



## NEW JERSEY WATER SUPPLY AUTHORITY

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P.O. BOX 5196 • CLINTON, N.J. 08809 • (908) 638-6121 • (908) 638-5241 (FAX)

### Minutes of the Meeting of the New Jersey Water Supply Authority

October 3, 2016

A regular meeting of the New Jersey Water Supply Authority was convened on October 3, 2016 at 2:02 P.M. in the Conference Room of the New Jersey Water Supply Authority's Clinton Administration Building located at 1851 Route 31, Clinton, New Jersey.

As designated by Bob Martin, Commissioner New Jersey Department of Environmental Protection and Chair New Jersey Water Supply Authority, Jeffrey Hoffman, State Geologist, Division of Water Supply and Geoscience, served as Acting Chair of the meeting and called the meeting to order.

Deputy Attorney General Jung Kim read the statement required by the "Open Public Meetings Act". Executive Director Henry S. Patterson took the roll call of the Authority members.

Present: Jeffrey Hoffman, Acting Chair  
Susan Blew  
Ellsworth Havens  
Shing-Fu Hsueh - by phone  
Robert Iacullo  
Louis Mai  
Steven Picco

A quorum existed for the transaction of Authority business.

#### Interested Parties Present:

Ed Walker, East Brunswick Water and Sewer Utility  
Frank Falco, Middlesex Water and East Brunswick  
Oleg Kostin, New Jersey American Water  
Dave Shope, Resident

#### Authority Staff Present:

Henry S. Patterson, Executive Director  
Beth Gates, Director Finance and Administration  
Susan Buckley, Controller  
Michelle Rollman, Executive Secretary II  
Marc Brooks, Chief Engineer  
Paul McKeon, Director Manasquan Water Supply System/D&R Canal

Kenneth Klipstein, Director of Watershed Protection  
Heather Desko, Watershed Protection Specialist  
Alex Michalchuk, Senior Project Engineer  
Jung Kim, Deputy Attorney General  
Lisa R. LeBoeuf, Governor's Authorities Unit

#### APPROVAL OF THE MINUTES

Acting Chair Hoffman asked for a motion for approval of the Minutes of the September 12, 2016 meeting. Mr. Havens moved the motion approving the Minutes as prepared and the motion was seconded by Mr. Picco. The Minutes of the September 12, 2016 were approved by the Board.

#### EXECUTIVE DIRECTOR'S REPORT

Mr. Patterson stated that everyone has a copy of his report.

Mr. Patterson stated that no resolutions would be presented during this meeting.

Mr. Patterson stated that the New Jersey Department of Environmental Protection has issued a drought watch for much of northern New Jersey. The classification may change to a drought warning in the next month. All of the Authority Reservoirs are below average levels.

Mr. Patterson stated that Heather Desko will be making a presentation to the Board on the Hydrilla issue in the Delaware and Raritan Canal and that Paul McKeon will discuss the algae bloom at the Manasquan Reservoir.

Mr. Patterson stated that the Audit Committee did meet, but will not be reporting today. Mr. Patterson stated that there will be a brief executive session.

#### COMMUNICATIONS/CORRESPONDENCE

Mr. Patterson stated that there were no communications or correspondences received.

#### UNFINISHED BUSINESS

Mr. McKeon provided the operations report for the Manasquan Water Treatment Plant/Transmission System. Mr. McKeon stated that the Manasquan Reservoir is at 65 percent which is the second lowest it has ever been at the end of September.

Mr. McKeon stated that the Treatment Plant continues to operate with only two filter units. As discussed in prior meetings, the third unit is out of service because of the failure of the underdrain system. There have been design delays because of

changes by the consultants, Hazen and Sawyer. Mr. McKeon stated that demand on the system is lower since the summer higher contract period has passed and the two filters are currently adequate.

