

GEOG 2017EL

Lab 3 January 18, 2010 Creating a Base Map (15 points)

The purpose of this lab is to learn the basics of creating a base map in ArcView

9.3. You will also learn how to:

- Download spatial data from an external source
- Export your map in an alternate format (pdf)

You will also review some of the functions you learned in the first ArcView tutorial, such as how to add data, zoom, and manage layers.

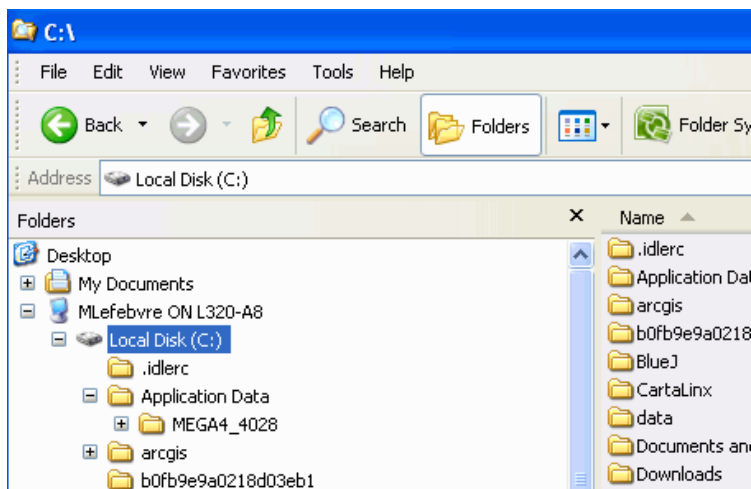
Part 1 Downloading data

A. Preparing for download

In preparation for your downloads, it's a good idea to create the folders in which you will download and extract the necessary zipped files for this project. You will create a temporary location on which to put these files on the C drive.

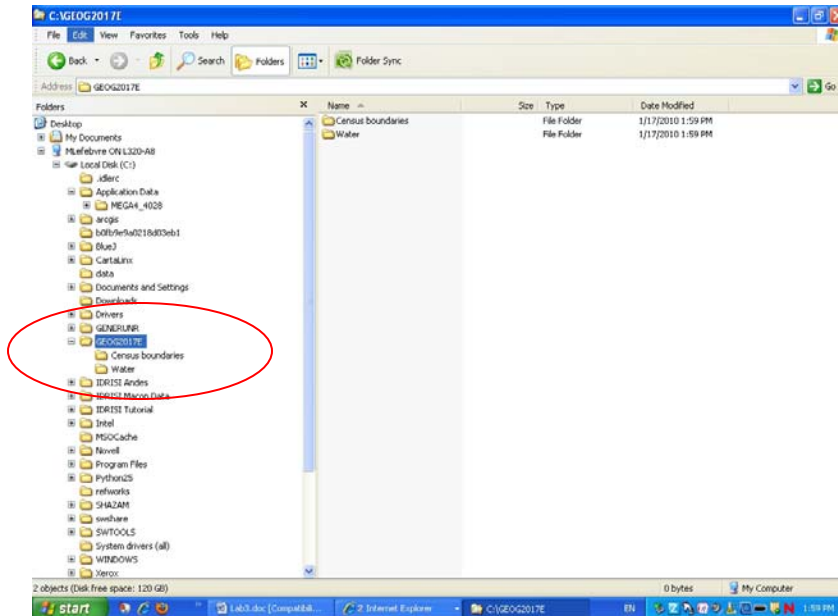
To do this

- 1) Open Windows Explorer (WE)
- 2) Navigate to "Local Disk (C:)"
- 3) From the main menu click **File>New>Folder**
- 4) Name it GEOG2017E



- 5) Now navigate to this new folder GEOG2017E and create two new folders with the following names:
 - Census Boundary
 - Water

6) These folders are empty for now but your directory structure should look like:



B. Downloading spatial data

Make sure you use Internet Explorer (IE) for the following steps. Firefox works perfectly well, but the steps describes here are specific to IE.

