
Unified Lower Eagle River Chain of Lakes Commission
Eagle River Chain of Lakes
EWM Management Project
Informational Meeting
November 16, 2022
ACEI-240-20
Eddie Heath
Onterra LLC
Lake Management Planning
Unified Lower Eagle River Chain of Lakes Commission

Presentation Outline

- Project Overview
- EWM Intro
- Best Management Practices
- EWM Population in the ERC
  - Lake-Specific Survey Results
  - Chain-Wide Survey Results
- 2023 Strategy Development Discussion
- 2022 Point-Intercept Highlights
- Concluding Comments

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Project Overview

- Coordinated EWM monitoring & management
  - 2007/8-current w/ Onterra (8 WDNR Grants)
  - ULERCLC-sponsored
  - Involvement with WDNR/USACE research
- Comprehensive Management Plan (Dec 2019)
  - ERCLA-sponsored
  - 4 phases/WDNR grants
- February 2020 WDNR AIS Grant Award (65%)
  - 3-years of monitoring & hand-harvesting (2020-2022)
  - Chain-wide point-intercept surveys (2022, 5yr interval)

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Eurasian Watermilfoil (EWM) Introduction

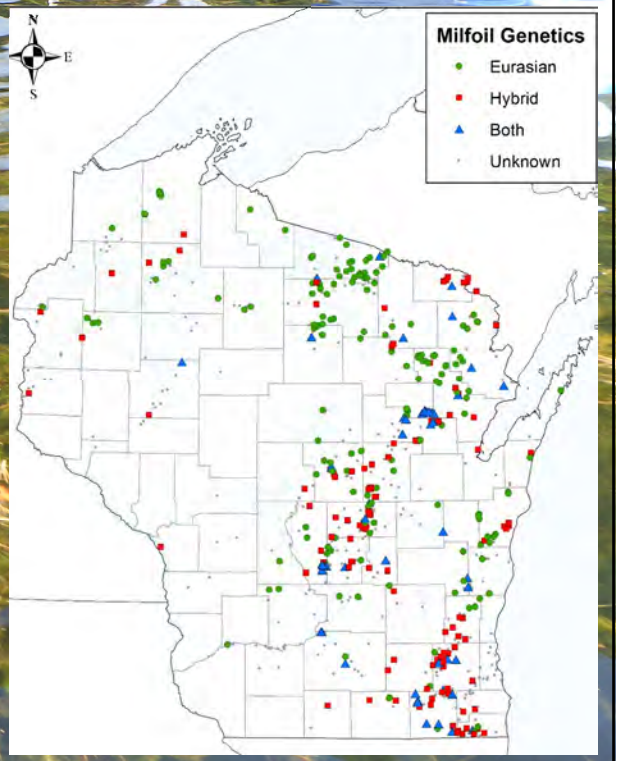
EH2

Non-Native Aquatic Plants

Eurasian Watermilfoil

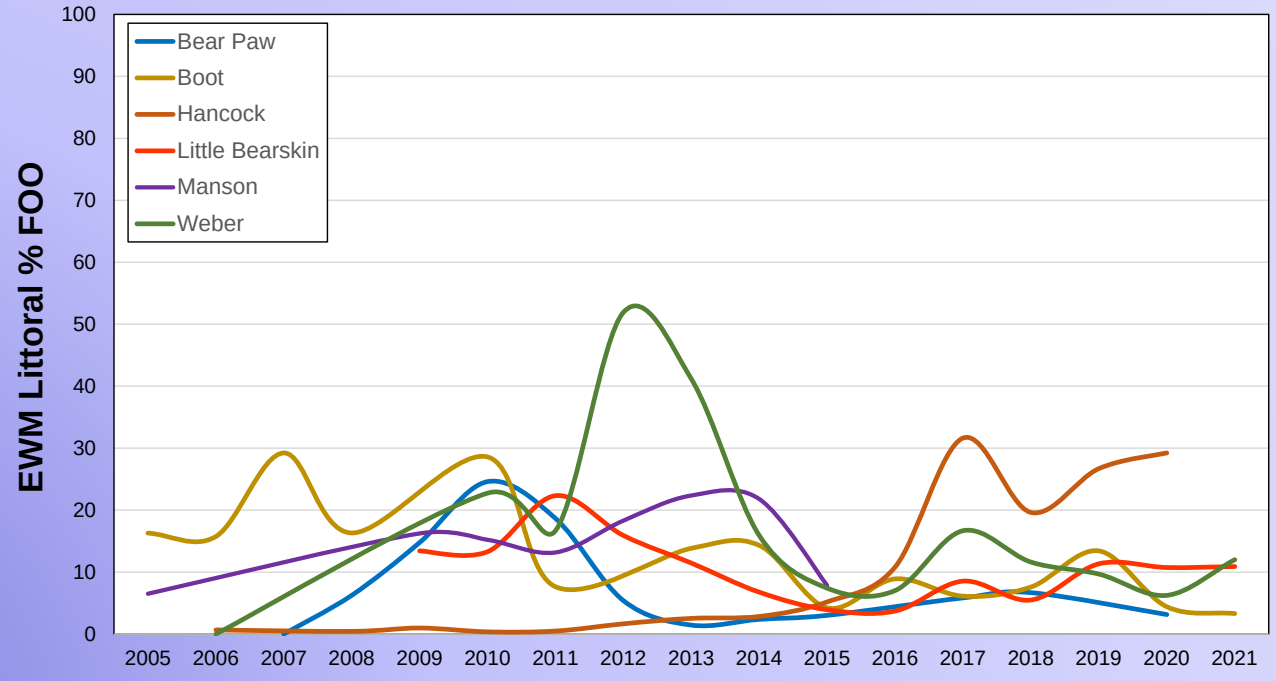
- **First "officially" documented in 1992**
- **Actively managed since 2001**
- **Onterra hired in summer 2007**
- **DNA testing only yielded pure-strain EWM to date**

	Years Tested	Results
Cranberry	2002	EWM
Catfish	2013	EWM
Voyageur	-	-
Eagle	2002, 2020	EWM, "fail"
Scattering Rice	2013	EWM
Otter	-	-
Lynx	-	-
Duck	-	-
Yellow Birch	-	-
Watersmeet	-	-



WDNR EWM Long-Term Monitoring Trends

NLF Ecoregion – Unmanaged



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Best Management Practices
(BMPs)

Best Management Practices (BMPs)

- **A "placeholder" term to represent the management option that is currently supported by that latest science and policy**
- **Definition evolves over time**
  - Pre 2010 - small spot treatments with granular 2,4-D
  - Early 2010s - larger spot treatments with liquid 2,4-D
  - Mid 2010s – whole-lake treatments, spot treatments with herbicide combos, hand-harvesting/DASH
  - Current– whole-lake/basin approaches, nuisance maintenance vs population management, mechanical harvesting, limno-curtains, new herbicides

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Hand-Harvesting of EWM

- **Removal of entire root material required to reduce rebound**
- **Scale limitations, not for large or dense areas**
- **Diver-Assisted Suction Harvest (DASH) can increase efficacy**
- **Limitations**
  - –Density of EWM & native plants
  - –Clarity of water
  - –Sediment type
  - –Obstructions

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Herbicide Spot Treatment BMPs

- **Factors that lead to longer exposure time**
  - Larger size (working definition: > 10 acres per site)
  - Broader shape (hold concentrations in core of treatment area)
  - Protected location (limit dissipation direction)
  - Stagnant waters (flow increases dissipation)
- **New Management Directions**
  - Alternative herbicides (ProcellaCOR™, herbicide combos)
  - Modify conditions (dam operations, barrier curtains)

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ERC's Evolved IPM Strategy

- **EWM populations have been greatly reduced**
  - Remnant areas too small to effectively controlled using herbicides
  - Most colonies below levels that cause ecological impacts or cause impacts to navigation or recreation
  - Herbicide Treatment Trigger:

    colonized EWM of *dominant* or greater density, with preference to high-use areas, that have a high likelihood of the treatment being effective (factors discussed in previous slide on spot treatment BMPs)

    ✓ No areas met this threshold since 2014 (spring 2015 treatment)
- **Maintain positive strides through hand-harvesting**
  - Need to balance a level of EWM population tolerance while not allowing population to return to pre-management levels

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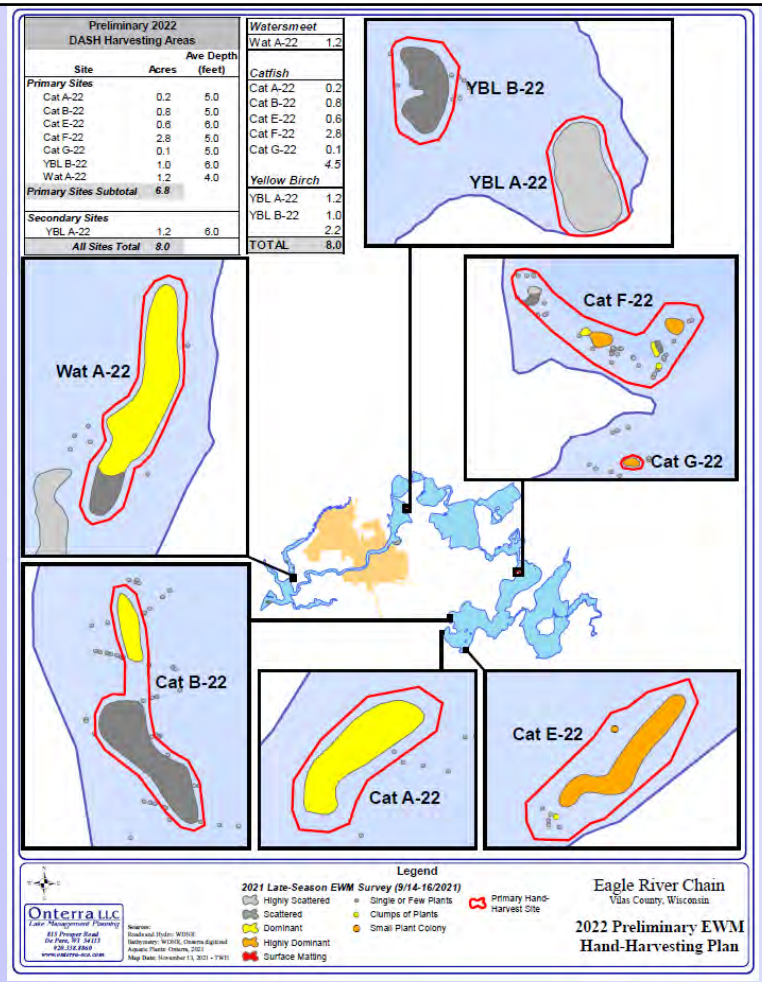
2022 Hand-Harvesting Plan

- Primary Strategy (6.8 acres)
- Secondary Sites (1.2 acres)
- Educate and encourage riparians on legal EWM removal



