Introduction

Conducted jointly by Western Monmouth Utilities Authority (WMUA) and Kleinfelder

Funded by NJDEP grant - maintain surface water quality standards

Area of interest – Duhernal Lake, NJ

Context

1 DEP determined excess P loading in Duhernal Lake
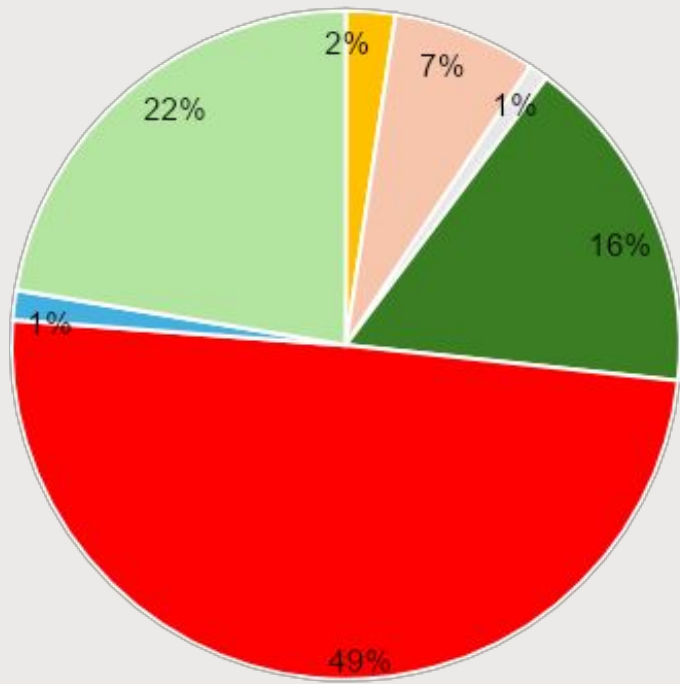
2 Approximately half of P load in Duhernal is from NPS
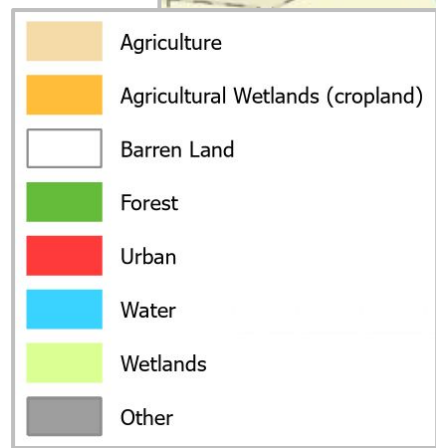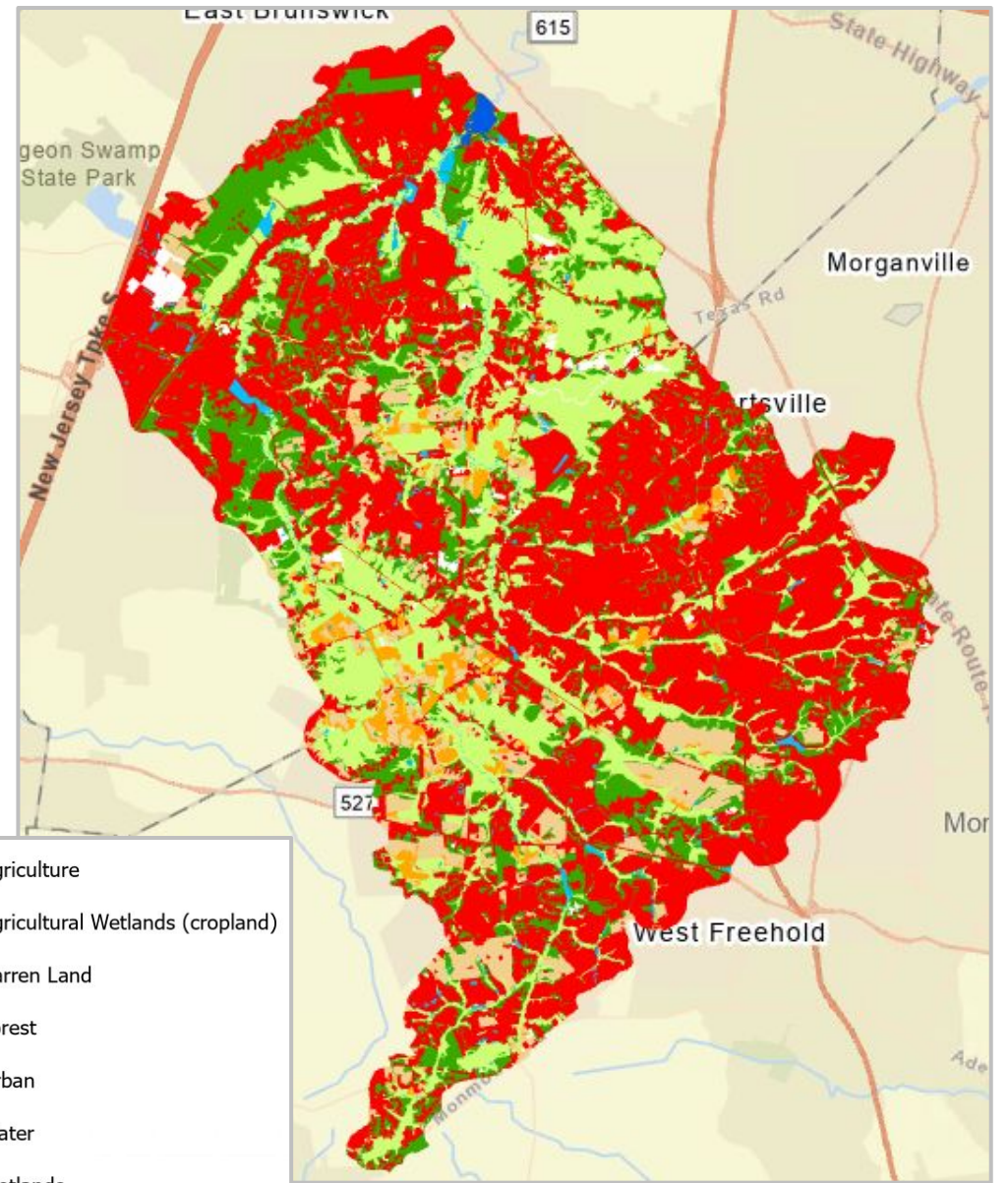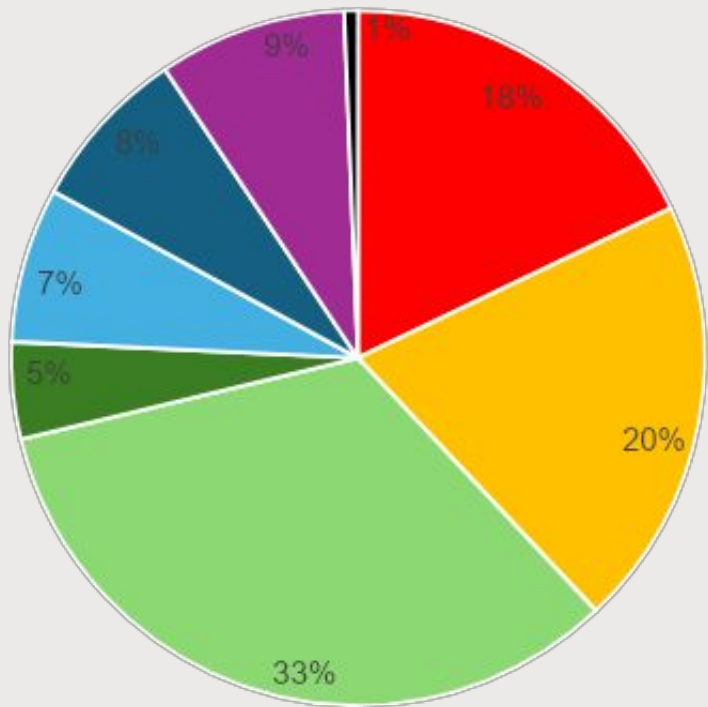
3 Reducing NPS P load may reduce plant growth, meet WQS

Methods

1. Use EPA's PLET to characterize NPS loads

2. Use GIS to derive model inputs (Union tool)

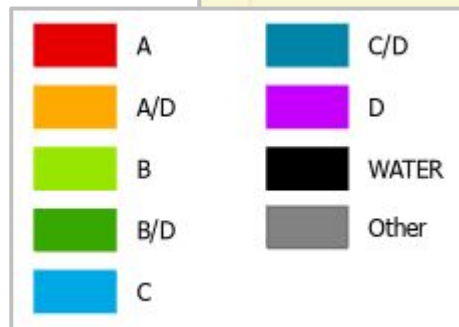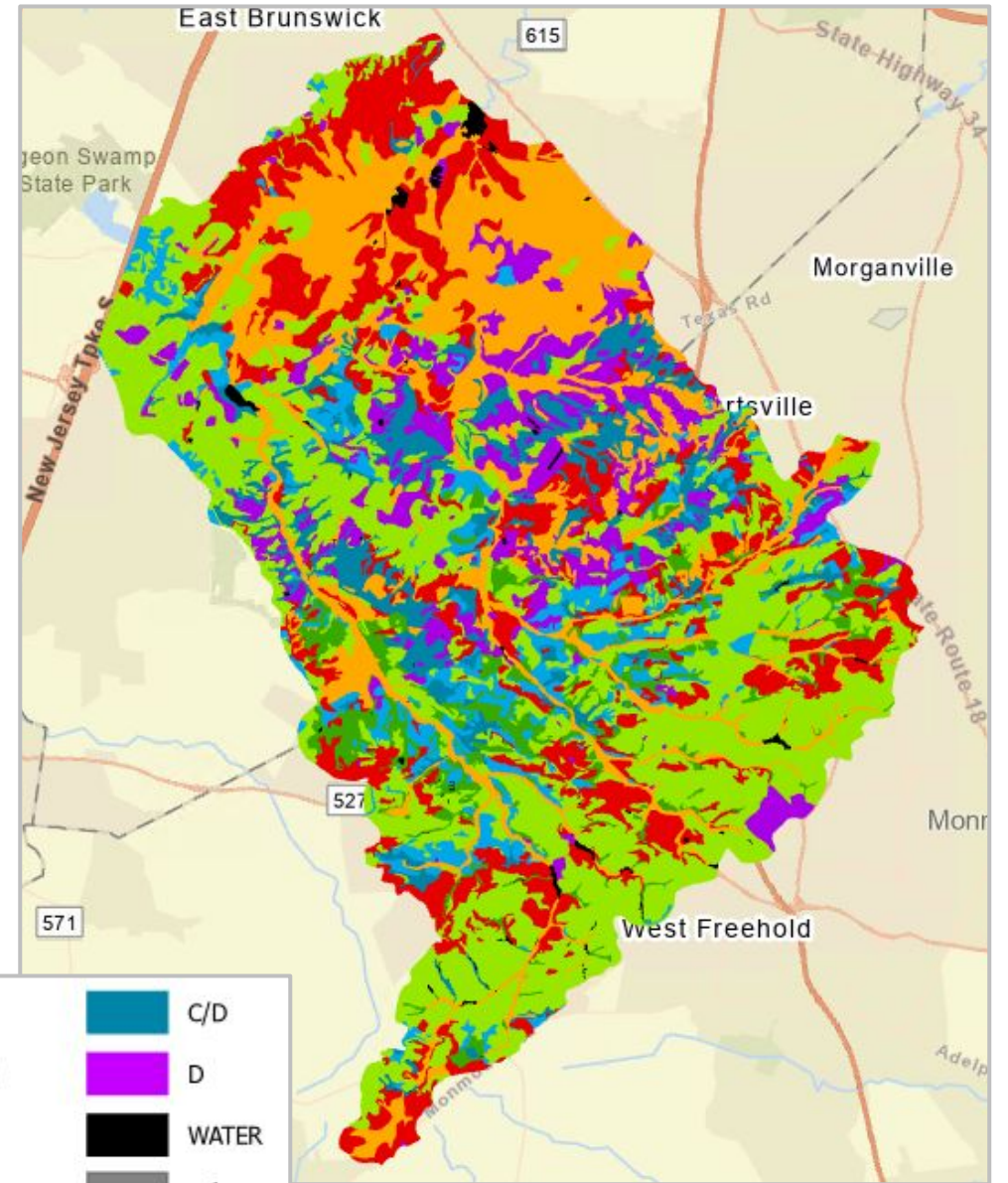3. Delineate smaller watersheds to visually inspect for "hotspots"

Ag Wetlands Agriculture Barren Land Forest Urban Water Wetlands
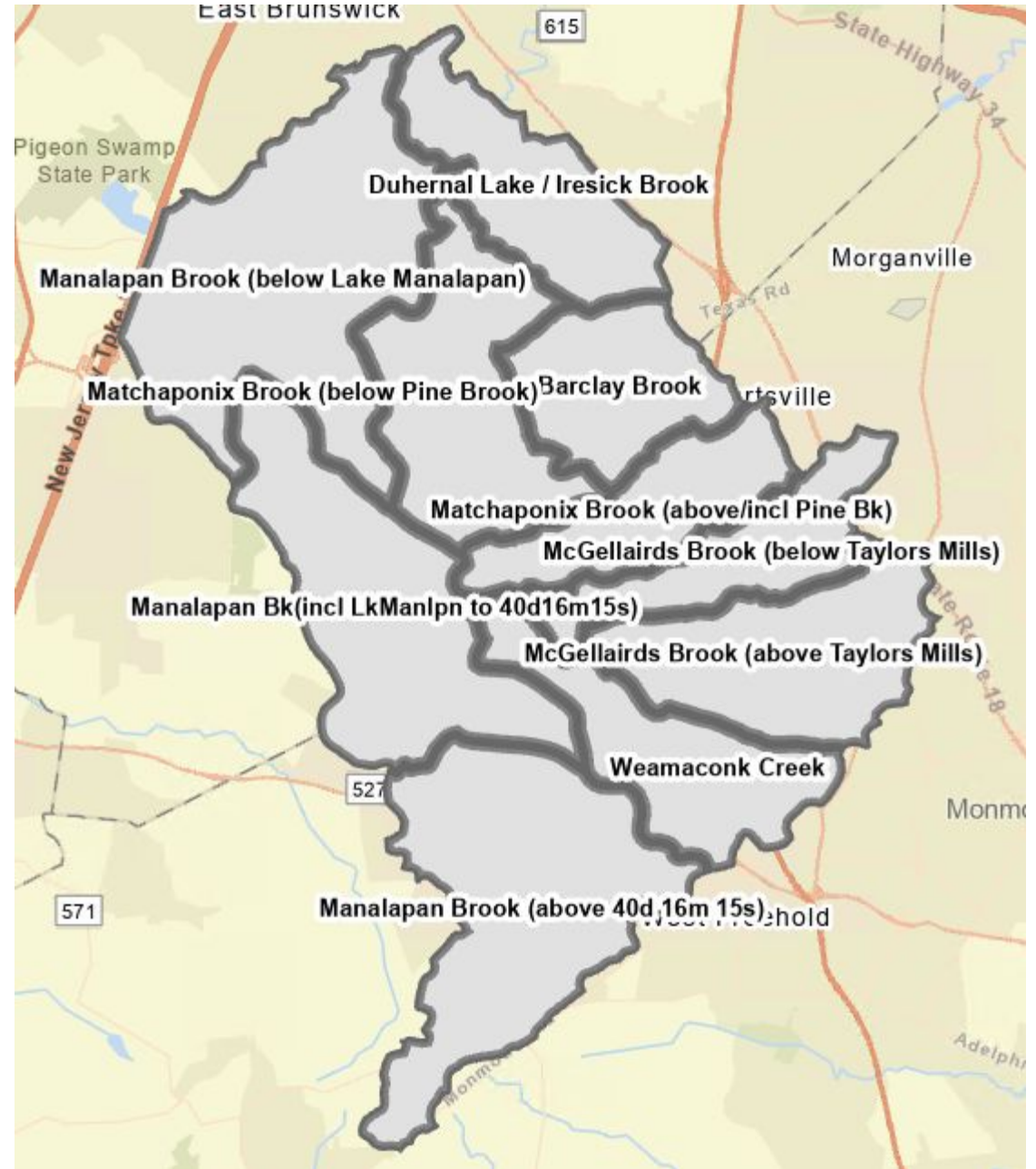
Agriculture
Agricultural Wetlands (cropland)
Barren Land
Forest
Urban
Water
Wetlands
Other

Pie chart legend: A, A/D, B, B/D, C, C/D, D, WATER

A — 18%
A/D — 20%
B — 33%
B/D — 5%
C — 7%
C/D — 8%
D — 9%
WATER — 1%

Map legend:
A
A/D
B
B/D
C
C/D
D
WATER
Other

Map labels: East Brunswick, 615, State Highway 34, Morganville, Pigeon Swamp State Park, Texas Rd, New Jersey Tpke S, rtsville, Route 18, 527, 571, West Freehold, Monr, Adelp, Monmo
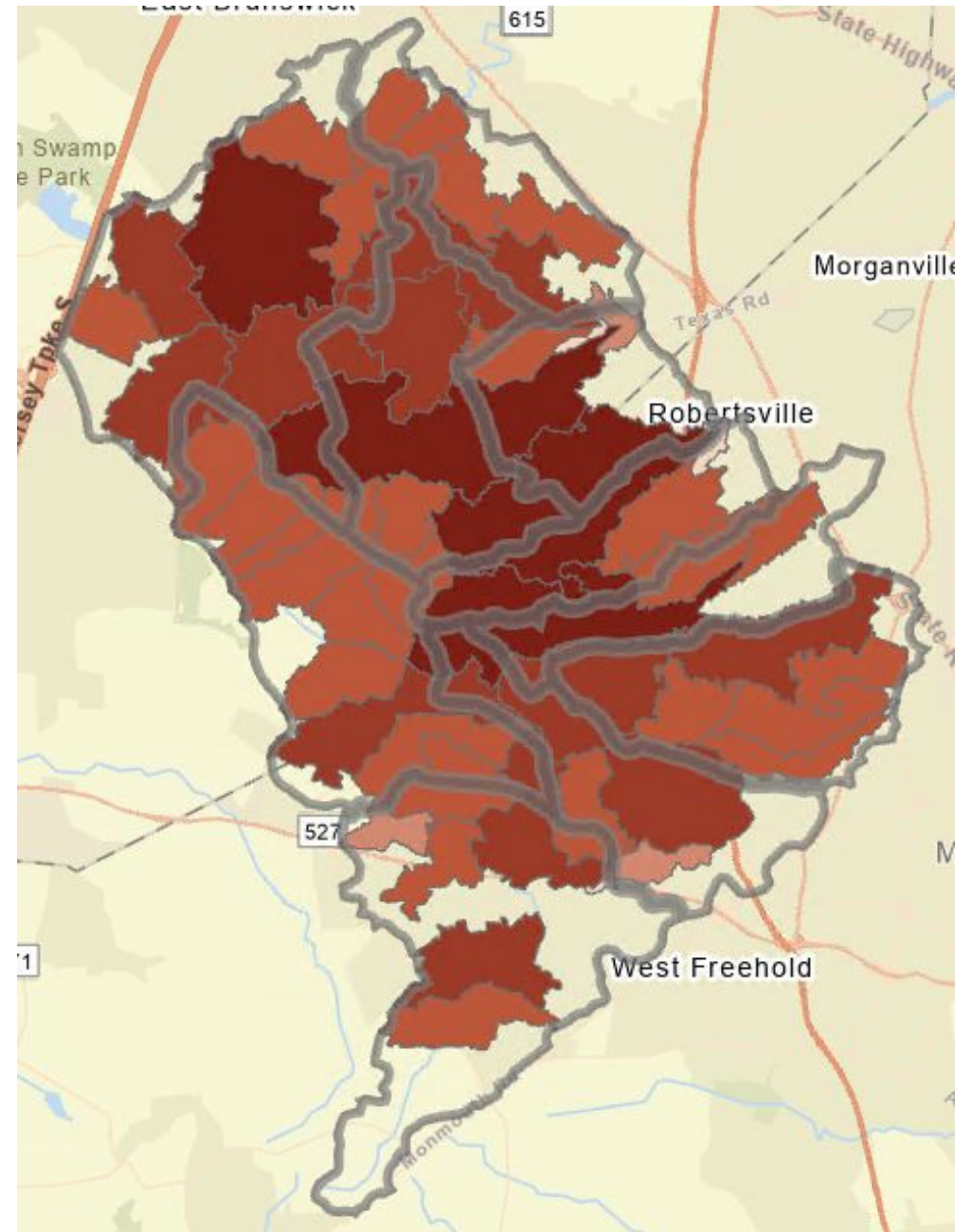
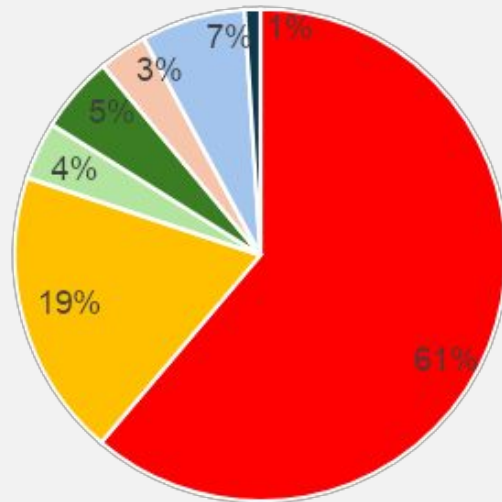# Using GIS