Mr. McKeon gave a detailed presentation regarding the algae bloom in the Manasquan Reservoir. Mr. McKeon reviewed the history of the growth levels and monitoring during the months of August and September of 2016. Mr. McKeon stated that algaecide was not applied because of the time of year; because the blue-green algae species counts were not excessive at the location and depth of withdrawal; because it was not requested by our major customer; and because at the point when the algae counts became significant, the Authority was adverse to the risk of a spike in Cyanotoxins that may have been released. The Authority was prepared to apply treatment if the algae had reached a predetermined level. Mr. McKeon stated that the New Jersey Department of Environmental Protection ("NJDEP") investigated the algae growth and collected samples that provided varied results. The NJDEP posted a temporary ban on certain recreational uses of the reservoir. Authority staff measurements have indicated that the algae counts have dropped steadily and significantly through the end of September. Based on algae counts from the public boat launch area, the Monmouth County Health Department lifted the recreational ban on water use on September 28, 2016. Mr. McKeon indicated that monitoring would continue through the month of October. Commissioners posed questions regarding the effects of weather conditions on the algae to which Mr. McKeon responded.

Mr. McKeon reported on the project for the improvements to the distribution well. Mr. McKeon stated that the original contract with Hutton Construction was for \$483,107 and that there have been three subsequent change orders totaling \$27,510 bringing the total to \$510,617. Since that time, two increase change orders have been submitted for extra work related to breaking the concrete floor and extra welding. A third change order was submitted as a decrease for computer software that was listed in the contract, but already owned by the Authority. The Authority and Hutton Construction negotiated a net increase of \$4,426 bringing the total contract to \$515,043.52. These three change orders were approved by the Chair of the Capital Projects Committee.

Mr. Brooks reported on the Raritan Basin System operations. Mr. Brooks stated that there was below average rainfall in August and only 1.7 inches in September compared to an average of 4.4 inches. As of Friday, Spruce Run was at 4.94 billion gallons, which is approximately 45 percent of the eleven billion gallon capacity. Round Valley is at approximately 39.4 billion gallons, which is 72 percent of the 55 billion gallon capacity. Together they are at a combined 67.2 percent capacity, while the average for this time of year is typically 90 percent.

Mr. Brooks stated that Canal flows are still significantly improved because of the Hydro-raking. Heather Desko will discuss the issue of Hydrilla in the canal.

Mr. Brooks reported that an Authority vehicle caught fire during the early morning of October 3, 2016. Images of the damage were distributed to the Board. Emergency protocols were followed and a fire truck attended by the Fire Marshall was dispatched to the scene. Mr. Brooks stated that the cause is still under investigation.

Mr. Brooks reported that the Cherry Tree Lane Spillway project is ongoing. The contractor has been working at a rapid pace and at the current rate will be completed at the end of October. Photographs were distributed to the Board.

Mr. Brooks reported on the seepage on the river side toe of the feeder Canal embankment near Titusville. The Authority Canal staff has installed a six-foot deep, clay cut-off wall. The seepage has been greatly reduced, but has not been completely eliminated. Mr. Books stated that the seepage is being monitored and that additional work may still be necessary.

Mr. Brooks reported on the Round Valley Reservoir Dam Rehabilitation and Resource Preservation Project. Mr. Brooks stated that the contract, as approved by the Board last month, should be going out to the engineer later in the week. A kick-off meeting has been scheduled for the week after Thanksgiving.

Mr. Brooks reported that there was a change order relative to Cultural Resources for the Capital Dredging Project. The original contract with URS Corporation was for \$118,348.20 and there have been two subsequent amendments for \$13,399.50 and \$31,885.00 which bring the current contract total to \$163,632.70. Mr. Brooks stated that as part of the permitting process, the state Historic Preservation Office required the Authority to have the previously performed side-scan sonar and bathymetric surveys reviewed by a qualified nautical marine archeologist with experience in reviewing such surveys. URS Corporation can provide the services of the required archeologist and proposed an amount of \$23,916.80 which brings the total contract to the amount of \$187,549.50 which was approved by the Chair of the Capital Projects Committee.

