



Starry Stonewort in Silver Lake

Washington County, WI

BRAD STECKART – AIS COORDINATOR FOR
WASHINGTON AND WAUKESHA COUNTIES

Photo: Brad Steckart

Brad Steckart

- AIS coordinator for Washington and Waukesha Counties
- Graduated from UWSP in 2013 with BS in biology and a minor in conservation biology
- Interested in reptiles/amphibians/insects/arthropods
- Got an internship at Golden Sands RC&D as an Environmental Education Coordinator
- Lead to this job for the past two years



What is starry stonewort?

- ▶ Starry stonewort (*Nitellopsis obtusa*) is a member of the Characeae family
- ▶ Characeae are green algal macrophytes that can range in size from centimeters to meters
- ▶ Chara and Nitella species are found around the world



Slide courtesy of WDNR

Where did it come from?

Starry Stonewort Distribution



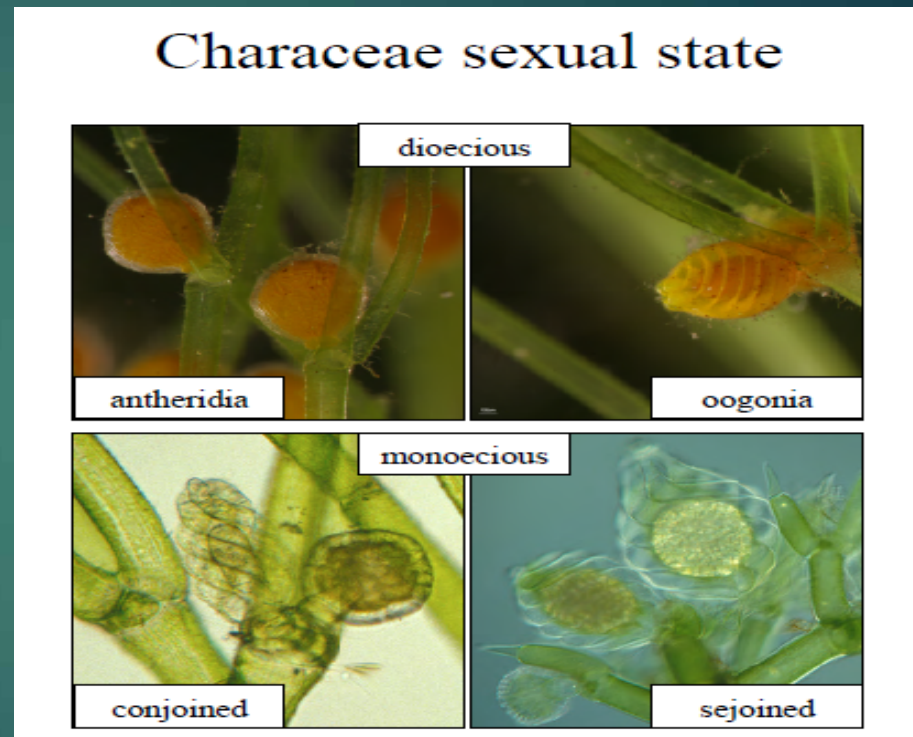
Where is it within the US?

Characeae distribution – *Nitellopsis*



- ▶ St Lawrence River – 1978 – thought to be from ballast
- ▶ St Clair River – 1983
- ▶ Michigan inland lakes in 2006 – unclear whether it took SSW a long time to move inland or whether it wasn't recognized until after it had been there for some time

Reproductive and Dispersal Capacity



- Capable of sexual and asexual reproduction
- North American clones are all male – no zygotes produced
- Asexual reproduction occurs by bulbil or plant fragments

How might starry stonewort affect a lake?

- ▶ May outcompete native aquatic plants
- ▶ Thick "meadows" may prevent fish from spawning
- ▶ Can become a navigational nuisance in shallow waters (< 6 feet)
- ▶ Meadows may increase water clarity by minimizing sediment re-suspension



Photo: Paul Skawinsky

Slide: Courtesy WDNR

Found in Wisconsin in September 2014

The screenshot shows the Milwaukee Journal Sentinel website interface. At the top, there are navigation links for 'Subscribe', 'Subscriber Login', and 'Today's Paper'. A search bar is also present. Below the navigation is a large banner for a 'USA MADE SALE' by Biltrite, advertising an 11% off discount on select items, with a '3 YEARS' warranty. The main content area features a 'News' section with a headline: 'Invasive algae found for the first time in a Wisconsin lake'. Below the headline is a photograph of starry stonewort algae, which are long, thin, and greenish-yellow. To the right of the main article is a 'NewsWatch' sidebar with several short news items, including 'WIAA Division 3 State Baseball: Lake Country Lutheran wins off with 8th', 'Wisconsin's unemployment rate rose to 4.6% in May', and 'Regulator orders Baird to pay \$47.8 million after arbitration hearing'. At the bottom of the page, there is a 'Book Now' button for the Harley-Davidson Museum.

