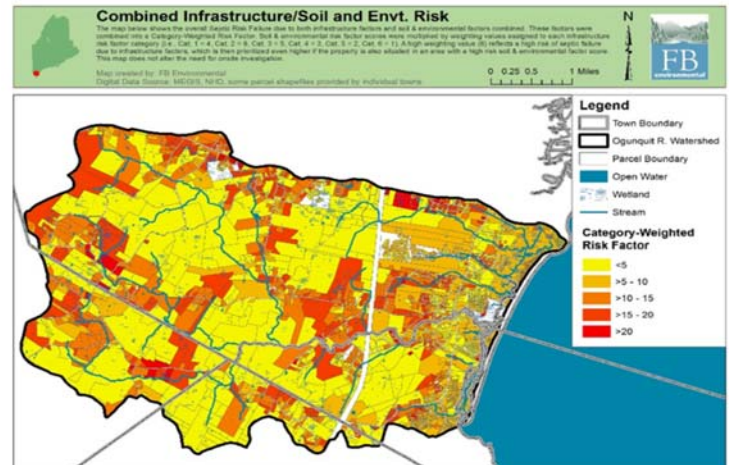




Town of Ogunquit Addressing Land Use on Water Quality in the Ogunquit River Watershed

“This tremendous accomplishment will be an invaluable resource for tracing problems in the Ogunquit River Watershed and ensuring clean water and a healthy environment for this area.”

Bill Baker, Ogunquit
Conservation Commission



PARTNERS

Representatives from the Towns of Ogunquit, South Berwick, Wells and York, as well as the Ogunquit Conservation Commission, Mt. Agamenticus to the Sea Conservation Initiative, Great Works Regional Land Trust, Maine Healthy Beaches and the Maine Department of Environmental Protection (DEP).

PROJECT DESCRIPTION (completed December 2016)

The Ogunquit River Watershed Restoration Project aims to improve and protect water quality in the Ogunquit River and its estuary. The estuary is listed as one of Maine’s impaired waterbodies due to high levels of fecal indicator bacteria. Prior to the receipt of this grant, Ogunquit was the recipient of two Section 319 Grants for Non-Point Source (NPS) Water Pollution Control from the Maine DEP. In 2016, CCG funding expanded to a more holistic, watershed-wide approach by strengthening collaboration among all four towns within the watershed: Wells, Ogunquit, South Berwick, and York. The existing septic and sewer database created for the portion of the Ogunquit River watershed within Ogunquit was expanded to include the rest of the watershed in Wells, South Berwick, and York. Parcels were scored and prioritized by a combined septic failure risk factor, which involved both infrastructure (taken from the database) and environmental (based on soil, slope, and water suitability analysis) considerations. The existing water quality monitoring program was also expanded to track sources of fecal contamination across different seasons and across a larger portion of the watershed.

ISSUE AREA

The Ogunquit River watershed is approximately 21 square miles located within the towns of Ogunquit, South Berwick, York and Wells. The Ogunquit River is joined by multiple tributaries, including Tatnic Brook and Green Brook, before entering into more developed areas in the Town of Ogunquit. The portion of the river downstream of the Route 1 crossing is tidal. It flows through salt marshes before emptying into the Gulf of Maine behind Ogunquit’s barrier beach.

THE CHALLENGE & APPROACH TAKEN

High levels of fecal indicator bacteria have been consistently measured in the Ogunquit River and its tributaries and estuary. Previous water quality monitoring indicates that human waste, likely in groundwater from malfunctioning septic systems or leaky sewer lines, is a potentially significant source of fecal indicator bacteria, particularly in the Leavitt Stream tributary. The River is also intensely impacted by polluted surface runoff, including stormwater from residential, municipal, and commercial properties. The developed areas surrounding the River and its tributaries contribute to water quality degradation and the State-listed bacteria impairment of the Ogunquit River estuary.

The Town of Ogunquit and the Ogunquit Conservation Commission have already acted to identify and address potential sources of bacteria by establishing an annual water quality monitoring program and DEP approved Ogunquit River Watershed Plan (2013). To date, work on this project has focused on actions within Ogunquit's municipal borders and has included outreach efforts, tracking of septic and sewer line history within the watershed and implementation of Best Management Practices (BMPs) at residential, commercial, and municipal locations.