Mr. Klipstein reviewed the conditions that have resulted in the algae situation at the Manasquan Reservoir. Mr. Klipstein emphasized the importance of monitoring and planning to address seasonal algae as well as aquatic invasive species as they are emerging and before they become established.

Ms. Desko gave a detailed presentation on the presence of Hydrilla, a highly invasive aquatic plant species in the Delaware & Raritan Canal, appended hereto. Ms. Desko discussed the process

through which the Hydrilla was found and identified; described Hydrilla and the highly invasive methods through which it spreads; described the differences between Hydrilla and similar native species; reviewed the Canal physical survey process and results; discussed outreach and management efforts between other States and agencies; discussed potential biological, mechanical, physical and chemical control methods, including benefits, drawbacks and respective costs. Ms. Desko addressed specific questions presented by the Board.

#### NEW BUSINESS

No Resolutions were presented for approval by the Board.

#### COMMITTEE REPORTS

- (a) Personnel - no report
- (b) Finance - no report
- (c) Audit - no report
- (d) Public Participation - no report
- (e) Capital Projects - no report
- (f) Insurance - no report
- (g) Watershed Lands Acquisition Committee - no report

#### PUBLIC COMMENT

There were no comments from the public.

#### EXECUTIVE SESSION

Deputy Attorney Jung Kim read the statement to go into Executive Session. Mr. Iacullo moved the motion to go into Executive Session which Mr. Havens seconded. All Authority members approved the motion.

#### RETURN TO PUBLIC SESSION

Mr. Picco moved the motion that the meeting be placed back into public session. Ms. Blew seconded this motion. All Authority members approved the motion.

Mr. Picco moved to adjourn the meeting. Mr. Iacullo seconded the motion. All Authority members approved of the motion. The meeting was adjourned at 2:42 P.M.

I hereby certify this to be a true and original copy of the  
October 3, 2016 New Jersey Water Supply Authority meeting minutes.

*Michelle Rollman*  

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Michelle Rollman  
Executive Secretary II



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Minutes of the Executive Session  
New Jersey Water Supply Authority  
October 3, 2016

There was a need for an Executive Session to discuss the Audit for Fiscal Year 2016. Deputy Attorney Jung Kim read the statement to go into Executive Session. Mr. Iacullo moved the motion to go into Executive Session which Mr. Picco seconded. All Authority members approved the motion.

The Board discussed the meeting of the Audit Committee with the Auditors from CliftonLarsonAllen at 1:30 pm on October 3, 2016. A resolution to approve the Audit for Fiscal Year 2016 will be presented at the November meeting.

Mr. Picco moved to go back into the regular Board Meeting. Ms. Blew seconded the motion. All Authority members approved the motion.

I hereby certify this to be a true and original copy of the August 1, 2016 New Jersey Water Supply Authority Executive Session Meeting minutes.

*Michelle Rollman*  
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Michelle Rollman  
Executive Secretary II

# Hydrilla in the Delaware & Raritan Canal

Heather Desko  
Watershed Protection Specialist

NJWSA October Board Meeting  
3 October 2016

NEW JERSEY WATER  
SUPPLY AUTHORITY



WATERSHED  
PROTECTION





**Hydrilla & Eelgrass**  
Photo by: Chris Doyle,  
SOLitude Lake Management

# Hydrilla: The Perfect Weed

- \* Native to: India, Korea
- \* Means of introduction to US: Aquarium plant
- \* Can reach lengths of up to 25ft
- \* Growth: 1”+ per day
- \* Can reproduce by fragmentation, turions, and tubers, rhizomes
  - \* Tubers can remain viable in the sediment for up to 10 years
  - \* Likely arrived in Canal via fragment on a boat, waterfowl, or from the Delaware River



