SB88 Monitoring Method and Alternative Compliance Plan

Method Validation and Improvement

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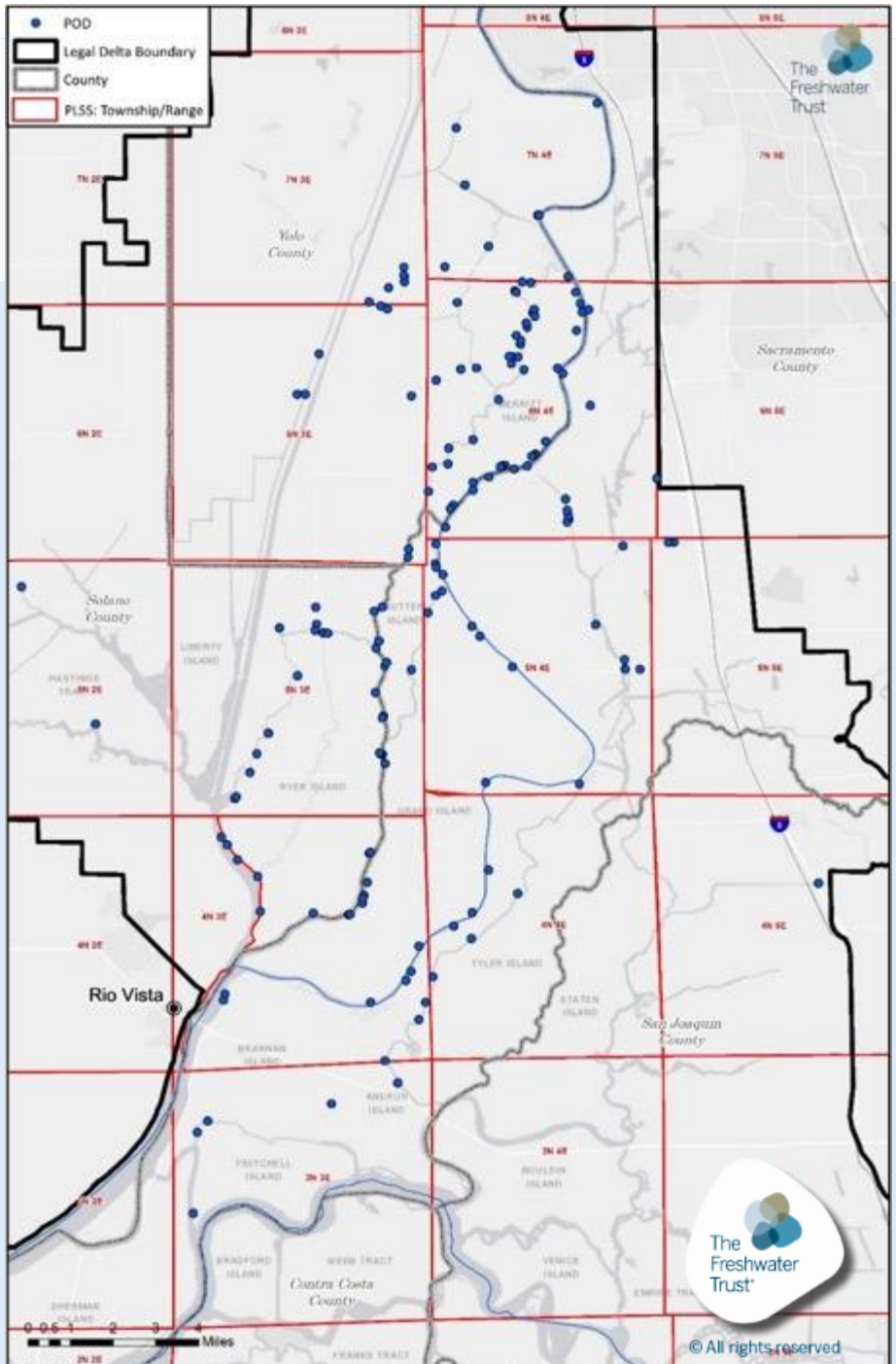
Conservation Project Manager

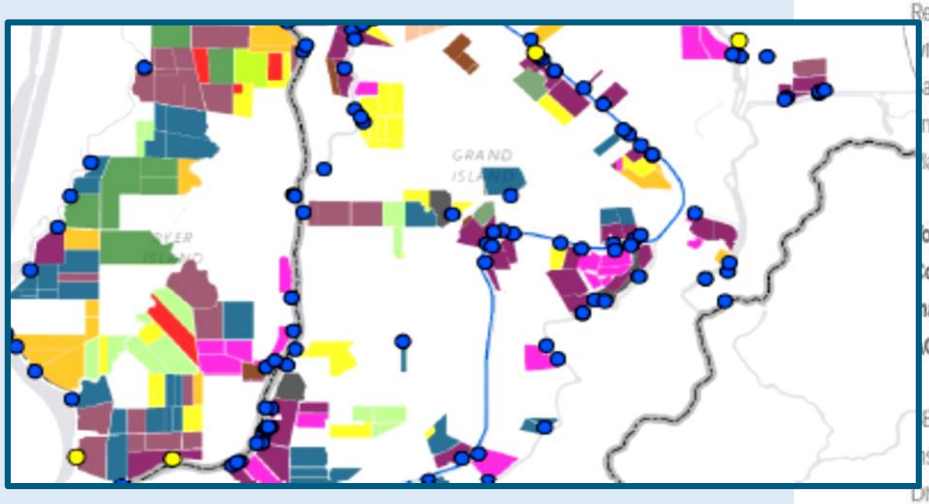
TFT's Alternative Compliance Plan

- Develop and validate a new measurement method for water diversion in the Delta
- Technologic and hydrologic barriers to the application of conventional measuring devices, data collection equipment, and telemetry
- Goals are two-fold:
    1. fulfill reporting requirements for participants
    2. advance the science of consumptive use estimations

