



October 2016

# RiverWatch

THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION, INC.  
*Protecting And Restoring The Rivers Since 1970*

## Record Drought Hits Hard: Vanishing Streamflows Impact Fish and Wildlife

*Severe water shortages forcing communities to face climate change issues,  
pursue stringent conservation measures.*



*An aerial view of the drought-stricken Scituate Reservoir along Route 3A.*

It's official: the summer of 2016 has been the driest on record! And while July may have been the official start of the drought, unusually dry weather has been happening since January 2015. Overall precipitation was down by over 17 inches in the past 20 months.

While the North River up to the Indian Head and the South River to Veterans' Park Dam are tidal and little affected by low flows, upper reaches and feeder brooks have rarely been so stressed.

The low flow is caused, unfortunately, not just by minimal rain, but also high summer water use in our growing communi-

ties. Pumping draws out the groundwater that otherwise would feed streams even during dry periods. And the resulting problems are not just ecological, for fish and wildlife, but also very severe water shortages in many communities.

*continued, pages 4 and 5*

**How YOU Can Save Water!**  
*see page 5*

## THE NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION

*The mission of the North & South Rivers Watershed Association is to preserve, restore, maintain and conserve in their natural state, the waters and related natural resources within the watershed.*

*Our goals are to:*

- *Restore the water quality of the rivers by identifying and correcting adverse impacts;*

- *Encourage stewardship of the watershed through public education, outreach and recreation programs; and*

- *Promote responsible growth by working in partnerships to preserve open space, scenic vistas and sensitive natural resources.*

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# Letter from the President



## Redefining our Relationship to Water

Unless you lived under a rock this summer, the effects of the prolonged drought have been pretty obvious: scorched lawns, great beach weather, and increasingly dire warnings from town water departments.

I wanted to see the face of the drought close up, so in mid-September I headed over to the Third Herring Brook in Hanover, off Broadway, to wade parts of it. There wasn't a lot of wading necessary. Water was still flowing if one looked closely - about the same amount as would come out of a soda bottle. The brook had many dry stretches, interspersed with a few clear pools where the only visible living things were water bugs skittering on the surface.

The forecast was for perhaps an afternoon thunderstorm that day, maybe some light rain a few days out, and then sunny again for another week. And I began to wonder: What if this is what the future looks like? If the climate science is right, we can expect more erratic weather, more 'global weirding,' including both droughts and intensely rainy periods.

If that's the case, how do we future-proof against it, and what does it imply about the need for changes in behavior? When we turn on a faucet, or our lawn sprinkler comes on at 7:00 AM, there are impacts, whether seen or unseen. Green lawns and gardens use the same treated water we drink and bathe in, and during a dry spell, they can contribute significantly to the dewatering of streams and our overall water shortages.

This is not an issue of guilt, innocence or ideology: it is simply a matter of fact. Private wells are not the answer either. They may not have the same impact, but they pull water out of an aquifer below us that we simply don't know enough about. Like it or not, we will have to confront the fact that our behavior does indeed affect the world around us and there are consequences. It may be time to refocus our consumption on higher value uses of water and perhaps green lawns are not one of them.

While changing the way we use water, another thing we can do is to shore up our water resources. In Scituate, the epicenter of the drought, our Association has been urging raising the level of the reservoir so we capture more of the spring rains for later use, and aiding fish passage at the same time. Towns may also deploy strategies such as reducing leakage in municipal water systems, which on average result in losses of 16% nationwide and managing water withdrawal to take from wells further away from streams in the summertime.

On the home front, we can address mundane issues like fixing leaking toilets or sinks. The average household's leaks can result in 10,000 gallons wasted every year (that's 270 loads of laundry). According to the EPA, 10% of U.S. homes waste 90+ gallons daily).

Although we have a drought, we really don't yet have a shortage of available water for critical uses like drinking, cooking, bathing, and washing clothes if that is all we used our precious water for. What we do have is a mentality that needs to change and to recognize that not all water uses are equally valuable to society. So if this drought is a wake-up call to the new normal of the years to come, perhaps we had better soon develop a new and more thoughtful relationship with the most critical resource in our lives. Perhaps a shift in our mindset is necessary, and brown is indeed the new green.

See you on the rivers!  
*Peter Kelly-Detwiler*  
NSRWA Board President

# Healthy Rivers are Connected:

## Restoring Rivers by Removing Dams and Culverts that Block Fish Passage

### Funding for removal of the Cardinal Cushing Dam complete!

With a commitment from Federal sources of \$98,000 for removal of the dam, all funds are in place and we hope a contractor can begin work this December. Removal of this dam, together with removal of the Mill Pond Dam two years ago, would open unrestricted passage of more than 8 miles from where the brook enters the North River to the Hanover Mall dam on the Third Herring Brook.