- 1) Go to Laurentian University's Library website
- 2) In the Links on the left side, scroll down and click on **Data, Statistics, GIS**
- 3) Under Geographic Information Systems (GIS), click **Data**
- 4) At the GIS Data page there are headers in red lettering; Click on **Canada** (this will save you from scrolling down to the Canada data)
- 5) In the description paragraph of Boundary Files for Canada, there is a link (blue underline) to **Equinox**. Click on the link.
- 6) This takes you to a repository of spatial data files called:

2006 Census of Canada Geographical Files

You will be downloading files from the **Cartographic boundary files (CBF)** section **NOT** **Digital boundary files** section lower down.

- 7) Scroll down in the CBF section to Province
- 8) Click on the word **National**

This brings up a File Download window

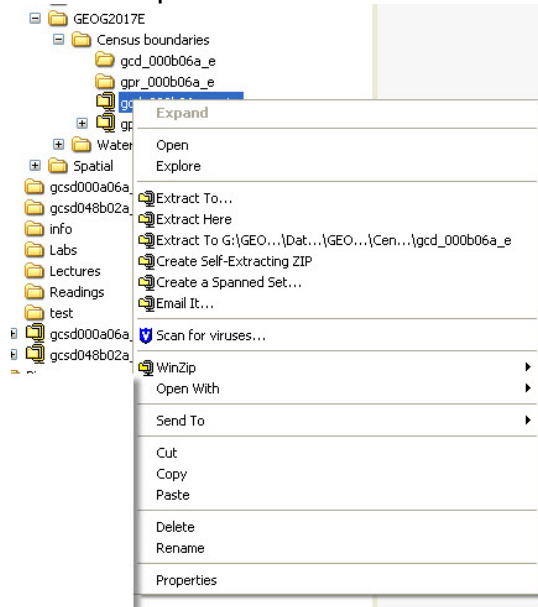
- 9) Click Save (**NOT OPEN; this is very important**)
- 10) When the **Save As** window appears, Save this file in your C:\GEOG2017E\Census Boundaries folder
- 11) Download the Census Division file to the Census boundaries folder using the same technique

12) From the Water Section in **2006 Census of Canada Geographical Files** you want to download the “Lakes Ontario” and “Rivers Ontario” files to the appropriate folder on your C:drive.

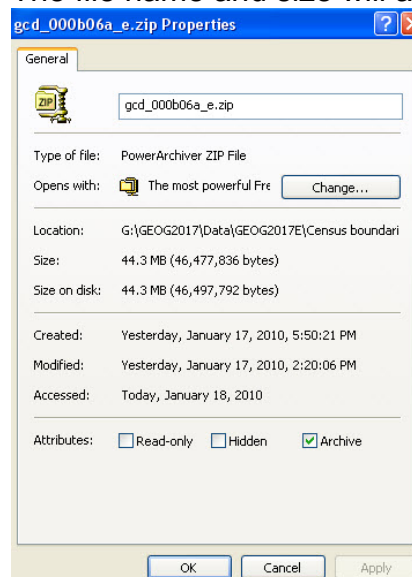
Q1. What are the names and file sizes (in Megabytes-MB) of all the files you downloaded? (6 points)

One way to do this is to navigate to the file in question using Windows Explorer.

