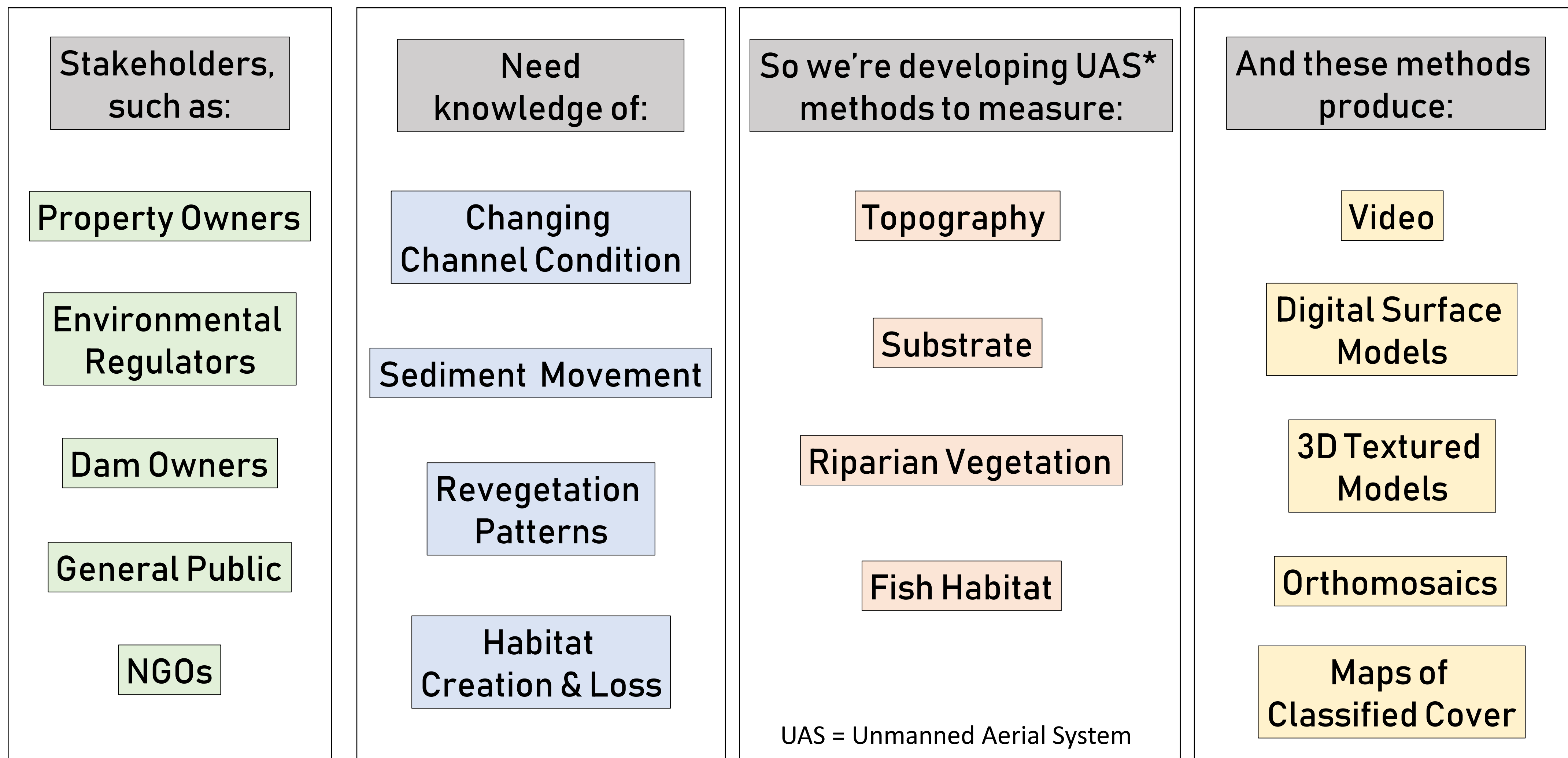


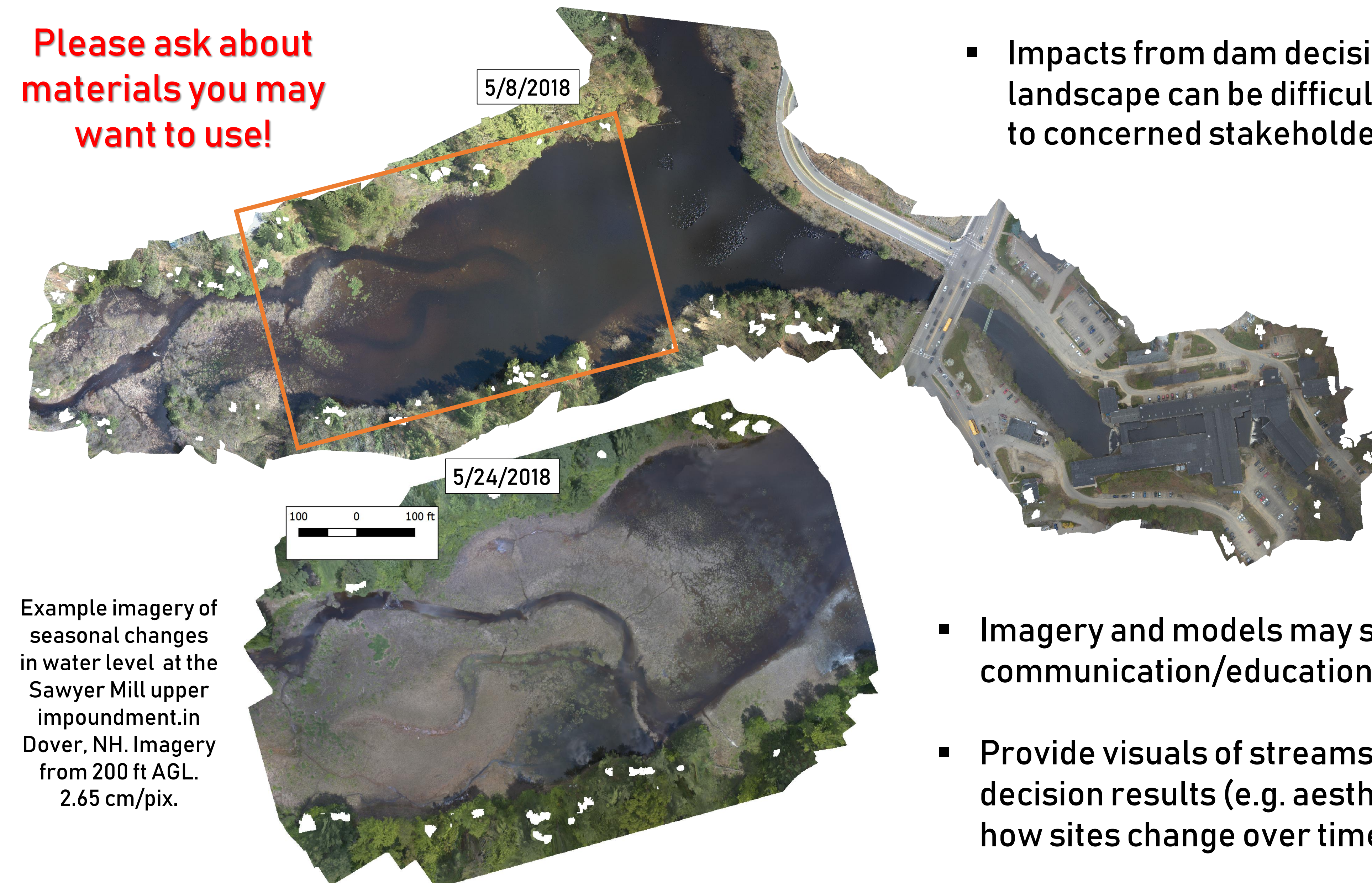
Introduction

There is a need to improve our fundamental knowledge of ecosystem response to dam removal if we are to effectively implement it as a dam management option and make informed decisions.