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Invasive algae found for the first time in a Wisconsin lake



Starry stonewort, an invasive algae, was found for the first time in Wisconsin, in Little Muskego Lake in Waukesha County. The algae has caused problems for boaters and fishermen in lakes in Michigan.

By Lee Bergquist of The Journal Sentinel

Nov. 20, 2014

NewsWatch

- WIAA Division 3 State Baseball: Lake Country Lutheran wins off with 8th | 5:07 p.m.
- Wisconsin's unemployment rate rose to 4.6% in May | 2:38 p.m.
- Regulator orders Baird to pay \$47.8 million after arbitration hearing | Updated 2:18 p.m.
- Ford play not suspected in death of woman | 1:11 p.m.
- DebtFact: Factchecking the Wisconsin state budget | 1:27 p.m.
- Harley stock climbs after buyback plans announced | 1:27 p.m.
- Pond du Lac restaurant apologizes to local firefighters | 1:08 p.m.
- Commerce Council meets with National 401(a)...

WOLFE HARLEY-DAVIDSON STEEL MUSEUM

Book Now

Slide: Courtesy WDNR

Presentation Outline

- ▶ Focus on 2 lakes infested in Washington County and treatment methods
 - ▶ Pike Lake
 - ▶ *Nitellopsis* Discovery
 - ▶ Meetings with PRD
 - ▶ CBCW Grant
 - ▶ Outreach
 - ▶ Silver Lake
 - ▶ *Nitellopsis* Discovery
 - ▶ Rapid Response
 - ▶ DASH Removal
 - ▶ Outreach

