



Pymatuning 2018

Hydrilla Suppression Project

STOP
Invasive Species
Check Station
All Boaters
Please Stop

BOAT WASH STATION
This wash station is for use
on boats and boat trailers
for the removal of
plant and animal species.
This is not a car wash.
Please use an alternate or
vehicle will be towed.
No boats from the Commonwealth of Pennsylvania
are allowed to be stored here out of the boat trailer.

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Background

- 2010 – Discover hydrilla in lake
- 2014 – Observation of significant hydrilla expansion
- 2015 – First detailed survey of lake for hydrilla (lake-wide);
1 acre area of herbicide application to limit recreational nuisance
- 2016 – Second detailed survey of lake for hydrilla (south of causeway);
25 acre area of herbicide application; 33ac OH (58 acres total)
Launch Steward Program begins
- 2017 – Third detailed survey of lake for hydrilla (south of causeway);
29 acre area of herbicide application;
Rhodamine wt testing occurs;
Launch Steward Program continues;
Invasive species disposal boxes installed at public launches

Project Goals

- Limit the extent and prevalence of hydrilla in Pymatuning to undetectable levels of negative ecological and recreational impact, especially with the intention of preventing its entrance to the portion of Pymatuning Reservoir North of the OH 85/PA 285 causeway.
- Limit the probability of the hydrilla population at Pymatuning from being a source for introduction to other waterbodies, especially the Great Lakes.

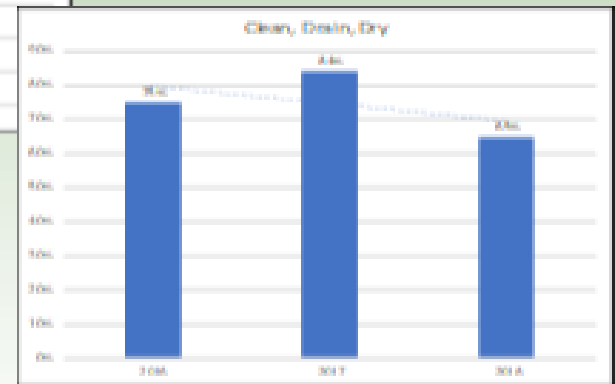
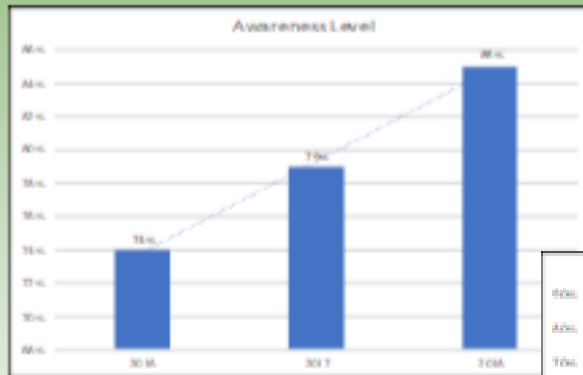
Outreach – Courtesy Boat Inspections



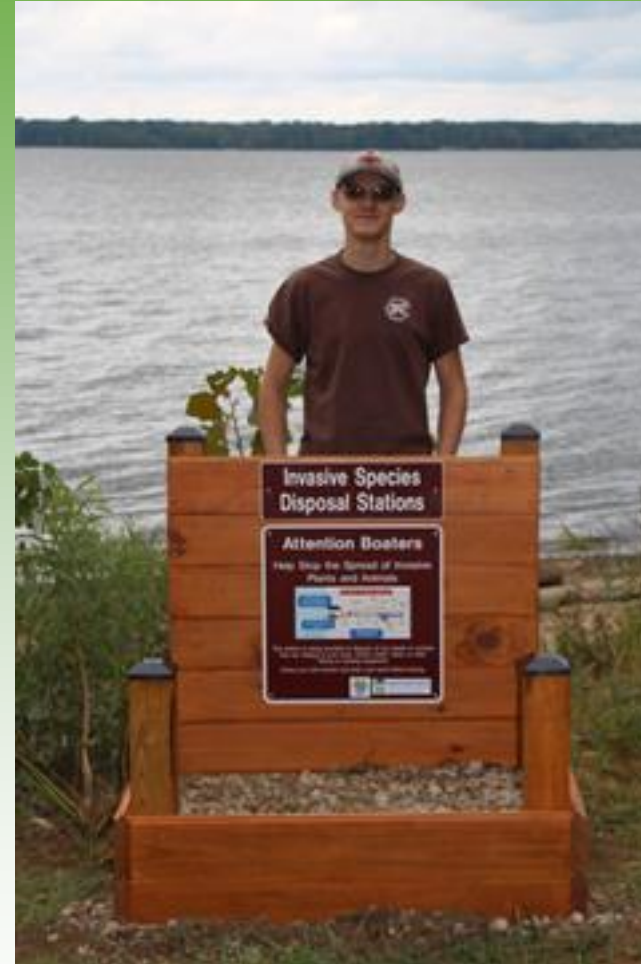
Three years of data 2015-2018:
5,791 surveys completed

