



THE WATCH HILL CONSERVATOR
222 Watch Hill Road
Watch Hill, Rhode Island 02891

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THE WATCH HILL CONSERVANCY NEWSLETTER

AUGUST, 2013 VOL. 6 No. 3 WATCH HILL, R.I.

NAPATREE CONSERVATION EASEMENT

Watch Hill Fire District to Watch Hill Conservancy

Readers of the Conservator are well aware that protection of Watch Hill's special Napatree barrier beach is a high priority of the Watch Hill Fire District, which owns more than 90% of the roughly 80 acres of the designated "Napatree Point Conservation Area". The Conservancy is also the owner of property there. The area is managed jointly by the District and the Conservancy, in partnership with the U. S. Fish and Wildlife Service, and subject also to the regulations of the RI Coastal Resources Management Council (CRMC) and the RI Department of Environmental Management (DEM).

Napatree is a remarkable natural resource, a critical wildlife habitat of the Northeast, and one of the most important migratory bird feeding and resting stopover points on the East Coast. It is recognized as such by federal, state, and local agencies, as well as by the scientific community, numerous non-governmental organizations, and countless birders and naturalists. The RI Natural History Survey sums up Napatree as "a standout in its ecological value".

Yet the area is constantly under threat from some who seek to change its natural character and to see it developed in ways inconsistent with that character. We saw this most recently in the attempt by a member of the Westerly Harbor Management Commission (February 2013) to insert in the draft Harbor Management Plan a recommendation that the Town of Westerly build a public dock on the 50-foot-wide Napatree lot it owns adjacent to Fire District property. Any access would have to be across District conservation property.

Fortunately, over several weeks, the Commission listened to conservationists and biologists, who, in letters to the Commission and Letters to the Editor, warned of the adverse ecological consequences, as well as the folly of the construction of such a facility and ancillary features (a parking area, perhaps; an actual road to connect the site to the still-existing paved portion of Fort Road; perhaps even toilets, etc., etc.), all on a postage-stamp-sized lot, in a velocity flood zone where a storm, not even a hurricane (Sandy), had recently flattened dunes and swept tons of sand into the Bay. It was also pointed out in the participation of the Conservancy and Fire District at the next meeting of the Commission (March 2013), that the proposed development was contrary to the Town's Comprehensive Plan, which lists as its #1 Goal the protection of Westerly's "...natural resources, including open space, the river and the shoreline, wildlife habitat and watershed..."; in conflict with Town zoning; and incompatible with the CRMC water category along the northerly shore of Napatree. The Commission determined to reject the recommendation.

That latest controversy, however, was only one of many over recent years stirred up by a small minority of people who see development of Watch Hill's natural resources as a goal which should trump the conservation of those resources.

While the recommendation was eliminated in the draft Plan, there is no certainty that the proposal will not resurface in another forum, perhaps even at the Town Council hearing at which the draft Plan will be considered.

The Watch Hill Fire District Council, reviewing the history of such proposals, determined that there was no reason that the Watch Hill community, whether the District or the Watch Hill Conservancy, should have to expend the energy, time, and money, time and again, to defend the rationale for maintaining the conservation values of Napatree against various inappropriate development threats.

THE WATCH HILL CONSERVANCY

222 Watch Hill Road
Watch Hill, Rhode Island 02891
(401) 348-6540

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For information about community events,
lectures, concerts, nature walks, educa-
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see the Conservancy's website below.

www.thewatchhillconservancy.org

News & Notes

Not a good beach day? Take a walk!

For a graphic glimpse of Watch Hill during the heyday of the grand hotels, we recommend picking up a copy of Ardi Schneider's booklet, *A Self-guided Walk through the Heart of Watch Hill: a Glimpse into the Hotel Era 1830-1910*. The guide, profusely illustrated with historic photographs, offers two tours, each beginning and ending at the Ocean House. Guidebook in hand, you'll see Watch Hill as it looked when hotels, inns, and private summer "cottages" dominated the landscape. The books are available at the Cooked Goose, Lily Pad Gallery, and Gabrielle's in the village, and at The Other Tiger Books in downtown Westerly.

