Adding Marina and Boat Ramp data to QGIS and Postgres

By Kody Miller

For CS540 – Professor Lehr

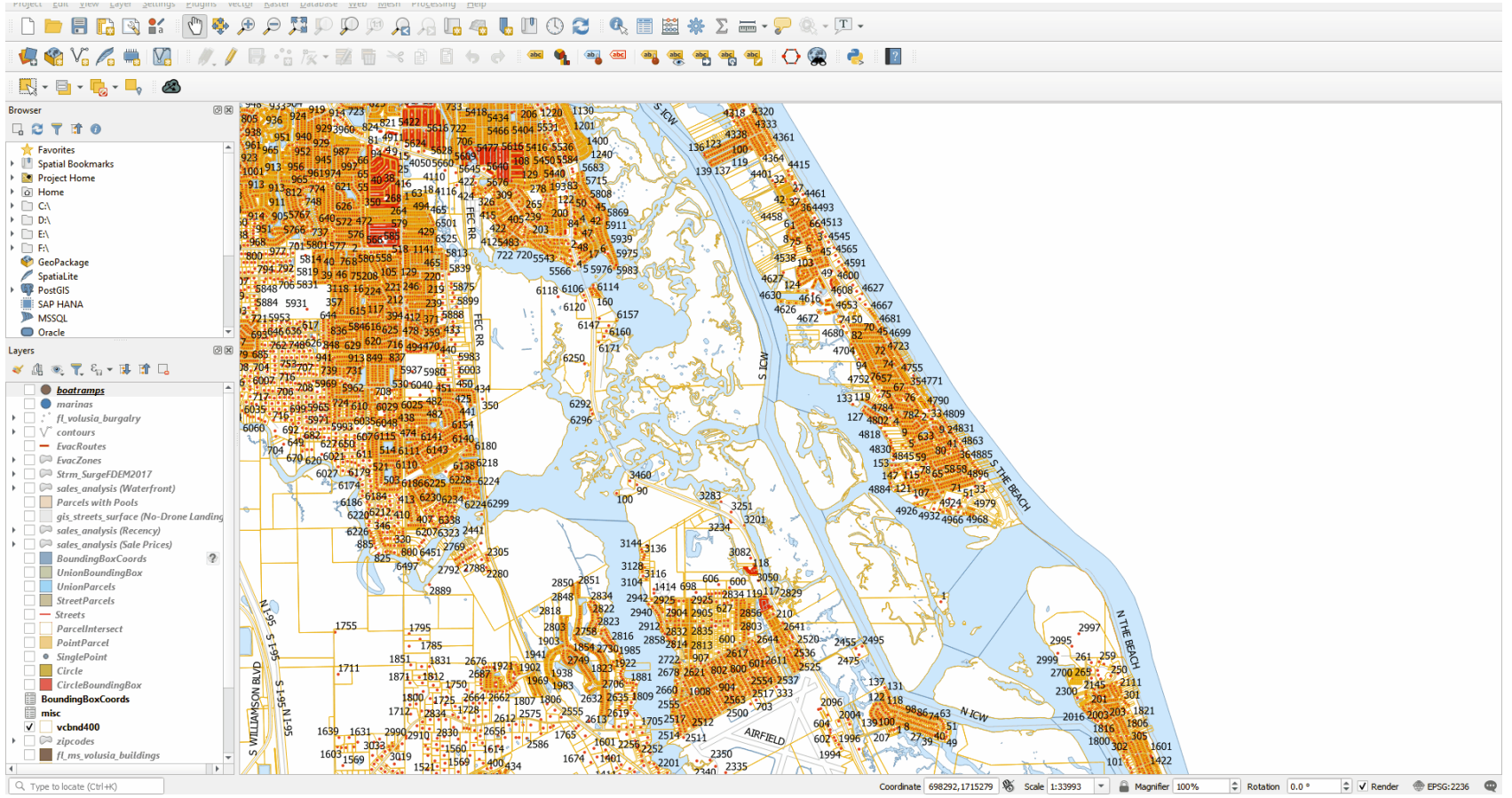
Spring 2021

First, download the required files:

- https://github.com/Kodyth/CS540
  - Read the readme to learn more about each of the files in the repository.
  - The files needed to get the data in Postgres and QGIS are:
    - boatramps.zip
    - marinas.zip
    - Marina_and_boatramps_distance.csv

