Homeowner Education Workshops on Wastewater Management in Two Lakeshore Communities

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Why education on septic systems?

- **Public Health** – pathogens, groundwater contamination
- **Environment** – nutrients (N, P), pathogens, contaminants
- **Consumer finance** (privately owned)
- **Community planning** – investment in centralized vs. decentralized wastewater management options
- **Individual behavior makes a difference** – daily use and maintenance
Why focus on lakeshore communities?

• **Less ideal sites for traditional septic systems**
  • Near surface water
  • Shallow depth to groundwater
  • Shallow soils near bedrock
  • Small, narrow, or steep lots

• **Higher risk of surface and groundwater impacts**

• Seasonal and rental properties

• Advanced onsite technologies may be appropriate but new to residents and local regulators
Workshop Funding

State funding through NYS Pollution Prevention Institute Community Grants Program www.nysp2i.rit.edu

Grant to NYS Water Resources Institute at Cornell University (Sri Vedachalam, Susan Riha, Amy Galford)

“Homeowner Education Workshops on Wastewater Management in Two Lakeshore Communities”

2 workshops each in 2 interested communities

December 2012 – May 2013
2 Lake Associations

**Chautauqua Lake Management Commission**
- Lake management plan
- County government involvement
- TMDL for Phosphorus
- Drinking water source

**Canadarago Lake Improvement Association**
- Recent detailed lake studies
- Developing management plan

[nationalatlas.gov](http://nationalatlas.gov)
Workshop Goals

• Convey basics of septic system function and maintenance

• Introduce advanced treatment technologies

• Relate septic systems to lake management plans

• Involve local group in picking topics, recruiting speakers

• Ask about current septic maintenance behavior

• Update and share educational materials; available on WRI website wri.eas.cornell.edu
Workshop Topics

Chautauqua

Mar 6:
Local wastewater treatment history
Conventional & advanced septic systems
Chautauqua Co. Health Dept. Septic Program

May 11 (proposed agenda):
TMDL for phosphorus
Fate and transport of P in septic systems
Canandaigua Lake Wastewater Enforcement Program
Alternative septic systems and P removal
Workshop Topics

Canadarago

Feb 2:
Conventional septic systems
Otsego Lake Watershed Management Plan
Advanced septic systems
Process of protecting local lakes

Apr 20:
Conventional and advanced septic systems
Otsego Lake Watershed Onsite Wastewater Management Program
Options and resources for individuals and communities
Workshop Attendance

**Chautauqua**

Recruitment: press release to local media, public access TV, local legislative office, email lists

Mar 6 (Wed eve.): 26 attendees
May 11 (Sat morn.)

**Canadarago**

Recruitment: press release to local media, email lists, Otsego Co Conservation Assoc.

Feb 2 (Sat aft.): 35 attendees
Apr 20 (Sat aft.): 31 attendees

3 hour workshops
Workshop Attendance

For voluntary workshops, remember attendees may not be representative of population

- Able to attend
- Motivated to attend
- Already concerned about septic system, environment?
- Already maintaining properly?
- Or already experiencing problems?
Surveys and Workshop Evaluations

Questions about:
Septic system characteristics (before)
Maintenance behaviors (before)
Opinions about septic systems (before and after)
Maintenance intentions in next year (end)
Evaluation of the workshop (end)

Caveats:
Limited number of responses
  Surveys too long?
  IRB language intimidating?

Next slides are some data so far, pooled across 3 workshops
Surveys and Workshop Evaluations

“Have you ever pumped your septic tank?”
“When was the last time you pumped the tank?”

- < 1 yr ago 5
- 1-3 yrs ago 10
- 3-5 yrs ago 4
- > 5 yrs ago 2
- No 17

3-5 years = general rule of thumb for family residence

So half look good, half (19/38) might be too long interval, depending on property use
Surveys and Workshop Evaluations

Cost to pump the septic tank

14 responses, range $125-$400, mean = $250

Cheap compared to thousands for repair/replacement
Surveys and Workshop Evaluations

Estimated age of septic system

0 - 5 yrs  3
5 - 10 yrs  4
10 - 15 yrs  5
15 - 20 yrs  6
20 - 25 yrs  8
> 25 yrs  8
don’t know  4

Often ~30 year original design life

So 12 / 38 may be nearing end of design life, depending on use, maintenance, location
Surveys and Workshop Evaluations

“Do you use any commercial or homemade septic tank additives?”

