

Southeast Alaska GIS Library

Web Feature Services Tutorial



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INTRODUCTION

Purpose:

This document describes the OGC compliant Web Feature Services (WFS) that are currently published via the Southeast Alaska GIS Library, as well as provides instructions for establishing connections to these services using the ArcGIS Desktop software suite.

Overview:

The GIS Library is currently experimenting with a number of OGC compliant web mapping and data streaming services which meet data provision requirements for both stakeholders and regional users. A few of these services are currently be tested and deployed publicly on the GIS Library's infrastructure so that users can interact with the services and provide feedback to the GIS Library. PLEASE NOTE: many of the services listed in this document are currently under development and subject to unscheduled modification. The GIS Library offers no assurances or guarantees of availability for any service that is noted as being in a draft format, under development or undergoing testing.

If you have any questions about the services detailed below, please contact the GIS Coordinator at 907-796-6051 or email: mtplivelich@uas.alaska.edu

What are Web Feature Services:

The Open Geospatial Consortium's (OGC) Web Feature Service (WFS) is a standard protocol for serving geographic features across the Web. The GIS feature information that is encoded and transported using WFS includes both feature geometry and feature attribute values.

By serving the GIS Library's datasets in WFS format, users are able to directly consume the service within ArcGIS Desktop, as well as importing WFS features into a feature class on their local environment. This functionality accommodates users who to obtain local copies of the data, as well as users who want to use authoritative data without storing the data locally.

Further information on WFS is available via the following links:

- http://en.wikipedia.org/wiki/Web_Feature_Service
- <http://webhelp.esri.com/arcgisdesktop/9.3/index.cfm?TopicName=An%20overview%20of%20WFS%20support%20in%20ArcGIS>
- http://webhelp.esri.com/arcgisserver/9.3.1/java/index.htm#wfs_service.htm

GIS LIBRARY WFS

Hydrographic Data:

The Hydrographic Data service is currently under development, however, users are welcome to connect to the service and provide feedback to the GIS Library. The Hydrographic Data service is currently published in WFS format and provides users with desktop access to the Tongass National Forest's primary hydrographic datasets. (Note - this service is intended as a precursor to services resulting from the SE AK Hydro project). The current service includes the following datasets:

- barriers
- dams
- glacier
- huc567
- lakes
- lt_shore
- shore_hl
- streams

NOTE - the metadata for these datasets does not currently stream as a component of the WFS, however, each of the datasets provided within this service are explained in the [2010 Spatial Data Catalog](#) and available for download with metadata at <http://seakgis.alaska.edu/data/>. **Be sure to use the URL in conjunction with the “WFS Connection Instructions” in the next section to connect to this service.** The connection URL for this service is as follows:

- http://seakgis.alaska.edu:8399/arcgis/services/USFS_Hydro/MapServer/WFSServer

Transportation Data:

The Transportation Data service is currently under development, however, users are welcome to connect to the service and provide feedback to the GIS Library. The Transportation Data service is currently published in WFS format and provides users with desktop access to the Tongass National Forest's land based transportation datasets. The service includes the following datasets:

- NON_ROUTED_TRAILS
- Road
- RoadWithCoreAttributes
- se_ak_spec1
- TrailsWithCoreAttributesRSW
- TransportationAtlasRSW

NOTE - the metadata for these datasets does not currently stream as a component of the WFS, however, each of the datasets provided within this service are explained in the [2010 Spatial Data Catalog](#) and available for download with metadata at <http://seakgis.alaska.edu/data/>. **Be sure to use the URL in conjunction with the “WFS Connection Instructions” in the next section to connect to this service.** The connection URL for this service is as follows:

- http://seakgis.alaska.edu:8399/arcgis/services/Transportation_Data/MapServer/WFSServer

WFS CONNECTION INSTRUCTIONS

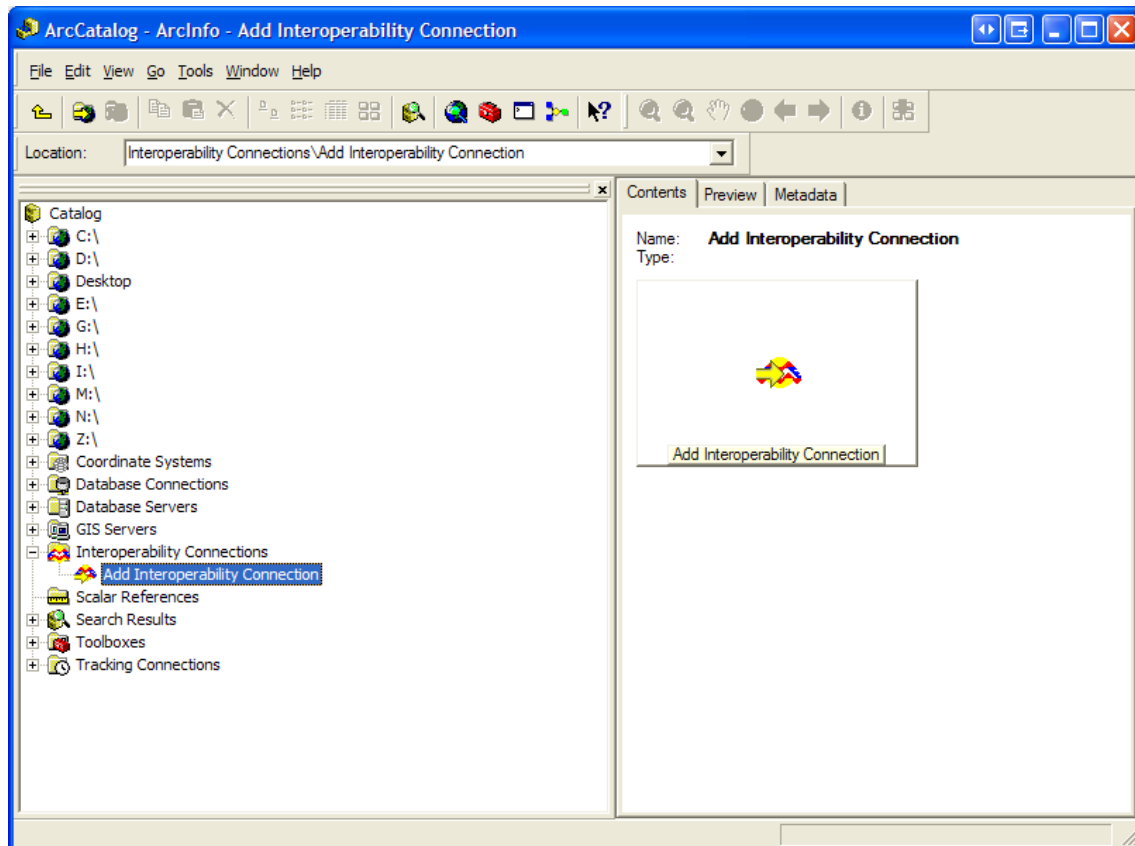
Please note the instructions provided in this document pertain to version 9.3.1 of the ArcGIS Desktop software suite - i.e. ArcMap or ArcCatalog. For all other software/connection platforms, please refer to the software documentation or consult your software service provider for information on connecting to OCG compliant WFS feeds.

