From Ridges to Reefs:

Exploring the Interconnectivity of SDGs 14 & 15 through Geography

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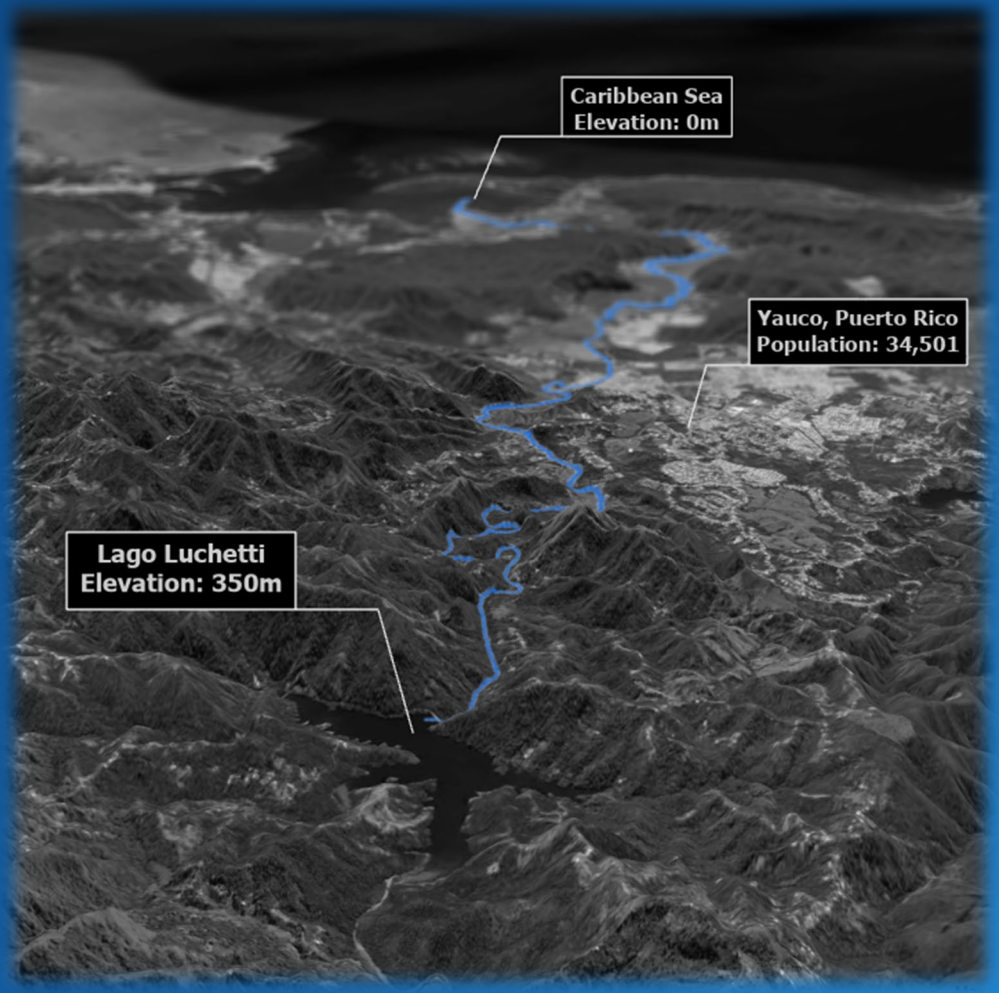
The Presentation Ahead

- Introduction
- What is GIS?
- Demos
  - Watershed land cover calculations and downstream flow
  - Identifying and monitoring ships at anchor
- Learning Tutorials and Resources

