
The Water Resources Institute (WIR) at the University of Vermont

Harnessing UVM's strength in water research, education and outreach to advance a sustainable water future

Beverly Wemple, Professor, Dept. of Geography & Geosciences and Faculty Fellow, Office of the Vice President for Research
Presentation to the Faculty Senate
November 27, 2023



July 2023 floods in Vermont



Photo credit: Vermont Emergency Management / National Guard

The Northeast is in the middle of an intense drought

Rivers have been reduced to a trickle in the most severely affected areas, and farmers are facing consequences of a summer without rain

By Zach Rosenthal
August 16, 2022 at 1:27 p.m. EDT



A sign announces a water ban in Scituate, Mass. (Michael Dwyer/AP)

Floods, Fires and Torrential Rains Further Bedevil Europe

The extreme weather across the continent this summer has destroyed huge amounts of land, forced many to evacuate, and in some cases caused deaths.



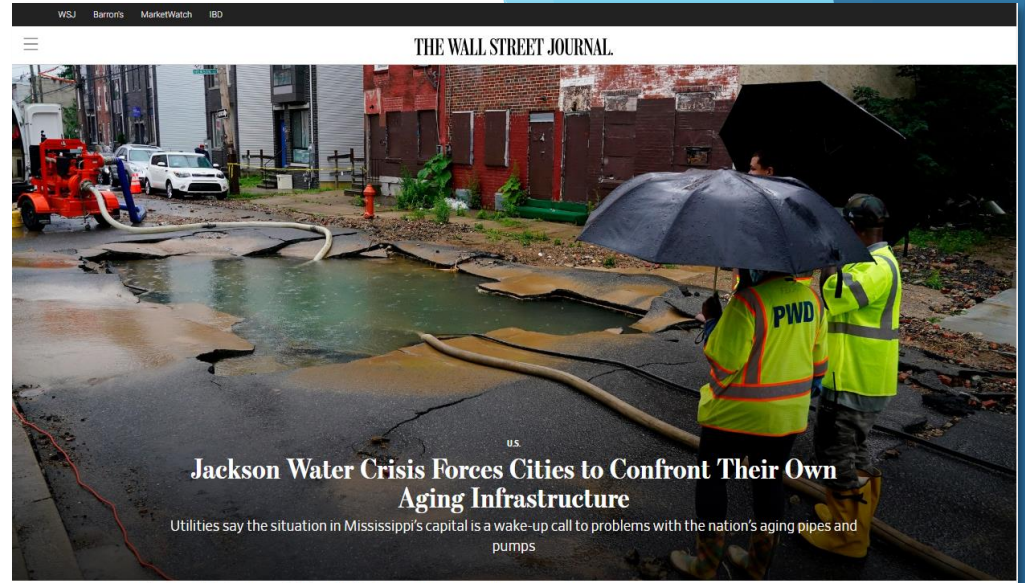
A flooded area in the northern Slovenian town of Crna na Koroskem on Sunday. Associated Press



A massive algae bloom in 2011 turned Lake Erie into pea soup. PHOTOGRAPH BY PETER ESSICK, NATIONAL GEOGRAPHIC

Driven by Climate Change, Algae Blooms Behind Ohio Water Scare Are New Normal

Climate change and increased runoff are triggering more potentially toxic blooms.



Jackson Water Crisis Forces Cities to Confront Their Own Aging Infrastructure

Utilities say the situation in Mississippi's capital is a wake-up call to problems with the nation's aging pipes and pumps

A major water main break caused flooding on several blocks in Philadelphia in June. MATT SLOCUM/ASSOCIATED PRESS

By Rachel Wolfe Follow
Sept. 2, 2022 11:35 am ET

Coastal Sea Levels in U.S. to Rise a Foot by 2050, Study Confirms

More precise measurements indicate that the increase will happen "no matter what we do about emissions."