Also these instructions provided in this document are particular to WFS feeds hosted at the Southeast GIS Library. The instructions and settings below may not be applicable to WFS feeds hosted on other GIS infrastructures.

Please note the following: there are a few 3rd party WFS connectors (e.g. [Gaia WFS-T Extenders package](#)) which are available for download on the internet. Some of these products allow both ESRI and non-ESRI users to consume the WFS services hosted at the GIS Library, however, users are advised to use these software products at their own discretion. The GIS Library assumes no responsibility for their use.

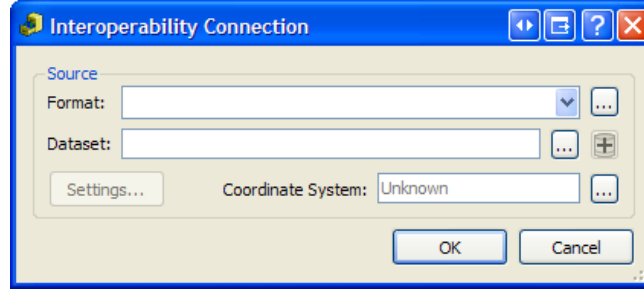
Interoperability Connections:


1. Open ArcCatalog and expand “Interoperability Connections” in the navigation window.

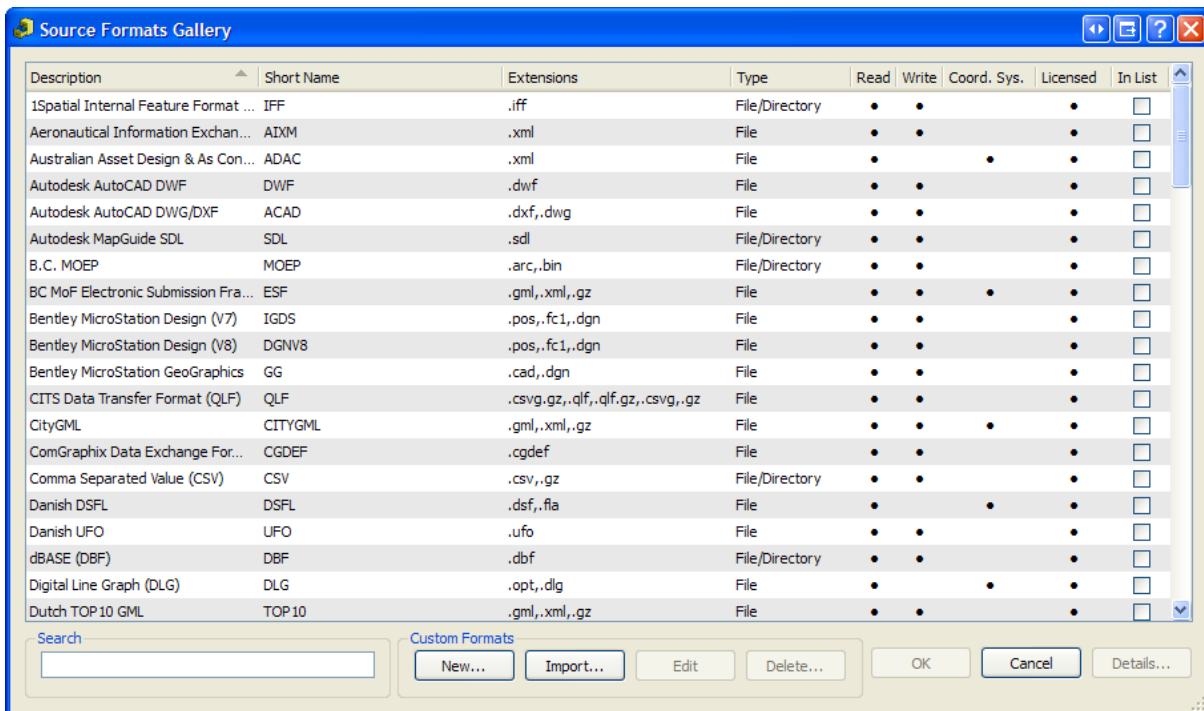


2. Double click “Add Interoperability Connection” so the interoperability Connection window

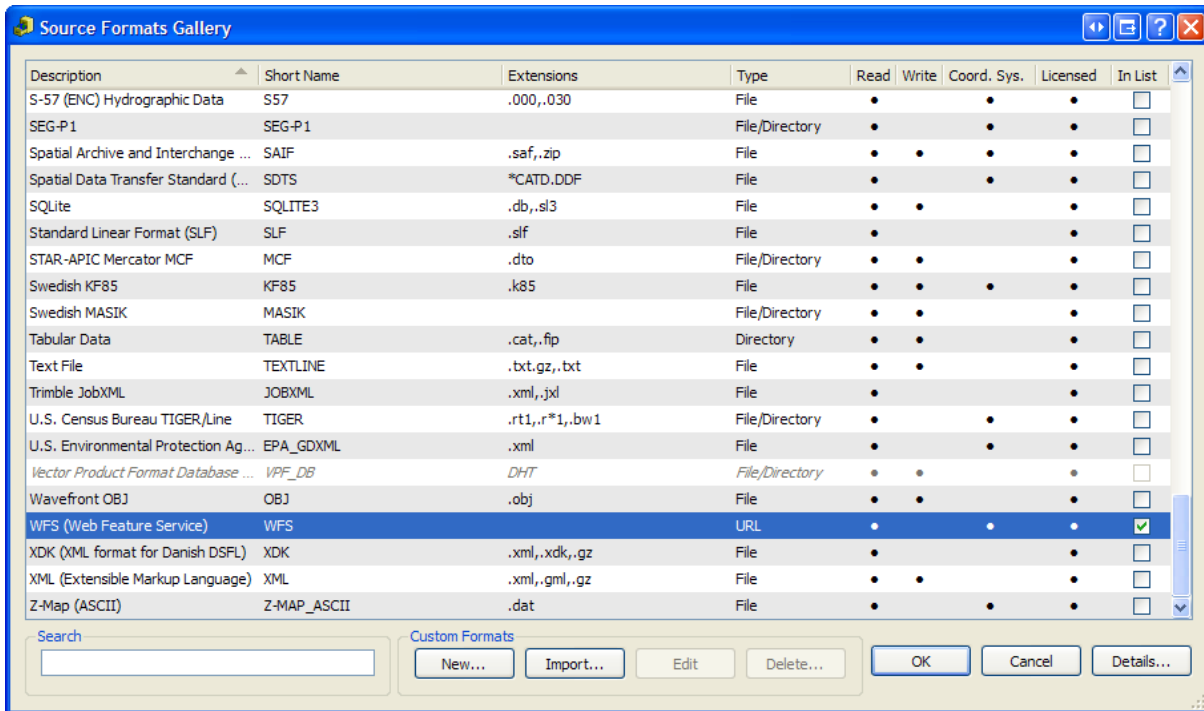
opens as shown below.