Let's keep in touch!

The season may be winding to a close, but activities and events that have an impact on Watch Hill continue throughout the year. The Conservancy monitors Town and local meetings, and will keep you informed by e-mail. Please contact the office to be added to our e-mail list. We assure you we will not share your contact information or flood you with trivia. Our only goal is to keep you informed.



Photo Janice Sassi



The Council concluded that the District could very easily provide Napatree with a layer of legal protection to discourage such threats, by placing a "conservation easement" over the property and enlisting a non-profit corporation or a municipal, state, or federal entity, to assume responsibility for defending that easement and the natural resources such an easement could be designed to protect.

Conservation easements are a tried and effective legal tool, used for decades to protect natural, scenic, historic, and agricultural lands across the country. Indeed a number of conservation easements already protect substantial areas of land in Westerly.

While an easement conveys certain rights over the subject land, it does not divest the owner granting the easement of his/hers/its basic ownership of the land. The owner retains ownership but is assured that the land will receive the protection indicated, through the commitment of the grantee easement holder to that purpose, as spelled out in the easement.

Traditional uses of the land – at Napatree, passive recreation (i.e., walking, swimming, sun-bathing, bird-watching, boating and fishing), scientific research and surveys, and environmental education, etc. – would continue unchanged. But certain activities disruptive of or harmful to the habitat and wildlife would be prohibited. If unforeseen circumstances should arise at a later date, the owner and the easement holder could, by mutual agreement, modify relevant terms of the easement. Typically, however, the easement provisions remain unchanged and in effect indefinitely into the future. Though personnel and governments change over time, well-planned conservation easements stand the test of time.

At the July 13, 2013 Annual Meeting of the District, the District Council (the District's governing Board) informed voters that it views Napatree as a valuable, unique, and irreplaceable natural resource that will benefit from – and deserves – long-term protection. District Moderator Charles S. Whitman III announced that the Council believes that a conservation easement is the proper tool to accomplish this result, and that the Watch Hill Conservancy is the proper entity to hold such an easement.

Because the grant of an easement involves the transfer of a property right, it requires a vote of the District, and the Moderator said that the issue will be placed on the agenda of a special reconvened Annual Meeting, to be held in the coming weeks.

Conservancy Executive Director, Chaplin B. Barnes, addressing the Annual Meeting, said that, at the request of the Council, the Conservancy has agreed to serve as easement holder and that, upon an affirmative vote of the District, is prepared to take prompt action to formalize its commitment to assume the easement, including establishing a Conservation Easement Monitoring and Enforcement Fund, to support legal expenses that might in the future be incurred as a consequence of that commitment.

We hope to be able to report soon that this simple but important step has been taken to protect this important resource. While the next issue of the *Conservator* is not published until February, readers who provide their email contacts will receive word as soon as the matter is decided. [CBB]

Note: Conservation easements have been used for nearly 50 years as a major land-protection device (the first in the mid-1960s), and their efficacy both to protect the resource and to implement the owner easement-donor's wish so to do has been well tested. Numerous national information sources, including the websites of the Land Trust Alliance, the Trust for Public Land, and The Nature Conservancy, provide further information. A copy of the proposed easement and supporting documentation will be available for District voter inspection at the Conservancy office in advance of the proposed vote. See also article, "The Conservation Easement: A flexible tool for land preservation", the Watch Hill Conservator, August 2008 (website of the Conservancy – newsletters).



