Schedule

In-Person Rich Earth Summit on Cape Cod

Oct 15 - 16, 2025

Day 1 - Planning Pathways for Urine Diversion

Date: ***Wednesday, October 15, 2025, 9 - 5 ET***

Location: ***Massachusetts Alternative Septic System Test Center (MASSTC), 4 Kittridge Rd, Sandwich, MA 02563***

The first day of the Summit will explore how urine diversion complements existing nutrient management strategies, offering a cost-effective and measurable tool in the toolbox for watershed protection. Speakers will discuss technological options, costs, municipal planning, and state regulations and policies. Rolling afternoon tours (free) will feature MASSTC's installations of cutting-edge onsite wastewater systems, research projects, and innovative urine recycling technologies including urine diverting toilets and treatment tools.

8:40 - 9:20	Gather & Sign-in ***Light breakfast available***	
9:20 - 9:30	Welcome & orientation to the Summit	Jamina Shupack, Julia Cavichi (Rich Earth Institute), Brian Baumgaertel (MASSTC)
9:30 - 10:20	*Tools in the Toolbox*: *Urine Diversion and Beyond*	Abe Noe-Hays
10:20 - 11:20	*Nutrient Management Options & Costs: Panel Discussion* **Speakers include:** Bruce Walton (New England Water Environment Association Innovative/Alternative Onsite Wastewater Treatment Systems Task Force Chair), Lynn Broaddus (Water Environment Federation President Emeritus, Broadview Collaborative, Inc.), Brian Baumgaertel (Director of the Massachusetts Alternative Septic System Test Center) and Abe Noe-Hays (Rich Earth Institute Research Director)	Moderated by Scott Horsley (Horsley Consulting)
11:20 - 11:50	*Regulatory Pathways for Urine Recycling in Massachusetts*	Conor Lally, Mathew Lippincott
11:50 - 12:30	*Falmouth pilot project update & potential future role of urine diversion in watershed plans*	Bryan Horsley

12:30 - 1:30	**Lunch**	**Fresh Roll Food Truck Catering**
1:30 - 1:50	*Unlocking EcoSan Tools for Affordable Housing*	Talitha Abramsen
1:50 - 2:30	**Toilet Talks** *Wasted* Toilets & Services* *NASA-Inspired Technology to Disrupt Sanitation* *Experiences with UD Installation, Operation & Maintenance*	 Benson Colella, Wasted* Diana Yousef, Founder, CEO change:WATER Labs Arthur Davis, Rich Earth Institute
2:30 - 4:30	*Rotating Tours of MASSTC and Partner Urine Diversion Technologies* - Vacuum flush composting system & waterless urinal installation - Innovative/Alternative (I/A) septic systems - Greywater system - Brightwater Tools mobile unit of urine treatment technologies (pasteurization, freeze concentration, charcoal filtration) - Wasted* Toilet Tour	

Day 2 - Fertilizing the Grassroots: Ecological Sanitation in Practice

Date: ***Thursday, October 16, 2025, 8 - 6 ET***

Location: ***The Green Center, 28 Common Way, East Falmouth, MA 02536***

Day 2 will be hosted at The Green Center for an immersive day of tours, workshops, demonstrations, and a Toilet Exhibit showcasing a diverse array of urine diversion and composting systems. Participants will explore many scales of urine nutrient reclamation in practice, from homes and gardens to community projects and farm fertilization. The day emphasizes network-building, connecting participants with national leaders in ecological sanitation and local peers to share strategies and collaborate on action steps.

Banquet at Coonamessett Farm: Harvests of the Rich Earth Summit (ticketed separately)
The Summit will culminate in a community meal to keep the conversations flowing and spark new collaborations. The evening will be emceed by Shawn Shafner, artist, educator and activist of The POOP Project. Together, we'll engage in creative explorations of the futures we hope to cultivate for the

waterways and farms that sustain us. The evening will be hosted in Coonamessett Farm's beautiful venue space, just next door to the Green Center.