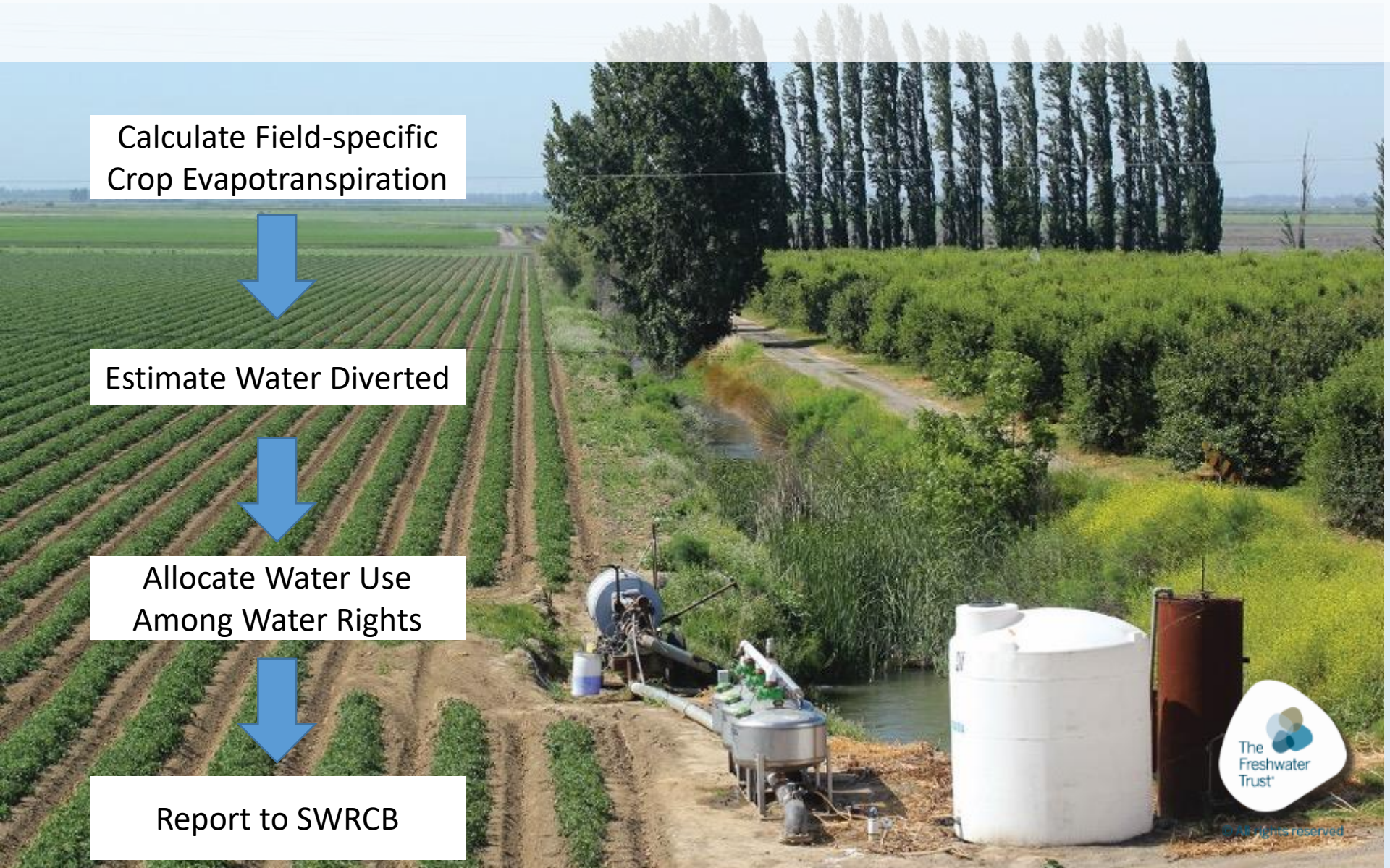


Plan Participants

- 160 water rights (license, Riparian, pre-1914, NDWA Contract)
- 79 landowners
- Currently completing 2nd year of reporting



Process Overview



Process Overview

Calculate Field-specific Crop Evapotranspiration

Estimate Water Diverted

Allocate Water Use Among Water Rights

Report to SWRCB

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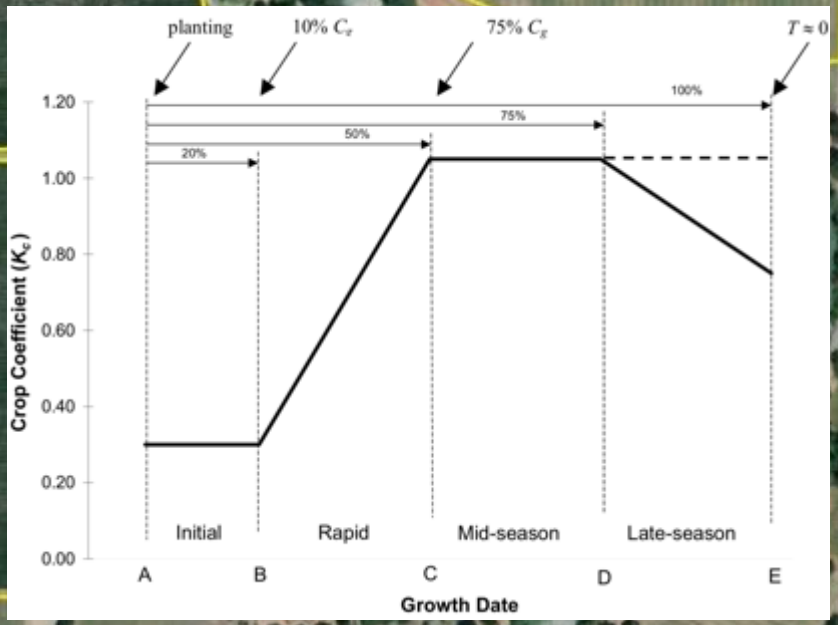
- Participant-supplied crop type, planting and harvest dates, field size
- Spatial CIMIS reference evapotranspiration (ET_0)
- Crop coefficients (K_c)