Photo Richard C. Youngken
Photo Janice Sassi

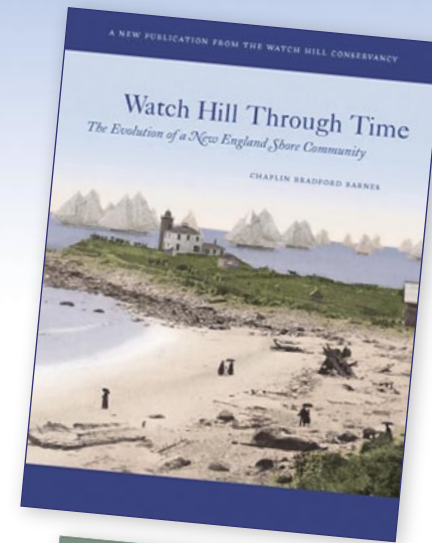


Watch Hill books now accessible on our website

Two important reference books about Watch Hill are now available on our website in read-only format. *Watch Hill through Time* by Chaplin B. Barnes (2005) and *Watch Hill Style* by Richard Youngken in collaboration with Chaplin B. Barnes (2009) may be read in their entirety. They are both property of the Conservancy, and no reproduction of any of the materials therein is permitted.

Reading them will likely whet your appetite for the real thing, so consider purchasing copies for yourself or as gifts. Both books are available in hard copy from the Conservancy office, 222 Watch Hill Road, Watch Hill, RI 02891, 401.348.6540, as well as at selected shops in Watch Hill and Westerly. Copies are also available at the Westerly Library.

www.thewatchhillconservancy.org



WATCH HILL CONSERVANCY PUBLICATIONS

Watch Hill Through Time
Chaplin B. Barnes

Watch Hill Style
Richard C. Youngken

Please mail order forms & payments to: The Watch Hill Conservancy, 222 Watch Hill Road, Westerly, Rhode Island 02891, or fax order (with credit card information) to: 401 348-6541.

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The Watch Hill Conservancy is a non-profit organization. Your membership supports the protection of the natural and cultural resources of Watch Hill, a variety of programs, and educational publications, including this newsletter.

Member name: _____

Preferred mailing address: _____

City: _____

State: _____ Zip: _____

Phone: _____

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INDIVIDUAL: \$25

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FAMILY: \$100

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BENEFACTOR: \$2,500 - \$5,000 or more

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OTHER CONTRIBUTION Total: \$ _____

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222 Watch Hill Road
Watch Hill, R.I. 02891

Please include names of family members 18 and under. If you are making gifts of memberships, please include the names and addresses of those to receive these gifts.



NAPATREE NOTES



Diamondback Terrapins sighted on Napatree

The Napatree Point Conservation Area is known to be a critically important and diverse habitat that frequently reveals surprises. The recent discovery of a baby turtle has caused a great deal of excitement in the scientific community. On June 9th, beachgoer Kim Larrabee noticed a little boy who had the turtle in a pail on the beach. Feeling certain this was something special, Kim located our Naturalists who photographed it and returned it to the proper area.

The hatchling was identified as a northern diamondback terrapin, a state endangered species named for the concentric markings on its carapace (shell) that resemble facets of a diamond. The range of the northern diamondback terrapin is from Cape Cod to Cape Hatteras, N.C. Once plentiful, they were hunted almost to extinction in the 1900s and were considered to be a delicacy. Now, coastal development has drastically affected their population. Diamondback terrapins require salt marshes for foraging, nurseries, and overwintering. Although they can tolerate salt water, they are typically found in brackish water.

With a lifespan between twenty and forty years, the female does not mature for eight to ten years. She will lay her eggs in the sand or scrub vegetation where the eggs will incubate over approximately two and one half months. The length of incubation and the gender of the hatchlings are tied to temperature: the warmer the nest, more females will result. Males will grow to five to ten inches in length and the females will be larger.



Since the first discovery, there have been two unconfirmed reports and one verified report of diamondback terrapins on Napatree. The quarter-size hatchlings may continue to emerge into September.

URI researchers Drs. Malia Schwartz and Peter Paton are investigating the distribution of these creatures in southern Rhode Island. Currently, the only known R.I. population is in Barrington. We are asking folks on the beach to report any sightings to terrapins@rinhs.org. If possible, take a picture and, if your phone has GPS capability, note the location. Above all, **don't disturb it!**

If you see our Naturalists, please let them know you have seen one or email us at napatreenaturalist@live.com [JS]



Photos Janice Sassi

Special Labor Day Weekend Walk

August 31st at 9:00 a.m.: The windswept dunes and barrier beach of Napatree Point can be a tough place to live. Salt spray and strong winds, hot, dry sands and dramatic storms are just some of the challenges. The plants and animals that call this special habitat home rely on many adaptations to survive. Join us on an exploration of both sides of beautiful Napatree led by Scott Ruhren, Audubon Society of Rhode Island's Senior Director of Conservation and Science Projects Coordinator of Napatree Point Conservation Area.