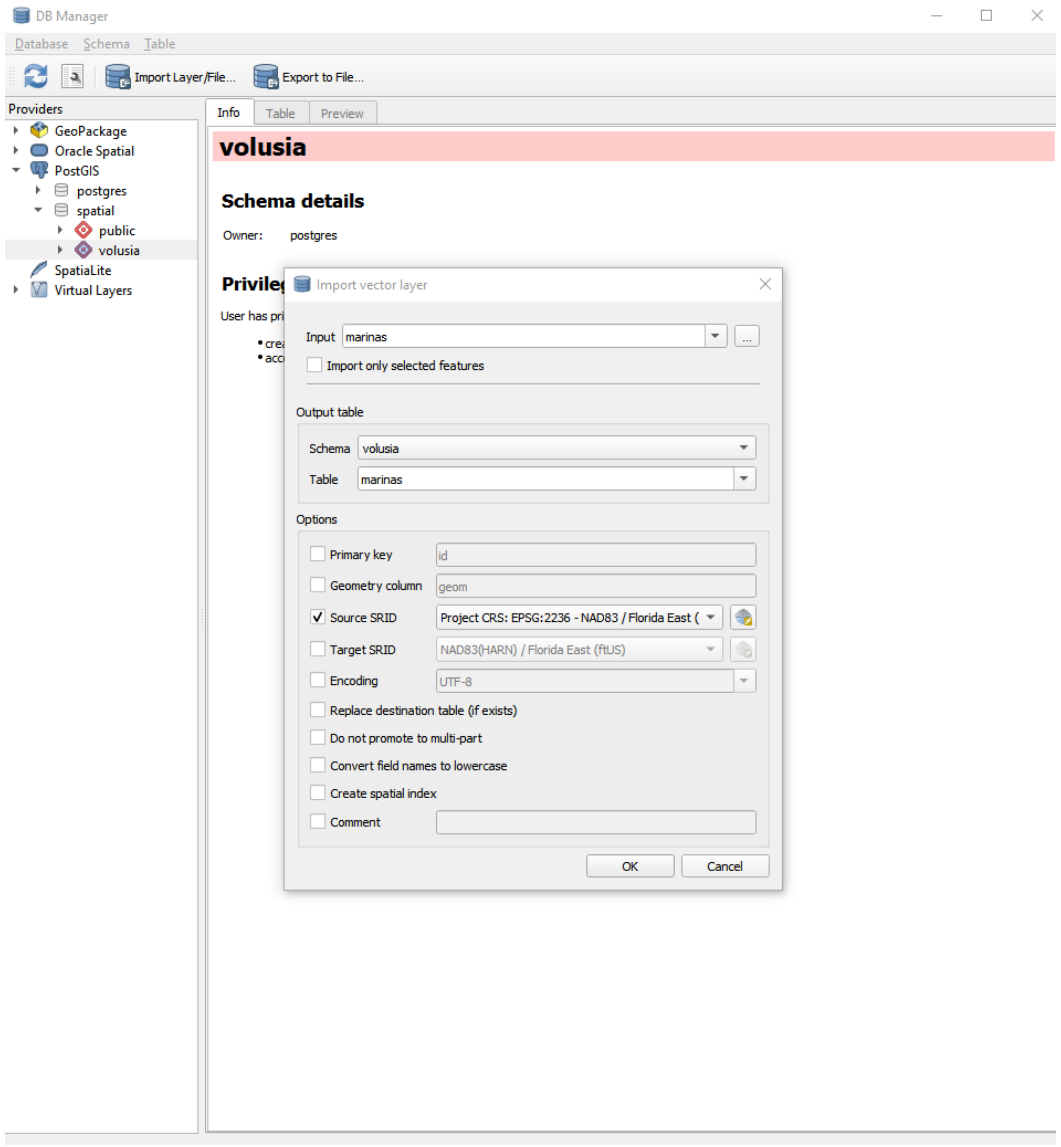
Create new layers in QGIS to visualize the location of each Marina/Boat ramp

- Extract the .zip files into a known location such as C:\temp\cs540\qgis
- In QGIS, add two new layers for the marinas and boatramps
  - Select layer -> add layer -> new vector layer -> from file
    - Select marinas.shp to create the marinas layer
    - Select BoatRamps.shp to create the boatramp layer
      - Edit the name of the boatramps layer to remove capitals letters: (BoatRamps -> boatramps)



