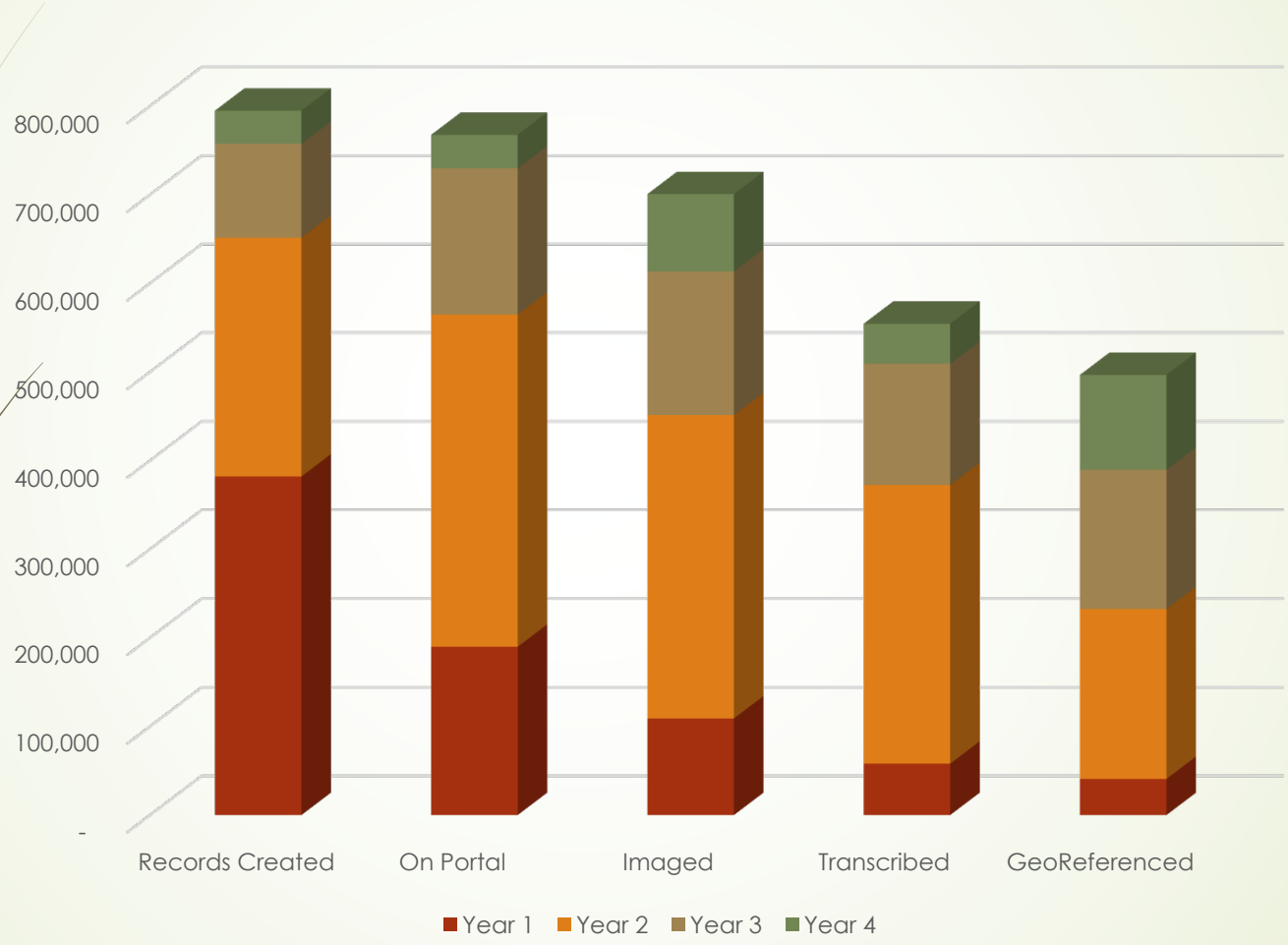
The Macroalgal Herbarium Consortium

Accessing 150 Years of Specimen Data to Understand Changes in the Marine/Aquatic Environment

Chris Neefus, Lead P.I.