- Click once on the file then right-click and scroll down to Properties



The file name and size will be available under the “General” tab

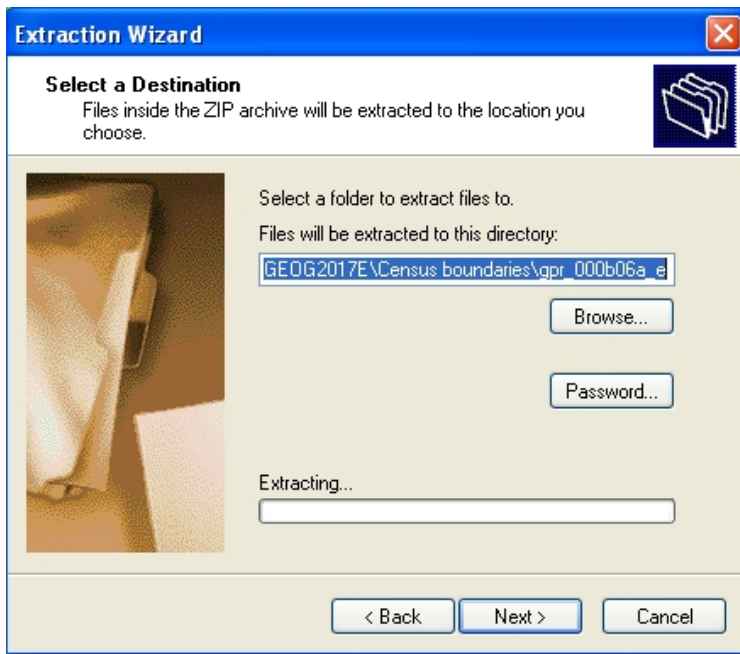


Send me a table by email that looks something like this:

Geography	File Name	File Size
Province	gpr_000b06a_e.zip	33.2 MB
Census Division		
Lakes		
Rivers		

C. Unzipping the spatial files

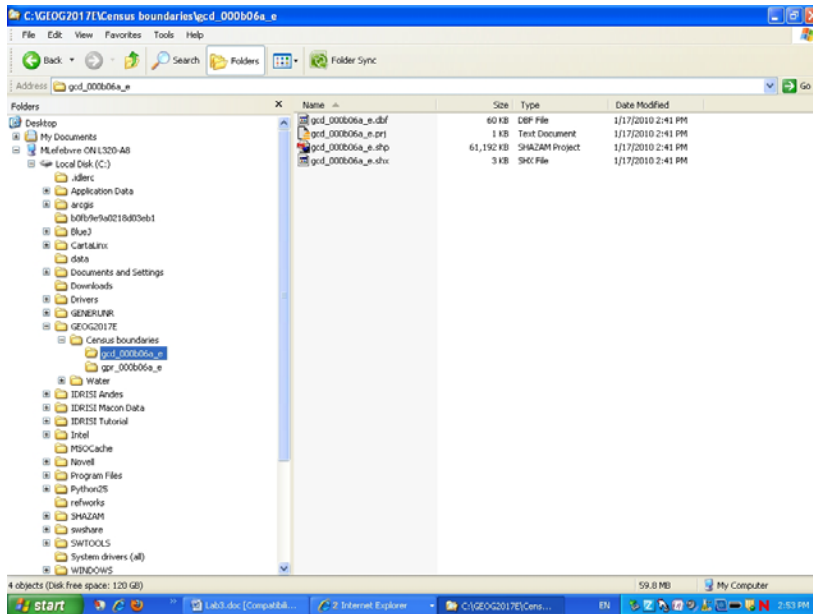
1. Use Windows Explorer to navigate to each file and unzip it.
2. Highlight the file you want to unzip by clicking on the file name once
3. Right click and scroll down to “Extract All”
An Extraction Wizard window will come up
4. Click Next at the first introduction window
5. The next window will suggest a location to which the folder and files will be extracted. Check the location, it should look like this (depending on which file you are extracting)



6. Click Next
7. Click Finish at the last window (you can choose to “Show extracted files.” It’s not necessary.)

Extract all the files you downloaded using the above steps. Notice that the extraction process created subfolders in your directory tree that contain a

number of files. Your directory structure should look something like this (depending on which subfolder you are looking at) :



Each subfolder will have at least 4 files. (remember, ArcView shapefiles are actually made up of several files).

D. Deleting the Zip files

Make sure you've answered question 1 above before you do this!

