Ensuring Clean Waters. Empowering Lake Associations to Conduct Septic Surveys

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Ensuring Clean Waters: Empowering Lake Associations to Conduct Septic Surveys



Today we will discuss...

- Septic system impacts to water quality
- Operations & Maintenance
- How to conduct a septic survey
- How to identify potential problem areas
- Communication, outreach, advocacy



Septic System Pollution



- Failing and/or underperforming septic systems can impact lakes
- Pollutants of concern are pathogens, phosphorus, and nitrogen
- Both a water quality and public health concern

Septic System Performance

Wastewater Treatment:

- Most phosphorus binds in the soil above the water table
- Phosphorus move**slowly** in groundwater
 - This is why the discussion tends to be about about shoreline systems.
- Less nitrogen is removed in the soil and it moves quickly in groundwater but can denitrify



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Septic System Performance



Failure occurs when:

- Soil is unsuitable (too fine)
- System is old (>25 years)
- Damage occurs
- Shallow water table
- Installation or O&M errors
- Steep slopes (breakout)

Poor performance occurs when:

- Soil is too coarse
- Low P retention capacity soil
- Shallow water table, bedrock
- Too close to waterbody

Septic System Operations & Maintenance



DO:

- Get an inspection every-3 years
- Get the septic tank pumped every 3
 5 years
- Limit water use and be mindful of your system
- Watch for signs of failure (ponding)

DON'T:

- Plant deeplyrooted vegetation over leachfield
- Pour harsh chemicals down drain
- Overuse garbage disposal
- Drive vehicles over leachfield



Septic System Impacts

- Phosphorus can contribute to eutrophication and/or cyanobacteria blooms
- Nitrogen can affect the type or toxicity of blooms, or downstream coastal ecosystems
- Bacteria can prevent recreation (public health)



How to Conduct a Septic Survey



Identify goals of the survey and area of interest

- Choose your desired endroduct and methods
-) Identify potential project partners
- Complete the survey

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- Use survey results to identify potential problem areas
- Communicating results, outreach, advocacy



Your big picture goals will influence the area of interest and the methods you choose



Some example goals:

- Track septic systemaintenance
- Identify potentially failing systems
- Inform watershed planning efforts
- Reducecyanobacteria bloom risk
- Protect downstreamcoastal resources
- Inventory of wastewate infrastructure
- Identify potentialloading hotspot areas

1 Identify Goals and Select Area of Interest



- Study area depends on your goal, watershed size, and you capacity to complete and maintain the inventory!
- Surveys focused on bacteria or phosphorus may choose to prioritize shoreline areas



2 Choose EndProduct and Methods



What do you want? Options are based on project partners, capacity, & goals.

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Excel Database

Permit Source



GIS Database (or Excel Database with GPS Coordinates)





2 Choose EndProduct and Methods



Tier 1 (Simplest)

- Basic information (parcel ID, town, street address)
- Is there a home on the parcel?
- # of bedrooms / people

Tier 2 (Complex)



- Approval date & number
- Land use
- Year home built / septic first installed
- Months of year occupied
- Type of system (conventional, dry well, holding tank)
- Notes!!!
- Soil pit data
- Depth to water table, bedrock, hardpan
- Slope
- Soil texture, color, consistency
- Information about previous system



- Tier 3 (Most Complex)
- Exact location of leachfield
- Design information



2 Choose EndProduct and Methods













- State Records
- Town Records
- Email Survey
- Mailed Survey
- Door-to-Door Survey





Lake Association (Yourself)

- Likely will require at least one project partner
- End-users of survey

Regional Planning Commission

- GIS capabilities
- May have grants knowledge
- Easier if watershed is in more than one town

Municipalities

- GIS capabilities
- Important relationship to build
- Long-term partners

GUIDE TO A SEPTIC SYSTEM VULNERABILITY ASSESSMENT A COMMUNITY GUIDANCE DOCUMENT TO ADDRESS WATER OUALITY CONCERNS

• Easier implementation

Consultant

- GIS capabilities
- Have time & capacity
- Vulnerability assessments
- \$\$\$









Obtain the list of parcels you need from a town planner, regional planning commission, consultant, etc.

Set up your datasheet with **metadata**



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Method 1: Records search through NHDES and Town Office

Use the NHDES Subsurface One Status Query to search for the records.

Use the%STREET%rick on the "Site Street Address" line to reliably pull all permits.

ANY

%MAIN%

Application Type:

Approval Number:

Owner Last Name:

Site Street Address:

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Water - Subsurface Onestop - Application Detail



Method 1: Records search through NHDES and Town Office

Return to Query Return to Results Work Number: Status: APPROVED FOR CONSTRUCTION Application Type: CONSTRUCTION **Approval Number** Approval Numbe Owner Name: Make sure address MAIN STREET Site Street Address: matches(map:lot County: ROCKINGHAM Book / Page: will not always match) Map / Lot: Subdivision Name Subdivision Approval Number: Designer Surveyor Installer: **Approval/Operation Date** Approval Date 11/17/1999 Operation Date Do Not Backfill Dat Number of Bedrooms Bedrooms Flow: 450 Approval Conditions



Method 1: Records search through NHDES and Town Office

Additional information about design of **SOME**systems at the bottom...

	Title	Date	Document Type	Size	
Select	201703349_APP_01.PDF	28-JUL-17	APPLICATION	0.34	
Select	201703349_PLAN_01.PDF	28-JUL-17	PLAN	0.91	
Select	201703349_APPACC_01.PDF	28-JUL-17	APPLICATION ACCEPTANCE LETTER	0	
Select	201703349_RFMI_01.PDF	28-JUL-17	REQUEST FOR MORE INFORMATION	0	
Select	201703349_CRCONC_01.PDF	26-FEB-18	ISDS CONSTRUCTION APPROVAL - CORRECTED	0	
Select	201703349_CONCA_01.PDF	14-AUG-17	ISDS CONSTRUCTION APPROVAL	0	
Select	201703349_PLAN-A_01.PDF	14-AUG-17	PLAN - APPROVED	1	
Select	201703349_CORPLA_01.PDF	11-AUG-17	PLAN - CORRECTED	0.88	
Select	201703349_RECWRE_01.PDF	11-AUG-17	RECORDED WELL RELEASE	0.05	

Information about previous system, type of development

Design, soils, exact location of system







Method 1: Records search through NHDES and Town Office







Method 2: (E)mail Survey or Doorto-Door Survey

- Google forms have proven successful
- Excellent education and outreach opportunity!
 - Include educational flyers in the (e)mailer
 - Gauge public interest and knowledge
- Delicate topic-emphasize that this is a planning exercise (NOT punitive)

Mobilize Local Champions







Figure 3.7: Examples of results from the 2011 septic survey for Lake Wentworth and Crescent Lake.

December 2012



Engage the community!

- Engaging your community from beginning to end will increase:
 - Local knowledge
 - Response rate to survey
 - Responsiveness to future effortso o
- Post to lake association website, Facebook pages, press release, newsletter











It is impossible to know if a system is properly functioning without an inspection!

It is impossible to know how well a leachfield treats phosphorus without intensive sampling



HOWEVER!

Data from a septic inventory can provide insight into how well septic systemsMAYbe functioning / treating contaminants

There are a few ideas that can guide how to identify potential problem areas.



- Septic systems have a typical lifespan of ~25 years
- 2 Shallow water table means it is unlikely to treat contaminants well / more likely to fail





Sort the spreadsheet and assign priority rankings to...



2 Systems older than 25 years old

3 Systems on parcels within the 250ft shoreland zone

4 Systems with shallow water table

5 Systems installed on coarse soils



Plains



Map:Ma, 2023

Communication, Outreach, Advocacy



Communicate findings throug**mewsletters**, press release, memo to the town planner, report, public hearing, or lake association meeting

Community engagement is a process... remember that this is alelicate topic.

To begin this process:

- Keep results broad and lacking specificity
- Provide a "big picture" overview
- Listen to each other







Provide targeted outreach to specific areas:

GET PUMPED!

New Hampshire

Don't wait for a *failure* to schedule a septic system pumpout



PROTECT YOUR FAMILY

If your septic system gets clogged with too much solid waste, it can force the wastewater to back up into your house... it can also overwhelm your leach field, which will turn your yard into a soggy mess. The bacteria in wastewater are not just smelly – they are also a health hazard!

PROTECT YOUR COMMUNITY

If a septic system fails, untreated wastewater can run off into local lakes, ponds or streams, negatively impacting water quality, wildlife and community enjoyment of the water body.

PROTECT YOUR WALLET

Getting your tank pumped costs about \$250-\$500 every 3-5 years. If you have a failure, it could cost you \$6,000-\$15,000 to replace or replace or replace.



WHY SHOULD I PUMP

Every home generates wastewater – via toilets, showers, sink drains, and dish and clothes washers

which must be treated and disposed of properly o protect human health and the environment.

WHEN SHOULD I PUMP? Don't wait for a failure! Septic tanks should be nspected or pumped every 3-5 years. Get

Only contact a NHDES-licensed septage hauler.

Visit getpumpednh.com to find a New Hampshire Association of Septage Haulers (NHASH) member

COMMUNITY MESSAGE

doing its part to help prevent water pollution in

community meet US Environmental Protection

Agency (EPA) requirements (including as part of

the MS4 program) to share pollution prevention

information with its residents.

local waterways. This outreach message helps our

umped today!

vour area.

Outreach: NHDES

All systems



areas



Shallow water table





- Increased setbacks
- Requiring routine maintenance
- Enhanced design or site suitability requirement
- Community septic / sewer (if applicable)



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Thank you! Questions? Come chat with me or feel free to reach out anytime:



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