

Mission 2015 GIS Workshop

September 26, 2010

Mission 2015: Triage & Biodiversity



Daniel Sheehan

Outline for today

- GIS Resources on campus
- Data for the workshop
- Scheduling the GIS workshop (to be completed by October 5)

GIS Resources On Campus

- MIT GIS Lab
 - Located in Rotch Library, building 7 (second floor, off of Lobby 7 – technically in building 7A)
 - 6 Windows PC with Arcgis version 10 and Google Earth Pro
 - Staffed Monday through Thursday afternoons 12:30 – 6:00PM, Friday 2:00-5:00PM, and by appointment
 - Spatial Data Repository
- 37-312 –starting in early October
 - 22 Windows PC with Arcgis
 - You need Athena combination and ID card for entry

GIS staff at MIT

- Anne Graham
 - Heather McCann
 - Jennie Murack
 - Daniel Sheehan
 - Lisa Sweeney
 - Tyler Kreider
-
- Contact us at gishelp@mit.edu or stop in GIS Lab during lab hours

MIT Spatial Data Repository

Search Tools

- Geoweb, a web interface to 2,000 layers at MIT, 1,000 layers at MASSGIS, and 8,000 layers at Harvard
 - MIT licensed data are certificate protected
 - Harvard licensed layers are restricted to Harvard users
 - Layers can be drawn on the web interface or downloaded to local drives (in zipped folder)
- Paper maps in the Barton catalog are searchable

MIT Spatial Data Repository

Search Tools (continued)

- Arcgis desktop version searches only MIT data
 - Data is downloaded to your Arcgis project and can easily be saved to local drives

MIT Geoweb: web.mit.edu/geoweb

GeoWeb: MIT GIS Services - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://web.mit.edu/geoweb/

GIS User Help Log

GeoWeb MIT GIS Services

MIT Geoweb makes it easy to find geodata hosted by the [MIT Geodata Repository](#), [MassGIS](#), and the [Harvard Geospatial Library \(HGL\)](#).

[Enter GeoWeb](#)

[GeoWeb help video](#)

Data hosted by MassGIS is public domain. Some datasets in the MIT Geodata Repository and Harvard Geospatial Library are restricted by license agreements. Restricted data in the MIT Geodata repository can be accessed by the MIT Community with an [MIT personal web certificate](#). Metadata provides dataset descriptions, including source information, and can be searched and viewed by anyone.

We recommend a minimum monitor resolution setting of 1024 x 768. If you do not already have the MIT certificate authority installed for your web browser visit: <http://ca.mit.edu/mitca.crt>

For the MIT Community - if you are planning to use the data in the ArcGIS software - to create maps or use the many tools provided for doing spatial analysis, or to use the Census Mapping Tool - we recommend you use the [MIT Geodata Repository Search Tool built for ArcGIS](#).

Geometry	Title	Info	Draw
25	Boston Metro, MA (Shaking Folios and Heights from LEAD, 2002)		
25	Boston Metro, MA (Shaking Folios), 2002		
25	BOSTON NORTH, MA (Orthorectified)		
25	BOSTON SOUTH, MA (Orthorectified)		
25	Boston, MA (16 and 12 Mile Radial around MBTA Train Stations), 2001		
25	BOSTON, MA (Beverly), 2001		
25	BOSTON, MA (2004 Planning Districts), 2000		
25	BOSTON, MA (Shaking Folios), 2000		
25	BOSTON, MA (2004 Census Districts), 2000		
25	BOSTON, MA (Land Parcels), 2000		
25	BOSTON, MA (Land Parcels), 2002		
25	Boston, MA (Land parcels), 2004		
25	Boston, MA (Land parcels), 2000		
25	Boston, MA (Land parcels), 2000		
25	Boston, MA (Land parcels), 2007		
25	Boston, MA (MBTA Summer Lines), 2000		

Geoweb: Keyword Search

The screenshot shows the MIT GeoWeb interface in a Mozilla Firefox browser window. The address bar displays the URL <https://arrowsmith.mit.edu/geoweb/>. The page header includes the text "GeoWeb MIT GIS Services" and a link to "view metadata from the MIT Geodata Repository".