Photo by: Leslie J. Mehrhoff,  
University of Connecticut, Bugwood.org

Delaware & Raritan Canal,  
Scudders Falls area,  
Ewing Township

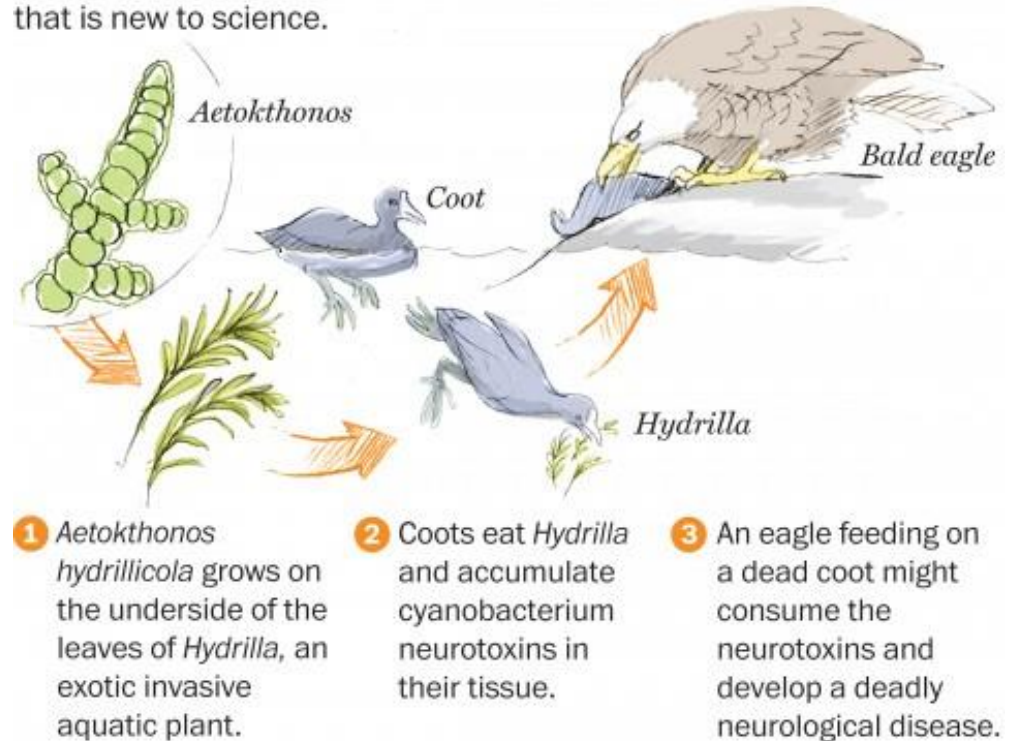


# Hydrilla & Cyanobacteria

- \* Toxic Cyanobacteria *Aetokthonos hydrillicola*
- \* Grows on hydrilla stems only
- \* University of Georgia (S. Wilde) researchers discovered and study this
- \* NJWSA sent samples from the Canal in early September 2016:
  - \* *A. hydrillicola* was not found

## Novel cyanobacterium killing eagles

Bald eagles across the Southeastern U.S. are succumbing to a neurotoxin generated by a blue-green algae that is new to science.



Source: Phytotaxa

PATTERSON CLARK/THE WASHINGTON POST

For more information: <https://www.warnell.uga.edu/research/dr-susan-wilde-avm-research>

# Hydrilla Features

Serrated edges  
visible w/ naked eye

Whorls of 5 leaves



# Lookalike: Common waterweed

## NATIVE

- \* *Elodea canadensis*
- \* Slow-moving/still water, depths of 10 feet
- \* Leaves in whorls of 3 around the stem
- \* Edges appear smooth, very fine serrations require magnification to view
- \* Very brittle
- \* Stems are branched, and grow in masses along the bottom



Delaware River  
at Bulls Island

# Other Aquatic Plants in the Canal



Coontail (native)



Eelgrass (native)



Water stargrass (native)

Photo by: Amy Johnson, Arkansas Native Plant Society



Curly-leaf pondweed  
(invasive)