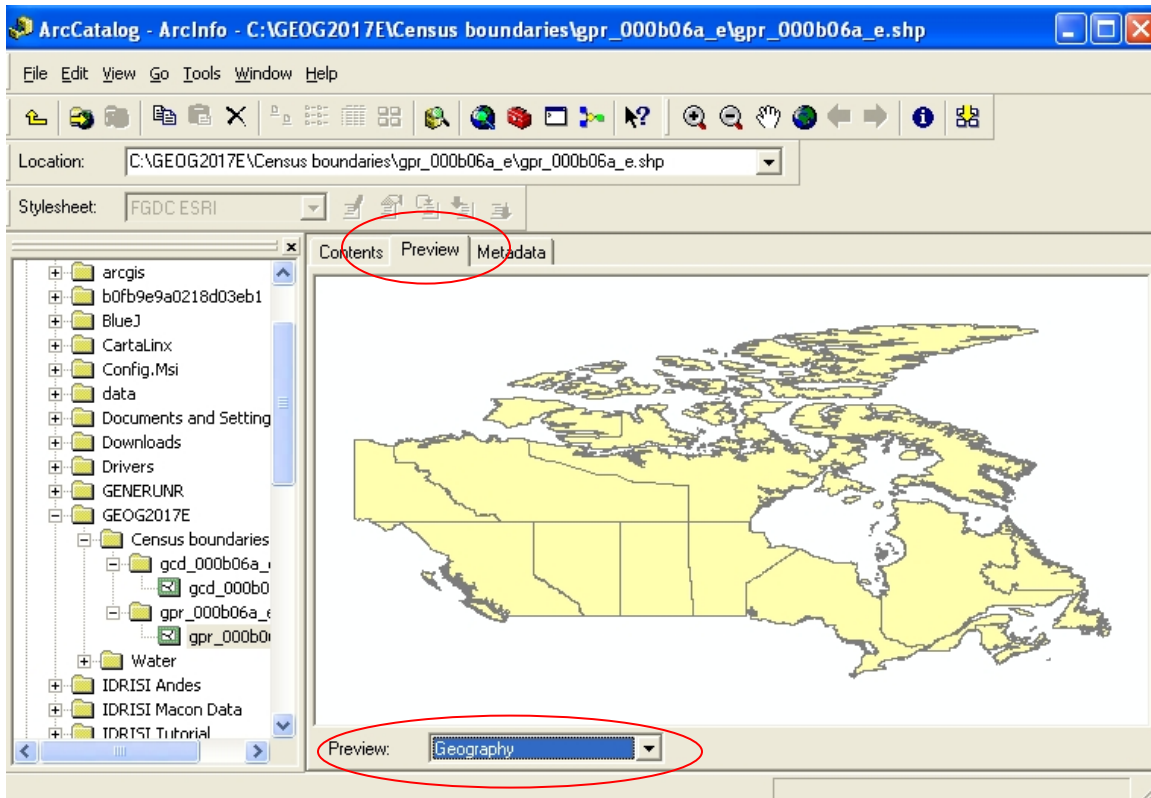
The extracted files are large enough without keeping the zip files, so we will delete them.

- Carefully use Window Explorer to delete the 4 **zipped** files you downloaded, **NOT** the folders and files that were extracted from them.

E. Copying the shapefiles to your flash drive

1. Open ArcCatalog and navigate to the GEOG2017E folder you created on the C: drive.
2. Right click on the folder, then select **Copy** from the context menu (that's the menu that appeared when you right clicked).
3. Navigate to your flashdrive (E: usually in the lab – a connection to E: should already be established. If not, review how to do this using the first tutorial or Help)
4. In an appropriate location on your flash drive (E:), **Paste** the entire GEOG2017E folder.
5. Check using ArcCatalog, that all your shapefiles were copied (navigate to the file and use Preview tab on the right and make sure Geography is selected at

the bottom left Preview option– you can look at the Table option if you like too). Remember, you don't see the four files that make up a shapefile, just the shapefile itself)