Progress in Digitization Efforts

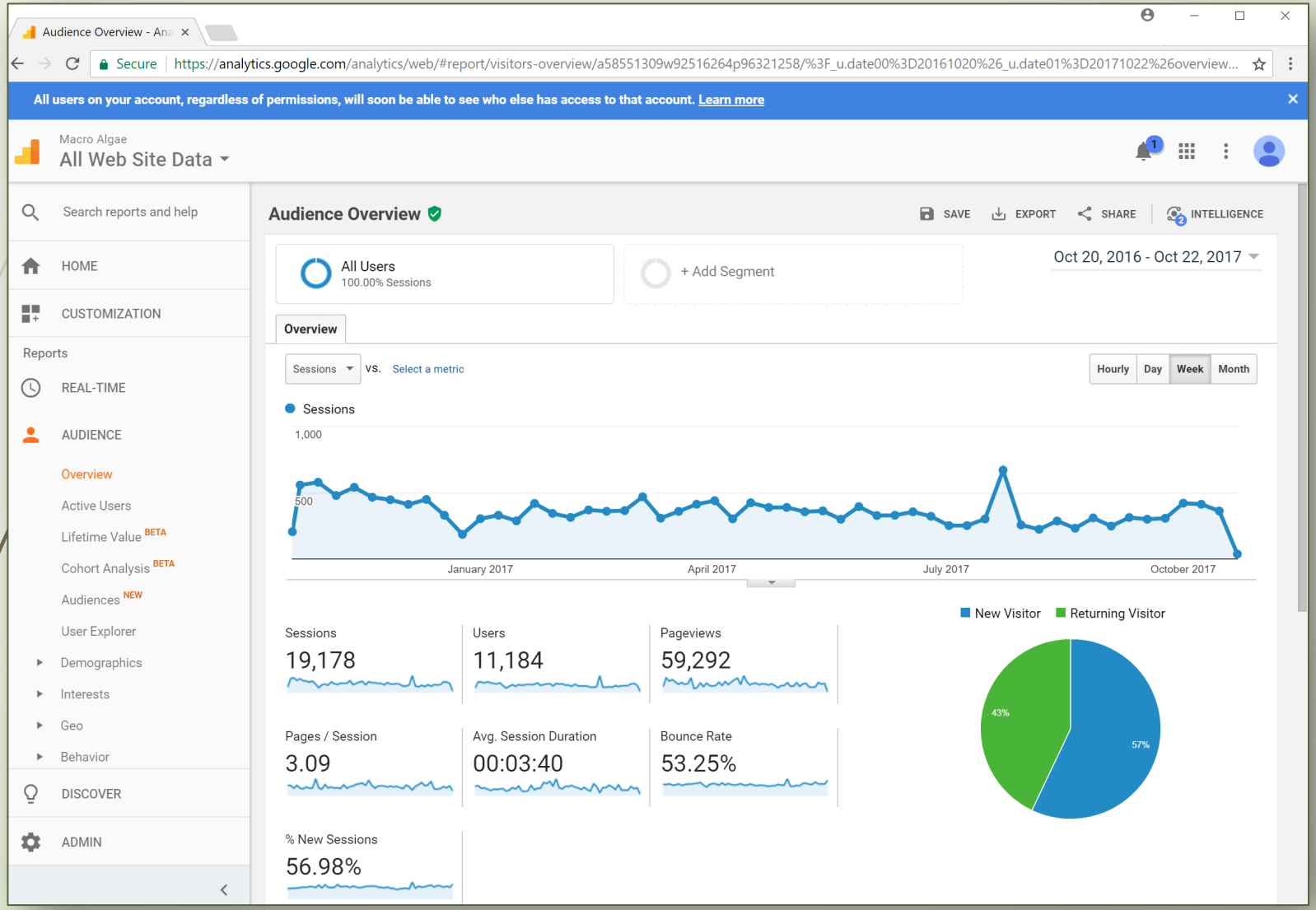


Progress in Digitization Efforts

				Percent Complete				
Digitizing Institution	**Start**	**Collections**	**Specimens**	**Records Created**	**On Portal**	**Imaged**	**Transcribed**	**Geo-referenced**
University of New Hampshire	Year 1	10	140,106					
New York Botanical Garden	Year 1	5	172,613					
University of North Carolina	Year 1	7	58,075					
University of Michigan	Year 1	5	95,589					
University of Washington	Year 1	3	25,775					
Duke University	Year 1	1	17,828					
University of Alaska SE	Year 1	1	9,889					
Bishop Museum	Year 1	1	65,000					
Field Museum	Year 1	1	48,058					
Oregon State University	Year 1	1	12,120					
University of Guam	Year 1	1	13,600					
University of California - Berkeley	Year 2	9	230,869					
University of Hawaii	Year 2	1	4,730	1	1	0	1	1
Harvard University	Year 2	1	150,000	0	0	0	0	0
Academy of Natural Sciences	Year 3	1	37,816					
University of Vermont	Year 3	1	3,062					
	Totals	49	1,085,130	794,763	767,535	700,664	554,347	496,605
				1	1	1	1	0

Who is Using the Data?

