Riverine Carbon Loadings to the Gulf of Mexico

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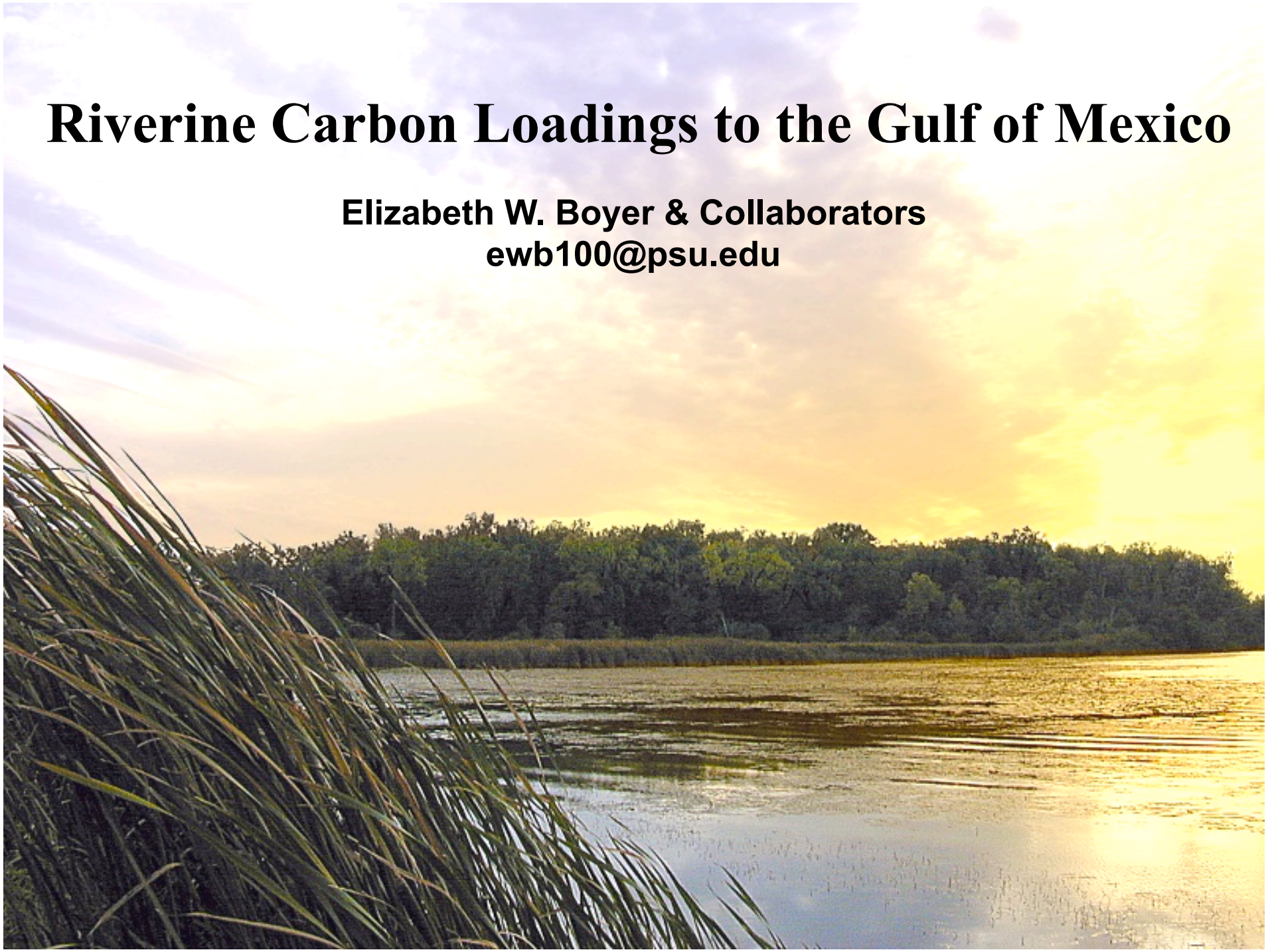

River Group Update

- How much carbon is delivered to coastal waters?

  1) Tally the observations from GAGED (monitored) locations.

  - We have in-hand flux (concentration*flow) observations for 5 coastal sites in GOM domain: Mobile River AL, Mississippi River @ Belle Chasse, LA; Atchafalaya River @ Melville, LA; Brazos Riv. @ Rosharton, TX; Rio Grande near Brownsville
  - Loadest type flux extimates from these data from NASQAN, Stets, and Sparrow groups
  - We must aggregate results on similar time & space scales; comparing apples to apples
  - Aim to provide *seasonal* loadings from 1975-2010.
    - Would like to calculate flow duration curves & load duration curves to consider how much of the time TOC loads are exceeded.

River Group Update

- How much carbon is delivered to coastal waters?

2) Tally the predictions from simulation models

- We have initial simulations in-hand from SPARROW & DLEM
- We must aggregate results on similar time & space scales; comparing apples to apples
- We've chosen NOAA EDA's as our USA watershed boundaries

3) Assemble prediction data from other coarser scale models (e.g., global) to estimate contributions from entire GOM domain – adding non-USA contributions.

River Group Update

- What are the primary sources of organic carbon in surface waters, throughout the river network?

  - Compare model source apportionment predictions (e.g., allochthonous vs. autochthonous) to observational data (compare to data in-hand that have been collected by key collaborators Bianchi, Bauer, Howden)

  - Consider how we might learn, through simulations
    - How the continued net loss of wetlands (e.g., along the LA coast) on estimates of terrestrial loading to GOM (e.g., Bianchi et al. 2011)
    - How to account for new data suggesting greater sequestration of particles than previous (e.g., Allison et al. 2012)

River Group Update

Proposal: carbon cycle science – May 1 / July 31

- Carbon dynamics along terrestrial-aquatic interfaces (land-freshwater; land-ocean)
- Carbon cycle science synthesis research