This walk is offered in connection with Land Trust Days and will begin at the entrance to Napatree Point Conservation Area near the Beach Club of the Misquamicut Club.



Update for the Westerly Harbor Commission

In June, after a more than ten-year process, the Westerly Harbor Commission (WHC) has completed its draft of the Westerly Harbor Management Plan (HMP) and draft Ordinance. Required by the State of RI Coastal Resources Management Council (CRMC), each waterside community must develop a harbor management plan, which is essentially a "water-side" application of traditional land use planning. As development and population density have increased in the past several years, CRMC recognizes the importance of long-range planning for shoreline areas. The HMP is the vehicle that provides a community with a plan for the controlled growth and development of its harbors and shoreline areas.

For the past several years the Commission has held monthly meetings in a concerted effort to bring the HMP to fruition. Though many thought the process went on for an excessive length of time, many of the topics were extraordinarily controversial. The need to balance the desires of a very diverse population made the Plan development especially difficult at times. In an effort to hear all arguments, concerns, and wishes of those most affected, the Commission held additional workshops for each area that would ultimately be affected by the decisions made. Workshops were held for the Pawcatuck River, Colonel Willie Cove, Watch Hill, Weekapaug, Haversham, and Shelter Harbor. These meetings were well-attended by the public and much of the Plan as written today reflects the outcome of those workshops. The subjects of most concern were with regard to shoreline public access, the protection of Napatree, and mooring management. As a direct result of these individualized meetings the following critical items were proposed in the HMP:

- The common denominator for all focus groups was the desire to be able to continue to operate their respective areas as they had historically. The HMP has proposed this continuance, provided that yacht clubs and community groups agree to increase accessibility wherever feasible.
- Shoreline access would be increased wherever feasible with an emphasis on practicality.
- The HMP recommends that the Town look at improving properties currently owned, or for the future purchase of land, for the development of a town dock for the community. Site-specific language was removed to eliminate controversial and unrealistic sites possibly being proposed in the future.

The HMP is currently being reviewed by the CRMC for the inclusion of the required elements, which most importantly include sections on public access, water quality, mooring management, and storm preparedness. In addition to these required elements, the document will be reviewed for its consistency with state law. Once the review has been completed, the draft will be returned to the Commission and the necessary changes will be made. Upon approval, the HMP will be submitted to the Town of Westerly for adoption. Any changes requested by the Town Council as a result of its hearing process will have to be approved by CRMC.

Once adopted, the Town of Westerly will have a Plan in place that will allow for a balanced future, both protecting our valued shoreline areas and allowing appropriate access to them. Among the many contributors in the drafting of the plan were The Watch Hill Conservancy, the Watch Hill Fire District and the Watch Hill Yacht Club. The diligence and commitment of their representatives have been instrumental in ensuring the protection of Napatree Point and the Watch Hill area.

[KRR]

- All mooring areas would be legalized and continue to be managed by Assistant Harbormasters on a voluntary basis and appointed by the Yacht Club or neighborhood group most closely affiliated with the area.

The HMP may be found on the Town of Westerly Website – Left side – AGENDAS, MINUTES, ORDINANCES & RESOLUTIONS/TOWN COUNCIL AGENDAS & MINUTES/COUNCIL AGENDAS & VIDEOS/JUNE 3, 2015/ ITEM #5

Photo Richard C. Youngken



Acquisitions to Conserve Community Assets

Local conservation groups and Watch Hill residents have taken important action in recent months to protect open space and agricultural lands as well as other valuable community resources.