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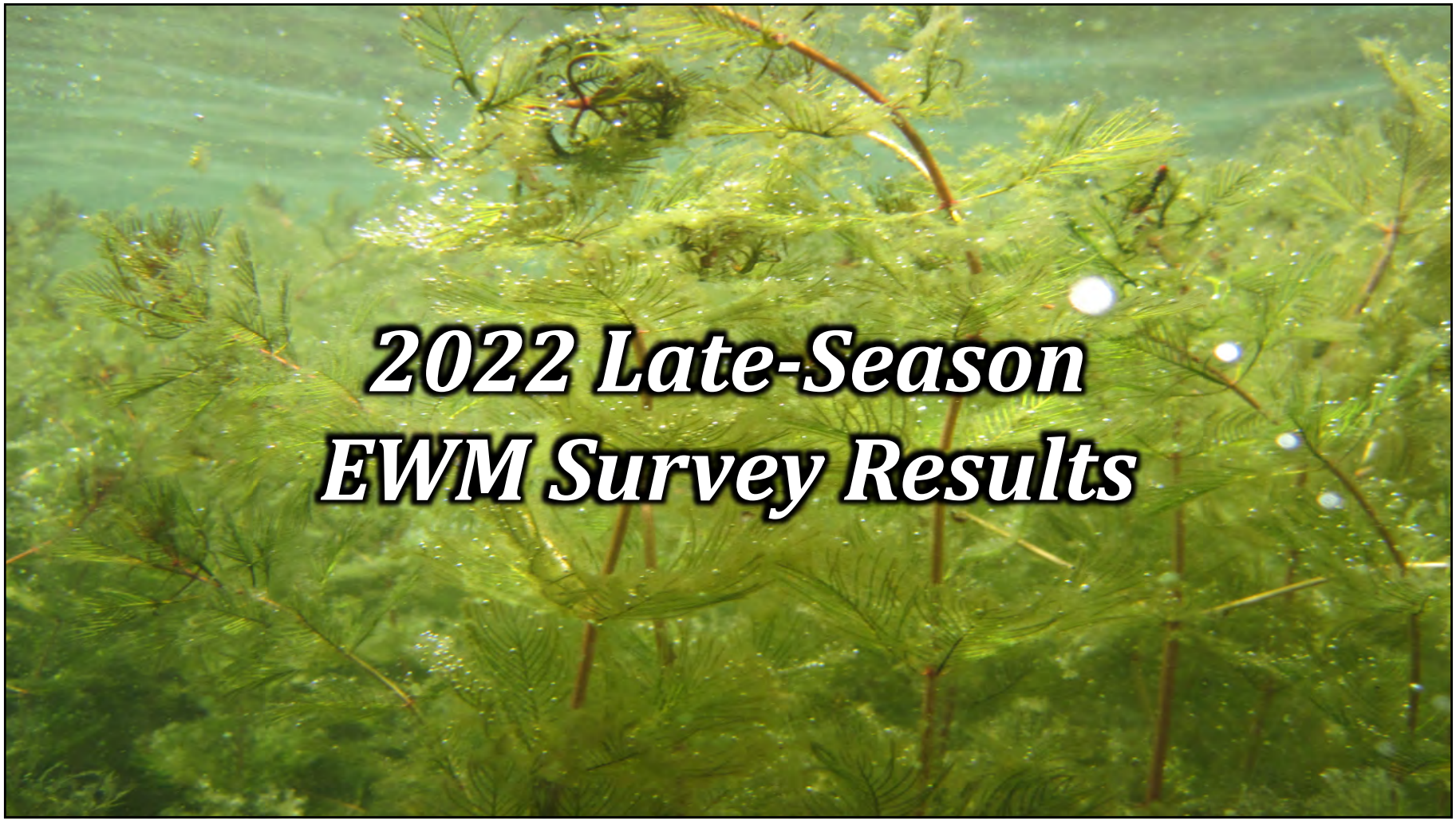
2022 Late-Season
EWM Survey Results

Current EWM Mapping Program

- Onterra surveys entire littoral zone of ERC in late-June/early-July (ESAIS Survey)
- Data are loaded onto dedicated GPS units
- Volunteers mark all EWM occurrences outside of where found during ESAIS
- Onterra conducts Late-Season AIS Survey (LSAIS, EWM Peak-Biomass Survey) visiting
  - –All EWM locations mapped during ESAIS Survey
  - –All current and previous years' management areas
  - –All areas identified through volunteer surveillance

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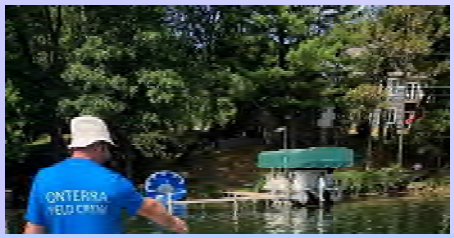
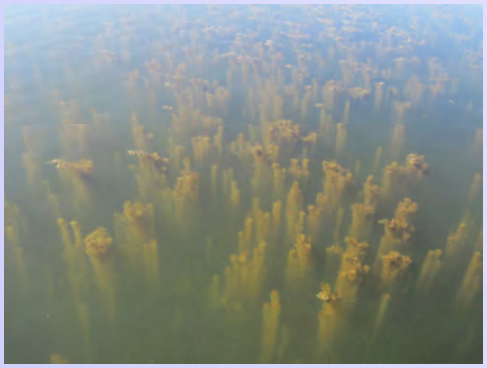
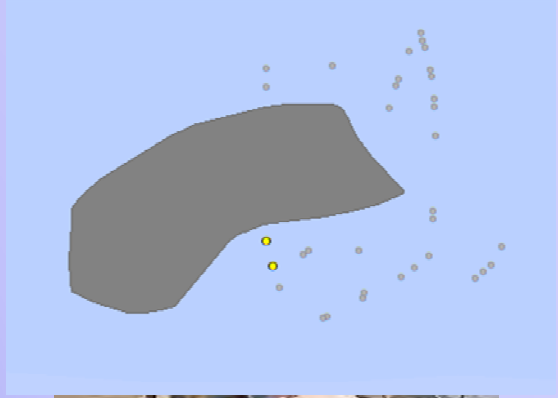
Professional EWM Mapping





