Best Practices for using GINA Web Services in QGIS

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1. Download data. Below is a list of some different sources available :

   Sea Ice:

   - National Weather Service - Anchorage Office
   - NOAA National Ice Center - geotiff
   - NOAA National Ice Center - KML
   - NOAA National Ice Center - Daily Products

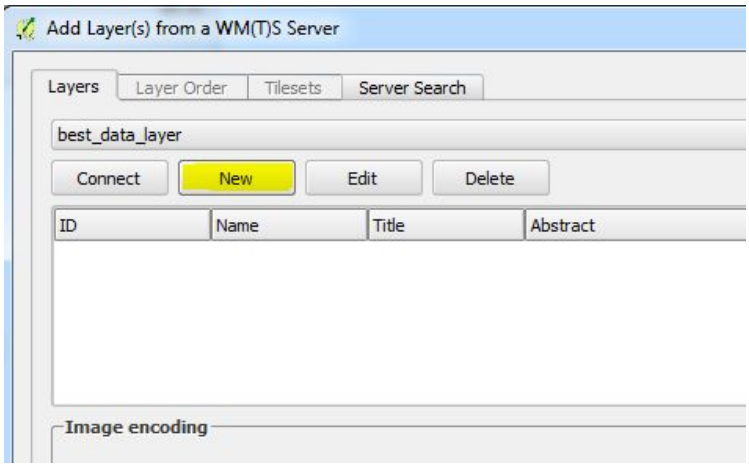
   AK specific:

   - AK coastline
   - AK cities, land parcels, physical features, etc
   - UAF GINA's Puffin Feeder: MODIS, VIIRS, Radar data

2. Open QGIS
3. Change the project Coordinate Reference System to Alaska Albers for viewing data within Alaskan mainland by going to **Project** > **Project Properties** > **CRS** and selecting Alaska Albers Equal Area Conic

   a. For viewing data near the poles, change to EPSG:3572 / WGS 84 / North Pole LAEA Alaska CRS

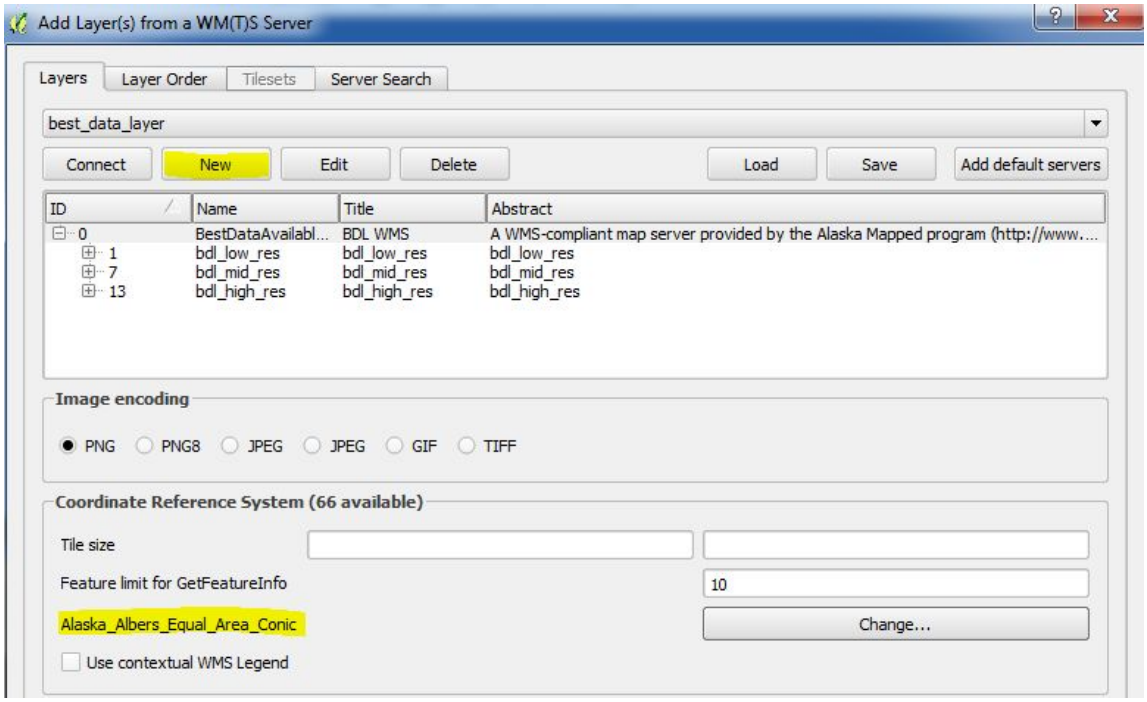
4. Add WMS layer (**Layer** > **Add Layer** > **Add WMS/WMTS Layer**)
5. Under "**Layers**" tab click "**New**"