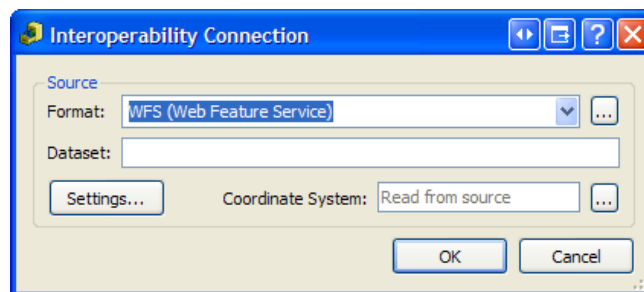
3. Click on the button to the far right of the “Format:” dialog box () so the “Source Formats Gallery” window opens as shown below.



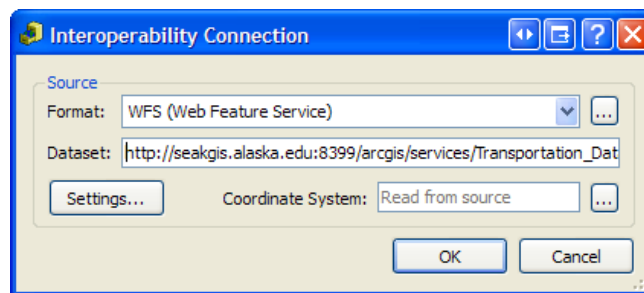
4. Scroll to the bottom of the list and check the box for “WFS (Web Feature Service)” line as shown below. Note – your “Source Formats Gallery” window may appear different than above depending on whether certain ArcGIS Desktop extensions are enabled (this is OK either way).



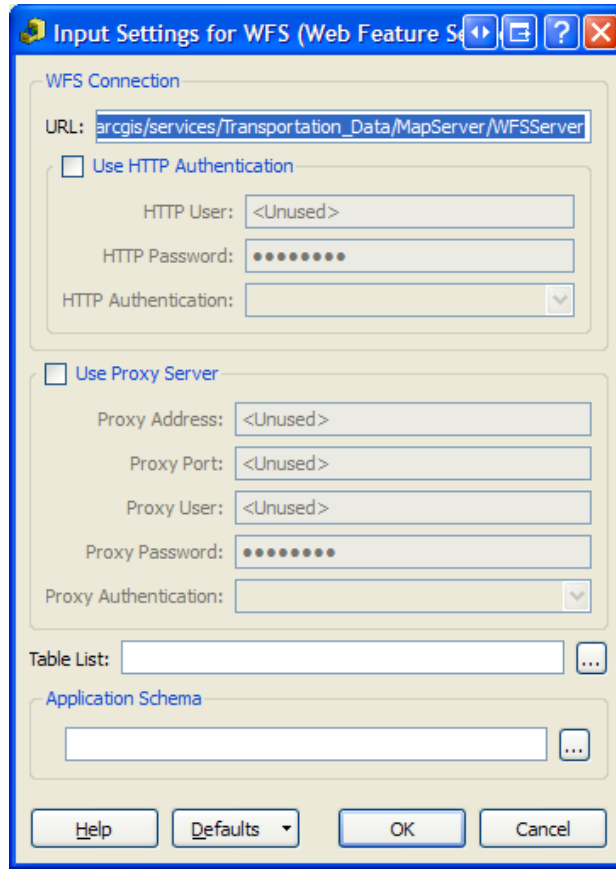
- Click "OK". The "Format:" dialog box should now read WFS (Web Feature Service) as shown below.




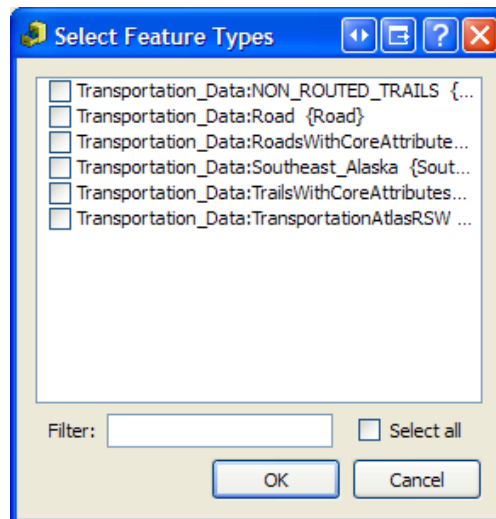
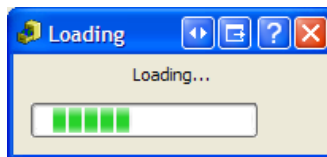
- Copy the URL particular to the WFS you wish to connect to and paste it into the "Dataset:" dialog box as shown below. NOTE: this example uses the URL for the Transportation Data WFS from above - be sure to use the URL particular to the correct WFS service.



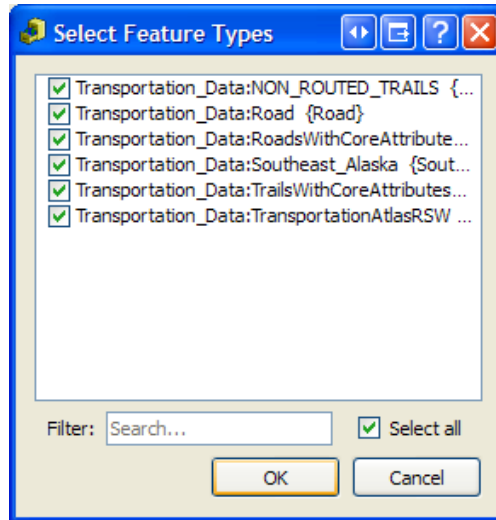
- Once you ensure there are no spaces before or after the URL you just pasted, click the "Settings..." button so the Input Settings for WFS window opens as shown below.



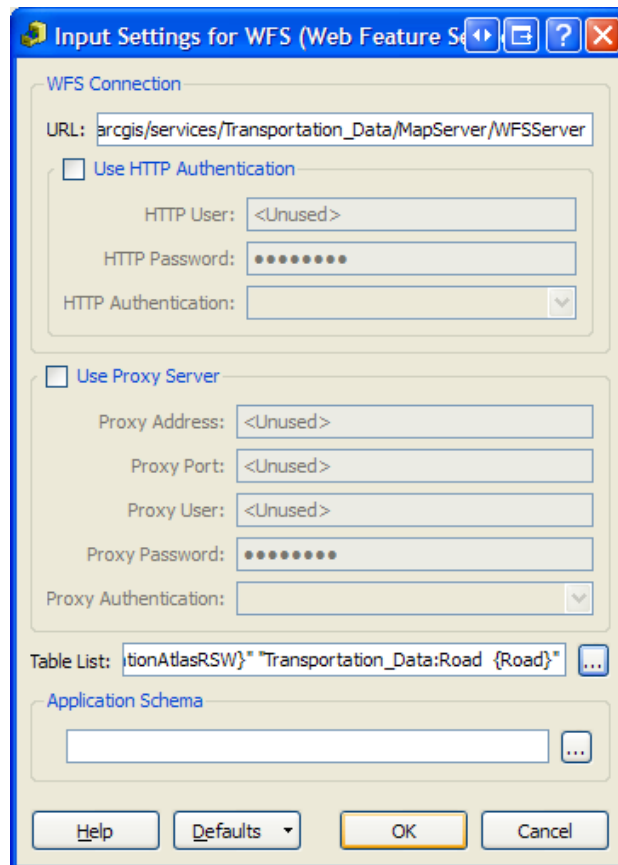
- Click on the button to the far right of the “Table List:” dialog box () so that the “Loading” window pops up followed the “Select Feature Types” window as shown below.