Point-Based Mapping

- Single or Few Plants
- Clumps of Plants
- Small Plant Colony



Polygon-Based Mapping

- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting

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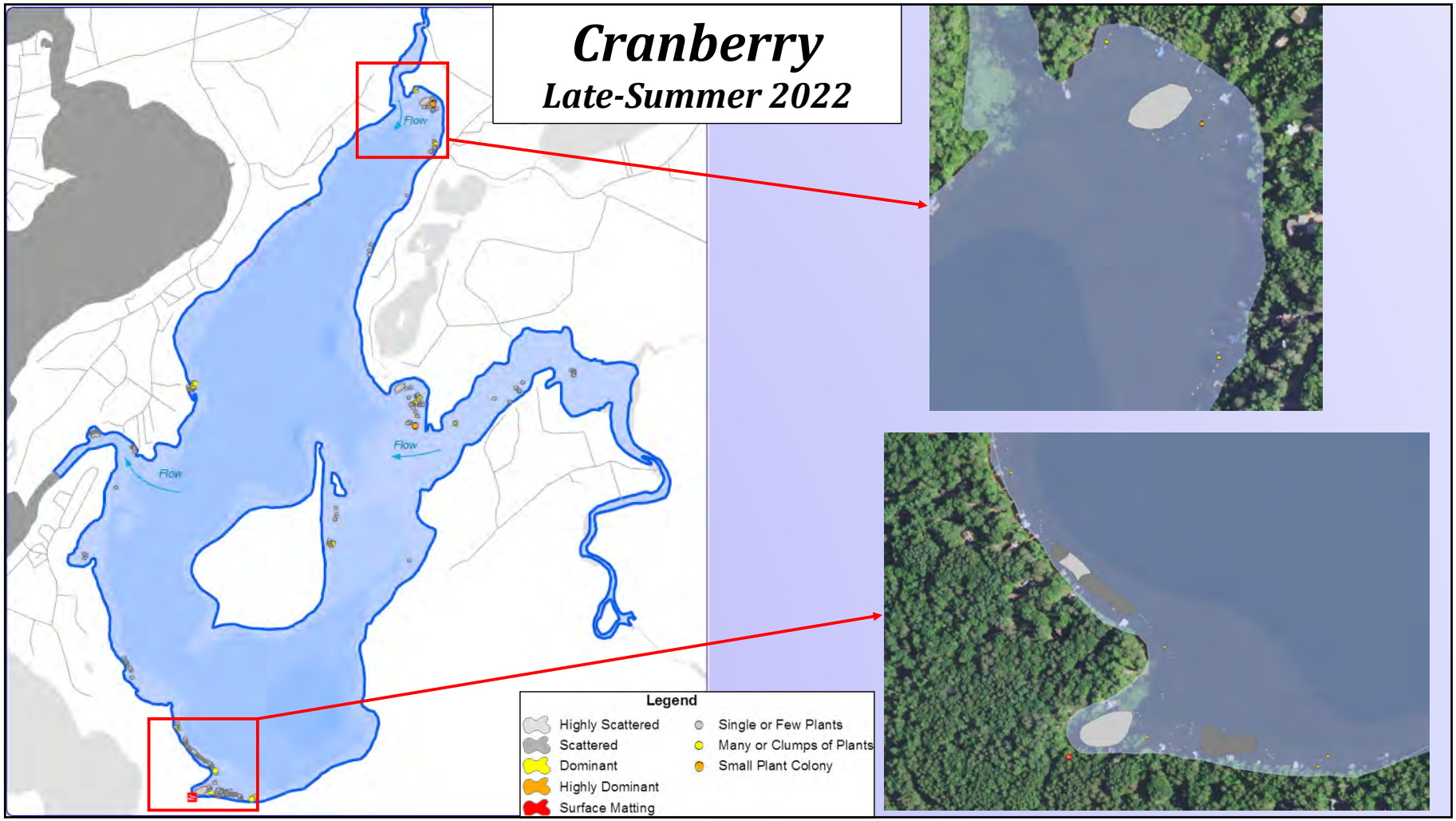
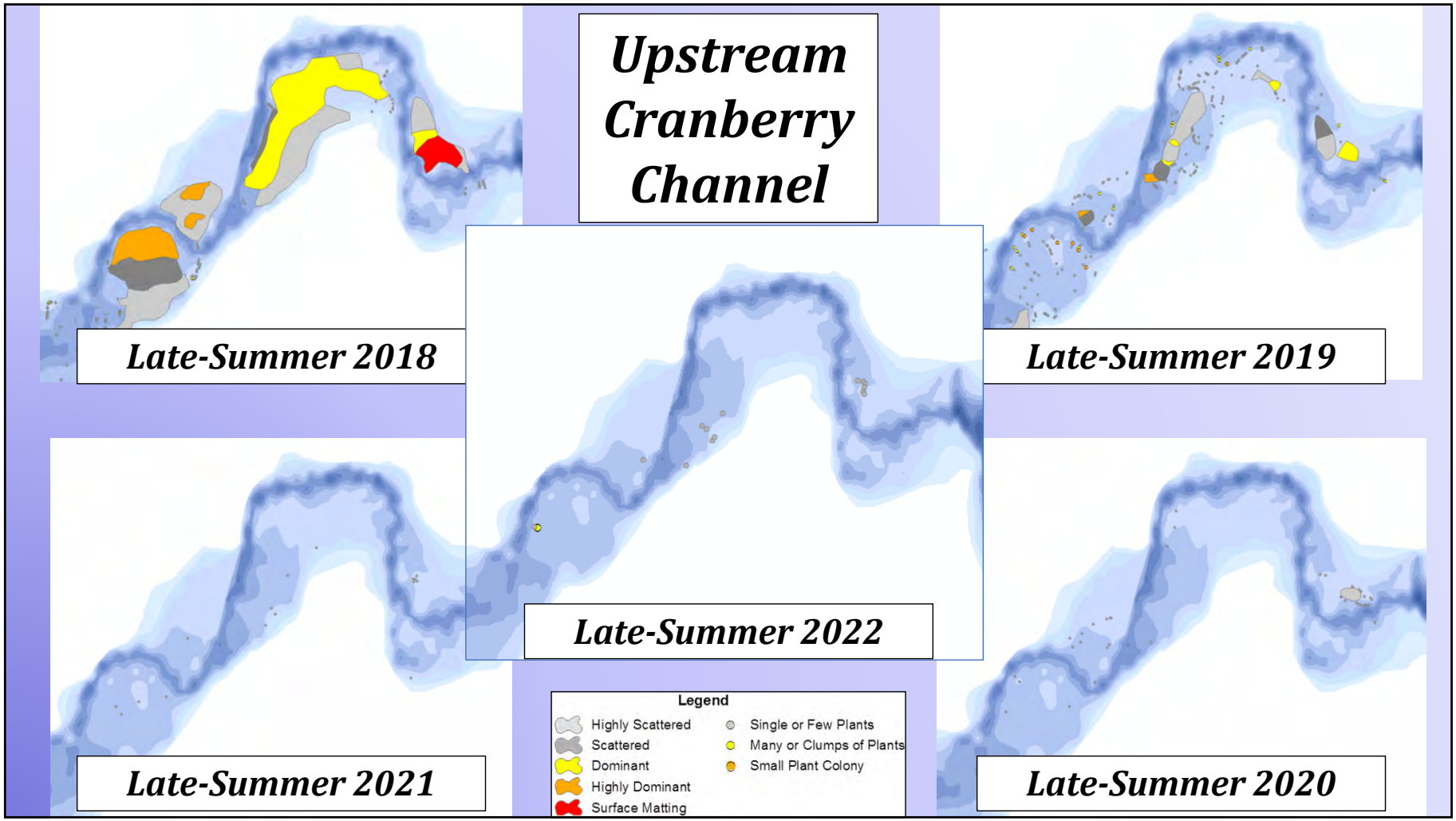
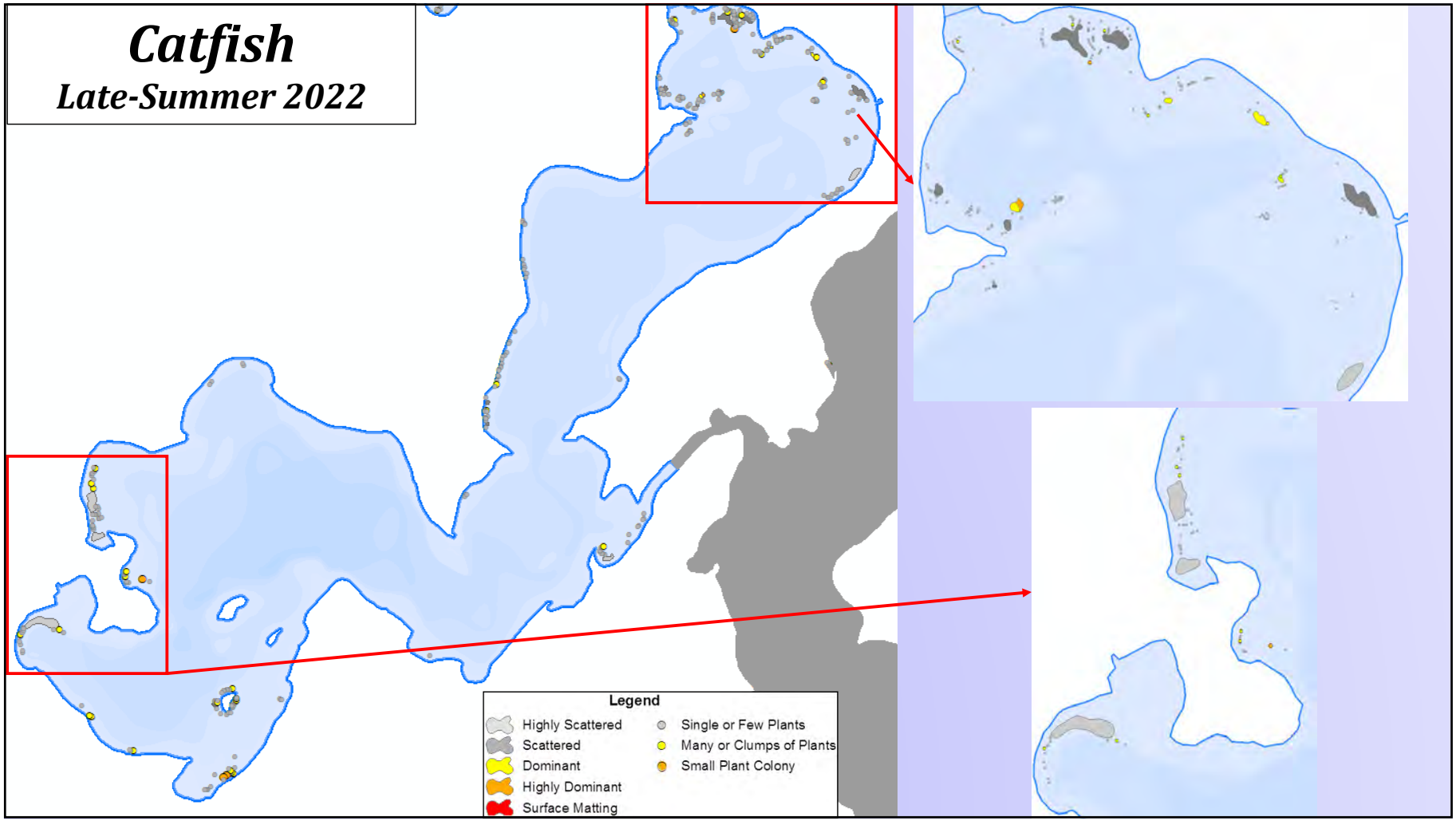
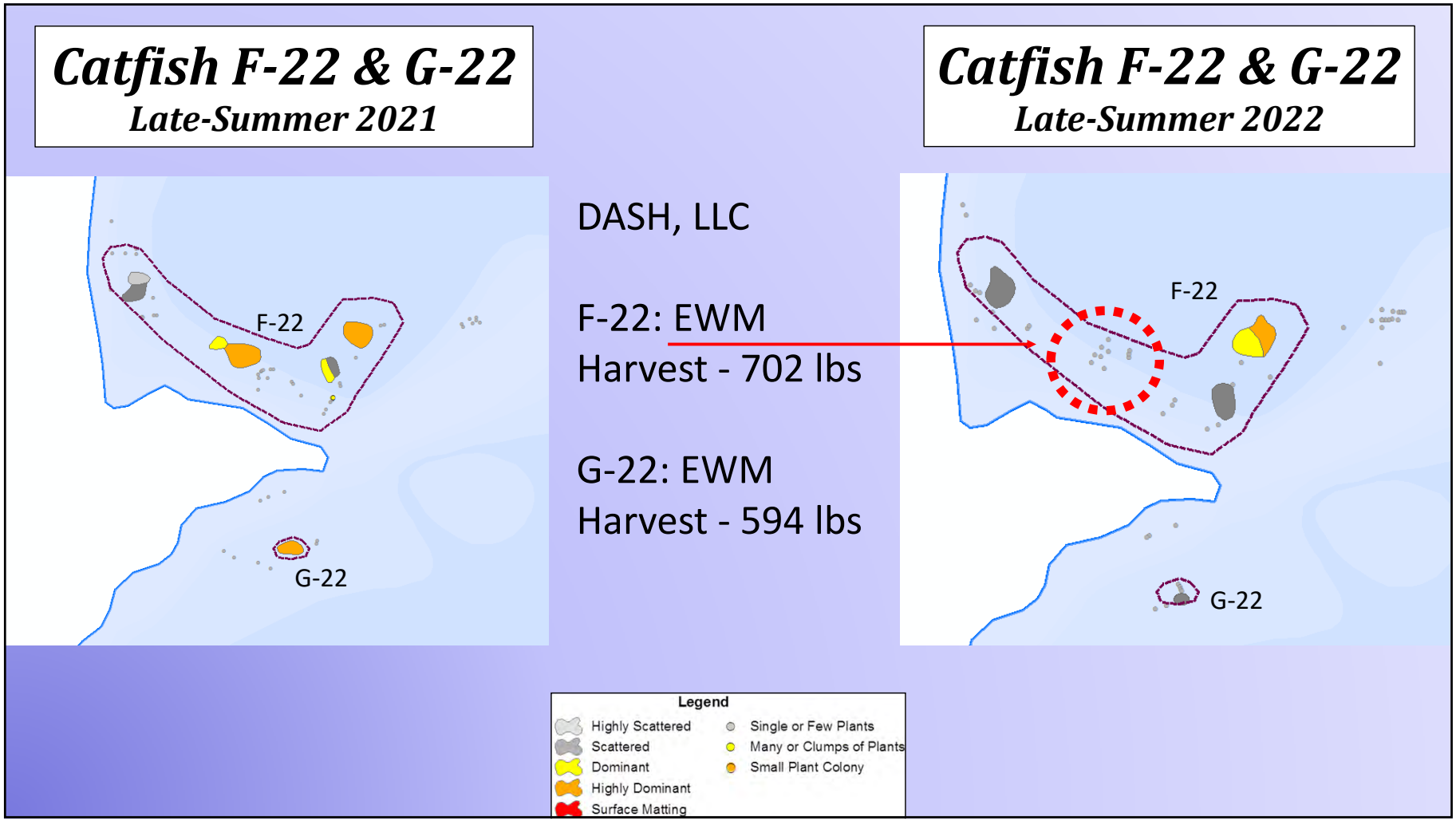
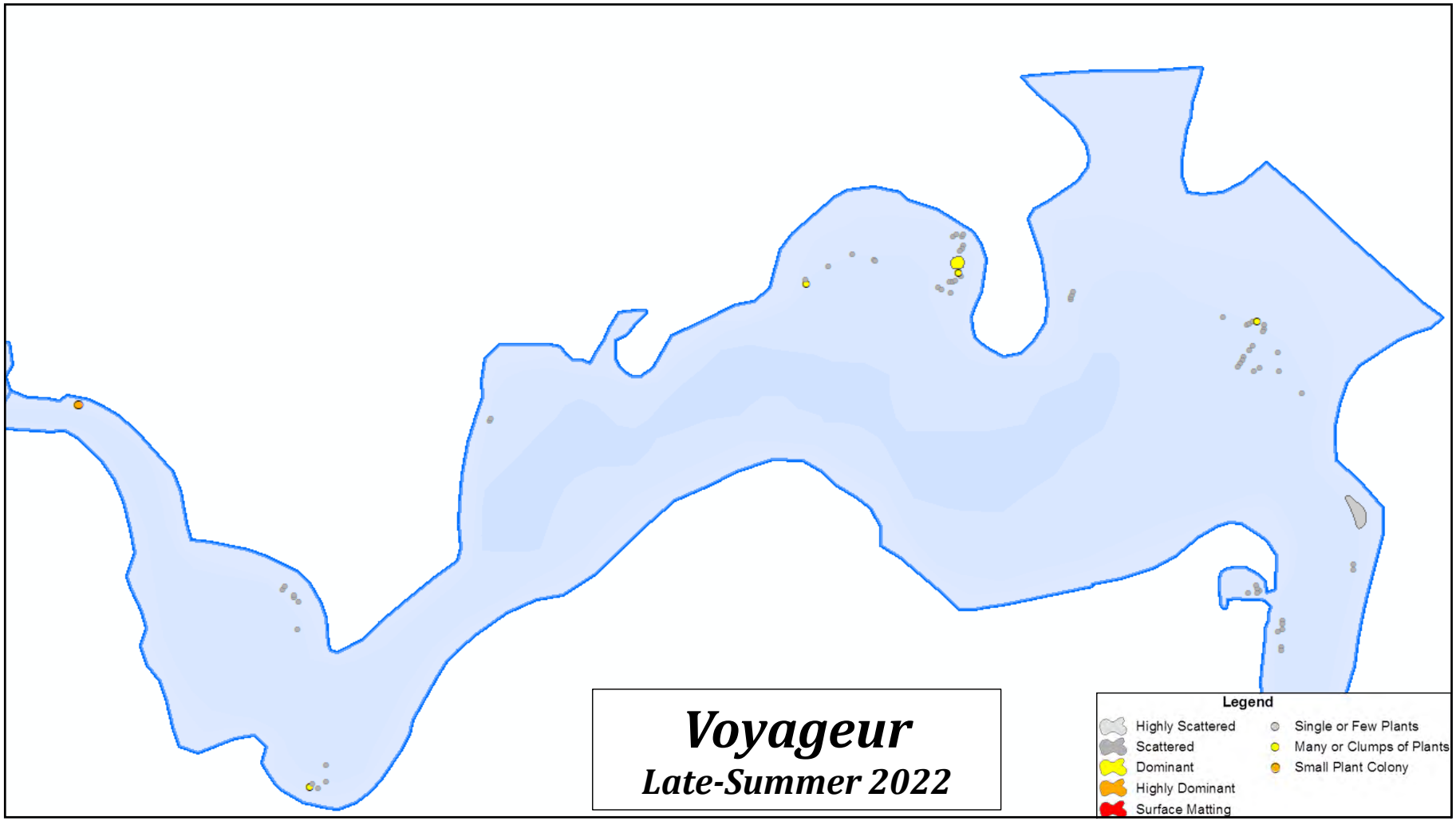
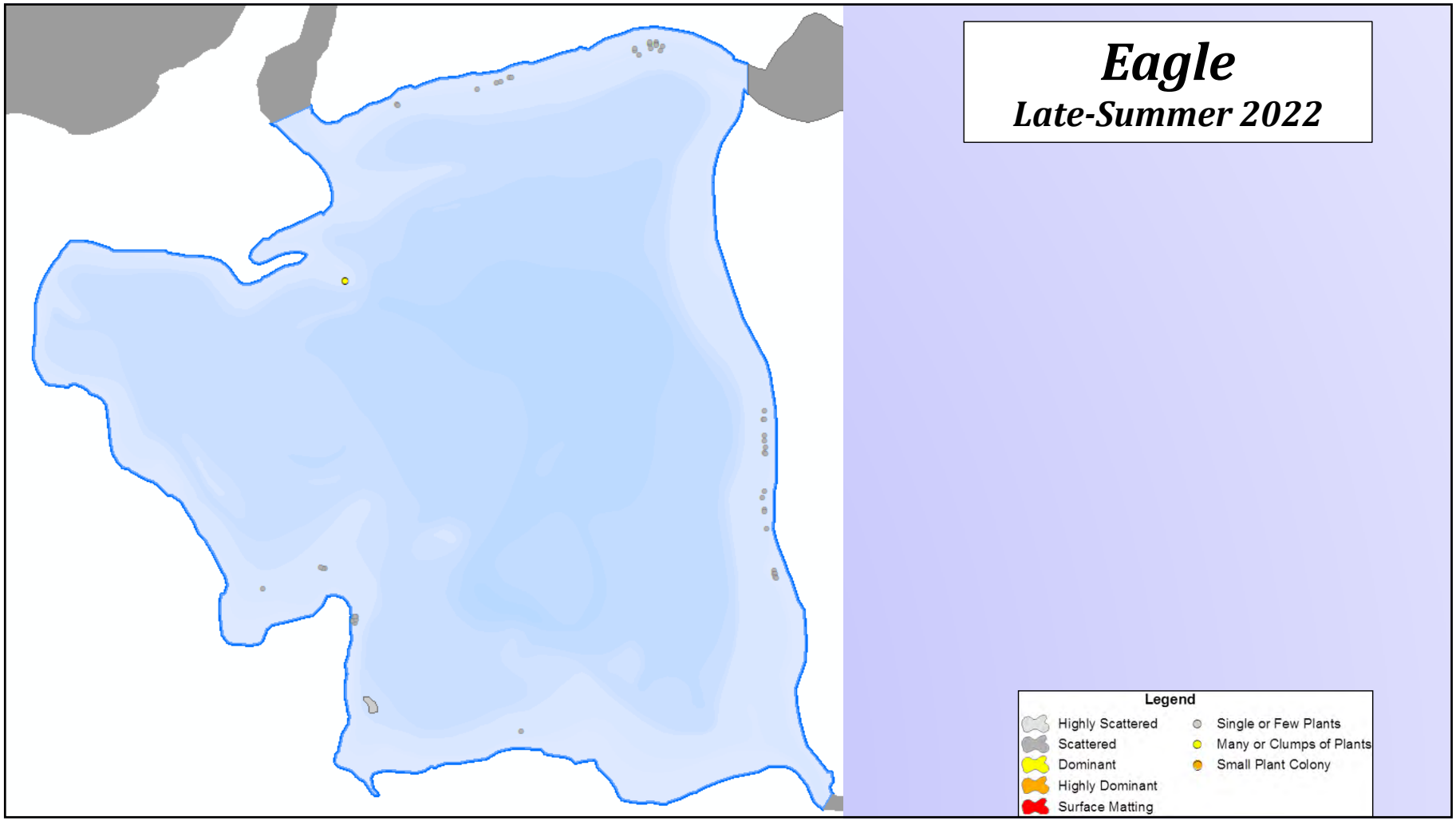

