Gulf Coast Prairie Land Conservation Cooperative: SLAMM Gap Analysis

Task 3. Input Parameter Collection

In the Statement of Work, this deliverable is described as "a database of input data describing the tide ranges, frequency of inundation, historic SLR, accretion and erosion rates for the areas along the Gulf coast that have not yet be modeled using SLAMM."

In the current directory, a spatial database containing the following shapefiles (*.shp) and supporting files (*.shx, *.qpj, *.prj, and *.dbf) are included:

GoM Tides_2 (m)– A spatial database of great diurnal tide ranges (GT) from NOAA's tidal datums and 2012 Tide Tables (High and Low water predictions East Coast of North and South America) clipped to the study area. Tide-table data was available as mean higher high water (MHHW) in feet (relative to mean-tide level or MTL), which was multiplied by two to calculate the GT and converted to meters.

GoM 30-day inundation height_2 (m) – Frequency of inundation analyses were carried out for all the NOAA verified water level stations within the gulf. The last five years of data were collected for each site (as available) and the 30-day inundation height (in meters above MTL) was determined using an Excel spreadsheet written by WPC. This assists in determining the "salt elevation" parameter or the interface between saline wetlands and dry lands.

COOP - SLR trends (mm/yr) – Historic SLR data set taken directly from NOAA and clipped to the study area.

GoM Accretion 052914 (mm/yr) – a dataset of accretion rates and their (most probable) locations determined through literature review. As few studies included spatial references for their measurements, the locations of many data points were determined by maps in references. **Note, Accretion data from SE Louisiana were not included in this database as this area is already modeled and the accretion data from "the bird's foot" were not considered relevant to adjoining study areas.**

USGS GoM Vulnerability – Erosion (m/yr) - This is the "Coastal Vulnerability to Sea-Level Rise U.S. Gulf Coast" data layer, which includes erosion data in meters per year.   Negative numbers correspond with high erosion rates.

Areas to be Modeled –created by ImageMatters LLC representing the gap areas not covered existing SLAMM analyses.

SLAMM Modeled Areas – shows the locations where SLAMM has already been run.

The screenshot on the following page shows these shapefiles in the included QGIS project file. QGIS is a free GIS program available for download at http://qgis.org/en/site/

Gap areas are well-covered by tide range and erosion data. However, we will need to extrapolate inundation height data and SLR trends from stations located in previously modeled areas. This is standard practice and should not compromise the quality of the model outputs. Accretion modeling is discussed in detail in Deliverable 2 of this project.

COOPS - SLR Trends

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GoM Tides_2

- ● 0.0000 - 0.2926
- ● 0.2926 - 0.5852
- ● 0.5852 - 0.8778
- ● 0.8778 - 1.1704
- ● 1.1704 - 1.4630

GoM Accretion 052914

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GoM 30-day inundation height_2

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USGS GoM Vulnerability - Erosion (m/yr)

- ▬ -9.2400 - -7.8800
- ▬ -7.8800 - -6.5200
- ▬ -6.5200 - -5.1600
- ▬ -5.1600 - -3.8000
- ▬ -3.8000 - -2.4400
- ▬ -2.4400 - -1.0800
- ▬ -1.0800 - 0.2800
- ▬ 0.2800 - 1.6400
- ▬ 1.6400 - 3.0000

SLAMM Modeled Areas

Areas to be Modeled