



**May 17, 2023 Minutes of the Meeting  
Delaware and Raritan Canal Commission**

TIME: 10:00 a.m.  
DATE: May 17, 2023  
PLACE: Prallsville Mills, Stockton, New Jersey

**ATTENDING COMMISSIONERS:**

Vice-Chairman Bruce Stout and Commissioner Phillip Lubitz attended the meeting in the Commission office. Robin Madden, designee for Commissioner of Environmental Protection Shawn LaTourette; Commissioner Douglas Palmer; Commissioner John Reiser; and Commissioner Caryl “Chris” Shoffner participated via online platform and teleconference.

STAFF: Executive Director John Hutchison, Deputy Attorney General Jordan Viana, and Ms. Colleen Maloney were present in the Commission office; Commission Engineer Joseph Ruggeri, Communications Director Darlene Yuhas, and Executive Assistant Erica Vavrence participated via online platform.

GUESTS: Lauren Rojewski, Superintendent, Delaware and Raritan Canal State Park; Vicki Chirco, Resource Interpretive Specialist, Delaware and Raritan Canal State Park; Michael Sellar, Facilities Manager, New Jersey Water Supply Authority (NJWSA); Heather Desko NJWSA Senior Watershed Protection Specialist; Emily R. Goldman; Christopher DeGrazia; Mark Cifelli; Bhuvnesh Parekh; Brian Denk; Morgan McBride; Ryan Puma; Michael Ford, Van Cleef Engineering; Robert von Zumbusch, Kingston Historical Society; Rikki Massand; Ralph Andujar; Michael Sousa; Anthony Genchi; Andrew Smith; Jim Hutzelmann.

Vice-Chairman Stout announced that this was a monthly meeting of the Delaware and Raritan Canal Commission and that the provisions of the “Senator Byron Baer Open Public Meetings Act” (OPMA) had been complied with in the scheduling of the meeting.

Vice-Chairman Stout announced that the meeting was being taped pursuant to the exception set forth at Section C.(1) of DEP Policy & Procedure 2.85 “Prohibition of Recording in the Workplace” Policy adopted on September 18, 2019.

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Since Commission members were participating in person and via telephonic device pursuant to Article III, Section 4 of the Commission Bylaws, Vice-Chairman Stout directed the Executive Director to call the roll:

Vice-Chairman Stout	Present
Commissioner Designee Madden	Present
Commissioner Reiser	Present
Commissioner Lubitz	Present
Commissioner Shoffner	Present
Commissioner Palmer	Present

Director Hutchison stated that a quorum was present.

**Administrative Items**

Confirmation of June 21, 2023, Meeting Date.

Vice-Chairman Stout stated that the next Commission meeting would be held on June 21, 2023.

Commission Resolution No. 2023-06 providing the consent of the Commission to the Water Quality Plan Amendment for the Port Mercer Canal House, Lawrence Township, Mercer County.

Director Hutchison briefed the Commission on the proposed resolution, which would provide the Commission's approval of the Water Quality Plan Amendment for the project to connect the Port Mercer Canal House to the Ewing Lawrence Sewerage Authority system. Vice-Chairman Stout asked for a motion to approve the resolution providing consent of the Commission to the amendment. Commissioner Reiser made the motion, which was seconded by Commissioner Lubitz. The Vice-Chairman asked for comment from the Commissioners and then the public. Hearing none, he asked the Director to call the roll:

Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes
Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The motion was approved.

**Minutes**

Approval of the Minutes of the April 19, 2023, Executive Session.

Vice-Chairman Stout inquired if any of the Commissioners wished to propose comments or corrections to the April 19, 2023, executive session minutes. Hearing none, he asked for a motion to approve the minutes as prepared by staff. Commissioner Lubitz made a motion to adopt the minutes as proposed, which was seconded by Commissioner Reiser.

Vice-Chairman Stout asked Director Hutchison to call the roll:

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Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes
Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The executive session minutes were approved.

Approval of the Minutes of the April 19, 2023, Commission meeting.

Vice-Chairman Stout inquired if any of the Commissioners wished to propose comments or corrections to the April 19, 2023, Commission meeting minutes. Hearing none, he asked for a motion to approve the minutes as prepared by staff. Commissioner Lubitz made a motion to adopt the minutes as proposed, which was seconded by Commissioner Shoffner.

Vice-Chairman Stout asked Director Hutchison to call the roll:

Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes
Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The minutes were approved.

**Review Zone Actions**

Zone A Projects

23-5536B      34 River Drive -- Major Modification (Hopewell Township)  
23-5997      74 South Union Street -- Retractable Pergola (Lambertville City)

Vice-Chairman requested a motion on the two Zone A projects. Commissioner Shoffner made a motion to approve the projects. The motion was seconded by Commissioner Reiser. Vice-Chairman Stout asked if members of the Commission had comment on either of the Zone A projects. Hearing none, he asked if the public had comment.

Mr. von Zumbusch stated that the proposed stone foundation of 34 River Drive was historically inaccurate. Specifically, he noted that “pancaking” of the stone veneer was not the correct approach and that a stone foundation to a 19<sup>th</sup> century building would be laid and that a stucco veneer would then be applied as a finish. Director Hutchison observed that the house had already been constructed, and that the applicant is seeking an after-the-fact approval for the modification.

Seeing that no other member of the public wished to speak, Vice-Chairman Stout directed that the Director call the roll:

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Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes
Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The motion was approved.

Zone B Projects

23-2357B	Cranbury Business Park -- Recreation Areas and Walkway (Cranbury Township)
23-2441ZZ	Princeton University -- Hobson College (Municipality of Princeton)
22-2864A	Agilex Flavors & Fragrances -- Air Pollution Control Equipment (Franklin Township)
23-3560D	487 Cherry Valley Road -- Princeton Montessori School Addition (Montgomery Township)
23-4862A	Melvin H. Kreps Middle School -- Parking Lot Improvements (East Windsor Township)
21-5711	1613 Lincoln Highway -- Proposed Self-Storage Facility (Franklin Township)
22-5833	31 Schoolhouse Road -- Proposed Warehouse (Franklin Township)
22-5941	Woolsey Park -- Band Shell Improvements (Hopewell Township)
23-5986	1500 Parkway Avenue -- Warehouse Redevelopment (Ewing Township)

Vice-Chairman Stout asked if any Commissioner wished to consider the Zone B projects separately. Hearing no such request, he asked if any Commissioner had any questions or comments regarding the Zone B projects.

Commissioner Shoffner stated that although she objected to further warehouse development based on its impact to South Bound Brook Borough, she would reluctantly vote to approve project DRCC #22-5833 31 Schoolhouse Road -- Proposed Warehouse, since it was otherwise compliant with the Commission's regulations.