Cranberry
Late-Summer 2022
Flow
Flow
Flow
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

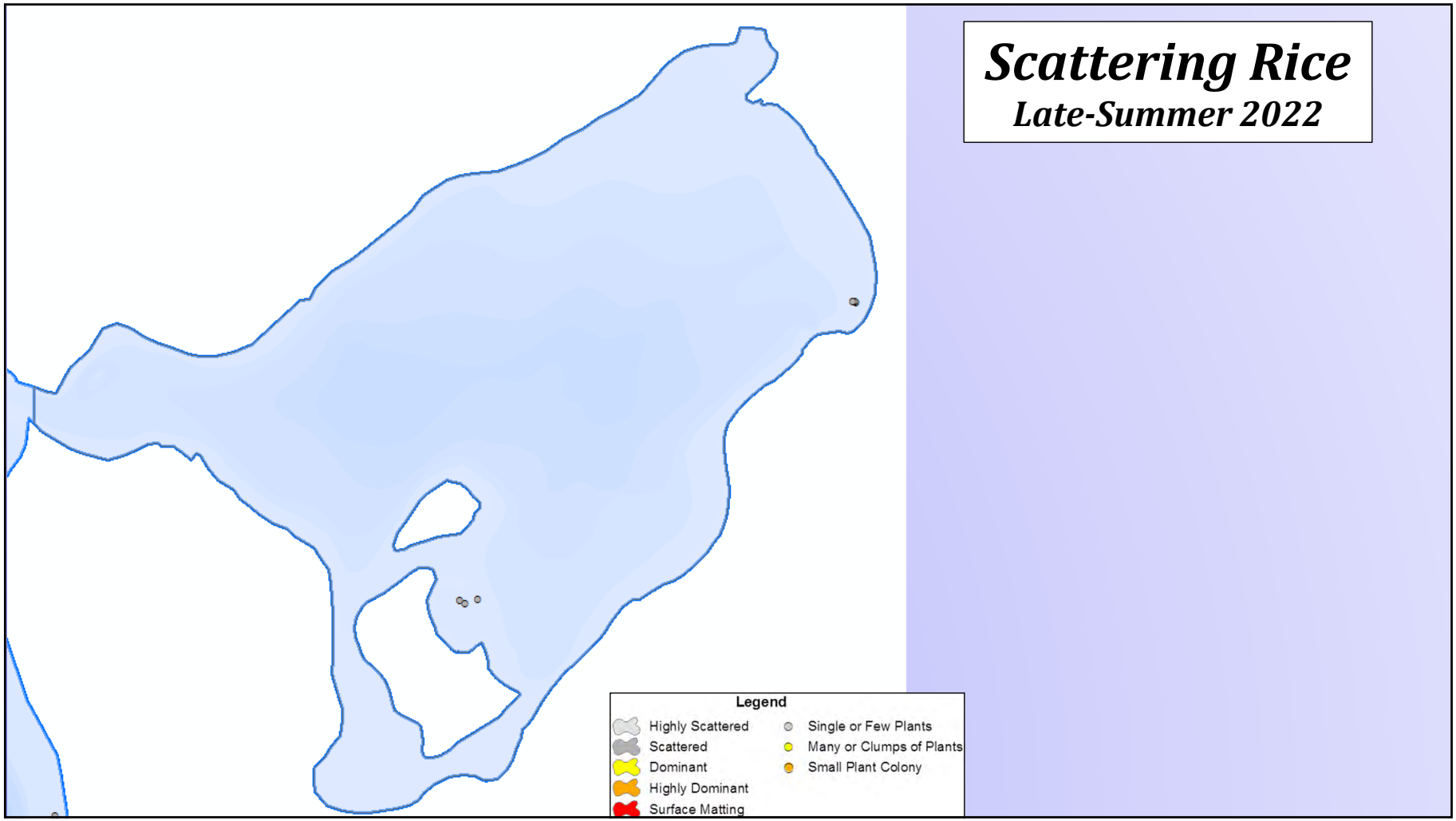

Upstream Cranberry Channel
Late-Summer 2018
Late-Summer 2019
Late-Summer 2022
Late-Summer 2021
Late-Summer 2020
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

