

The Great Marsh – A Case Study in Cooperative Management

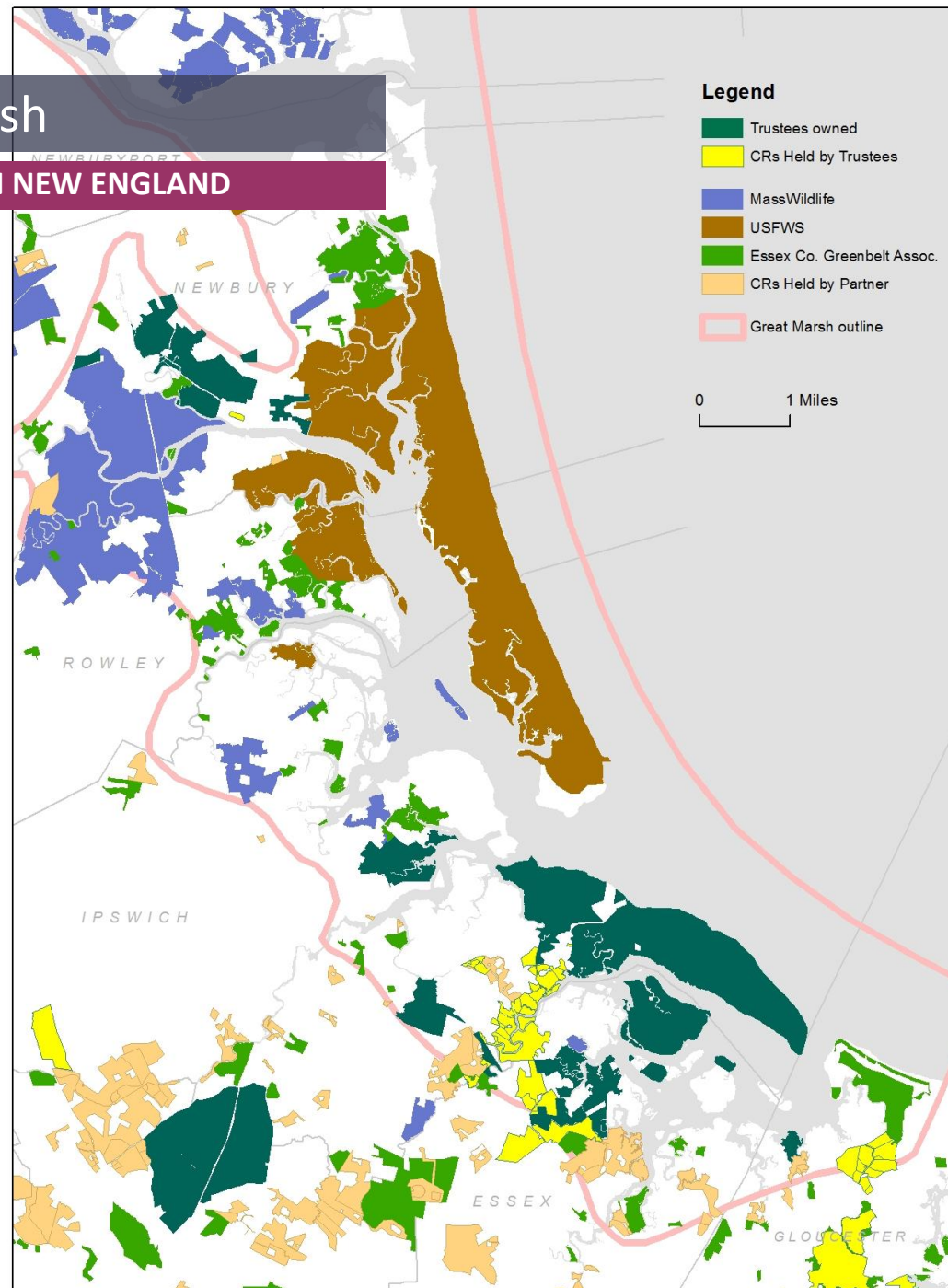
Russ Hopping, Lead Coastal Ecologist, The Trustees

MLTC 10-16-24



Great Marsh

LARGEST SALT MARSH ECOSYSTEM IN NEW ENGLAND



16,000 acres of Salt Marsh
7 towns



Significant Resource

**IMPORTANT ENVIRONMENTAL SERVICES INCLUDING
BIODIVERSITY**

10% Global Population - Saltmarsh Sparrow
Conservation Plan 2020 (ACJV)
acjv.org/documents/SALS_plan_final.pdf