CCG funds were utilized to:

- Broaden the scope of work beyond Ogunquit's municipal borders to include the other watershed towns of Wells, South Berwick, and York, as well as regional land trusts, the Mt. Agamenticus to the Sea Conservation Initiative and the Great Works Regional Land Trust.
- Expand an existing septic and sewer database to include all properties within the watershed and prioritized high risk areas for targeted outreach.
- Expand the annual baseline water quality monitoring program to 1) identify and bracket potential sources of and changes in bacteria across seasons in "hotspot" areas; 2) investigate the upstream freshwater portion of the watershed (the OR-06 sub-watershed) for potential nonpoint source pollution sites; and 3) analyze a subset of water samples for source-specific DNA markers (human, dog, and bird).

THE RESULTS

The three multi-town collaboration meetings held at the Dunaway Community Center in Ogunquit were well-attended by project partners. These meetings allowed project partners, particularly the towns, to voice their concerns, opinions, and/or current activities related to the improvement of water quality in the Ogunquit River watershed.

The expansion of the septic and sewer system database provided municipal staff with up-to-date information on the status and condition of wastewater disposal within the watershed. Each parcel was given a ranking based on infrastructure risk of failure (based on age, maintenance history, etc.) and environmental suitability (soil characteristics, etc.) to prioritize further research and remediation efforts.



COASTAL COMMUNITY GRANTS: Water Quality and Land Use

Each watershed town was given a copy of the Ogunquit River watershed septic and sewer system database (in spreadsheet form), along with an accompanying memo that details the methods used for and results of the septic failure risk analysis (with maps).

Ogunquit River watershed monitoring in 2016 demonstrated that fecal contamination is persistent in the known “hotspot” areas, particularly during wet weather across all seasons. This suggests that stormwater sources, likely from a combination of wildlife and dog waste (as demonstrated by DNA analyses), may be the dominant source of fecal contamination to the Ogunquit River. Of particular concern is the Leavitt Stream Sub-watershed from OR-15-1 to the outlet at OR-13 (covering the Village Highlands neighborhood), as well as OR-18 (Littlefield’s Village area).

NEXT STEPS AND OPPORTUNITIES

The results of this project will guide the watershed municipalities in their next steps for improving and protecting the water quality of the Ogunquit River and its tributaries and estuary. With Phase II of the Maine DEP Section 319 Watershed Assistance Grant well underway, we have the opportunity to use results from the Coastal Communities Grant to determine and implement these recommended next steps and opportunities. The following provides a summary of recommendations; refer to individual reports for more specific next steps.

Next Steps for Multi-Town Collaboration

- Invite project partners to steering committee meetings for ongoing (Section 319 Phase II grant) and future projects.
- Communicate important changes to wastewater treatment within the watershed (e.g., sewer treatment upgrades, sewer line expansion and private septic removal, discovery of failed septic systems, etc.), which may impact water quality in the Ogunquit River. Meetings should involve the watershed towns, Maine DMR, and Maine Healthy Beaches.
- Consider a multi-town loan program to help fund septic system replacements. This was suggested at one of the committee meetings and should be followed-up.

Next Steps for Septic and Sewer Database

- Update, maintain, and fill in gaps in the septic and sewer database for the Ogunquit River watershed (to be the responsibility of each watershed town).
- Identify information on high-priority Category 1 parcels with “Unknown” status
- Implement a schedule for updating the septic and sewer database regularly.
- Implement a septic system maintenance ordinance (e.g., minimum pump-out intervals) if one does not yet exist for the town. Ordinance already exists in Ogunquit, but regular enforcement is lacking.
- Host “septic socials” in areas with high density of septic systems to increase awareness of proper septic system maintenance.
- Refer to the septic database memo for town-specific recommendations.