Q2. In the example above,

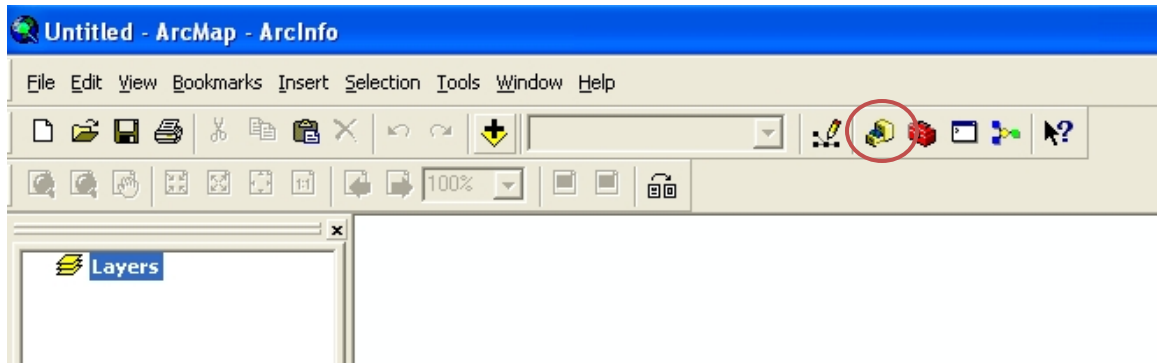
- Which shapefile was I previewing? Give the statCan name. (1 point)**
- Was I previewing a shapefile from the computer's hard drive (C) or a flash drive (E: or other letter) (1 point)**