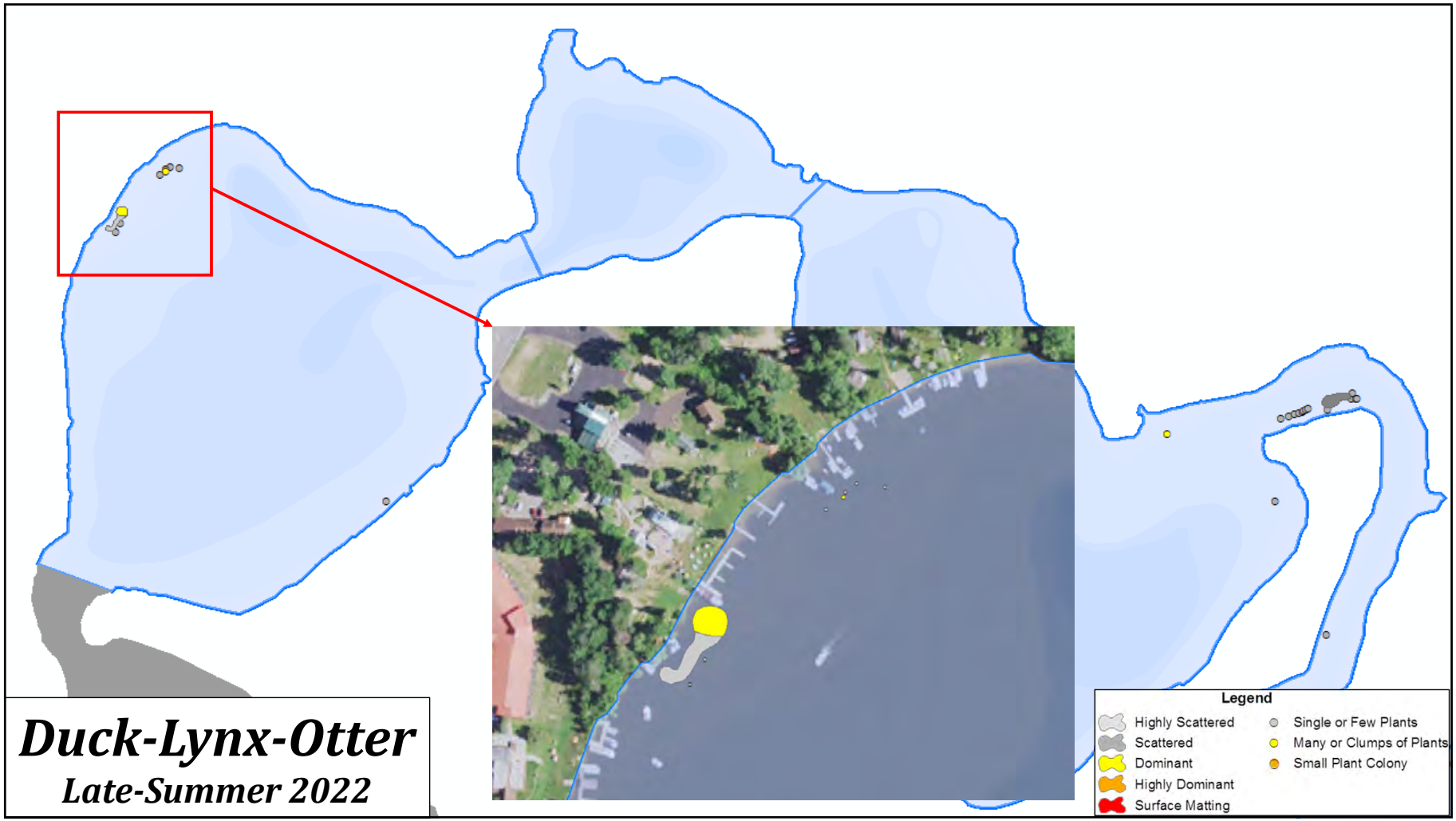

Catfish
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

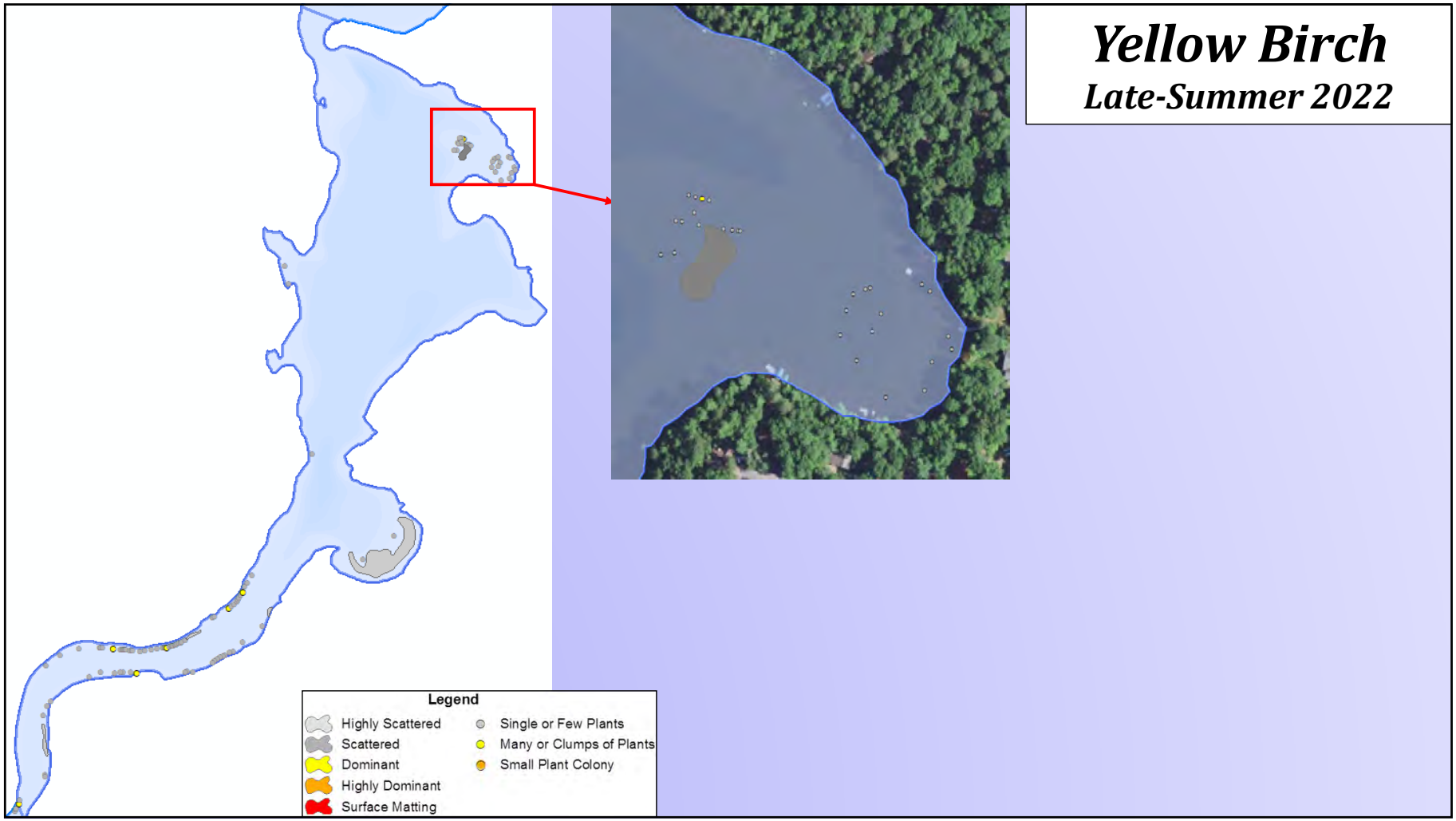

Catfish F-22 & G-22
Late-Summer 2021
Catfish F-22 & G-22
Late-Summer 2022
DASH, LLC
F-22: EWM
Harvest - 702 lbs
G-22: EWM
Harvest - 594 lbs
F-22
G-22
F-22
G-22
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

