

Urban development, power relations, and water redistribution as drivers of wetland change in the Tampa Bay Region Socioecosystem

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TBRS ULTRA

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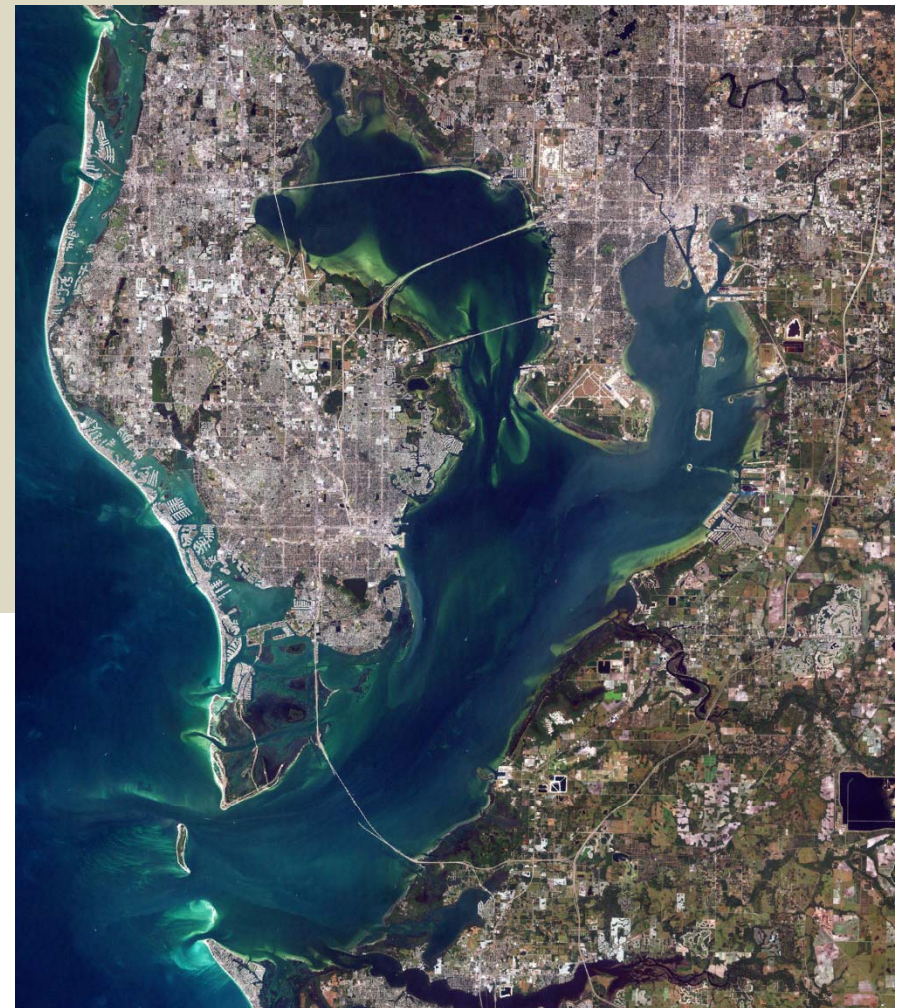
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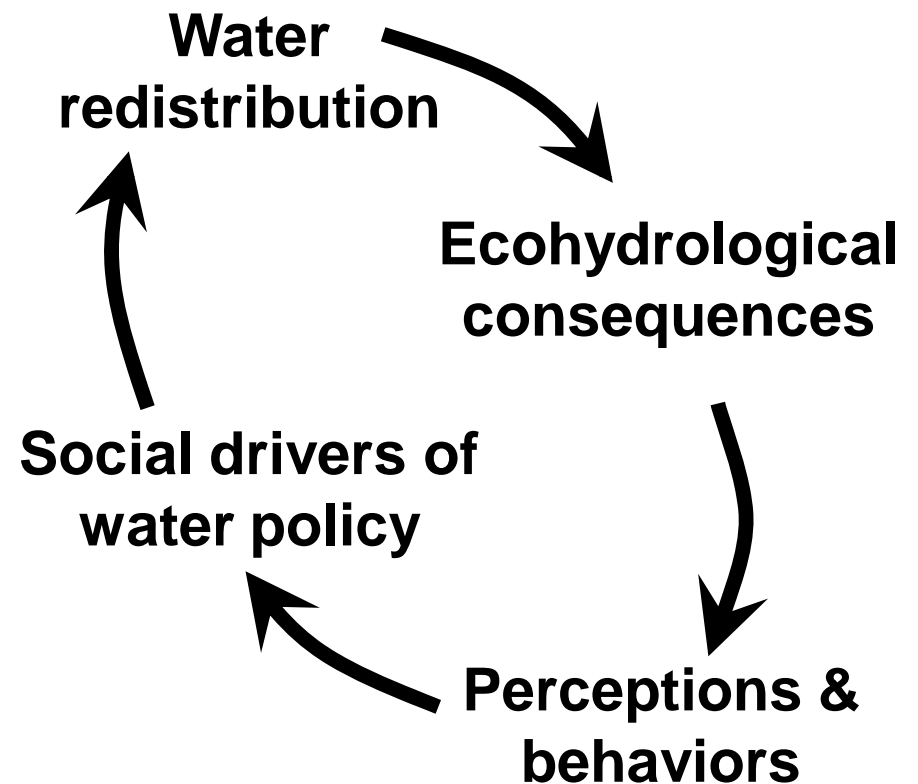


