

# *Septic System Care 101:* Caring for Your System and Your Watershed

Thursday, June 18, 2026

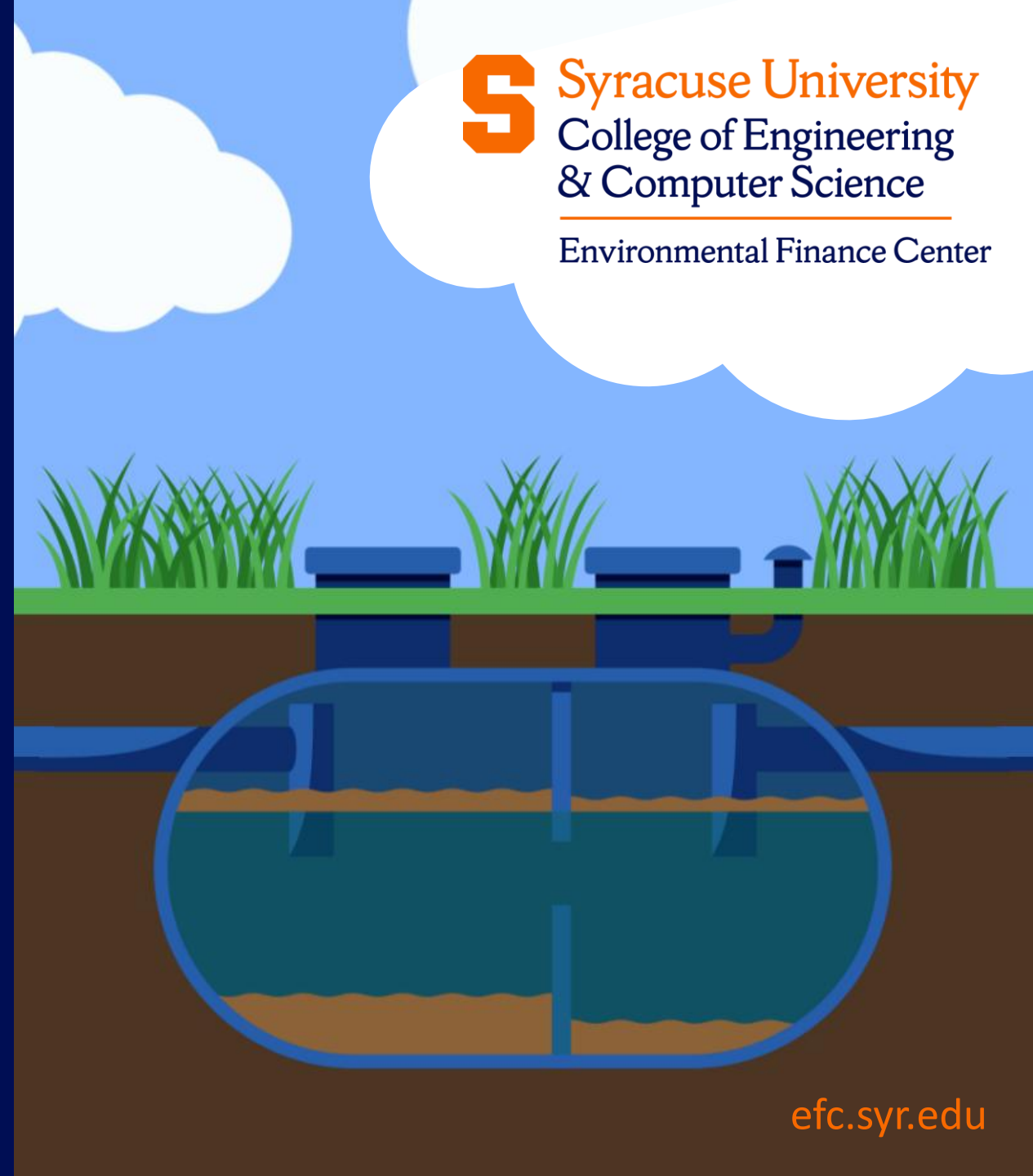
*Septic Systems & Otisco Lake: What to know  
to protect water quality*

**Averi Davis & Jes Eckerlin**

*Syracuse University Environmental Finance Center*

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**S** Syracuse University  
College of Engineering  
& Computer Science  
Environmental Finance Center