- Google Analytics for Macroalgae.org



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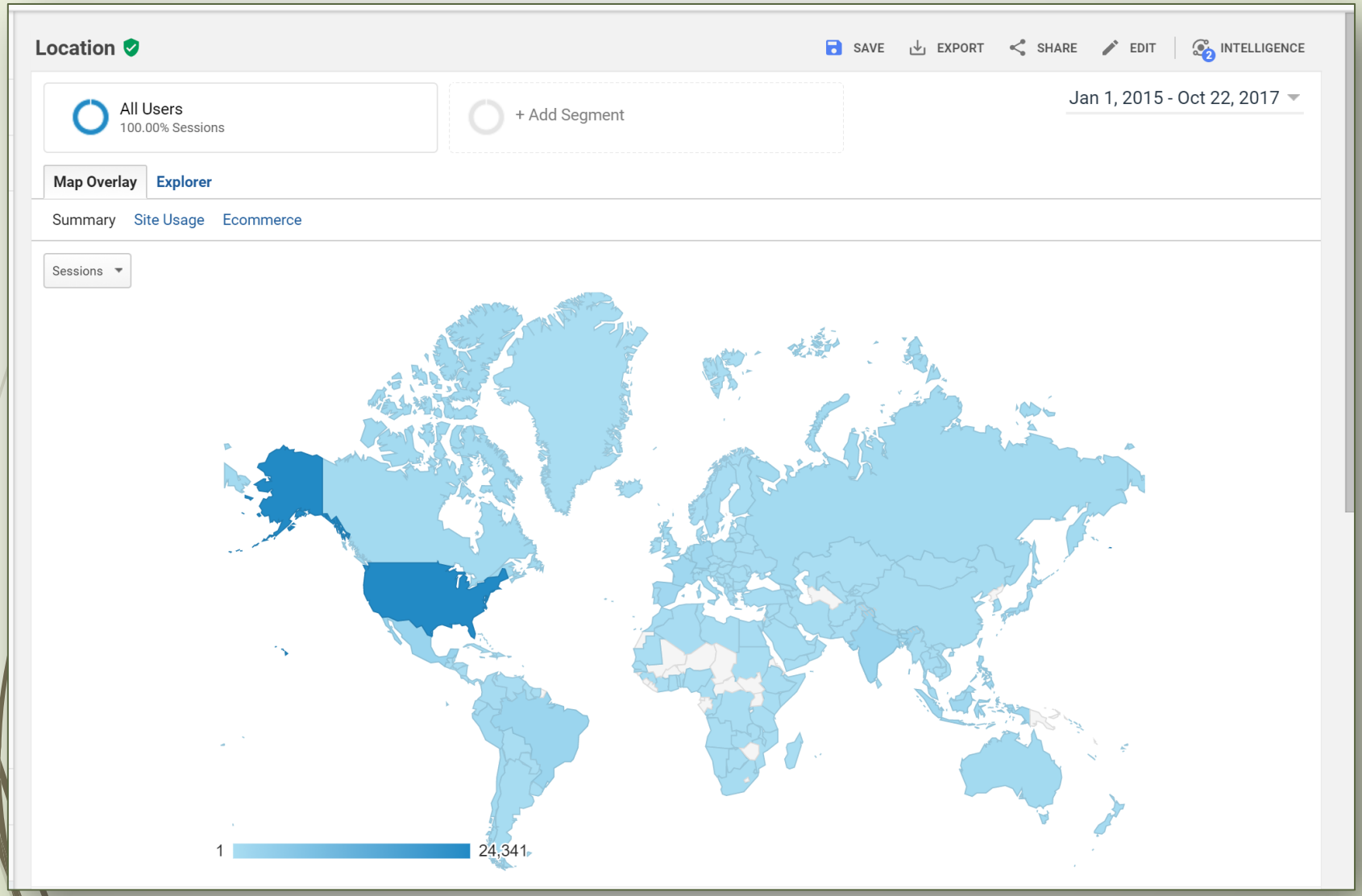
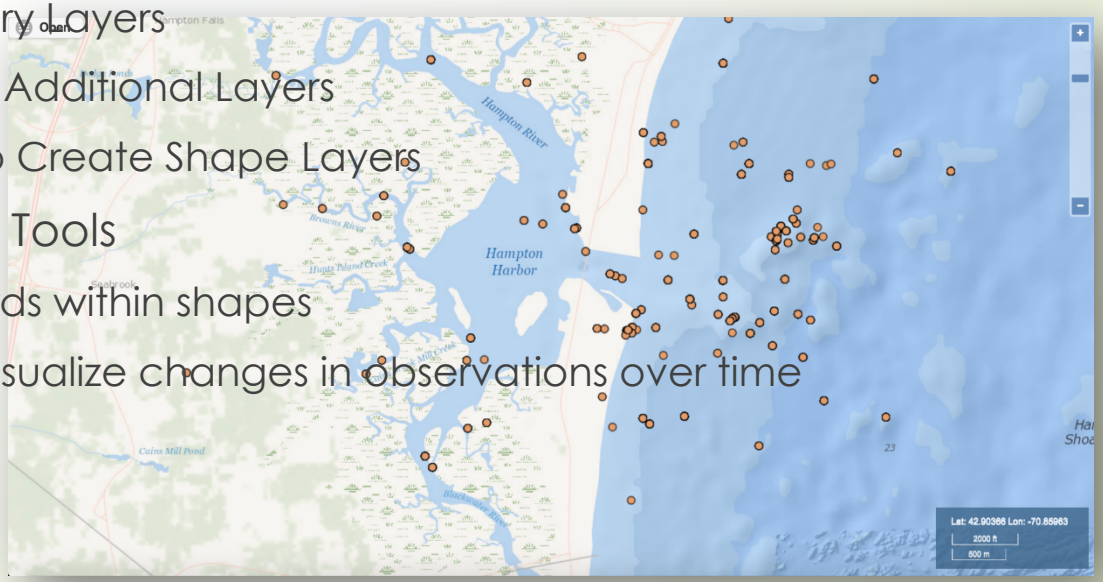


How is the Data Being Used?