Vice-Chairman Stout noted that personal views notwithstanding, the Commission must act within the authority of its regulations. He asked for a motion on the nine Zone B projects. Commissioner Palmer moved to approve the projects, which motion was seconded by Commissioner Reiser. The Vice-Chairman asked for further comment from the Commissioners and then the public.

Mr. Massand stated his opinion that the Princeton Montessori School Addition project would serve the community and address a critical need.

The Vice-Chairman called for a motion. Commissioner Lubitz moved to approve the projects, which motion was seconded by Commissioner Reiser.

Vice-Chairman Stout directed Director Hutchison to call the roll:

Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes

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Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The motion was approved.

**Executive Director’s Report**

Director Hutchison reported on the workload for the period encompassing April 19, 2023, to May 16, 2023. He noted that, in addition to the projects listed on the agenda, the staff issued 14 deficient staff reports, 5 jurisdictional determinations, 3 certificates of approval, and 3 general permits. In addition to these matters, staff organized and conducted 12 pre-application meetings related to proposed and pending projects. As of May 16, 2023, there were 28 projects awaiting staff review.

The Director stated that application fee collections for the month totaled \$19,637.50, which compared quite unfavorably to the \$85,750 collected in May 2022. He noted the Commission had collected \$464,487.62 with one month remaining in the fiscal year. He stated that the Commission, therefore, needed to collect approximately \$35,512 during the final month of the fiscal year to meet its anticipated appropriation of \$500,000.

Director Hutchison stated that although he was confident that the Commission would collect sufficient monies to meet the \$500,000 anticipated appropriation, the long-term fee situation remained unsettled, and that whether or not the Commission would meet the Fiscal Year 2024 anticipated appropriation of \$650,000 was unclear. He noted that a sharp reduction in warehouse or affordable housing project applications, which have been the primary drivers of Commission applications during the past two years, in the next fiscal year could impact Commission fee collections. He also noted that the consensus view of economists was that a national economic recession could occur in late 2023 or 2024, which could seriously diminish fee collections.

Director Hutchison noted that his conversations with engineers in private practice indicated that those firms remained busy designing projects for their clients, but that high building material costs driven by inflation may start to have a constrictive effect upon the construction activity in the Review Zone.

Director Hutchison reported that on May 9, he was interviewed by a writer for *River Towns* magazine, which is published in summer, fall, winter and spring, and covers life in the Bucks, Hunterdon, and Mercer County communities along the Delaware River. The magazine was doing a brief article on the update and revision of the Master Plan, which they learned about from reading the Commission’s 2022 Annual Report posted on the Commission website.

On May 13, Director Hutchison stated he was informed by the Park Historian that the interpretive wayside signs designed by Hunter Research, Inc. had been installed at the Lock No. 1, the Bordentown outlet lock located on the so-called “abandoned” portion of the Delaware and Raritan Canal. The signage was paid for using mitigation monies related to the widening of Lambertson Road in Hamilton Township (DRCC #2-2903H) for a warehouse development project. From the emailed photographs, the Director observed that the signs looked good, and he was pleased that they met with the approval of the

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Park Service. The Director stated that the signs will help inform park visitors about the significance of the resources that remain at the Bordentown lock and give them a sense of the structures and buildings that were no longer there.

Commissioner Lubitz asked the Director what process would be implemented if the Commission did not reach its revenue goal. Director Hutchison noted that the Commission had accumulated a surplus over the past five years that could mitigate the impact of a steep drop in application fees, or the imposition of fringe and indirect costs on the Commission budget by the Department of the Treasury. The Director noted that the physical plant of Commission office had been restored to good working order and that, with the exception of painting the conference room floor, no large-scale construction or purchases were anticipated for the upcoming fiscal year.

### **Park Superintendent's Report**

Superintendent Rojewski reported that repairs to the pedestrian bridge at the Millstone Aqueduct in Plainsboro Township, last mentioned at the April 19 Commission meeting, were ongoing, and the park maintenance staff would ensure that portions of the bridge remained open to the public during construction.

The Superintendent also noted that the wayside signs had been installed at Lock No. 1, and that Park Service staff had installed entrance signage for "Delaware and Raritan Canal Park at Point Breeze" property in Bordentown City purchased by the DEP Green Acres Program, the City of Bordentown, and the Delaware & Raritan Greenway Land Trust, and assigned to the Delaware and Raritan Canal State Park.

Superintendent Rojewski informed the Commission that construction activities such as asphalt paving, line striping, and drain repairs at the Cooley Tract parking lot in Kingwood Township would be completed by Monday, May 15. Park staff would also install a new gate to provide additional lot control and overnight security, which work was expected to be completed before the Memorial Day holiday.

The Superintendent reported that exterior siding renovations to the residence at the Rockingham Historic Site in the Kingston locality of Franklin Township, Somerset County, were proceeding, and that the work was expected to be completed by the end of July.

The Superintendent reported that preparations for the upcoming summer season in the park were ongoing, and that the Park Service was hiring seasonal employees for the Bulls Island Recreation Area. The Park Service was also in the process of onboarding and training seasonal employees who had been recently hired.

The Superintendent reported that the staircase for the Delaware River tubing concession had been installed on May 9, and that portable sanitation units had been placed in the park.

Superintendent Rojewski reported that various program elements of the DEP had completed a land management review for a project to conduct excavation and pipeline inspection activities in the Colonial Pipeline right-of-way within the Delaware and Raritan Canal State Park near Duck Island in Hamilton Township, Mercer County. Although test pits would be excavated adjacent to the park multiuse trail,

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the Superintendent did not anticipate any trail closures or operational issues for the so-called “abandoned” portion of the canal.

The Superintendent reported that the project to repair the eroded portion of the multiuse trail at the former Belvidere-Delaware railroad trestle at the Prallsville Mills complex would begin on or about Monday, May 5.

The Superintendent provided Commissioners with an update on the project to extend the Delaware and Raritan Canal State Park approximately 7.4 miles in the area of Milford Borough, Hunterdon County. She stated that a site visit was conducted by DEP Park Service and Green Acres staff on May 8. She noted that additional survey work by the current property owner was required, and that a review of potential acquisition options was being undertaken by the Green Acres Program.

The Superintendent reported that a proposed revised electric bicycle (e-bike) policy for the State Park System was being reviewed by the State Park Service and the New Jersey State Park Police, and that e-bike mitigation strategies for the summer of 2023 for the Delaware and Raritan Canal State Park multiuse trail were currently under development.

The Superintendent provided the Commission with an update on recent Delaware and Raritan Canal State Park Special Use Permits issued for the month of May.

