Part Four – Summary and Future Directions

DPM: The largest AM Experiment in USACOE History

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Lessons Learned (Operational)

1. The interagency team proved flexible to adapt to anomalous years like this last flow event. Rapid communication within and among agencies was critical for managing for a strong El Nino, changing operations and accommodating a weekly trigger.

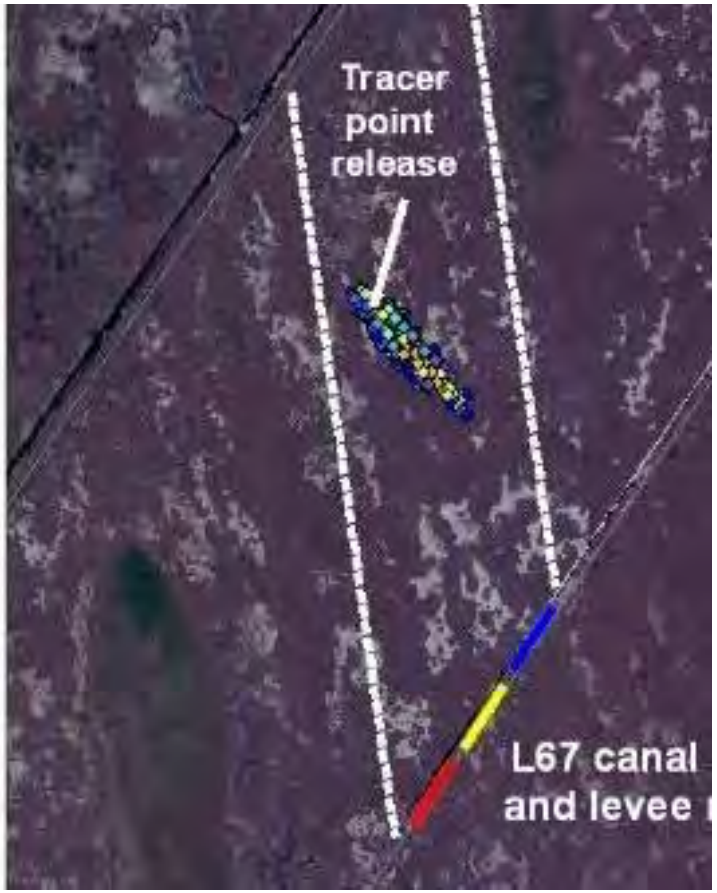
2. Having a rich data set (15 years) and especially weekly data in the last 3 years proved essential to operational decisions.

3. This year's data should be helpful for determining how operations (for future DPM studies, and ultimately CEPP) that extend beyond January (the current limit for DPM).

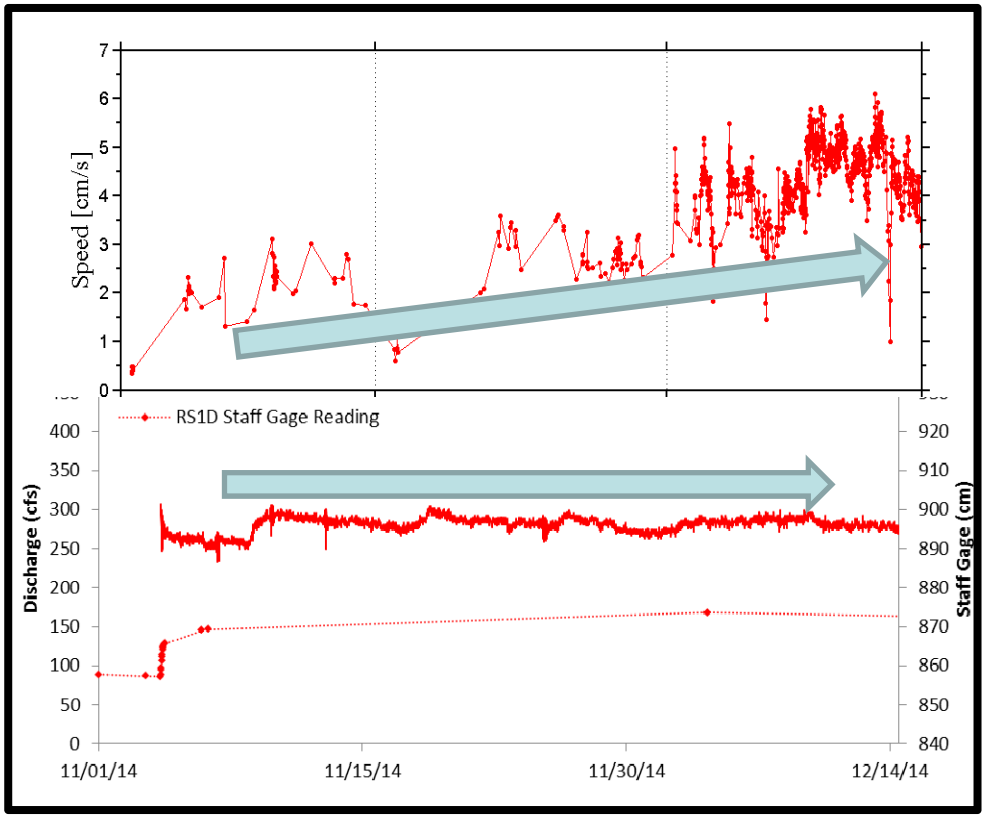
4. The DPM structure will benefit general operations and the management of high water conditions in 3A (e.g., Emergency Orders).