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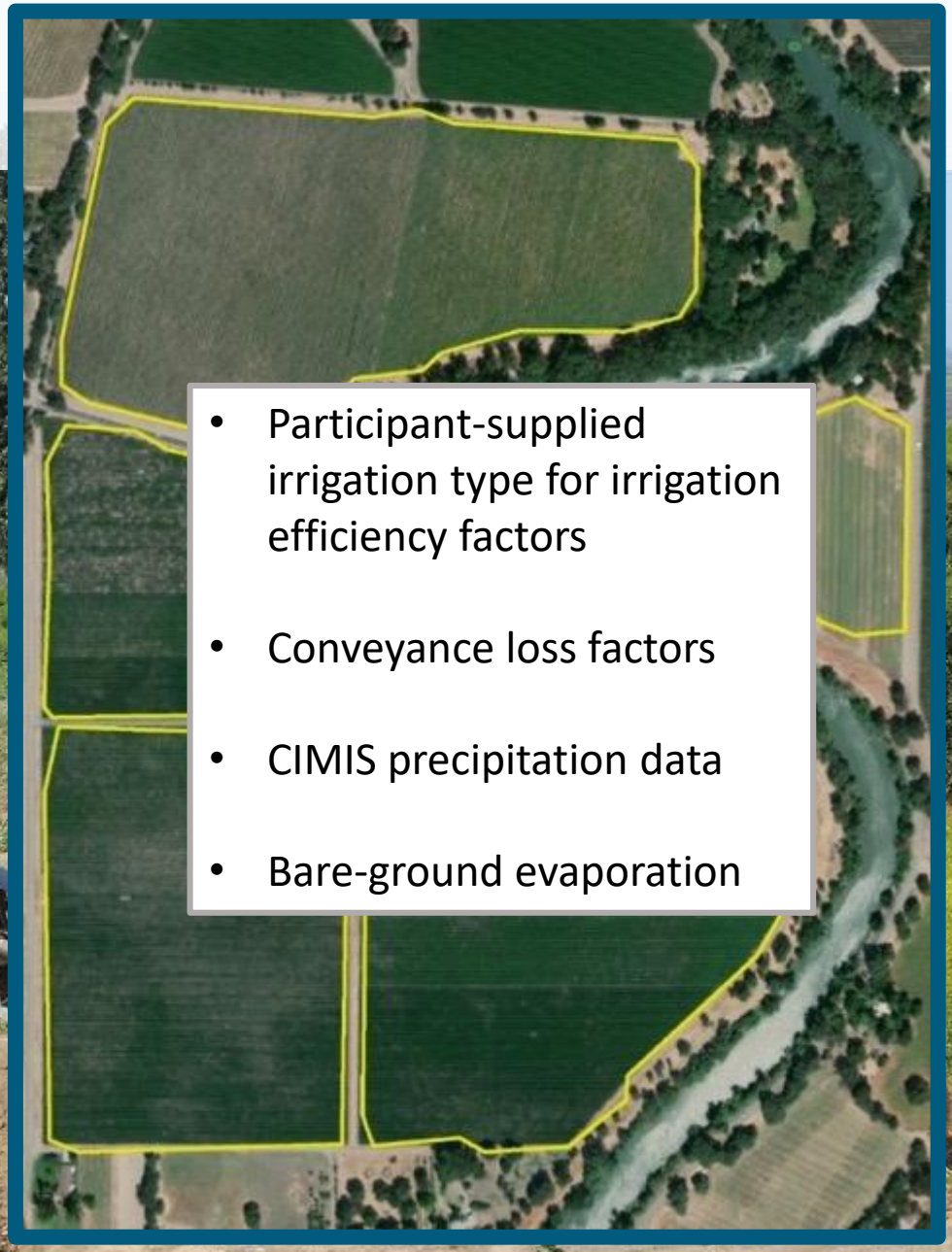

- Participant-supplied irrigation type for irrigation efficiency factors
- Conveyance loss factors
- CIMIS precipitation data
- Bare-ground evaporation

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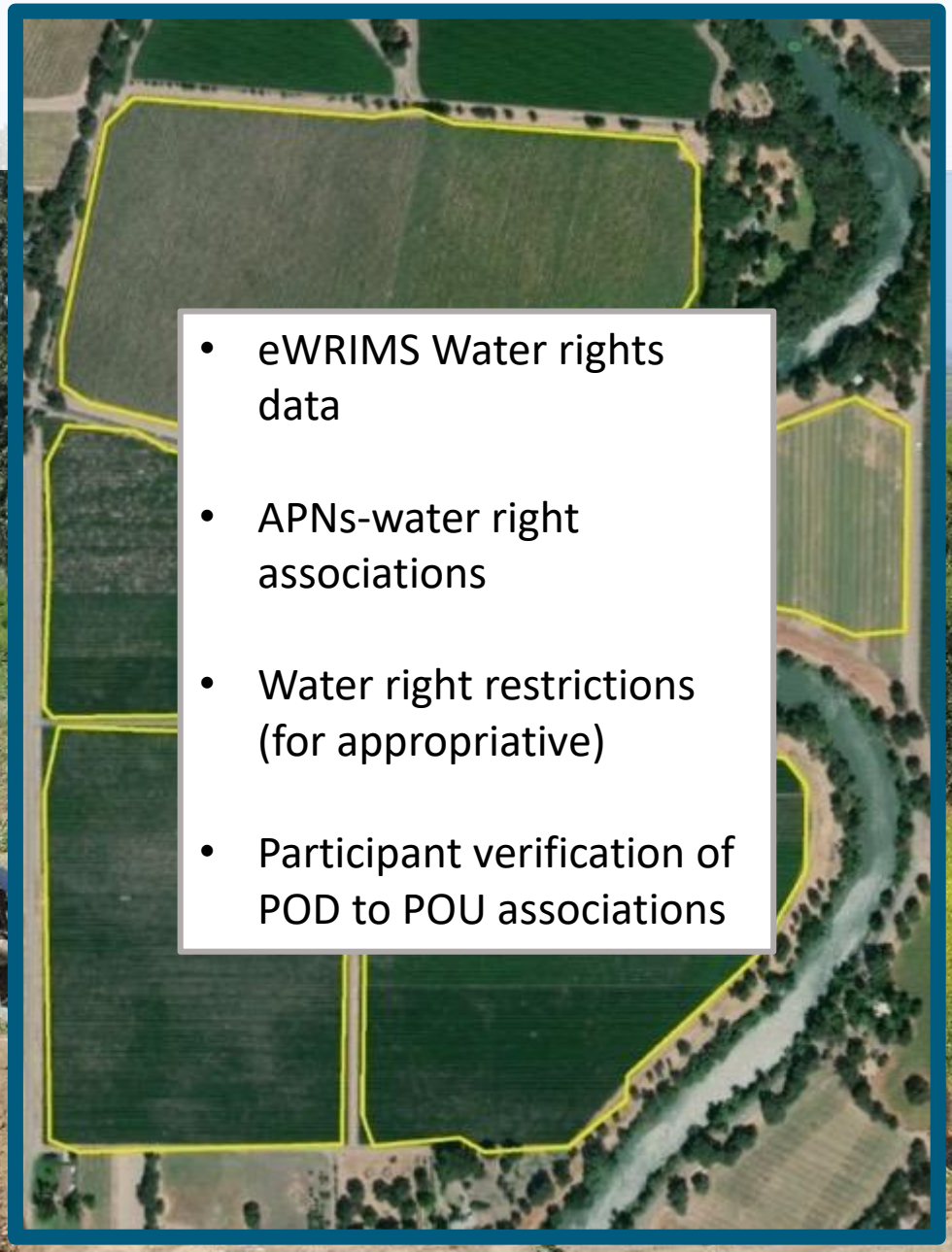