Species Removed

- Coontail
- Hydrilla
- Eurasian Watermilfoil
- Elodea
- Curly-leaf Pondweed
- Water Lily
- Wild Celery (Eel grass)
- Cattail
- Brittle Naiad
- Mystery Snail
- Fanwort



Outreach – Wash and disposal stations



Outreach – Plant Identification program



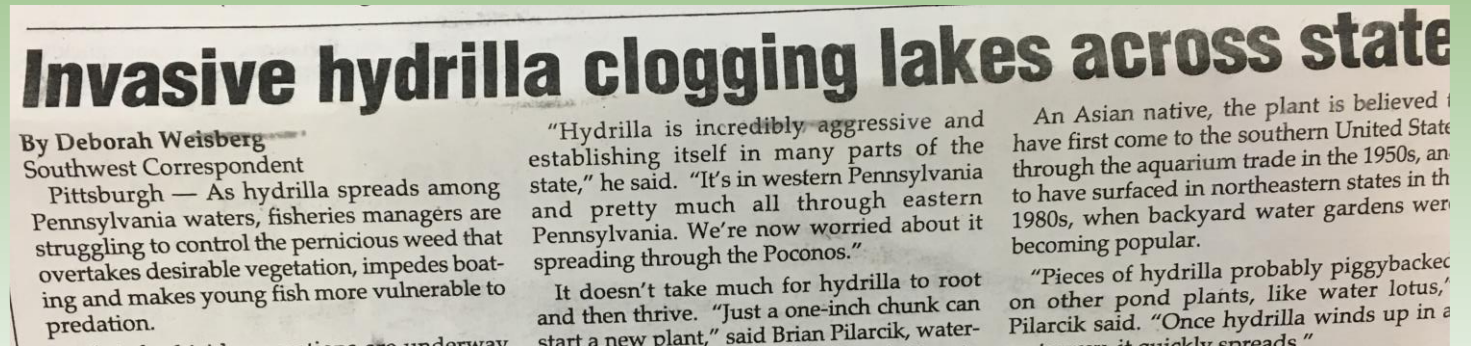
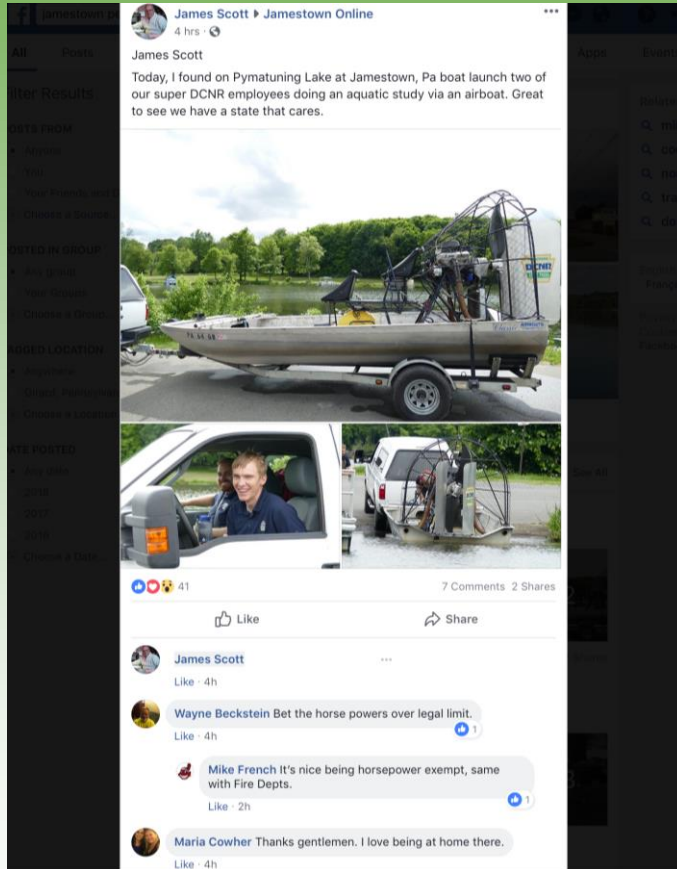
Public Program held at Pymatuning State Park's Environmental Classroom

9 people attended

Brian Pilarcik presented on aquatic plant identification
Stacie Hall covered current efforts at Pymatuning to control
invasive species

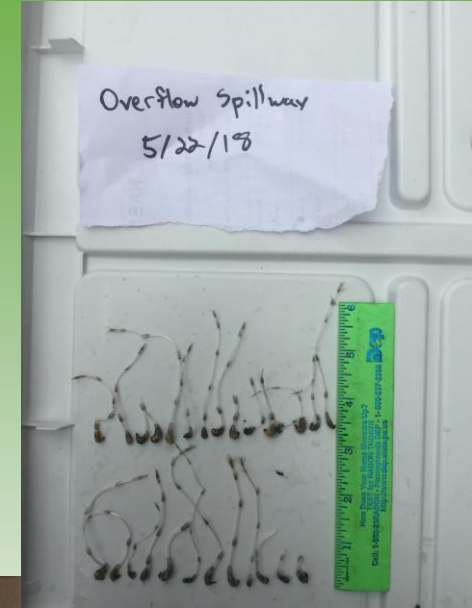
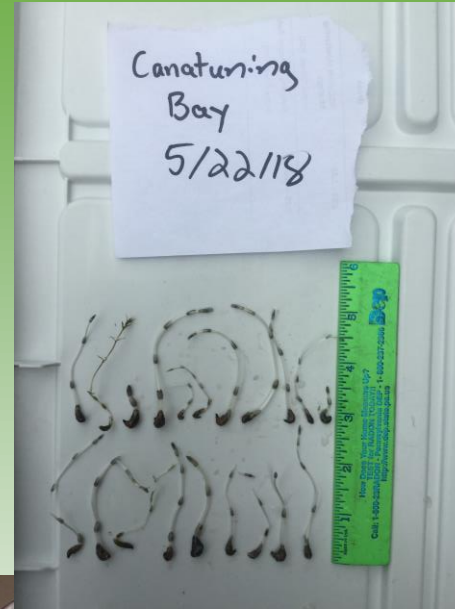
Program lasted 2 hours with good question and answer portion

Outreach – Other Public Relations



Surveying/Monitoring – Spring Tubers

- May 7, 22, and June 8 2018

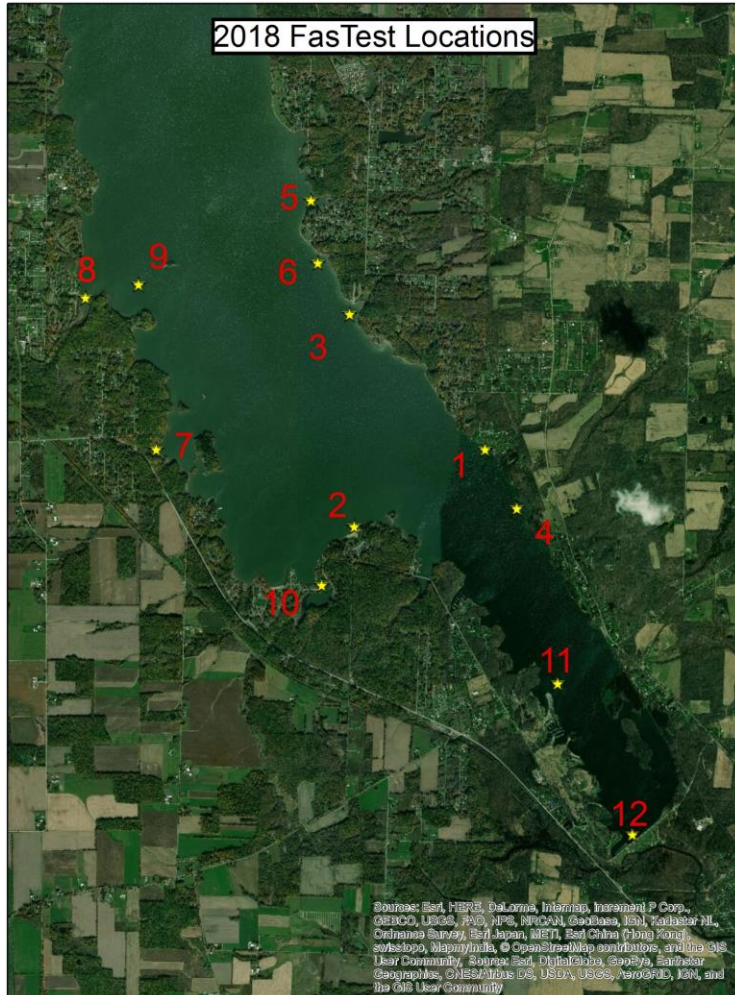


Surveying/Monitoring – FasTests & Dye

App 1

App 2

App 3

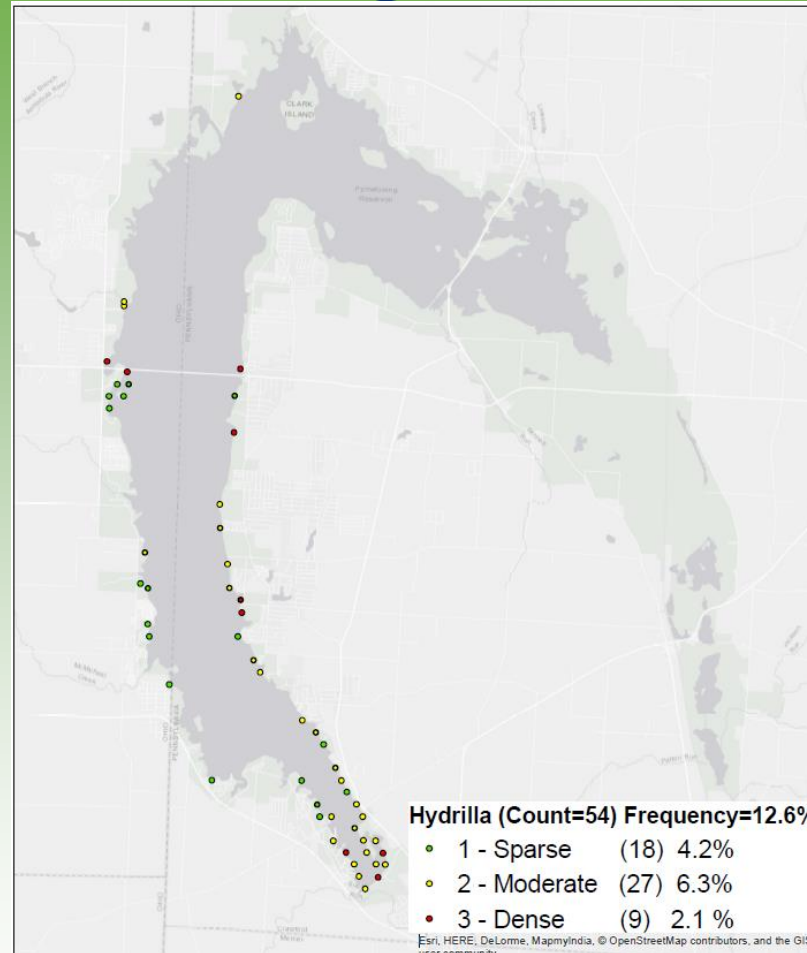
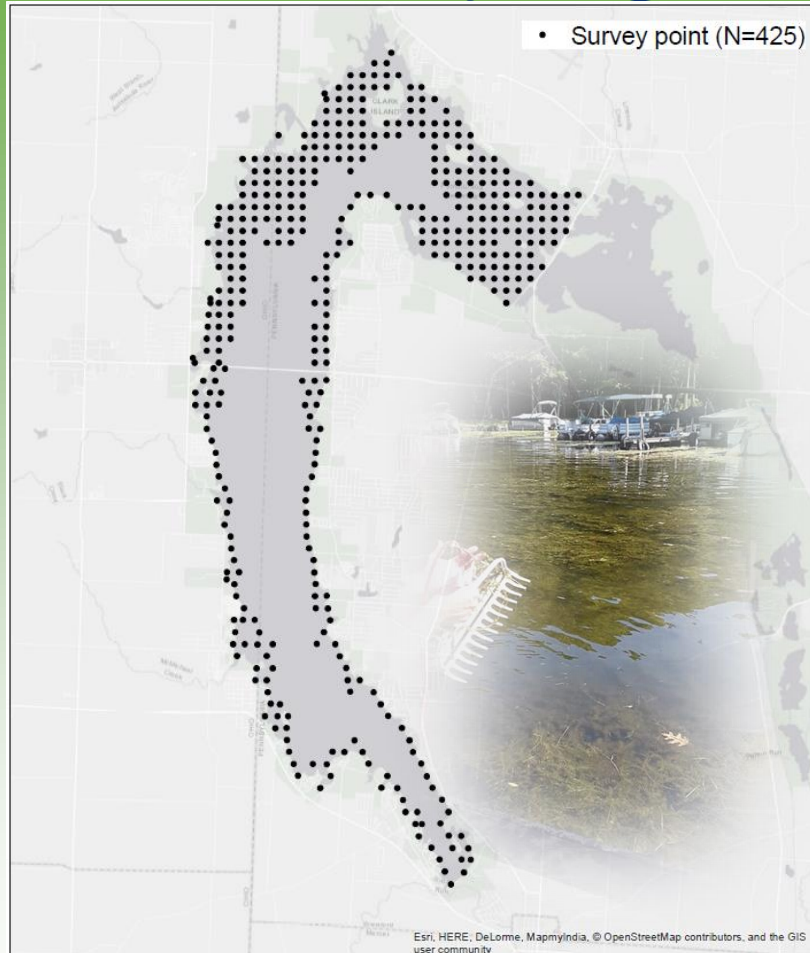