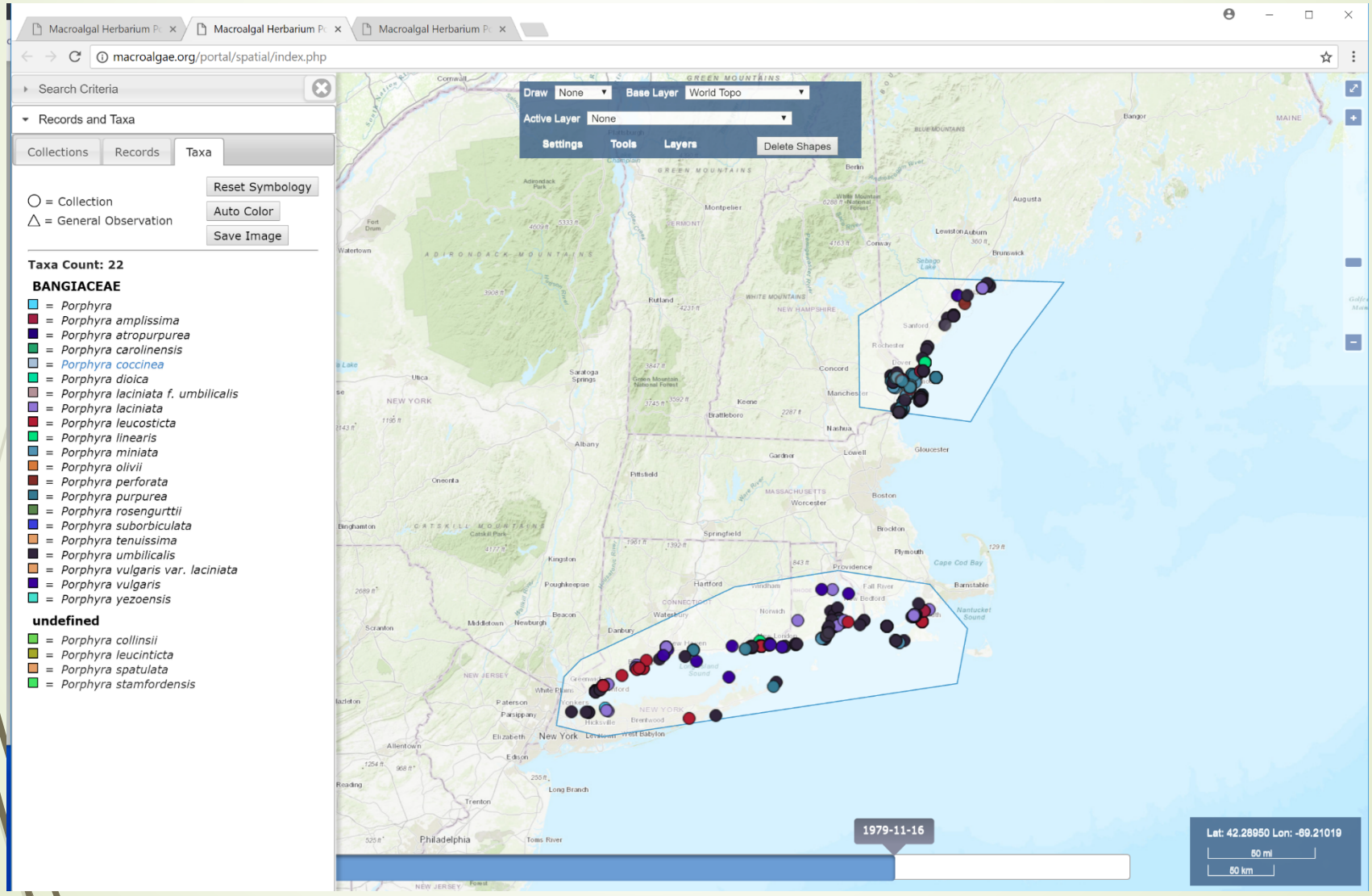
- Determine when and where a species can be collected
- Taxonomic studies
- **Biogeographic studies**
  - Effects of environmental changes or disturbances on species distribution and community structure
  - Track progression of invasive species and loss/displacement of native species

