Salt Water Intrusion Mapping Update

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Next Steps Slide from February 2014

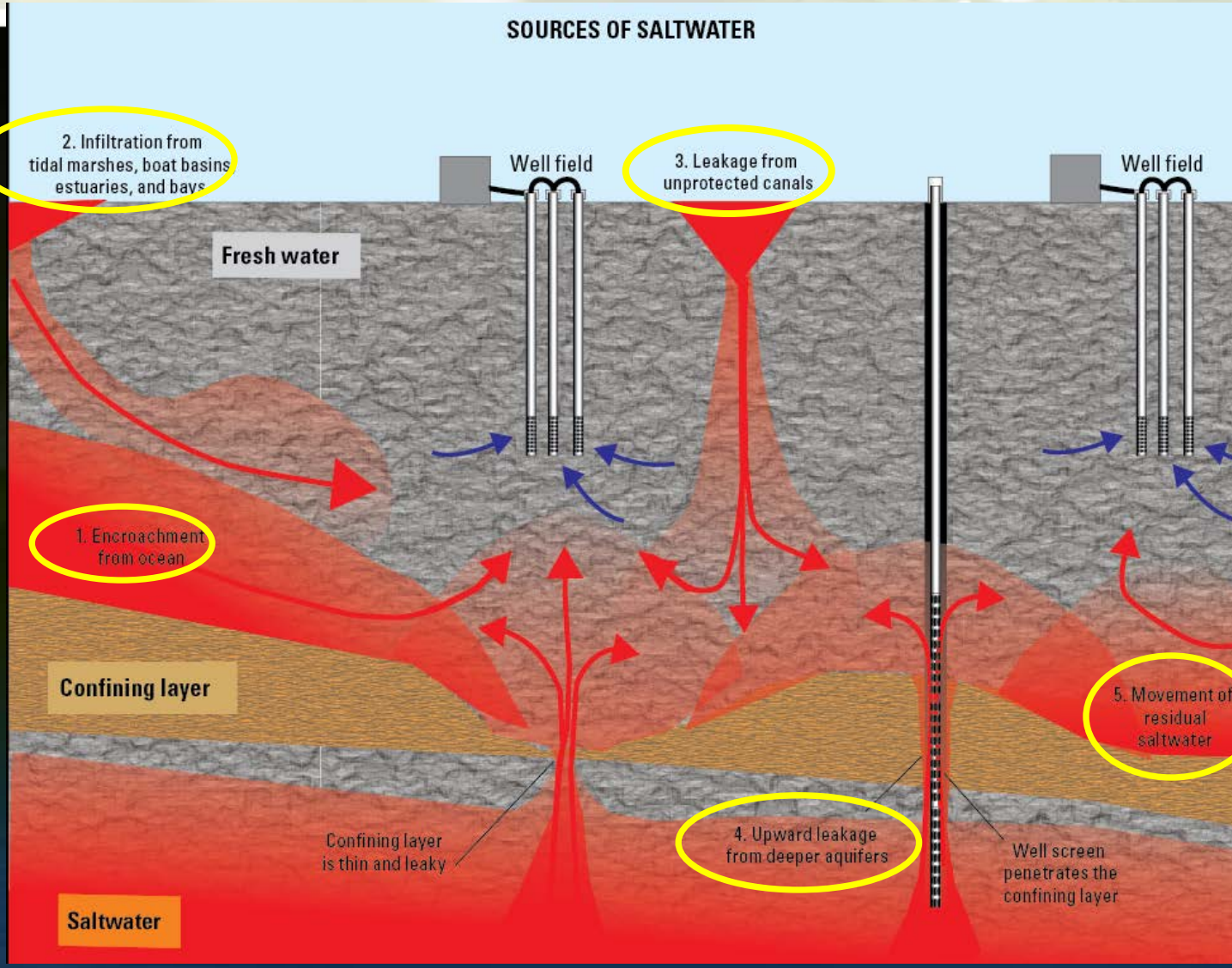
- SFWMD has initiated the formation of a project on Sea Level Rise and Climate Resilience to coordinate district-wide efforts on Sea Level Rise, Saltwater Intrusion and Climate Science
- Coordinate efforts with other Water Management Districts and the Department of Environmental Protection
- Collaborate with local governments on saltwater intrusion modeling
- Establish baseline saltwater intrusion maps and update on regular intervals
- Explore funding opportunities to investigate saltwater intrusion in coastal areas such as BCB

In the Big Cypress Basin there are multiple pathways of saltwater intrusion

Pathways include:

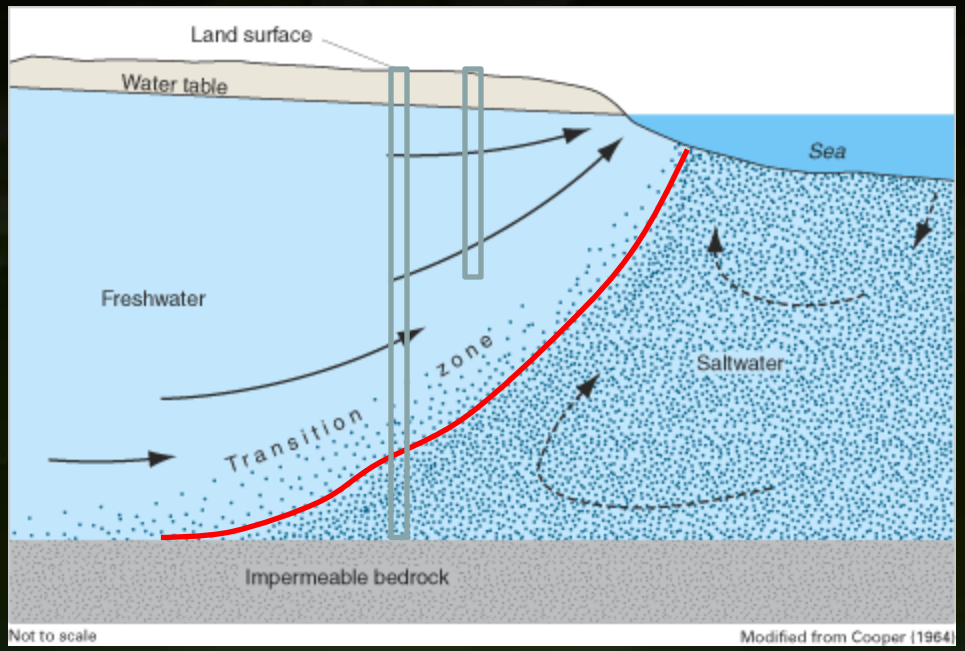
1. Encroachment from the ocean
2. Infiltration from marshes, boat basins, estuaries, and bays
3. Leakage from canals
4. Upward leakage from deeper aquifers
5. And movement of residual seawater

Source: USGS, Prinos, 2013



Mapping Challenges

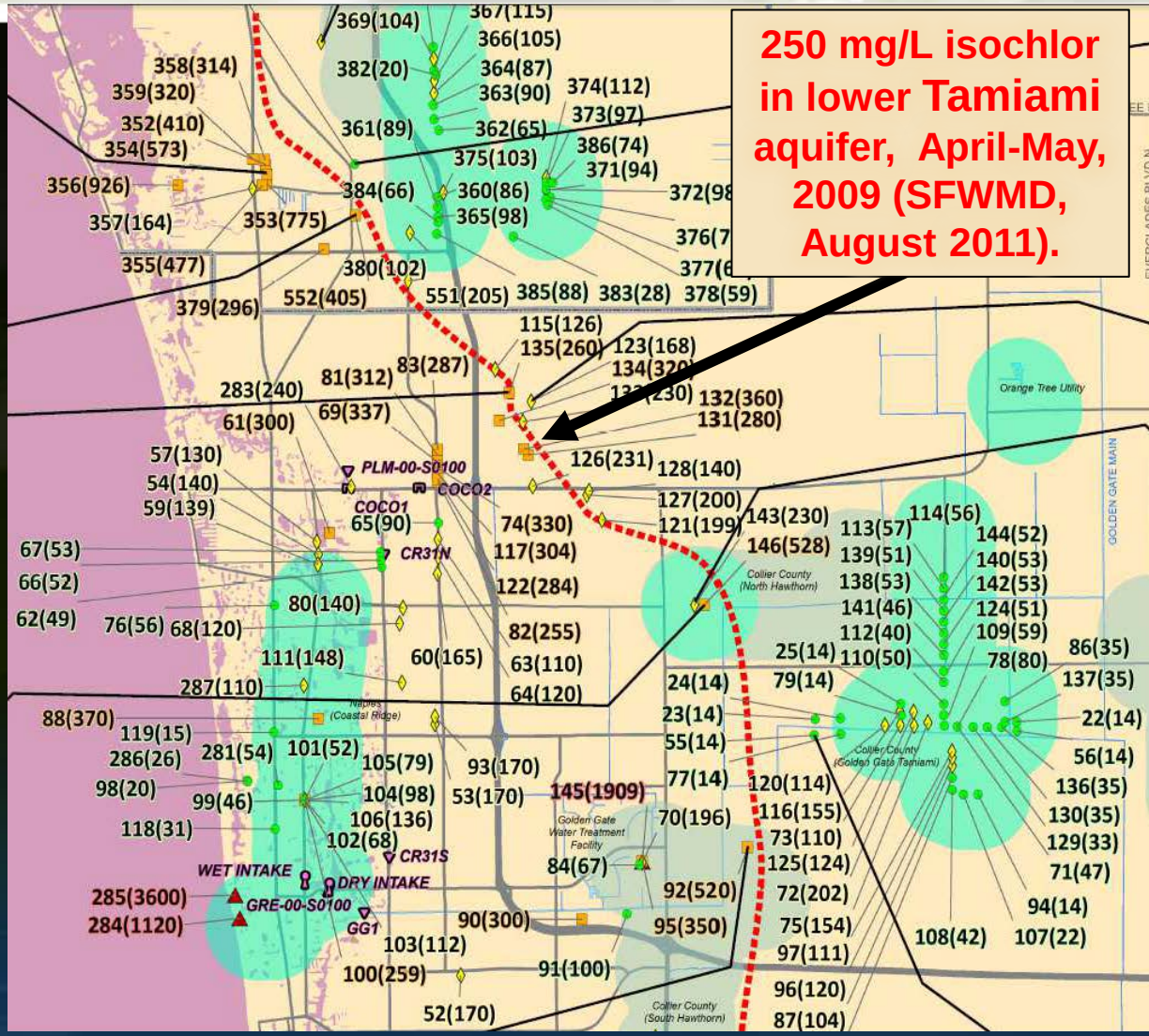
- Representing a three-dimensional feature on a two dimensional map
- Representing a dynamic interface with fixed time snapshots
- Representing a diffuse front with a single line