Tampa Bay region socioecosystem

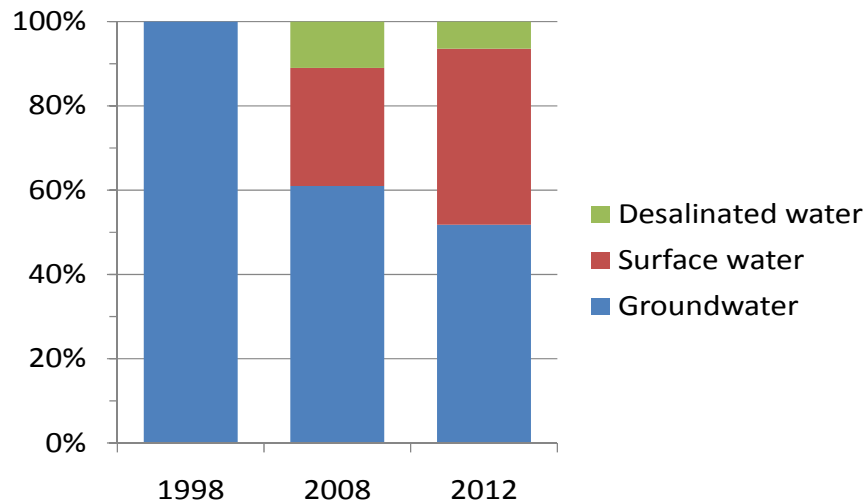
