

# SHC 2.61 Task 5a Update, 12/9/2015



# What we've done

- Two trips to San Juan
- Meetings, establishing collaborations
- Collected sediment, fish, shellfish, and leaves



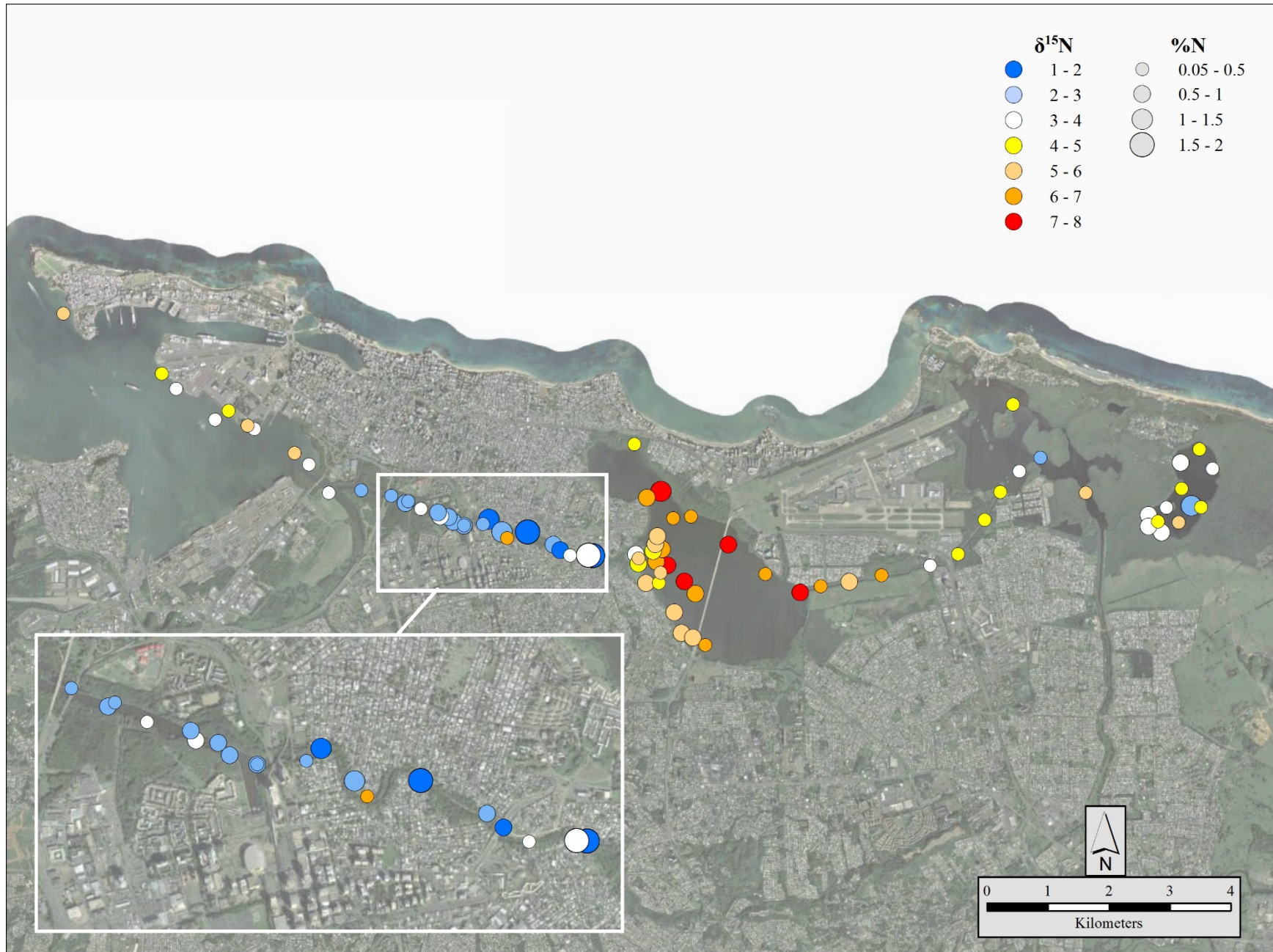




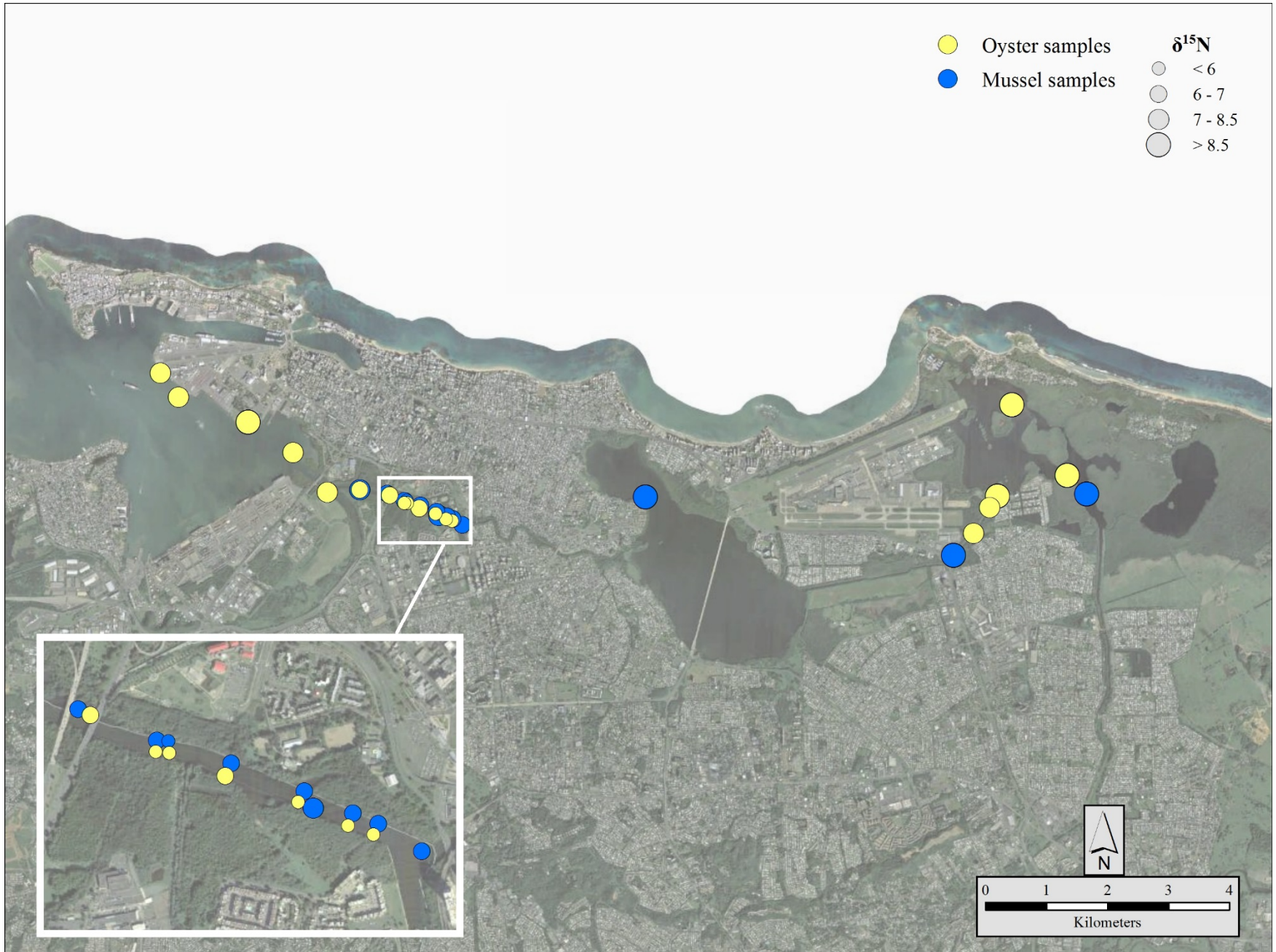


# Urban Sampling









# Analytical Work

## Done:

- Sediment isotopes, %N & %C
- Sediment LOI (organic matter & carbonate)
- Fish, shellfish, and mangrove isotopes and N&C content

## To Do:

- Sediment phosphorous content
- Sediment grain size

# Next trip

- SEDIMENT CORES!!!
- More Fish
- Rose's Work





# Research Objective #1

Characterize C sequestration rates and GHG flux dynamics along a gradient of anthropogenic influence: Effect of eutrophication on C uptake and soil sequestration?



# San Juan Bay Estuary: Proposed GHG flux and Core Collection Sites



## Legend

- FloatingGHGs
- MangroveSampling
- Roads
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

0 0.75 1.5 3 Miles



1:65,702

Wetland Type Data Source: USFWS  
Based on NWI (Cowardin et al.)  
Published in 2008