Imagery and Models as Communication Tools

Please ask about materials you may want to use!



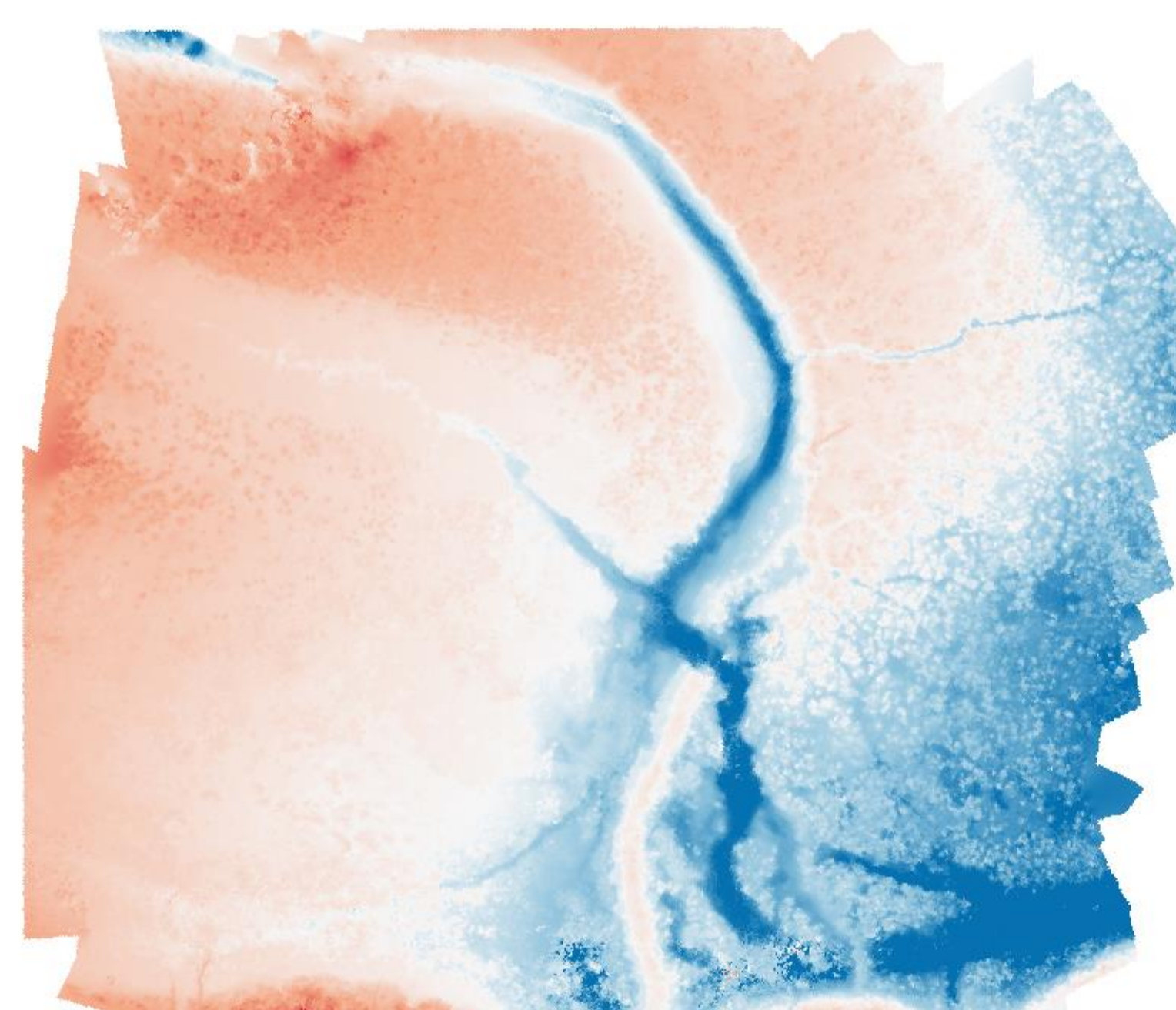
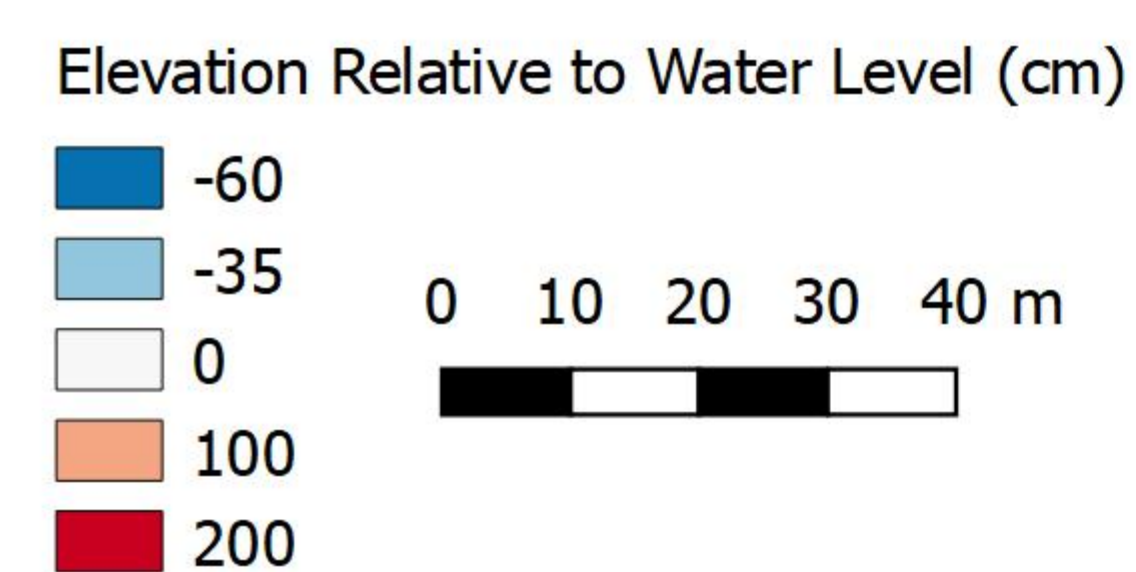
Example imagery of seasonal changes in water level at the Sawyer Mill upper impoundment in Dover, NH. Imagery from 200 ft AGL. 2.65 cm/pix.