Vice-Chairman Stout asked if the Superintendent could provide a date for the completion of the Prallsville Mill project. The Superintendent responded that she did not have a completion date as yet.

Commissioner Lubitz asked if the expanded Cooley Tract parking lot would be open to the general public. The Superintendent responded that the new parking lot would be closed to the public from May until October to allow the DEP’s Delaware River tubing concessionaire to have exclusive use of the lot.

### **New Jersey Water Supply Authority (NJWSA) Report**

Mr. Sellar reported that work was proceeding on the Landing Lane Spillway rehabilitation project (DRCC #19-3300B) located in the City of New Brunswick. He noted that a date to arrange a review of the mock-up of the stonework of the depressed spillway area on the park multiuse trail by the Commission and the State Historic Preservation Office will be proposed in the next two weeks.

Mr. Sellar informed the Commission that the project to rehabilitate the stone culvert, which conveys Six Mile Run underneath Canal Road, the Delaware and Raritan Canal and the park multiuse trail, in Franklin Township, Somerset County (DRCC #22-3306C), would commence in the summer. He noted that the project would require the closure of Canal Road, which would be a matter of interest to the residents of Franklin Township.

Mr. Sellar informed the Commission that Phase 1 of the project (DRCC #22-3255D) to repair an approximate 1.0-mile section of the western embankment of the Delaware and Raritan Feeder Canal, which separates the canal from the Delaware River and is generally located between the Prallsville Lock and the railroad bridge crossing over the canal at Brookville in Stockton Borough, was put out for public

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bid by NJWSA, and those bids were due on May 17. He reminded the Commission that Phase 1 of the project entailed the removal of the temporary emergency repairs implemented in 2011 and would include the removal of the plastic tarps, removal of trees and leveling of the multiuse trail. Phase 2 of the project would entail stability improvements to the embankment, but the immediate goal was to reopen the multiuse trail for recreational use.

Mr. Sellar stated that Heather Desko, NJWSA Senior Watershed Protection Specialist, would brief the Commission on Hydrilla and other subaquatic vegetation control issues.

**Old Business**

None.

**New Business**

**2023 New Jersey Water Supply Authority Hydrilla/Chinese Pond Mussel Briefing**

Heather Desko, NJWSA Senior Watershed Protection Specialist, made a presentation on the status of the NJWSA's Hydrilla program and a presentation on the Chinese Pond Mussel control program.

**Proposed Approval of a First Amendment to a Sunoco Lease Agreement**

Director Hutchison stated that a first amendment is proposed to a lease agreement approved by the Commission on September 28, 2022, between the New Jersey Water Supply Authority, the Department of Environmental Protection, and the Commission, for the installation, removal, maintenance, repair and operation of petroleum pipeline facilities under and adjacent to the Delaware and Raritan Canal State Park in Mercer, Middlesex and Somerset counties. The amendment corrects the payment schedule.

Vice-Chairman Stout asked for a motion to approve the first amendment to the lease agreement. Commissioner Lubitz motioned to approve the amendment to the lease agreement, which was seconded by Commissioner Reiser. The Vice-Chairman asked for comment from the Commissioners and then the public. Hearing none, he asked Director Hutchison to call the roll:

Vice-Chairman Stout	Yes
Commissioner Designee Madden	Yes
Commissioner Reiser	Yes
Commissioner Lubitz	Yes
Commissioner Shoffner	Yes
Commissioner Palmer	Yes

The motion was approved.

**Public Comment**

None.

**Written Public Comments**

None.



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**Adjournment**

There being no other business, Vice-Chairman Stout entertained a motion to adjourn. Commissioner Lubitz made a motion to adjourn the meeting, which was seconded by Commissioner Reiser. Vice-Chairman Stout called for a vote on the motion to adjourn, which was unanimously approved by voice vote.

The meeting adjourned at 11:07 a.m.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John Hutchison", written in a cursive style.

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John Hutchison, Secretary

# A Successful Hydrilla Control Story in the Delaware & Raritan Canal

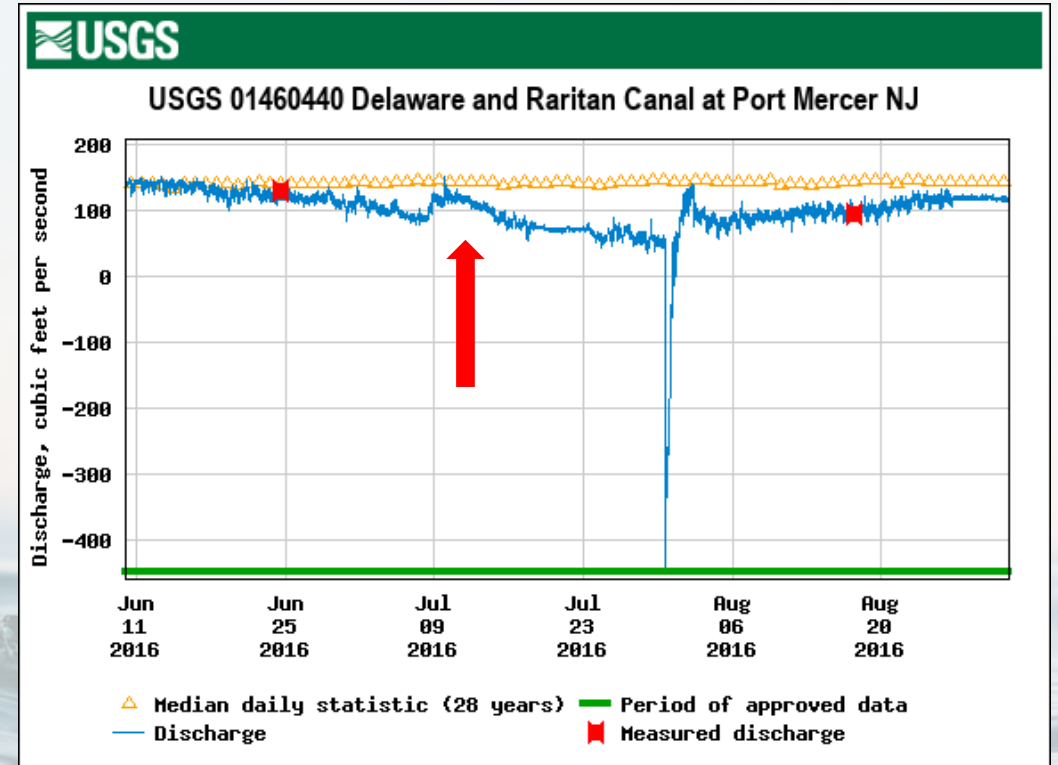
**Heather Desko**

Senior Watershed Protection Specialist  
New Jersey Water Supply Authority



# 2016 Management

- Water flow restriction due to excessive plant growth
- Canal water level below intake
- Hydro-raking: July-August