### Iron Mine Brook culvert removal moves ahead

Iron Mine Brook (IMB) flows into the Indian Head River just below Luddam's Ford Park and the Indian Head dam and fish ladder. A population of native Eastern Brook Trout live in Iron Mine Brook upstream of this culvert, but at low flows this culvert might as well be a dam to the fish as they cannot pass it. This leaves the Brook Trout downstream unable to reach the cooler, spring fed waters upstream of this culvert that they need to survive. Removal of the culvert will reconnect the Iron Mine Brook to the Indian Head during the summer and allow the Brook Trout to survive the ever increasing summer temperatures in the Indian Head River.

The IMB culvert removal is a rare example of a simple, relatively inexpensive, noncontroversial project that by itself would open up 0.5 mile of the brook's upper reaches for fish passage, and greatly improve fish habitat. This past fall with pro bono assistance from Ivas Wetland Environmental, Cavanaugh Consulting, and Trout Unlimited we secured the permits needed to remove this culvert, and with volunteers we will be constructing a footbridge over the brook to replace it. The Town of Hanover DPW will be removing the culvert over the next few months.



Tack Factory Dam to be removed this fall on Third Herring Brook.



Culverts on Iron Mine Brook to be removed this fall.

Follow these projects in real time  
on our Facebook page or E-news!

## Thank you to New or Renewing River Guardian Circle Members

River Guardian Circle members are our most generous, making donations of \$500 or more. Their generosity is the foundation for making the NSRWA a strong and effective voice. Below are those who joined or rejoined since July 2016. Thank you!

### Individuals

Andy and Margaret Bergsten  
Sally Caverly  
Alex & Davis Clark  
Charles & Sandra Drea  
Bruce Graham & Ann Buchanan  
Peter & Pattie Hainer  
Jamie and Lucy Hutchinson

Peter & Julie Kelly-Detwiler  
Pam Kohlberg  
Jim & Linda Lintz  
Malachy McConnell  
Margery & Allan Parker  
David & Judith Parks  
Martha & Dick Twigg  
Susan & Michael Wolfe

### Businesses and Organizations

The Jevne Team  
L. Knife & Son, Inc.  
Rockland Federal Credit Union  
Sheehan Family Foundation

# Record Drought Hits Hard, *continued from page 1*

## Impacts on fish and wildlife have been dramatic, and include:

Tack Factory Pond on Third Herring Brook, turned coffee colored with high turbidity, and was 90 degrees in early August! Downstream of the dam, the dewatered Third Herring Brook has stagnant pools of water where it crosses under River and Broadway Street. Upstream are the Hanover and Norwell public water supply wells.

In Iron Mine Brook, a tributary to the Indian Head River, sections are dry downstream of Hanover's wells – this brook is home to Eastern Native Brook trout which rely on cool, flowing water; but are now confined to small sections of fresh water, with little flow, low oxygen and much higher temperatures.

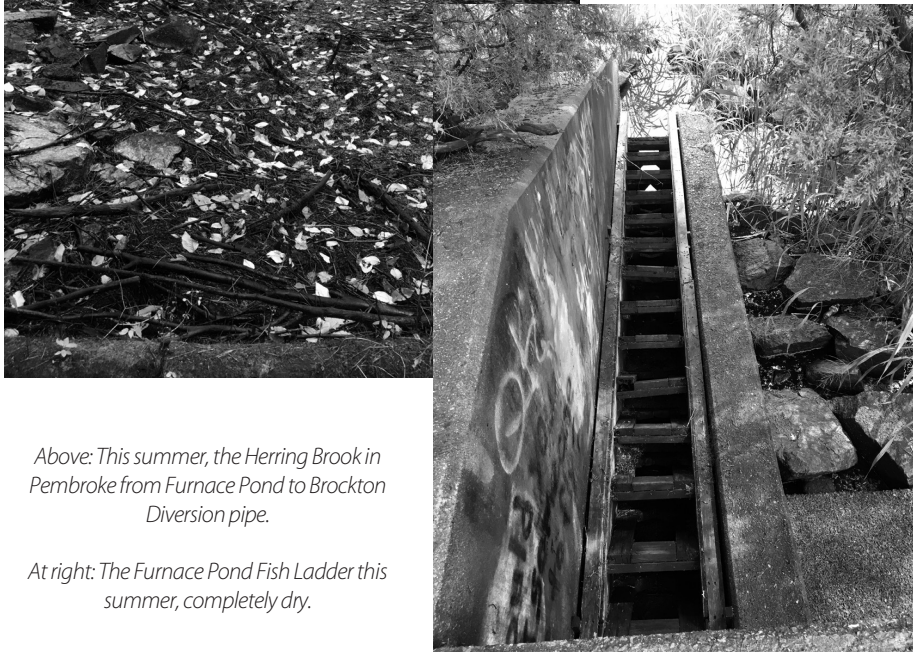
In Pembroke's Herring Brook headwaters – Oldham and Furnace Ponds – which is home to the best herring run in our watershed – the young fish are held captive behind the dam unable to escape downstream to migrate to the open ocean. Furnace Pond is a water source for the City of Brockton, contributing to the low levels in the pond.