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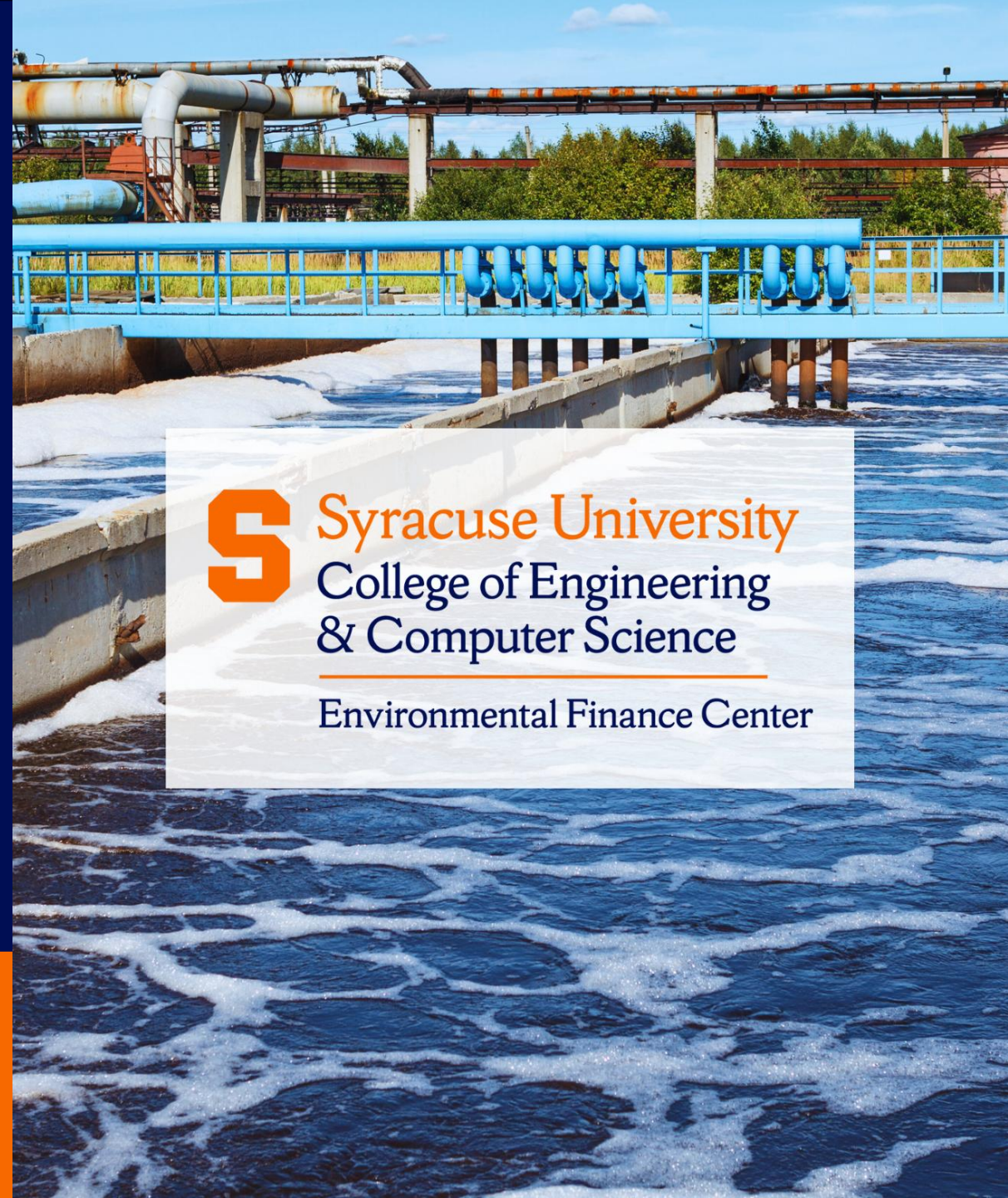
# About SU-EFC

Since 1993, the **Syracuse University Environmental Finance Center (SU-EFC)** has supported communities in tackling the financial and management challenges of environmental infrastructure.

From aging septic systems to drinking water and wastewater upgrades, SU-EFC helps local governments and organizations plan improvements, identify funding opportunities, and find workable solutions for long-term system management.



**Learn more by visiting:**  
[efc.syr.edu](http://efc.syr.edu)



**S** **Syracuse University**  
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Environmental Finance Center

# Otisco Lake

- **Surface Area:** 2,236 acres
- **Length:** 5.4 miles
- **Max width:** 1 mile
- **Average depth** of 32 feet
- **Maximum depth** of roughly 68-76 feet
- **Water Volume:** about 21 billion gallons



Image Source: NYFalls.org

New York State Department of Environmental Conservation  
Division of Fish, Wildlife and Marine Resources  
Lake Map Series



Region 7

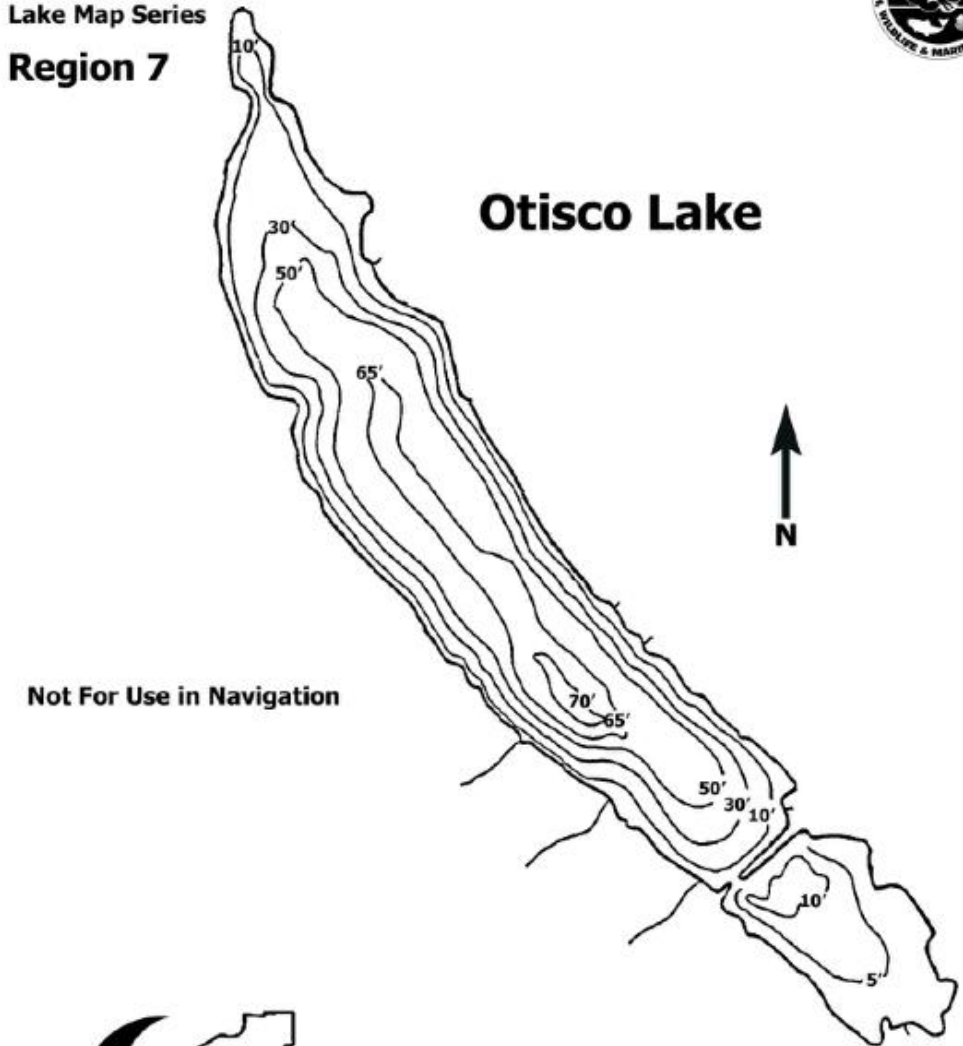
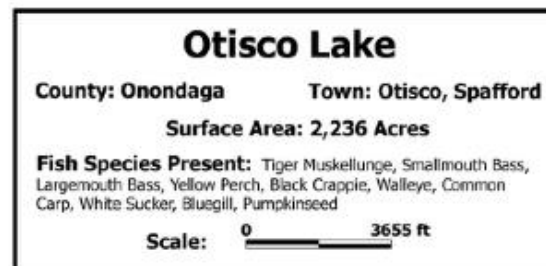


Image Source: NYSDEC





# Otisco Lake

**Origin:** partially marshland in its natural state

The water levels were significantly raised by dams built in 1869 and 1908 to support the Erie Canal and supply drinking water for Syracuse.

**Man-made Causeway:** historically used as a wagon road to cross the lake, which divides the water into two distinct basins



# Otisco Lake Fishing

*“Tiger musky provide a unique trophy and Otisco Lake may well be one of the best waters in the state for this fish.” –NYS DEC*

Largemouth bass- often exceeding 20 inches

DEC stocks annually with 11,000 tiger musky and 2,500 brown trout annually, 44,000 walleye biannually



## AMERICAN BASS ANGLERS AMERICAN FISHING TOUR NEW YORK DIVISION 4



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**Menu**

- 2026 SCHEDULE/RESULTS
- 2026 AOY RESULTS
- POINT SYSTEM
- ONLINE REGISTRATION
- NY FISHING REGS

**Past Results**

- 2025 SCHEDULE/RESULTS
- 2025 AOY RESULTS
- 2024 SCHEDULE/RESULTS
- 2024 AOY RESULTS
- 2023 SCHEDULE/RESULTS

### Otisco Lake - July 27, 2025 Results

[Print](#) | [Email](#)

Points</tr>

| PL | Angler             | Fish | Big Bass | Total | Points | Payout |
|----|--------------------|------|----------|-------|--------|--------|
| 1  | Mark A. Mothersell | 5    | 4.81     | 17.83 | 199    | 500    |
| 2  | Bradly A. Krauss   | 5    | 4.74     | 16.96 | 198    | 288    |
| 3  | Paul J. Procopio   | 5    | 4.80     | 16.84 | 197    | 94     |
| 4  | Andrew M. Frosini  | 5    | 4.57     | 16.49 | 196    | 0      |
| 5  | Donald S. Tripoli  | 5    | 4.67     | 15.86 | 195    | 0      |
| 6  | Corev R. Turner    | 5    | 0.00     | 14.55 | 194    | 0      |



Tiger Musky caught on Otiso Lake Image  
Source: Syracuse.com

# Otisco Lake Recreation

## ***Additional fish species:***

smallmouth bass, walleye, brown trout, bluegill, pumpkinseed, rock bass, black crappie, white crappie, yellow perch, white perch, channel catfish, brown bullhead, yellow bullhead, common carp, white sucker, golden shiner, and alewives.



Image Source: Fingerlakes Land Trust



Hugh with a Rock Bass

***Otisco Lake is a GEM!***

# Otisco Lake Land Use Over Time

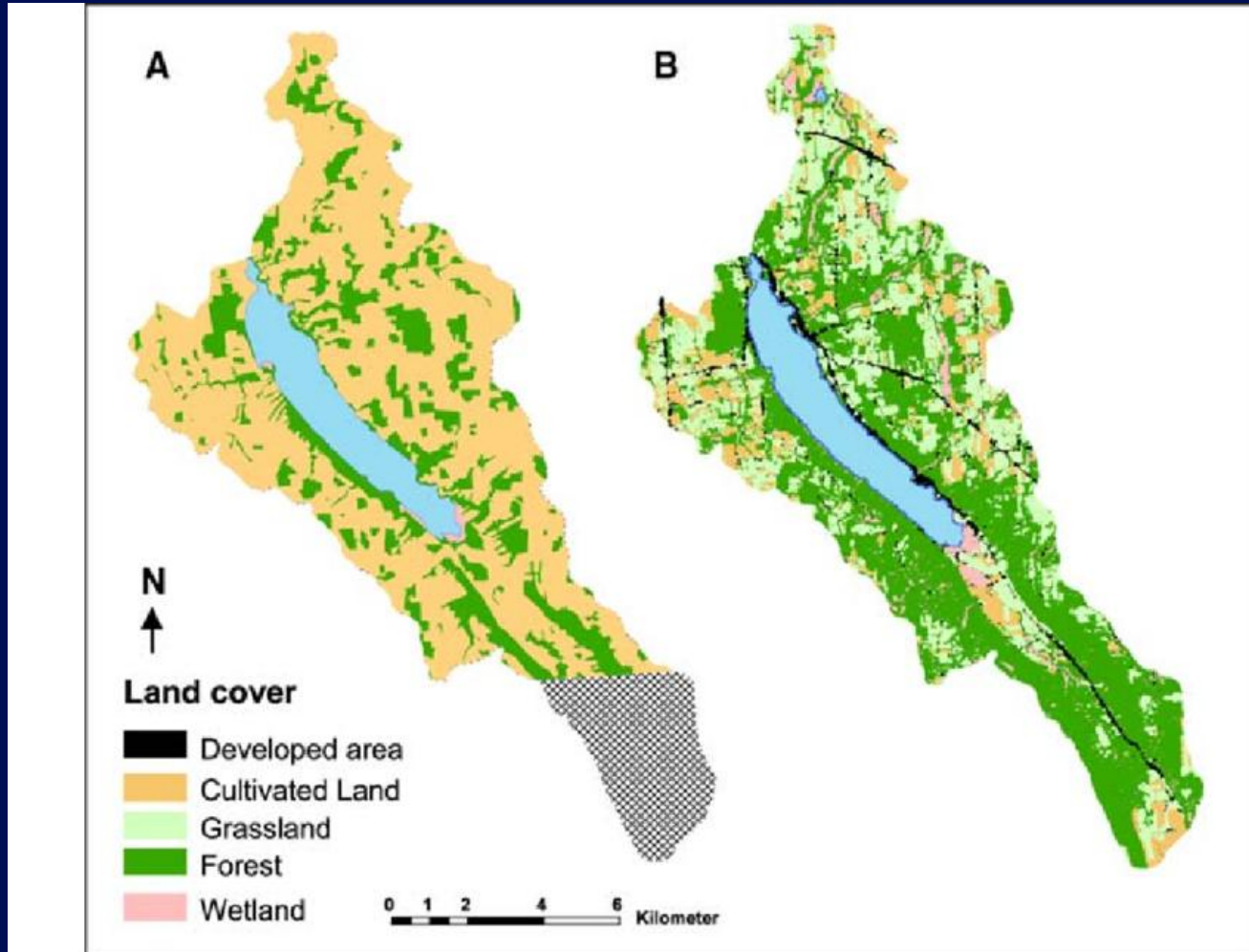


Figure A (1937–1942), 73% of the watershed was cultivated and only 26% was covered by forest.

Figure B (2001) 57% of the area is covered by forest and cultivated land decreased to 7.7%, 25% of the initial 50 m adjacent to the lake shore is developed land (Paleolimnol 2010)



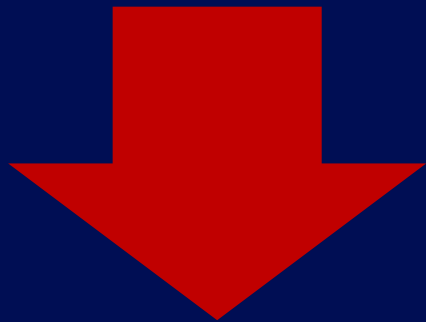
Development



Human Impact



Nutrient Runoff/septic



Water Quality

# Negative Impacts of Nutrient Runoff



## Public Health Threats

- Dangerous Pathogens (*E. coli* and *Salmonella*)
- Drinking Water Contamination



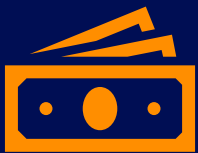
## Ecological Damage (Eutrophication)

- Algal Blooms- explosive growth
- Dead Zones



## Unusable Water

- Lowers recreational value



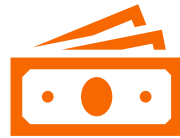
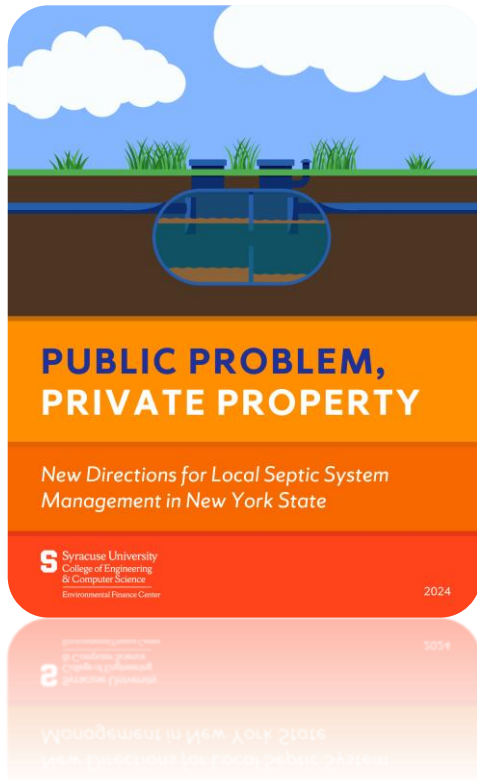
## Economic Consequences