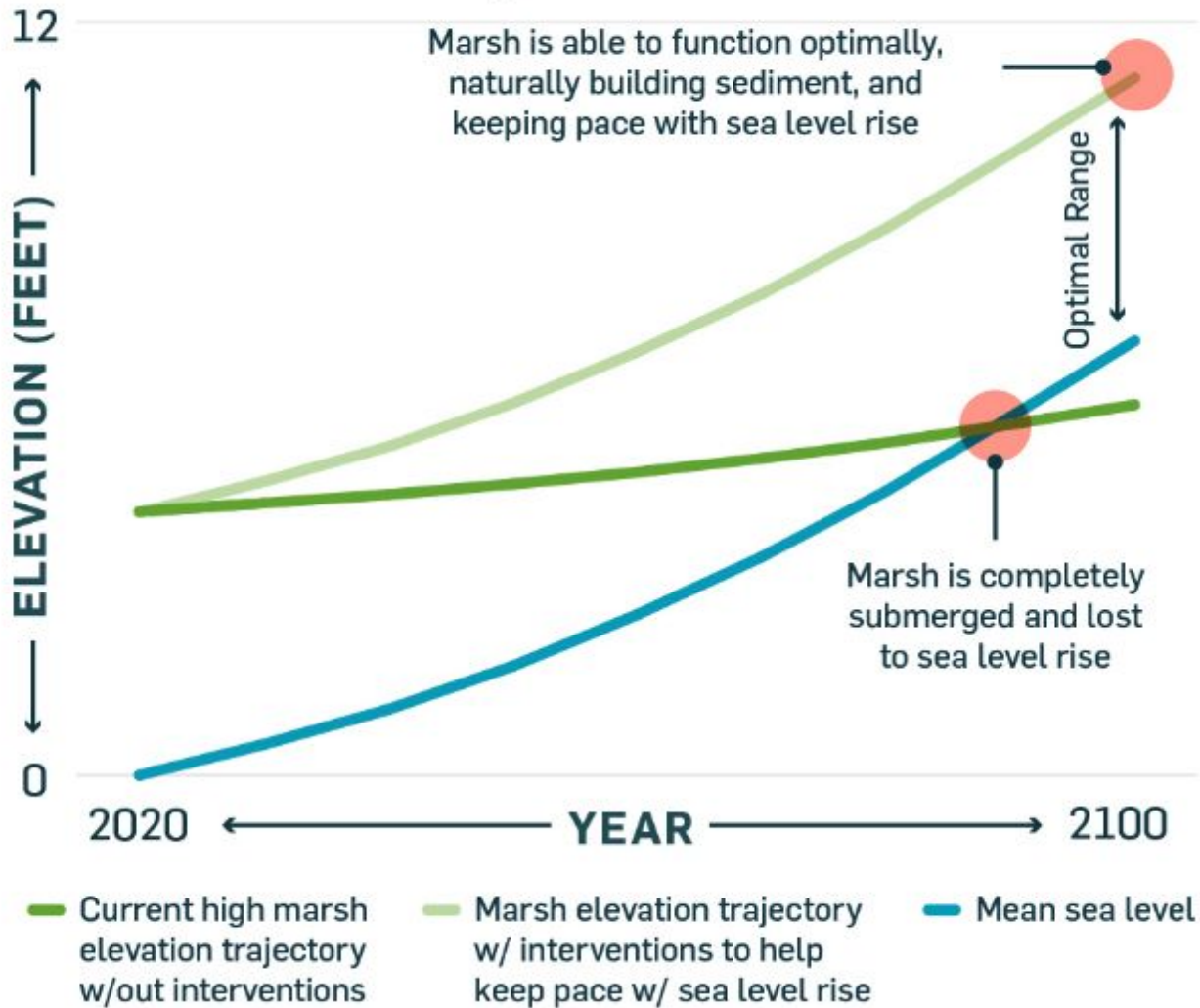


Salt marsh loss

RACE AGAINST TIME



Can the Marsh Keep Pace with Sea Level Rise?



Structured Decision Making

PARTNERS WORKSHOP FEBRUARY 2020

Eureka! We have a shared vision!

- Think big
- Use nature-based techniques
- Action is urgent



Partnership Goal

SALT MARSH RESTORATION AT THE LANDSCAPE SCALE

Restore marsh-sustaining hydrology to a heavily ditched marsh in order to:

- *reverse* trends of marsh *subsidence*
- *re-establish* and retain *high marsh* habitat
- *support* obligate marsh *species* (saltmarsh sparrow)
- allow marsh to *keep pace with SLR* more effectively



Restoration Based on Historical Land Use

INNOVATIVE, NATURE-BASED TECHNIQUES

Farmers in the Marsh: Lessons from History and Case Studies for the Future Susan C. Adamowicz, et. al., *Wetland Science & Practice* July 2020







History collection, Nova Scotia Museum
Artist Azor Vieneau
accession number 87.120.2

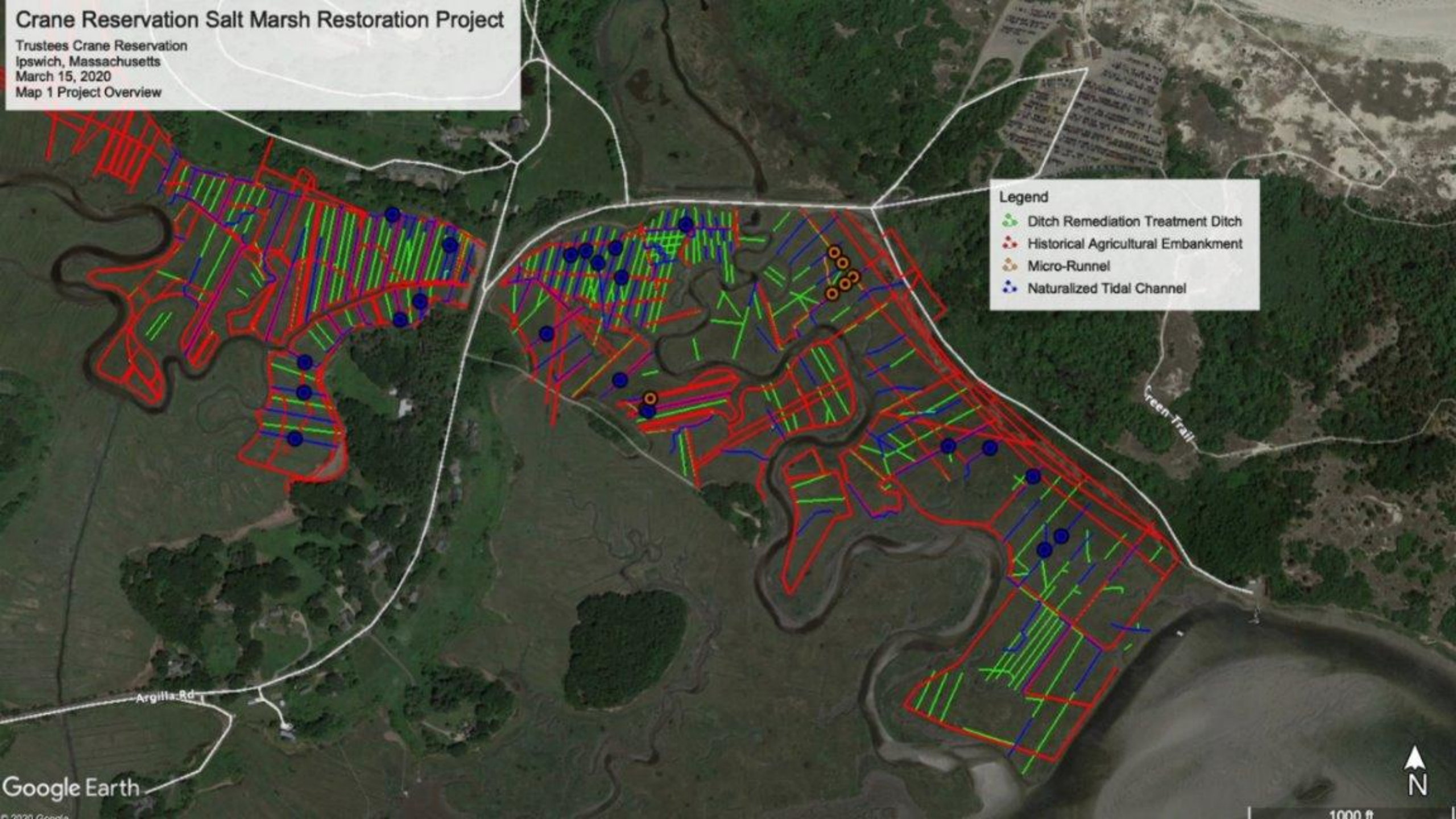


Crane Reservation Salt Marsh Restoration Project

Trustees Crane Reservation
Ipswich, Massachusetts
March 15, 2020
Map 1 Project Overview