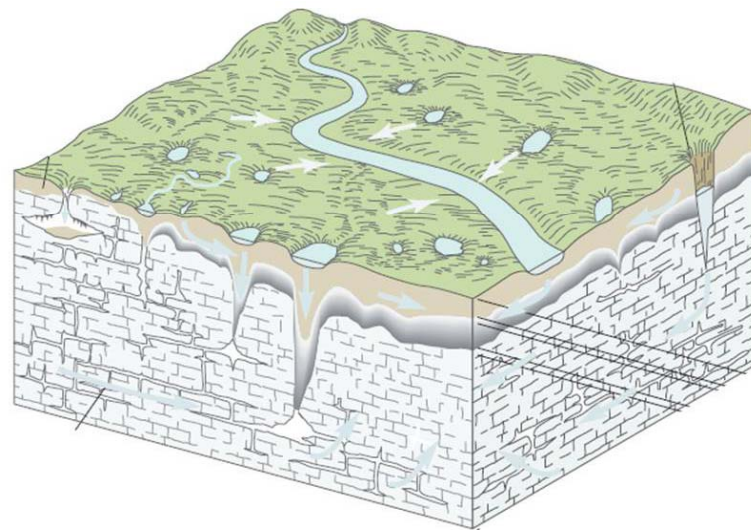
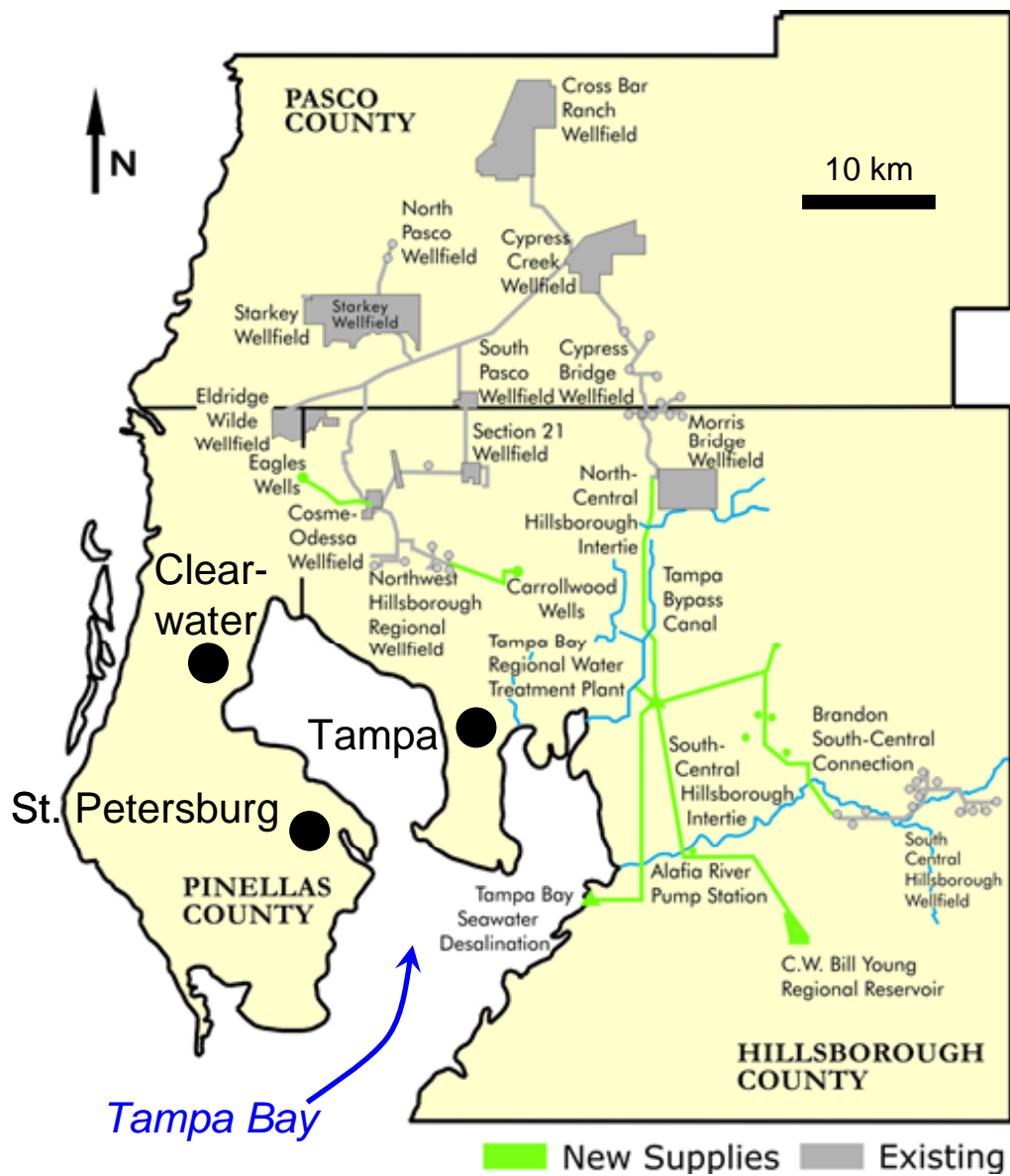
System elements