Recently the Westerly Land Trust acquired agricultural and conservation easements for 30 acres of Hillandale Farm from the Hence family, descendants of the Ayers family that has been farming the land on Haversham Road, just off Shore Road, since the early 20th century. The farm supplies organic produce to area restaurants and markets including the Weekapaug Inn and the Ocean House. In addition the Hences provide educational programs on agriculture for school children through the Ayers Foundation.

In a similar effort, last spring the Stonington Land Trust and Stonington Conservation Commission initiated an effort to acquire conservation easements for the remaining unprotected portions of the historic Stanton-Davis Farm, including 48 acres and over a mile of pristine river frontage across the Pawcatuck estuary from Watch Hill (see *Watch Hill Conservator*, February 2013). This 17th-century farm, continuously operated and maintained by generations descended from the original purchasers, is a local treasure of statewide and national historical significance. These efforts have been supported by contributions from the Watch Hill community.

In addition, this past winter another group of community members spearheaded a successful effort to preserve valuable open space within Watch Hill Village. Located on the north side of Larkin Road just east of Bay Street, and used for a number of years as a public parking lot, the land was scheduled for exclusive and densely developed condominium town houses that would have eliminated badly-needed parking for visitors to the Village. In an innovative move to retain the public parking, 20 Watch Hill residents organized and are in the process of implementing (at no profit to themselves), with the Watch Hill Fire District and the Misquamicut Club, a plan to transfer the parking lot to the District. In the near future the parking lot will be managed by the Fire District for the benefit of the Bay Street commercial area, Watch Hill and Westerly residents, and visitors to area shops, restaurants, and beaches. Fire District voters approved the deal on July 13; implementation of the transaction is expected to be accomplished in the coming weeks.

These efforts continue a long tradition of land and resource conservation in the area, directly contributing to the quality of life by saving and protecting valuable community resources and services.

Continued page 4

Acquisitions to Conserve Community Assets *continued*

One of the most consistent strengths of the Watch Hill community over the years has been its ability to meet challenges, particularly those that are beyond the means or guidance of town government. This is a cultural value that many have nourished in Watch Hill and Westerly through several generations.

This strength has also resulted in numerous other cooperative efforts to protect the community, most notably in actions to acquire and protect properties which, without community involvement, might have been acquired and developed by interests not concerned with maintaining the long-term character of Watch Hill, Westerly, or the region.

The Cincinnati syndicate that bought and developed the Everett Farm (1886 *et seq.*) was made up of businessmen whose families had established their connections to Watch Hill through stays at the great hotels and who then staked their future on Watch Hill becoming a family cottage resort, the very character of which they shaped with their sensitive placement of lots on the rolling landscape and the architecture of the cottages constructed there. The developers of the Watch Hill Farm (1899), the Uplands (1901) and other special residential areas such as East Hills Road and Breen Road followed suit.

In 1910 *et seq.*, the Watch Hill Improvement Society bought up the properties along the harbor, removed the buildings there, and created the Village Park, opening the long water views west to Napatree and Stonington and providing a place from which to enjoy the magnificent setting.

After the disastrous October 1916 fire, which destroyed the great Watch Hill House (northern corner of Bluff Avenue and Larkin Road, at the head of Lighthouse Road) and numerous other structures between Bluff Avenue and Bay Street, local residents, forming a partnership known as Watch Hill Estates, bought up many of the then-vacant lots to guide redevelopment.

Following the devastating 1938 Hurricane and another in 1944, in 1945, the Fire District bought up properties at both ends of Napatree: the former Larkin Bathing Beach and the former properties of federal Fort Mansfield, as well as a number of pre-1938 cottage sites. The result today is the natural barrier beach, protected by the Fire District and the Conservancy, known as the Napatree Point Conservation Area.

In the early 1990s, when the Holdredge family put its parking garage, the late 19th century Lanphear Livery Stable, on the market, again Watch Hill residents came together to form the Watch Hill Limited Partnership, to maintain the public parking lot on the property and to renovate and return the structure to productive community use; a decade later, the final use is still under active consideration.