Legend

-  Ditch Remediation Treatment Ditch
-  Historical Agricultural Embankment
-  Micro-Runnel
-  Naturalized Tidal Channel

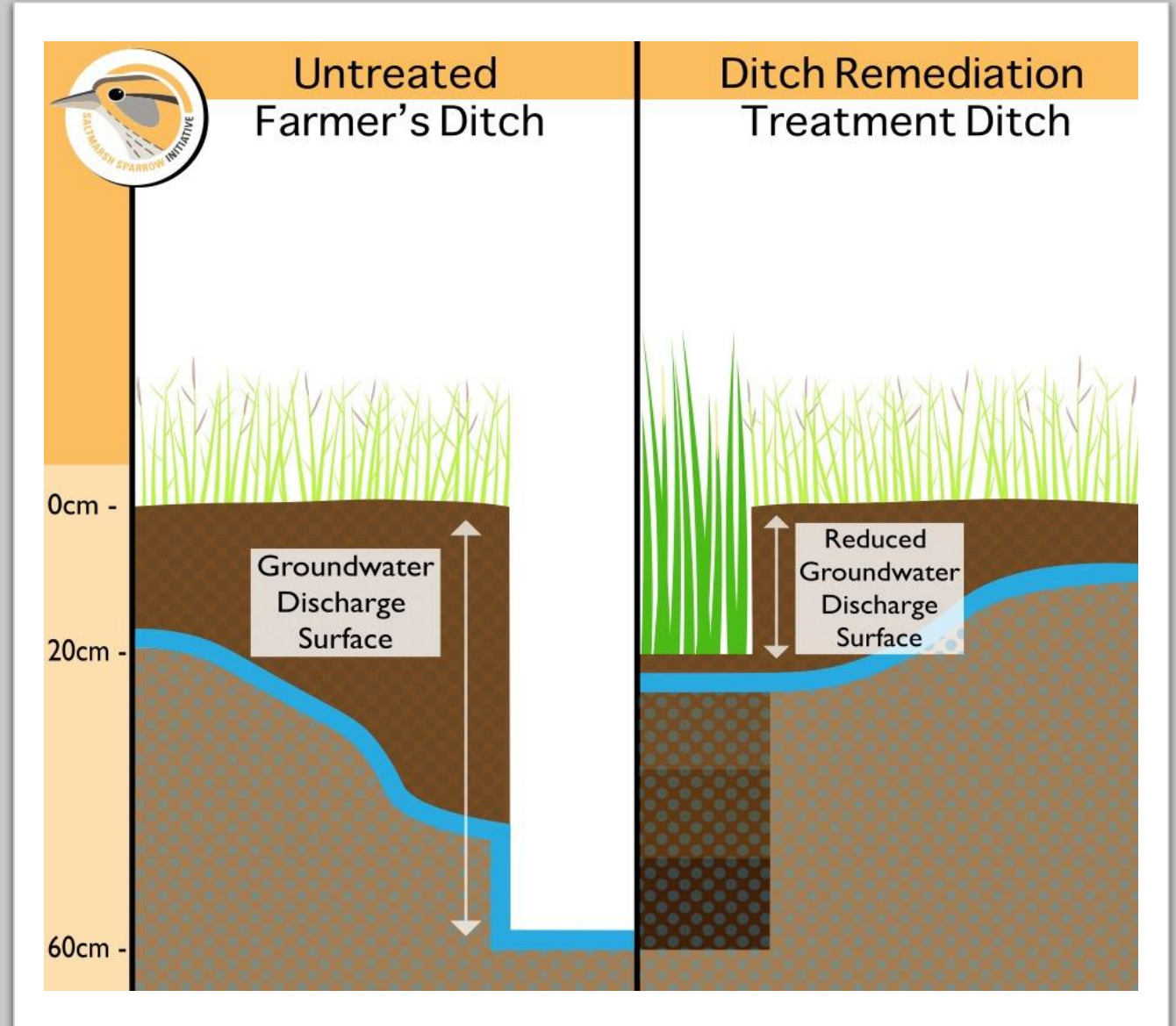


What Is Ditch Remediation?

