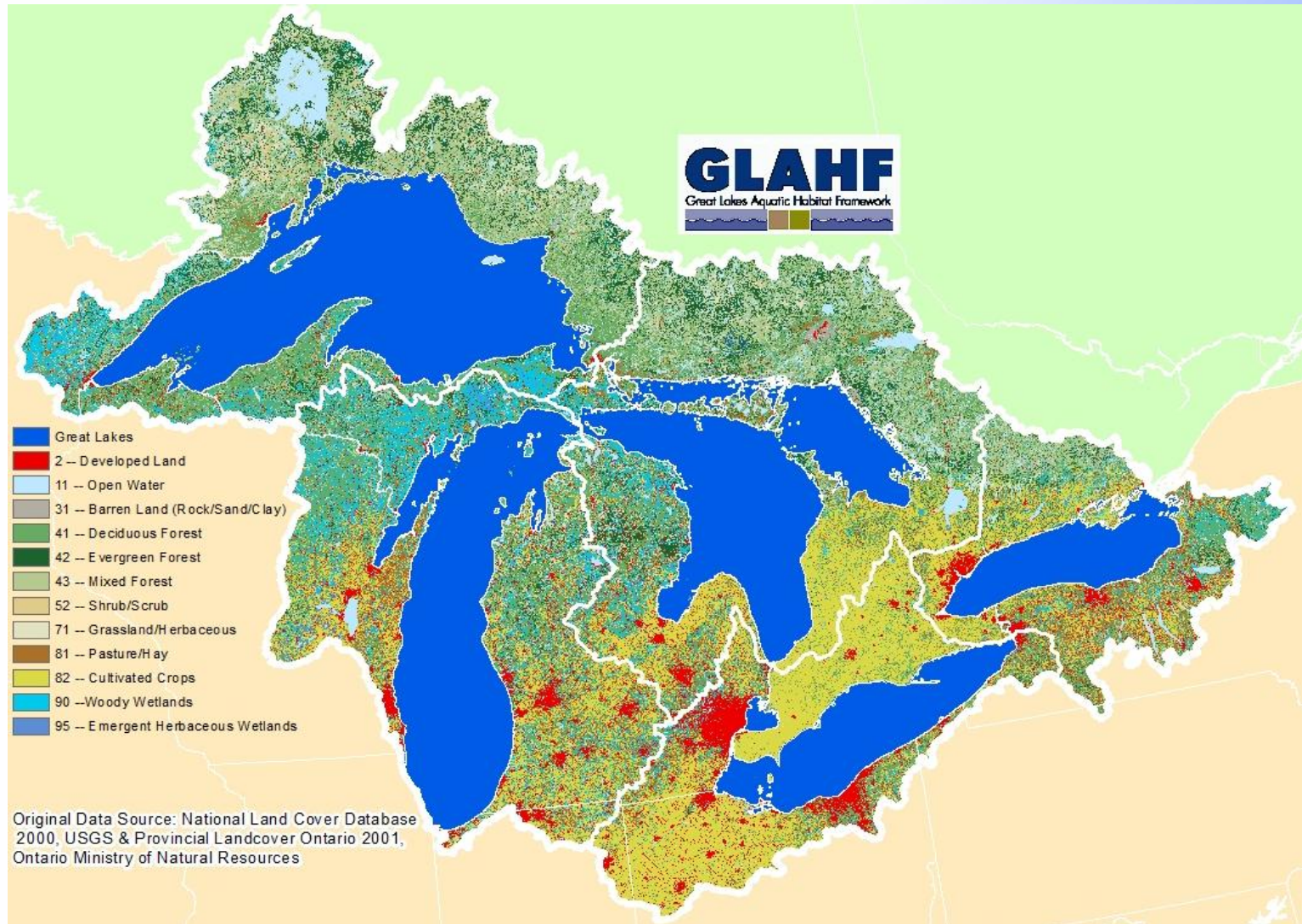
Submerged Aquatic Vegetation



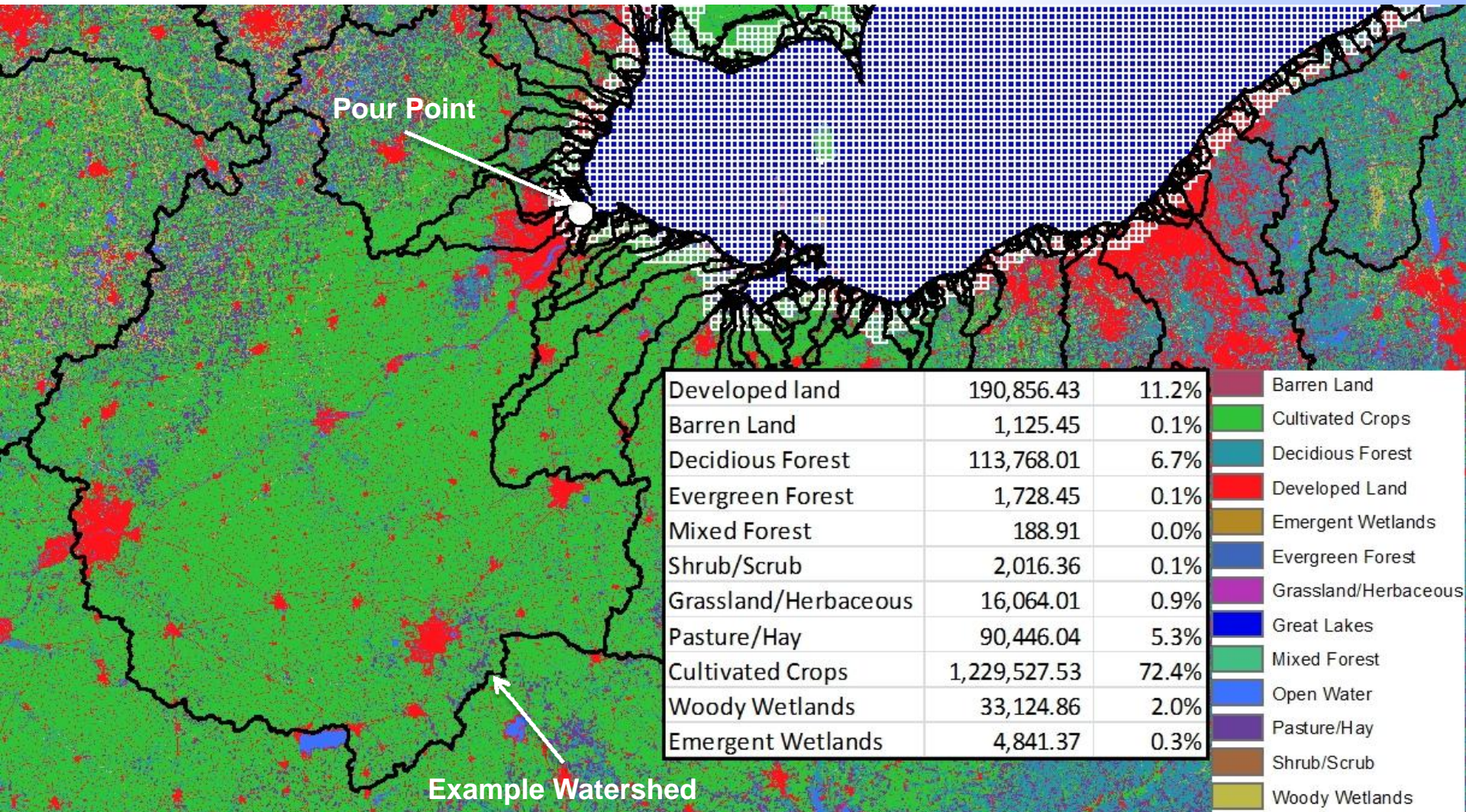
GLAHF Aggregated Catchments



U.S. and Canadian Land Use/Cover Integrated