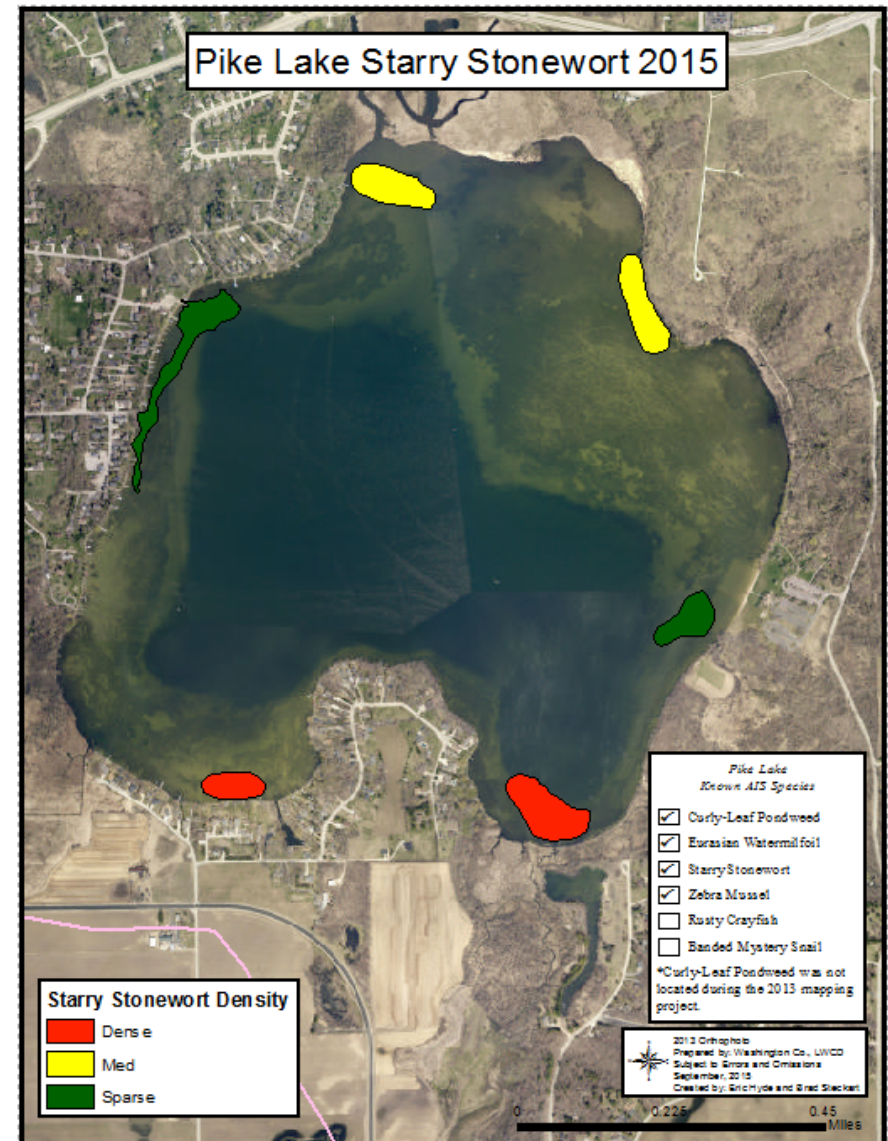


Pike Lake, Washington County



Starry Stonewort in Pike Lake 2015

- ▶ Discovered during routine meander survey at boat launch
- ▶ Population was large but not very dense... Patch here, patch there
- ▶ Conducted *Nitellopsis* meander survey around entire lake
- ▶ Present all around the lake



What next?

- ▶ Met with DNR, Pike Lake Association, and County
 - ▶ Manual removal not an option – population too large
 - ▶ DASH would take too long/be too expensive
 - ▶ Manual removal would take even longer
 - ▶ Harvester would break up algae and bulbils would spread
 - ▶ Chemicals have made the problem worse in other lakes

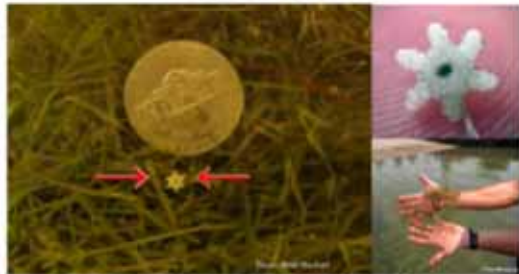


Warning Signs at Launches

ATTENTION BOATERS, ANGLERS, AND ICE-ANGLERS:

**THIS LAKE CONTAINS AN INVASIVE SPECIES
CALLED STARRY STONEWORT.**

**WASH OFF ANCHORS, BOATS,
TRAILERS, AND ICE FISHING
EQUIPMENT BEFORE LEAVING
LAUNCH**

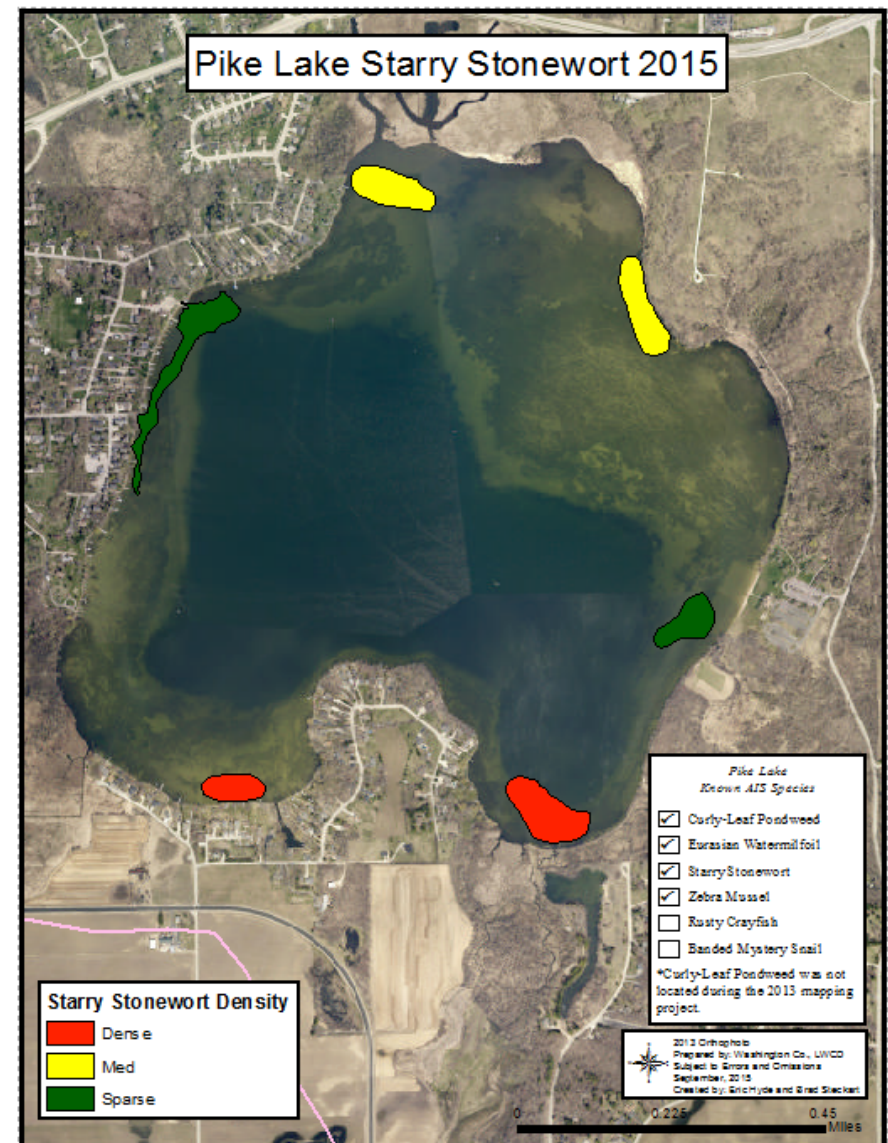


**WATCH OUT FOR TINY STAR-SHAPED "BULBILS" THAT
CAN EASILY BE LOOKED OVER WHEN CLEANING
EQUIPMENT. THEY CAN SPREAD IN NEW WATERS.**



CBCW for 2016

- ▶ Starry stonewort present in undisturbed areas around perimeter of lake
- ▶ Most dense population in SE bay
- ▶ Clean Boats, Clean Waters grant awarded for 2016
- ▶ Monitor population, keep updated maps
- ▶ PI Survey 2016



Silver Lake – Washington County, WI



Silver Lake – Washington County, WI

- ▶ 122 acres
- ▶ Drainage Lake
- ▶ Depth: 47 feet
- ▶ Substrate: sand/muck



July 2015: Starry stonewort found in Silver Lake (Washington County) by SEWRPC conducting routine PI Survey.



Verified next day by Ken Karol –
New York Botanical Gardens



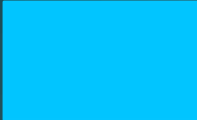
Rake/Snorkel meanders: determined population distribution