- Layers of Organic Growing Medium Entrain Sediments
- Plants Grow in Organic Growing Medium **Regenerating Salt Marsh Peat**
- Zone of Saturation Moves Higher in Soil Column
- Maximum Treatment Depth 20cm Below Marsh Surface
- Reduced Aeration Depth Minimizes Oxidation Subsidence Trajectory in the Peat Soil Column

**Ditch Remediation Is A Natural
Regenerative Process**

Not A Ditch Filling Technique

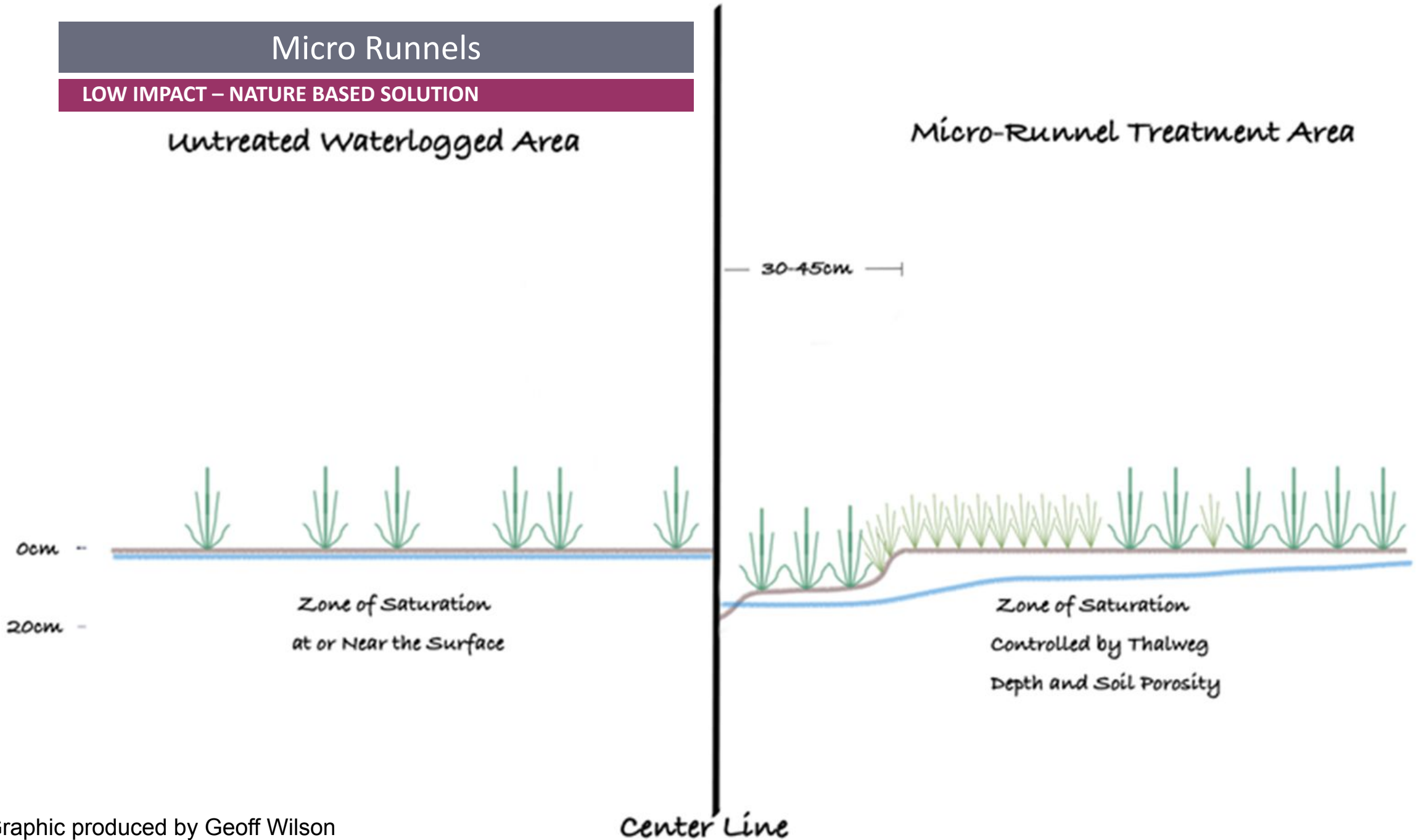


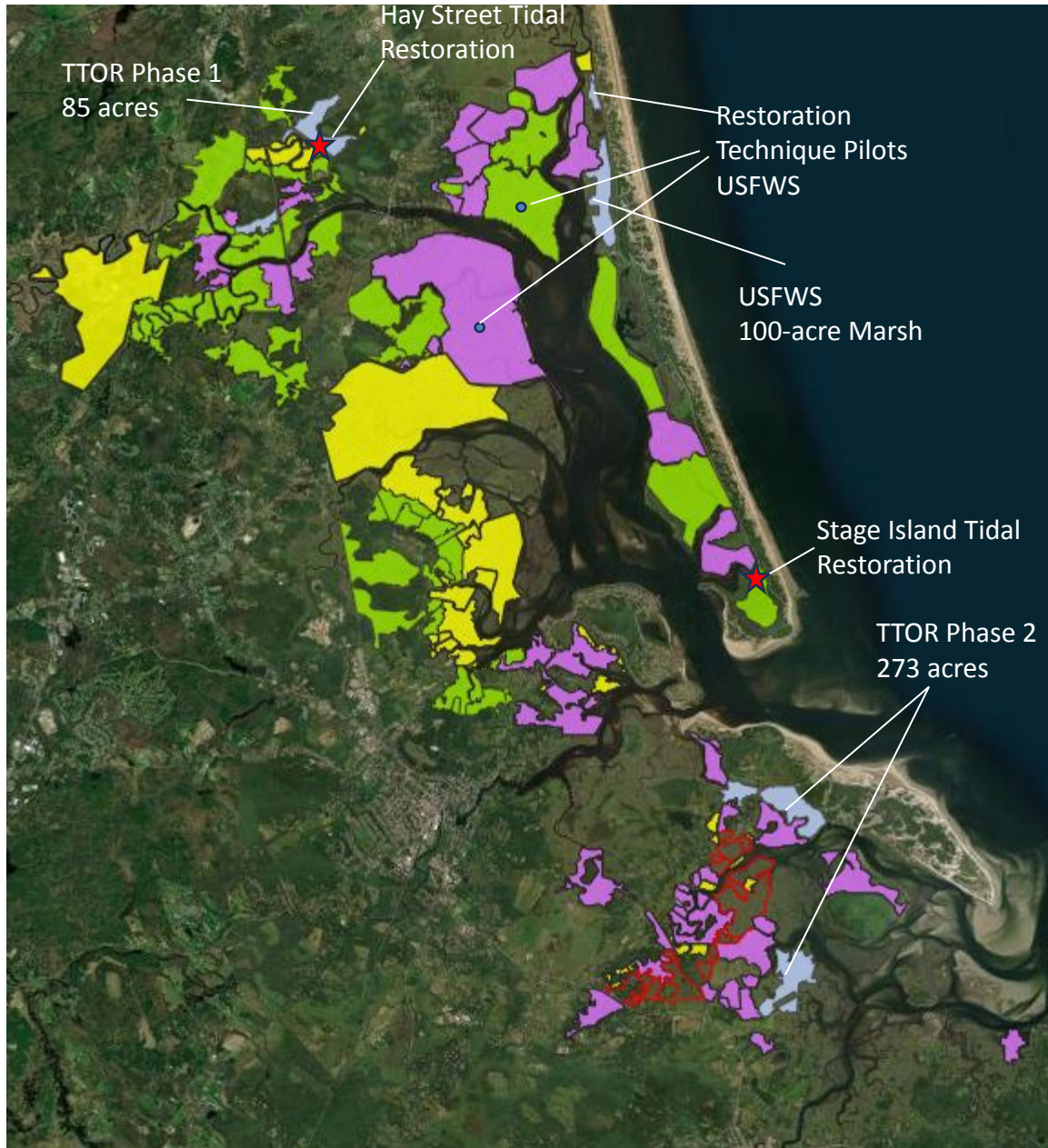
Micro Runnels

LOW IMPACT – NATURE BASED SOLUTION

Untreated Waterlogged Area

Micro-Runnel Treatment Area





LANDSCAPE LEVEL PROJECT PLANNING, DESIGN, PERMITTING AND FUNDING

- 5 Restoration Techniques Piloted
- Blue: Restoration complete or in progress: 488 acres
- Purple: Restoration Funded: 2366 acres
- Permitted: 1450 acres
- Green: Preliminary Design complete:
- Yellow: Site Assessment/Early Design

Great Marsh Partners



University of
New Hampshire



Greenbelt
Essex County's Land Trust