SAN JUAN METRO CSRM STUDY

ARMY CORPS OF ENGINEERS | JACKSONVILLE DISTRICT

ENGINEERING CONSIDERATIONS

PHYSICAL CONDITIONS & COASTAL STORM RISK MANAGEMENT

The engineering analysis for this study will consider the natural coastal processes, geological setting, and existing armor in the study area. The team will leverage data and local expertise from the sponsor (PR DNER) and other groups (PR Academia, stakeholders, Federal agencies, and others) in order to fully understand the problems and develop alternatives to reduce storm damages within the study area.

Coastal Processes

- Winds
- Waves
- Water Levels
- Tides & Currents
- Storms
- Sediment Transport
- Sea Level Rise
- Erosion
- Inundation
- Wave Attack

Geological Setting

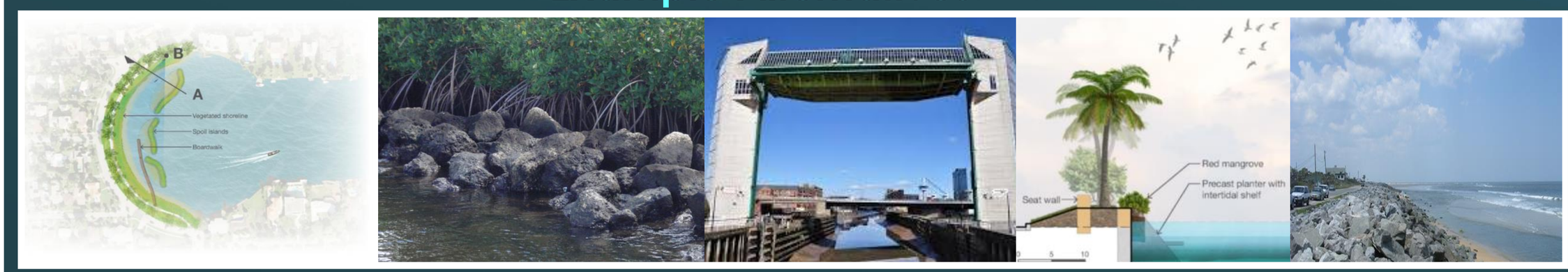
- Low Lying Areas
- Tidally influenced Harbors, Bays, Lagoons, and Canals
- Tidal Based Flooding
- Storm Surge Event Based Flooding

Existing Backbay Armor

- Seawalls
- Revetments
- Breakwaters
- Natural Vegetation

The objective of this project is to contribute to National Economic Development (NED) consistent with environmental statutes. NED benefits are achieved by reducing damages to infrastructure including buildings, roads, utilities, etc. This study will evaluate alternatives that can reduce storm damages. The alternatives could include but are not limited to stand alone or combinations of soft structures (living shorelines, greenways), hard structures (seawalls, flood gates, levees, breakwaters, pumps), and non-structural alternatives (flood proofing, land acquisition, elevation of critical infrastructure).