Part 2 Adding data to a blank map and Exporting a View

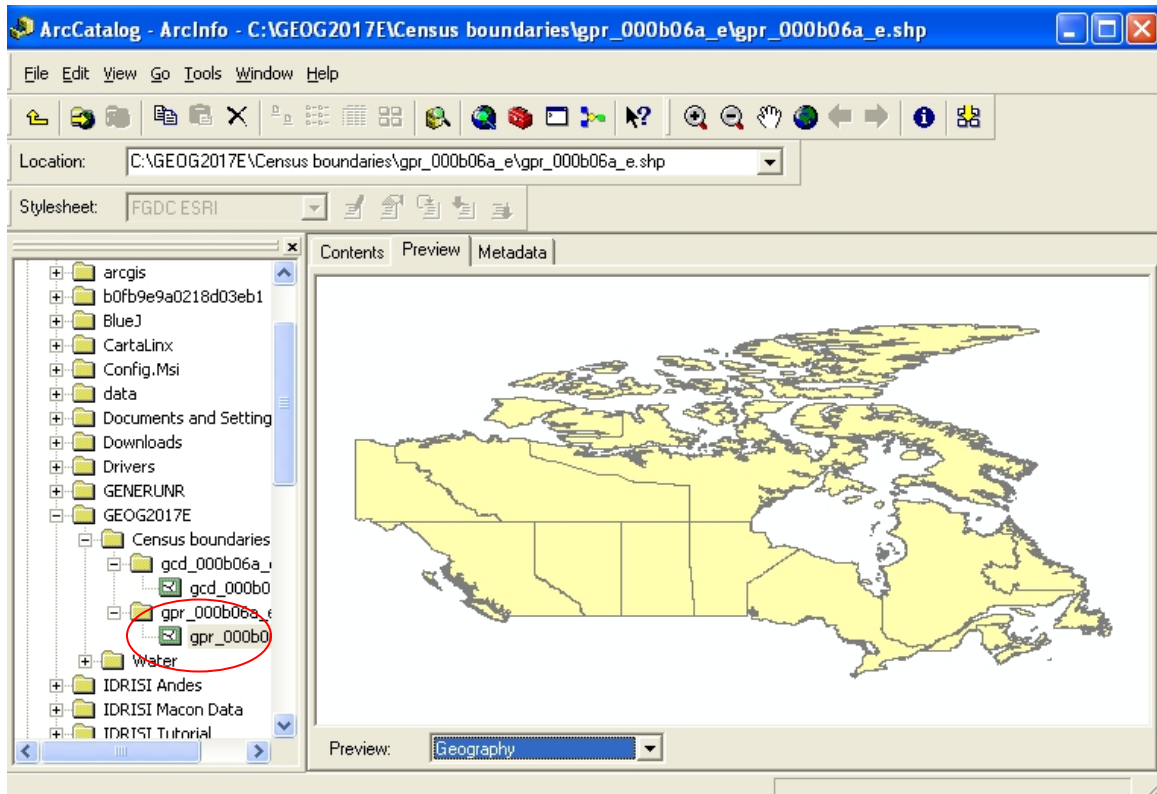
A. Adding data

Start ArcMap

1. Start>Programs>Mapping-GIS>ArcGIS 9.3 > ArcMap
2. At the opening window (a.k.a. splash screen) make sure where it prompts "Start Using ArcMap with" that you select the button (know as a radial button) next to
3. A new empty map
4. The click OK
5. If it's not already opened, open ArcCatalog from ArcMap using the icon (circled below) on the standard toolbar



6. Use ArcCatalog to navigate to your GEOG2017E folder **on your flash drive NOT on the C: drive** and ultimately to the Province shapefile (note that ArcCatalog is only showing ONE file instead of the four that you know are there)
7. Click on the preview tab in the right window of ArcCatalog, and make sure that Geography is selected in the Preview dropdown at the bottom left. This is not strictly necessary as you can just add the file without previewing it; however, it's good practice to preview your files)

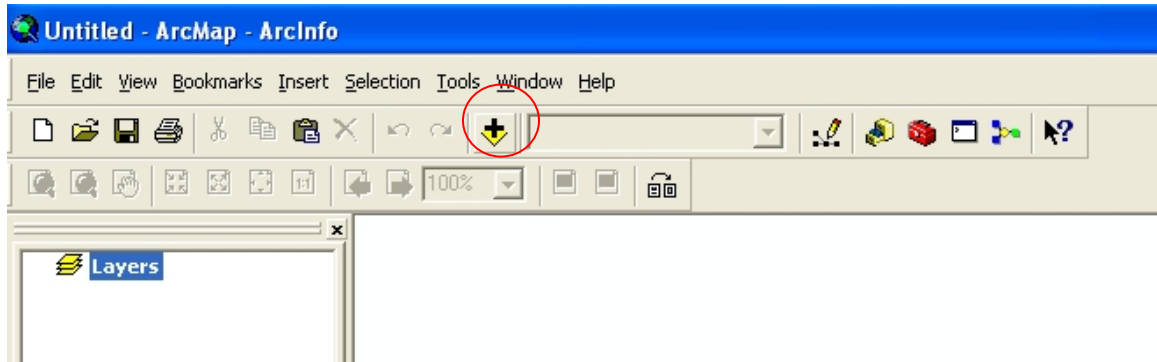


8. Now drag the shapefile (green polygon) from the left hand side of the ArcCatalog window into the ArcMap window (it can be in the Table of Contents or Data View window). You did this in segment 13 of the tutorial in lab 2.

9. Do the same with the Census Division shapefile
10. Close ArcCatalog NOT ArcMap

You're now going to add the Water shapefiles in a slightly different way in ArcMap.

11. Click on the Add data button (circled below)



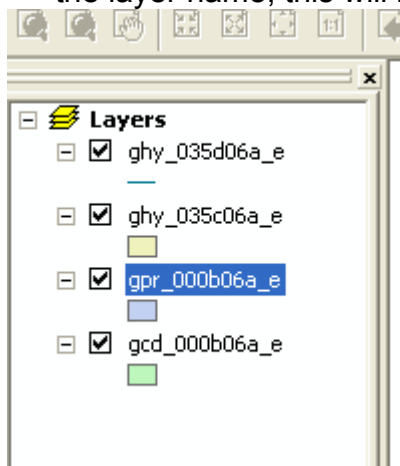
12. Using the Add Data window, navigate to your Water folders in GEOG2017E.
13. Add the Ontario Lakes by navigating to the appropriate folder.
14. Then repeat the steps to add the Rivers.

B: Managing Layers:

The Hydrology layers (lakes and rivers have hy in their zipped file names to identify them as water layers-this is a naming convention for Statistics Canada) obviously create a lot of clutter. We will remove them later but first we rename the layers, change their symbology and use one of them to zoom in to Ontario.

Renaming Layers

1. Rename the layers to something less cryptic. To rename a layer, click on the layer name, this will highlight the layer name in blue



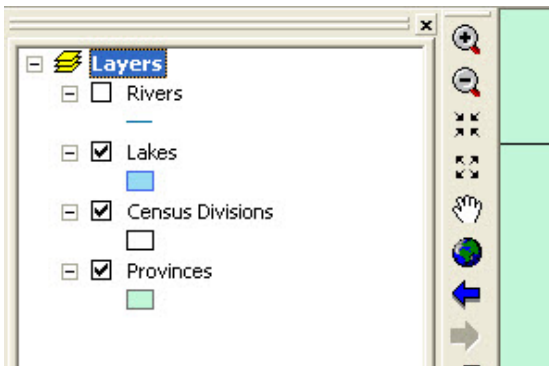
2. Right click on the layer name
This will give you a list of actions starting with Copy and ending with Properties.
3. Click on Properties
4. In the Layers Properties window, make sure the General tab is selected.
You can change the layers name here simply by typing over the existing name.
5. Rename gpr_.... to **Provinces**
6. You can also get to Layer Properties by doubling clicking on a layer name
7. Rename the **Census Division** layer
8. Another way to rename a layer is to click once on the layer name to highlight it, then wait a second or two and click on the layer name again (same as renaming a file in Windows)
9. Rename the lakes and rivers layers

IMPORTANT: This has only changed the layer names in your map. It has not changed the name of the source file (the shapefile that was unzipped). Use Windows Explorer or ArcCatalog to check this. You should still see the long StatCan cryptic names (ghy....shp, gpr...etc)

Ordering Layers

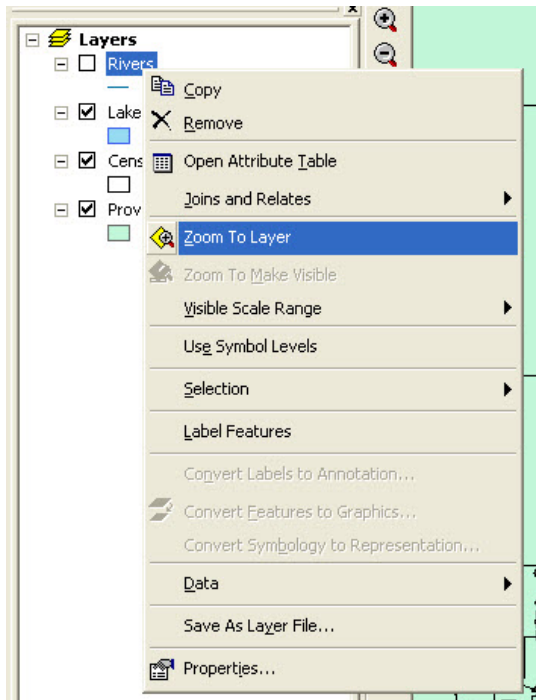
Make sure your layers are ordered in the following way.

- You move a layer up or down by clicking on the layer name holding down the left mouse button and dragging the layer to where you want.



Zoom to Layer

- Right click on the Rivers layer name then click on Zoom to Layer
- That zooms us in to Ontario (remember we only downloaded the Ontario water features)



There's too much clutter. Let's remove the rivers layer.

Right click on the Rivers layer name then click Remove (second choice from the top, the X [see above]).

Q3: Did this only remove the layer from your map or delete the source file (the one in the GEOG2017E folder)? (2 Points)

Change the colour of the Lakes layer by clicking on the symbol just below the Layer name. This brings up the Symbol Selector window. Choose the "Lake" colour from the left window (usually 1st column, 2nd row) and then click OK.

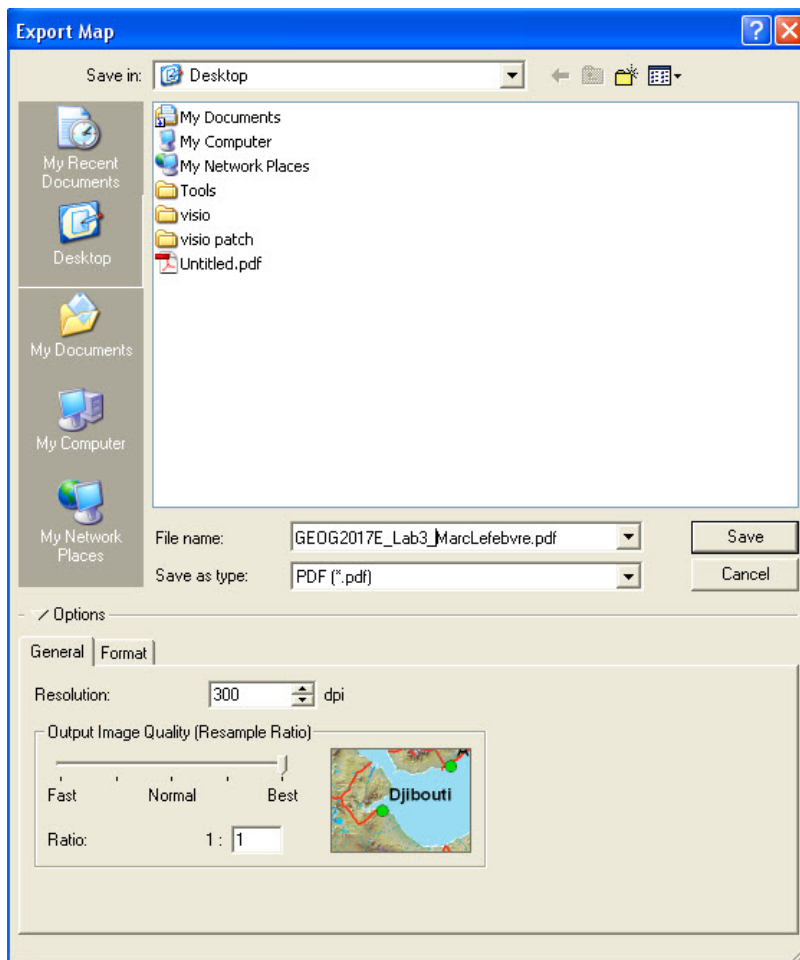
Still too much clutter. Let's make the lake layer invisible (or in ArcView terms, not visible). Simply uncheck the small box next to the Lakes layer name.

Q4. Did "unchecking" the box next to the Lakes layer name:
b) Remove the layer from our map? Yes/No (1 Point)
c) Delete the source file? Yes/No (1point)

Change the color of the Census Division layer to "Hollow" (usually 1st column, 2nd row in symbol selector)

C. Exporting the Data View to pdf (Adobe file) (3points)

1. Make sure you are in Data View, not Layout view.
2. From the Main Menu, do **File> Export Map**
3. Make sure Save as type is PDF (*.pdf)
4. Name it GEOG2017E_Lab3_FirstName_LastName (you don't have to include .pdf, it will be added automatically).
5. Don't worry about the Options at the bottom.
6. Save to your flash drive,



7. Email to me (mlefebvre@laurentian.ca) as an attachment **(3 points)** along with the answers to Q1 to Q4 **(12 points)**. **Total (15 points)**

Note in Data View, you cannot add a legend, neatline, scale etc. that's Ok for this exercise.