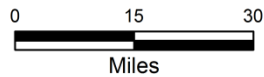
Eurasian  
watermilfoil  
(invasive)



Brittle Naiad  
(invasive)

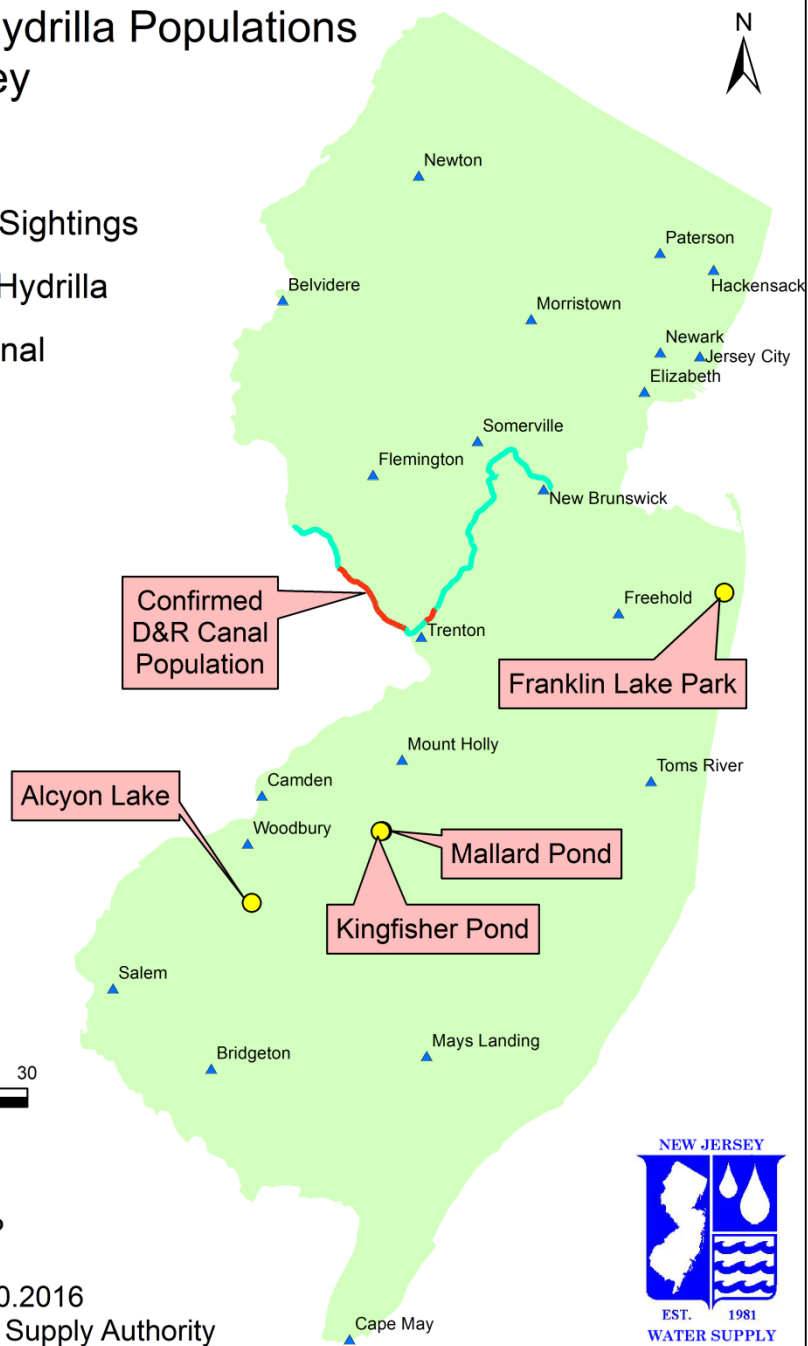
# Confirmed Hydrilla Populations in New Jersey