Next Steps for Water Quality Monitoring

- Continue to monitor bacteria levels annually within the Ogunquit River watershed.
- Develop a 'scoop the poop' outreach campaign with a focus on the Leavitt Stream sub-watershed and the Main Beach area (draining to OG-pipe). DNA analyses and comments from residents indicate that dog waste is a problem in these areas. Install pet waste signs noting local fines for improper disposal.
- Distribute materials describing the connection between pet waste and water quality to newly-registered dog owners. Note: These outreach initiatives are currently being pursued under Phase II of a Section 319 Watershed Assistance Grant from the MEDEP and USEPA.
- Distribute information on proper septic system maintenance for property owners in the Leavitt Stream sub watershed, particularly around OR-Jothams, which may be impacted by a single malfunctioning septic system upstream. Although 2016 DNA analyses did not show human fecal waste as a problem in the watershed, dry summer conditions may have restricted mobilization of deeper groundwater sources where human fecal contamination is more prevalent. Historical DNA analyses have shown human fecal contamination at many sites, particularly in the Leavitt Stream sub-watershed.
- Install a stormwater best management practice (BMP) that filters out bacteria and their associated pathogens from stormwater flow through the catch basins or pipes leading to OG-pipe outlet. Note: This is currently being pursued under Phase II of a Section 319 Watershed Assistance Grant from the MEDEP and USEPA.
- Continue to monitor OR-13 for bacteria. A major stormwater best management practice (BMP) is being installed at the Lower Parking Lot as of December 2016 (under Phase I of a Section 319 Watershed Assistance Grant from the MEDEP and USEPA). Monitoring at OR-13 will help determine if the BMP is successful in reducing fecal contamination at this site.
- Resample historical sites above and below Robbie's Pond, which drains to OR-18, a rediscovered hotspot of fecal contamination to the Ogunquit River.
- Investigate the source of thick algae growing above OR-06 and around OR-Jothams by testing for phosphorus (typically the limiting nutrient to growth in freshwater systems) and nitrogen.
- Further investigate potential sources to ORINV-07 and OR-10, which both showed high counts during the dry weather OR-06 sub-watershed investigation.
- Provide outreach on river-friendly home practices to property owners adjacent to the river (in both Wells and Ogunquit).

NEEDS

Municipalities within the watershed will need to maintain the septic and sewer system database, ideally on an annual basis. For larger communities, this may require significant time and effort from small code enforcement staff.



COASTAL COMMUNITY GRANTS: Water Quality and Land Use

LESSONS LEARNED

We learned that availability of and ease of access to wastewater disposal system records and permits vary widely among communities in Maine. Standardization of records and more easily-accessible State permits (such as NHDES's OneStop) would help prevent the intense time and effort required to jumpstart septic and sewer databases. Limited municipal resources make it difficult to maintain these databases, enforce existing septic pump-out ordinances, and regularly and actively participate in project meetings. 2016 was an extremely dry summer, which restricted the mobilization of bacteria sources from the landscape to waterways. This may explain why human biomarkers were not found at many sites that had historically tested positive for human fecal waste. Thus, further monitoring in "wetter" years should be performed to better track human fecal sources in the watershed, which have been found historically at many sites.

APPLICABILITY TO OTHER MUNICIPALITIES

Watersheds do not follow municipal borders. Other municipalities can look to our watershed-wide approach to natural resource management and restoration as way forward to develop efficient strategies that address fecal contamination issues.

RECOMMENDATIONS

Encourage cooperation among municipalities in other regions of the State where communities face similar trans-boundary environmental issues.

FOR MORE INFORMATION

Work products can be viewed on the Town of Ogunquit's website at: http://www.townofogunquit.org/index.asp?Type=B_BASIC&SEC={EBDEAD6A-1CA7-4F90-B666-233117B8E82F}&DE={46EEBF0B-8D79-4593-9CF3-C1C7F7F285F9}

CONTACT

Patricia A. Finnigan, Town Manager
townmanager@ogunquit.org

Laura Diemer, Project Manager
FB Environmental Associates
laurad@fbenvironmental.com

FY16 CCG-47
12.12.2017.

This project was funded under awards CZM NA14NOS4190066 and NA15NOS4190208 to the Maine Coastal Program from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Coastal Community Grants are awarded and administered by the Maine Department of Agriculture, Conservation and Forestry Municipal Planning Assistance Program.