Lessons Learned (Hydrology)

Water did not follow the historic flow-path



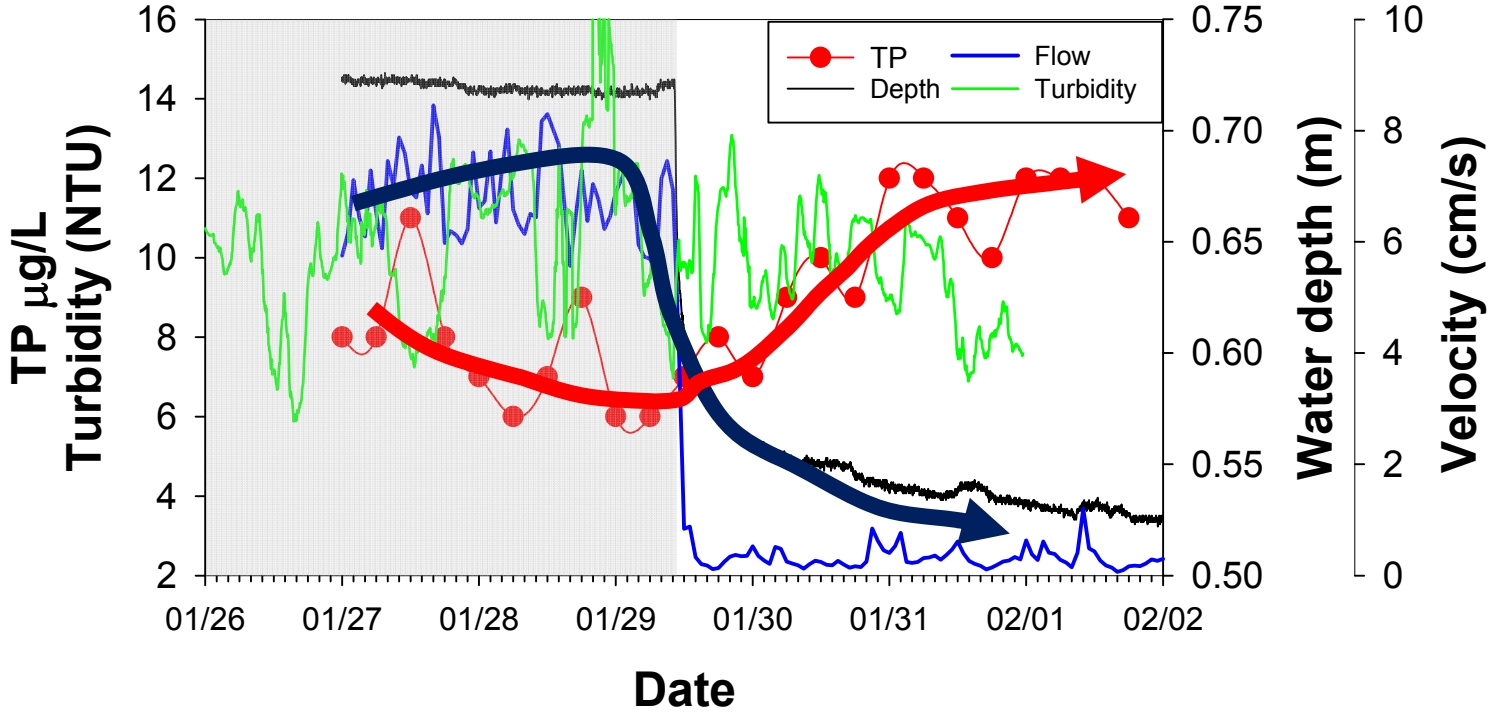
Flow velocities increased with flow duration and despite steady discharge