- ▲ Towns
- Hydrilla Sightings
- Rooted Hydrilla
- D&R Canal



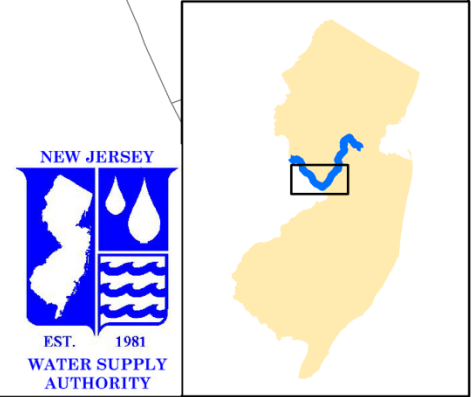
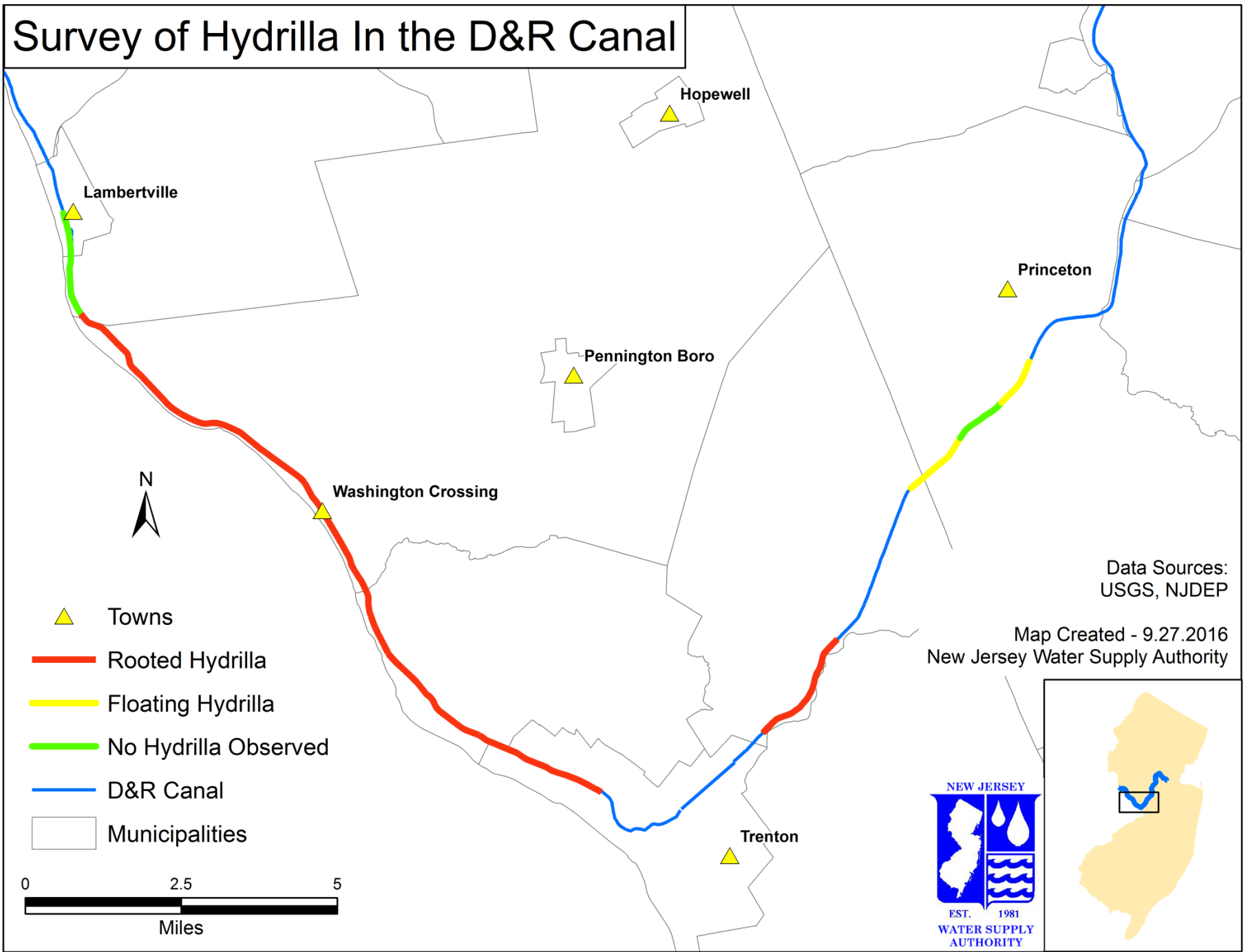
Data Sources:  
EDDMaps; NJDEP