8:00 - 8:30	Welcome & Orientation ***Light breakfast available***	
8:30 - 8:40	Opening remarks	Jamina Shupack
8:40 - 9:20	The History of New Alchemy, the Green Center and Urine Diversion	Hilda Maingay and Earle Barnhart
9:20 - 10:00	Peecycling: Home-scale and Community-scale	Hilda Maingay and Earle Barnhart
10:00 - 12:30	**Toilet Tours & Exhibit** **Tours:** Toilet installation tours at the Green Center and a neighboring home (featuring: Full Circle, Toilets for People pee toilet, P-POD, and a Phoenix) **Exhibits:** **Featured toilets will include:** Nature Loo, Full Circle, Separette, Toilets for People 'Sit to Pee' toilet, Thinktank, The Green Center's P-POD, Cinderella, Changewater Labs **Toilet Installers:** Ajna Projects, Point of Shift, Nutrient Networks **Educational displays:** Local pond coalition resource table, Rich Earth Institute (research & guides), Urban Hydrolink wastewater treatment model	
12:30 - 1:30	**Lunch**	**Devour Catering**
1:30 - 2:00	**Room A:** *Seeing the Invisible: Educating About Water, Waste, and Nutrient Cycles* **Room B:** *Unlocking Regulatory Pathways to Scaling Urine Recycling*	Hayley Joyell Smith Lesli Hoey
2:00 - 3:20 Workshop Breakout Sessions	**Room A:** *Flush the Stigma: Designing Awareness for Emergency Sanitation* **Room B:** *Network-building and planning for urine diversion*	**Facilitated by:** Martha Merson, Shawn Shafner, Nickolay Hristov, Jolie Gutentag, Betsy Towns **Facilitated by:** Talitha Abramsen, Kelsey

	Topics include: - Communications & outreach - Affordable housing & pilots - Watershed planning	McWilliams & Hayley Joyell Smith
3:20 - 3:30	Break	
3:30 - 4:50	**Urine Fertilizer in Gardens & Farms** *25 Years of Gardening with Human Waste Fertilizers* *Rich Earth Institute Farm & Garden Guides* *Bringing Wasted*'s urine derived products to market, wins and challenges* *Using diverted human urine to build long-term soil health* *From Yellow to Blue: Exploring Indigo Cultivation and Fermentation with Liquid Gold*	Hilda Maingay and Earle Barnhart Tatiana Schreiber Rachel Binstock, Wasted* John Culpepper Rosi Olivan
4:50 - 5:00	Facilitated sharing of concluding reflections & next steps	Talitha Abramsen
5:00 - 5:30 (EcoDrum tour participants leave at 5:30)	*Tour of The Green Center's large residential gardens fertilized with urine, composted solid waste, kitchen and landscape wastes*	Hilda Maingay and Earle Barnhart
5:30 - 6:00	*Coonamessett Farm EcoDrum Tour*	
6:00 - 8:30	**Banquet at Coonamessett Farm**	Featuring MC Shawn Shafner, artist, educator and activist of The POOP Project

Presentation Details

(updated as more information is available)

Title:
Falmouth Pilot Project Update & Potential Future Role of Urine Diversion in Watershed Plans

Speaker:
Bryan Horsley, Project Assistant, MASSTC

Biography:

Bryan Horsley is a Project Assistant at the Massachusetts Alternative Septic System Test Center, a Division of the Barnstable County Department of Health and Environment. He has a bachelor's degree in Ecology and Evolutionary Biology from the University of Colorado at Boulder and is a Massachusetts Licensed Wastewater Treatment Plant Operator (Grade 4).

Presentation Description:
In this talk Bryan will provide an update of the urine diversion pilot project he's been developing over the past couple years in collaboration with the Town of Falmouth and specialized ecological sanitation consultants. The core goal of this project is to determine if urine diverting eco-toilet systems can be permitted for installation and operation in Massachusetts and if they can contribute toward regulatory watershed scale nutrient reduction requirements. Bryan will share details of the project plan and offer a future vision for how UD can be implemented in nitrogen sensitive areas across Cape Cod and the Islands to help restore acceptable water quality conditions.