- Growth-limiting resource
- Resource acquisition and recipient zones
- Sentinel response ecosystems
- Elicited perceptions and behaviors
- Known management and jurisdictional structure

Conceptual model



Tampa Bay's water hinterland



Data and projections:
Tampa Bay Water



Wetland landscapes



Photo: Mark Rains



Photo: UF IFAS

Scale bars = 1 km. Aerial images, Google Earth.

Wetland ecohydrological change

Healthy



Photo: Michael Hancock, SWFWMD

Impaired from water table draw down



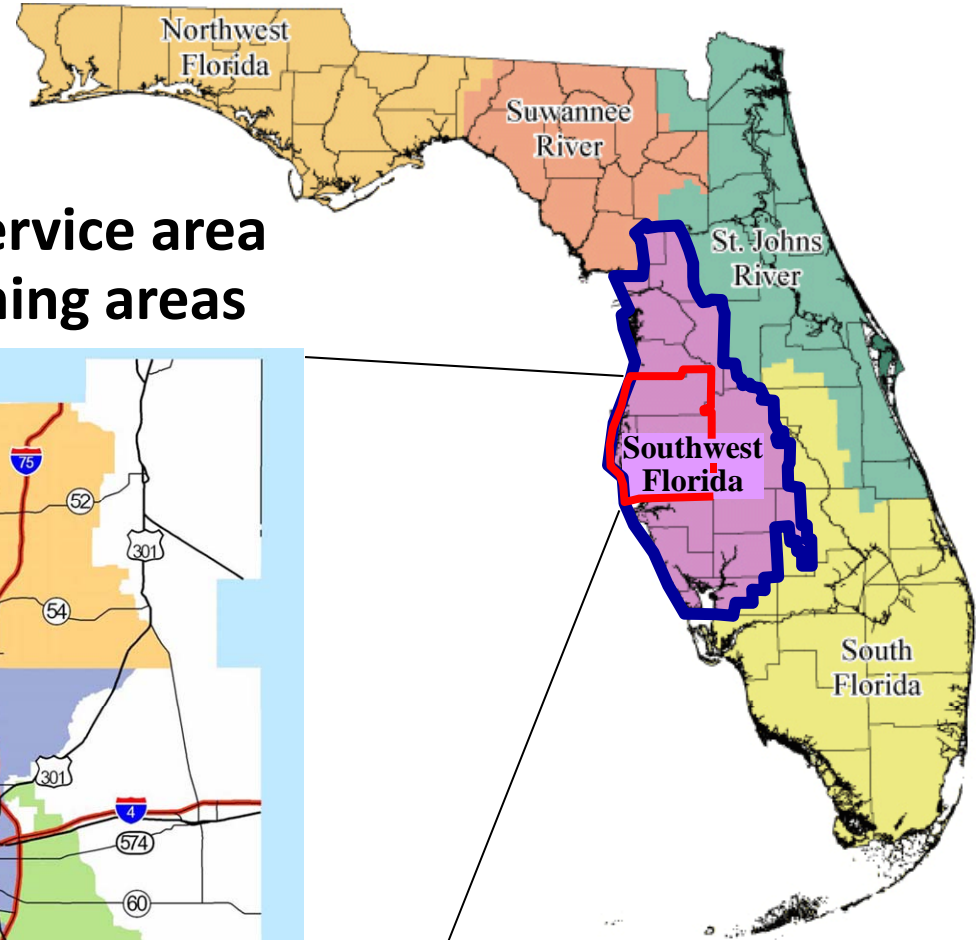
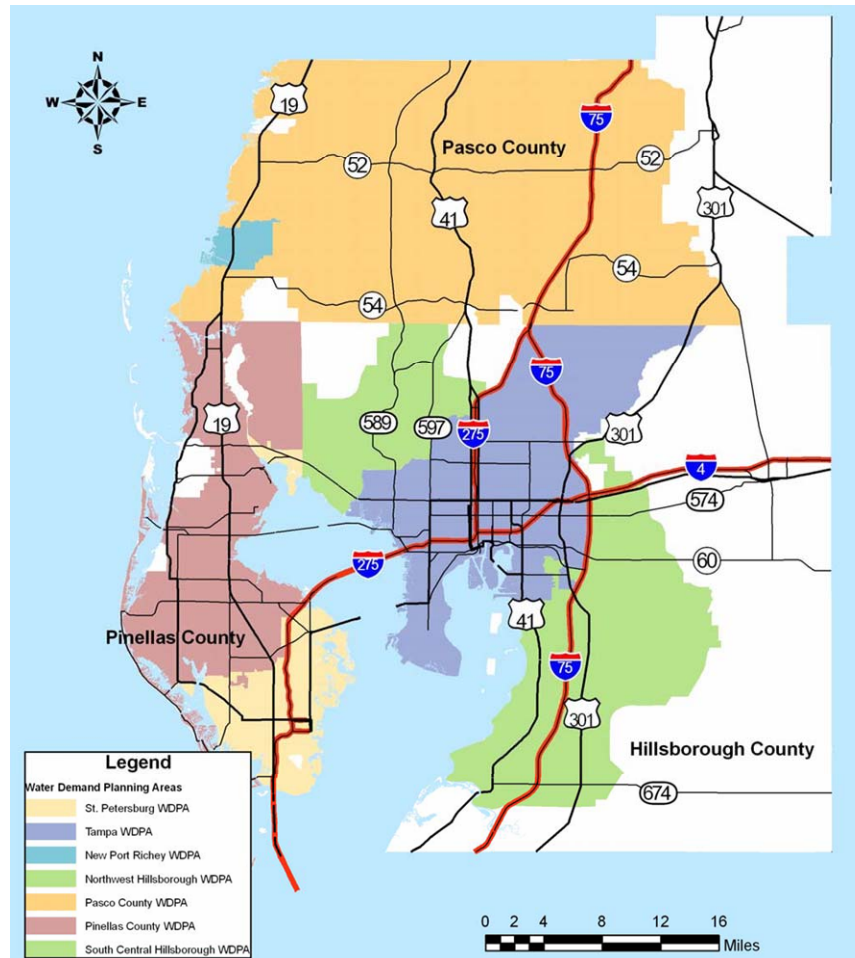
Photo: Theodore Rochow, SWFWMD



Jurisdictional hierarchy

Water Management Districts

Tampa Bay Water service area with demand planning areas



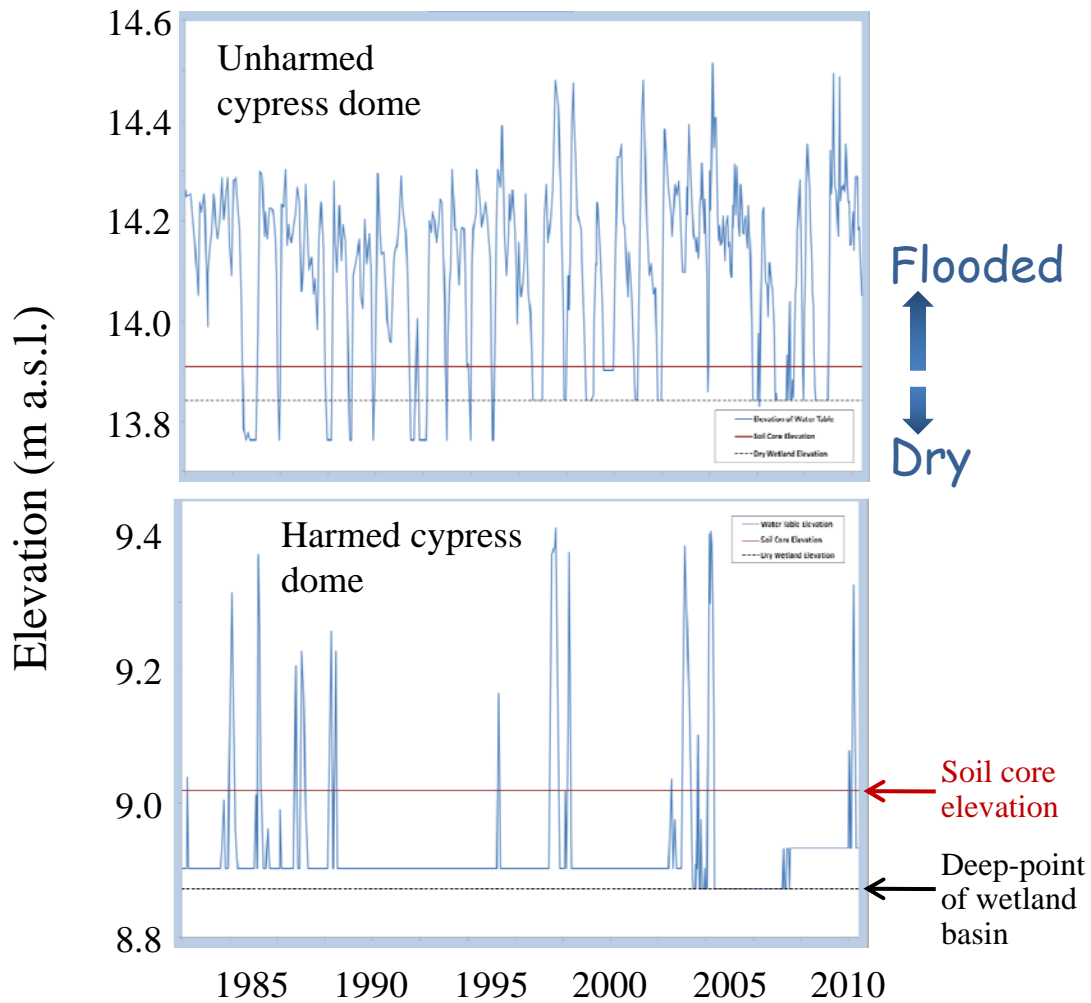
From "Optimized Regional Operations Plan, Water Year 2009 Annual Report,"
Tampa Bay Water