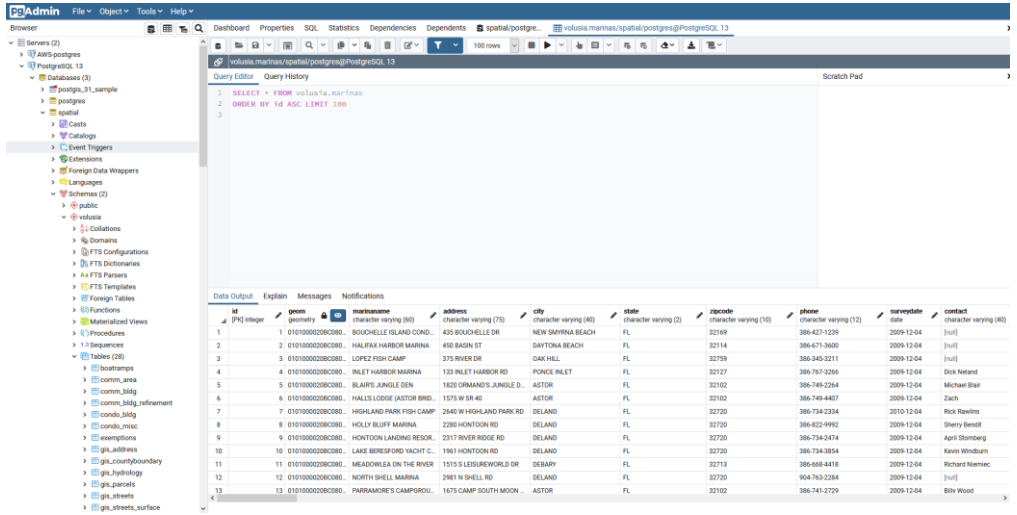
Import the marinas and boatramps layers into Postgres

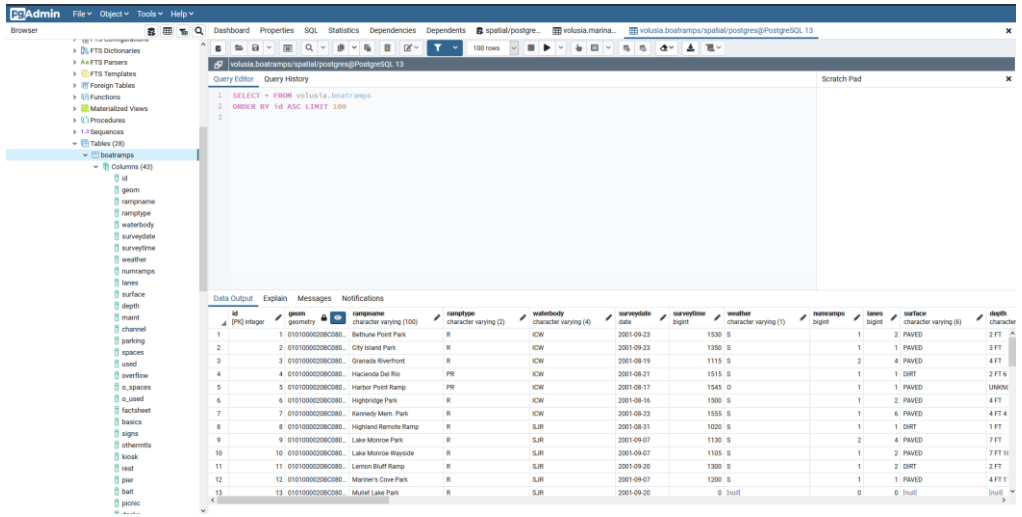
- Select DB Manager -> Postgis -> spatial -> volusia
- Next select import layer/file
  - For input, select the marinas layer (repeat this process to add the boatramps layer second)
  - For schema select volusia
  - For table, select marinas
  - Make sure the Source SRID is the correct one for the project (EPSG:2236)
  - Click done and QGIS will import the layer into Postgres as a new table



Verify tables have been added successfully

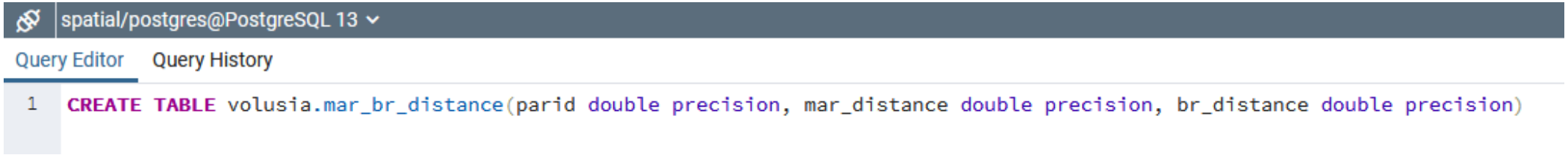
- Check in PGAdmin that the tables have been created and contain data
  - Find each table by clicking databases -> spatial -> schema -> volusia -> tables -> marinas and boatramps
  - It is recommended that you change the column labeled “name” to “marinaname” in the marinas table to prevent issues when querying the table
    - To do this, simply right click on the name column, select properties, change the name, and click save