The search interface features a search bar with the keyword "conservation" and a "Search Metadata" button. Below the search bar, there are tabs for "Search Results", "Layers", and "About". The search results are displayed in a table with columns for "Title" and "Info Draw".

The search results table contains the following entries:

Title	Info Draw
Agricultural production map of the Federation of Rhodesia and Nyasaland [cartographic material] / compiled by the Federa	 
Alaska national interest lands conservation act [cartographic material] : December 2, 1980 / U.S. Geological Survey	 
Alaska national interest lands conservation act, December 2, 1980, P.L. 96-487 [cartographic material] / national intere	 
Bedrock geologic map of Maine [cartographic material] / edited by Philip H. Osberg, University of Maine, Orono, Arthur M	 
Bedrock of Michigan [cartographic material] / compiled by R. W. Kelley from Geological Survey publications and manuscript	 
Bouguer gravity anomaly map of Tennessee [cartographic material] / by Robert W. Johnson, Jr, and Richard G. Stearns	 
Cambridge, MA (Conservation Districts, 2004)	 
Cambridge, MA (Historic Conservation Sites, 1995)	 
Cambridge, MA (Neighborhood Conservation Districts, 2000)	 

The interface also includes a map of North America on the right side, with a search bar and a "Search Metadata" button. The map is powered by Google Earth and includes a scale bar (1000 km / 1000 mi) and a "POWERS BY Google" logo. A red dashed box on the map highlights the search area.

Geoweb: Search Results

The screenshot shows a web browser window titled "MIT GIS Services — MIT GeoWeb - Mozilla Firefox" with the URL "https://arrowsmith.mit.edu/geoweb/". The search bar contains the keyword "africa" and the search button is labeled "Search Metadata". Below the search bar, there are tabs for "Help", "Search Results", "Layers", and "About". The "Layers" tab is active, showing a list of layers. The first layer, "South Africa, Cape Town (Cape Peninsula Protected Environment, 2008)", is highlighted with an orange circle. This layer has a checked "Show Layer" checkbox, a "Click layer on map to get more information" checkbox, a link to "Download this data layer from the MIT GeoData Repository", and an "Opacity" slider. A "Save link to MIT layers" button is also visible. The map displays Cape Town, South Africa, with various roads and landmarks labeled. The map is powered by Google Earth and includes a scale bar (10 km / 5 mi) and a "POWERED BY Google" logo. The bottom of the page features logos for MIT Libraries, IST, OeIT, and MIT.

Geoweb: Metadata

South Africa, Cape Town (Cape Peninsula Protected Environment, 2008) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://web.mit.edu/sde/www/metadata/sf_capetown_g52cpnparea_2008.xml

GIS User Help Log

MIT GIS Services — MIT GeoWeb x South Africa, Cape Town (Cape Pe... x

South Africa, Cape Town (Cape Peninsula Protected Environment, 2008)

Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

Identification_Information:

Citation:

Citation_Information:

Originator: Strategic Development Information and GIS Department, Strategy and Planning Directorate, City of Cape Town.

Publication_Date: 20080930

Title:

South Africa, Cape Town (Cape Peninsula Protected Environment, 2008)

Geospatial_Data_Presentation_Form: vector digital data

Publication_Information:

Publication_Place: Cape Town, South Africa

Publisher: Cape Town (South Africa) Strategic Development Information and GIS Department (CCT)

Online_Linkage: [Server=arrowsmith.mit.edu; Service=5150; Database=oracle](#)

Online_Linkage: <http://library.mit.edu/item/001241429>

Description:

Abstract:

This dataset shows protected areas within Cape Town, largely within the Cape Peninsula National Park (CPNP).