Rake/Snorkel meanders: determined population distribution



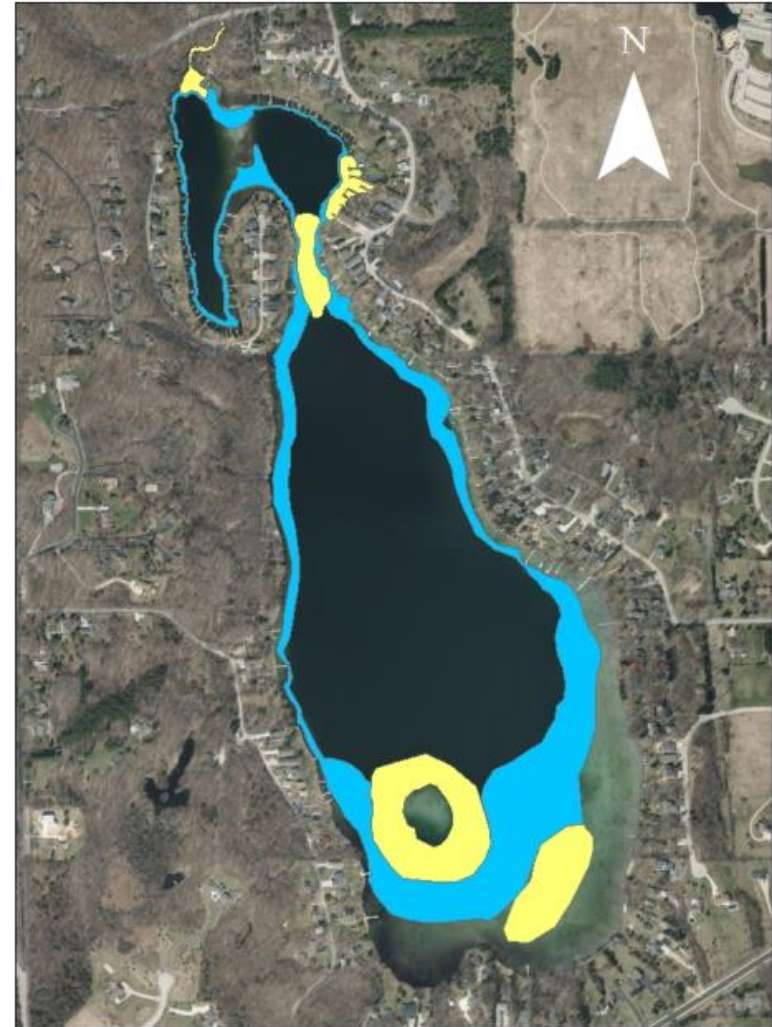
Search Area

 Visual Survey or Vertical Rake Survey




 Snorkel Meander

Visual Survey, Rake Survey, And Snorkel Meander 2015

Brad Steckart



2015 Orthophotography
Prepared by: Washington County LWCD
Subject to errors and omissions
January 2016

 visual_rake_survey 0 0.05 0.1 0.2 Miles
 snorkel_meander 

SILVER LAKE
Location of Starry Stonewort (*Nitellopsis obtusa*)
Brad Steckart



Legend
Starry Stonewort



2013 Photometry
Prepared by Washington County Land Conservation
Subject to Errors and Omissions
February, 2015

Infested area determined to be about 1 acre in NE corner of lake near public boat launch.

Hencshke Hillside Launch Closed

Invasive Species forces Silver Lake to close to motorized boats

Posted: Jul 24, 2015 10:34 PM CDT
Updated: Jul 24, 2015 10:48 PM CDT

By April Dovorany [CONNECT](#)



- ▶ Washington County temporarily closed launch to motorized watercraft until DASH contractor completed removal

Series of educational outreach sessions

- Both Washington County and DNR held info sessions open to the public about SSW
- High attendance rate allowed to get the word out about what was going on
- Allowed county and DNR to clearly explain problem and proposed solutions



Applied for Rapid Response AIRR-190-16 Grant

Grant requirements:

- DASH Harvesting
- Hand-pulling
- Clean Boats, Clean Waters efforts from Silver Lake Protection and Rehabilitation District
- Post-treatment surveys
- Report summarizing each removal event and CBCW data



Pre – DASH Treatment

DATE:	EVENT:	HOURS:	PARTNERS:
7/14/15	N. obtusa discovered	8	SEWRPC
7/15/15	N. obtusa verified	8	Wash Co, SEWRPC
7/16/15	Silver Lake visual survey/data collection SEWRPC	8	Wash Co, SEWRPC
7/21/15	Silver Lake N. obtusa specimen collection w/ SEWRPC	8	Wash Co, SEWRPC
7/23/15	Meander survey/hand pulling/mapping	8	Wash Co, DNR
7/24/15	Press release / signs up at Hencshke Hillside Launch	6	Wash Co
7/29/15	Meander survey/hand pulling	5	Wash Co, DNR
7/28/15	Meeting between SLPRD, DNR, Washington County	5	SLPRD, Wash Co, DNR
8/5/15	Hand pull/interview/ SLPRD meeting	8.5	Wash Co
8/11/15	Turned in rapid response grant	7	Wash Co, DNR
8/12/15	Survey of connected lakes - Paradise Valley and Lucas Lake	8	Wash Co
8/13/15	Met with Ecowaterway to set up DASH	3	Eco, Wash Co

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Eco Waterway was contracted for Diver Assisted Suction Harvesting (DASH)

▶ DASH Benefits:

- “Selective” harvesting allows diver to harvest nuisance vegetation, leaving beneficial species intact
 - This allows native species to outcompete residual invasive populations after project
- Does not completely destroy habitat for wildlife
- Ability to harvest reproductive structures lodged in sediment