Data from Ho, Harvey, Choi, Dickman

Lessons Learned (Water Quality)

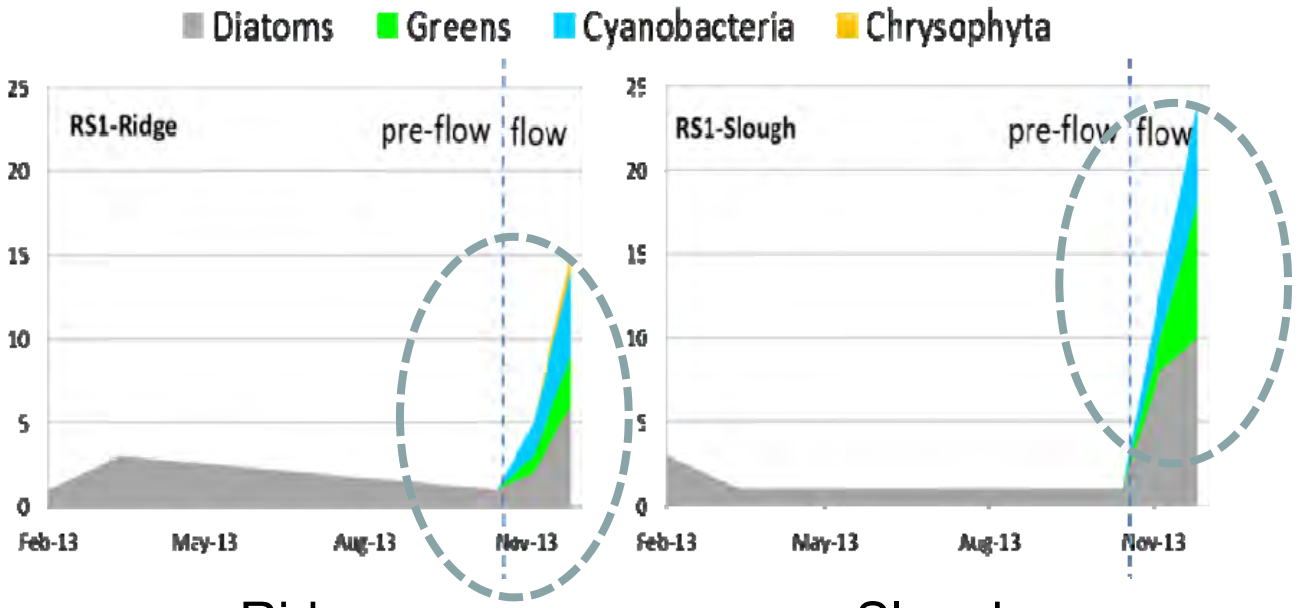
Stopping flow appeared to raise TP concentrations



Data from Rosen, Newman, Cline, Tate-Boldt and Hansen

Lessons Learned (Water Quality)