Spatial Analysis Module

- Modeled after the Atlas of Living Australia Spatial Module
- Integrated with Symbiota
- Far more capabilities than the current Symbiota Map Search
- GIS Layers
  - Choice of Base Map Layers
  - World Climatological Layers
    - Average and Monthly Temperature, Precipitation, Solar Radiation, Wind
  - Political Boundary Layers
  - Ability to Import Additional Layers
  - Drawing Tools to Create Shape Layers
- Enhanced Search Tools
  - Search for records within shapes
  - Date sliders to visualize changes in observations over time



Spatial Analysis Module



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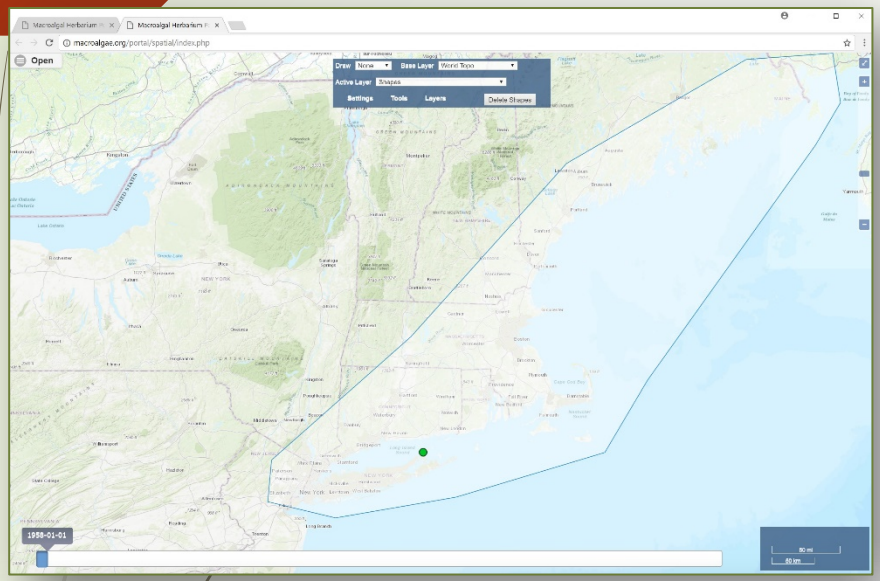