Downhill from Here

What happens on land ends up in the ocean

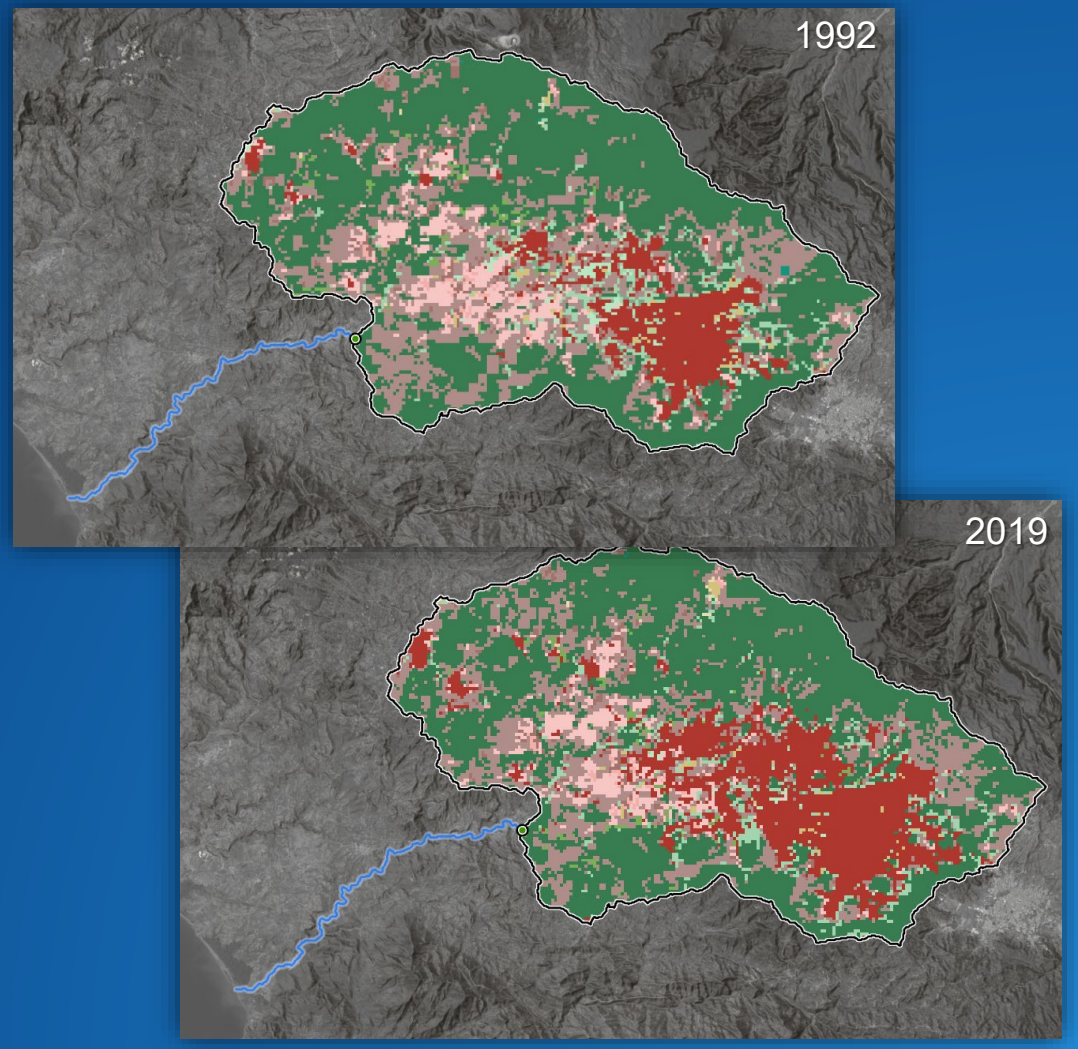
- Land and ocean environments are intricately connected
- Grasping the scale of natural and anthropogenic trends on the terrestrial environment help to understand the impacts we have on our aquatic and marine environments
- Can be quantified and studied through a geographic lens



Where? Geographic Information Systems

More than just a map

- GIS primarily asks *“Where?”*
- A means by which we can understand trends and patterns across geographic space, *from the smallest village to the entire globe*
- When you know the location of features or phenomena of interest, you gain an understand not found in traditional charts, tables, and graphs for visualization
- Allows us to ask “*Why?*” or “*When?*”



Where? Geographic Information Systems

More than a map. More than SDGs 14 and 15.

