



# NONPOINT SOURCE SUCCESS STORY

## Connecticut

### Intensive Track-Down Work Benefits Water Quality in the Norwalk River

#### Waterbody Improved

Progress has been made restoring water quality in Connecticut's Norwalk River. The small coastal stream in the Southwest Coast Watershed of Connecticut has been degraded by urban runoff from residential and commercial sources affecting biological communities and recreation. Because Norwalk River segment CT7300-00\_04 failed to meet the bacteria water quality standards (WQS) for recreation, the Connecticut Department of Energy and Environmental Protection (DEEP) added it to the state's Clean Water Act (CWA) section 303(d) list in 2002. Efforts to track down and address leaking septic systems and other bacteria sources have led to improved water quality, allowing DEEP to remove Norwalk River segment 04 from the 2014 list of impaired waters for bacteria. Two other adjacent Norwalk River segments (7300-00\_03a and 7300-00\_05) were removed from the impaired waters list in 2012.

#### Problem

The 25-mile Norwalk River is influenced by commercial and residential development. The river is heavily used by recreational fishermen. Hydrology is influenced by impervious cover, groundwater discharge and, and discharges from two wastewater treatment plants (WWTP). Both WWTP discharges are disinfected with ultraviolet light from April 1 to October 1. Pollution sources include WWTP discharges, impervious surfaces, septic systems, pet and animal waste, and lawn care. Aquatic life use support is impacted by point and nonpoint source (NPS) pollution, and by flashy flows and elevated temperatures from runoff.

Data collected beginning in 1998 showed that Norwalk River segment CT7300-00\_04 often failed to meet WQS for recreation, which require that the *Escherichia coli* bacteria geometric mean values not exceed 126 colony-forming units (cfu) per 100 milliliters (mL). As a result, DEEP added this segment to the state's list of impaired waters in 2002 (Figure 1). DEEP completed a total maximum daily load (TMDL) analysis in 2006, which established that bacteria loads in segment 04 must be reduced by 39 percent to meet WQS for recreational use.

#### Project Highlights

Harbor Watch at EarthPlace has conducted ambient water quality monitoring and source track-down work (pollution source investigation and identification) throughout the Norwalk River watershed for 18 years. Local municipalities (e.g., town of Wilton), nongovernmental organizations (NGOs) (e.g., Trout Unlimited), and private foundations recognize the value of and have contributed funding annually to sustain the Norwalk River monitoring and track-down program.

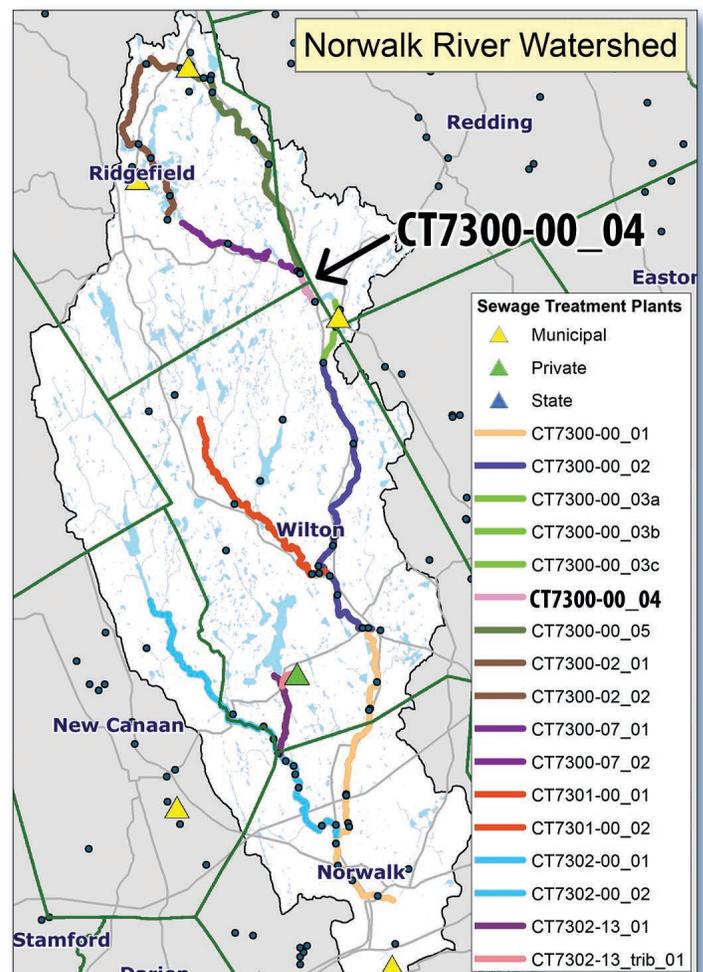


Figure 1. Segment 04, in the headwaters of the the 64-square-mile Norwalk River watershed, begins at the inlet of Factory Pond in Wilton and extends upstream to Cooper Pond Brook, which is downstream of Branchville Road in Ridgefield.