Photo Richard C. Youngken

The acquisition and reconstruction (beginning in 2006) of the historic Ocean House by Charles M. Royce and his Bluff Avenue Associates is perhaps the single most dramatic example of a Watch Hill initiative to recapture and preserve a landmark of Watch Hill. While in the end the historic building could not be saved, its feeling, character, and use as a Watch Hill icon was recaptured in the new building.

The community continues to respond to needs and opportunities with foresight and generosity. The Conservancy's on-going Bay Street infrastructure enhancement and economic development project is a notable example. Through the Conservancy, community members are funding, with support from area foundations, the State of Rhode Island, and the Town of Westerly, a significant remake of the street's needed infrastructure to improve safety, bring more economic vibrancy to the Village, and to restore vistas and views.

We expect in the near future to be able to report on yet another community effort to acquire and protect another significant Watch Hill Village property. [CBB, RCY]

Eyes on Water Quality

Concern about water quality in Little Narragansett Bay, Watch Hill Cove, Foster Cove, and the Pawcatuck River has been constant for many years. To many these resources are the epitome of summer on the shore. These waters are used extensively for recreation and have significant values for the community. However, improvements to a degraded water quality have been an elusive goal.

The Rhode Island Department of Environmental Management (DEM) has declared the lower Pawcatuck River and Little Narragansett Bay north of Sandy Point, including Watch Hill Cove and Foster Cove, impaired because of bacterial pollution levels, which are on average routinely above acceptable state and federal health standards. In brief, these areas suffer from fecal bacterial water pollution to the point that swimming and shell fishing are not recommended or allowed, particularly after wet weather.

In 2010, DEM completed a detailed study and draft report of fecal bacterial levels and suspected sources of such pollution entitled: *Total Maximum Daily Load [TMDL] Analysis of the Pawcatuck River and Little Narragansett Bay Waters: Bacteria Impairments Pawcatuck River, Mastuxet Brook, Little Narragansett Bay, Watch Hill Cove, Westerly, Rhode Island*. The report is a guide for local and state officials to put in place remedial actions with the goal of correcting the situation to the extent feasible. The TMDL report establishes an appropriate clean water quality level to be obtained over time in accordance with the federal Clean Water Act.

Significantly, routine water quality testing by the Watch Hill Conservancy since 2007 has contributed to establishing awareness, benchmarks, and water quality trends, particularly for Little Narragansett Bay, which generally has lower bacterial levels than the Pawcatuck River. Testing points have included locations at Watch Hill Cove and on the ocean and bay sides of Napatree. Volunteers working with Conservancy Board member Grant Simmons follow a procedure developed and monitored by the University of Rhode Island's Watershed Watch program. Simmons recently observed that "building the baseline data is very important to gain improvements in water quality in the future, which we will all benefit from. Testing the water is a service we provide to the greater community."

The Conservancy's effort is part of a region-wide water quality monitoring program which has become invaluable for Watch Hill, Westerly, and other communities in South County and elsewhere in the state. By systematically and routinely testing for baseline aspects – water clarity, salinity, temperature, dissolved oxygen, algae growth, nutrient loading, and fecal bacterial contamination – trained volunteers supply scientists at URI and RIDEM with raw data that can be converted to a base line and trends analyses.

Save The Bay (STB) also participates in collecting water quality data in the Pawcatuck River estuary and Little Narragansett Bay and has concluded that the two sources (River and Bay) complement each other. David Prescott, STB's South County Coastkeeper, explains that "the flushing action of the Sound and Bay improves the situation. The environment seems almost pristine (visually), but we do have to be aware of the impact of the growth of excessive waterfowl populations caused by feeding, nutrient loading from failed septic systems, leaking sewer pipes, and storm-water runoff." While the eelgrass beds south of Sandy Point are very healthy, Prescott is concerned about a growing "dead zone" between Sandy Point and Barn Island, where "macro-algae on the bottom are becoming thicker and the sediment is made up of a very sticky highly organic goo – black mayonnaise," the result perhaps of excessive nutrient loading from upriver sources.