- Impacts from dam decisions on the landscape can be difficult to convey to concerned stakeholders.

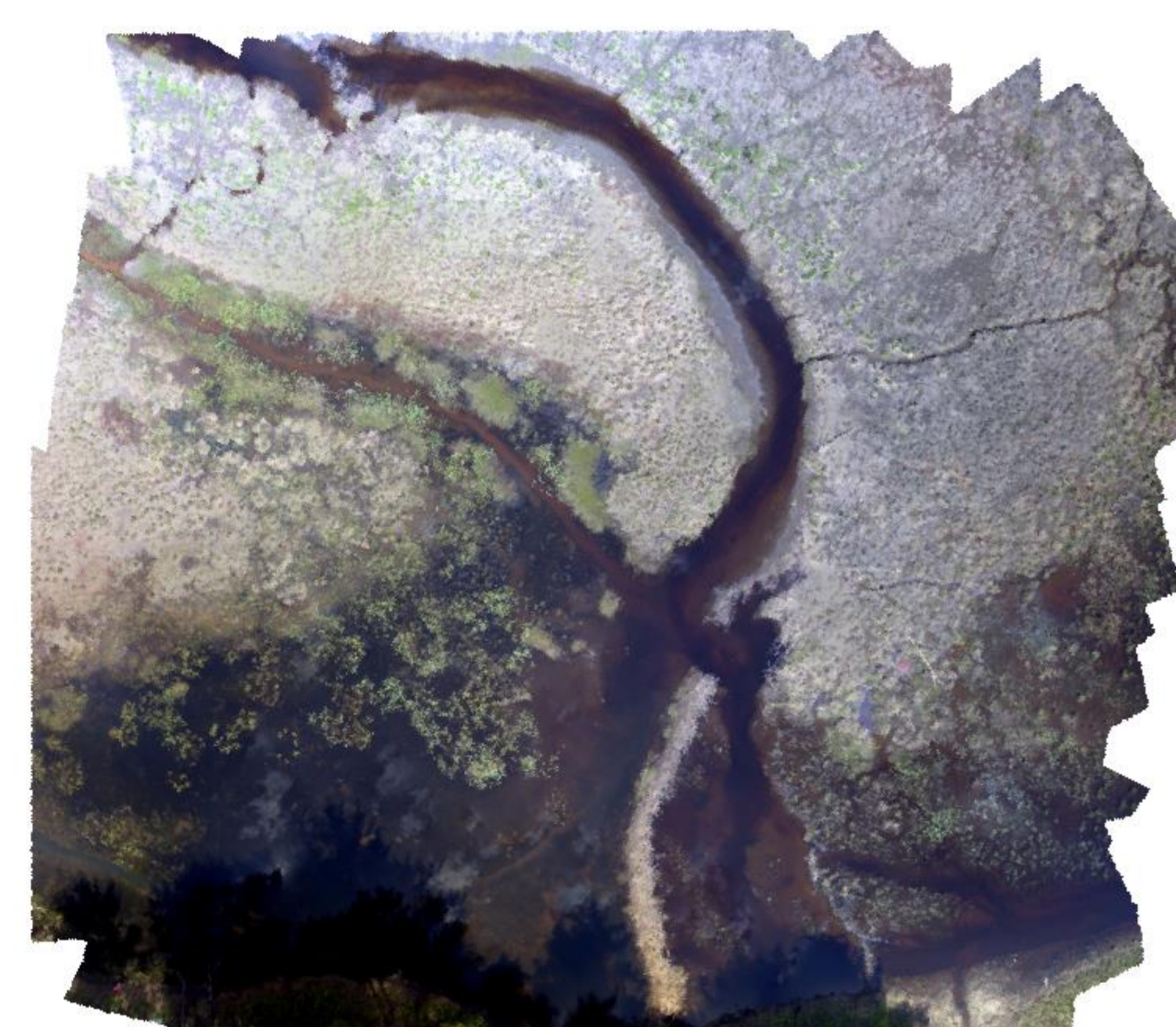
- Imagery and models may serve as communication/educational tools.
- Provide visuals of streams, dam decision results (e.g. aesthetics), and how sites change over time.

Example UAS Quantitative Methods Development

Testing channel topography measurements at the Sawyer Mill Upper Impoundment (Dover, NH)