14 yes
23 no

Not sure what “homemade” includes

But this is a problem – 38% may be spending money on products that may be useless, harmful (suspending solids), or instilling false confidence
Some Thoughts on Workshops

• Participants rated their knowledge of septic systems and available technologies higher after the workshop.

• Regardless of planning stage, individual behavior matters, so there is a need for education.

• Recruitment to educational events is always a challenge but people are very interested in the topic and protecting their lake.

• Good to have multiple events to reach more people and/or cover more topics.

• Education on advanced on-site systems is needed.

• Money may be a limiting factor on improvements.
Options and Resources for Property Owners

**Low-Cost Improvements (free to few hundred $)**

- Organize records
- Routine inspection and pumping
- Organize with neighbors to negotiate inspection and pumping rates
- Add features such as effluent filter (outflow from tank), access risers to make maintenance easier

**Water conservation**
Options and Resources for Property Owners

Options for a Failing System

Emergency measures
- Have system inspected and pumped immediately
- Conserve water, use water elsewhere

Work with local agencies and design professionals to determine options

Siting – can you use another location on the property?

Rehabilitation – replace, add, or upgrade parts

Install an advanced treatment component?

Join a larger system?
Check Local Agencies Before Making Changes

- State regulations and design guidance recently updated
- Which changes allowed locally?
- What forms, permits, inspections, or fees are required?

**Town/County Code Enforcement Officer** – forms may be online

**Local Health Department**
Some County Health Depts. have an Environmental Health Division
Some counties are served by District offices of NYS Dept. of Health

**NYS DEC** – check with regional office for activity near wetlands, shorelines; may have additional permits but streamlined permitting

**Other local/watershed regulations may apply**
Check Local Agencies Before Making Changes

- **Who can do the work?**

  NYS DEC regulates waste disposal and transport

  Need professional engineer or architect for larger work

  (See NYS DOH Factsheet “Need for Licensed Design Professionals – Residential Onsite Wastewater Treatment Systems”)

Possible Sources of Financial Assistance

Property Owners

USDA Home Repair Loans and Grants
www.rurdev.usda.gov/ny
low-income, rural, property type, your age
RCAP Solutions
www.rcapsolutions.org/financial_services.htm

Municipalities

There are also funding sources for municipalities for wastewater treatment – decentralized solutions are eligible

NYS Environmental Facilities Corporation
(EPA Clean Water State Revolving Fund for NYS)
USDA Rural Development
Syracuse Univ. Environmental Finance Center
RCAP Solutions
Wastewater Treatment Options

Best solution will vary locally
Continuum of centralization and technology
Variety of combinations

Conventional septic system (decentralized, on-site)
Advanced on-site treatment system (alternative, enhanced)
Cluster system (e.g., septic tanks but shared absorption field)
Management combinations
Package plants
Central wastewater treatment plant

All need state, local, watershed regulation and/or oversight
All need investment to last over time
Range of Community Management Options

EPA's Decentralized Case Studies Describe What Communities Across the U.S. Are Doing to Effectively Manage their Wastewater Infrastructure

State, Tribal, and Local Officials

State, tribal, and local officials are responsible for regulating onsite wastewater treatment systems. EPA offers a wide variety of resources to assist state and local governments in their efforts to manage these systems.

EPA's Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems (PDF) (2 pp, 56K, About PDF) are a principal resource for state and local officials. EPA has issued these guidelines to raise the quality of local management programs, suggest minimum levels of activity, and encourage institutionalizing the concept of decentralized wastewater management. Implementation of the guidelines can help communities meet water quality and public health goals, provide a greater range of options for cost-effectively meeting wastewater needs, and protect consumers' investment in home and business ownership.

The National Association of Counties has also developed a fact
Community Decentralized Management Models

1. Homeowner Awareness

2. Maintenance Contracts
   *(may be required by NYS or county health dept.)*

3. Operating Permits

4. Responsible Management Entity (RME)

5. RME Ownership

*US EPA 2003 Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems*
Community Decentralized Management

Case Studies

NYS: Skaneateles, Keuka, Otsego, Owasco, etc.

U.S. EPA has a number of case studies.

Cornell WRI developing more NYS case study reports, applied for grant to work with several communities

Which options technically feasible?

Which options practical, affordable, preferred?
Your input on how can Cornell help lake associations?
Suggestions now or contact us!

• Publications
• Workshops
• Webinars
• Planning process
• Other ideas?

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