In Scituate's water supply watershed, streamflow was cut off to the First Herring Brook in July in order to preserve the town's dwindling water supplies. Any young herring that are in the system will have to wait until it rains to return to the ocean.

Aquatic species are able to cope with drought – after all, we have had droughts before! – but it stresses their populations and for those rivers and species already stressed due to water withdrawals, along with dams and pavement, the stress is amplified and ultimately can lead to population reduction and extinction.



*Above & below: A dry stretch of the Third Herring Brook this summer, downstream of Norwell's and Hanover's wells.*



*Above: This summer, the Herring Brook in Pembroke from Furnace Pond to Brockton Diversion pipe.*

*At right: The Furnace Pond Fish Ladder this summer, completely dry.*



# What Can YOU Do to Save Water for People and Nature?

**First**, recognize that your water, whether it comes from a private or municipal well, comes from our watershed and that it is a shared resource for people and nature. All of nature depends on the top layer of water exposed or just below the surface of the land. While we can access large stores of water underground through wells, we lower the water table when we do – which impacts surface waterbodies that rely on groundwater to feed them. We need to save water all the time – not just when there is a drought – in order to safeguard that surface water.



*Exposed parts of the Scituate Reservoir on First Herring Brook this fall.*

**Second**, think about your landscape. Trying to maintain grass is the single largest consumer of household water.

This year during the drought, the Town of Norwell metered a single household using 30,000 gallons a day to water their lawn – that’s more than a standard 16’ x 32’ swimming pool! Grasses that are typical of suburbia are not native to the region and require a lot of water and feeding to maintain as green. Over the long run one of the best things you can do to reduce water consumption is to remove lawn and replace it with more native vegetation. Leave the areas where you really need turf, overseed with more drought tolerant species, and if it doesn’t rain let it go brown – it is just dormant and will come back when cooler temperatures and rain arrive. For more information on water conservation landscaping visit [greenscapes.org](http://greenscapes.org).

Inside, your home toilets are the number one consumer of water. Check it for leaks by putting food coloring in the tank. Check the bowl in 20 minutes to see if the color leaked into the bowl, if so you may need to replace your flapper valve.

## How Much Water Do You Use?

Calculate your own household consumption by taking your last water bill and use the calculator below. The state of Massachusetts recommends 65 gallons per person per day\* however many people use less. In fact, in England and Australia average consumption is closer to 30-40 gallons per person per day.

### Water Use Calculator

*NOTE: If your water bill is in cubic feet (CF), multiply your consumption in cubic feet by 7.48 to convert to gallons and then use the calculator below. If your consumption is in hundreds of cubic feet (CCF), then multiply by 748 and follow the calculation.*

Total gallons consumed / Days in billing cycle / # of people in household = GALLONS PER PERSON PER DAY

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ = \_\_\_\_\_

**Summer is the true test--water usage tends to double in the summer.**

**How low can you go? Are you below 65 gallons per day?**

**Visit our new Water Smart section of our website for more ways you can save.**

\* Massachusetts Dept. of Environmental Protection

# Drought Responses Around The Watershed

Our mission is to promote Healthy Rivers, to benefit both ecological systems and human uses. This summer's drought has brought new urgency to implementing those programs.

If the drought has a silver lining, it is that the sudden and severe water shortages are a wakeup call focusing minds on a variety of water conservation and management strategies we have been urging for years. As Ben Franklin said "When the well runs dry we know the value of water." The health of our rivers and the health of our water supplies are inextricably linked.

**BROWN**  
is the **NEW**  
**GREEN**

Join the movement to conserve water

[nsrwa.org](http://nsrwa.org)



## Water Conservation Education

With this drought our regional water conservation education program has taken on new meaning and made us the "go to" resource when discussing how the drought impacts our streams, how our communities use water, and focusing water conservation on the largest water usage in our watershed – lawn irrigation. This past summer we were on WATD twice, were asked to write a Boston Globe South opinion piece on the need to regulate private wells during a drought, and led reporters to dry streambeds so they could show the impacts to our streams from the drought.

## Scituate

Our Association has worked successfully with Scituate for years to raise awareness about water supply and fish passage issues. Substantial progress has been made with water conservation and streamflow maintenance. But with its major reservoir almost dry, the town is in an urgent situation.

And Scituate is taking action! The town has:

- Established an internal, interagency drought management task force, and has asked our Association to provide education support.