Site	6/25	7/9	7/23	8/6	8/20	9/5	9/17	10/3
1	1.1	1.4	<1	<1	<1	<1	1	<1
2	1.1	1.1	1.5	<1	<1	1.1	1	1.1
3	1.1	1.1	<1	1.1	1.1	1.2	2.6	1.0
4	1.5	1	<1	1.1	<1	<1	1	1.2
5	1.2	<1	<1	1	<1	1.1	1.3	1.0
6	1.4	1	<1	<1	<1	<1	1	1.2
7	1.4	1.1	<1	1.1	<1	1.4	1.3	1.7
8	<1	<1	<1	<1	1.0	<1	<1	1.0
9	<1	1.1	<1	2.1	1.0	1.1	1	1.2
10	2.7	2.7	<1	1.9	2.4	1.5	1.2	1.8
11	2.2	<1	<1	1.1	1.0	1.1	<1	1.3
12	<1	<1	<1	1.1	1.0	<1	<1	1.1



Surveying/Monitoring – Sept. Rake Survey


- 4th annual point-intercept survey
- 284m spacing (1 point / 20 acres)
- Littoral zone ($\leq 12\text{ft}$)
- Added records generated for each hydrilla observation not in the survey design




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**Pymatuning Reservoir
2018 Hydrilla Survey Points
September 12, 2018**

Miles 0 0.75 1.5




Nick Decker, RMFS, 11/16/2018

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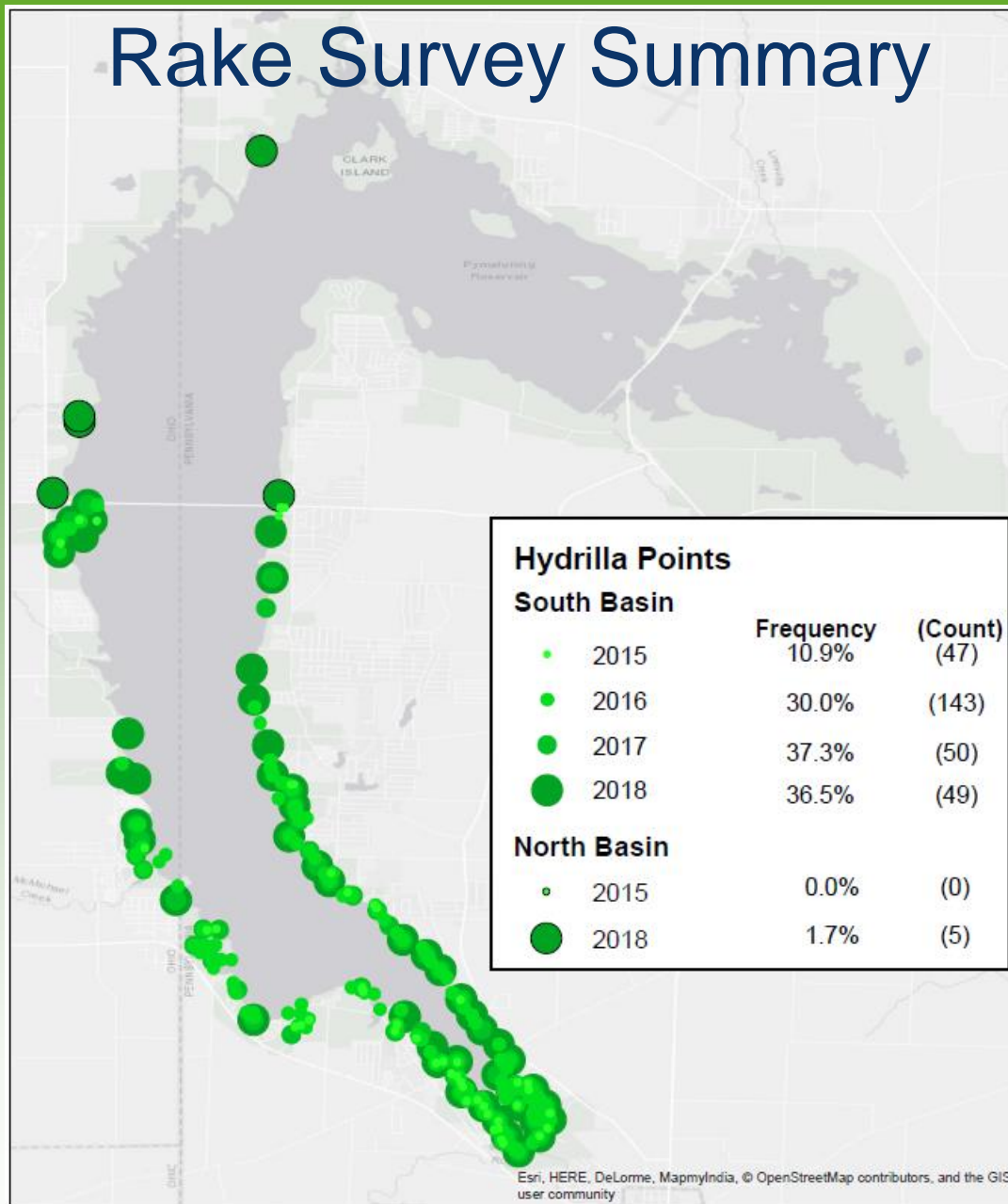
**Pymatuning Reservoir
2018 Hydrilla Detection Points
September 12, 2018**