- Examples of where GIS is used:
  - Resource distribution (food, medical supplies, bed nets, etc.)
  - Disaster response
  - Land and ocean animal tracking
  - Household surveys/censuses
  - Land cover change
  - Disease vector control
  - Illegal mining detection
  - Demining operations
  - Watershed mapping
  - Forestation and deforestation
  - Flood zone mapping
  - Property ownership
  - Agricultural output estimation
  - Access to food and water
  - Urban planning
  - Solar/wind energy potential
  - Disease spread
  - Governments sharing data publicly
  - Racial inequality
  - Invasive species management

The ArcGIS System

Mapping and analyzing our world

- Apps that allow for:
  - Field data collection
  - Collaboration
  - Analysis
  - Public Sharing

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Demo: Urbanizing Watersheds

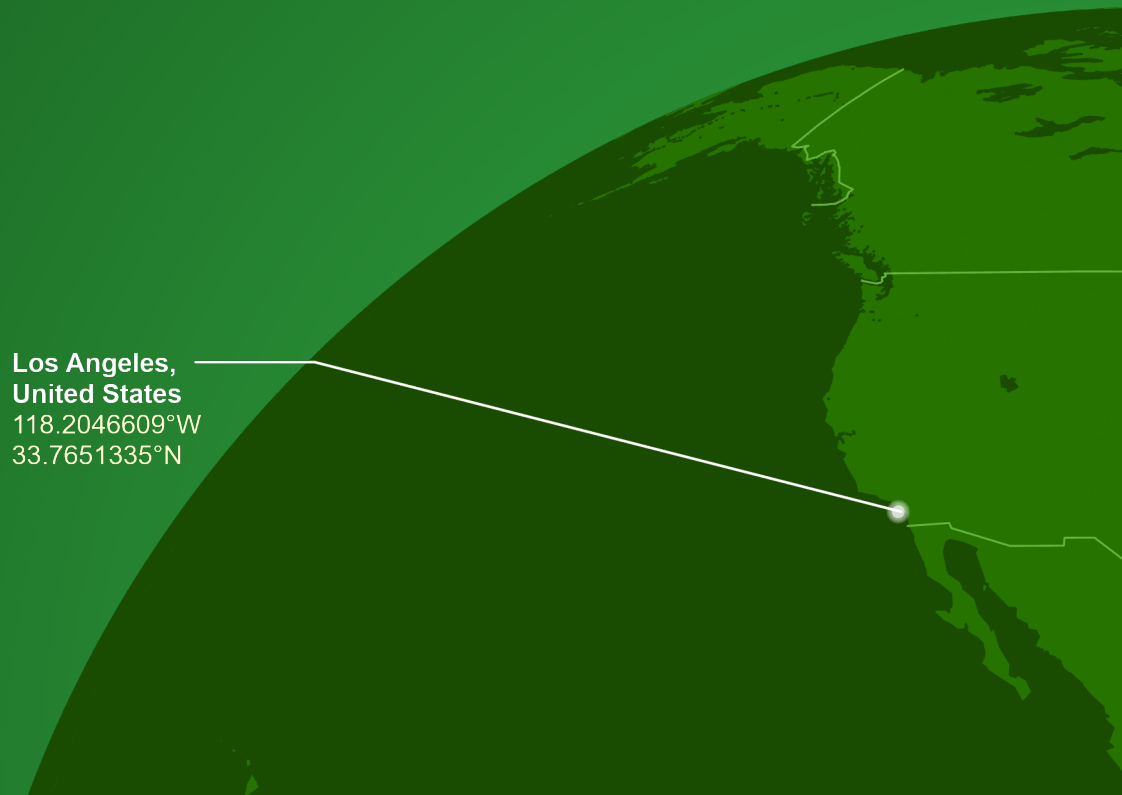
San José, Costa Rica

Urbanizing Watersheds

- As a watershed urbanizes, water quality is impacted
- How to delineate a watershed
- Trace the downstream flow path
- Calculate the change of land cover
- Explore offshore biodiversity

Demo: Congested Ports

Los Angeles, United States



Congested Ports

- Historically ships could quickly dock and unload cargo
- Due to logistics and covid, delays occur and these ships remain anchored offshore for days
- Use deep learning to detect ship locations over time from satellite imagery
- Use ship tracking data to see how long a ship has been in one location
- Share data through web apps