Share full article



A "sunny day" flood in Mill Valley, Calif., last month. Such events will become more damaging in the future, scientists predict. Josh Edelson/Agence France-Presse — Getty Images

By Henry Fountain
Feb. 15, 2022

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New database shows hundreds of contaminants detected in US tap water

"We are not being exposed to just one contaminant when we're drinking water. We're being exposed to multiple contaminants."

by Huanqia Zhang November 09, 2021 3 min read



A school of surgeon fish swim in Tubbataha Reefs Natural Park. PHOTOGRAPH BY DAVID DOUBILET, NAT GEO IMAGE COLLECTION

ENVIRONMENT NEWS

Climate change is depleting our essential fisheries

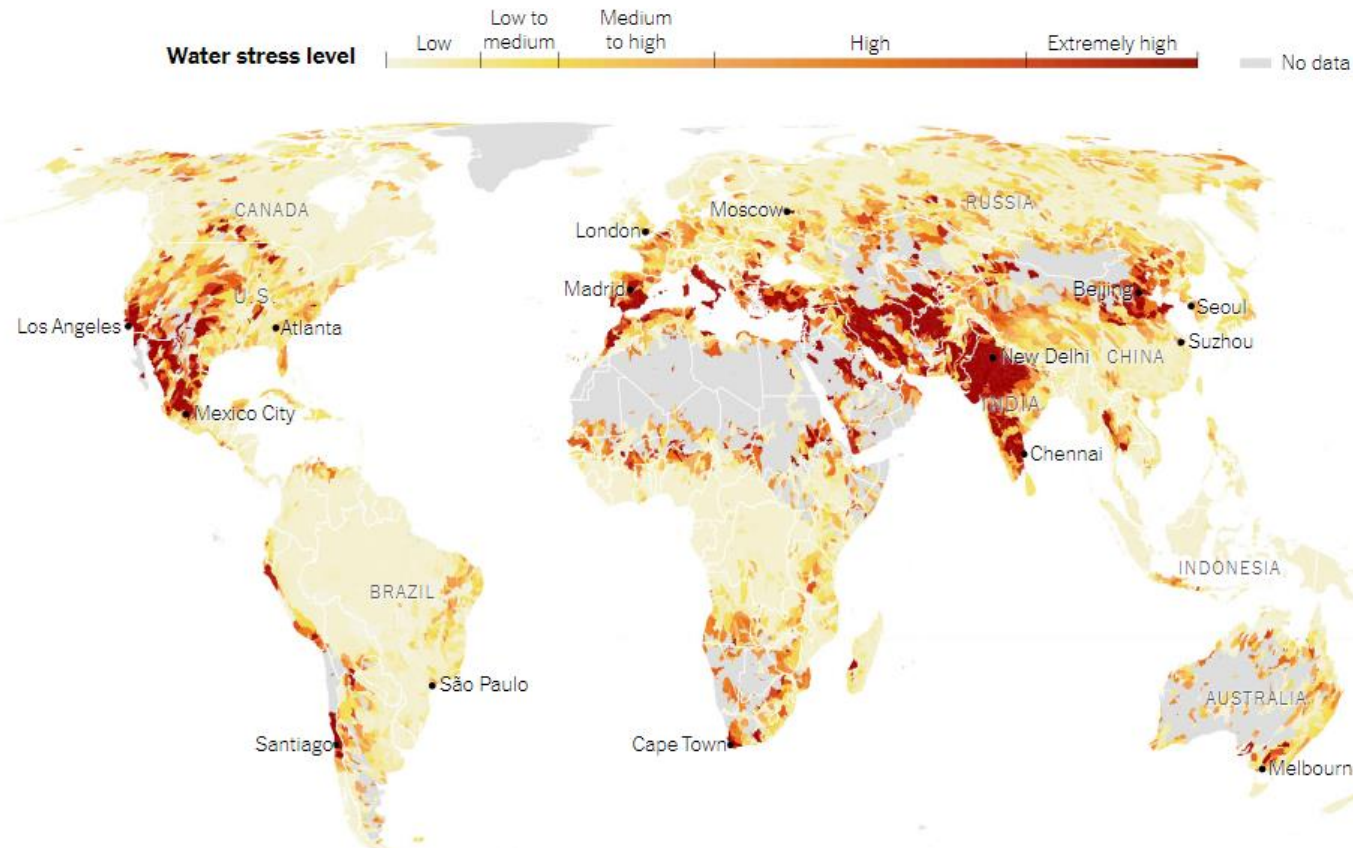
Over the past 80 years, a warming planet has disrupted critical fisheries worldwide--and many have declined precipitously.