- Adopted new water conservation measures; the town is living on groundwater wells alone, with no further draw from its reservoir. For the first time they are asking people to reduce indoor water use as well as outdoor.

- Realized new urgency for raising the level of its reservoir dam, a measure we have pushed, which would not only increase capacity but facilitate herring passage; we recently helped to submit a \$100,000 grant proposal to the state for design and permitting.

## Norwell/Hanover

We have completed a first phase program to model the towns' water uses, which will lead to recommendations for new management approaches that will use less water, increasing their supply security and the health of Third Herring Brook.

And the drought has led both towns to begin new water conservation enforcement measures, cracking down on some of the largest water users in Norwell – some of whom were found to be using 30,000 gallons a week! The state recommends 65 gallons per person per day.

## Asking the Governor to Increase Drought Response

Because we can't fix the problems caused by the drought after the fact, we along with 44 other members of the Massachusetts Rivers Alliance asked Governor Baker to better safeguard our rivers, wildlife and water supplies during droughts. Specifically we asked the state to require water conservation in drought affected areas, including minimizing or banning lawn watering, a nonessential use, before public wells, reservoirs and our streams run dry.

## New water supply permits

All South Shore towns are now renewing their water withdrawal permits from the state, following regulations adopted last year that require in depth consideration of a range of conservation and management measures to protect streamflows. In August, the state issued a fresh reminder to all towns on how they should incorporate water conservation measures into their permit applications. We are providing comments on permits to encourage communities to continue their work with us to focus water conservation on limiting outdoor watering all the time not just in a drought, to better understand impacts to streamflow and to reduce impacts through water conservation and smarter water management.



**SAVE THE DATE**  
**South Shore Climate Change  
 and Sea Level Rise Symposium**

*December 1, 2016 • 8:30am to 4:30pm  
 South Shore location TBA*

This one-day symposium will present an overview of potential climate change and sea level rise impacts on the South Shore, tools and funding options available to communities, case studies of successful strategies used at the local level to address these issues, and a facilitated discussion of opportunities to promote coordinated and cost-effective local, inter-municipal, and regional resiliency initiatives.



**NSRWA's 23rd Annual  
 New Year's Day Walk**

*Sunday January 1, 2016 at 1 pm  
 Cardinal Cushing Centers:*

*Visit to the Third Herring Brook Dam Removal Site!*

Join the NSRWA for its 23rd year of ringing in the New Year together by exploring our watershed. This year's walk will start at the Cardinal Cushing Centers in Hanover where we will take a walk out to the dam removal site on the Third Herring Brook which will be in progress! This walk through ~100 acres of woodlands to the brook is on private property owned by the Cardinal Cushing Centers. This event is free and open to the public. Parking is available at the Cardinal Cushing Centers on Rt. 53 (405 Washington St., Hanover).

*More info available online at [nsrwa.org](http://nsrwa.org), our Facebook page, and through our bi-weekly email.*

**Legacy Society Created to Recognize Those Who  
 Provide for NSRWA in Their Estate Plans**



*Photo by Gail Jardim*

*Conservation requires eternal vigilance.*

We fight to make the North and South Rivers healthy, beautiful, and fun, not only for ourselves, but for our children and grandchildren and those who will come after.

To help assure that NSRWA will be strong and effective into the future, a group of benefactors is leaving bequests to our Association in their wills. These generous individuals will be recognized as the first group of our Legacy Circle Founding Members.

- Herb and Pauline Emilson
- Betsy and Robert Detwiler
- Peter and Julie Kelly-Detwiler
- Craig and Danny Hannafin
- Richard and Jackie Leach
- Deborah Lenahan
- Michael and Susan Wolfe

*To join or find out more about the program please contact Gabriela Silva at 781-659-8168.*



# RiverWatch

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## Inside This Issue:

- Drought Impacts to Rivers and Water Supplies
- Third Herring and Iron Mine Brook River Restoration Projects Move Forward
- 46th Annual Meeting November 4th



Connect with us on Facebook

## Join us for our 46th Annual Meeting!

Friday November 4, 2016  
7-9 pm  
at the South Shore  
Natural Science Center

- Wine & Cheese Reception
- Business Meeting to elect board members
- **Keynote:** Celebrating WaterSmart Business and Estuary Explorers Programs
- **New Board Members for Nomination:** Tad Beagley, Deb Ryan, Caleb Estabrooks
- **Volunteer of the Year:** Rowan Lowell
- **Barbara Pearson Award Winner:** Jay Wennemer, retiring Marshfield Conservation Agent



## SAVE THE DATE

### 46<sup>th</sup> NSRWA Annual Meeting

Friday November 4, 2016  
7:00 pm

South Shore Natural Science Center  
48 Jacobs Ln, Norwell  
Wine & Cheese Reception  
Business Meeting to elect board members