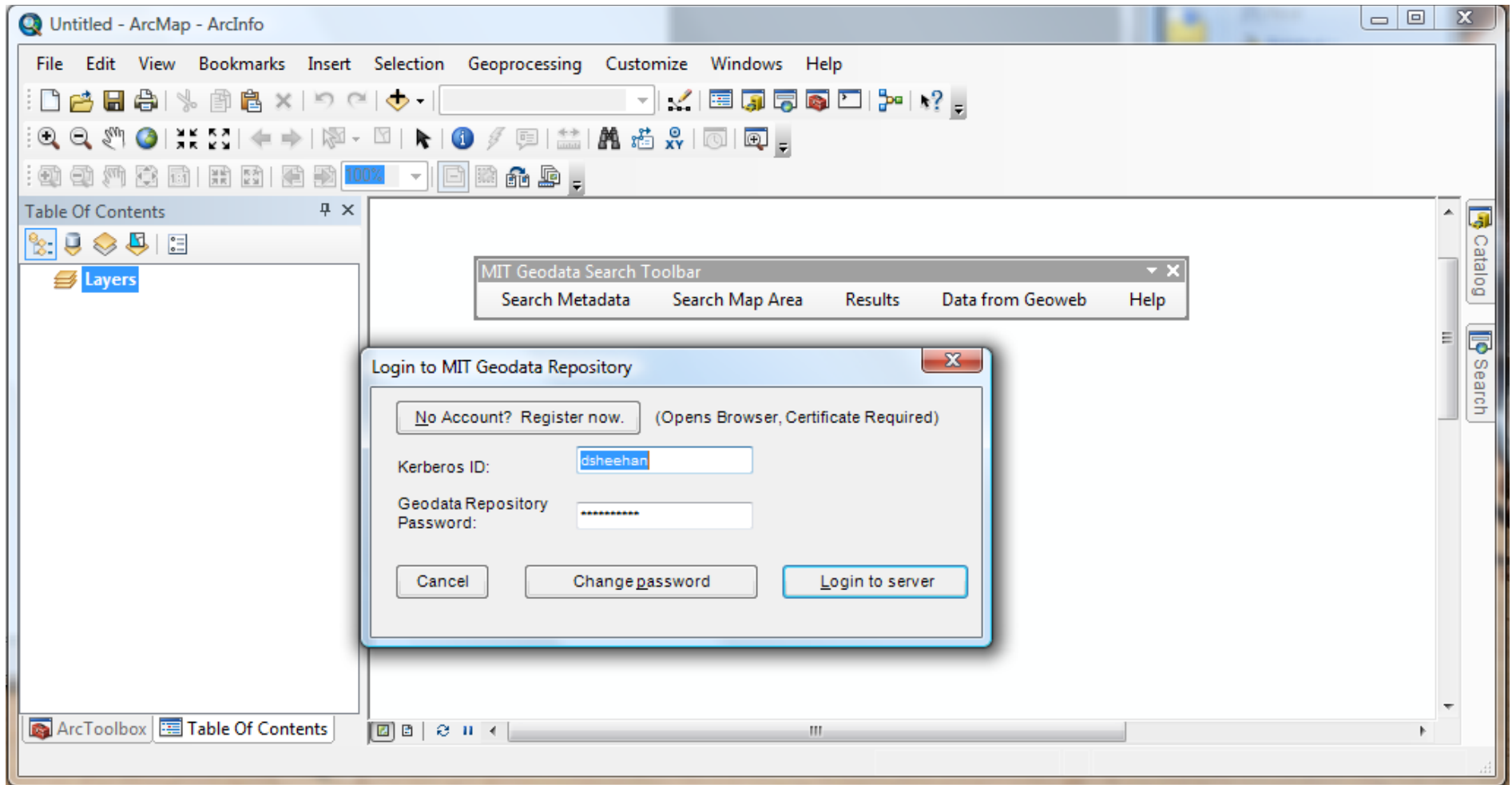
Purpose:

Done

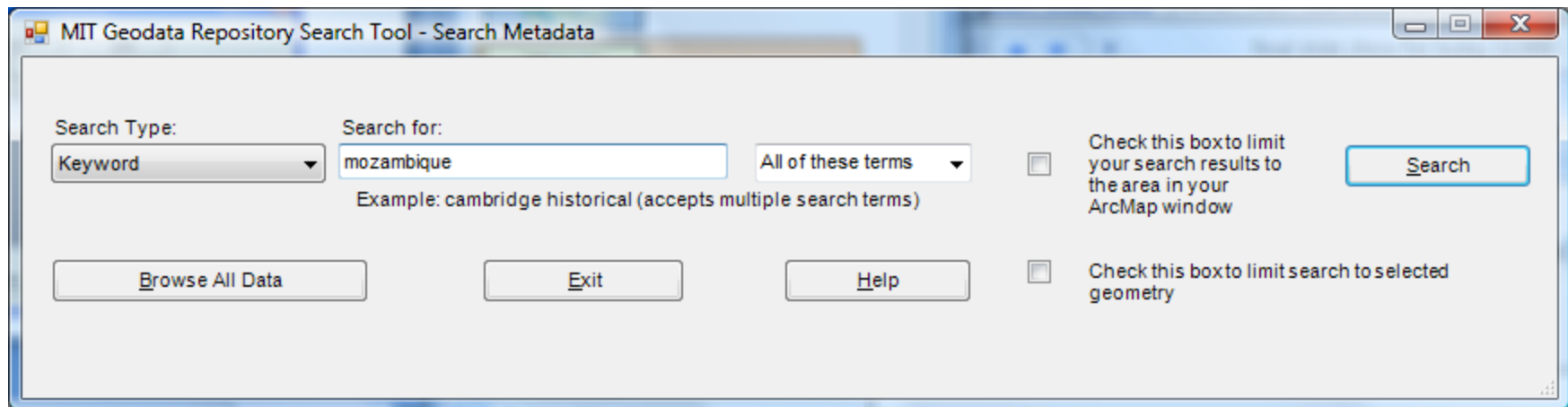
Arcgis Desktop Software

- Data Display
 - No data exists in software, you need to find and add data
- Data Processing
- Simple Cartography
 - Export maps to finish in Photoshop, etc