Title:
Lessons from Operating a Community-Scale Network of Urine Collection Systems

Speaker:
Arthur Davis, Operations Director, Rich Earth Institute

Biography:
Arthur has been working with Rich Earth Institute since 2017, and has been running the operations of the community-scale urine recycling program since 2019. He loves working with the folks in his hometown community of Brattleboro and the surrounding region to recycle their waste and with farmers to figure out ways to make use of human waste as a resource.

Description:
Over the last number of years, Rich Earth Institute has grown our local network of onsite urine collection systems to 35 (and counting) and our portable toilet business from a small way to collect urine at a few events to a fully-fledged local service serving over 70 events and jobsites this season. This endeavor has included regulatory work, transport/logistics, technical work (e.g. pumps, plumbing), and social outreach to build trust about these systems. Arthur will walk you through Rich Earth's community-scale infrastructure, what it has taken to get here, and where we are heading.

Title:
Seeing the Invisible: Educating About Water, Waste, and Nutrient Cycles

Speaker:

Hayley Joyell Smith, Warren Wilson College and PHLUSH

Biography:
Hayley Joyell Smith, is an Assistant Professor of Environmental Science at Warren Wilson College and a member of the ASSET team. She works at the intersection of education, social science, and sustainable sanitation and develops tools that help learners visualize complex systems. She has a passion for international travel, where she likes to learn about toilet systems. Hayley is also a founding board member of PHLUSH, which stands for Public Hygiene Lets Us Stay Human, the advocacy group for disaster sanitation preparedness and public toilet availability.

Description:
If you find yourself in the role of teaching others about urine diversion, you know it often requires more than explaining an alternative system—it means helping people understand the water and wastewater infrastructure they already use. This session is designed to support you in that educator role. We'll look at strategies for making wastewater systems visible, approachable, and teachable, and then connect that to how urine diversion can keep nutrients out of waterways and return them to soils.

We'll highlight the Urban HydroLink, a hands-on, modular model of water supply and wastewater pathways that has been shown to effectively improve students' mental models. In a Soils and Hydrology course, 95% of undergraduates improved their system diagrams, and recognition of water's "return to the source" more than doubled. Educators at the Rich Earth Institute have adapted the model to demonstrate urine diversion, reporting that the tool helps learners see the interconnection between upstream and downstream communities, the benefits of nutrient separation for reducing treatment plant loads, and the potential for reusing nutrients on farmland. Participants find it memorable, interactive, and imagination-sparking, opening possibilities for future educational tools and nutrient-recycling systems. Yes, you will have an opportunity to play with the Urban HydroLink:)

This session will also set the stage for future work in developing a place-based educational program for Massachusetts. I will introduce some initial ideas and highlight how existing science education standards could be leveraged to integrate wastewater systems into curricula in ways that connect infrastructure, ecosystems, and communities.

Title:
Unlocking regulatory pathways to scaling urine recycling

Speaker:
Lesli Hoey, University of Michigan

Biography:

Lesli Hoey is an associate professor of urban and regional planning at the University of Michigan. Urine recycling is one of a variety of grassroots- and government-led strategies she studies for intervening in the public health crisis, environmental degradation, and economic inequities rooted in today's dominant food system.

Description:
We examine the regulatory hurdles and pathways for establishing urine recycling in the US. Framed around Street Level Bureaucracy and Multiple Streams Theory, our methods include document review, action research and 16 interviews with urine recycling practitioners and regulators in four states. After outlining the regulatory environment urine recycling advocates maneuvered, we show how they sometimes encountered regulators who erred on the side of risk-aversion, but more often, they secured necessary permits by finding common ground, building trust, creating precedents, being persistent and maintaining momentum. Their experiences demonstrate the feasibility, safety, reasonableness and rationality of novel nutrient recovery approaches, particularly compared to known harms of maintaining a dependence on synthetic fertilizers and conventional wastewater systems.