BY SARAH GIBBENS



A Quarter of Humanity Faces Looming Water Crises

By [Somini Sengupta](#) and [Weiyi Cai](#) Aug. 6, 2019





RESEARCH

Renewing the water workforce: Improving water infrastructure and creating a pipeline to opportunity

Joseph W. Kane and Adie Tomer
June, 2018



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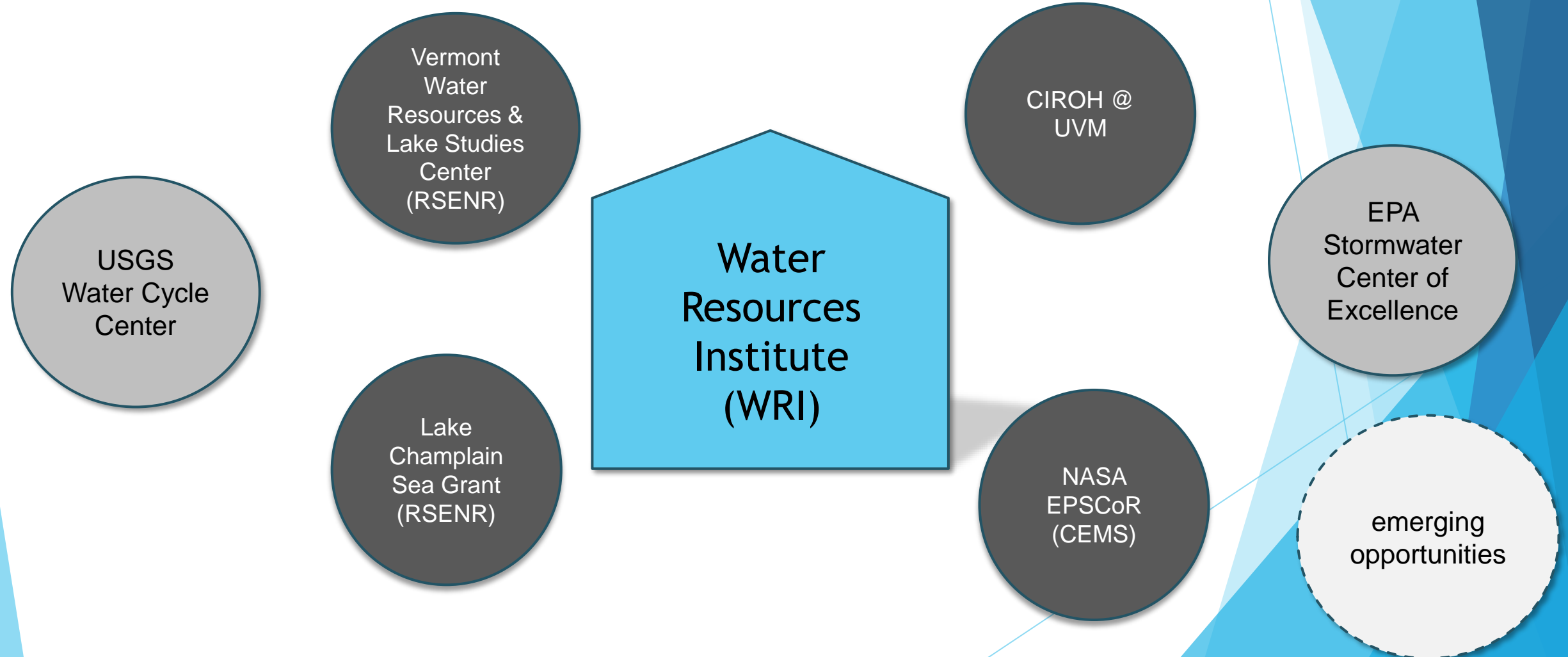
Harnessing UVM's strength in water research, education and outreach to advance a sustainable water future