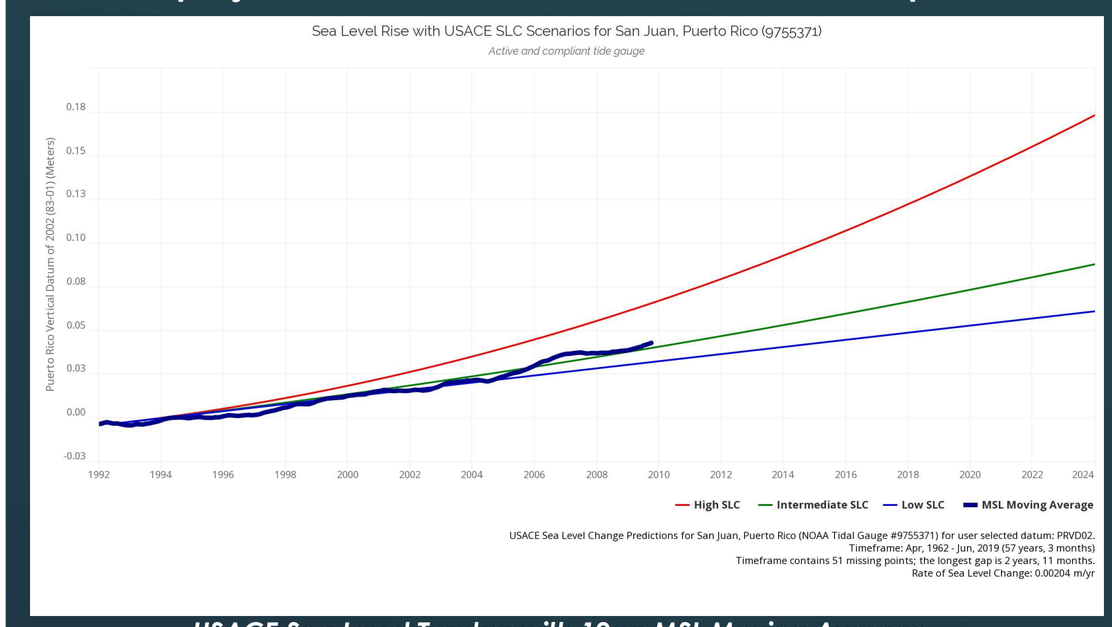
Example Alternatives



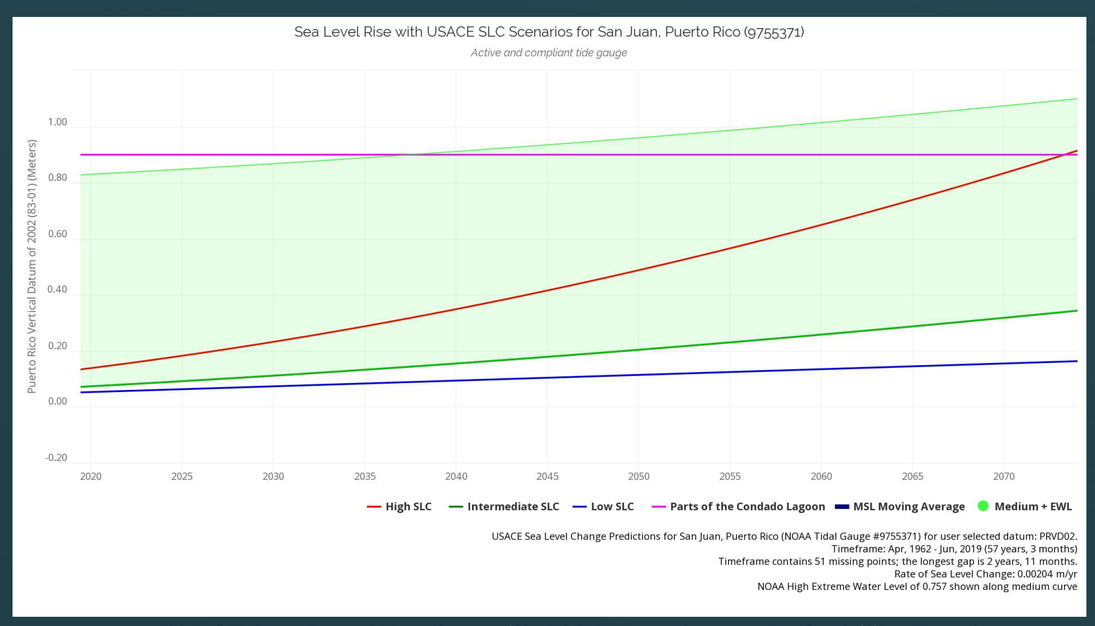
Breakwater with Living Shoreline | Flood Gate | Vegetated Seawall | Rock Revetment

Modeling Inputs

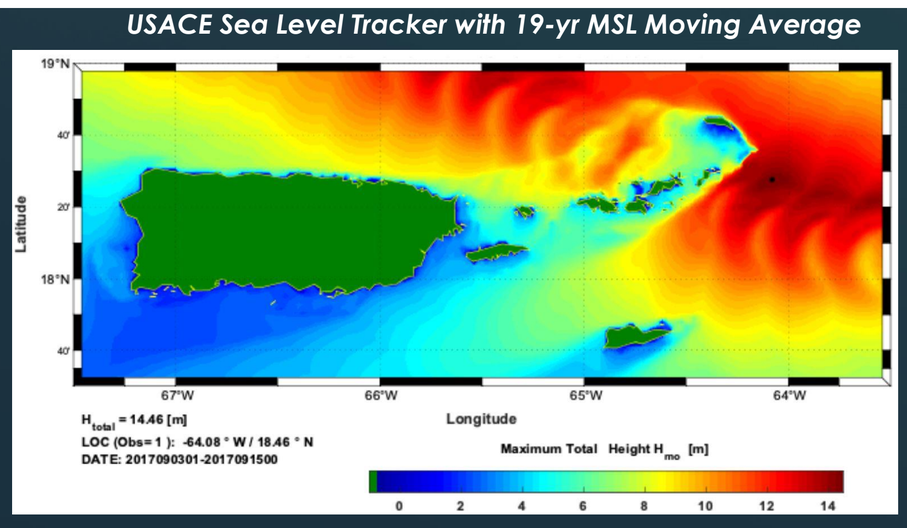
Available data will be input into the hydrodynamic model to evaluate storm water levels and impacts in the study area for without project conditions and with alternatives in place.