Create a new table in PGAdmin to import the distance data

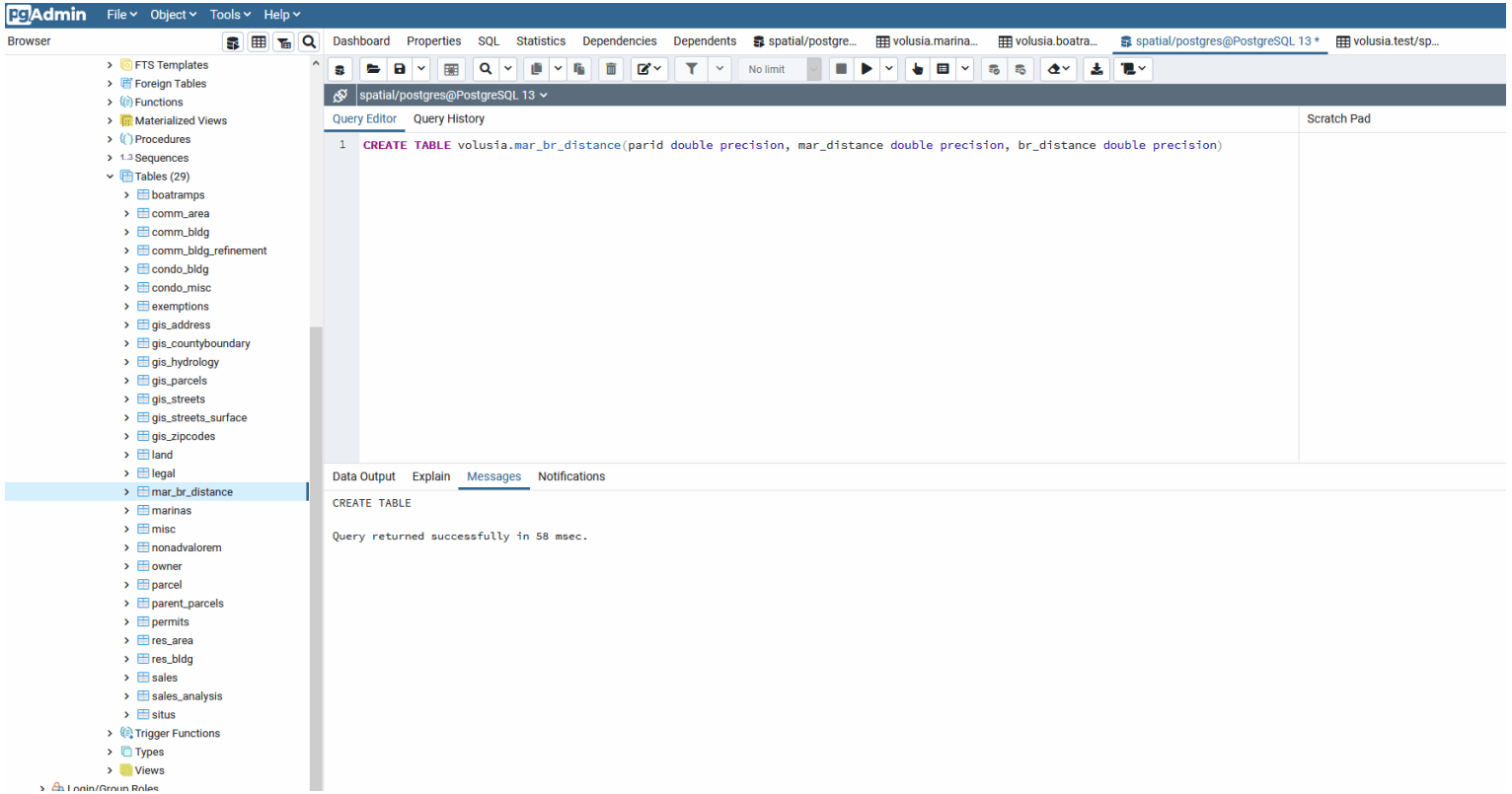
- Create a new table using the below command in PGAdmin using the query tool; this table will be used to import the data into the other tables