Title:
Flush the Stigma: Designing Awareness for Emergency Sanitation

Speakers:
Martha Merson (TERC), Shawn Shafner (The POOP Project), Nickolay Hristov (TERC), Jolie Gutentag (Pepperdine University), Betsy Towns (UNC School of the Arts)

About the team:
Researchers from Pepperdine University, University of North Carolina School of the Arts, and TERC, a nonprofit in Cambridge, MA, are collaborating on a National Science Foundation-funded project to identify factors that affect the willingness of residents and municipalities to adopt alternative solutions to human waste management. In the current phase, the team of scientists, artists, education designers and marketing experts are investigating how visualization design can contribute to expanding awareness.

Description:
During workshops and focus groups in the aftermath of Hurricane Helene, the FlushED research team has heard survivors express an openness to implementing non-flush toilets, and the broader need for knowledge and preparation across stakeholder groups (citizens, community organizations, local government, etc.) in order to get ready before a crisis hits. Many communities have already faced disruptions in their utilities during and after intense storms, earthquakes or big spills (e.g., residents impacted by a pipeline leak near Palestine, OH), and these impacts will only grow as climate change worsens. Creating opportunities for discussions about emergency sanitation technology before a crisis hits could save lives and mitigate misery, while preparing an emergency twin-bucket set-up may pave the way to broader adoption of dry

toilets and urine diversion for places where wastewater is already proving to be a disaster in itself.

In this communication design workshop session, participants will consider common themes and learnings from survivors, discuss the profiles of potential audiences for disaster-preparedness messaging, and then break into small groups to design infographics to convey the why's and how's of an emergency toilet for different audience types, including, for example:

- Designated emergency managers who are often under-staffed, juggle multiple responsibilities (for example, leading small town fire departments) and would welcome assistance
- People who are keen for comfort and have money to throw at the problem.
- Survivalists and doomsday preppers
- Faith community leaders who will be a first point of contact for people in need.

Presenters will provide materials to draft the infographics, including examples, basic content, images and varied media for groups to prototype visually-based approaches.

Title:
From Yellow to Blue: Exploring Indigo Cultivation and Fermentation with Liquid Gold

Speaker:
Rosi Olivan, The Putney School, itequiya lab

Biography:
Rosi Olivan is a science teacher at the Putney School and a fiber artist at itequiya lab. She is dedicated to learning and teaching sustainable dye practices. Fun fact: Rosi has served as a volunteer and a board member at Rich Earth.

Description:
Exploring the potential of human urine as both a fertilizer for indigo plants and a reducing agent in pigment application. This presentation shares results from a pilot program of small-scale fertilization trials, alongside early findings to discuss pigment production across fertilization treatment types. This project is a work in progress aimed at building a foundation for other indigo growers and dyers while creating educational materials to promote the urine reclamation process for alternative applications in fiber arts. The project examines historical practices, sustainable resource recovery, and dye science to ask: Can urine reclamation support local color production?

Title:

Using diverted human urine to build long-term soil health

Speaker:
John Culpepper, Compost for Good

Biography:
John Culpepper co-founded Compost for Good to help communities around the world to upcycle all appropriate organic materials to: reduce greenhouse gas emissions; keep resources in local communities; create business opportunities; build healthy soils; sequester carbon; help solve water quality issues; and lower the cost of food and fiber production. John has worked in education, farming, facilities management, research and more. Recently John has been working in the ecological sanitation area, and has developed a safe and efficient high temperature composting regimen to turn diverted human urine into a high value compost.

Description:
In this talk we will focus on how to turn diverted human urine into a valuable soil amendment where: beneficial aerobic soil microbes are produced; pharmaceuticals are denatured; and where long-term stable organic acids are formed. It has been shown that when soils contain the full suite of beneficial microbes, farmers can reduce or eliminate fertilizers, reduce or eliminate irrigation, reduce or eliminate cultivation, increase soil percolation rates, increase soil water holding capacity, and reduce or eliminate pesticides. Reducing or eliminating these farming inputs results in higher profits to the farmer.

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