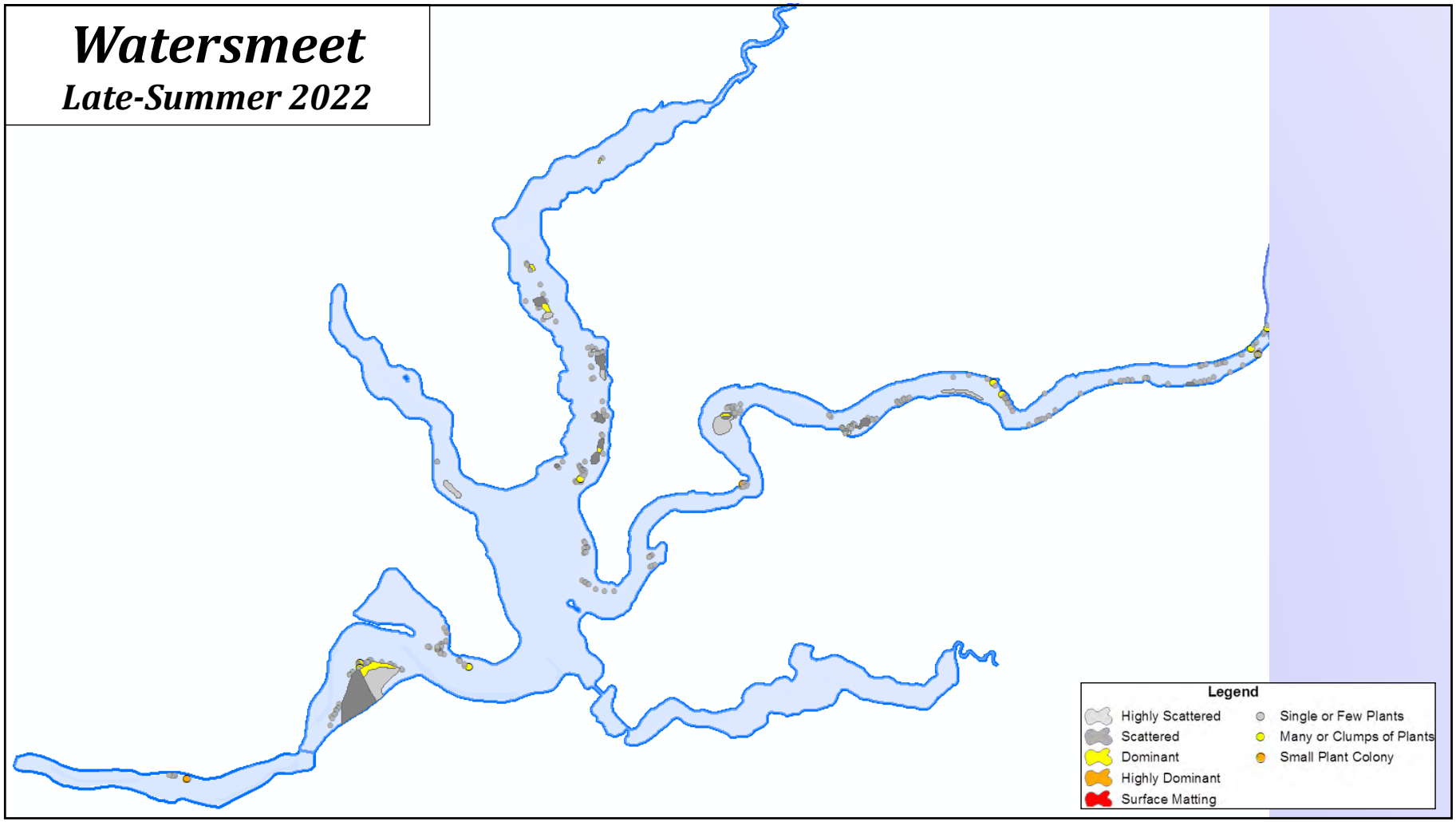

Voyageur
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony


Eagle
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony


Scattering Rice
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony


Duck-Lynx-Otter
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

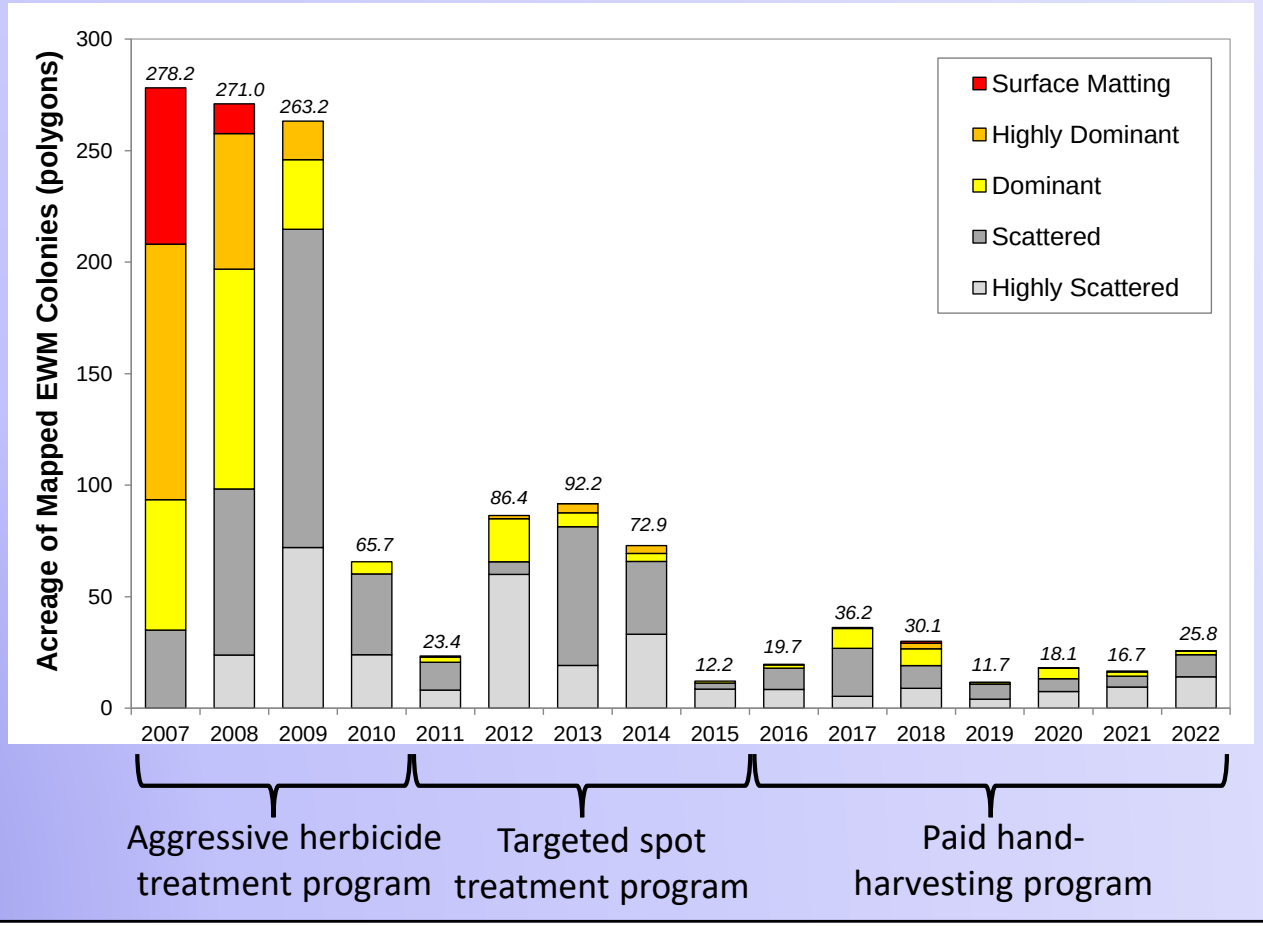

Yellow Birch
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony


Watersmeet
Late-Summer 2022
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting
Single or Few Plants
Many or Clumps of Plants
Small Plant Colony

Chain-Wide Results

EWM populations is currently low

1. Result of management

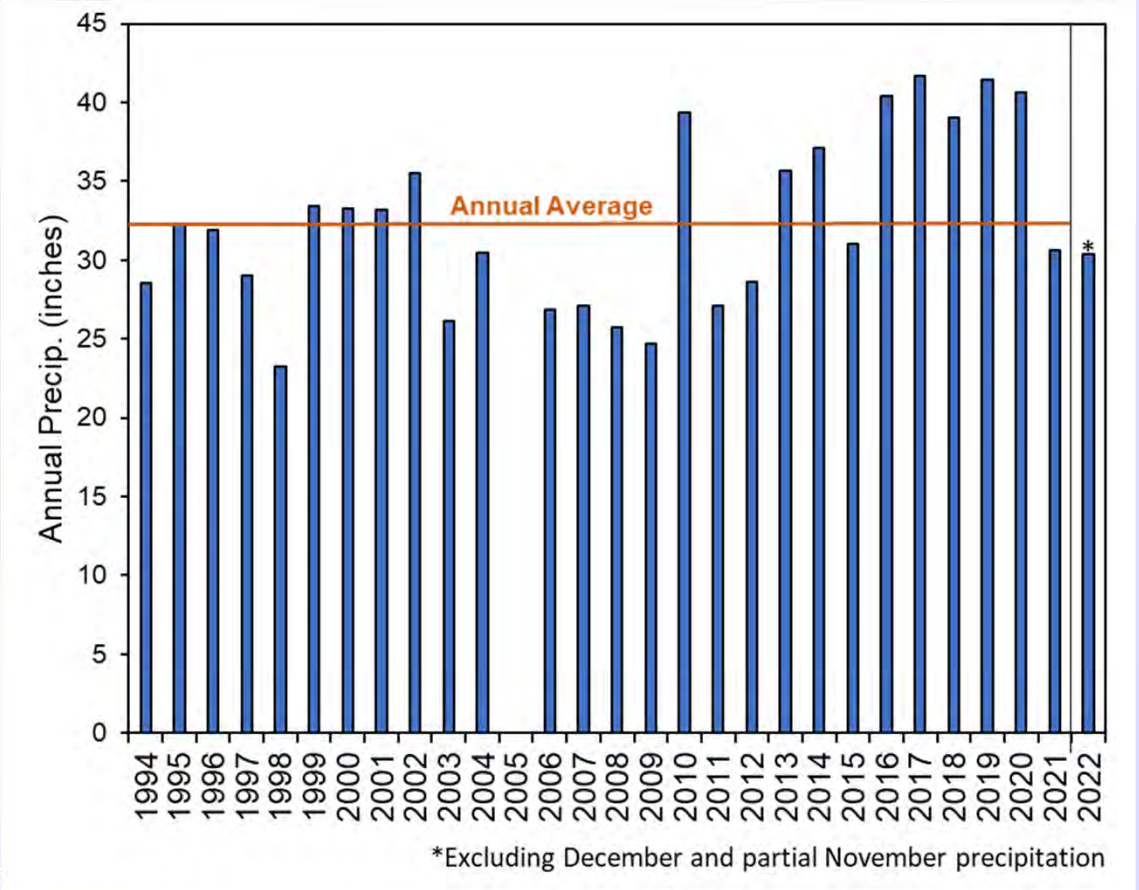


Chain-Wide Results

EWM populations is currently low

1. Result of management
2. Reduced water clarity

Increased environmental stress from low water clarity results in management being more effective and population rebound more difficult



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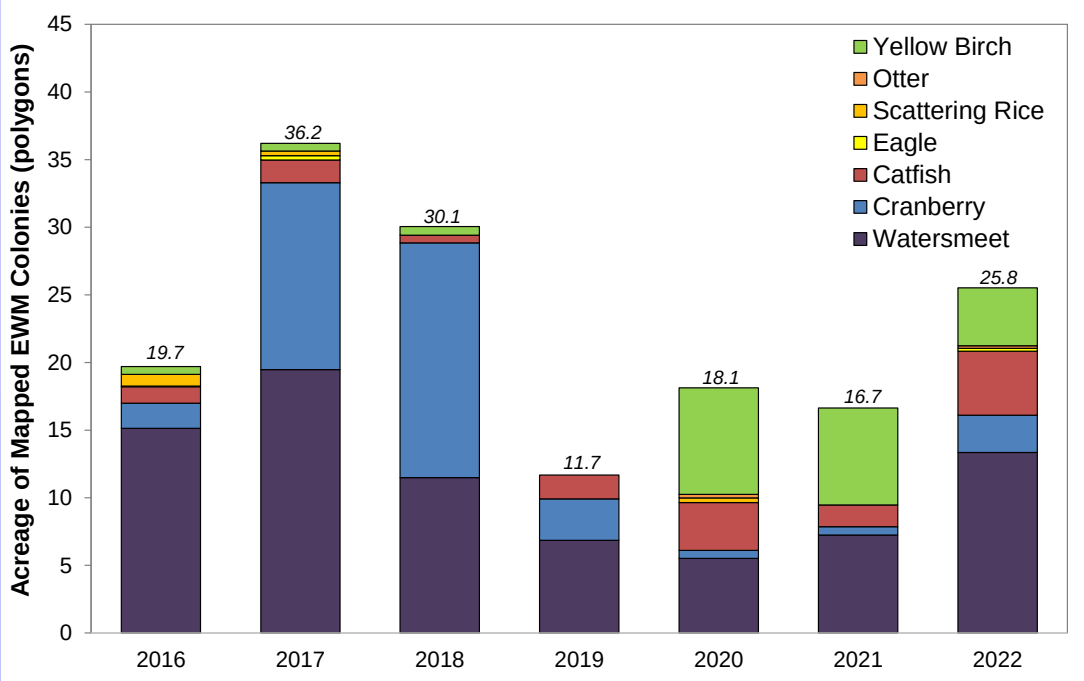
Chain-Wide Results