- The distance data was obtained by using a KNN query in Postgres that identified the closest marinas and boat ramps to a given parcel
  - A python script was used to iteratively loop through all the parcels in Volusia country – it is available to view in the repository a: “**update_marina_and_boatramp_distances.py**”

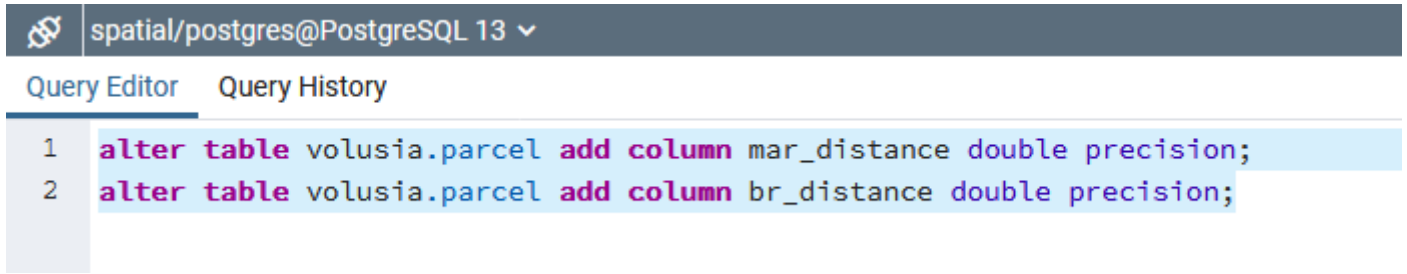
Import the data into the newly created table

- Right click on the new table and select Import/Export
  - Make sure Import is selected
  - Choose the “marina_and_boatramp_distances.csv” file for the filename
  - The format is csv
  - Under Miscellaneous, select YES for header
  - Select OK and the data will be imported into the table
    - Verify this is the case by viewing at least the first 100 rows of the table



Prepare the desired table for data insertion

- You can now begin the processing of merging the data into any other table such as the volusia.parcel table.
- First alter the desired table to add the new columns for the distance data:
  - mar_distance
  - br_distance



Merge the data into the desired tables

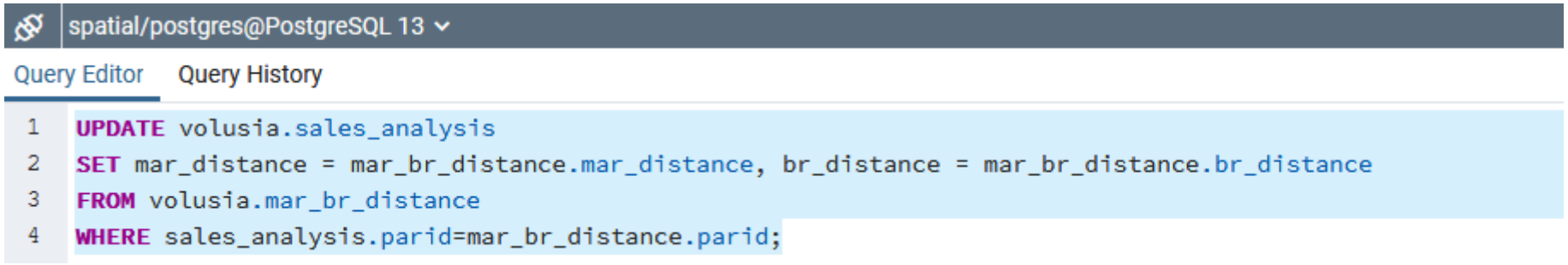
- You can now merge the data into the volusia.parcel table by using the below command:

```
6
7  UPDATE volusia.parcel
8  SET mar_distance = mar_br_distance.mar_distance, br_distance = mar_br_distance.br_distance
9  FROM volusia.mar_br_distance
10 WHERE parcel.parid=mar_br_distance.parid;
```

- After doing that, once again check that the table has been updated correctly

Wrapping up

- At this point, the volusia.parcel table should now contain the distance data a parcel is to the closest Marina and Boat Ramp in miles.
- You can also add the data to the volusia.sales_analysis table by adding the necessary columns (mar_distance, br_distance) and running the below query



- To verify all the distances have been placed correctly, you can measure the distance a parcel is from the nearest marina or boat ramp in QGIS using the distance tool