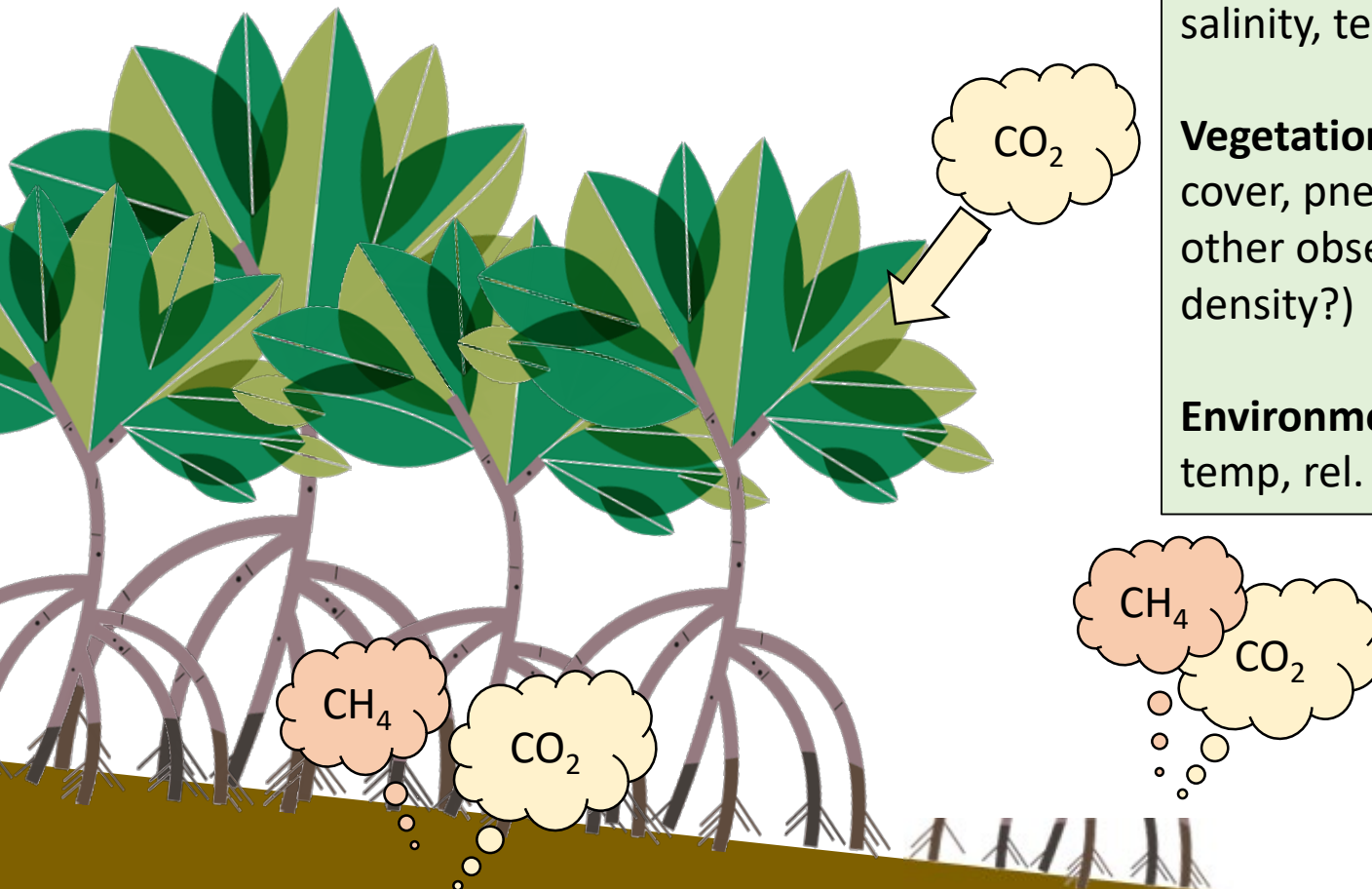
Proposed sampling sites are labeled to distinguish between soil and plant gas exchange measurements in wetlands (label = "Mangrove") and gas exchange measurements from water bodies performed with a floating chamber (label = "Floating"). If access does not permit, sampling may be restricted to wetland measurements only.

At each wetland site, duplicate cores for C sequestration and other geochemistry measures will be collected. Light, soil pH, redox, salinity, moisture and temperature, and air temperature data will be recorded.



# Research Objective #2

Discern mechanisms for GHG ( $\text{CO}_2$ ,  $\text{CH}_4$ , and  $\text{N}_2\text{O}$ ) fluxes from mangrove wetlands  
GHG flux measurements at each point defined previously, leaf-scale gas exchange (?)



**Soil characteristics:** pH, redox, salinity, temp, moisture

**Vegetation metrics:** canopy cover, pneumatophore density, other observations (crab burrow density?)

**Environmental data:** light, air temp, rel. humidity, tidal stage

# Final thoughts

- New collaborations with Ben Branoff, Juan Alvarez, and Hamlet Perez.
- How to address the low isotope values in the Martin Peña? (Phase II research question)
- What other samples should we be collecting before the dredging?
- New water budget?