Since Herbicide Management Ceased

- Cranberry Channel spring 2015 treatment
- Professional hand-harvesting program
  - 2016: Voyageur
  - 2017: Voy, ScatRice, Wat
  - 2018: YBL, ScatRice, Wat
  - 2019: ScatRice, YBL, Wat
  - 2020: Cran, Cat, Voy
  - 2021: Cran, Cat, YBL
  - 2022: Cran, Cat, YBL, Wat



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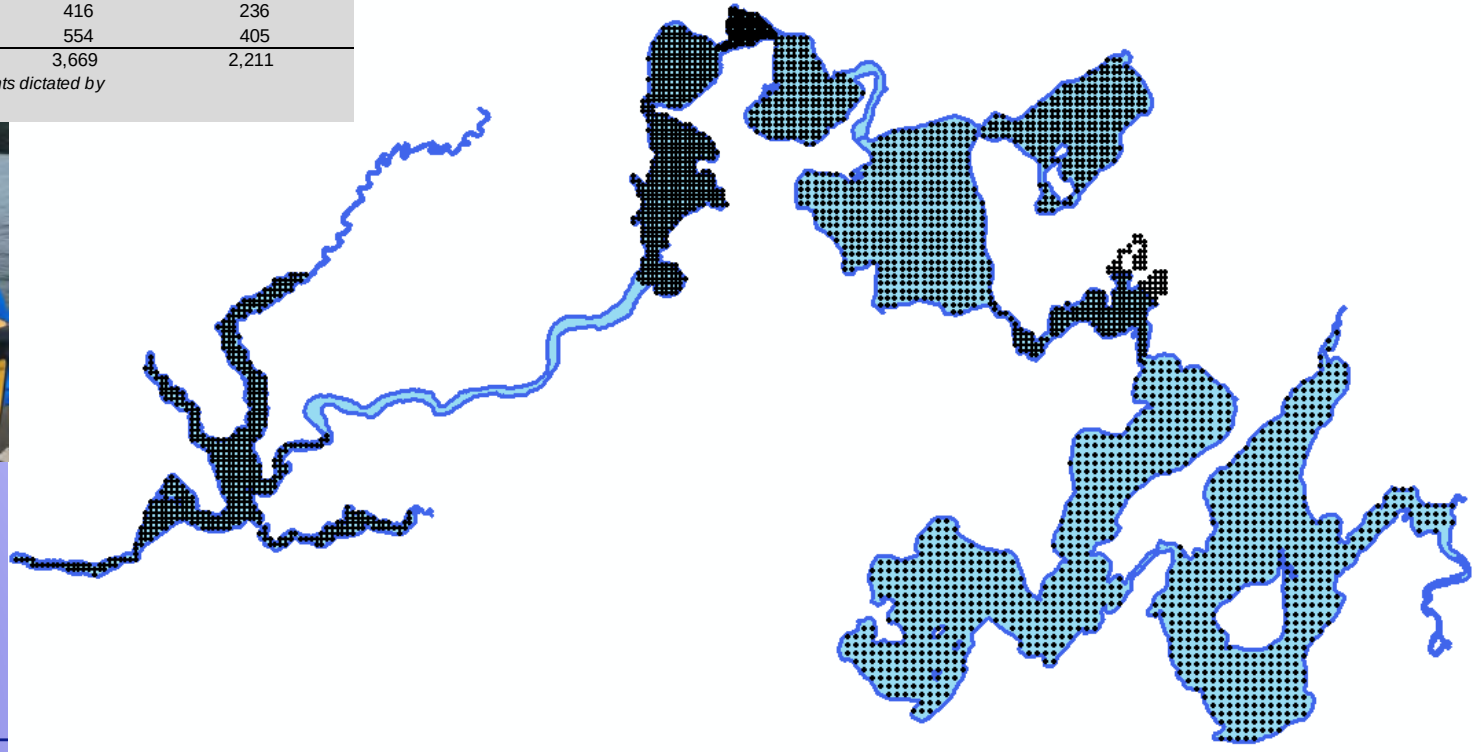
2022 Preliminary
Point-Intercept Results

Point-Intercept Survey

Lake Name	Point Spacing* (meters)	Total Points*	2022 Points Visited
Cranberry Lake	80	588	320
Catfish Lake	80	616	346
Voyageur Lake	50	232	140
Scattering Rice Lake	60	287	203
Eagle Lake	70	476	230
Otter Lake	60	195	125
Lynx Lake	30	137	103
Duck Lake	50	168	103
Yellow Birch Lake	45	416	236
Watersmeet Lake	50	554	405
		3,669	2,211

** Point Spacing (Resolution) and Total Points dictated by WDNR Science Services*



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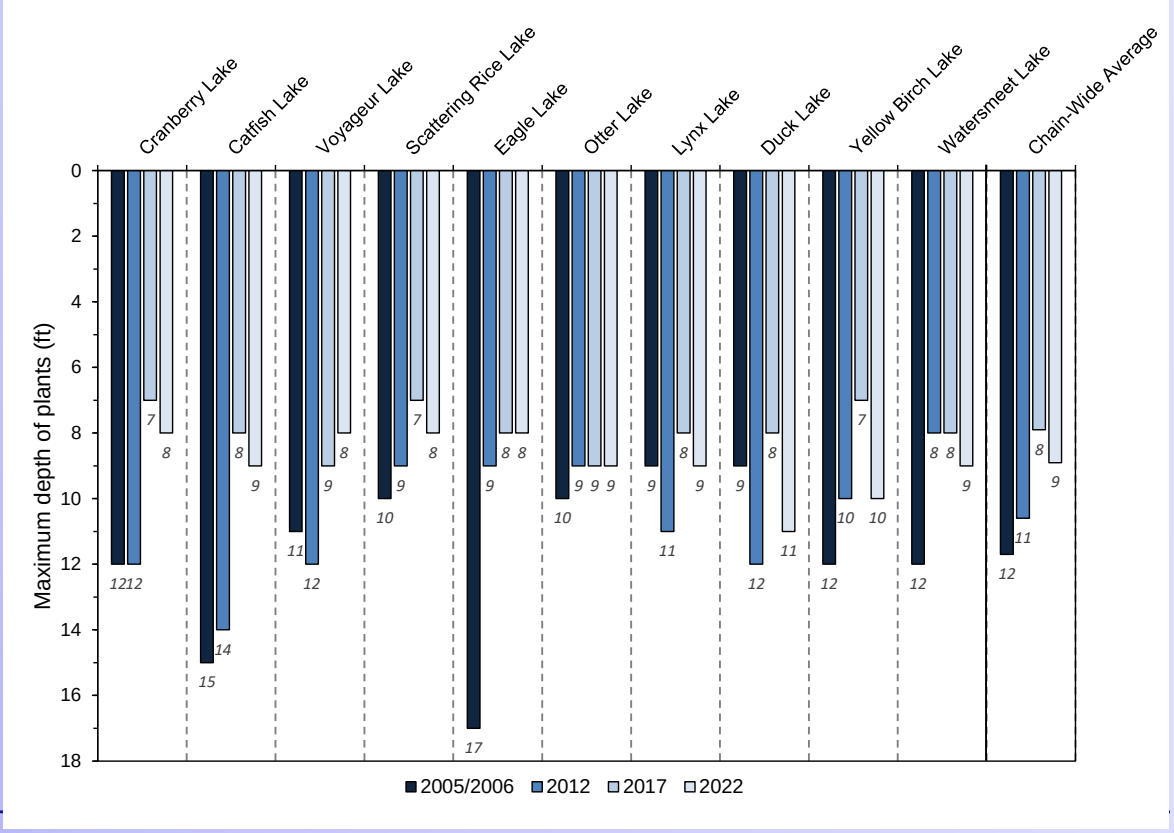
Littoral Frequency of Occurrence

- How frequent a plant is found within the *plant-growing* zone of a lake
- ≤ Max Depth of Plants



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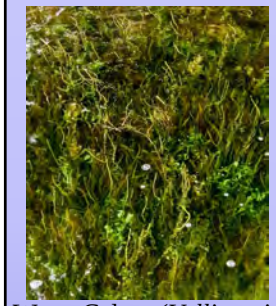
Littoral Frequency of Occurrence



Water Celery (*Vallisneria americana*)

Slender & Small Pondweed (*Potamogeton berchtoldii* & *P. pusillus*)