HUC-14 Sub-Watersheds

Using GIS

Watershed Delineation

Preliminary PLET Results

Total P Load by Land Cover

Legend:
- ■ Urban
- ■ Cropland
- ■ Pastureland
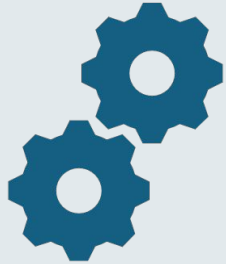- ■ Forest
- ■ Feedlots
- ■ Wetlands
- ■ Septic

Total P runoff: ~24,000 lb/yr

Total P Load by HUC-14
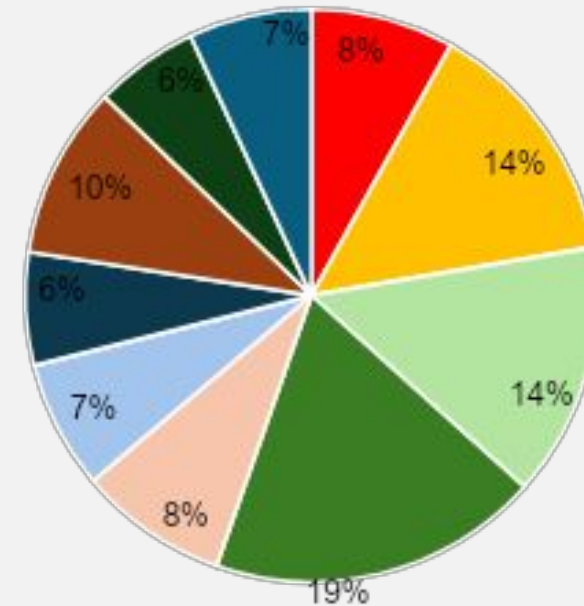
Legend:
- ■ McGellairds Brook (above Taylors Mills)
- ■ Manalapan Brook (above 40d 16m 15s)
- ■ Manalapan Bk(incl LkManlpn to 40d16m15s)
- ■ Manalapan Brook (below Lake Manalapan)
- ■ Weamaconk Creek
- ■ Matchaponix Brook (above/incl Pine Bk)
- ■ Barclay Brook
- ■ Manalapan Brook (below Taylors Mills)

Next Steps

Model Best Management Practices (BMPs)

Improve precision of model inputs

Simulate stormwater basin hydrology

Thanks For Listening!

Any questions?