Miles 0 0.75 1.5



Nick Decker, RMFS, 11/16/2018

Rake Survey Summary



Surveying/Monitoring –Operational Impacts

- August - Complaints of dense aquatic vegetation including hydrilla in Espyville Marina
- November – Significant outflow limitation from fragments stuck in control tower trash racks



Suppression – 2018 Plan

January – USFWS confirms plans do not pose and adverse risk to T&E mussels in the Shenango River

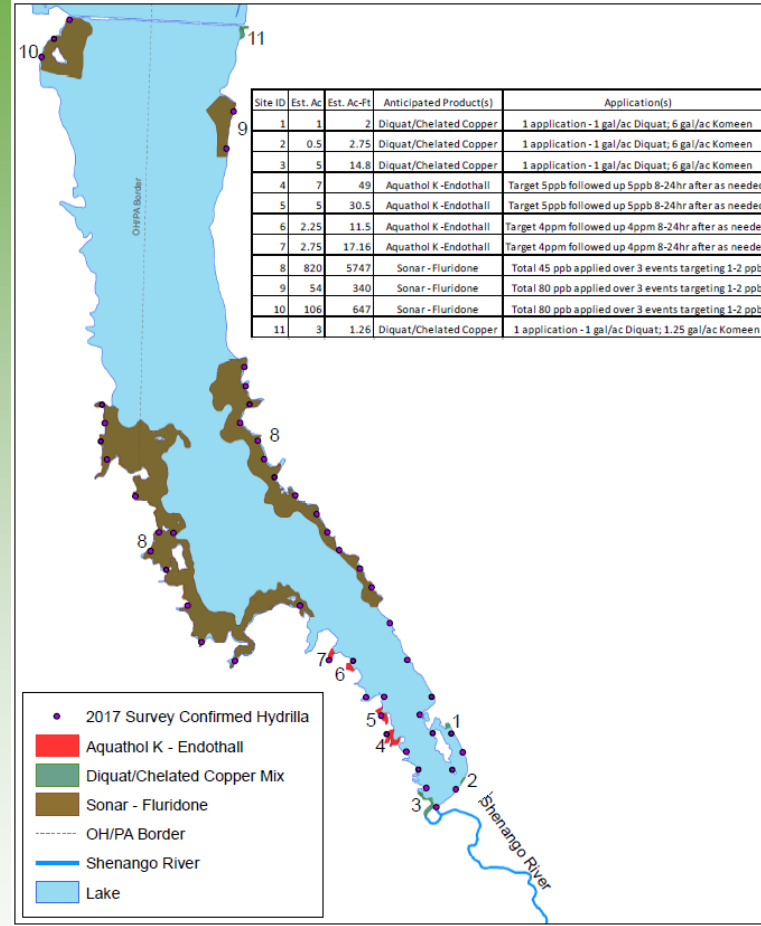


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**Pymatuning Reservoir
2017 Hydrilla Survey Points
September 12, 2017**

Miles 0 0.75 1.5

Nick Decker, RMFS, 11/7/2018



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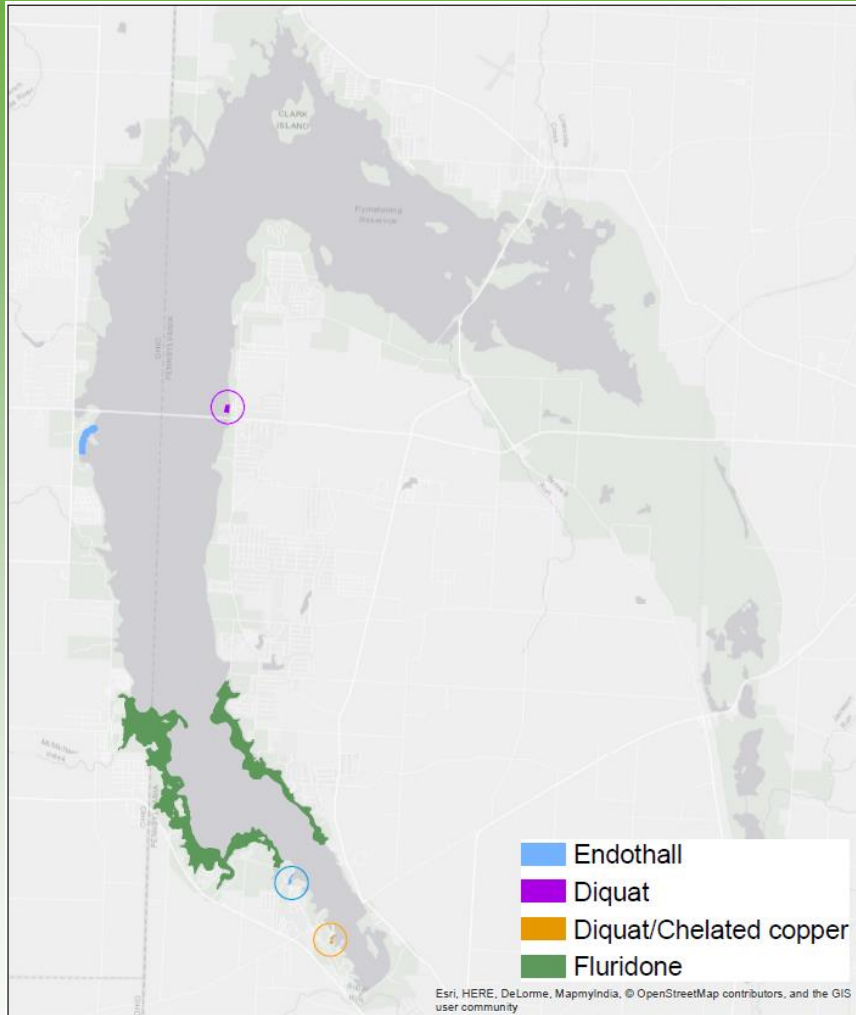
**Pymatuning 2018
Hydrilla Suppression
Herbicide Application Plan**

Miles 0 0.25 0.5 1

Nick Decker, RMFS, 01/10/2018

- 1000 acre target area
- Limit risk of spread north of causeway
- Maximize funding use
- Address recreational access areas

Suppression – Implementation



Dates	Product	Total application	Area (ac)
6/12-6/15	Sonar One	6440 lbs	764
7/16-7/18	Sonar H4C	5920 lbs	764
8/13-8/16	Sonar H4C	5880 lbs	764
7/11	Aquathol K	190 gal	23
7/23-7/24	Aquathol K	30 / 20 gal	3
8/9/2018	Diquat	4 gal	4.1
8/27/18	Diquat Cutrine Ultra	1.4 gal 11.5 gal	1.4




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**Pymatuning Reservoir 2018
 Herbicide Application Areas**

Miles
 0 0.75 1.5 W E
 Nick Decker, RMFS, 11/7/2018

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Suppression – Implementation



Suppression – Results

SOUTH BASIN

Inside Suppression Area			
	Count		
Rake Toss	Hydrilla 17	18	Δ
1 - Sparse	10	9	-1
2- Moderate	19	5	-14
3- Dense	0	1	1
T. Count	29	15	-14
Value Sum	48	22	-26

Outside Suppression Area			
	Count		
Rake Toss	Hydrilla 17	18	Δ
1 - Sparse	7	9	2
2- Moderate	14	19	5
3- Dense	0	6	6
T. Count	21	34	13
Value Sum	35	65	30

Suppression - Nontarget

Inside treatment area

Rake Toss	No Plant '17	18	Δ	Coontail '17	18	Δ	Elodea '17	18	Δ	E. Milfoil '17	18	Δ	S. Naiad '17	18	Δ	B. Naiad '17	18	Δ	Waterlily '17	18	Δ	Eel Grass '17	18	Δ
1 - Sparse				1	5	4	1	0	-1	10	11	1	6	10	4	1	4	3	0	2	2	1	0	-1
2- Moderate				4	4	0	0	1	1	5	11	6	4	4	0	2	2	0	0	0	0	0	0	0
3- Dense				1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T. Frequency	22	20	-2	6	10	4	1	1	0	15	22	7	10	14	4	0	0	2	2	1	0	-1		
Value Sum				12	16	4	1	3	2	20	33	13	14	18	4	5	8	3	0	2	2	1	0	-1

Outside treatment area

Rake Toss	No Plant '17	18	Δ	Coontail '17	18	Δ	Elodea '17	18	Δ	E. Milfoil '17	18	Δ	S. Naiad '17	18	Δ	B. Naiad '17	18	Δ	Waterlily '17	18	Δ	Eel Grass '17	18	Δ	Sm. Pondweed '17	18	Δ	Duckweed '17	18	Δ	
1 - Sparse				4	0	-4	2	3	1	12	11	-1	6	17	11	1	6	5	0	2	2	0	1	1	0	0	0	0	0	1	1
2- Moderate				5	14	9	1	2	1	5	28	23	12	20	8	4	12	8	0	2	2	0	1	1	2	0	-2	0	0	0	
3- Dense				1	0	-1	0	0	0	0	3	3	0	4	4	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
T. Frequency	41	16	-25	10	14	4	3	5	2	17	42	25	18	41	23	5	20	15	0	4	4	0	2	2	2	0	-2	0	1	1	
Value Sum				14	28	14	4	7	3	22	76	54	30	69	39	9	36	27	0	6	6	0	3	3	4	0	-4	0	1	1	

Budget - Sources

- DCNR
- Growing Greener
 - PALMS mini-grant
 - 2016 Crawford County Conservation District
- ODNR

Budget - Expenditures

- **\$466,366.48**
 - Material: \$432,000.00 on herbicide product
 - FasTests & Dye: \$17000.00
 - Equipment: \$4400.00 Vortex TR Aquatic Spreader
 - Depreciation and operating costs: Boat
 - Labor: \$12,966.48 for survey and suppression
- \$83 million a year in area visitor spending

Budget - Balances

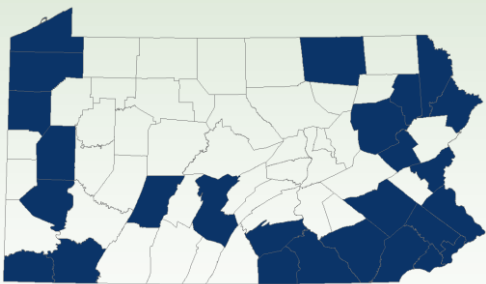
- 2017 DCNR (Depleted)
- Growing Greener
 - PALMS mini-grant (Depleted)
 - 2016 Crawford County Conservation District Award (Depleted)
- GLRI (Pending)
- Existing inventory
 - 1.8 gallons Rhodamine wt
 - 172 gallons of Aquathol-K

Project Goals

- Limit the extent and prevalence of hydrilla in Pymatuning to undetectable levels of negative ecological and recreational impact, **especially with the intention of preventing its entrance to the portion of Pymatuning Reservoir North of the OH 85/PA 285 causeway.**
- Limit the probability of the hydrilla population at Pymatuning from being a source for introduction to other waterbodies, especially the Great Lakes.

Statewide Context

- 13 PA State Park Waterbodies
- 26 PA Counties
- Class A noxious weed under 3 Pa.C.S. § 1519 which means that preventing new infestations and eradicating infestations of this species is a high priority



Source: iMap Invasives

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Next Steps for Pymatuning

- 2019 Planning
 - Budget Finalization
 - PNDI Renewal
 - Suppression Strategy Development



Thank You!



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