6. Name this new WMS layer accordingly and enter the correct URL for the WMS layer

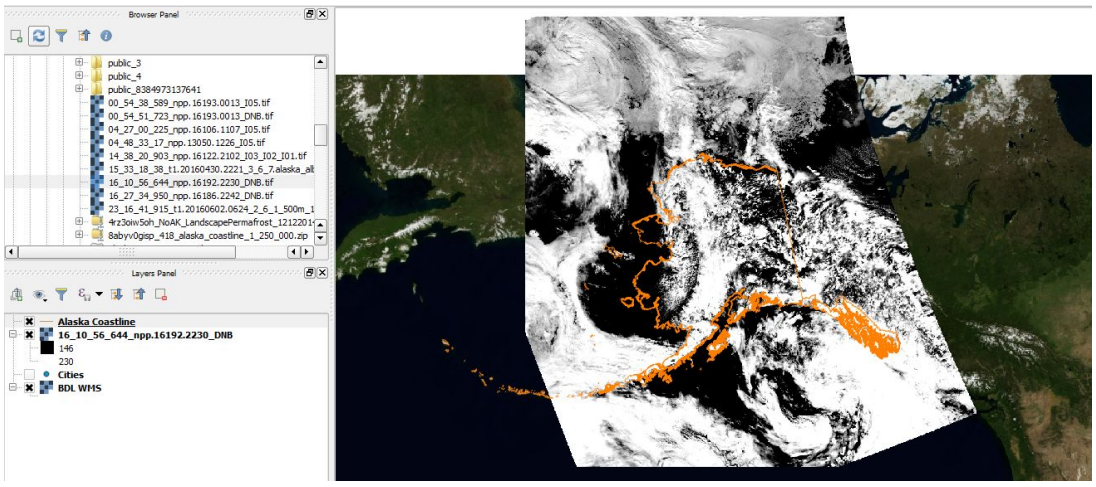
a. Use http://wms.alaskamapped.org/bdl for the **best data available base layer**, and click "**OK**".
    i. Note: you can add different data layers by changing "bdl" to "extras" and choosing from the different data offered by GINA in the layer menu, including **DRG**s, **Landsat Pan**, **GINA Bathymetry**, and more.
    ii. You can also add near real time **MODIS** imagery by using the URL http://realtime.gina.alaska.edu/modis/year and changing "year" to desired year.
    iii. A list of different WMS layers available for use through GINA can be found at http://docs.gina.alaska.edu/ogc/wms/

7. Select the top layer **(0)** and in the options below and change the **Coordinate Reference System** to **Alaska Albers Equal Area Conic**; to add Alaska Mapped best data available layer, click "**Add**" then "**Close**"