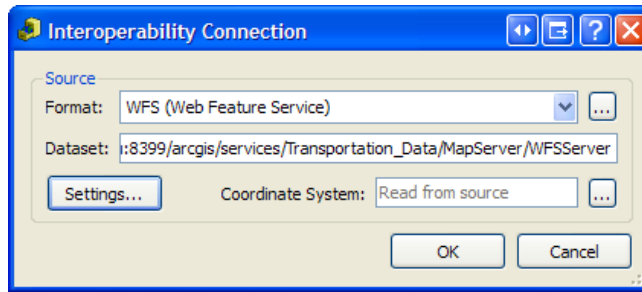
9. Either select the individual datasets you wish to connect to or select them all and click “OK”



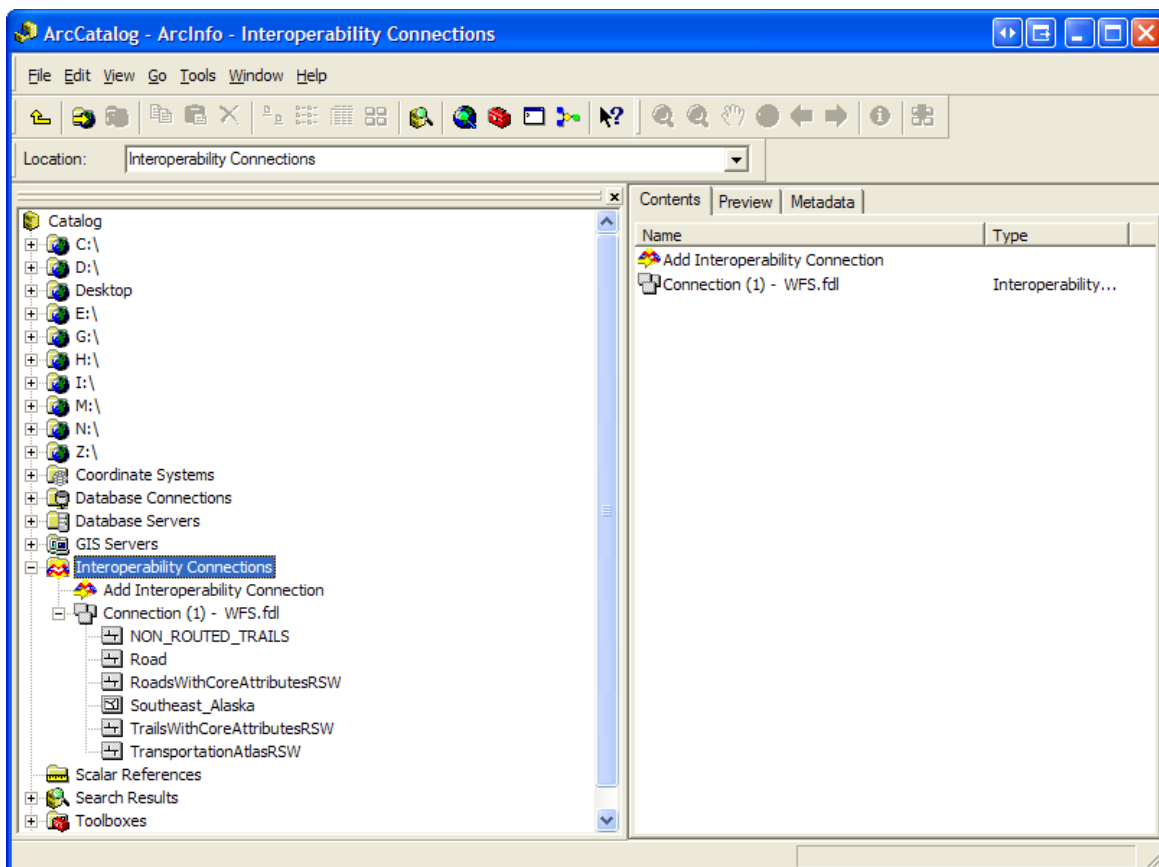
10. The “Table List:” dialog box should now be populated within the “Input Settings for WFS” window look similar to the one below.



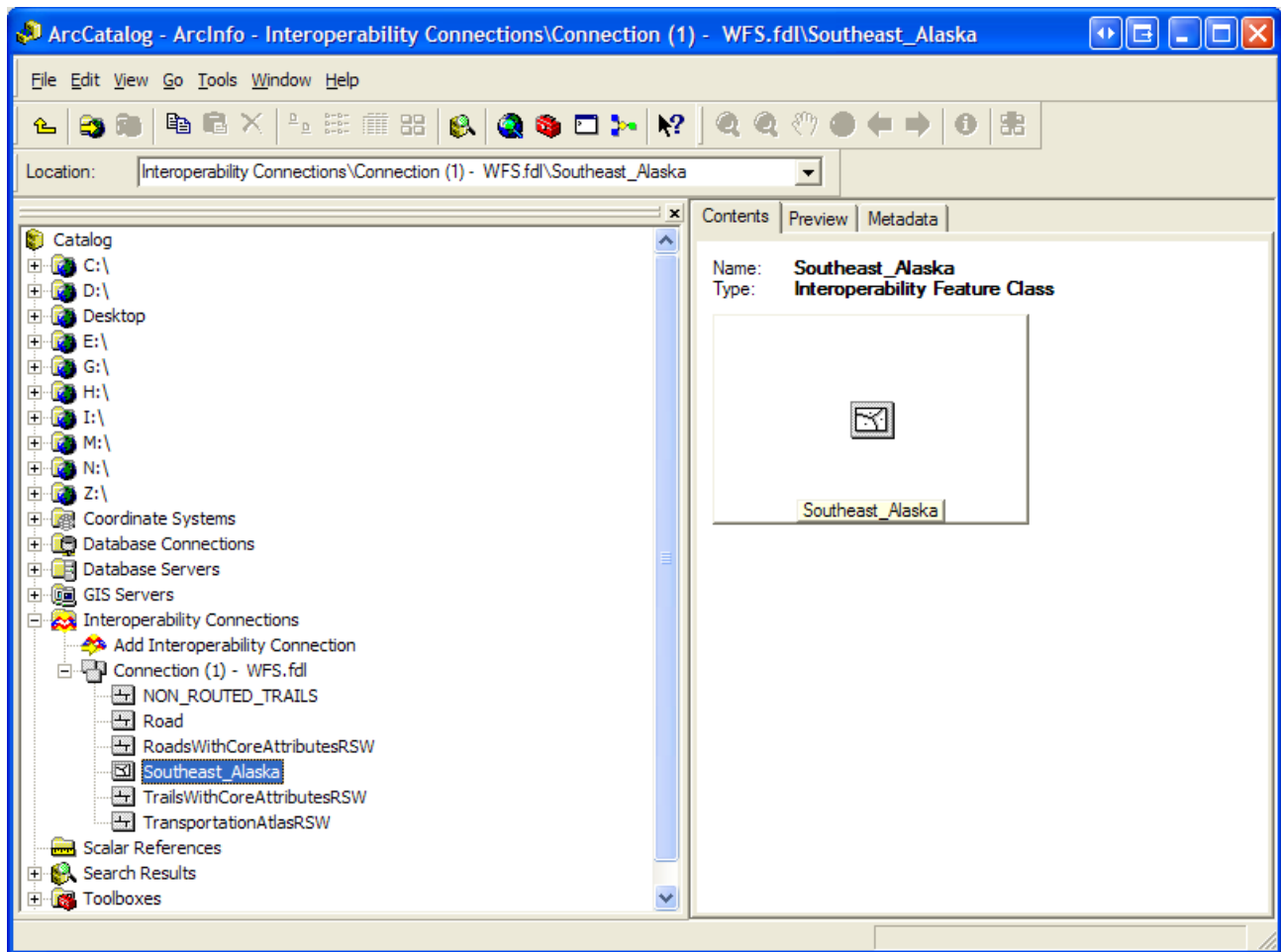
11. Make sure nothing else is selected and click “OK”. That should now return you to the “Interoperability Connection” window.



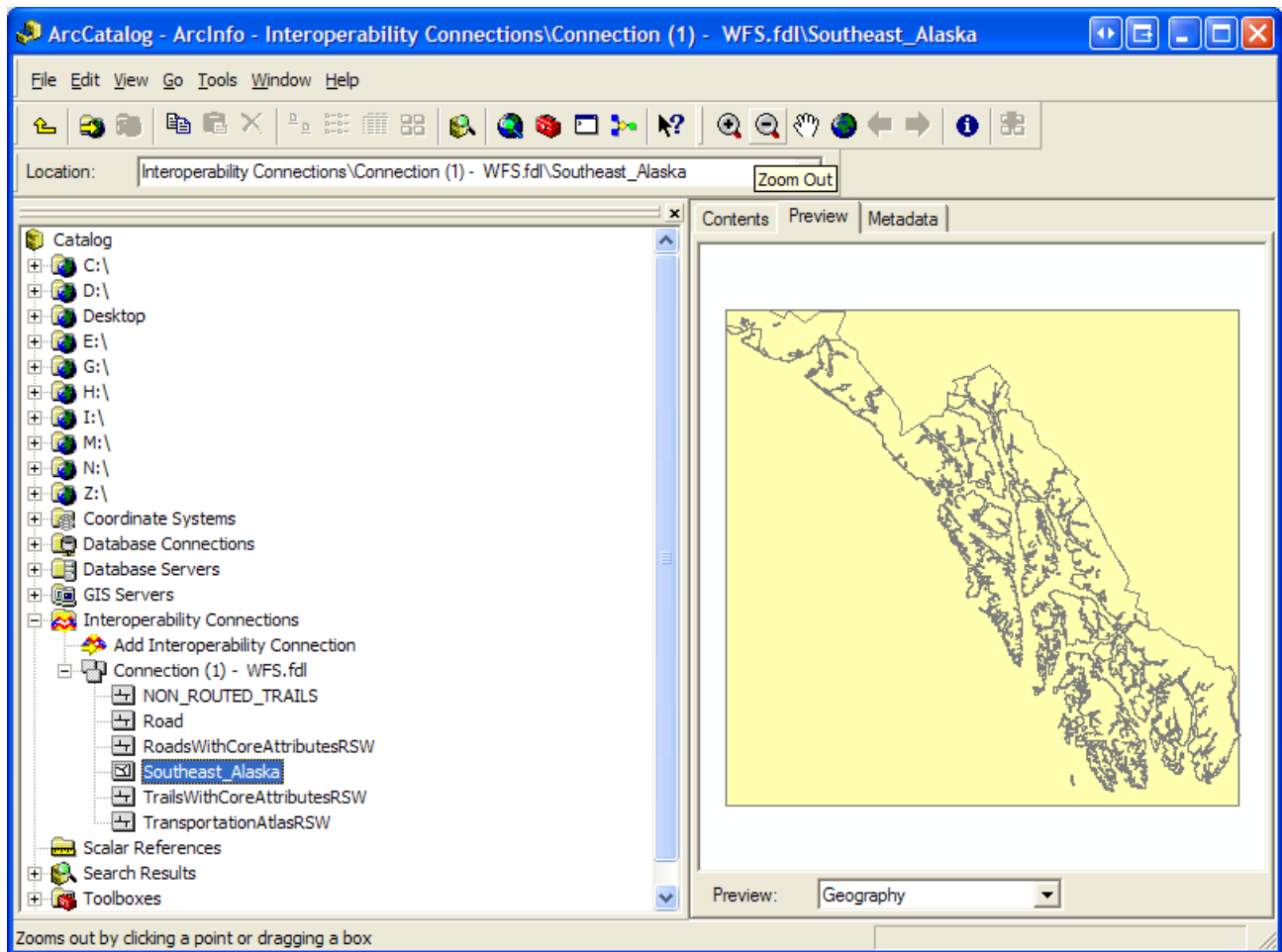
12. Click "OK". By default, the software will create a feature dataset titled "Connection (1)" that contains all of the datasets being served by the WFS. The new feature dataset and underlying feature classes in the WFS are shown below. NOTE – the feature dataset can be renamed according to preference and does not need to keep the default name.



13. To test the connection to WFS, click on anyone of the feature classes within the WFS feature dataset as shown below.



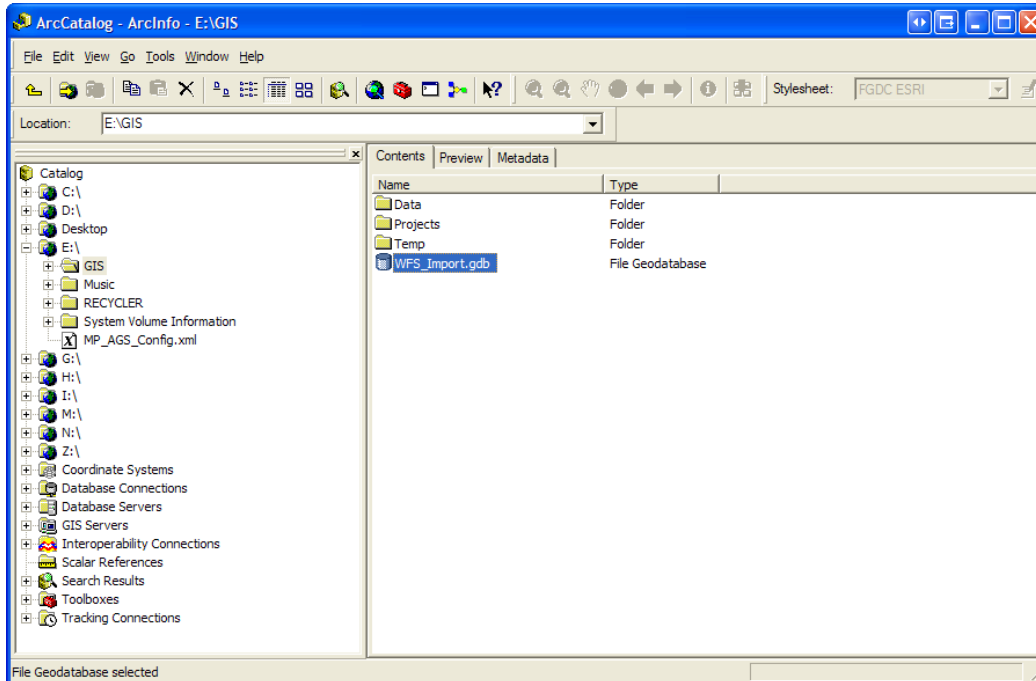
14. Next, click on the Preview tab so you can see the spatial extent of the dataset you selected above. This will cause the software to index the connection and browse each of the features within each of the datasets under the feature dataset. Depending on the number of features within the datasets, the geometric complexity of the datasets, and the user's internet connection, the indexing process may take several minutes to complete. Once the process completes successfully, you will see an overview of the data you selected in the preview window as demonstrated below.



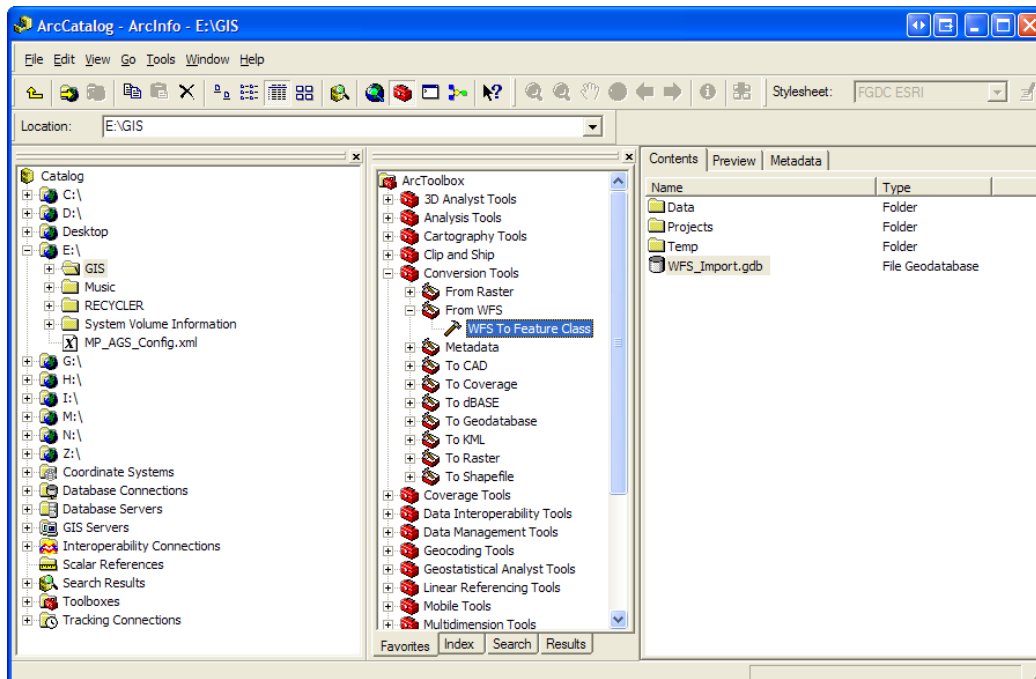
15. Once connectivity to the service has been confirmed, the datasets can be used like any other data input within ArcMap, ArcToolbox or ArcCatalog. Users can also export the data to a local machine or directory – i.e. make a local copy of the data which is then independent of the WFS connection.

Importing/Converting to Feature Class:

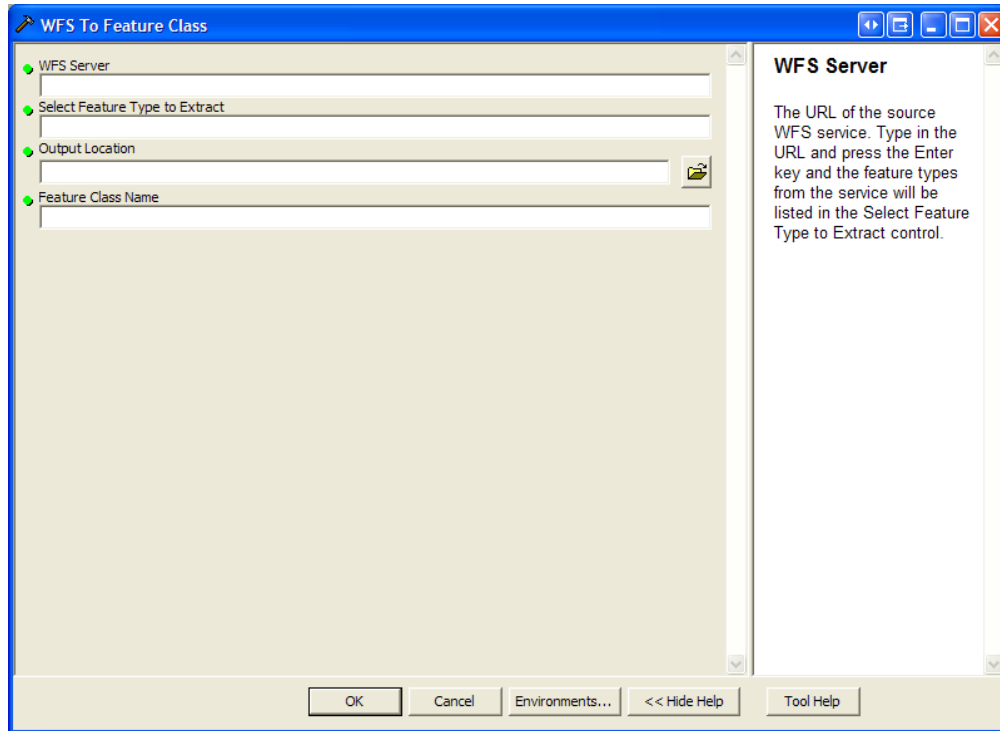
1. Open ArcCatalog and create a new file geodatabase or a personal geodatabase in the location where you would like to save the WFS datasets. Name the geodatabase whatever you want – in this example the geodatabase is named “WFS_Import” and the result is shown below.



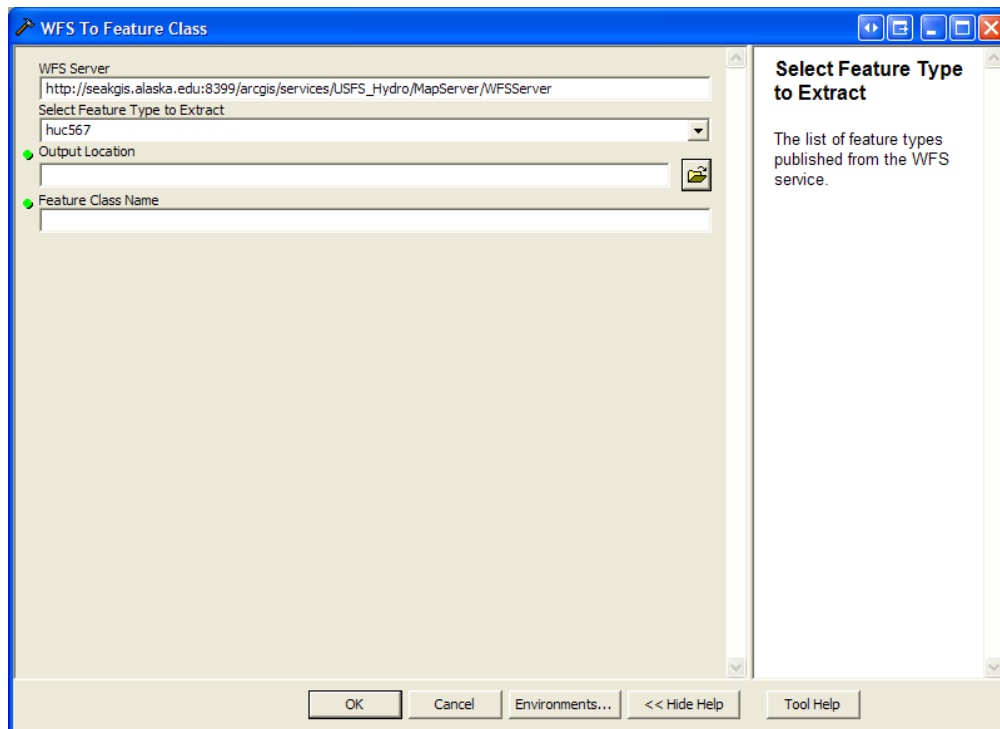
2. Next, turn on ArcToolbox (if not on already), expand the “Conversion Tools” toolbox and then expand “From WFS” as shown below.



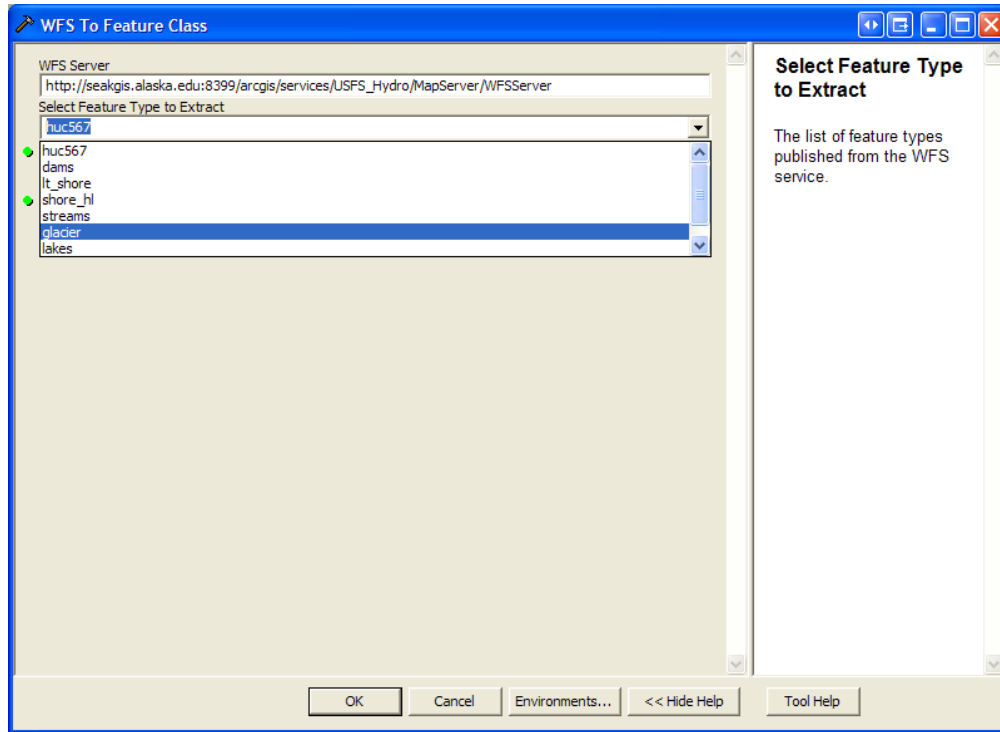
3. Double click the “WFS To Feature Class” tool so that it opens as show below.



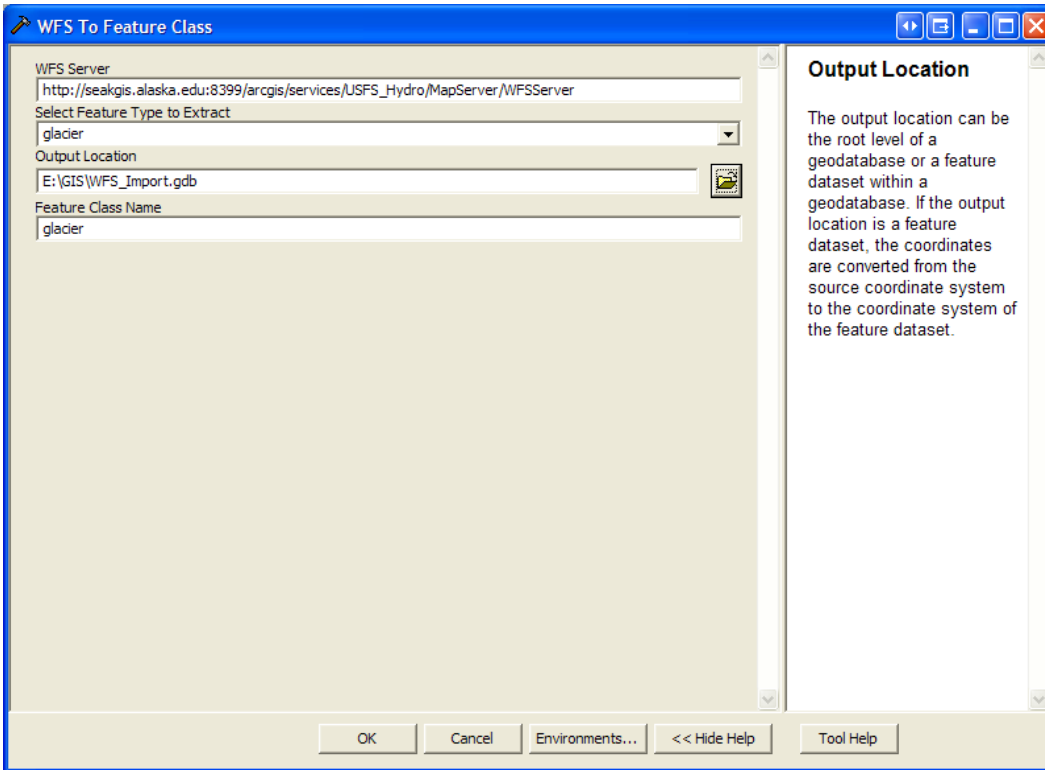
4. Paste one of the WFS URLs into the “WFS Server” dialog box – URLs are provided above in the GIS Library WFS section starting on page 4. For this example we’ll use the Hydrographic Data URL – the result is shown below.



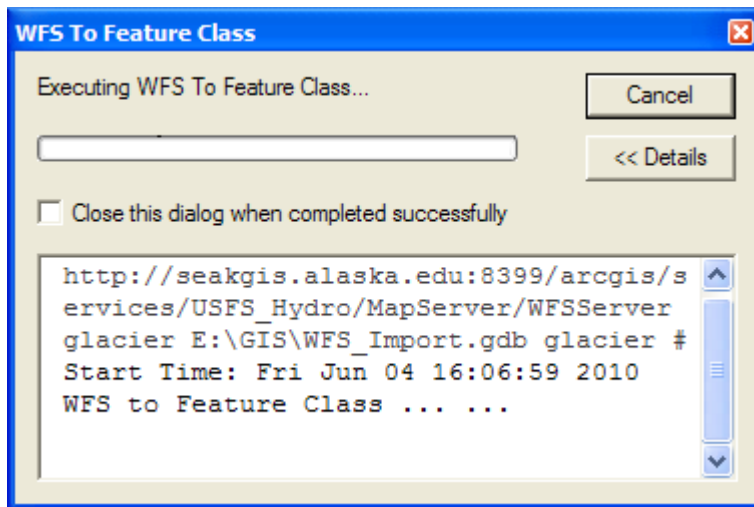
- Once the URL has been added, the “Select Feature Type to Extract” dialog box will automatically populate with each of the datasets contained in that particular WFS. Select the particular dataset that you wish to import into your new geodatabase. Note if you want to import more than one dataset from within the WFS, then you must run the tool for each dataset you want to import and save locally. In this example, we’ll select the glacier dataset from the dropdown list and the result is shown below.



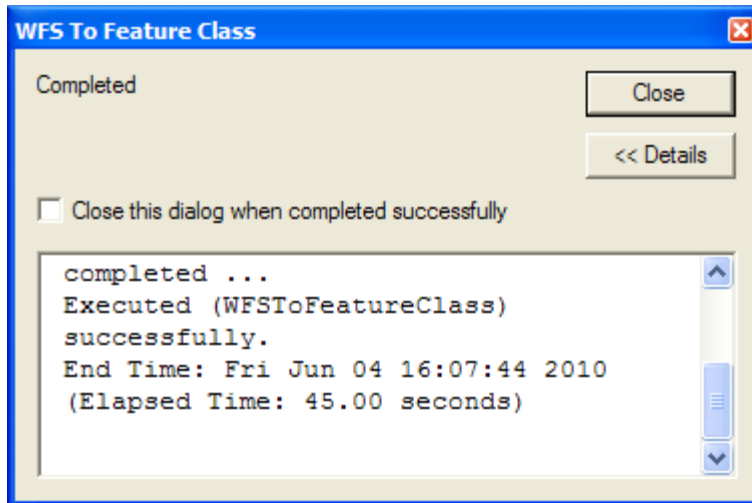
- Next, navigate to and select your new geodatabase (named “WFS_Import” in this example) as the “Output Location” where you want to save the particular dataset. The result is shown below.



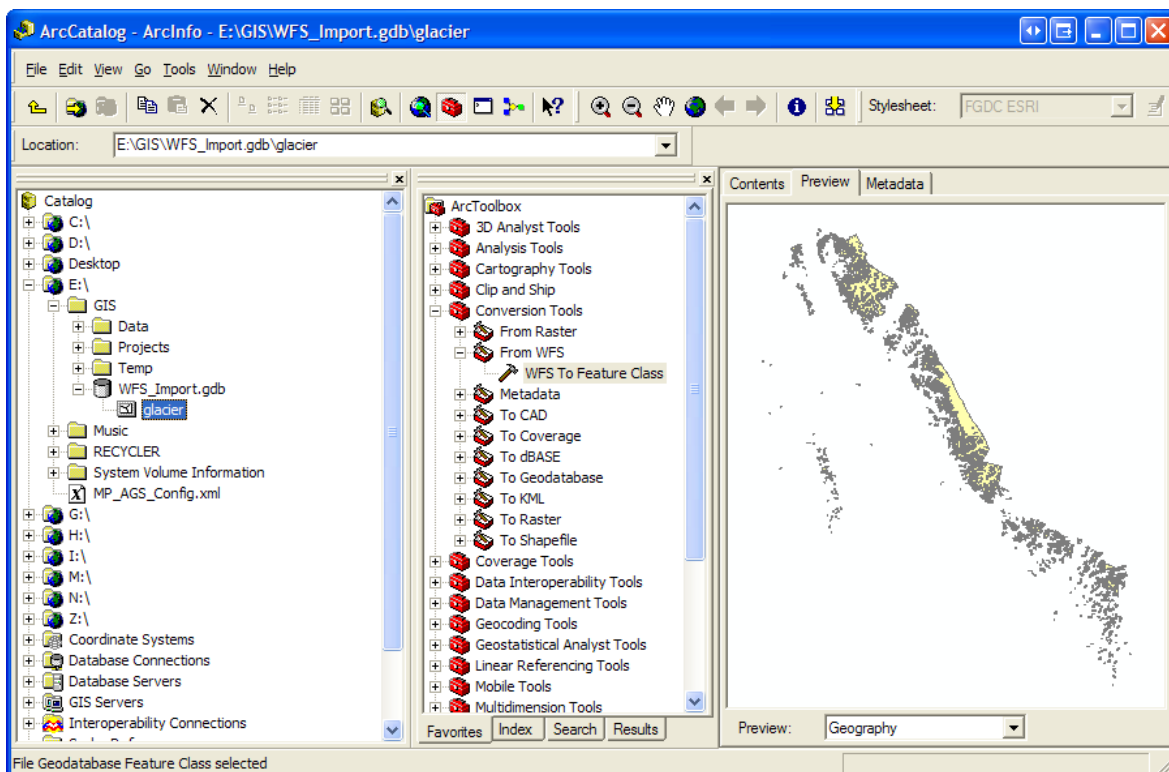
7. Click OK and the tool will begin to execute as shown below.



8. Depending on the size of the dataset and your internet connection, the process can take anywhere from several seconds to several minutes to complete. This example took 45 seconds as shown below.



- Finally, confirm that the data was populated into your geodatabase by expanding the geodatabase, **REFRESH** the contents and then preview the resultant dataset. The result is shown below.



Please contact the [Coordinator at the Southeast Alaska GIS Library](#) if you experience difficulty or are unable to connect to the services at the GIS Library using the software and steps outlined above. Also, the GIS Library welcomes your feedback – please give us a shout if you find misspellings, instruction errors, or have concerns about usability of the document.