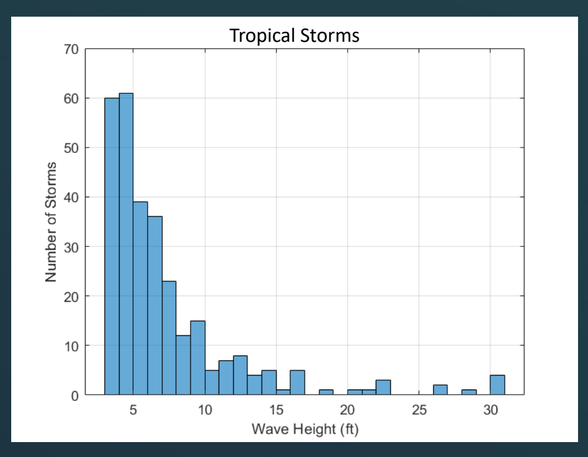
USACE Sea Level Tracker with 19-yr MSL Moving Average

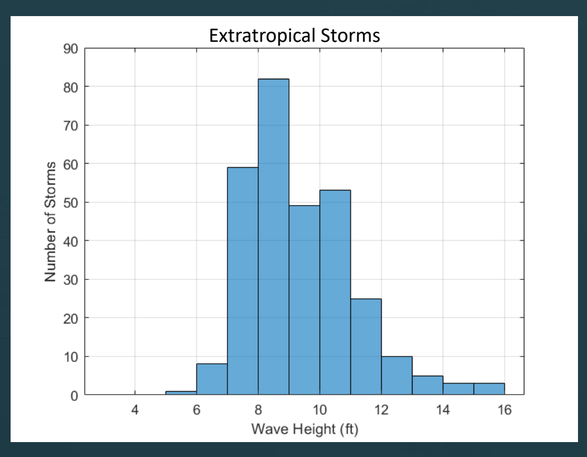


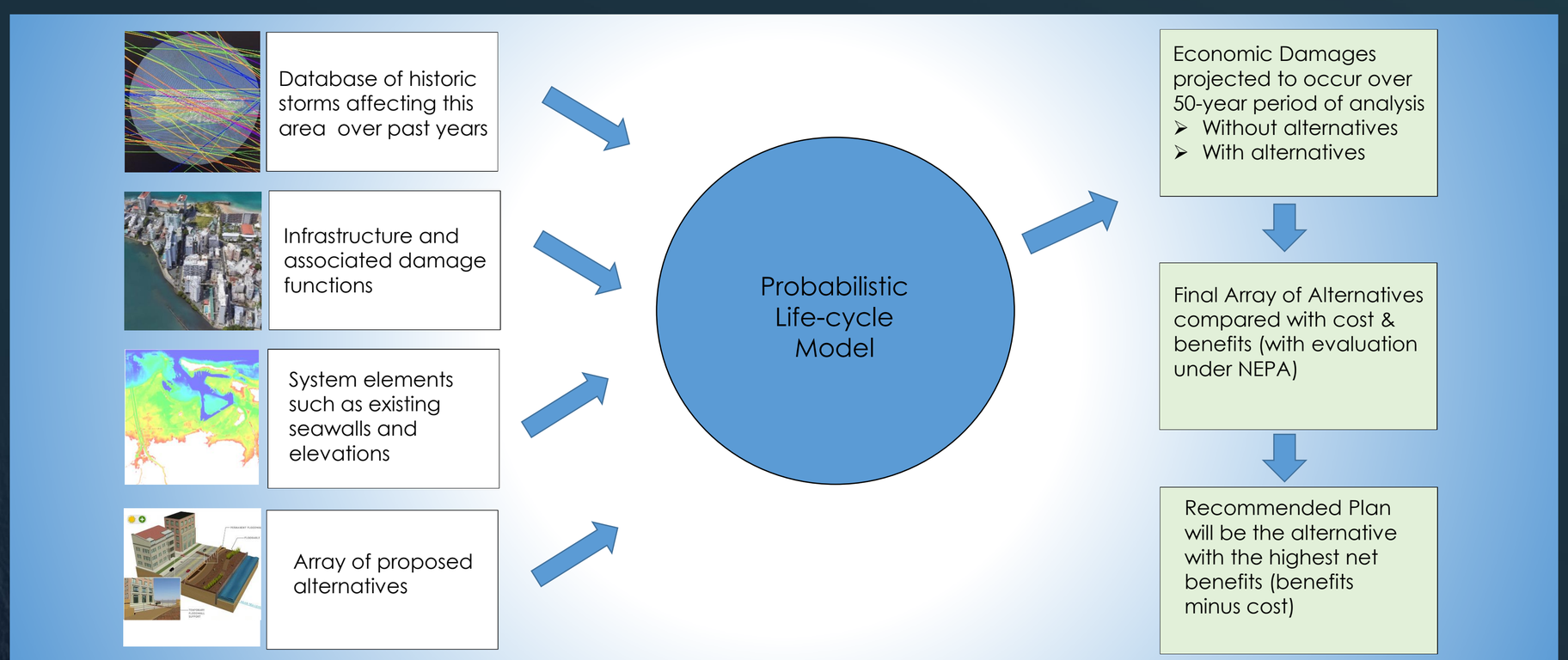
USACE Sea Level Tracker with 1% Exceedance Probability Event



Hurricane Irma Maximum Wave Height





NACCS Storm selection approach using binned wave heights (Gravens & Sanderson 2018 Tech Note)

Array of alternatives will be assessed and modeled over several iterations and with refinements to determine the alternative which best addresses the primary study objective to reduce coastal storm damages as a result of back bay flooding.