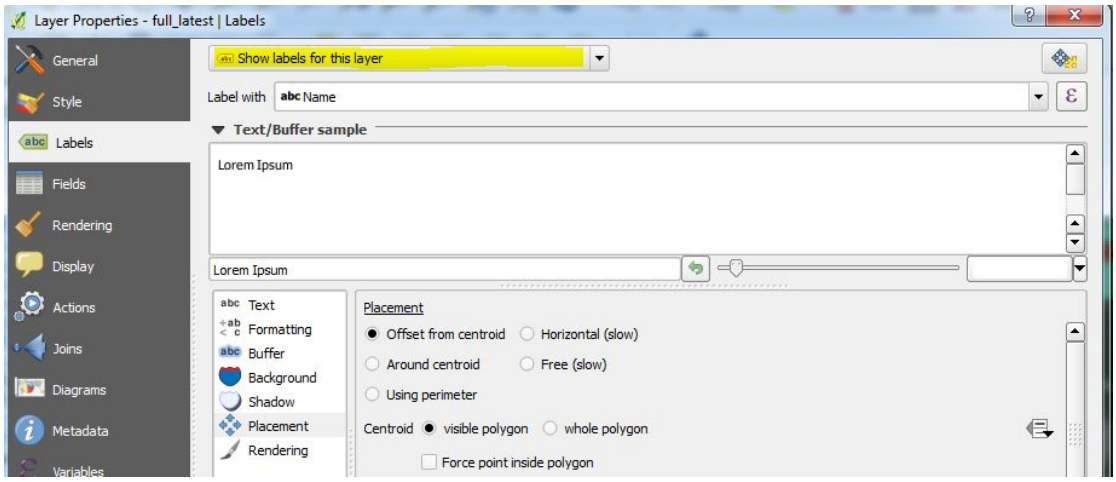


8. Navigate to Downloads folder in the **Browser Panel** (or wherever your data is downloaded to) and add desired data layers to your window (click and drag). In this case I used SNPP VIIRS Day-Night Band imagery.
    a. Make sure all your layers are in the same coordinate system (Right click layer and then: **Properties** > **General** > **Coordinate Reference System**). For most

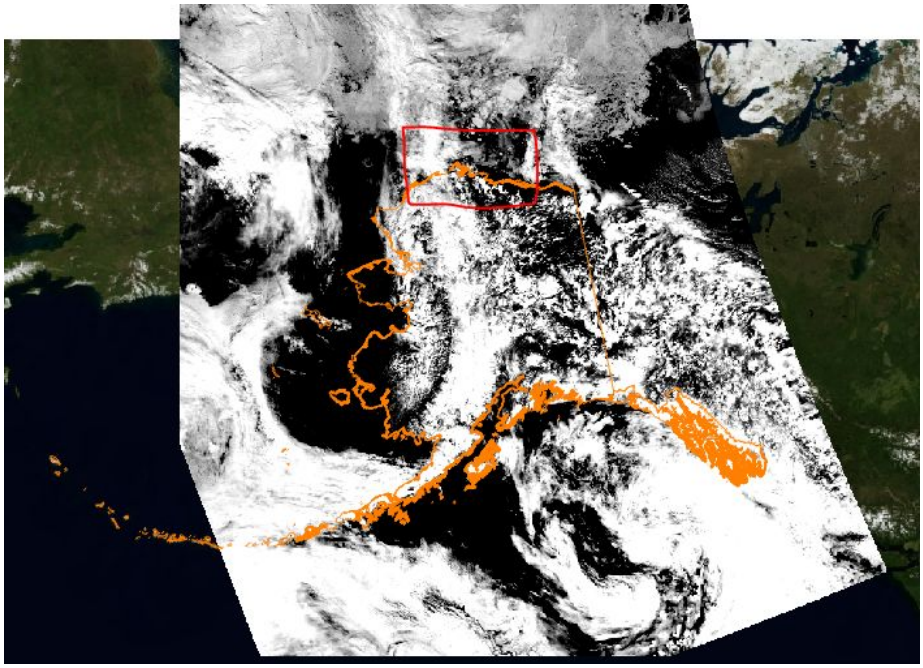
data in and around Alaska provided by GINA, Alaska Albers Equal Area Conic is used.