Tampa Bay region socioecosystem

Research Questions

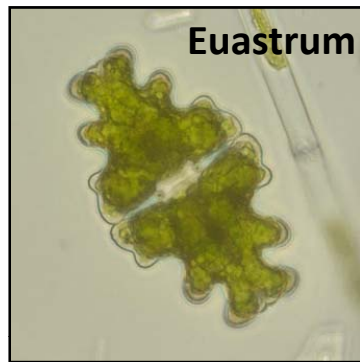
1. How do wetlands respond to water policies and the urban growth that those policies facilitate?
2. How do perceptions and values of change in freshwater habitats vary?
3. How do relationships among jurisdictions and stakeholders result in particular water policies?

Wetland hydrology in the Tampa Bay region socioecosystem



Wetland responses to hydrology

Graduate student research



Ralph Perkinson

Algae and
water quality



Sharon Feit

Water table
drawdown and
soil oxidation



Paul Thurman

Vascular plants

Understanding public perceptions of wetlands landscapes and their effects on water redistribution policies

Graduate student research

Cornelius Adjei

Citizen action
and influence
on policy

Gina Larsen

Changing
landscapes and
sense of place

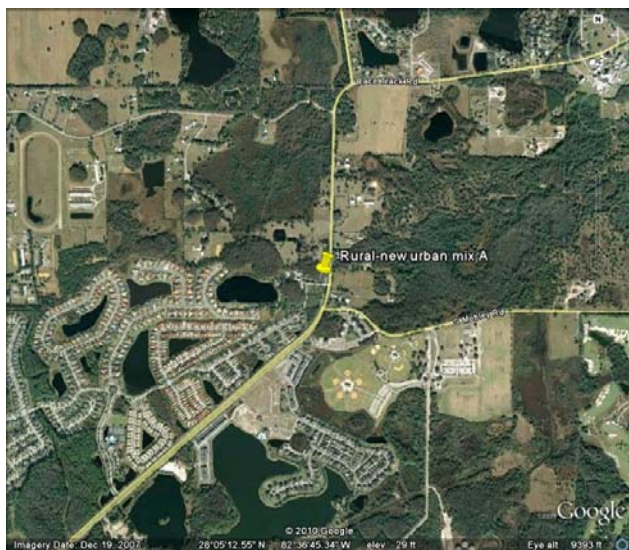
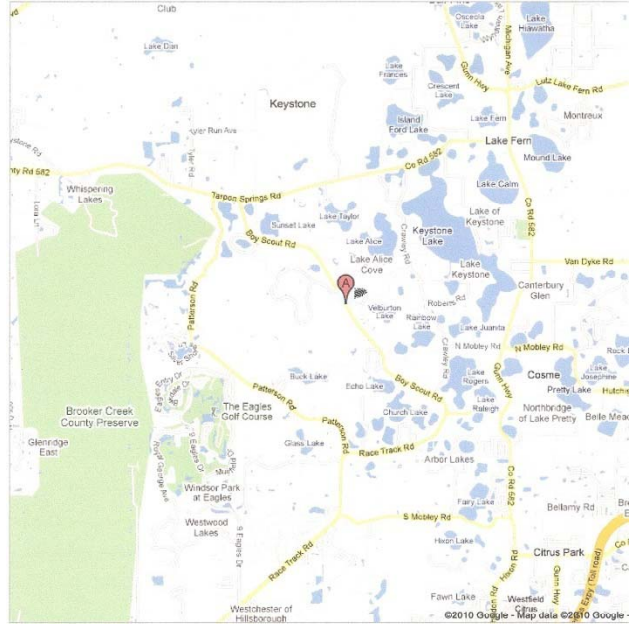
Social science methods

- Semi-structured key-informant interviews
- Focus groups
- Direct observation at public meetings about water
- Structured resident interviews (orally administered survey questions)

Key informant interviews, focus groups, resident interviews & public meeting observation

- Semi-structured interviews with key informants
 - Regulators and managers
 - Politicians
 - Business and development interests
 - Citizen and landowner interest groups
 - Environmental advocacy groups
- Focus groups
 - Recruited residents with professed interest
 - Open-ended discussions on key topics help refine subsequent resident interviews
 - Discovered stakeholders in resource conflict areas
- Public meetings: note topic, who turns up and what they say
- Structured resident interviews (orally administered surveys in homes, businesses, coffee shops)