- Lowers property values and tourism



Image from Tad Gerace, Ontario County SWCD

# Working to address barriers to septic system management:



Affordability



Public Education

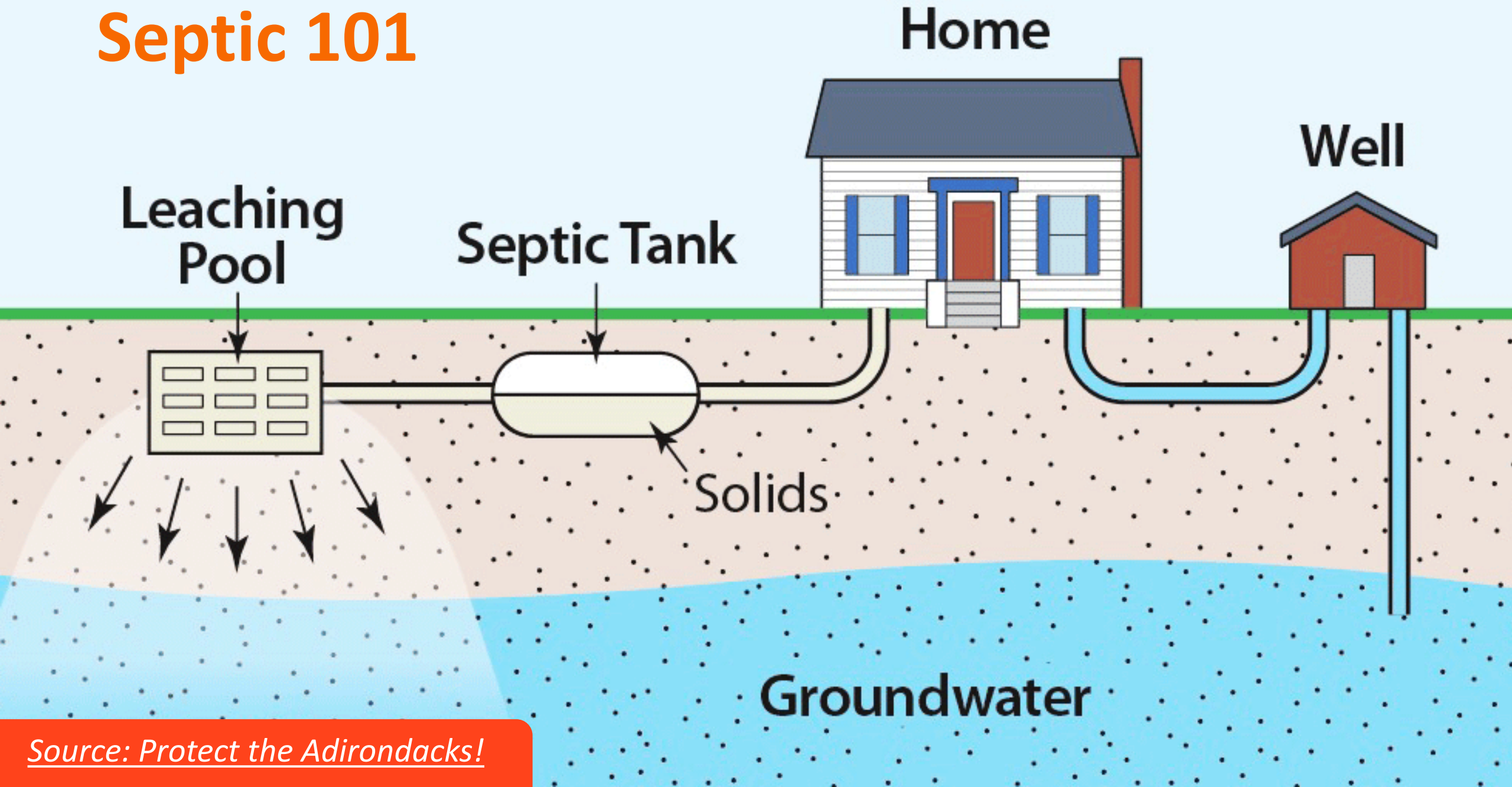


Governance



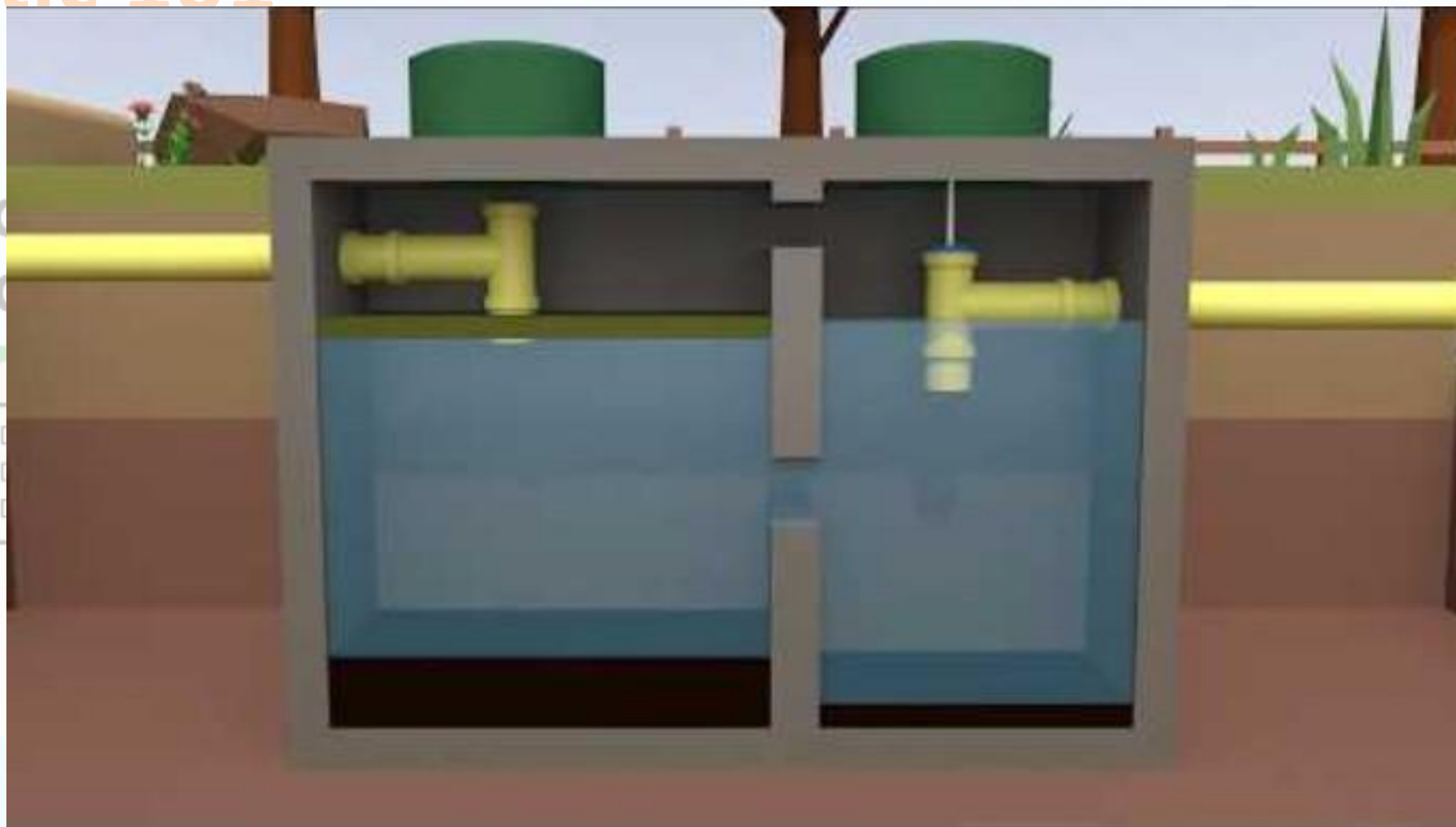
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# Septic 101