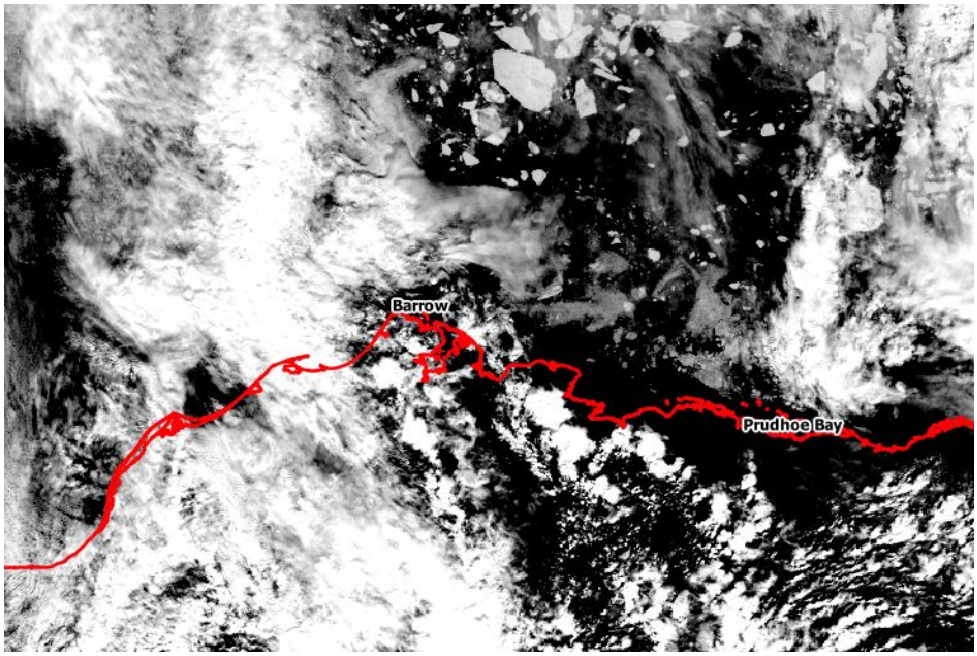


9. To add **labels** to your layers, right click on the layer in the **layer panel** and click "**Properties**". Navigate to the "**Labels**" tab and change the menu option from "**No Labels**" to "**Show labels for this layer**". You can change the properties for the layers in the menu below.



10. To zoom in, click the magnifying glass with a **+** sign on it and make a box around the area you'd like to zoom in on, in this case we zoom in the Alaska's northern coast near Barrow and Prudhoe Bay. You can also use the scrolling button on your mouse to zoom in or out.