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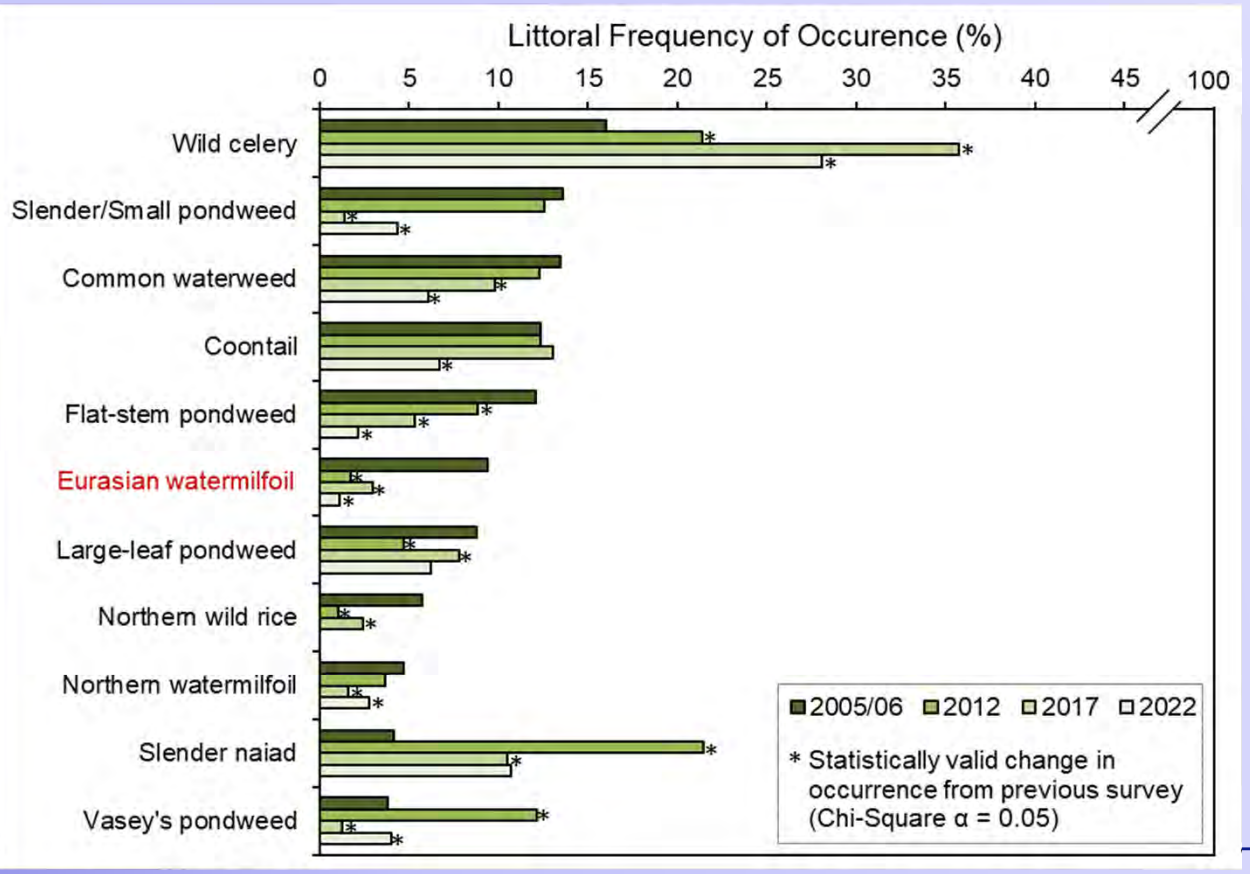
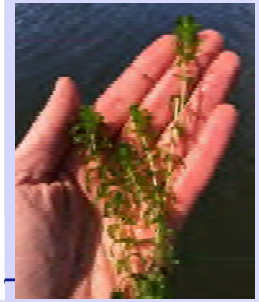
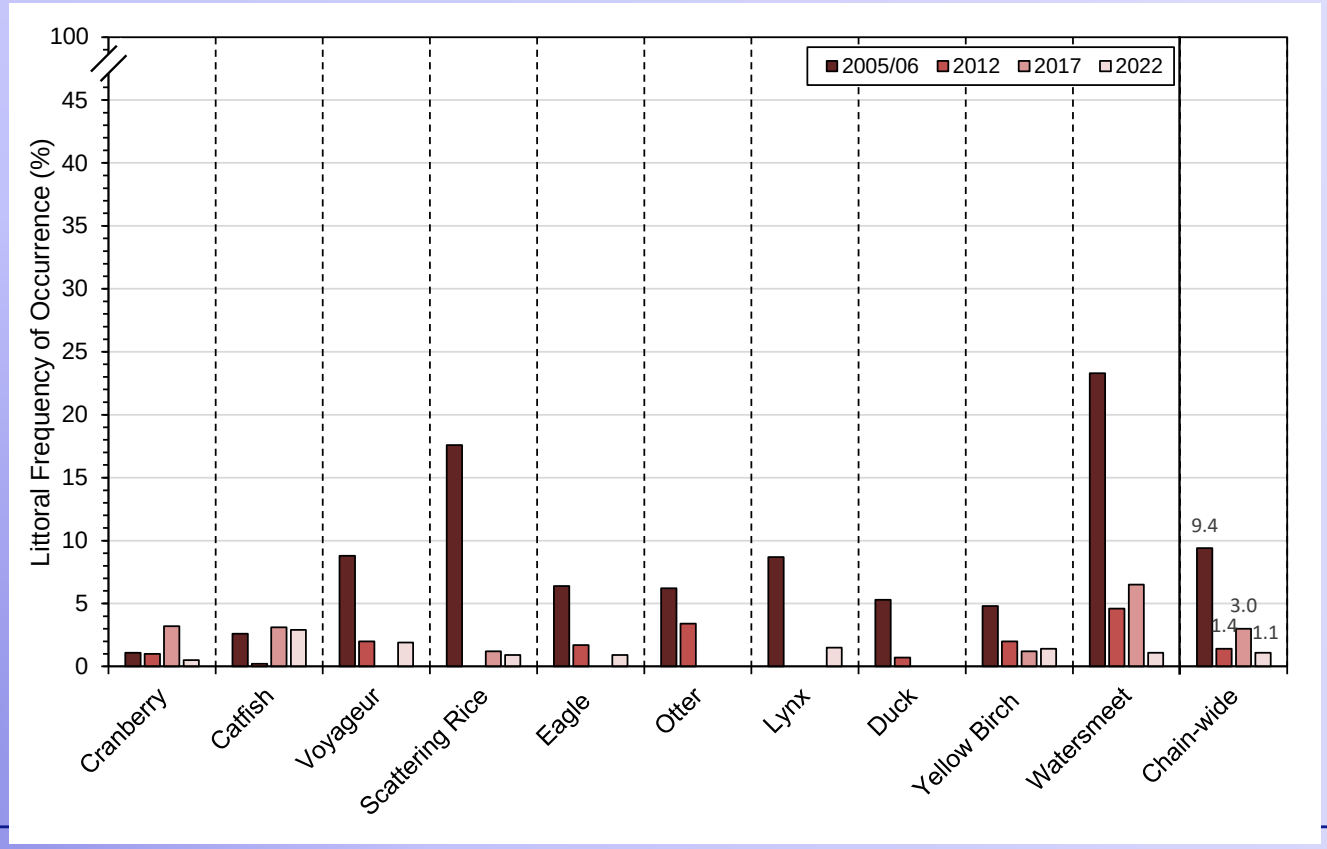


Coontail (*Ceratophyllum demersum*)

Common Waterweed (*Elodea canadensis*)



EWM Littoral Frequency of Occurrence



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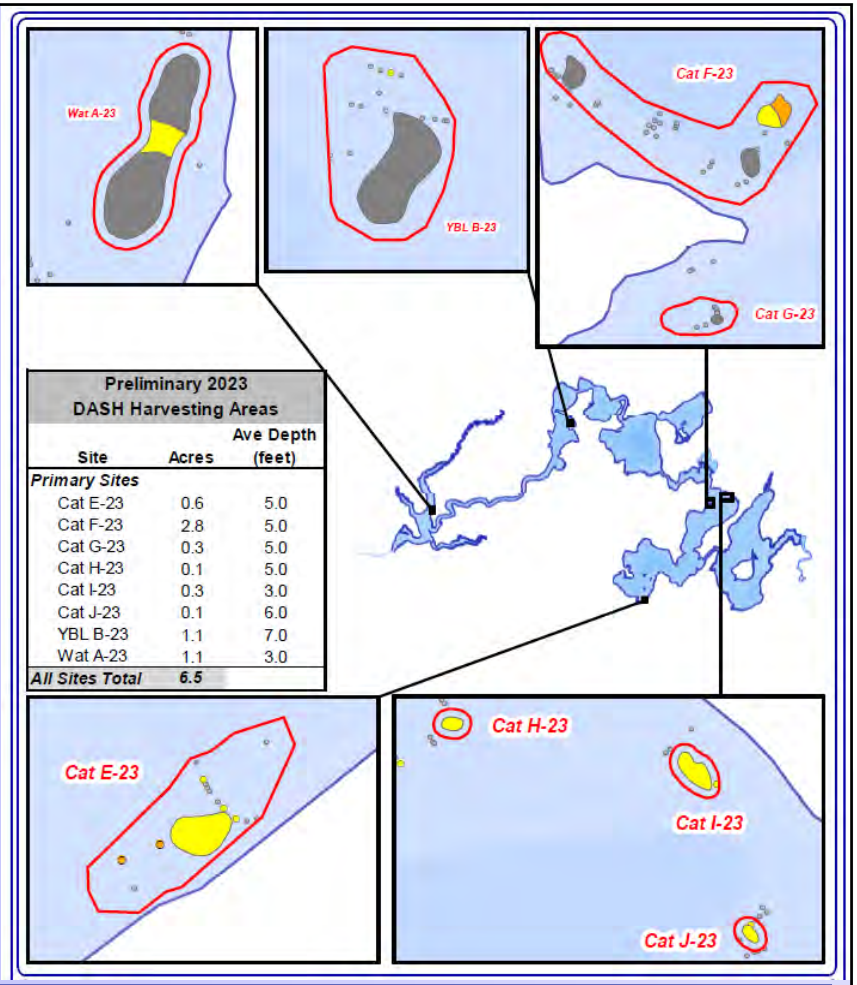
2023 Preliminary Management Strategy

2023 Preliminary Hand-Harvesting Plan

- Primary Sites (6.8 acres)
  - –6 sites in Catfish
  - –1 site in Yellow Birch
  - –1 site in Watersmeet
- Volunteer-lead Strategy (take two)
  - –Bullpen of YBL
- Continue to Educate and encourage riparians on legal EWM removal



Preliminary 2023 DASH Harvesting Areas

Site	Acres	Ave Depth (feet)
Primary Sites		
Cat E-23	0.6	5.0
Cat F-23	2.8	5.0
Cat G-23	0.3	5.0
Cat H-23	0.1	5.0
Cat I-23	0.3	3.0
Cat J-23	0.1	6.0
YBL B-23	1.1	7.0
Wat A-23	1.1	3.0
All Sites Total	*6.5*	

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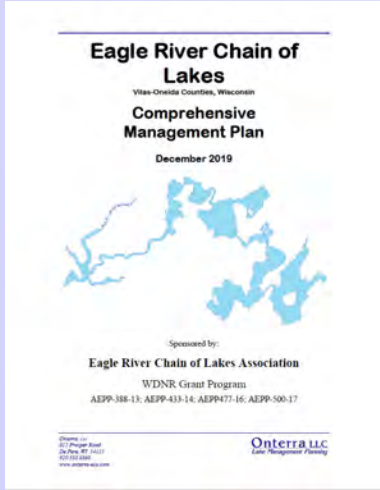
ACEI-240-20: 2020-2022 EWM Control & Monitoring Strategy

2022 Project Components

- Volunteer & Onterra EWM mapping surveys
- Whole-lake point-intercept surveys on all lakes
- ~~Sub-sample point-intercept survey on upstream Cranberry Channel~~
- Integrate volunteer-based invasive wetland management/monitoring data
- Final reporting
  - Plan for reappropriation of remaining grant funds ***In Progress***
  - Determination of *Plan* amendment/addendum to be eligible for future AIS Control Grants (revised NR193)



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ERC Project Conclusions

- **Overall, significant reduction of EWM since start of the program**
  - Maintaining low EWM population is going to be difficult, particular if/when water clarity returns to normal
- **No Herbicide Treatment Proposed AGAIN for 2023**
  - Will be 8 consecutive years without herbicide management
- **Conduct Professional-Based Hand-Harvesting in 2023**
  - Based on the ESAIS Survey (early July), the strategy will be finalized
  - Early implementation of hand-harvesting program has been helpful
  - Discuss potential for traditional hand-harvesting vs DASH methods
- **Important to Continue to Improve the ERC**
  - Work on implementing protection & enhancement goals outlined in *Plan*
  - Navigate additional science, changing technologies, and regulatory environment

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Wake Boating

Problem

- Are a nuisance to other lake users
- Improper activities cause safety concern
- Cause negative impacts to the environment
  - Waves from boating can increase sediment resuspension and shoreline erosion
  - Size and speed of watercraft can make a difference
  - Wake boat activities likely can influence these categories the most
    - Current focus of many rigorous studies, not just aggregations of anecdotes
    - Outside of the ability of any one lake group to study on their own

Solution

- Create ordinances for no-wake areas, no-wake hours, speed limits, directional patterns
  - Cannot create ordinances to regulate type of boat or activity
- Promote safe and ecologically sound practices

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Thank You

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