Focus group location Race Track Rd



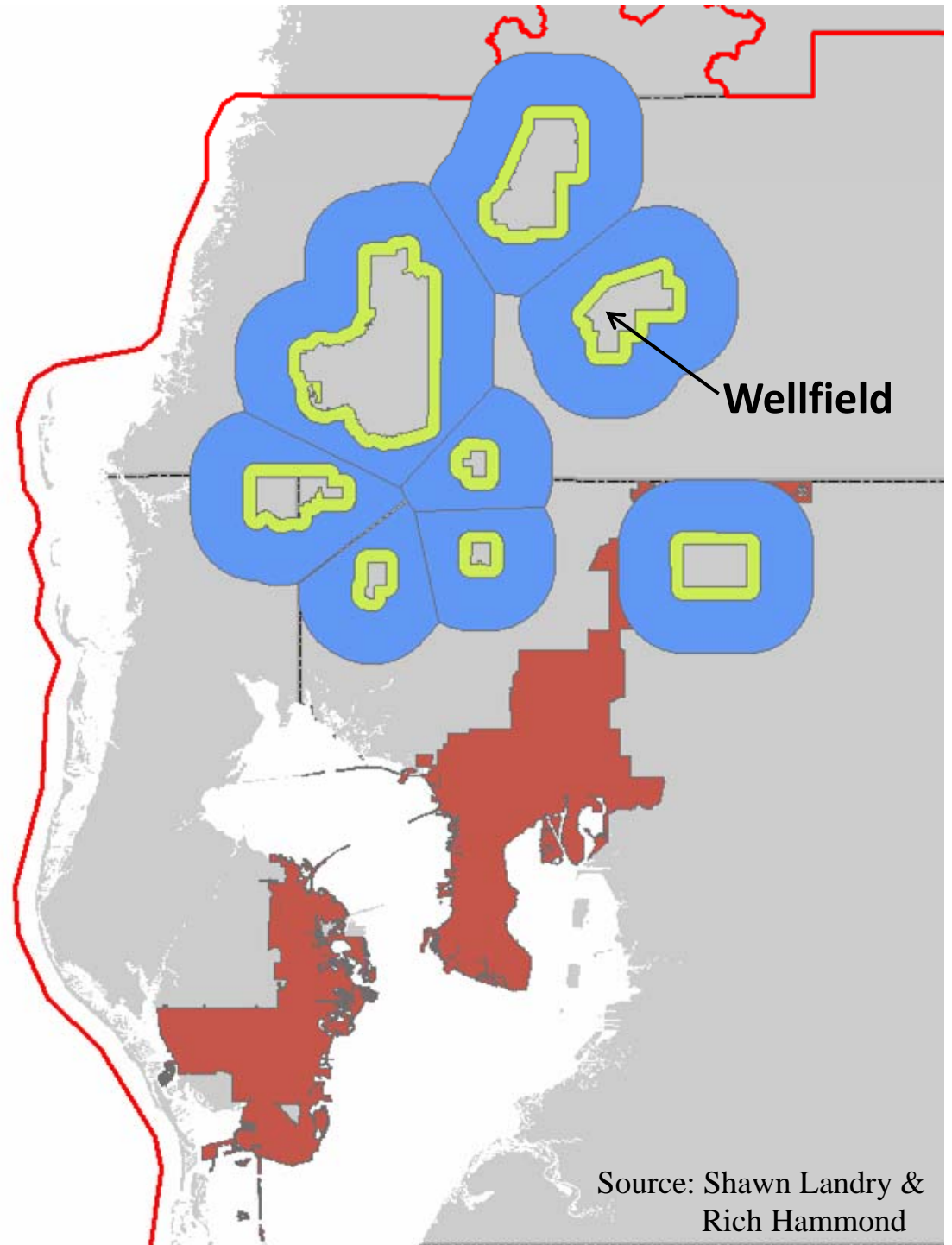
Preliminary findings from focus groups

- Many residents feel strongly about destruction of wetlands, lakes and other freshwater resources that have been directly affected by groundwater pumping
- Directly affected residents have a good understanding of the water distribution system and its effects on local wetlands and aquifer
- Developers and political interests often blamed for influencing problems more than utility and governmental agencies responsible for distribution of water



Sampling strategy: resident interviews

- Water providing vs. water consuming areas
- Public vs. private supply, length of residence, other demographic covariates
- Selection based on randomly generated parcel data (residential addresses using ArcGIS)