Diver Assisted Suction Harvesting

DATE:	EVENT:	HOURS:	PARTNERS:
8/17/15	Volunteer cooked and fed DASH crew	3	SLPRD
8/18/15	DASH Harvesting begins/ SLPRD Annual Mtg	8	Eco, SLPRD, Wash Co, DNR
8/18/15	Volunteer cooked and fed DASH crew	3	SLPRD
8/19/15	DASH Harvesting	12	Eco, SLPRD, Wash Co, DNR
8/19/15	Volunteer cooked and fed DASH crew	3	SLPRD
8/20/15	DASH Harvesting	12	Eco, SLPRD, Wash Co, DNR
8/20/15	DASH Harvesting	12	Eco, SLPRD, Wash Co, DNR
8/24/15	DASH Harvesting	12	Eco, SLPRD, Wash Co, DNR
8/25/15	DASH Harvesting/CBCW presentation to SLPRD	12	Eco, SLPRD, Wash Co, DNR
8/26/15	DASH Harvesting/boat decontamination	10	Wash Co, Eco
8/27/15	Dumped N. obtusa bags in allocated fill area	4	Wash Co

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Diver-Assisted Suction Harvesting (DASH) Video

<https://www.youtube.com/watch?v=ensWuwblU-k>



Diver Assisted Suction Harvesting (DASH)



Harvested material is pumped through floating PVC to shore.



Through chopping pump. Chops material into 3" pieces.



From chopping pump to last water pump.
Pumps to geotextile de-watering bags.



3 De-watering bags (20 x 24').



Filled up fairly fast with water. Had to stop every two hours to dewater.



Excess water directed through 50' wetland buffer strip.



Monitored SSW populations throughout DASH process. Marked where we saw existing populations with buoys.



Formed strong partnerships between neighbors, DNR, County, and Silver Lake PRD.



Pressure washed boat/equipment
with bleach solution.







In order to prevent this from happening. . .



Disposed of geo-textile bags in allocated landfill away from area that could potentially drain into lake



Disposed of geo-textile bags in allocated landfill away from area that could potentially drain into lake



After one week of DASH, we estimate 90% reduction in *Nitellopsis* populations.



Amount of Starry Stonewort Removed (estimated)

DATE	EVENT	ESTIMATED AMOUNT N. OBTUSA REMOVED (ACRES)
7/23/15	Hand pulling	0.01
7/29/15	Hand pulling	0.01
8/5/15	Hand pulling	0.01
8/18/15	DASH treatment	0.02
8/19/15	DASH treatment	0.02
8/20/15	DASH treatment	0.05
8/21/15	DASH treatment	0.10
8/22/15	DASH treatment	0.12
8/23/15	DASH treatment	0.30
8/24/15	DASH treatment	0.15
8/25/15	DASH treatment	0.10
9/3/15	Hand pulling	0.00
10/7/15	Hand pulling	0.01

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Post- DASH Treatment

DATE:	EVENT:	HOURS:	PARTNERS:
8/28/15	Henschke Hillside Lake Access re-opens	1	SLPRD, DNR, Wash Co
8/29/15	SLPRD volunteer CBCW training	2	7 SLPRD, Wash Co
8/30/15	SLPRD volunteer CBCW	8	SLPRD
9/3/15	Follow-up monitoring/snorkel meander/hand pulling	3	Wash Co
9/5/15	AIS Coordinator CBCW Silver	3	Wash Co
9/5/15	SLPRD volunteer CBCW	6	SLPRD
9/6/15	SLPRD volunteer CBCW	5.15	SLPRD
9/7/15	SLPRD volunteer CBCW	7	SLPRD
9/12/15	SLPRD volunteer CBCW	2	SLPRD
9/13/15	SLPRD volunteer CBCW	2	SLPRD
9/19/15	AIS Coordinator CBCW Silver	8	Wash Co
9/23/15	AIS Coordinator CBCW Silver	4	Wash Co
9/25/15	AIS Coordinator CBCW Silver	2.5	Wash Co
9/27/15	SLPRD volunteer CBCW	1.45	SLPRD
10/7/15	Follow-up monitoring/visual meander/hand pulling	4	Wash Co
11/16/15	ROV monitoring through Friess Lake Middle School	5	5 volunteers

What Now?

- Population is believed to be 90% reduced
- Continue to monitor boat launch area closely
- Native algae outcompetes starry stonewort and suppresses bulbil growth
- Strong focus on Clean Boats, Clean Waters education



Focus on Clean Boats, Clean Waters



Outreach and Education



Keep Partnerships Strong



Continue monitoring starry stonewort and adapt to manage residual populations successfully



Thank You!
Questions?