Flow Changed Algal Taxa in Slough Sediments



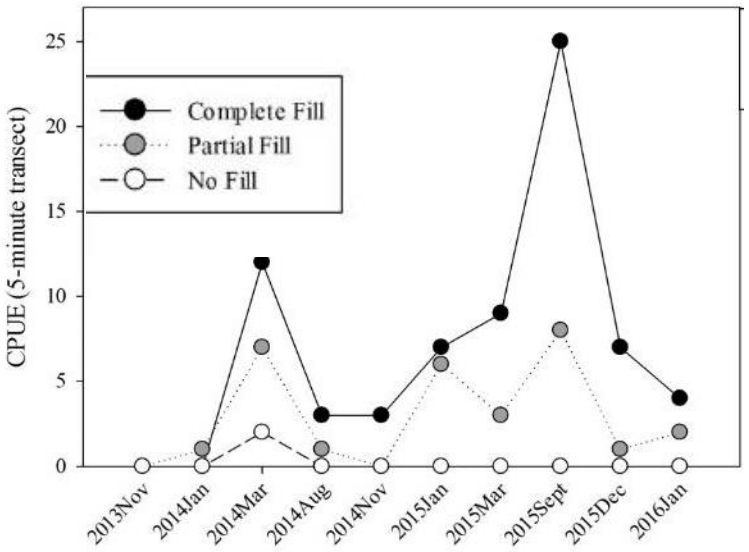
Ridge

Slough

Data from Rosen, Newman, Cline, Tate-Boldt and Manna

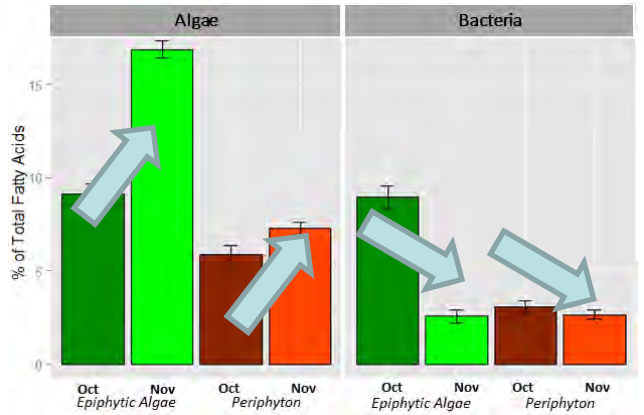
Lessons Learned (Canal and Levee Removal)

Backfilling created more high-quality fish habitat.