# *Hydrilla verticillata* (monoecious)

- Native to Korea & Japan
- Means of introduction: aquarium plant
- Recent invader to Mid-Atlantic (1980s)
- Can reach lengths of up to 25 feet
- Can grow up to 1 foot per day!
  - Glomski & Netherland 2012: up to **191** inches/day
- Reproduces by fragmentation, tubers, & turions
  - Tubers can remain viable 6+ years



# Hydrilla – “the perfect weed”

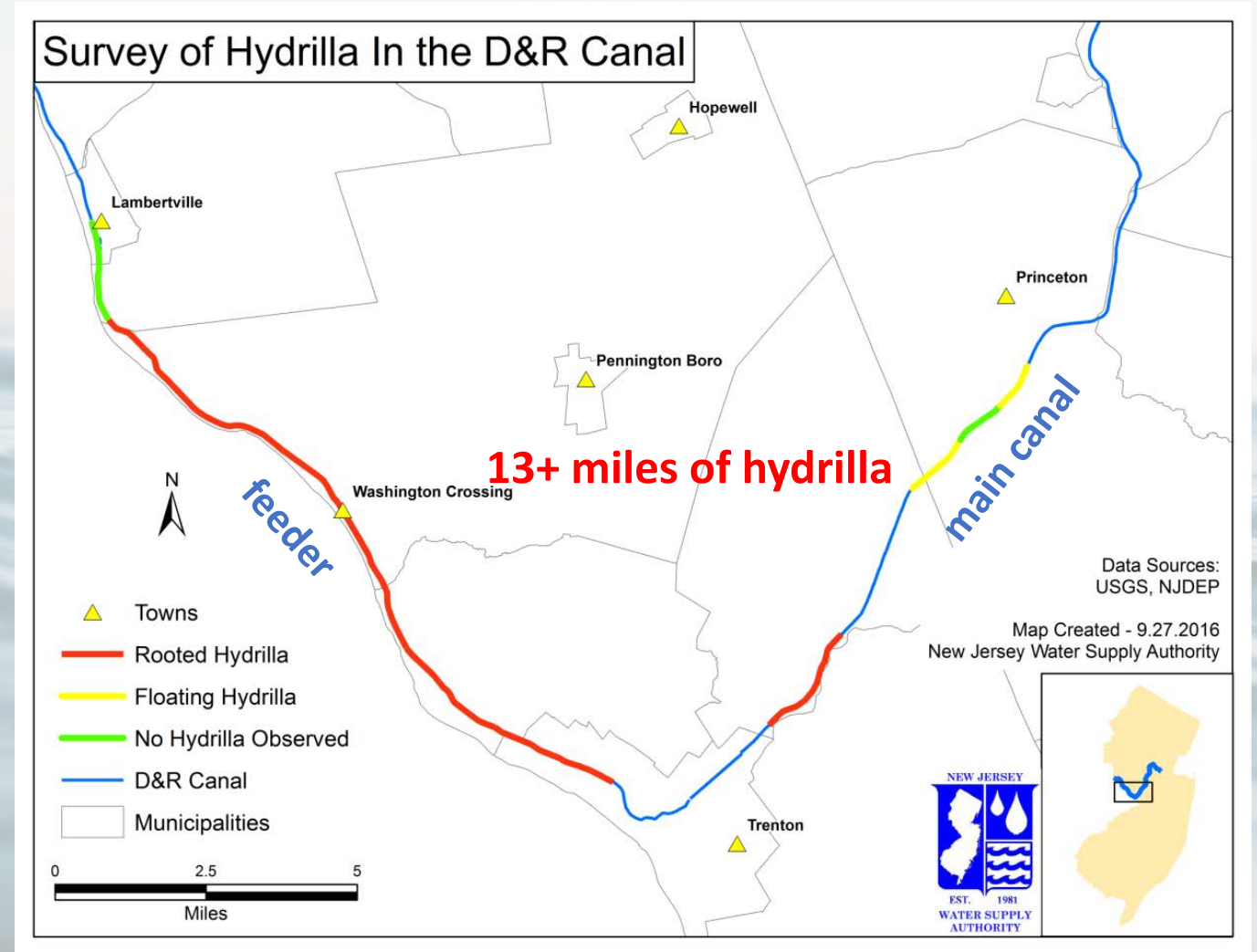
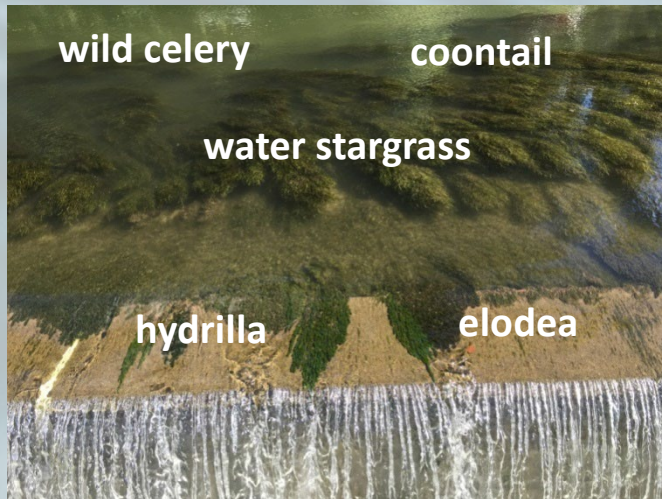
- Adapts to variety of conditions
  - Water depths – inches to 20+ ft
  - Lakes/ponds & rivers
  - Salinity 0-9ppt (possibly up to 13ppt)
  - Turbidity/water clarity
  - Low light tolerance
    - Even up to 10 weeks in total darkness!  
(Haug et. al. 2019)
- Impacts:
  - Native SAV & other biota
  - Water chemistry
  - Water flow
  - Recreation



D&R Canal at Scudders Falls September 2016

# 2016 SAV survey

18.31 miles – 597 sites



# Hydrilla Management

## Methods of control:

- **Mechanical:** cutting, harvesting, dredging
- **Physical:** benthic mats, hand-pulling, drawdowns
- **Biological:** Grass carp, insects, pathogens
- **Chemical:** selective vs. broad spectrum, systemic vs. contact

26 options evaluated in the  
2017 Canal SAV Management Plan  
Available at [www.njwsa.org/hydrilla](http://www.njwsa.org/hydrilla)