- eWRIMS Water rights data
- APNs-water right associations
- Water right restrictions (for appropriative)
- Participant verification of POD to POU associations

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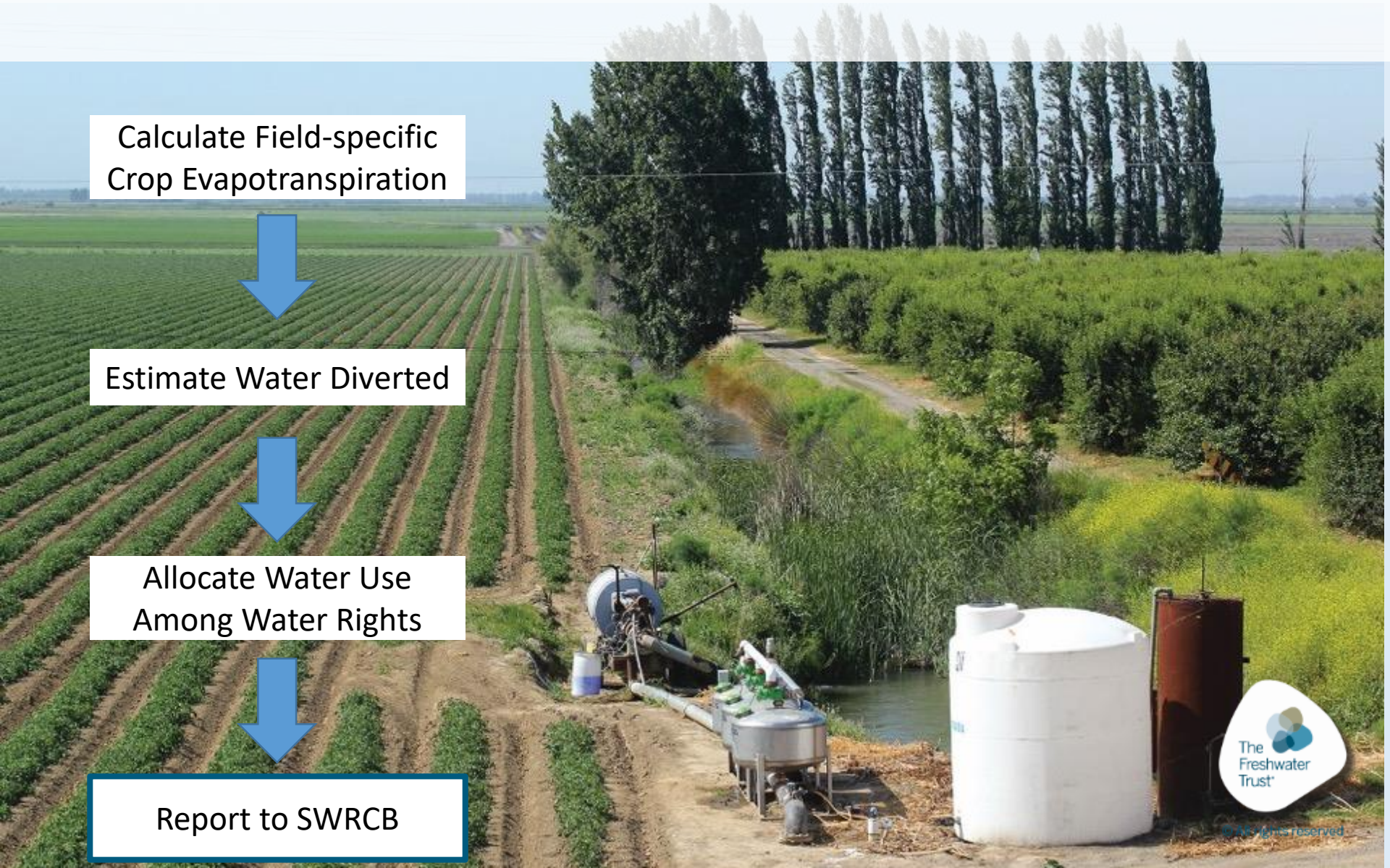
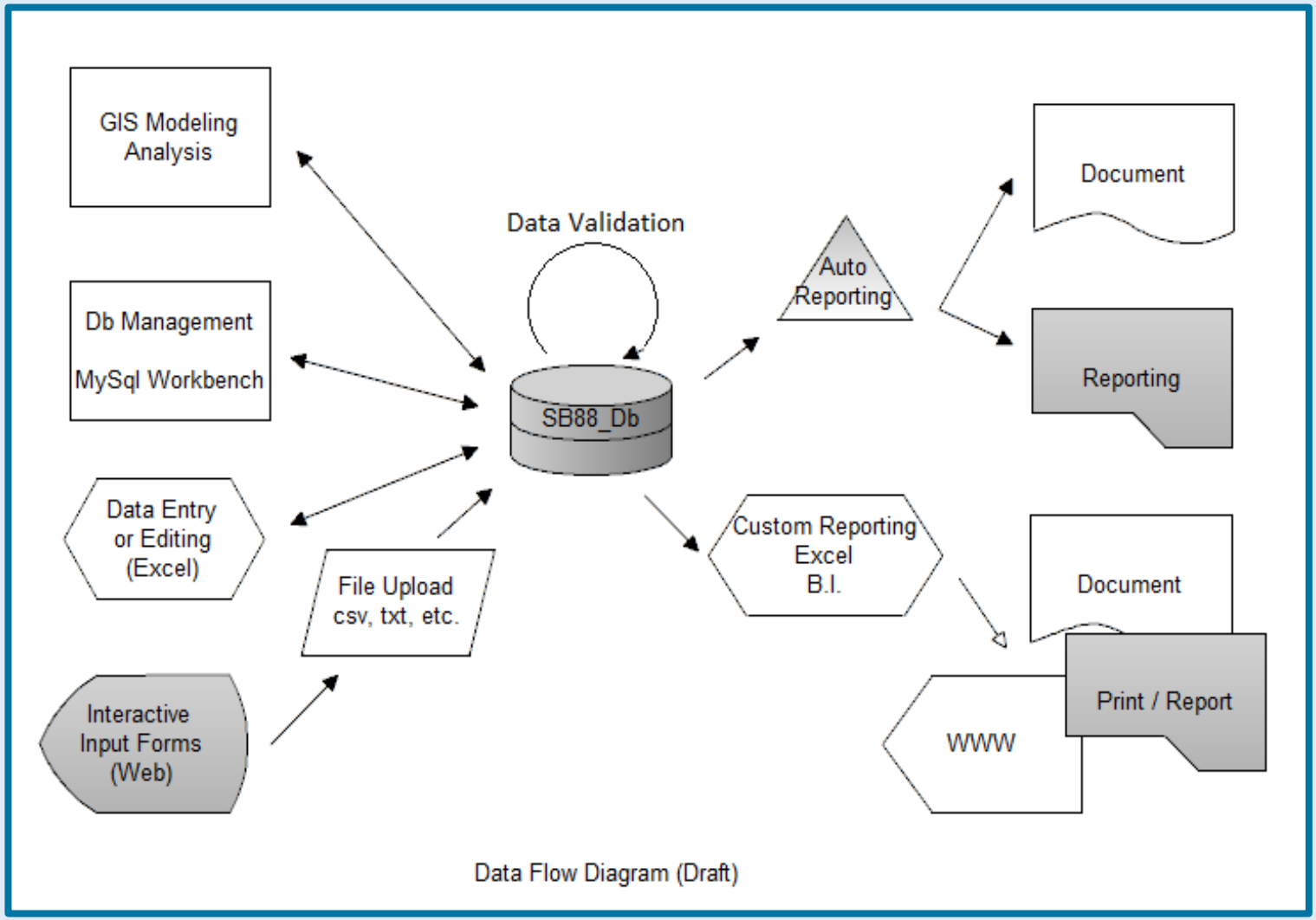
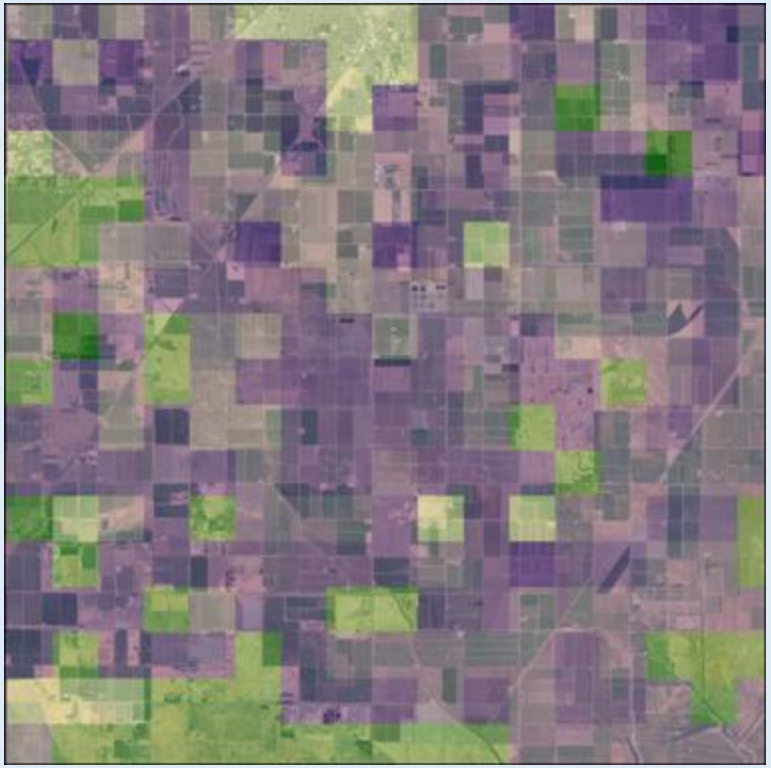


System Requirements & Workflow



Validation Method 1:
Comparison with Landscape-Level ET Models

- Obtain spatial data of outputs of these model (METRIC, CALSIMETAW, NASA)
- Intersect with field polygons and compare to TFT measurement method results
- Understand why differences occur and potential optimization of these methods for SB-88



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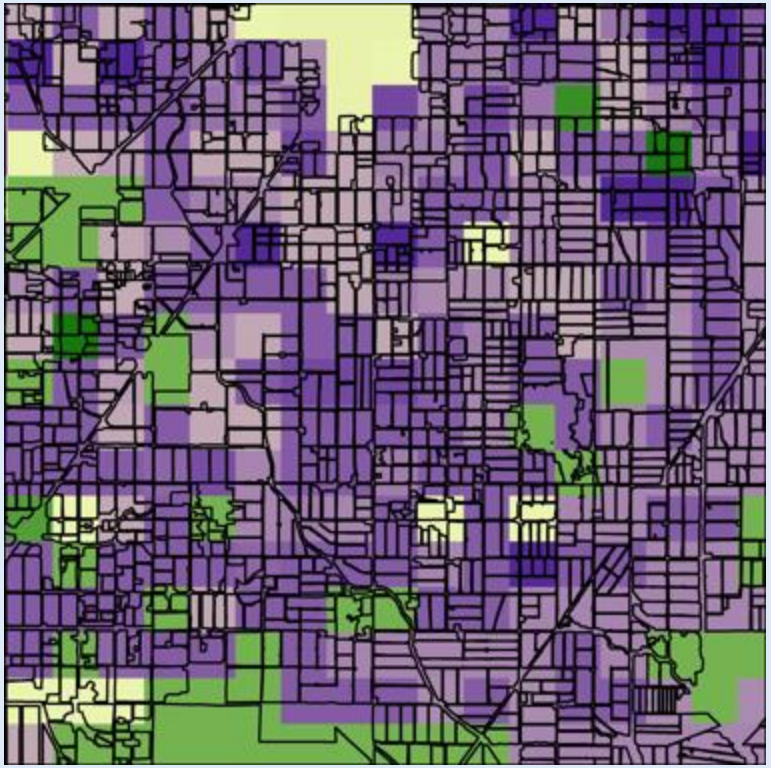

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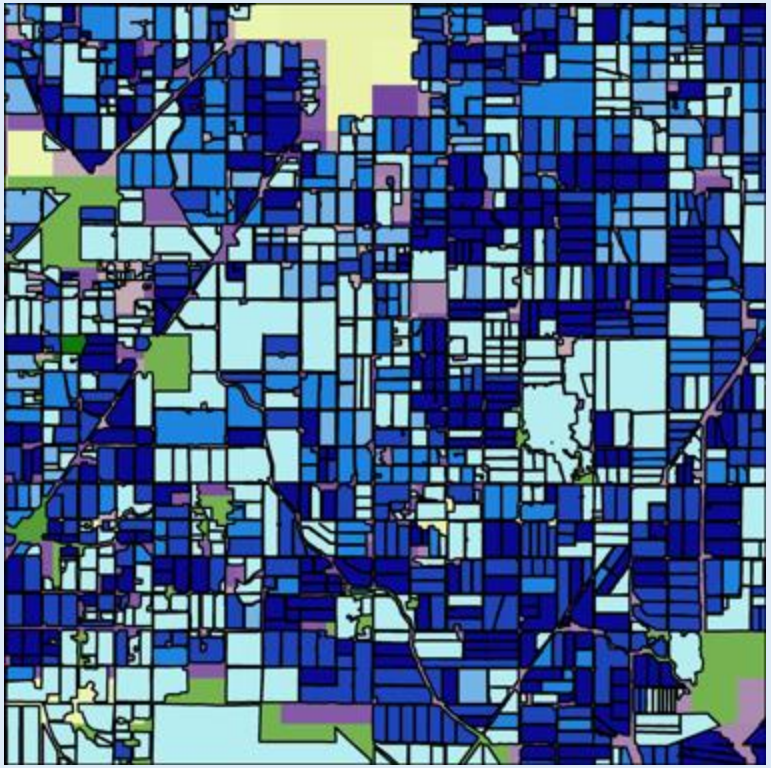

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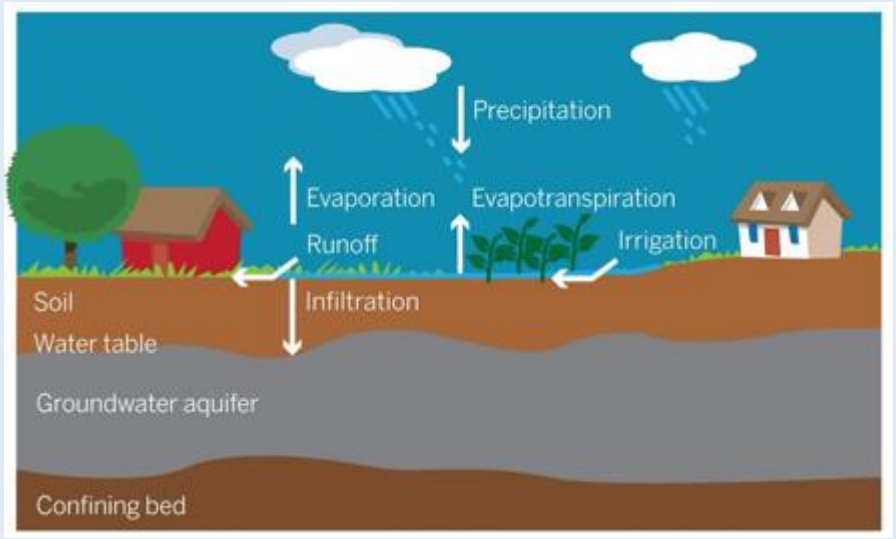
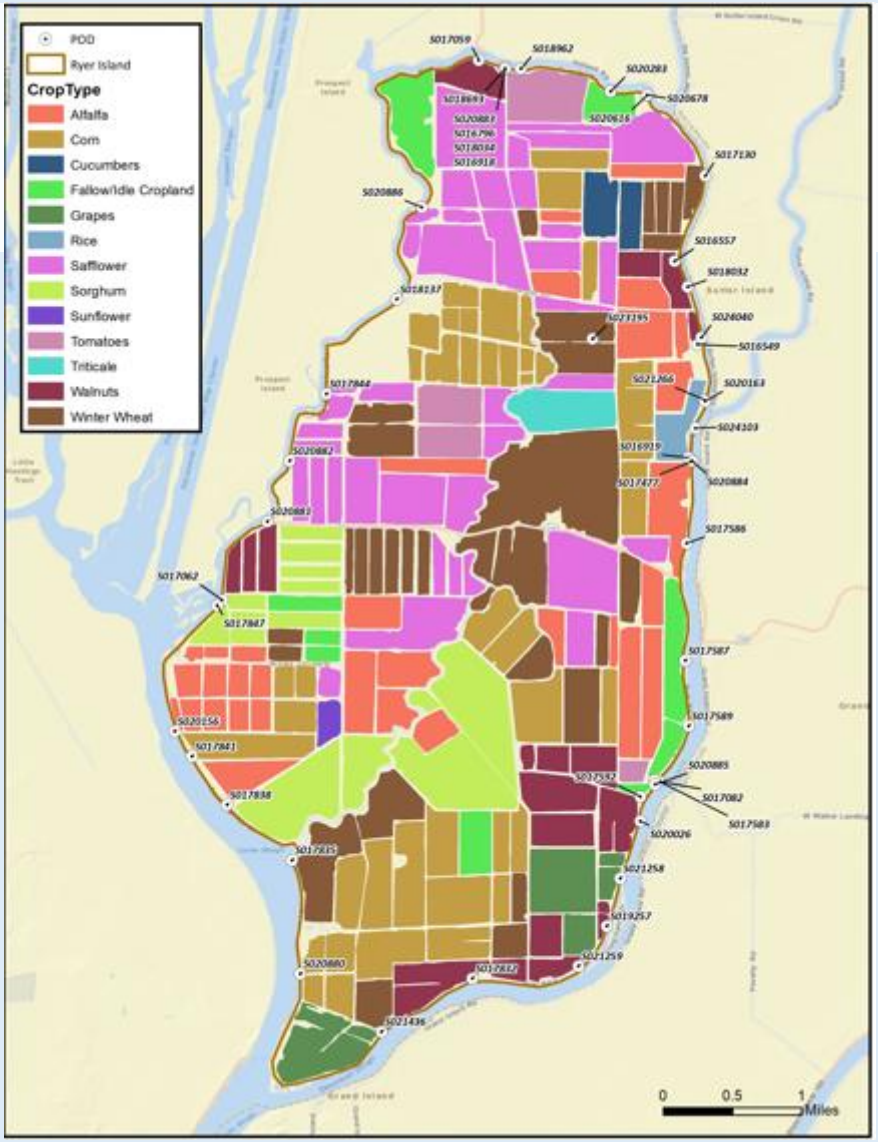
Validation Method 2: *Island Water Budgets*

- Estimate all surface water inflows and outflows to better understand importance of infiltration, groundwater upwelling, conveyance loss, etc.
- Staten and Ryer Islands in collaboration with TNC





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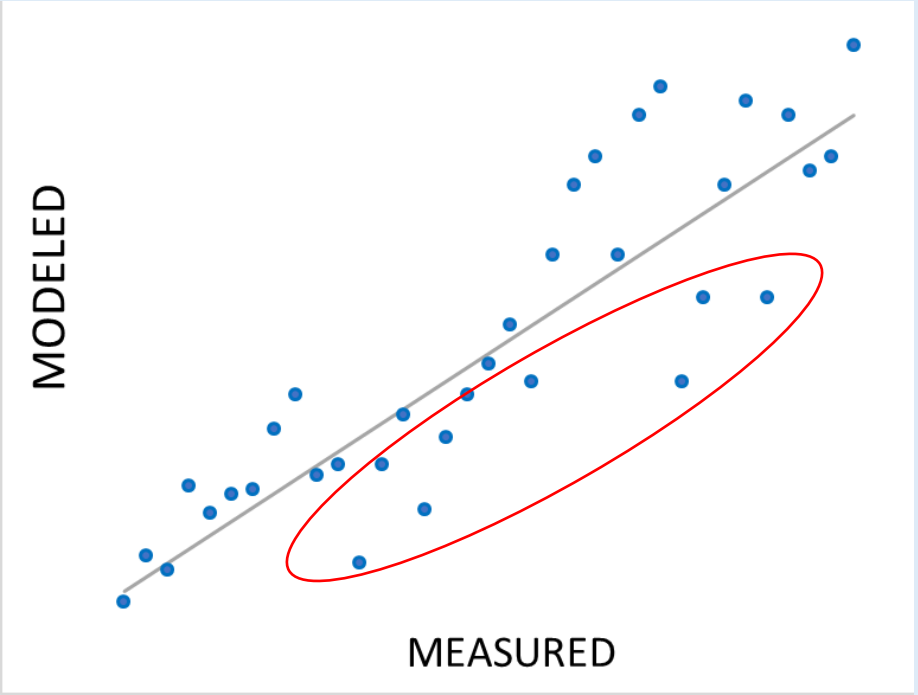
Validation Method 3:
Comparison to Existing Methods

- Few existing metered pumps and siphons with long-term reliable data
- TNC has a project to quantify the accuracy of certain meters
- Assess correlations between various metered and non-metered approaches
- Relate trends to crop and management practices for additional model parameters



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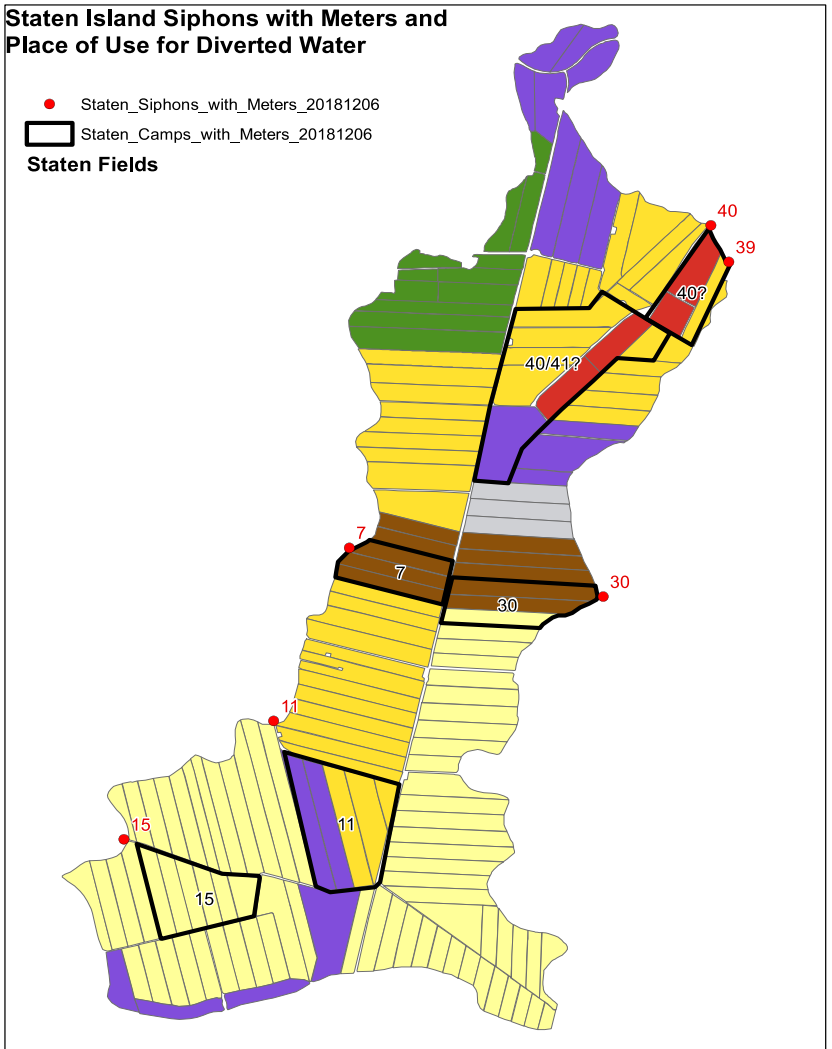