While the TMDL report shows that there are growing problems with water quality, it describes what can be done to reverse a trend toward increased fecal contamination, the primary water quality impairment to the area. Listed in the report are the need for continued monitoring and correction of sewer pipe leaks to storm water outflows; corrections to failing septic systems in areas where no municipal sewers are available; implementing best practices for containing and treating farm animal waste; education on monitoring recreational boat waste; and education and advocacy for abstaining from feeding waterfowl, especially when it encourages and sustains large flocks of geese, ducks, and swans. The report stresses undertaking these remedial activities to correct the situation over focusing solely on improvements to the area's sewage treatment facilities.

In a move to improve the situation, in 2008 the Westerly Land Trust acquired 2.5 acres of the Beriah Lewis Dairy Farm along the Pawcatuck River north of downtown Westerly and initiated a water quality project there which is now coming to fruition. In 2012, dairy cattle on the farm were given an upland fresh water drinking station and fenced from the riverbank to curtail animal waste from entering the river. The farm on Boom Bridge Road in North Stonington is the largest dairy farm in the area, producing 15 tons of milk daily. Runoff from the farm has had an impact upon the river from this point downstream. Other holdings of the Westerly Land Trust and the Watch Hill Conservancy, along the river and Little Narragansett Bay, such as Colonel Willie Cove, help with water quality management. Certainly the Watch Hill Conservancy's Napatree Conservation Area property contributes to natural habitat and protection of water quality in Little Narragansett Bay.



Photo Richard C. Youngken

www.thewatchhillconservancy.org



Photos Salt Ponds Coalition

Pet waste must also be managed to prevent large quantities entering the river, bay, and coves through street drains as storm water runoff. According to the Pacific Shellfish Institute and the TMDL report, "one gram of dog waste contains 23 million fecal coliform bacteria, almost twice as much as human waste." The TMDL estimates that nearly 900 pounds of dog feces are produced within the lower Pawcatuck watershed daily. During rain storms, pet waste washes from yards, sidewalks, and other areas where pets are walked into nearby waters via direct sheet flow runoff and storm drains.

While a single average dog may produce 1/2 pound of waste per day, Canada Geese produce over four times as much, or 2-3 pounds daily and, according to the DEM, swans produce even more. Collectively, they defile significant habitats to a degree that can take decades to restore. Waterfowl feeding is one of several aspects of human intervention in the eco-system of the Pawcatuck River and Little Narragansett Bay that leads to fecal bacterial water pollution, making shell-fishing off limits and water contact unhealthy from time to time. Goose, duck, and swan guano are on the list of culprits, along with bacteria-laden storm run-off from farm animal waste, pet waste, and a limited number of suspected direct discharge sewer pipes, and failing septic systems.

Most of these water pollution contributors are known as "non-point" sources, because the source is carried over the land with rainwater, and not concentrated from a single source with a pipe discharge such as a sewage treatment plant. They are more difficult to manage than simply correcting the man-made impacts of leaking sewer pipes, underperforming or faulty sewage treatment plants, and failed septic systems.

Currently protected lands such as the Beriah Lewis Farm, Napatree, Sandy Point, Colonel Willie Cove, and the Stanton-Davis Farm in Stonington provide the opportunity to proactively manage potential non-point pollution sources. This is and has been the new frontier of water quality management. Significantly, many point sources, such as the Westerly and Pawcatuck sewage treatment plants on the upper Pawcatuck, have been reducing their pollution load over time through proper controls. However, they are still considered to be contributors to the problem. Additional sewer lines being considered for Misquamicut would add to the pollution load at the Westerly facility.

While the two wastewater facilities may provide advanced treatment, they continue to be point sources for high levels of nitrates – more than ten times the normal background levels. High nitrate levels produce high levels of phytoplankton growth which cause algal blooms and subsequent decreases in dissolved oxygen. Low oxygen levels result in large seasonal "kills" both in finfish and shellfish. Combined with high fecal bacterial levels, high nitrate levels further degrade water quality by creating a nutrient-rich environment.

Creating protected conservation buffers along the river and managing them to reduce animal and waterfowl impacts can be very helpful. Continued water quality monitoring ensures that the data will be available to evaluate overall improvements or future degradation against a baseline. [RCY]