Institute Development Background

- More than a decade of NSF-supported capacity building grants to Vermont EPSCoR on water-related topics (Research on Adaptation to Climate Change in the Lake Champlain Basin 2011-16, Basin Resilience to Extreme Events 2016-2021).
- Multiple college level programs that support wholly or water-related research (Vermont Water Resources & Lake Studies Center and Lake Champlain Sea Grant in RSENR, NASA EPSCoR in CEMS)
- NOAA supported Cooperative Institute for Research to Operations in Hydrology (CIROH) funded with UVM as partner institution in 2022.
- Over 100 faculty across 6 colleges and 22 departments engaged in water research

Water → a clear strategic strength of UVM

Supporting and coordinating campus-wide excellence in water research, education and outreach



Institute Goals

- 💧 Enhance the flow of information and ideas among scholars and trainees by establishing a hub of water research at the nexus of natural and social sciences, engineering, and governance.
- 💧 Coordinate and develop new water-related programs, equipment, and services on campus.
- 💧 Build bridges with external academic, nonprofit, state, federal, and international partners that accelerate the translation of research to practice.
- 💧 Educate the next generation of problem solvers on water issues and water justice.

Leadership and staff team

Faculty director: Dr. Beverley Wemple (CAS) - oversees institute operations and development

Senior faculty advisors:

- *Dr. Anne Jefferson* (RSENr) - senior advisor on watershed science, community engagement and extension
- *Dr. Bernard Cole* (CEMS) - senior advisor on research innovations and capacity building
- *Dr. Asim Zia* (CALs) - senior advisor on policy, governance, and transboundary water security

Staff:

- *TBD*, Manager of operations and programs
- *Joshua Benes*, Manager of research facilities and networks (shared with OVPR)
- *Steve Exler*, Technologist and web master (shared with Vermont EPSCoR)
- *TBD*, Communications and Events specialist

Institute Governance

Advisory Committee of faculty - provide strategic guidance and feedback to institute leadership and staff; serve as liaisons between their deans and units and the institute.

Council of Partners – leaders from key constituencies in state and federal government, industry, and the NGO community; provide strategic advice on use-inspired research needs; provide letters of support, broader impacts partnerships, and in-kind contributions for grant applications.

Resources / Budget model

	Three Year Institute Budget Proposal		
	FY24	FY25	FY26
Revenue:			
CIROH projects F&A - secured	297,731	262,438	
CIROH projects F&A - anticipated		50,000	170,000
Other sources - UVM administration, philanthropy - anticipated	-		150,000
subtotal revenue:	297,731	312,438	320,000
Expenses:			
Salaries			
- Institute director at 25% FTE	28,375	29,226	30,103
- Manager of Operations and Programming at 100% FTE	68,000	70,040	72,141
- Shared staff with OVPR and VT EPSCoR	42,000	43,260	44,558
- Communications and Outreach specialist at 60% FTE	33,000	33,990	35,010
- Summer stipends for senior faculty advisors	10,373	10,685	11,005
subtotal salaries and fringe:	261,718	271,441	279,584
Operating			
- Speaker series and annual science meeting	16,000	16,480	16,974
- Trainings (team science, science communications, and similar)	5,000	5,150	5,305
- Travel	5,000	5,150	5,305
- Business services	7,000	7,210	7,426
- Office supplies	1,000	1,030	1,061
- Contingencies	4,000	4,000	3,500
subtotal operating:	38,000	39,020	39,571
Total Expenditures	299,718	310,461	319,155

Campus consultation

Faculty information sessions - fall 2022: > 50 faculty attendees (CALs, CAS, CESS, CEMS, CNHS, LCOM, RSENR)

Meetings and consultations with Deans/ADRs

- Dean Strong, RSENR
- Dean Schadler, CEMS
- Dean Parise, CALS
- Dean Beckford, Extension
- Dean Falls, CAS
- Dean Shepherd, ADR Killean, CESS
- ADR Tracy, LCOM
- ADR Deming, CNHS (via email)
- ADR Arel, GSB (via email)

Meeting with senior staff engaged in institute work - J. Valcour, J. White, L. Gamache

Additional consultations with center directors

- Taylor Ricketts, Gund Institute
- Ernesto Mendez and Colin Anderson, Institute for Agroecology
- Trisha Coates, Institute for Rural Partnerships
- Randall Halcombe, UVM Cancer Center

UVM Foundation, Foundation Board, and key donors

Questions?



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