U.S. 2001 NLCD & Ontario PLO 2000



Watershed Influence on Nearshore

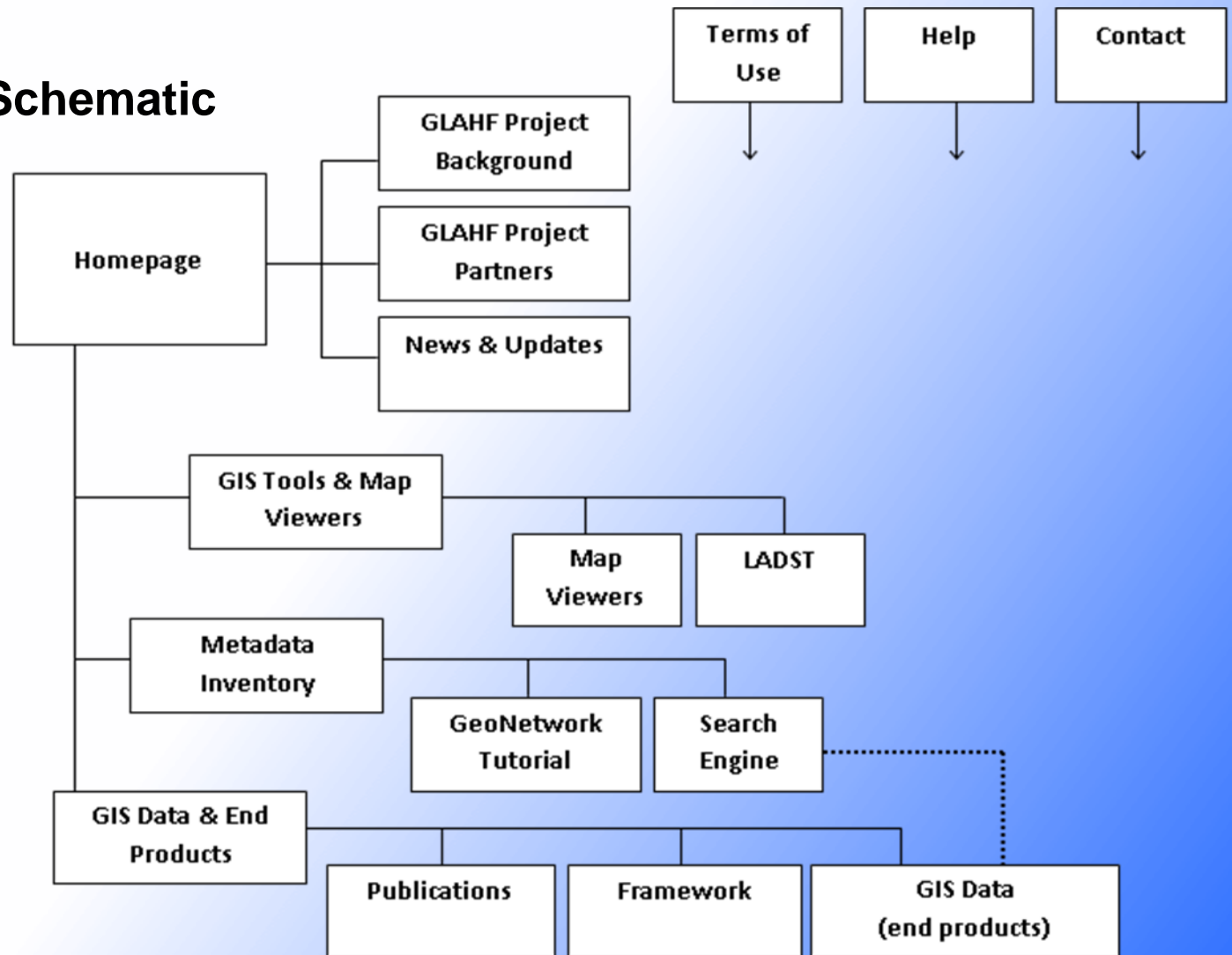


Hierarchical Spatial Classification Framework



Final Products

Geoportal Schematic



Thank you for attending!

Thank you to the Great Lakes Fishery Trust & Mark Coscarelli for making this project possible.

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