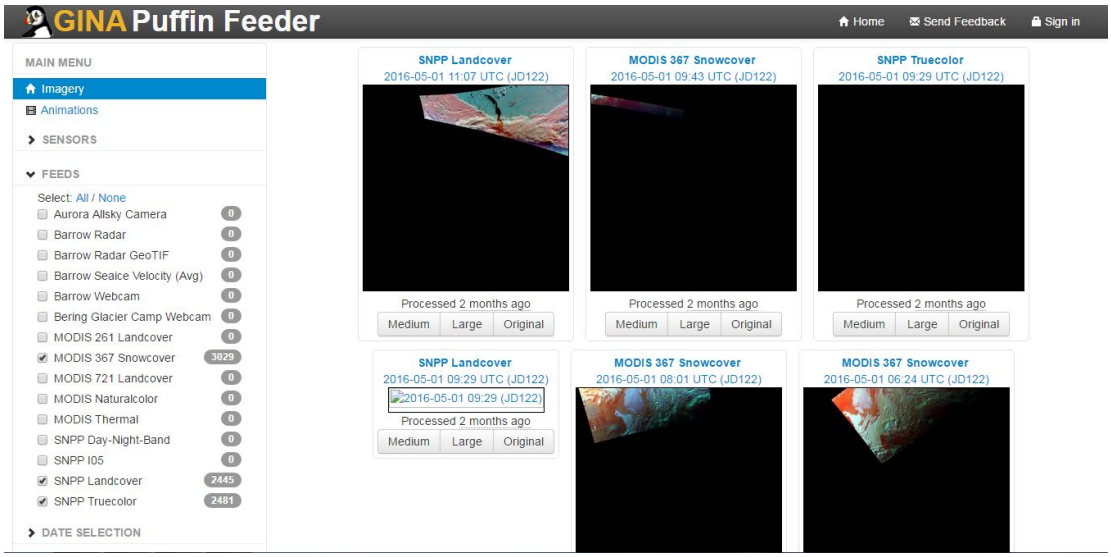


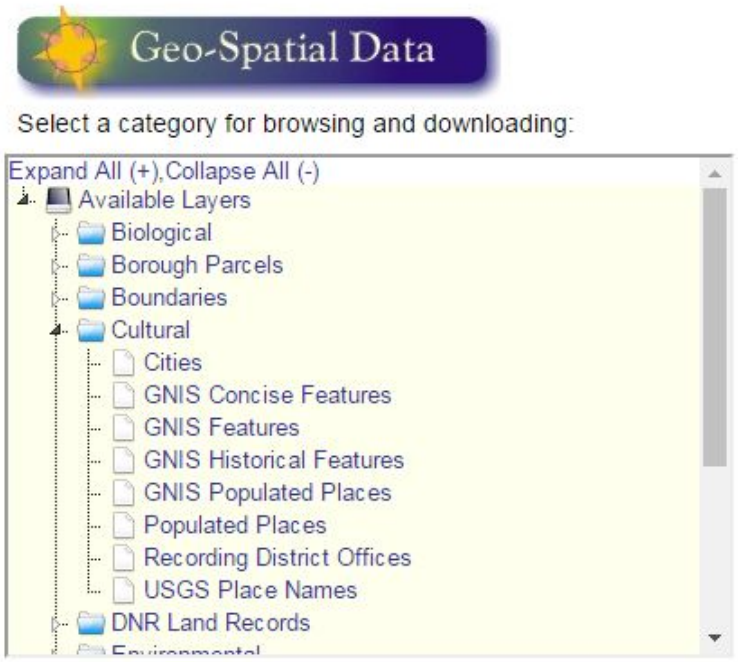

Barrow
Prudhoe Bay

Sea Ice Use Case:

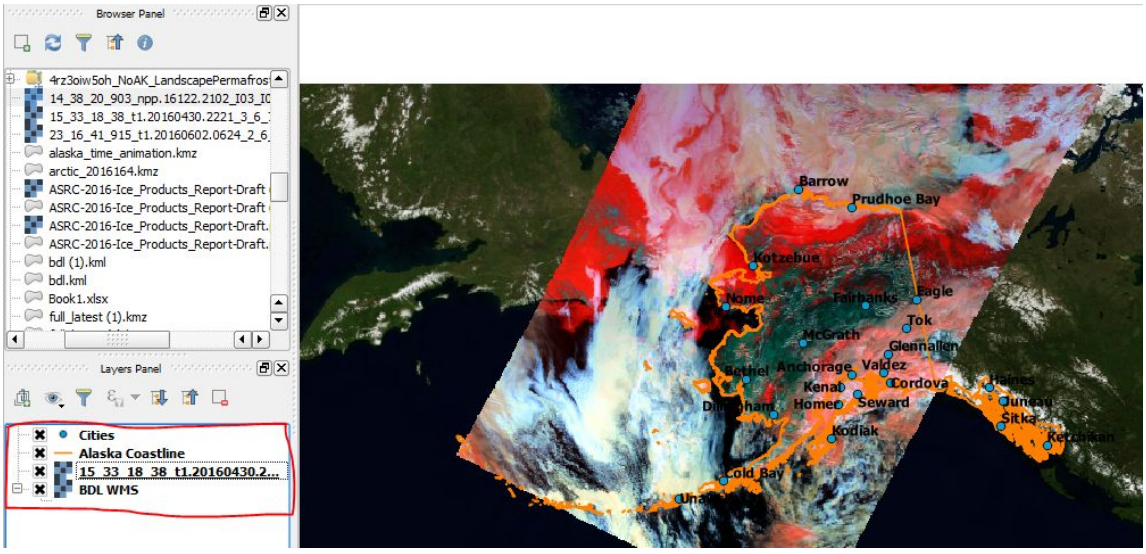
You can utilize GINA's Puffin Feeder and download MODIS Snowcover and Suomi NPP Landcover imagery to view snow/ice features and differentiate between snow/ice and clouds.