Photo: CT Agricultural Experiment Station



# 2017: Management Prep & Herbicide Application



May 22, 2017

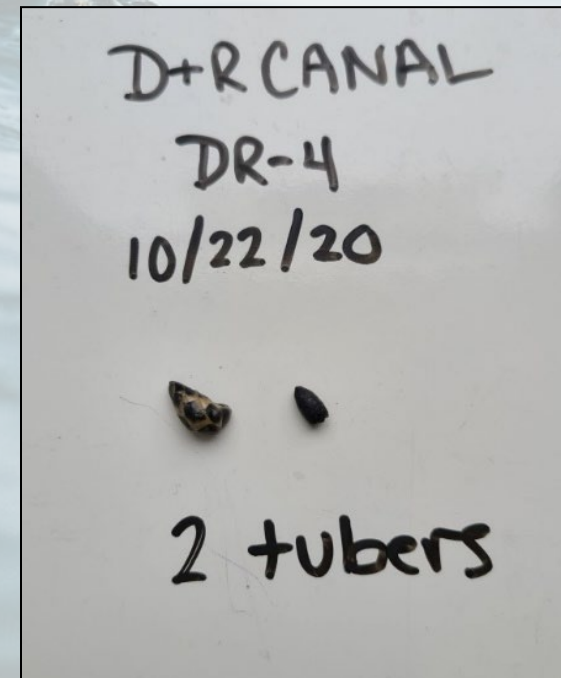


# D&R Canal Management In Review

- Herbicide (Sonar Genesis – ai fluridone) application:
  - Late May-late September (60-120 days)
  - Target dose rate: 2-3 ppb
- Treated 2017-2022
- Herbicide application will occur 2 years beyond the last hydrilla plant/tuber finding
- Shift towards monitoring vs. treatment



Hydrilla fragment found  
in June 2020



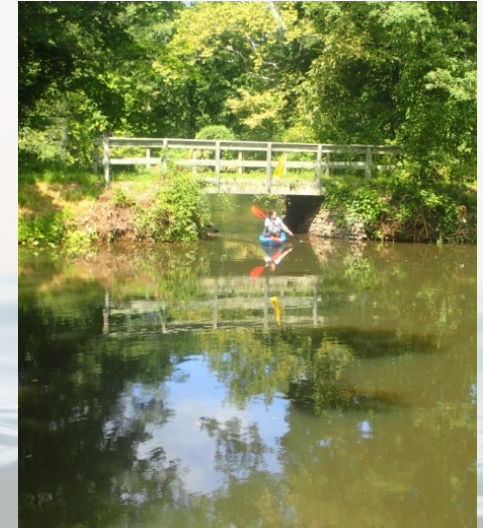
# Monitoring Efforts

- Weekly fluridone concentration monitoring
  - Sampling: every other day for first 2 weeks, then weekly
  - 9 surface water sites, 3-4 finished water treatment plants
  - Labs/methodologies
    - SePRO FasTest (HPLC)
    - EPA approved methods (GC/MS): 525.2 vs. 525.3
    - NJDOH: Fluridone assay (GC/MS): not a State or Nationally certified water testing method
- Treatment Area SAV Survey (18 miles)
- Tuber survey (5 sites)
- Other SAV monitoring

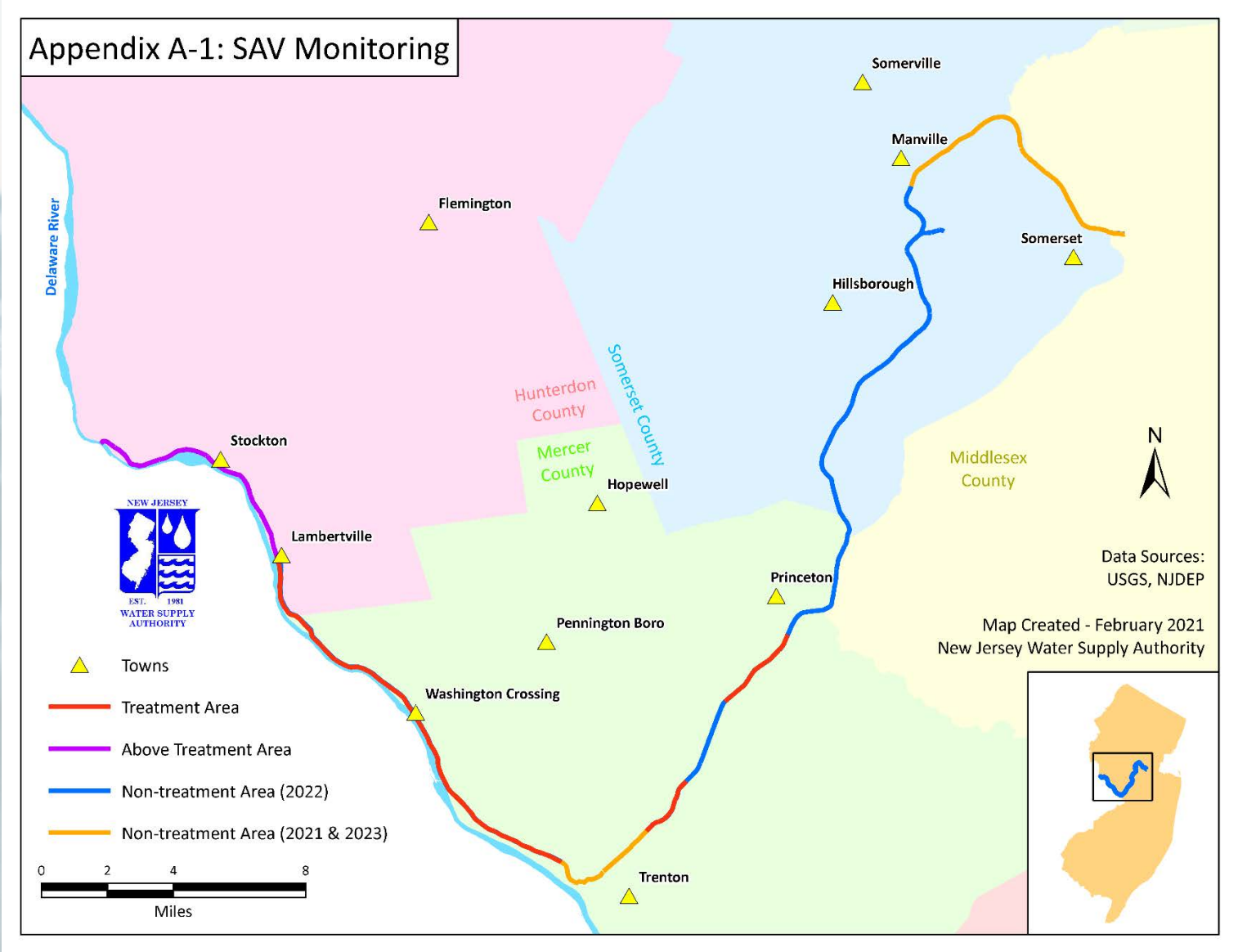


# Additional Monitoring Efforts

- **2017:** 60-mile Canal SAV Survey
- **2018:** Fanwort Survey
- **2018:** Turnbasin sampling
- **2018-present:** Above treatment area SAV survey
- **2019:** Water quality w/ monthly surveys
  - Temp, pH, SC, DO, phyco, chlorophyll, turbidity
- **2020-2023:** Alternating sections of non-treatment area SAV surveys