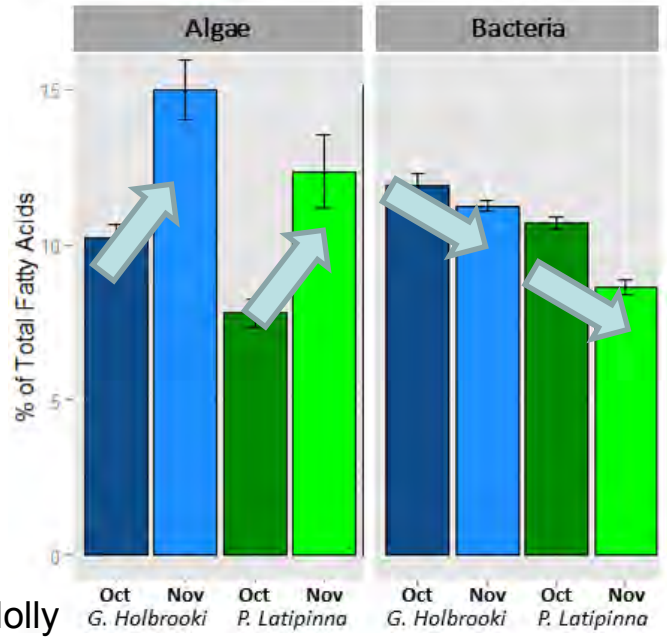


Data from Sarah Bornhoeft, Rosen, Trexler, Newman, Saunders

Algae-derived Fatty Acids in the periphyton increased with flow



Algae-derived Fatty Acids in the fish increased with flow

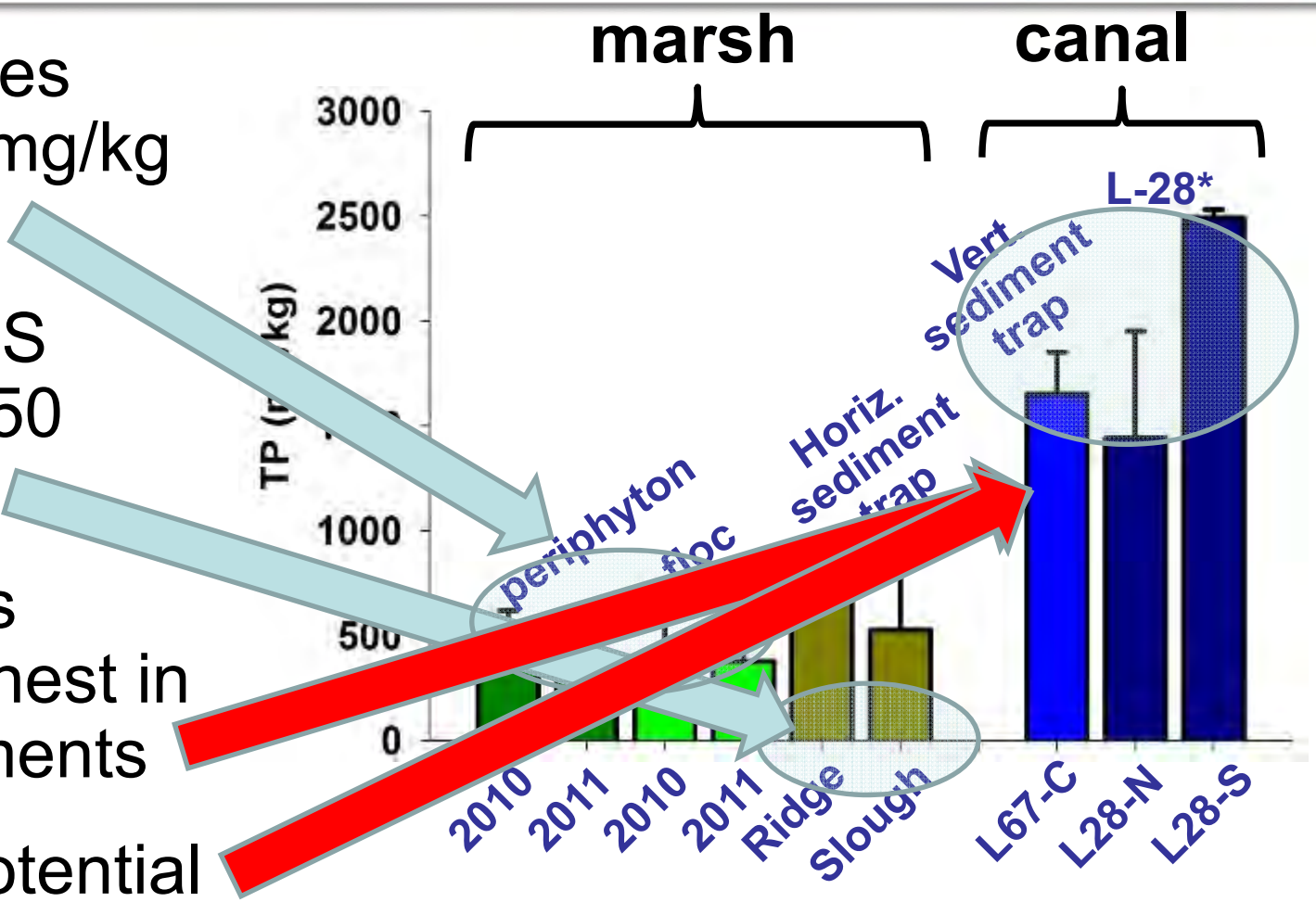


P. Latipinna=Sailfin Molly

G. Holbrooki=Eastern Mosquitofish

Lessons Learned: Canal Sediments

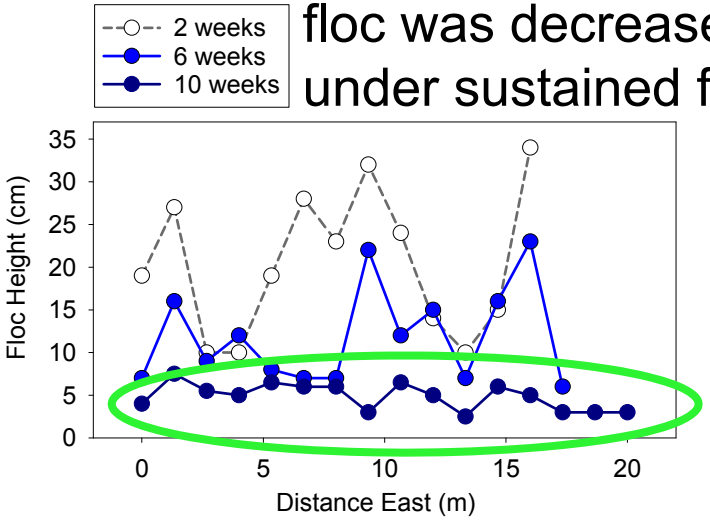
- Sentinel Sites below 500 mg/kg TP
- Flowing R&S sites 500-650 mg/kg TP
- Phosphorus content highest in canal sediments
- Canals a potential source of P



*Merkel & Hickey-Vargas 2000. *Water, Air, and Soil Pollution*

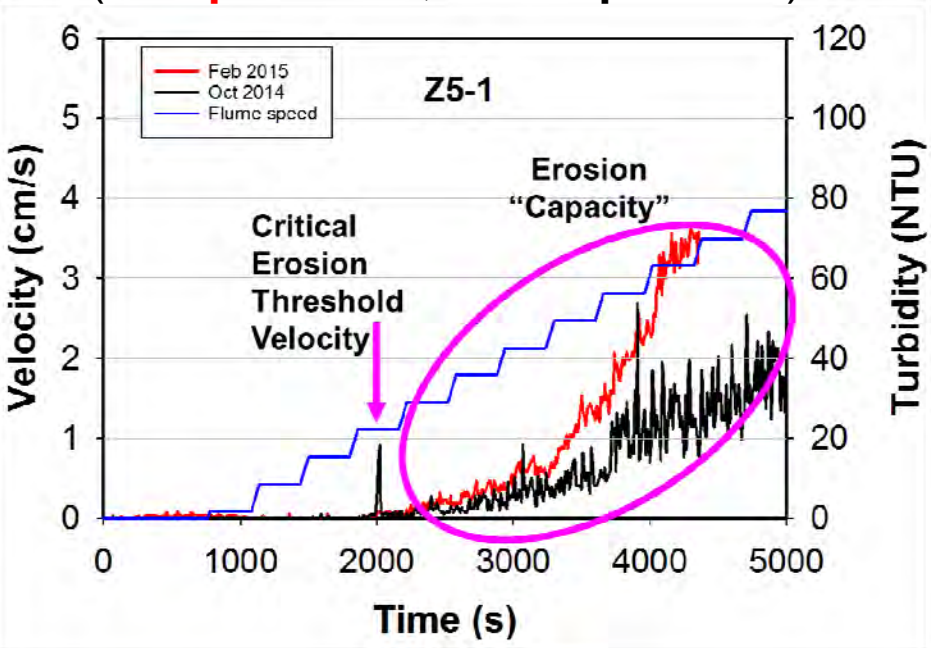
Lessons Learned (Sediment)

The amount of slough floc was decreased under sustained flow



Floc was more erodible after sustained high flow

(**red=post-flow**; **black=pre-flow**)



Data from Saunders, Newman and Manna)

Future Directions

Keeping the DPM structure in place will help answer critical ecological uncertainties that are likely to pose challenges for the success of CEPP, including:

PLANNING MILESTONES – With continued flows year after year, and given our sediment findings, we will be able to detect larger-scale improvements in topography and pattern restoration – giving us a better idea of how fast CEPP will likely lead to positive changes.