1. Download data from http://feeder.gina.alaska.edu (imagery), http://catalog.northslope.org/catalogs/418-alaska-coastline-1-250-000 (AK coastline), and http://www.asgdc.state.ak.us/ (AK cities, land parcels, physical features, etc.)

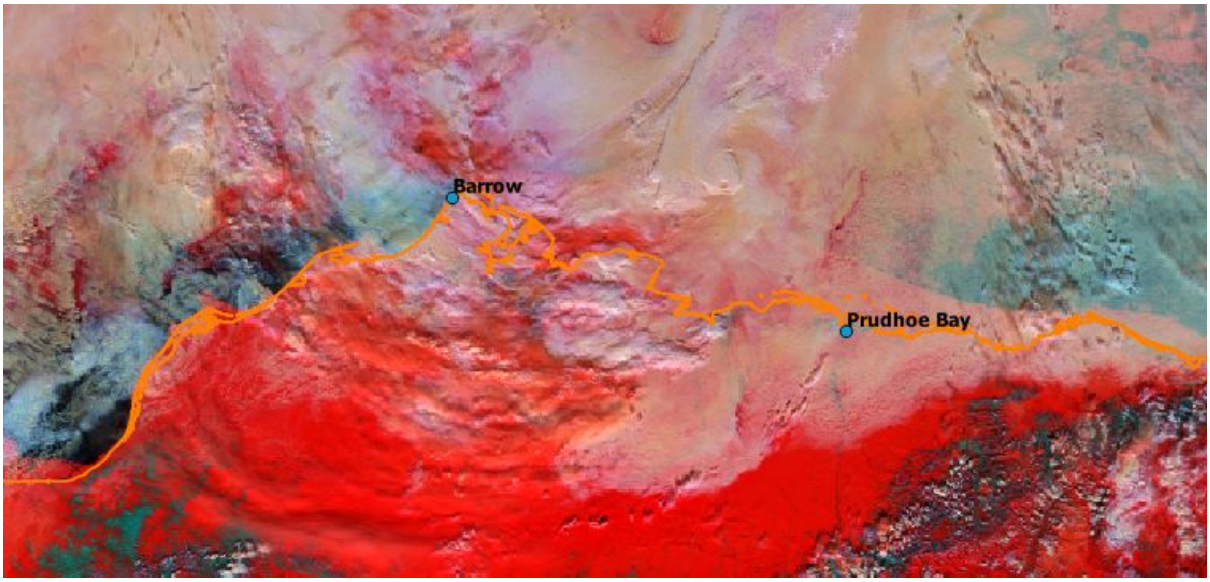




2. Open these layers in qGIS, making sure your cities and coastlines are the topmost layers so you can see them on top of the imagery and best data layer