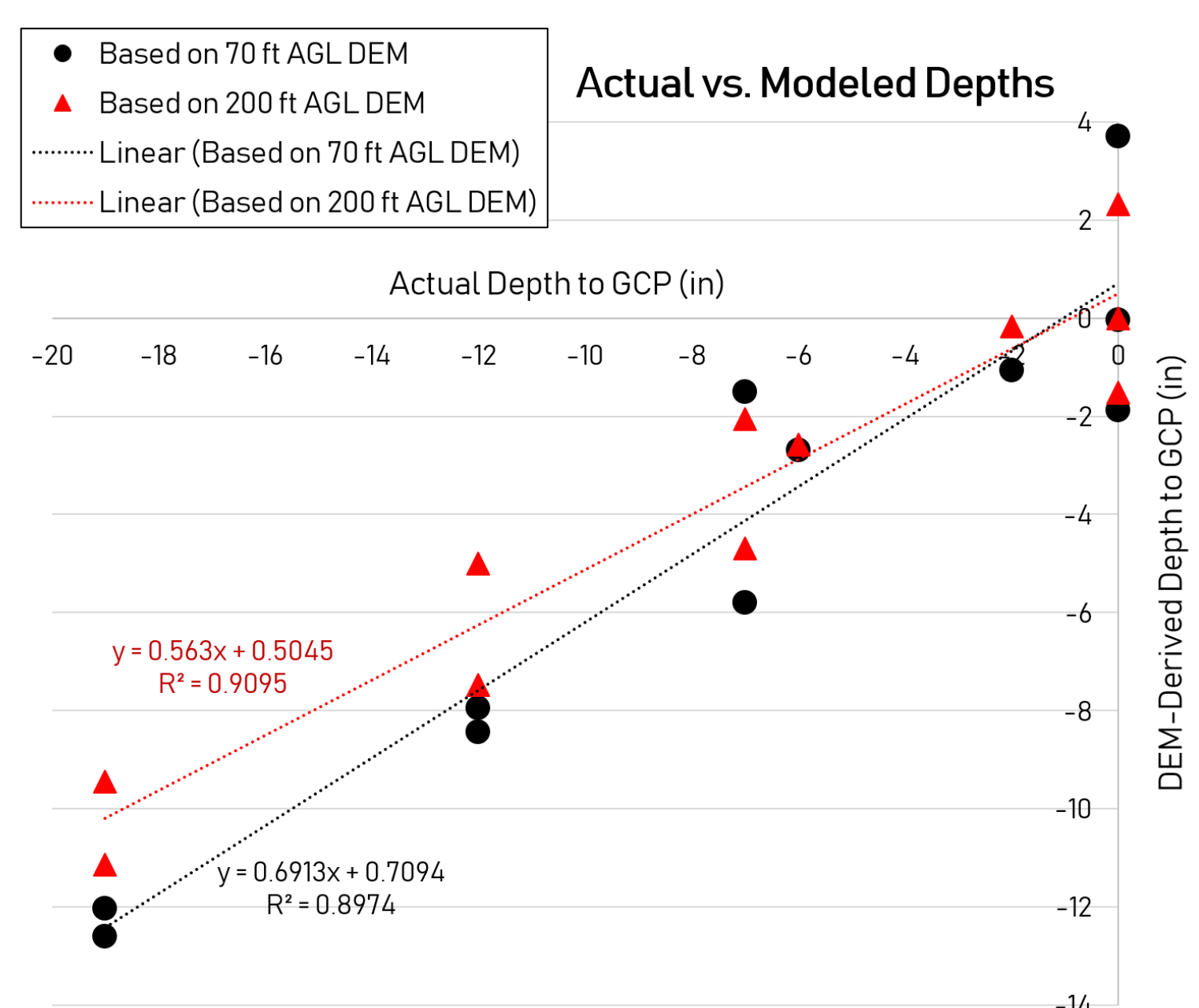
Digital Surface Model (2 cm/pix resolution)



Orthomosaic (1 cm/pix resolution)

Beaver dam in Sawyer Mill upper impoundment. 70 ft AGL imagery from 5/24/2018.

Finding: Submerged areas are modeled shallower than actual depth. Need to correct.



- Stream experts nationwide need ways to rapidly acquire accurate measurements of fluvial sediments (Somerville & Pruitt, 2004).
- Accurate topographic measurements enable the measurement of erosion and aggradation throughout the flow areas.
- Studies at Sawyer Mill Dams and South Middleton Dam will provide better understanding of the spatial and temporal aspects of sediment and channel response following dam removal.
- Sediment mobilization and channel development are significant concerns for deciding stakeholders.

Visual Ecological Condition Assessment

- Surveying stream experts about utility of UAS products with no remote sensing analysis required. What can humans see?

- Orthomosaics pictured right
- Video: <https://youtu.be/gbbui54Zlu8>
- Plymouth Model: <https://bit.ly/2xrPBY0>
- Readsboro Model: <https://bit.ly/2kzBCWw>
- Falmouth Model: <https://bit.ly/2xpikwC>

- Participants use the same visual ecological grading criteria (SVAP2) to remotely score three reaches that were assessed by experts in the field.

- Goal: compare SVAP2 scores and examine survey feedback to determine products' potential role in improving stream restoration efforts and evaluation.

- UAS products provide a check on subjective evaluations made in field & record of ecological conditions at sites?

Please let us know if you want to participate or know someone who would!



Readsboro, VT



Plymouth, MA



Falmouth, ME