Map Created - 9.20.2016  
New Jersey Water Supply Authority





# Survey of Hydrilla In the D&R Canal



**Delaware & Raritan Canal,  
Workhouse Spillway  
(to the Delaware River),  
Hopewell Township**



# Hydrilla management



**STOP AQUATIC  
HITCHHIKERS!™**

Prevent the transport of nuisance species.  
Clean all recreational equipment.  
[www.ProtectYourWaters.net](http://www.ProtectYourWaters.net)

- \* Convene a Task Force of stakeholders
  - \* Develop a management plan
  - \* Subcommittees: Education, Water Monitoring
- \* Education & Outreach
  - \* Signage
  - \* Parks Launch Permit add-on
  - \* Outreach events
  - \* Presentations
- \* Surveying & Monitoring
  - \* Tuber Monitoring (Nov 2016)
  - \* SAV Mapping (continued, summer 2017)
  - \* Flow & water chemistry during treatment



Photo by: Chris Doyle  
SOLitude Lake Management

# Hydrilla management

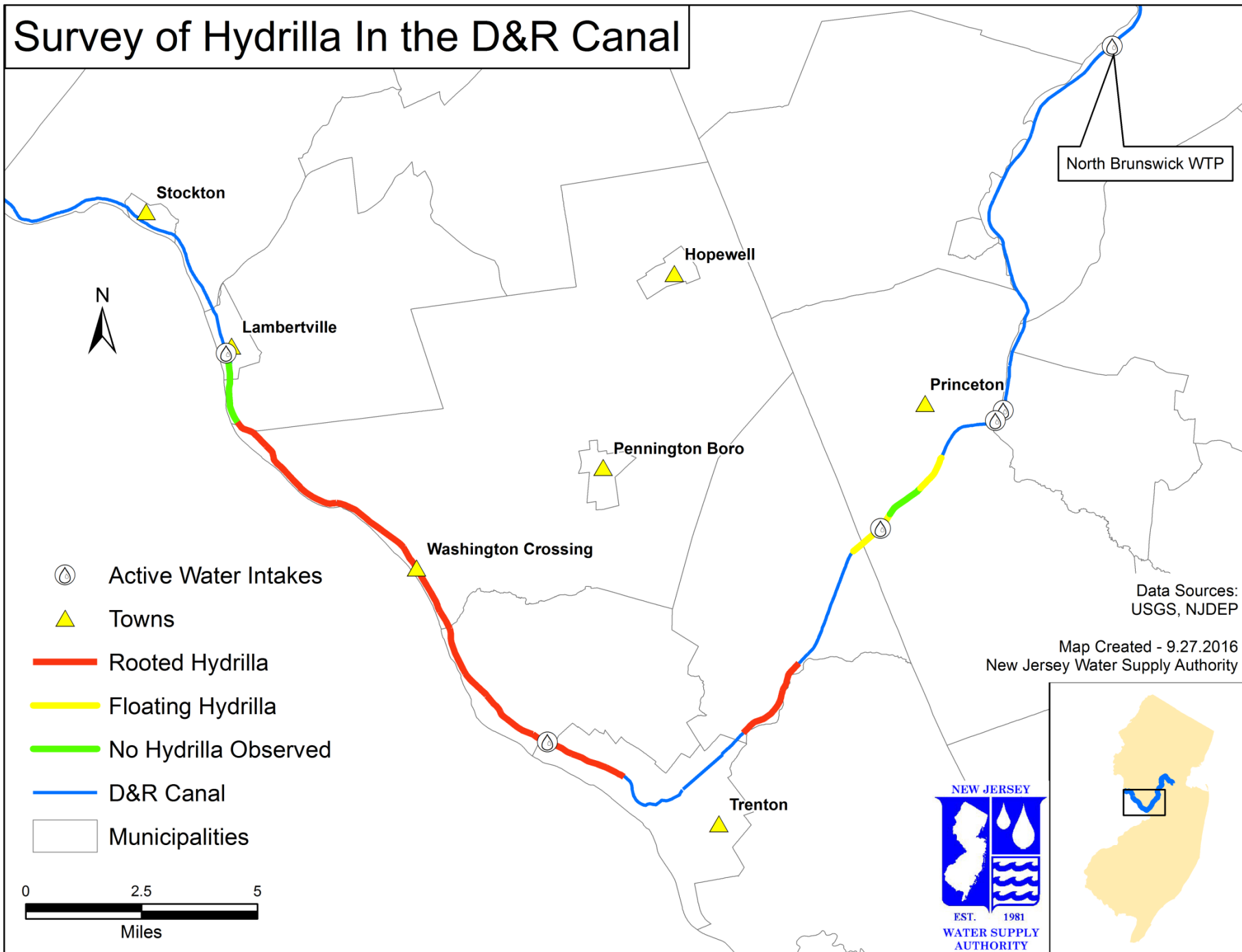
- \* Methods of control:
  - \* **Biological:** reduce plant growth by introducing predator species
  - \* **Mechanical:** removing plant by cutting/harvesting/dredging
  - \* **Physical:** alter conditions to negatively impact plant growth
  - \* **Chemical:** herbicides to kill or stunt growth