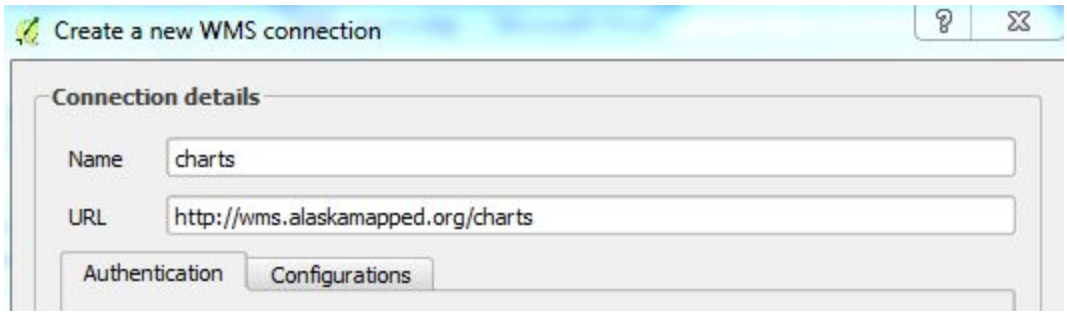


3. You can zoom in to the coast to see where there is open water (dark blue) and where snow/sea ice is present (red):

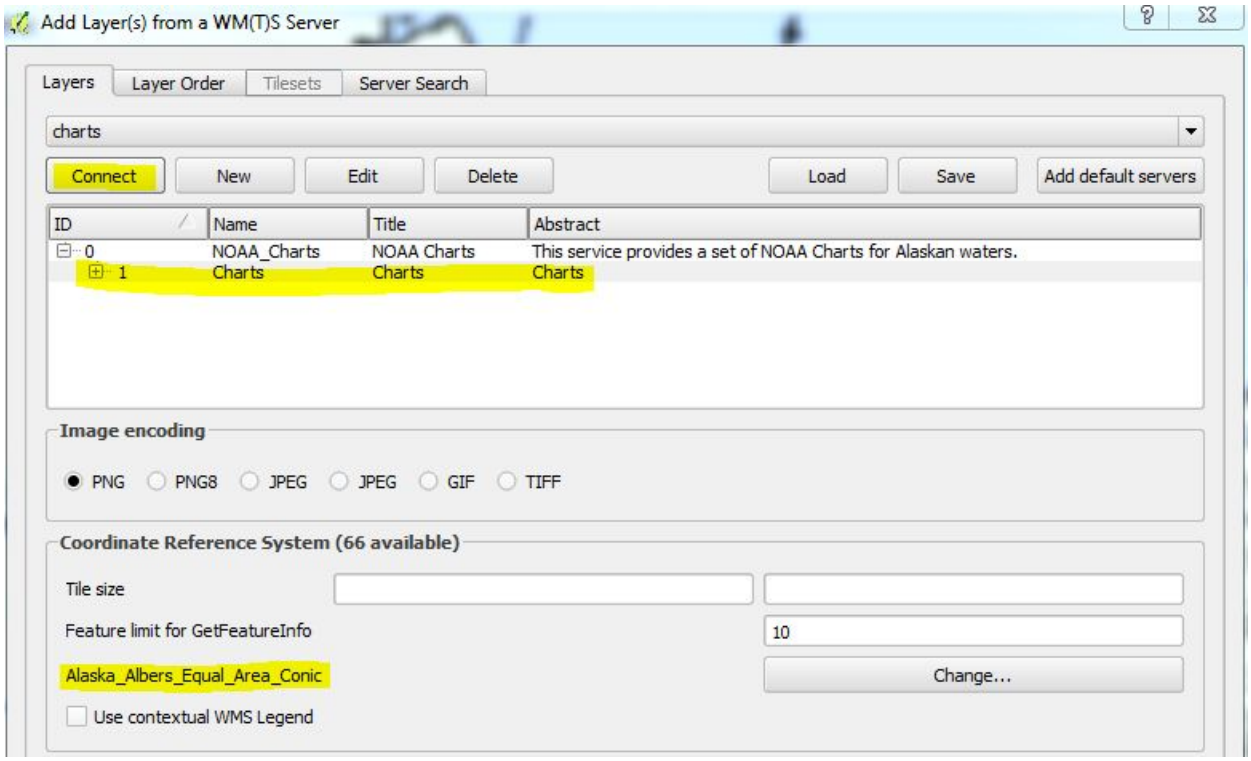

Barrow
Prudhoe Bay

Nautical Navigation Use Case:

1) You can also utilize GINA's WMS **NOAA nautical charts** by typing http://wms.alaskamapped.org/charts for the WMS URL



2) Click "**Connect"** and select the **(0) Charts** in the Layer Menu. Change the **Coordinate Reference System** to Alaska Albers Equal Area Conic before clicking "**Add"** then "**Close"**



3) This service provides a large number of layers. The visibility of the layers is controlled by scale limits so layers are only visible at their appropriate scales. The recommended way to use the service is to turn all the layers on and let the service choose which layers are visible for a given scale.

Zooming in and out in the window will change charts to the appropriate scale automatically.

Zoomed in near the Bering Strait, we can see: