



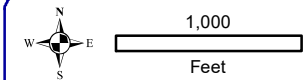
Onterra LLC
 Lake Management Planning
 815 Prosper Road
 De Pere, WI 54115
 920.338.8860
 www.onterra-eco.com

Sources:
 Roads and Hydro: WDNR
 Bathymetry: Onterra, 2017
 Map Date: May 26, 2017
 Filename: Upper-Kaub_Location.mxd

Legend

-  Upper Kaubashine Lake ~181 Acres
WDNR Definition
-  Point-intercept Sample Location
33 meter spacing, 704 total points

Map 1
 Upper Kaubashine Lake
 Oneida County
**Project Location &
 Lake Boundaries**



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Sources:
 Hydro: WDNR
 Bathymetry: WDNR, Onterra digitized
 Orthophotography: NAIP 2015
 Land Cover: NLCD 2011
 Watershed Boundaries: Onterra 2016
 Map Date: May 22, 2017
 Filename: MapX_Up_Kaub_Watershed.mxd



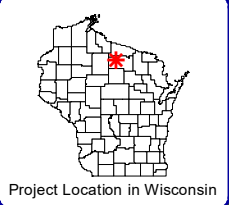
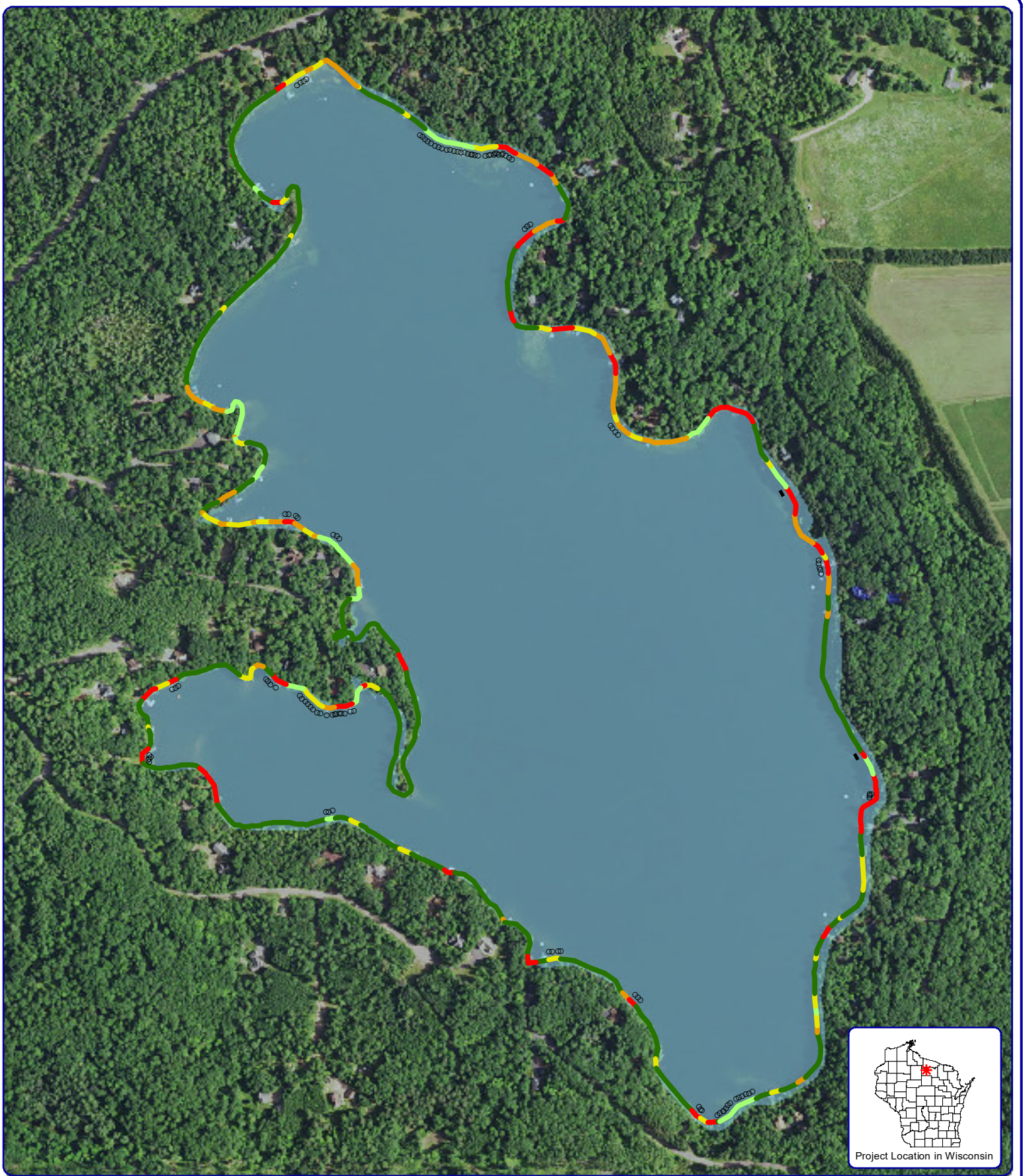
Project Location in Wisconsin

Legend

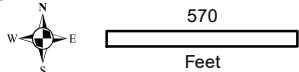
- Land Cover Types**
- Forest
 - Forested Wetlands
 - Wetlands
 - Open Water
 - Rural Open Space
 - Pasture/Grass
 - Row Crops
 - Rural Residential
 - Medium Density Urban

- Upper Kaubashine Lake Watershed Boundary
- Intermittent Outlet (flows most of the time)

Map 2
 Upper Kaubashine Lake
 Oneida County, Wisconsin
**Watershed &
 Land Cover Types**



Project Location in Wisconsin



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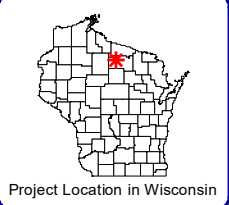
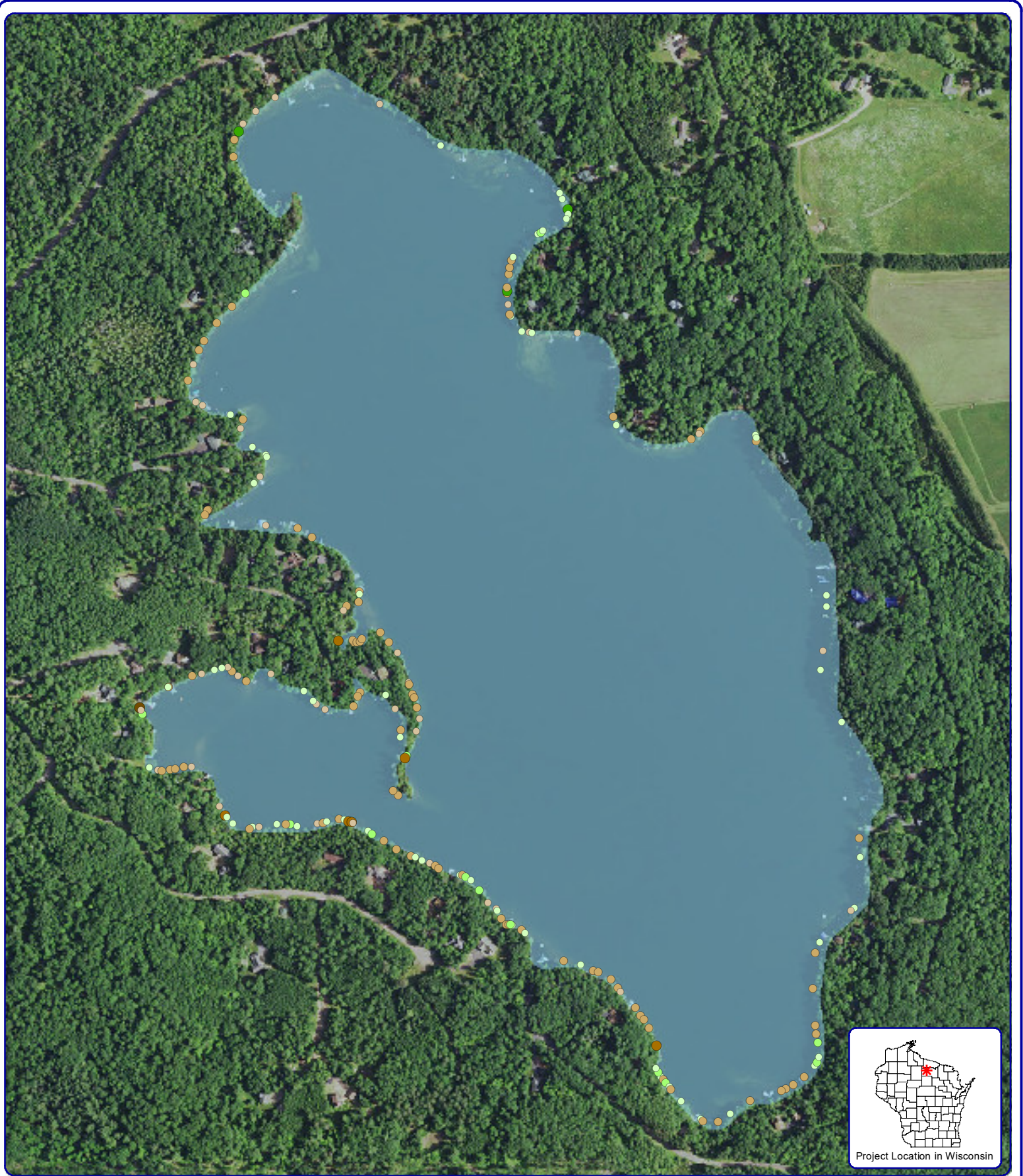
Sources:
 Roads and Hyrd: WDNR
 Orthophotograph: NAIP, 2015
 Map Date: May 8, 2017
 Filename: MapX_UpKaub_SCA_2017.mxd

Legend

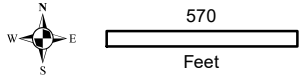
- | Shoreline | | Seawall | |
|-----------|------------------------|---------|--------------------|
| | Natural/Undeveloped | | Masonry/Wood/Metal |
| | Developed-Natural | | Rip-Rap |
| | Developed-Semi-Natural | | |
| | Developed-Unnatural | | |
| | Urbanized | | |

Map 3

Upper Kaubashine Lake
 Oneida County, Wisconsin
2017 Shoreline
Condition Assessment



Project Location in Wisconsin

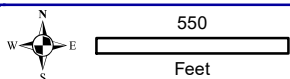


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Sources:
 Roads and Hyrdo: WDNR
 Orthophotograph: NAIP, 2015
 Map Date: May 8, 2017
 Filename: MapX_UpKaub_CWH_2017.mxd

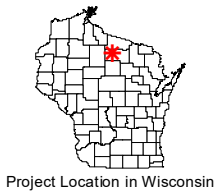
2-8 Inch Pieces		8+ Inch Pieces		Cluster of Pieces	
● No Branches	● Minimal Branches	● Moderate Branches	● Full Canopy	■ No Branches	■ Minimal Branches
● Minimal Branches	● Moderate Branches	● Full Canopy		■ Moderate Branches	■ Full Canopy

Map 4
 Upper Kaubashine Lake
 Oneida County, Wisconsin
**2017 Coarse
 Woody Habitat**



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Sources:
 Roads and Hyrdo: WDNR
 Aquatic Plants: Onterra, 2017
 Map Date: August 16, 2017
 Filename: UpKaub_Comm_2017.mxd



Legend

- | Small Plant Communities | Large Plant Communities |
|----------------------------------|--------------------------------|
| ● Emergent | Emergent |
| ● Floating-leaf | Floating-leaf |
| ● Mixed Floating-leaf & Emergent | Mixed Floating-leaf & Emergent |
| ◆ Purple loosestrife | |

Map 5

Upper Kaubashine Lake
 Oneida County, Wisconsin
**2017 Plant Survey:
 Community Mapping**

Summer 2013



Summer 2014



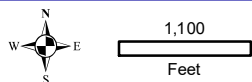
Summer 2015



Summer 2016



Summer 2017



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Sources:
 Roads Hydro: WDNR
 Bathymetry: Onterra, 2017
 Plant Survey: Onterra, 2013-2017
 Map Date: October 20, 2017
 Filename: UpKaub_EWMPB_2013-2017.mxd



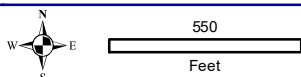
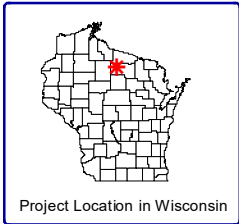
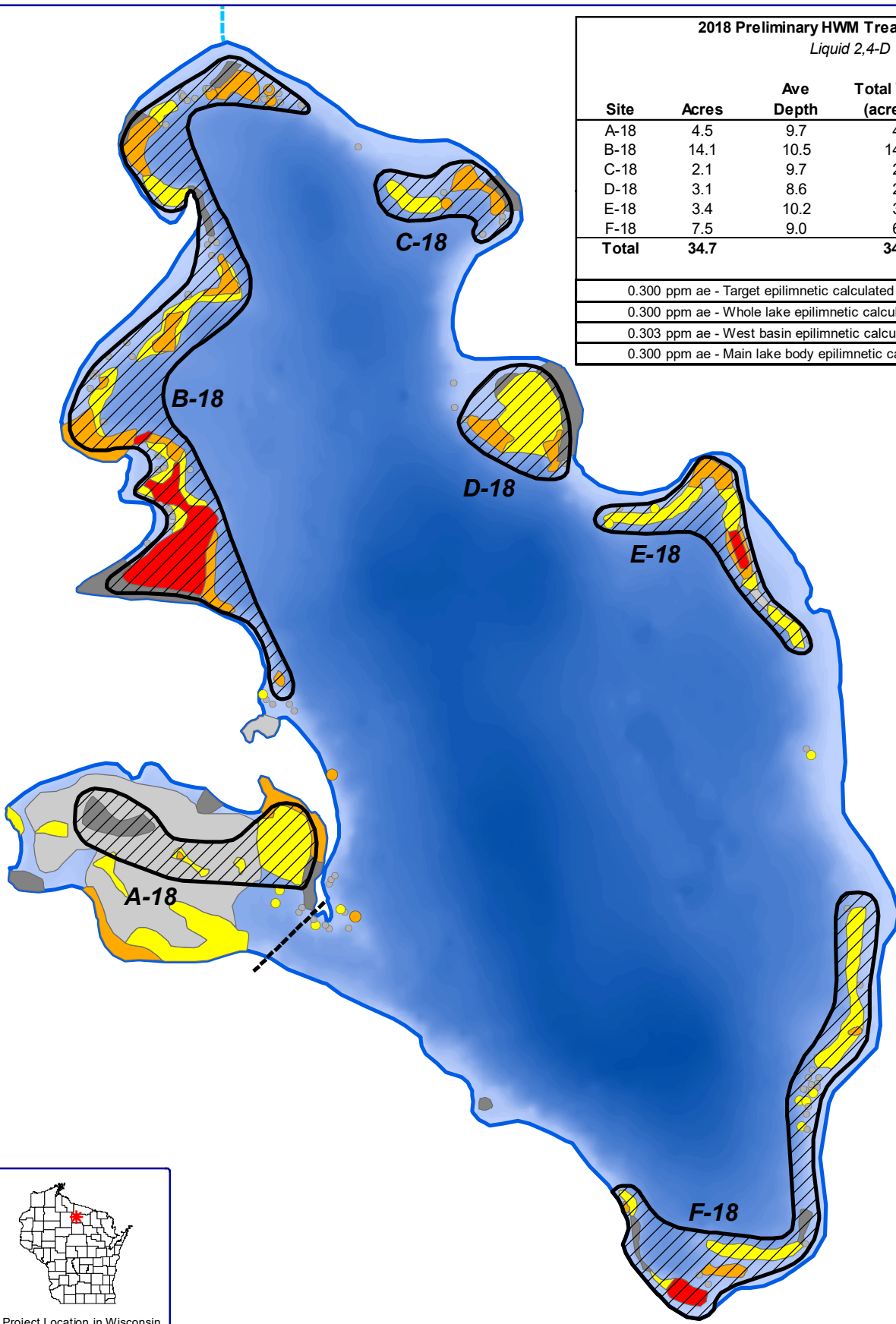
Project Location in Wisconsin

Legend

- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting
- Single or Few Plants
- Clumps of Plants
- Small Plant Colony

Map 6
 Upper Kaubashine Lake
 Oneida County, Wisconsin
 2013-2017 EWM
 Survey Results

2018 Preliminary HWM Treatment Strategy					
Liquid 2,4-D					
Site	Acres	Ave Depth	Total Volume (acre-feet)	2,4-D PPM ae	DMA IV (gallons)
A-18	4.5	9.7	43.4	0.85	26.0
B-18	14.1	10.5	148.3	2.68	284.0
C-18	2.1	9.7	20.9	2.68	40.0
D-18	3.1	8.6	26.5	2.68	51.0
E-18	3.4	10.2	34.2	2.68	66.0
F-18	7.5	9.0	68.0	2.68	130.0
Total	34.7		341.2		597.0
0.300 ppm ae - Target epilimnetic calculated 2,4-D concentration					
0.300 ppm ae - Whole lake epilimnetic calculated 2,4-D concentration					
0.303 ppm ae - West basin epilimnetic calculated 2,4-D concentration					
0.300 ppm ae - Main lake body epilimnetic calculated 2,4-D concentration					



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Sources:
 Hydro and Roads: WDNR
 Bathymetry: Onterra, 2017;
 processed by C-Map USA
 Aquatic Plant Survey: Onterra, 2017
 Map Date: October 19, 2017
 File name: UpKaub_Oneida_T2018_Prelim1.mxd

Legend

- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting
- Single or Few Plants
- Clump of Plants
- Small Plant Colony
- 2018 Preliminary 2,4-D Application Area

Map 7

Upper Kaubashine Lake
 Oneida County, Wisconsin
**2018 Preliminary EWM
 Treatment Strategy**