Photo by: Gene Huntington,  
Remote Intelligence



# Survey of Hydrilla In the D&R Canal



# Management costs

- \* Florida: ~\$5-10M/year on “maintenance control” for 140,000 acres
  - \* Biological, chemical, physical, mechanical
- \* New York (Cayuga Lake): ~\$400K/year on eradication (goal) for 800 acres
  - \* Chemical, physical control plus surveying, water monitoring & education
- \* NJWSA: Hydroraking (2016) – \$60K for ~40 acres



Hydrilla in Florida

Photo credit: Army Corps of Engineers –  
Jacksonville District

# Herbicides: Endothall

- \* Contact herbicide
- \* Half life of 5-8 days
- \* Effects on other SAV:
  - \* Low: Elodea
  - \* Medium: Eelgrass, water stargrass
  - \* High: Pondweeds, coontail, Eurasian watermilfoil
- \* NY results: ~90% vegetation dieback with application
- \* Cost: ~\$1200/acre



Endothall application, Cayuga Lake, NY  
Photo by: Simon Wheeler, Ithaca Journal

# Herbicides: Fluridone

- \* Systemic herbicide
- \* 30-90 day contact time
- \* Plant sensitivity is a function of app rate and duration
- \* May affect irrigation usage
- \* NY: low-dose injections below NY's MCL for drinking water
  - \* Liquid & pellet applications
- \* Cost: ~\$200/acre



Endothall application, Cayuga Lake, NY  
Photo by: Simon Wheeler, Ithaca Journal



# Preventing the spread

- \* **Check** for and remove plants, mud and aquatic life from equipment
- \* **Drain** water from boats, live wells, bilge and bait buckets
- \* **Clean\*** equipment with hot water/detergent *and*
- \* **Dry** to the touch for several days



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NEW JERSEY WATER  
SUPPLY AUTHORITY



WATERSHED  
PROTECTION

# Contact

Heather Desko

[hdesko@raritanbasin.org](mailto:hdesko@raritanbasin.org)

908-730-0270 x231



**“It doesn’t seem to be covered in our invasive species management plan.”**