MIT Geodata Repository Login



Metadata Search and Results

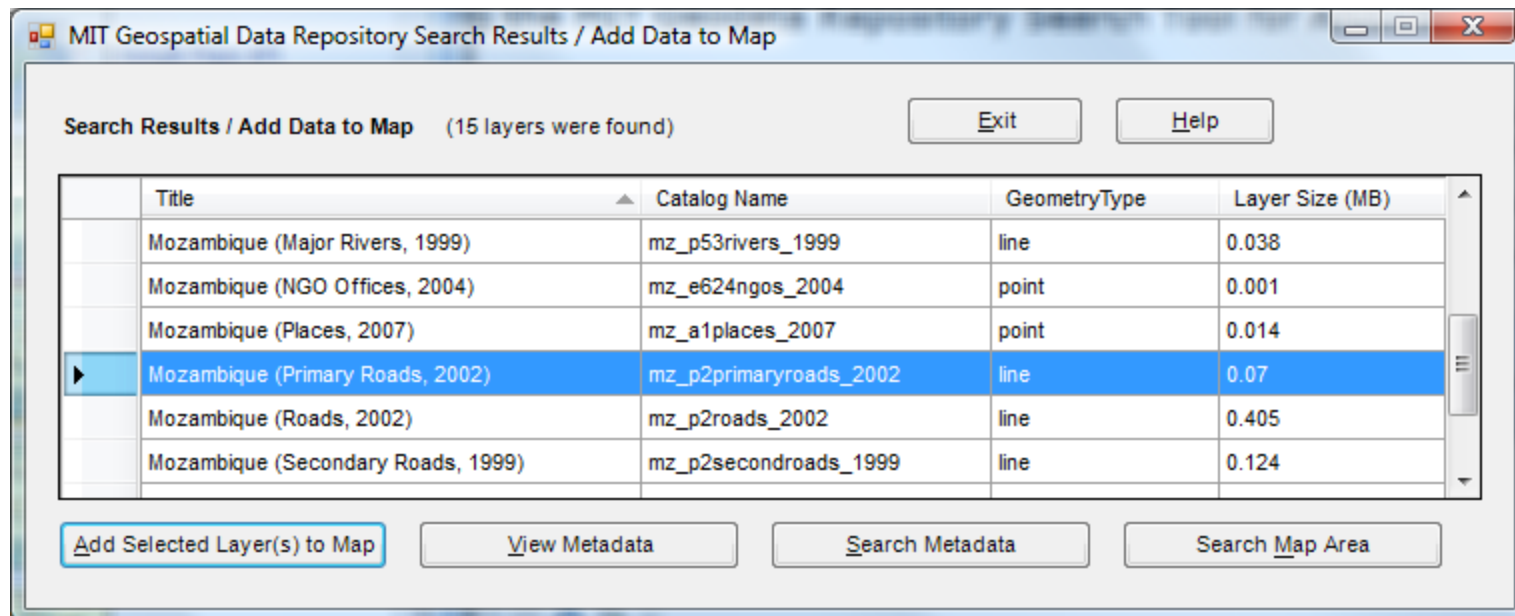


MIT Geodata Repository Search Tool - Search Metadata

Search Type: **Keyword** Search for: All of these terms Check this box to limit your search results to the area in your ArcMap window

Example: cambridge historical (accepts multiple search terms)

Check this box to limit search to selected geometry



MIT Geospatial Data Repository Search Results / Add Data to Map (15 layers were found)

Title	Catalog Name	GeometryType	Layer Size (MB)
Mozambique (Major Rivers, 1999)	mz_p53rivers_1999	line	0.038
Mozambique (NGO Offices, 2004)	mz_e624ngos_2004	point	0.001
Mozambique (Places, 2007)	mz_a1places_2007	point	0.014
Mozambique (Primary Roads, 2002)	mz_p2primaryroads_2002	line	0.07
Mozambique (Roads, 2002)	mz_p2roads_2002	line	0.405
Mozambique (Secondary Roads, 1999)	mz_p2secondroads_1999	line	0.124

Getting the Software for your personal machine

Getting Arcgis:

<http://ist.mit.edu/services/software/esri/10>

Download Arcgis_Desktop10_122519.zip and MIT_Geodata_Search_Tool_for_Arcgis10.exe (run search tool exe only after installing Arcgis).

Getting a repository account for Arcgis

<http://libraries.mit.edu/gis/data/repository.html>

Use Touchstone (which uses your kerberos ID)

Use a password other than your Athena/email password. Must be at least 8 characters starting with a letter.

GIS Workshops

- Should take you about 1 hour
- You will use Arcgis, the most common desktop GIS. MIT has a site license for this software.
- You will use protected places datasets to determine differences in what “protected” means.