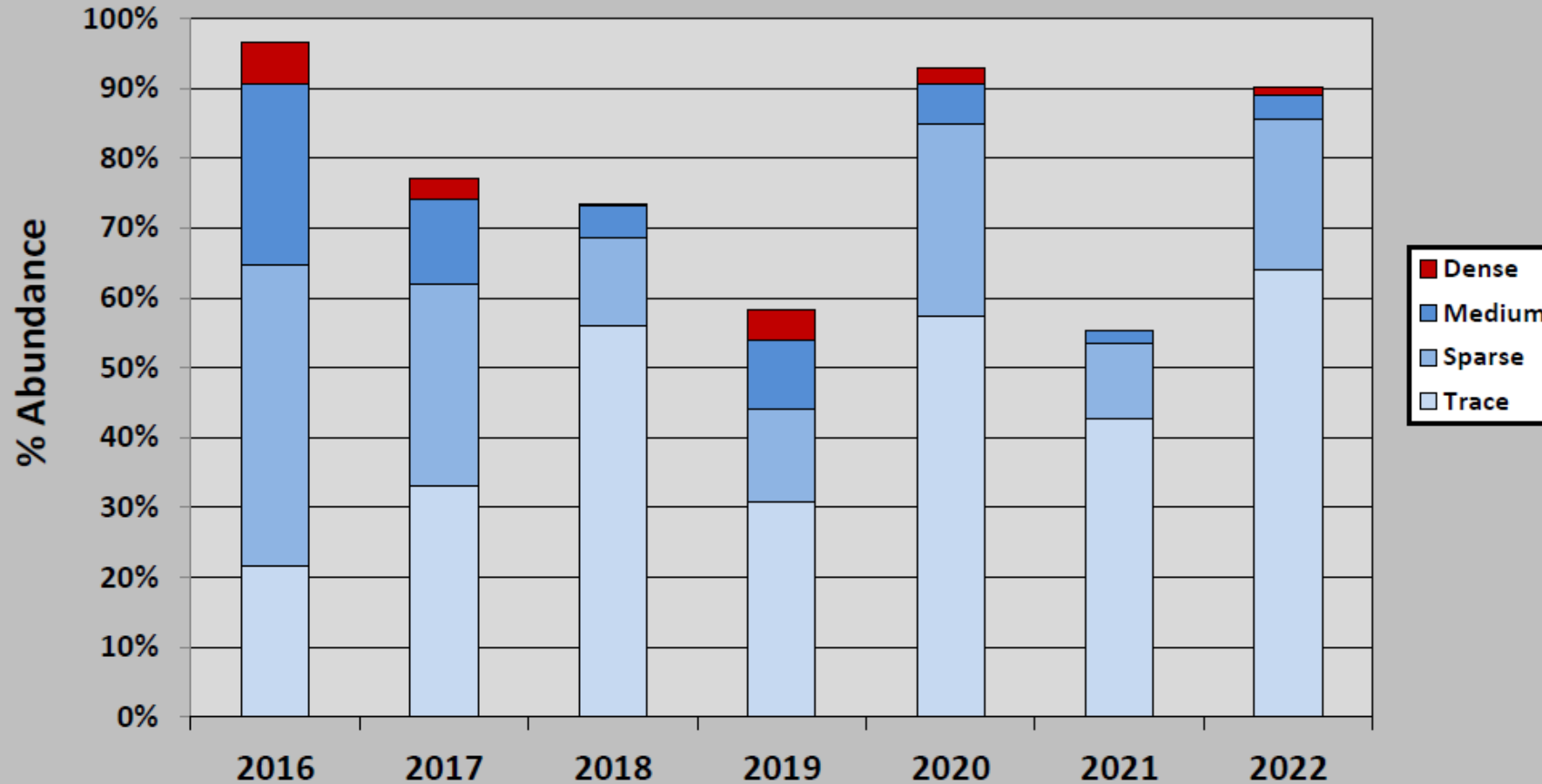


# Vegetation monitoring

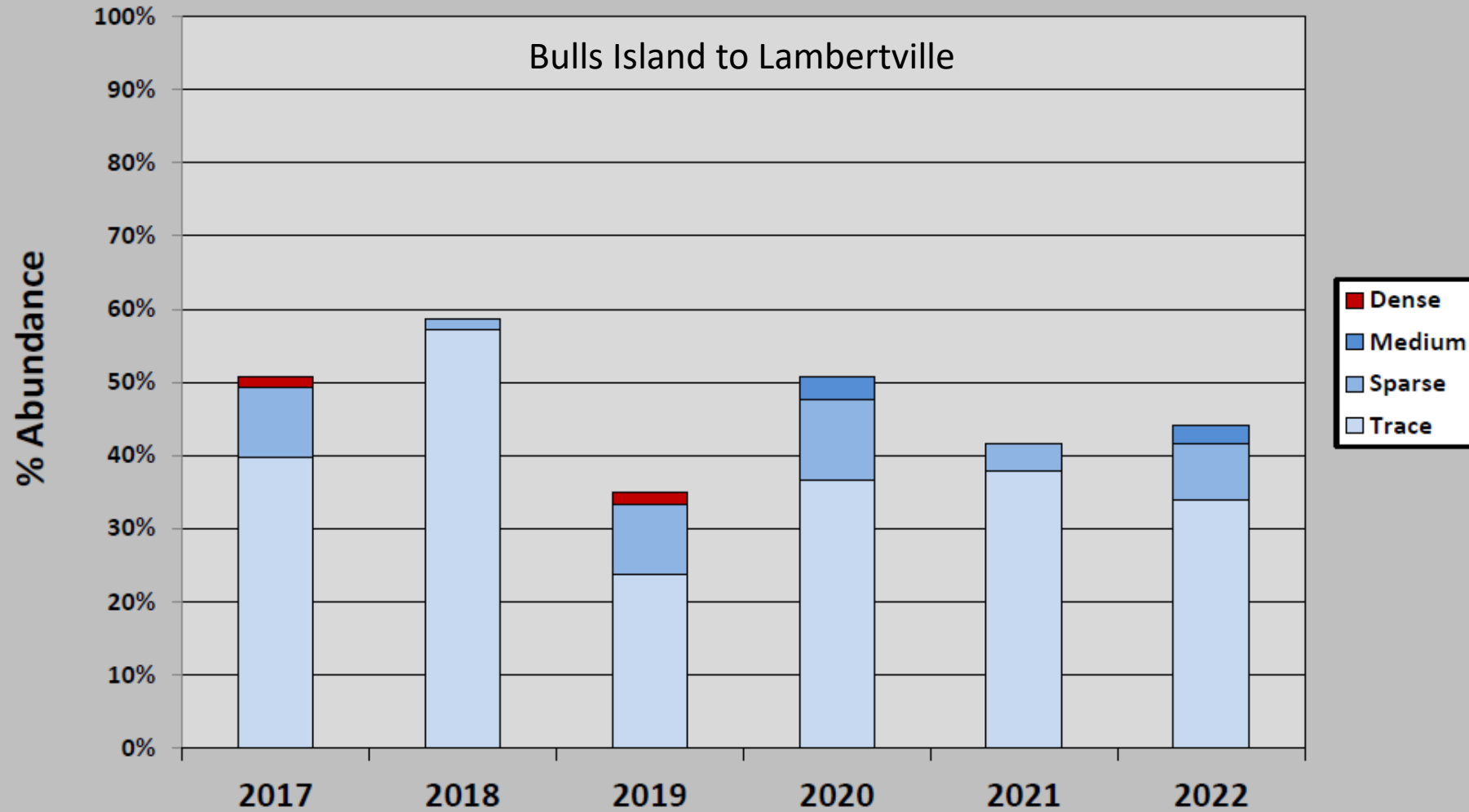


## Overall Aquatic Macrophyte Abundance Delaware and Raritan Canal Treatment Area 2016 to 2022

Lambertville to Alexander Road, Princeton



## Overall Submersed Aquatic Plant Abundance 2017 - 2022 D&R Canal Above Treatment Area

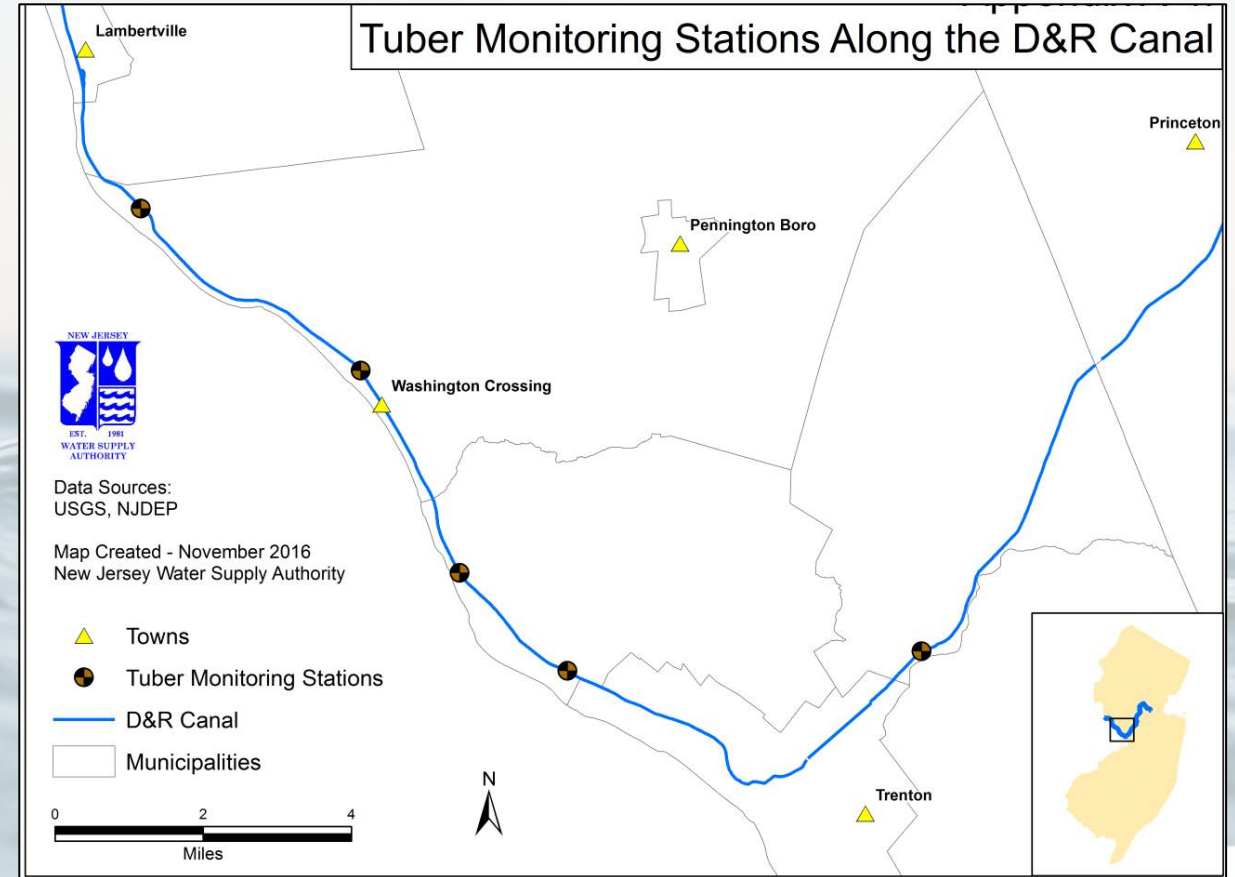
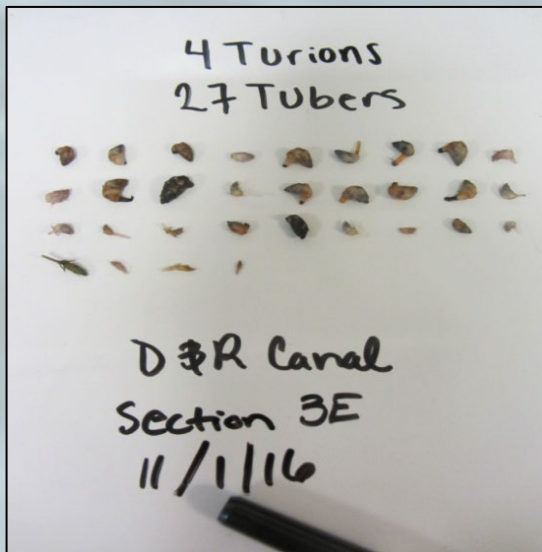