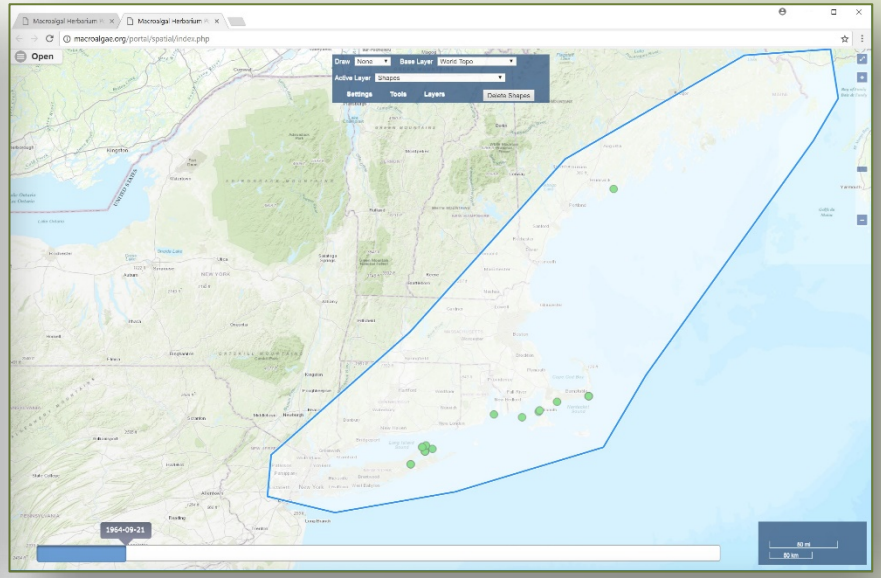

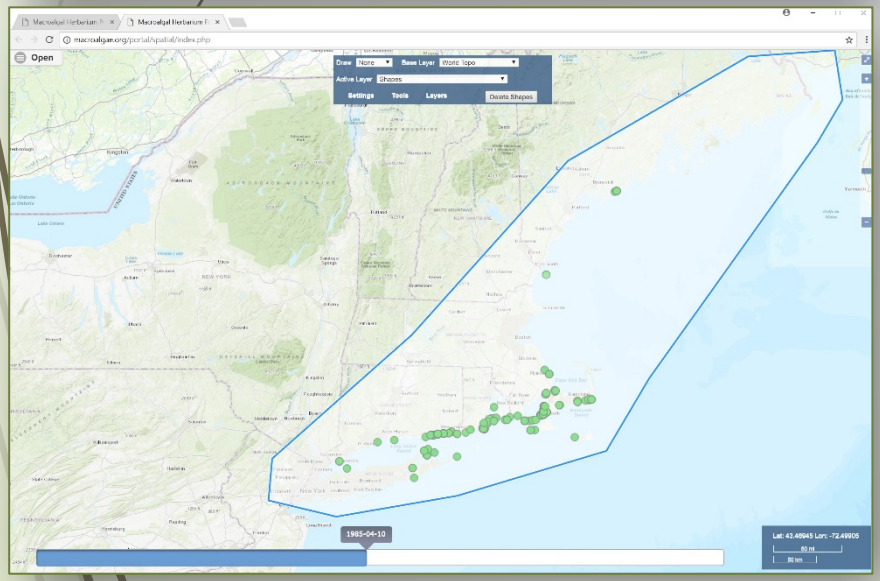

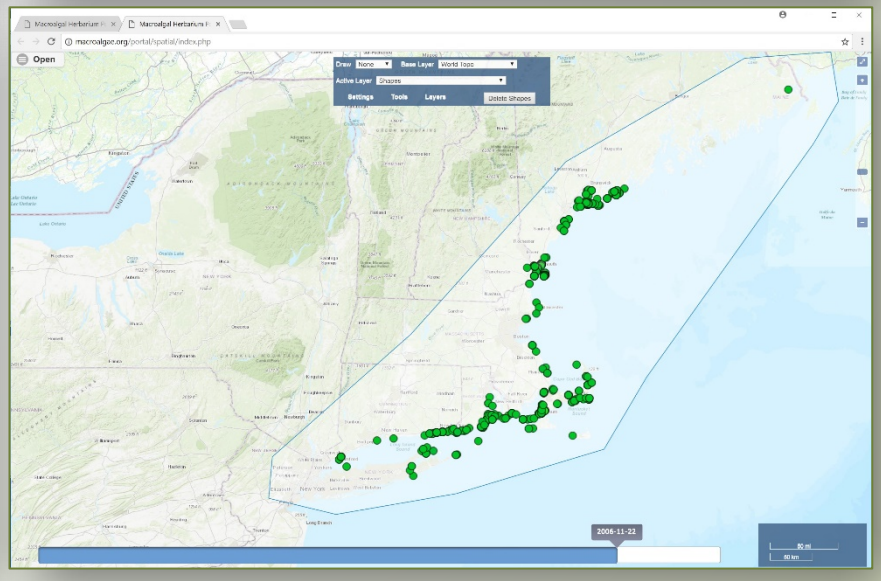

One Lesson Learned?

- **Small Herbaria Are Easier to Digitize than Large Ones**

Acknowledgments

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