Several sources of pathogens affecting this segment have been identified and corrected. High *E. coli* counts were detected in the river near the Branchville rail station in 2012. Volunteer monitoring staff located a bacteria source near a residence on an upstream tributary (Figure 2). The Ridgefield Inlands Wetlands Agent was notified; their investigation revealed a cesspool leaking into the brook. The system was upgraded under orders in 2013.



Figure 2. Volunteers.

Detailed investigations indicated that sources of *E. coli* were entering a ditch draining to Cooper Pond Brook. Volunteer monitoring program staff coordinated with the Ridgefield Health Department, who worked with property owners to improve their septic system management practices. Another intermittent discharge from a septic system with an undersized leaching field was also discovered and was required to be corrected by the town of Wilton in June 2013. Monitoring program data helped the town locate and identify the illicit discharge.

Harbor Watch staff have reported on water quality data at Norwalk River Watershed Initiative (NRWI) meetings since the NRWI was organized in 1998. The NRWI is an extensive collaboration of watershed stakeholders, NGOs, municipalities, and state and federal agencies. Timely updates on water quality provided at those meetings results in a network of people who are concerned with the river's health, act as good stewards, and take timely action to address identified problems and prevent new problems.

## Results

Harbor Watch's volunteer monitoring program has been collecting ambient water quality data in the Norwalk River since 2000. Data collected in 2015 showed a mean *E. coli* level of 98 cfu/100 mL in segment 04, indicating that the segment now meets WQS and the TMDL target for *E. coli* bacteria, and is fully supporting its designated use of contact recreation (Figure 3). As a result, DEEP removed it from Connecticut's 2014 list of impaired waters. This segment is between two other Norwalk River segments that were removed from the impaired waters list in 2012: segment CT7300-00\_03a (near Stonehenge Road) and segment CT7300-00\_05 (near Old Mill Road in Wilton).

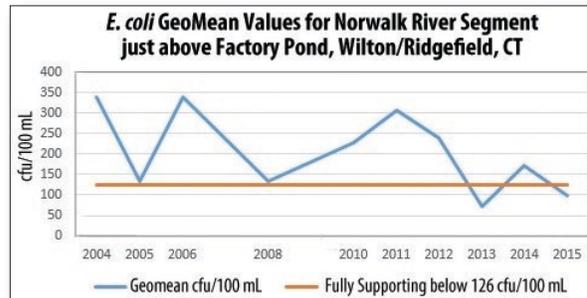


Figure 3. *E. coli* geomean values now meet WQS.

## Partners and Funding

Collaboration by NRWI members has shown that increased awareness and behavioral change can solve NPS pollution problems. Harbor Watch at EarthPlace used CWA section 319 funding (\$30,000) to conduct extensive water quality monitoring and track-down surveys for the program's first 3 years; since then, other sources of funding have supported the program. Local health and public works departments have issued active abatement orders and other efforts when NPS pollution sources are located, leading to source reductions. Current collaborations include a project with the Westport Weston Health District, Connecticut Agricultural Experiment Station, and Yale University to conduct a CWA section 319-funded genome source tracking analysis for pathogens, using quantitative polymerase chain reaction (qPCR) analyses alongside conventional *E. coli* testing to determine pathogen sources in three coastal streams.

The towns of Wilton and Ridgefield have been involved with track-down work and follow-up with property owners to remove pollution sources in areas found to have high ambient *E. coli* counts. The Trout Unlimited Mianus Chapter has funded additional track-down and monitoring work.

CT DEEP has worked cooperatively with Harbor Watch in the Norwalk Regional and other subregional basins, providing CWA sections 319 and 604b funding for ambient monitoring and track-down survey work, following up on reports of pollution, and attending NRWI meetings to encourage other NRWI members to work to correct identified sources of NPS pollution. The U.S. Environmental Protection Agency has provided funding support to NRWI partners through the Urban Waters Program and the CWA sections 319 and 604(b) programs.



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