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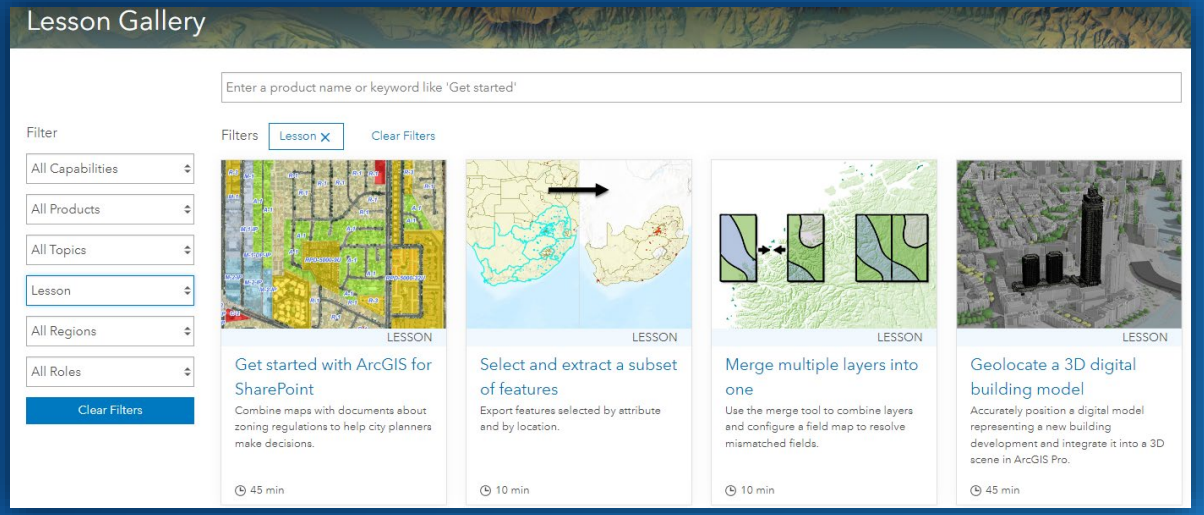
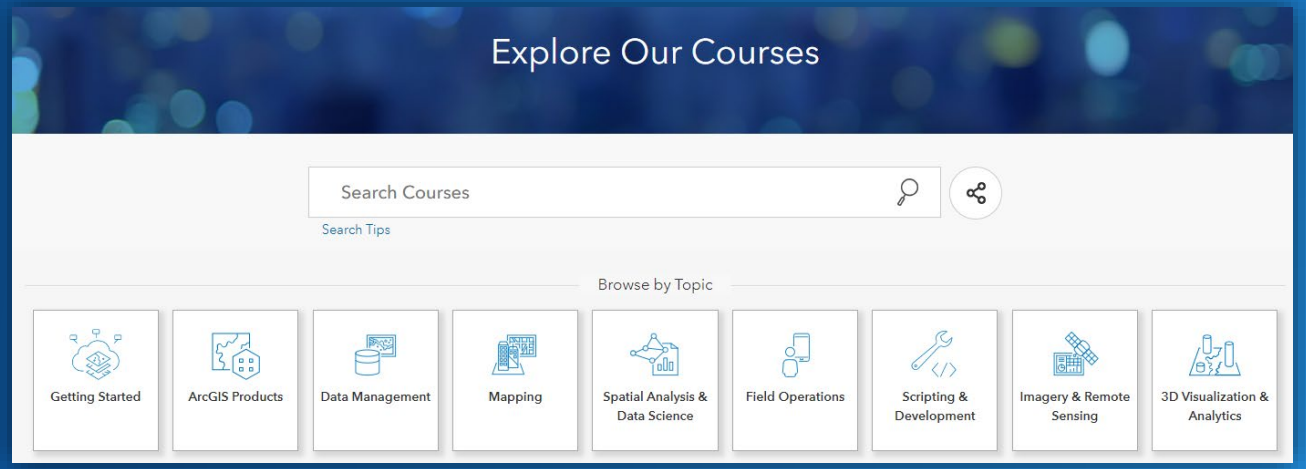
Learning Tutorials & Resources

For users of all experience levels

- Esri Academy – Tutorials and videos
- Learn ArcGIS – over 300 real world scenarios
- ArcGIS Blogs – Learn from the pros





Thank You!

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