- Mapping from data that may represent one of several pathways
- Mapping with sparse (and still reducing) dataset

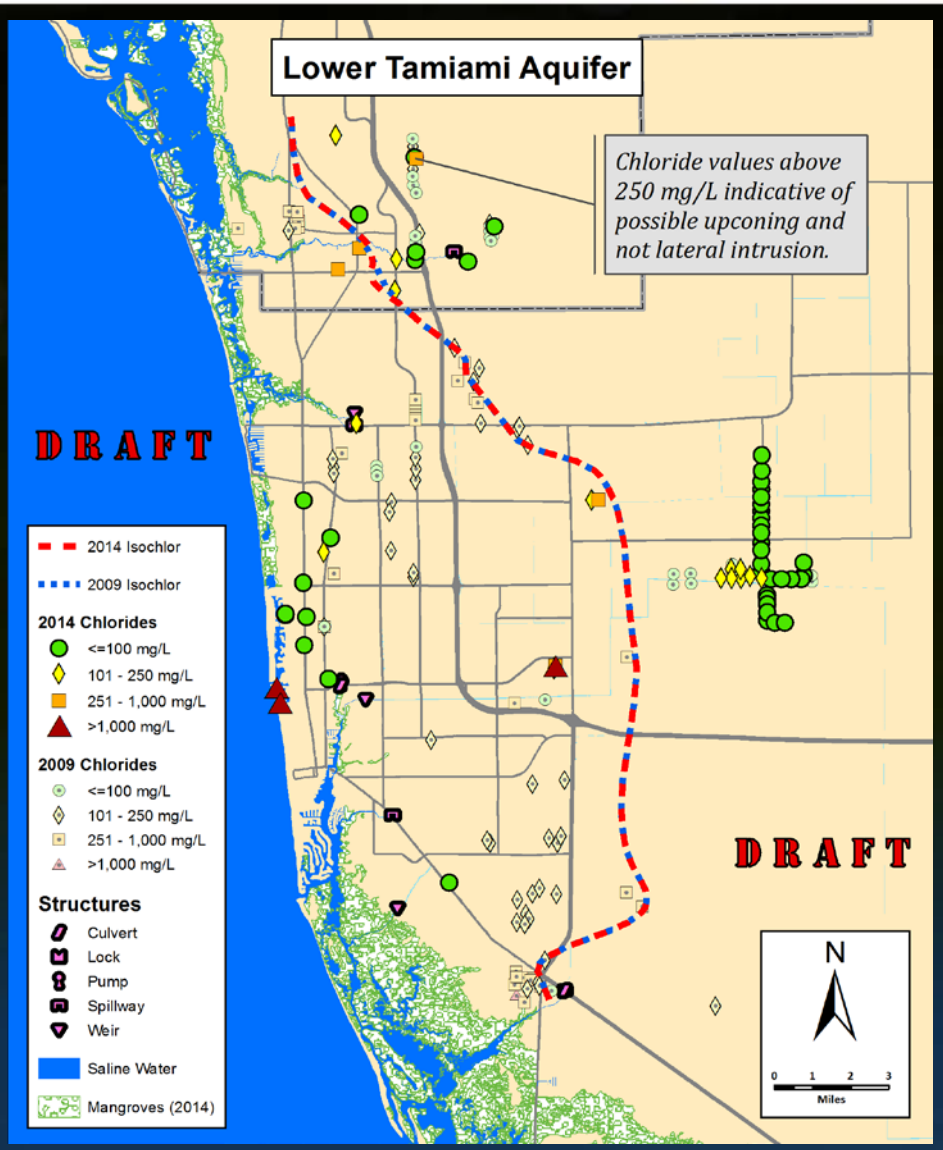
Saltwater Intrusion Mapping

Maps of the location of the salt-water interface for the Water Table and Lower Tamiami Aquifers were completed in 2011 by SFWMD Staff.



Saltwater Intrusion Mapping

- 2014 Update complete and in review.
- New maps represent dry season of 2014.
- Formal release and assessment of change in location of interface will follow in 2015.
- Initial results show minimal changes from the 2009 location of the interface.



Map developed by
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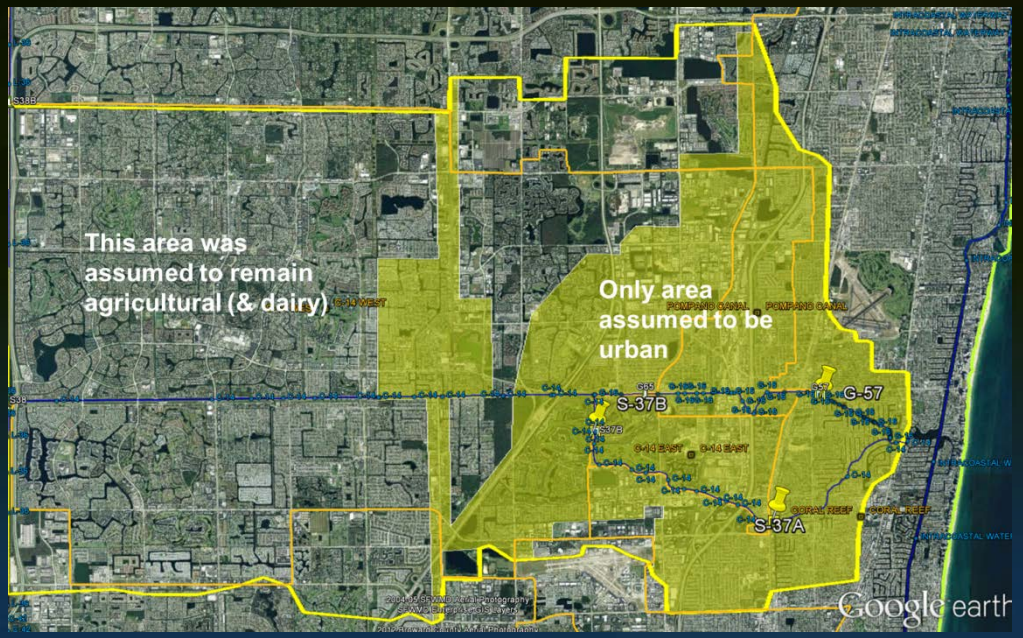
Resource Evaluation Section

Flood Protection Level-of-Service: District-Wide Assessment Program

- Evaluate the state and performance of our water management and flood control assets
- Support the capital program with hydrologic and hydraulic assessment to allow informed decision making
- Develop tools and techniques for assessing the level of service provided by water management district assets and infrastructure including canals
- Standardize approach for District Wide application.

Flood Protection Level-of-Service: District-Wide Assessment Program

- Original designs are out-of-date
  - unanticipated development and changes in land-use
  - sea level rise and changing rainfall patterns
  - shift to pumped drainage
  - constraints imposed by water supply, environmental and ecological protection



Program Elements

- LOS Fundamentals
- Assessment Procedure
- Sea Level Rise
- Changing Rainfall
- Basin-Scale Assessment Projects:
  - LOS modeling for Basin
  - Basin Atlas

Status

- Identified a basin for a Pilot Implementation
- Initiated work on each of the identified program elements
- Completed early milestones including Basin Atlas
- Documenting issues, challenges, data and analyses requirements for the purpose of standards and scope development for other basins across the District
- Scheduled to complete in second quarter of 2015.

Next Steps

- Continue implementation of Sea Level Rise project including the Pilot Level of Service Assessment effort. Implement the program by expanding to other basins within the District.
- Continue coordination with other Water Management Districts and the Department of Environmental Protection
- Collaborate with local governments on saltwater intrusion modeling
- Publish saltwater intrusion maps, report on changes form baseline
- Explore funding opportunities to investigate saltwater intrusion in coastal areas such as BCB

Questions and Discussion