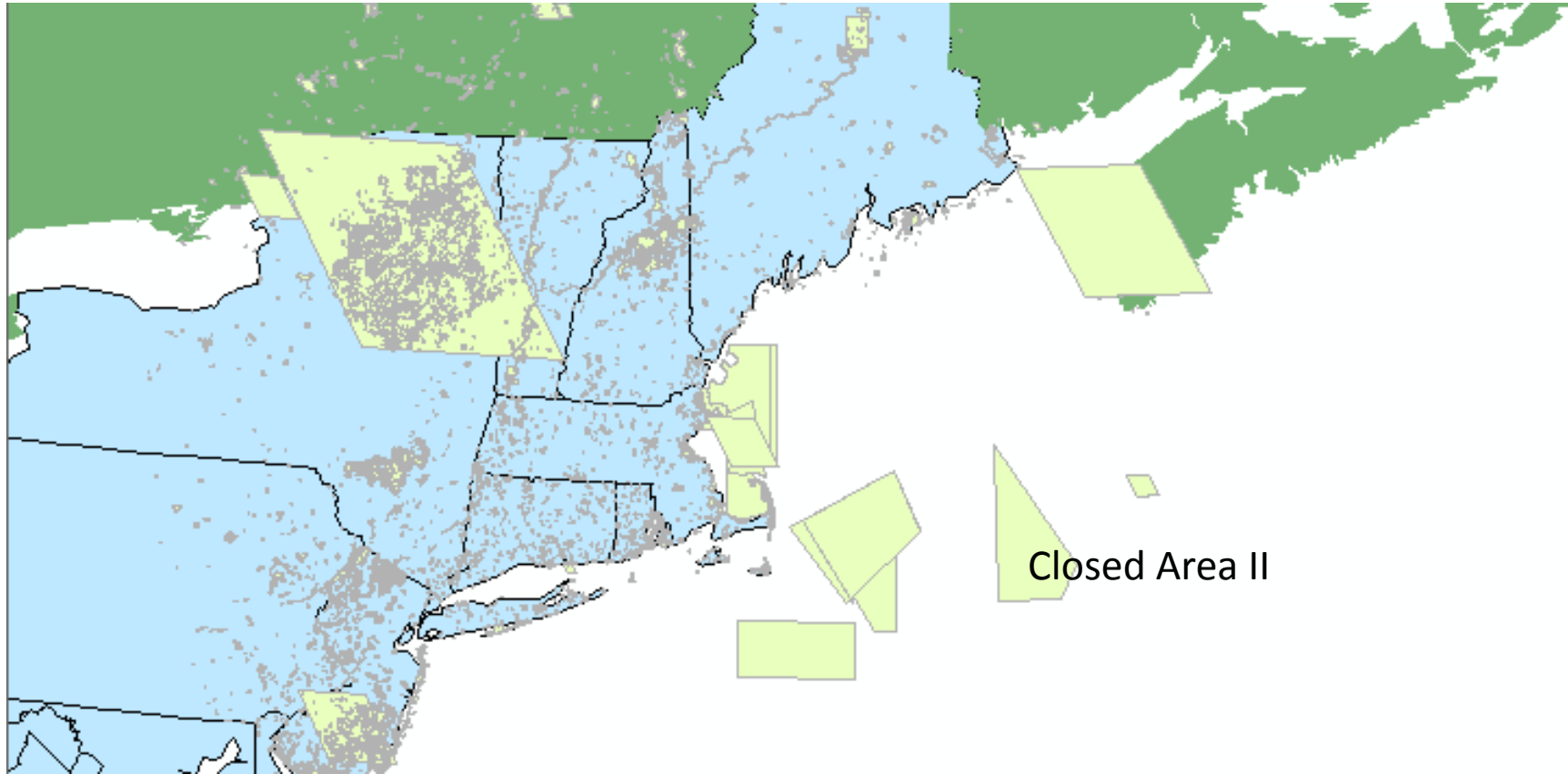
Data for the workshop

- Protected places from:
 - <http://www.databasin.org>, a repository of the Conservation Biology Institute (<http://consbio.org/>)
 - <http://www.protectedplanet.net/>, a joint project of the International Union for Conservation of Nature and the United Nations Environment Programme, World Conservation Monitoring Centre (<http://www.unep-wcmc.org/>)
 - Registration is required for both sites