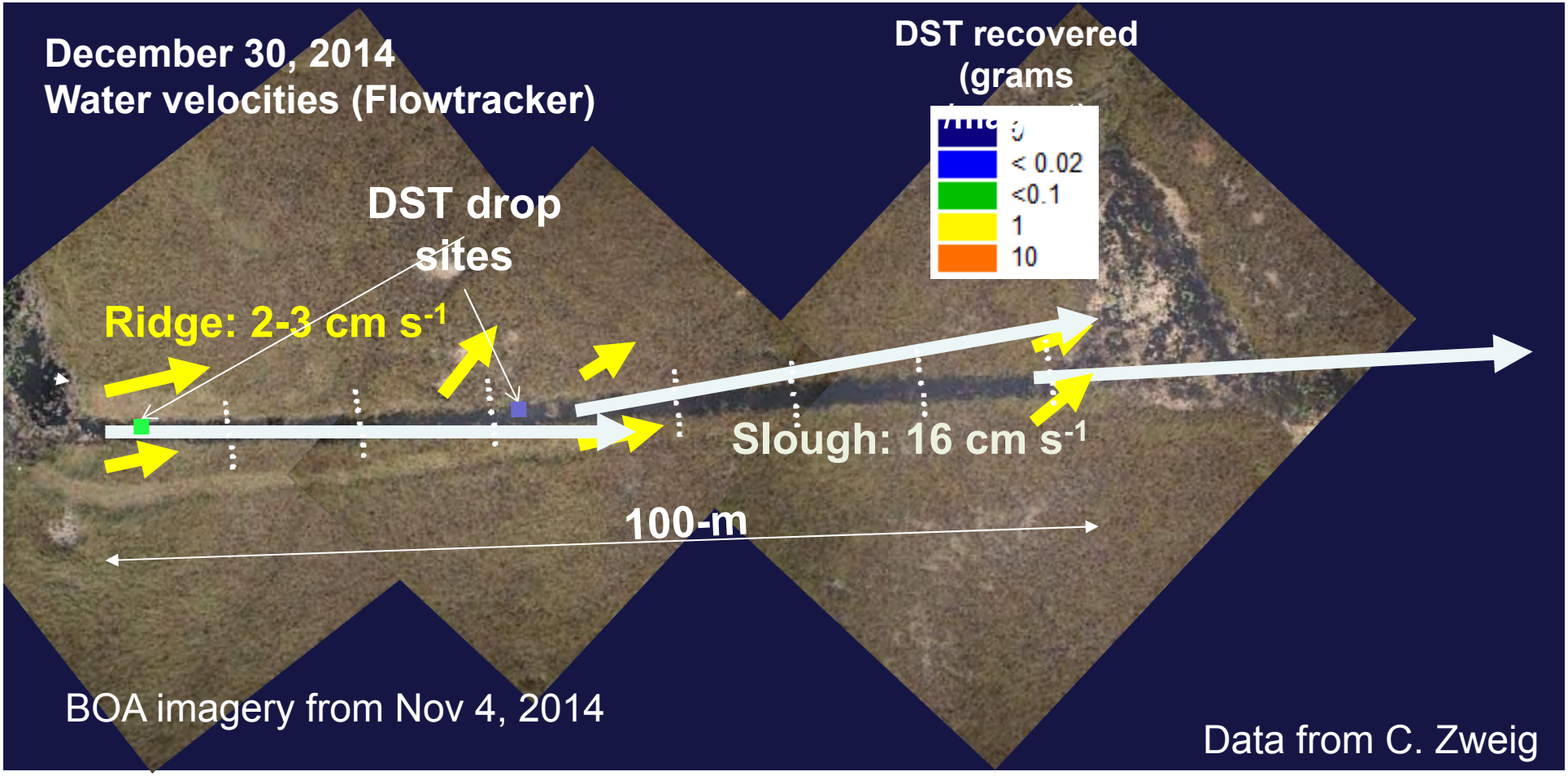
CANAL BACKFILLING – Resolve effects of sediment and TP "hotspots", create sediment and TP budgets and sustainability of fish community in backfill areas.

TREE ISLANDS – What is the best use of flow to maximize tree island accretion rates? Will flow move sediments and nutrient into tree islands?

ACTIVE ADAPTIVE MANAGEMENT - Is there an effective approach to redirect sheetflow southward? Does the Everglades need a "jump-start?"

Does the Everglades need a “jump-start” ?

Future Direction: Explore the need for Active Marsh Improvement (AMI)



Dual Synthetic Tracer in Zweig Slough

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Discussion and Thanks