# Septic 101

**Video Link:** <https://youtu.be/SQsBPqTvGU0?si=omeNk4gW3doCk2Cd>



Groundwater

Source: Protect the Adirondacks!

# Why Maintenance Matters



10-20% of septic systems fail or malfunction each year



Failures can harm water quality, public health, and your wallet



**Regular maintenance** is best way to prevent system failure

# Caring for Your System

1. Inspect and pump on schedule
2. Improve water efficiency
3. Dispose of waste properly
4. Protect your drainfield



# How often do you think your septic system should be **inspected**?



How often do you think your septic system should be **pumped out?**



05.16.2019

# Inspect and Pump

- Inspect every **1-3 years**
- Pump every **3-5 years**
- Frequency depends on:
  - *Household size / # of occupants*
  - *Water usage*
  - *Tank size*
  - *Solids load*



Images from Tad Gerace, Ontario County SWCD

05.1

# Rental / Short-term Occupancy



Image from Tad Gerace, Ontario County SWCD





# Improve Water Efficiency

- Upgrade old toilets
- Install water-saving fixtures
- Be mindful with laundry habits



**Link:** <https://www.epa.gov/watersense/watersense-products> 

# Improve Water Efficiency

 **EPA** United States Environmental Protection Agency

Search EPA.gov 

Environmental Topics ▾ Laws & Regulations ▾ Report a Violation ▾ About EPA ▾

[Home](#) / [WaterSense](#)

### WaterSense

- About WaterSense ▾
- WaterSense Products** ^
- Residential Toilets
- Showerheads
- Bathroom Faucets
- Commercial Toilets
- Urinals
- Irrigation Controllers
- Spray Sprinkler Bodies
- Point-of-Use Reverse Osmosis Systems
- Pre-Rinse Spray Valves

## WaterSense Products



look for 

### Water Efficiency Is Just a Click Away!

WaterSense makes it easy to find and select water-efficient products that can help your wallet and the environment. Just look for products bearing the [WaterSense label](#) at your local retailer.

WaterSense labeled products are backed by independent, third-party certification and meet EPA's specifications for water efficiency and performance. When you use these water-saving products in your home or

### Find Products

- [Product Search](#)
- [Find Rebates Near You](#)
- [Calculate My Savings](#)

# Dispose of Waste Properly

- Flush only waste and toilet paper
- Keep chemicals out
- Limit garbage disposal use



# Protect Your Drainfield

- **Step 1 – know where it is!**
- Don't park or drive on it
- Plant wisely (shallow rooted grass, groundcover, flowers, etc.)
- Keep extra water away





## Leslie Ann Garden Design

*READ: How to Transform Your Septic Field into a Vibrant  
Prairie Meadow: A Step-by-Step Landscaping Guide*



# More Tips



Avoid septic  
system additives



Monitor for  
signs of failure

More Tips

### Additives Fact Sheet PDF Link:

<https://www.epa.gov/system/files/documents/2024-09/septictankadditivesfactsheet.pdf>



#### Onsite Wastewater Treatment Systems

## Septic Tank Additives Fact Sheet

EPA Publication 830-F-24-003 (Updated 2024)

### Overview

Onsite wastewater treatment systems (commonly referred to as septic systems) treat human and domestic waste before returning the water to the environment. Septic tank additives containing bacteria or chemicals are commonly marketed to improve system performance. However, use of these additives is not recommended for domestic wastewater treatment because there is already a significant presence of bacteria, enzymes, yeasts, fungi, and other microorganisms in onsite wastewater treatment systems (U.S. EPA, 2002). Additive products can be ineffective or even harm system operation and the environment. Any operational issues should be assessed by a septic system professional or local regulator.

### Potential Issues Associated with Septic Tank Additives

The U.S. Environmental Protection Agency does not recommend the use of septic system additives containing bacteria or chemicals for the following reasons:

#### Septic Tank

Access  
Ricore



# Signs of Failure

- Sewage backups or slow drains indoors
- Gurgling sounds in plumbing
- Standing water or soggy areas near tank/drainfield
- Sewage odors outdoors
- Extra lush grass over the system
- Untreated wastewater surfacing or visibly entering waterbodies





## To Repair or Replace...

- Repair often possible if issues are limited and/or system has been well maintained
- Replacement can be costly (\$10,000–\$40,000+) and disruptive
- Decision Factors: *age, condition, soils, budget*
- Get an inspection/evaluation when deciding

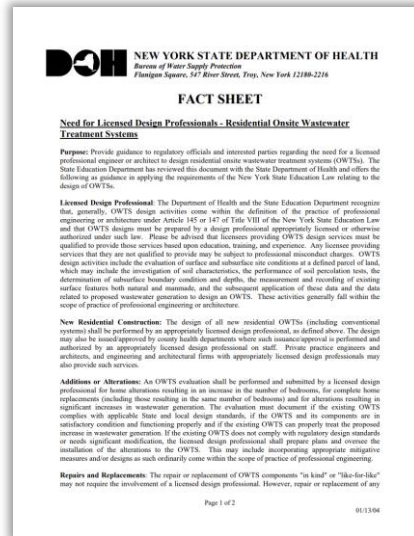
# Choosing the Right Servicer

- ✓ Are they reputable?
- ✓ Ask neighbors & check reviews
- ✓ Get multiple quotes and opinions
- ✓ Consider long-term value (not just lowest cost)
- ✓ Get a **service contract** ~~for advanced systems~~



Image from Tad Gerace, Ontario County SWCD

# NYS Licensed Design Professionals (LDPs)



Fact Sheet Link:

[www.css.cornell.edu/cwmi/waterquality/septic/NYSDOH-OWTSDesignProfessionals.pdf](http://www.css.cornell.edu/cwmi/waterquality/septic/NYSDOH-OWTSDesignProfessionals.pdf)

- Professional **engineering** and/or **architectural** services (defined by NYS Department of Health)
- Required for complete system and/or leach field repair or replacement
- Required if adding additions/bedrooms and/or other causes of a significant increase in wastewater generation
- Tank replacement ONLY and/or other small repairs may not require an LDP
- Check with **county health department** before moving forward with repair or replacement: [onondaga.gov/health-env/septic-systems/](http://onondaga.gov/health-env/septic-systems/)



# Onondaga County Septic System Contact Info and Resources:

<https://onondaga.gov/health-env/septic-systems/>



The screenshot shows the Onondaga County website. The header includes the Onondaga County seal, the name "Onondaga County", and navigation links: "About", "Departments", "Online Services", and "Employment". There is also a globe icon and a search icon. The main navigation bar has "Environmental Health" as a primary category, with "A Division of Health" below it. Secondary navigation links include "Info >", "Drinking Water >", "Homeowner Issues >", "Inspections/...", "Pests/Animals >", and "Contact". The main content area is titled "Septic Systems". Below this, there is a section "Septic Systems and Public Sewers" with a description: "The Bureau of Public Health Engineering provides engineering services in the following areas:". A list of services is provided: "Plan review and approval – water source, treatment, distribution, and storage; public sewers; individual sewage disposal systems; realty subdivisions; and public...". To the right, there is a sidebar with "Regulations" and "Septic Systems – Information/Forms". Under "Septic Systems – Information/Forms", there are two links: "NYSDOH – Residential Onsite Wastewater Treatment Systems Design Handbook – 2012 Edition (PDF)" and "Onondaga County – Design Guidelines for Individual Sewage Systems (PDF)".

## Contact Information for the Onondaga County Bureau of Public Health Engineering:

**Phone:** (315) 435-6600

**Septic Email:** [PHESepctic@ongov.net](mailto:PHESepctic@ongov.net)



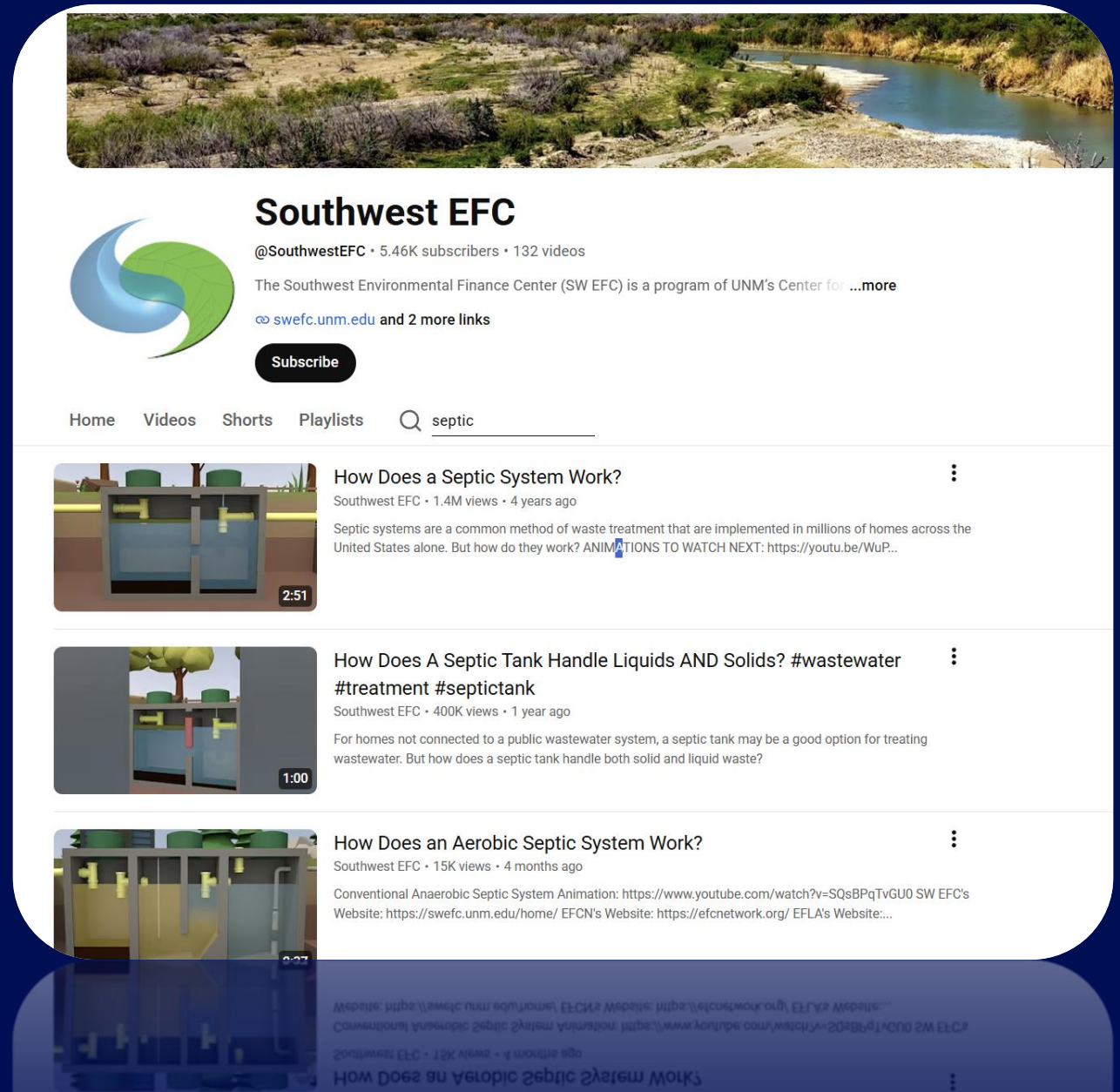
# Learn More

*Septic Animations from the  
@Southwest EFC on YouTube*



**Link:**

**[www.youtube.com/@SouthwestEFC/  
search?query=septic](https://www.youtube.com/@SouthwestEFC/search?query=septic)**



The image shows a screenshot of the YouTube channel page for Southwest EFC. At the top is a banner image of a dry, rocky landscape with a small body of water. Below the banner is the channel's profile picture, a stylized green and blue swirl, and the name "Southwest EFC". The channel description states: "@SouthwestEFC • 5.46K subscribers • 132 videos. The Southwest Environmental Finance Center (SW EFC) is a program of UNM's Center for ...more". Below the description are links to "swefc.unm.edu" and "2 more links". A "Subscribe" button is visible. The channel's navigation bar includes "Home", "Videos", "Shorts", and "Playlists", with a search bar containing the word "septic". The video list shows three videos: "How Does a Septic System Work?" (2:51), "How Does A Septic Tank Handle Liquids AND Solids? #wastewater #treatment #septic tank" (1:00), and "How Does an Aerobic Septic System Work?" (2:27). Each video entry includes a thumbnail, title, channel name, view count, upload date, and a brief description.

**Southwest EFC**  
@SouthwestEFC • 5.46K subscribers • 132 videos  
The Southwest Environmental Finance Center (SW EFC) is a program of UNM's Center for ...more  
swefc.unm.edu and 2 more links  
Subscribe

Home Videos Shorts Playlists

**How Does a Septic System Work?**  
Southwest EFC • 1.4M views • 4 years ago  
Septic systems are a common method of waste treatment that are implemented in millions of homes across the United States alone. But how do they work? ANIMATIONS TO WATCH NEXT: <https://youtu.be/WuP...>

**How Does A Septic Tank Handle Liquids AND Solids? #wastewater #treatment #septic tank**  
Southwest EFC • 400K views • 1 year ago  
For homes not connected to a public wastewater system, a septic tank may be a good option for treating wastewater. But how does a septic tank handle both solid and liquid waste?

**How Does an Aerobic Septic System Work?**  
Southwest EFC • 15K views • 4 months ago  
Conventional Anaerobic Septic System Animation: <https://www.youtube.com/watch?v=SQsBPqTvGU0> SW EFC's Website: <https://swefc.unm.edu/home/> EFCN's Website: <https://efcnetwork.org/> EFLA's Website: ...

# Learn More

**Link:** [epa.gov/septic/septicsmart](https://epa.gov/septic/septicsmart)

## *EPA SepticSmart*



The screenshot shows the EPA website's 'Septic Systems' page. The header includes the EPA logo and a search bar. Navigation tabs for 'Environmental Topics', 'Laws & Regulations', 'Report a Violation', and 'About EPA' are visible. The 'Septic Systems' breadcrumb is active. A left sidebar lists categories: 'About Septic Systems', 'Care and Maintenance', 'Funding', 'SepticSmart' (highlighted), 'SepticSmart Week', 'SepticSmart Education Materials', 'Decentralized Wastewater Partnership', and 'Additional Resources'. The main content area is titled 'SepticSmart' and describes the program as a nation-wide initiative to share information on septic system care and maintenance. It lists three key points: proper care and use, cost savings, and health/environmental protection. A cartoon character holding a clipboard and a 'septic smart' logo are also featured.

**EPA** United States Environmental Protection Agency

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Home / [Septic Systems](#)

### Septic Systems

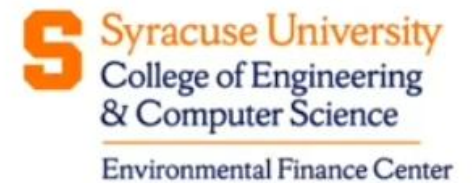
- About Septic Systems ▾
- Care and Maintenance ▾
- Funding ▾
- SepticSmart** ▴
- SepticSmart Week
- SepticSmart Education Materials
- Decentralized Wastewater Partnership
- Additional Resources ▾

## SepticSmart

EPA's SepticSmart program is a nation-wide initiative to share information on the proper care and maintenance of septic systems and encourage public stewardship in caring for these wastewater treatment systems. The SepticSmart program provides a wealth of online resources for homeowners, local organizations and government leaders to facilitate an understanding on:

- how to properly care for and use your septic system,
- how simple septic maintenance can save you money and protect your property value,
- why maintaining your septic system can protect your family's health and the environment.





# An Introduction to Advanced Onsite Wastewater Treatment Systems

Tuesday, January 20, 2026



Mark Noga

**Webinar Presented By Mark Noga:**

[https://youtu.be/BGwOj\\_sXk6A?si=fckxa\\_8mTN4KIWpY](https://youtu.be/BGwOj_sXk6A?si=fckxa_8mTN4KIWpY)

[www.efcnetwork.org](http://www.efcnetwork.org)

This program is made possible under a cooperative agreement with US EPA



0:01 / 1:00:23



# Questions?

**Averi Davis & Jes Eckerlin**

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