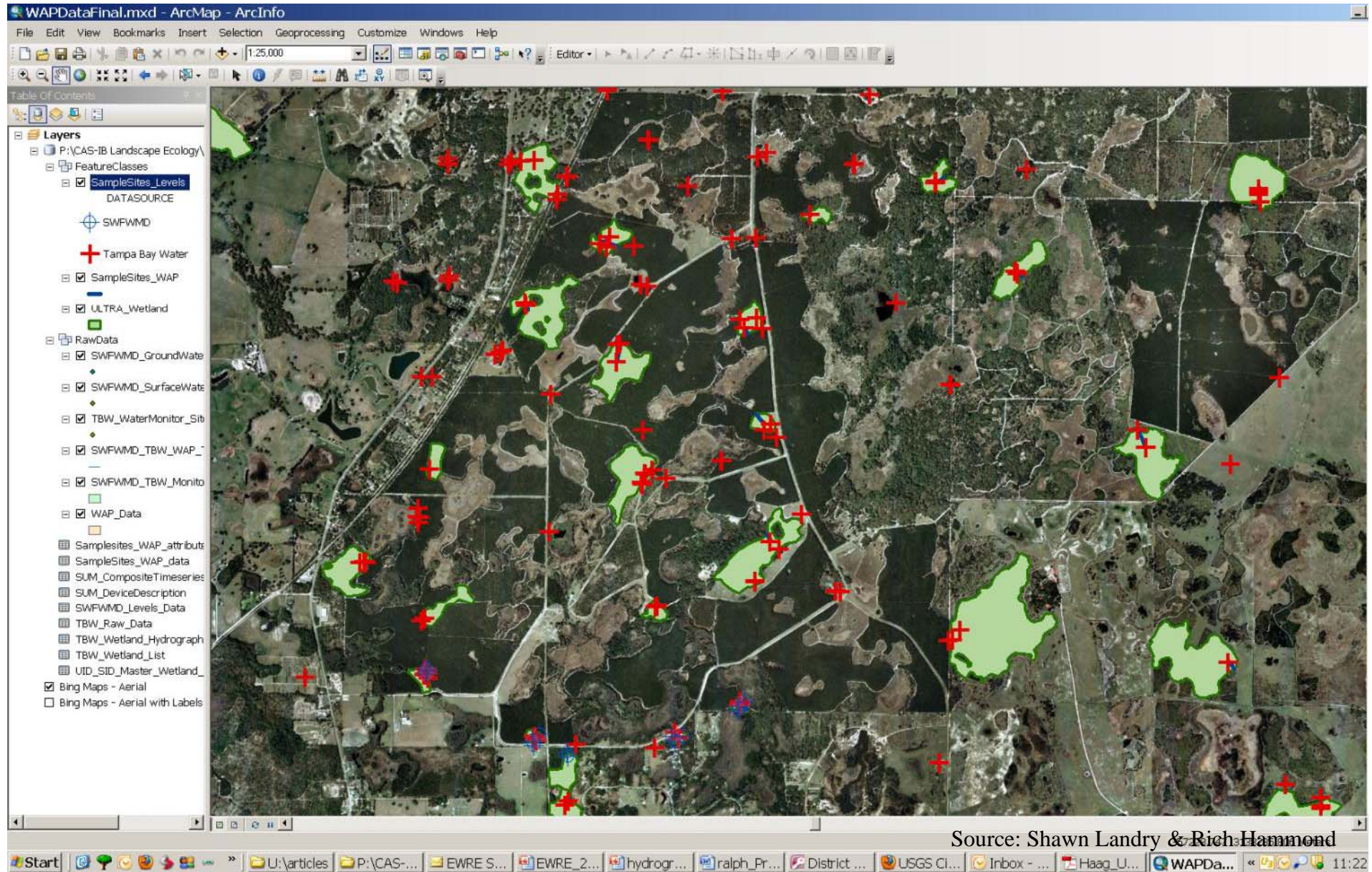


Source: Shawn Landry &
Rich Hammond

Resident interviews

- **Do residents near impacted areas have greater understanding of water distribution, equity, and environmental impact?**
 - What do resident in study area know about change in water resources, particularly wetlands?
 - Who do they hold most responsible for these changes, and why?
 - What do residents view as the “drivers” of change in wetlands?
 - How do these views affect their participation in public meetings about water?

Socioecohydrology (!) geodatabase



Source: Shawn Landry & Rich Hammond



Funding