# Vegetation monitoring

Common Name	Scientific Name	2016 # of Sites	2017 # of Sites	2018 # of Sites	2019 # of Sites	2020 # of Sites	2021 # of Sites	2022 # of Sites	% Change 2016 vs. 2022
<b>Overall SAV</b>		<b>576</b>	<b>458</b>	<b>438</b>	<b>348</b>	<b>554</b>	<b>331</b>	<b>538</b>	<b>-7%</b>
Small Duckweed	<i>Lemna minor</i>	536	301	230	134	330	233	368	-31%
Common Watermeal	<i>Wolffia sp.</i>	0	275	0	14	0	0	0	0%
Coontail	<i>Ceratophyllum demersum</i>	507	155	12	0	0	0	0	-100%
Water Stargrass	<i>Zosterella dubia</i>	399	172	28	2	1	2	0	-100%
<b>Hydrilla</b>	<b><i>Hydrilla verticillata</i></b>	<b>337</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-100%</b>
Wild Celery	<i>Vallisneria americana</i>	313	236	55	16	0	7	7	-98%
Common Waterweed	<i>Elodea canadensis</i>	196	42	9	0	0	0	0	-100%
<b>Benthic Filamentous Algae</b>		<b>189</b>	<b>260</b>	<b>337</b>	<b>260</b>	<b>430</b>	<b>163</b>	<b>416</b>	<b>120%</b>
<b>Brittle Naiad</b>	<b><i>Najas minor</i></b>	<b>143</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>-100%</b>
<b>Eurasian Water Milfoil</b>	<b><i>Myriophyllum spicatum</i></b>	<b>60</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-100%</b>

# Hydrilla Tuber Monitoring

- Conducted in late October
- Purpose: to monitor tuber bank depletion for treatment efficacy
- 5 stations that have been monitored annually since 2016
- Increased to 50 cores per site





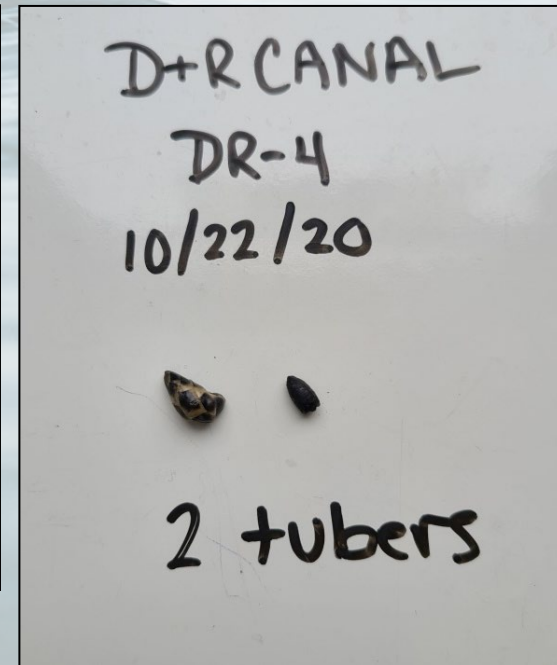
# Hydrilla tuber monitoring – 2016-2021

Station	2016 (tubers/ m <sup>2</sup> )	2017 (tubers/ m <sup>2</sup> )	2018 (tubers/ m <sup>2</sup> )	2019 (tubers/ m <sup>2</sup> )	2020 (tubers/ m <sup>2</sup> )	2021 (tubers/ m <sup>2</sup> )	% Change (2016-2021)
DR-1	462.8	26.5	11.2	1.3	0	0	-100%
DR-2	85.6	15.2	2.2	0	0	0	-100%
DR-3	288.9	7.6	2.2	0	0	0	-100%
DR-4	320.4	0	0	0	2.14	0	-100%
DR-5	10.7	0	0	0	0	0	-100%

**No tubers  
found in  
2021 or 2022**



2021: 50 cores at each site



# 2023 Plan

- Continue intensive vegetation monitoring throughout Canal
  - Monthly visual surveys
  - Intensive point survey in September (2/3 of Canal)
  - Tuber surveys (late Oct)
- Set up equipment for treatment, but only turn on if hydrilla is found
- Communications with water users (purveyors, golf courses, partners)



Delaware River @  
Washington Crossing



Contact:  
Heather Desko  
[hdesko@njwsa.org](mailto:hdesko@njwsa.org)



# Chinese Pond Mussel

**Heather Desko**

**Senior Watershed Protection Specialist  
New Jersey Water Supply Authority**



# Chinese Pond Mussel (*Sinanodonta woodiana*)

- Native to: Eastern Asia
- Means of Introduction: arrived as larvae (glochidia) attached to the gills of imported invasive carp
- Hunterdon Cty, NJ: only known population in all of N. America
- Can parasitize native fish hosts and significantly outcompete native mussels and alter stream substrates



# Timeline

- **2009:** First documented in former aquaculture pond at the headwaters of the Wickecheoke Creek in Franklin Township – property owned by NJ Conservation Foundation
  - Bighead carp confirmed in pond – only population in the east, initial cause for concern



# Timeline (cont.)

- **2010:**

- Ponds pumped down and Rotenone treatment: piscicide

- **2015:**

- 12-mile survey in Wickecheoke Creek: shells but no live specimens
- Ponds treated with single treatment of Earthtec (copper-based algaecide) unsuccessfully (live CPM found)

- **2019:**

- Earthtec QZ: 5 treatments, presumed eradicated
  - unsuccessful in maintaining target copper concentrations



# eDNA (environmental DNA)

- Organismal DNA found in the environment (e.g., water sample)
- Can detect presence of a species, relative abundance
- Relatively new and rapidly developing technique
- Can create species-specific assays
- Questions – how long does eDNA persist, even after an organism is dead? how far can it travel in water?



# eDNA surveys

- **2020:** Surveys at aquaculture ponds post-treatment
  - Confirmed in deepest pond
  - Detection from sample collected in Raritan River at Island Farm Weir (confluence of Raritan & Millstone Rivers)
- **2021:** Detections persist at aquaculture ponds
- **2022:** More intensive eDNA sampling downstream: Ponds, Wickecheoke Creek, D&R Canal, Island Farm Weir





2022 eDNA sampling

# 2023 Plan

- Physical (rake & snorkel) surveys along Wickecheoke Creek & Raritan (IFW)
  - DNA analyses of live individuals found
- eDNA surveys along Wickecheoke Creek, Raritan, & Millstone Rivers (May 2023)
- Copper application at NJCF ponds
  - Mid-summer
  - Potential product: Natrix
  - Coordinating with Fish & Wildlife, NJDEP Pesticides on treatment plan