Metadata from www.databasin.org

```
- <metadata>
- <idinfo>
- <descript>
  <abstract>This dataset is an extraction from PAD-US 1.1 (CBI Edition), by state. The PAD-US 1.1 (CBI Edition) data set portrays the nation's protected areas with a standardized spatial geometry and numerous valuable attributes on land ownership, management designations, and conservation status (using national GAP and international IUCN coding systems). The PAD-US 1.1 (CBI Edition) defines protected areas to include all lands dedicated to the preservation of biological diversity and to other natural, recreation and cultural uses, and managed for these purposes through legal or other effective means (adapted from IUCN definition). The database represents the full range of conservation designations that preserve these natural resources in the United States. Protected areas are cornerstones of national and international conservation strategies. By way of these designations, lands and waters are set-aside in-perpetuity to preserve functioning natural ecosystems, act as refuges for species, and maintain ecological processes. Complementary conservation strategies preserve land for the sustainable use of natural resources, or for the protection of significant geologic and cultural features or open space. PAD-US 1.1 (CBI Edition) attempts to include all available spatial data on these places. It is our goal to publish the most comprehensive geospatial data set of U. S. protected areas to date.</abstract>
  <purpose>This GIS-based dataset was created to help people integrate protected areas data into their daily work (e.g. mapping, planning, analyses, and problem-solving). For example, this database makes it easy for users to address important conservation and resource questions pertaining to climate change adaptation, green energy development, infrastructure planning, and wildlife connectivity. State and regional planners and managers will appreciate this dataset as it provides critical contextual information for their work. Institutions responsible for national and international reporting will find this database full of reliable, accurate information for their purposes. The scientific and conservation community will similarly benefit from having this standardized base map to carry out their research and planning objectives.</purpose>
  <supplinf/>
</descript>
<useconst>(http://creativecommons.org/licenses/by/3.0)This work is licensed under a Creative Commons Attribution 3.0 License (http://creativecommons.org/licenses/by/3.0).</useconst>
<datacred/>
- <citation>
- <citeinfo>
  <title>Protected Areas - Washington, May 2010</title>
  <pubdate/>
  <othercit>http://databasin.org/protected-center/features/PAD-US-CBI</othercit>
  <origin>Conservation Biology Institute</origin>
  <onlink>http://app.databasin.org/app/pages/datasetPage.jsp?id=81790da107a549b2a8d66a36feb4c755</onlink>
- <pubinfo>
  <publish/>
```

Protect Planet data



Workshops – when and where

- Wednesday (9/28) - instructor is Tyler Kreider
- Monday (10/3) instructor is Daniel Sheehan
- Tuesday (10/4) instructor is Anne Graham

- All workshops are 7:30-8:30PM
- All workshops are in 14N-132

Workshops – when and where

Workshops will be in:

- The Libraries' Digital Instruction Resource Center, 14N-132 (enter building 14 at the Music Library and go right, DIRC is on your right)

Workshop locations



Workshops – pick one!

- Use the doodle poll which I will email early this evening
- I will send email reminders.
- Pick by 5PM on Tuesday!

For the rest of your project:


Data formats that work in GIS ...

- shapefiles
- arcinfo coverages and grids
- jpeg
- tiff and geotiff
- Several other image formats with small fixes
- CAD (with conversions)
- CSV files with a unique ID for specific geographic regions (country codes or province names)
- KML files

Web mapping tools

Google Fusion tables and Google Maps API

Mission 2013 in Abu Dhabi

Latitude ▾	Longitude ▾	Description ▾	Image ▾
24.144255	54.08501833	Stepping onto the microbial mat which is a 5 cent...	http://web.mit.edu/dsheehan/www/abudhabi/microbialmat.jpg
24.14614667 	54.08517333	Crossing water filled tracks in Microbial mat faci...	http://web.mit.edu/dsheehan/www/abudhabi/seismictracks.jpg
24.147025	54.08529667	Seaward edge of microbial mat facies. This is whe...	http://web.mit.edu/dsheehan/www/abudhabi/edgeofmat.jpg
24.14815	54.085745	This stream drains water from the previous high ti...	
24.14920167	54.08541333	A native Mangrove tree that survives in this salin...	http://web.mit.edu/dsheehan/www/abudhabi/manarove.ioa

- MIT Geodata Repository
 - <http://web.mit.edu/geoweb>
- Example Google Maps API
 - <http://web.mit.edu/dsheehan/www/sirsi/geoblog.html>
 - <http://web.mit.edu/dsheehan/www/abudhabi/sabkha.html>
- Download Google Earth
 - <http://earth.google.com/download-earth.html>

Where to get more information

- GIS Lab, Rotch Library, Building 7
 - 6 PCs with Arcgis and Google Earth Pro installed
 - Staffed Monday through Thursday afternoons 12:30 – 6:00PM, Friday 2:00-5:00PM, and by appointment
 - email gishelp@mit.edu or dsheehan@mit.edu