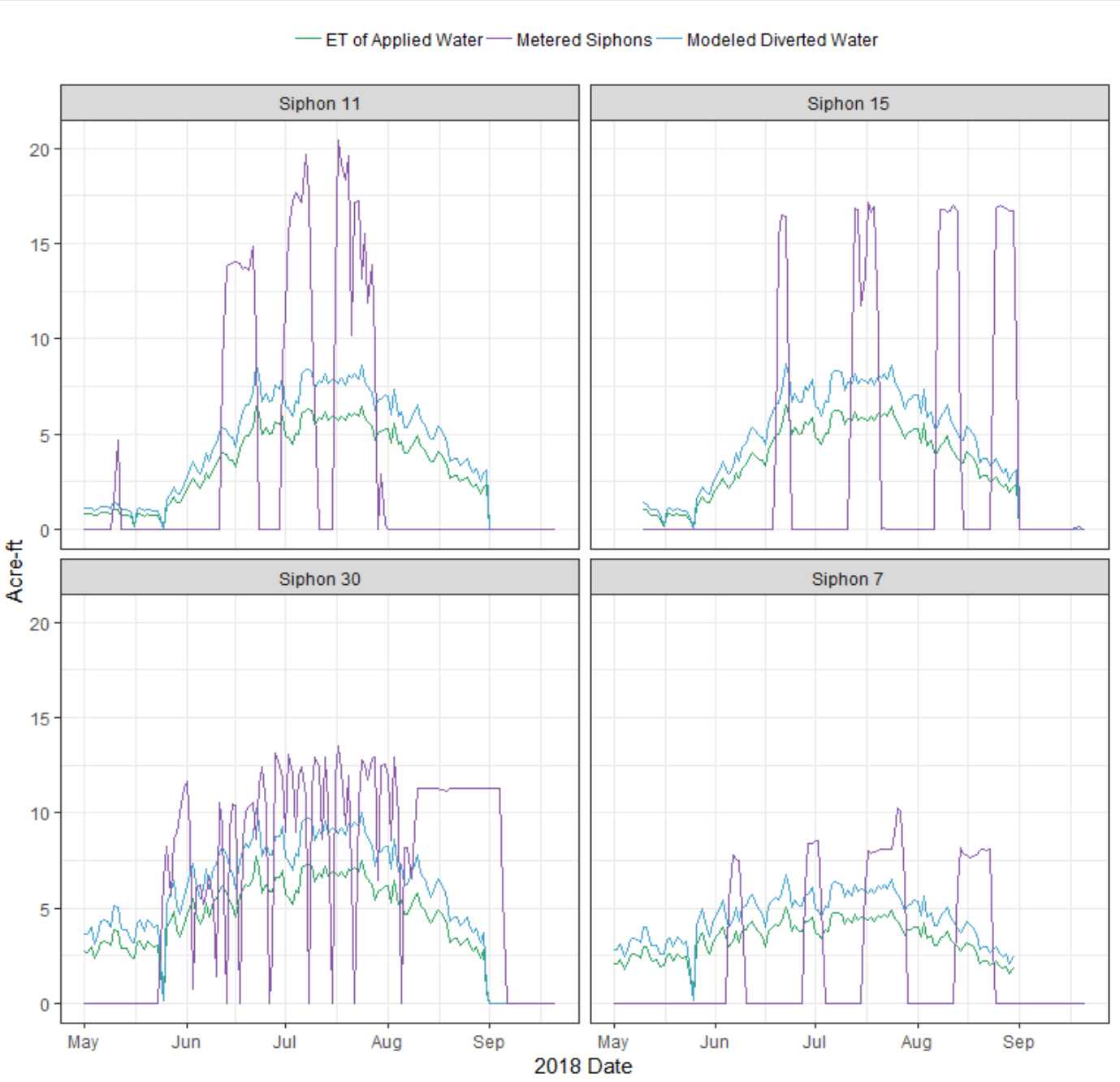

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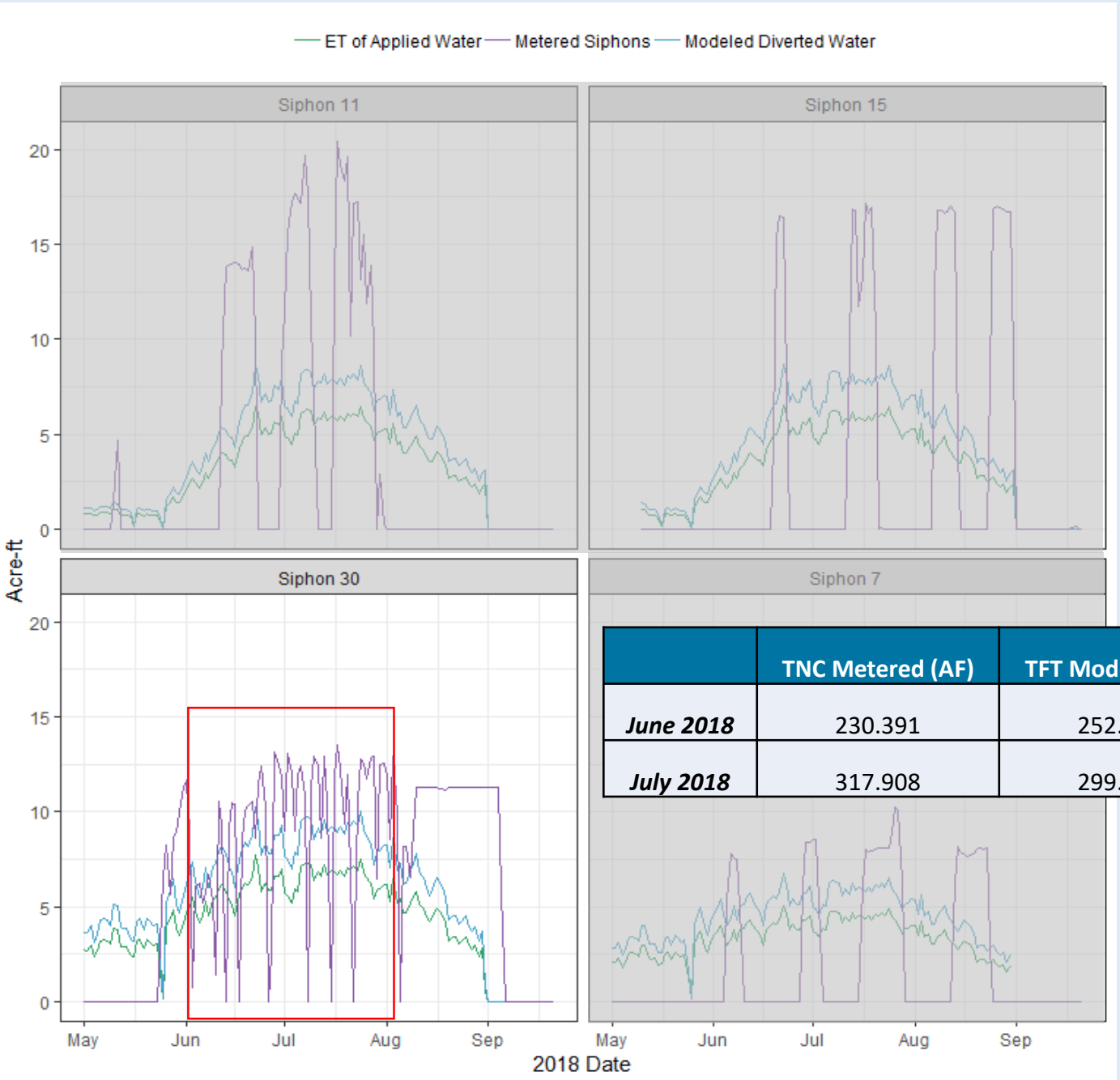

	TNC Metered (AF)	TFT Modeled (AF)	% Difference
June 2018	230.391	252.457	9.6%
July 2018	317.908	299.726	5.7%

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Additional Research Question: *Remotely-sensed data for scalability*

- Can participant-supplied data be replaced with remotely-sensed data if method is used at broader scale?
- Field boundaries
- Crops and Irrigation type
- Planting and harvest dates
- Point of Use and Water Rights data from eWRIMS

Questions & Discussion

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