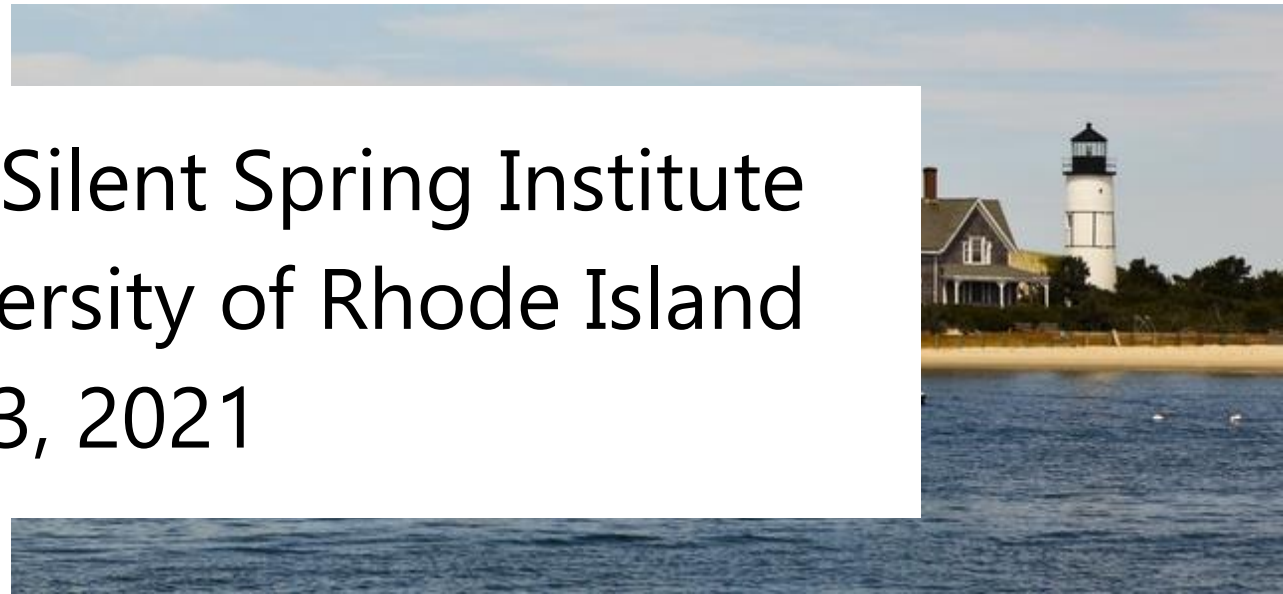
STEEP

Sources, Transport, Exposure & Effects of PFASs

UNIVERSITY OF RHODE ISLAND SUPERFUND RESEARCH PROGRAM

An update on PFAS testing in Cape Cod drinking water



Laurel Schaider, PhD, Silent Spring Institute

Alyson McCann, University of Rhode Island

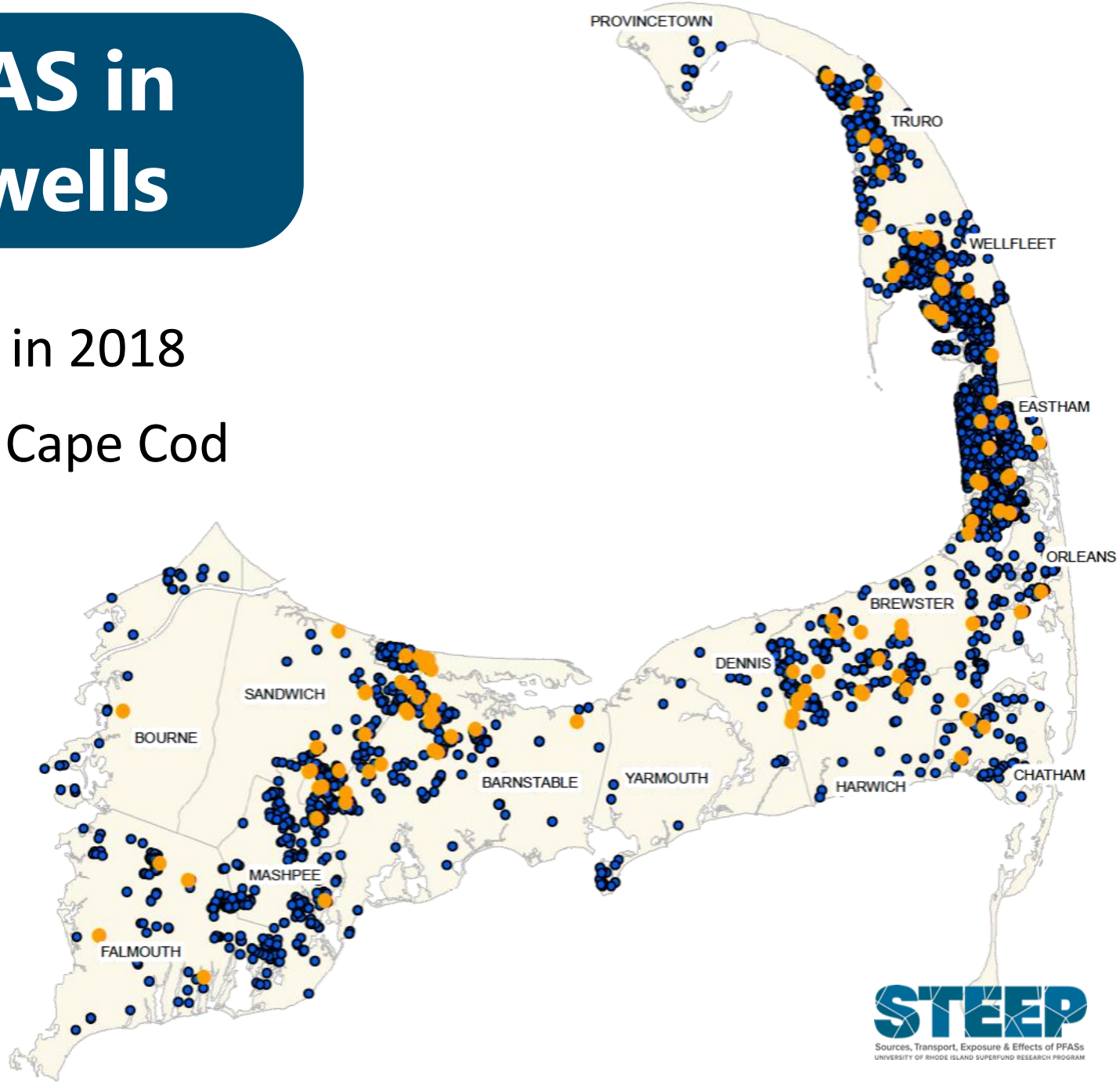
June 23, 2021

STEEP study of PFAS in Cape Cod private wells

- 101 volunteer wells sampled in 2018
- Locations of private wells on Cape Cod

Samples analyzed for:

- ✓ PFAS
- ✓ Nitrate
- ✓ Boron
- ✓ Trace metals



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Private wells study team

Project leaders:

- Laurel Schaider, Silent Spring Institute
- Alyson McCann, University of Rhode Island

Harvard University:

- Elsie Sunderland, Heidi Pickard, Prentiss Balcom

Silent Spring Institute:

- Amanda Hernandez, Katie Boronow, Erik Haugsjaa

University of Rhode Island:

- Rainer Lohmann, Jitka Becanova, Lisa Philo, Amy Wengefeld

Massachusetts Breast Cancer Coalition:

- Cheryl Osimo

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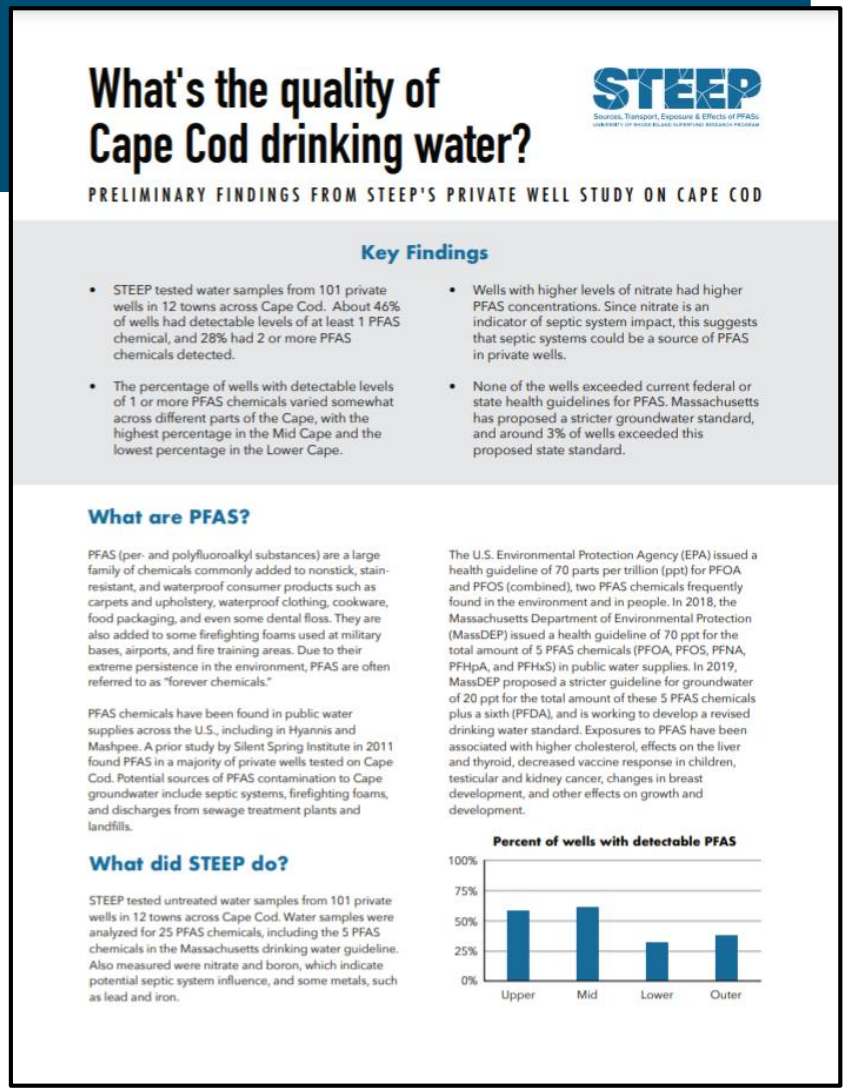
Initial findings

- No wells exceeded U.S. EPA guideline
- 3% of wells exceeded new Mass. standard of 20 ppt for 6 PFAS
- PFAS were detected in 46% of wells
- 28% of wells had 2 or more PFAS detected
- Both legacy and newer alternative PFAS
- Wells with higher nitrate were more likely to have PFAS



What's the quality of Cape Cod drinking water?

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PRELIMINARY FINDINGS FROM STEEP'S PRIVATE WELL STUDY ON CAPE COD

Key Findings

- STEEP tested water samples from 101 private wells in 12 towns across Cape Cod. About 46% of wells had detectable levels of at least 1 PFAS chemical, and 28% had 2 or more PFAS chemicals detected.
- The percentage of wells with detectable levels of 1 or more PFAS chemicals varied somewhat across different parts of the Cape, with the highest percentage in the Mid Cape and the lowest percentage in the Lower Cape.
- Wells with higher levels of nitrate had higher PFAS concentrations. Since nitrate is an indicator of septic system impact, this suggests that septic systems could be a source of PFAS in private wells.
- None of the wells exceeded current federal or state health guidelines for PFAS. Massachusetts has proposed a stricter groundwater standard, and around 3% of wells exceeded this proposed state standard.

What are PFAS?

PFAS (per- and polyfluoroalkyl substances) are a large family of chemicals commonly added to nonstick, stain-resistant, and waterproof consumer products such as carpets and upholstery, waterproof clothing, cookware, food packaging, and even some dental floss. They are also added to some firefighting foams used at military bases, airports, and fire training areas. Due to their extreme persistence in the environment, PFAS are often referred to as "forever chemicals."

PFAS chemicals have been found in public water supplies across the U.S., including in Hyannis and Mashpee. A prior study by Silent Spring Institute in 2011 found PFAS in a majority of private wells tested on Cape Cod. Potential sources of PFAS contamination to Cape groundwater include septic systems, firefighting foams, and discharges from sewage treatment plants and landfills.

The U.S. Environmental Protection Agency (EPA) issued a health guideline of 70 parts per trillion (ppt) for PFOA and PFOS (combined), two PFAS chemicals frequently found in the environment and in people. In 2018, the Massachusetts Department of Environmental Protection (MassDEP) issued a health guideline of 70 ppt for the total amount of 5 PFAS chemicals (PFOA, PFOS, PFNA, PFHpA, and PFHxS) in public water supplies. In 2019, MassDEP proposed a stricter guideline for groundwater of 20 ppt for the total amount of these 5 PFAS chemicals plus a sixth (PFDA), and is working to develop a revised drinking water standard. Exposures to PFAS have been associated with higher cholesterol, effects on the liver and thyroid, decreased vaccine response in children, testicular and kidney cancer, changes in breast development, and other effects on growth and development.

What did STEEP do?

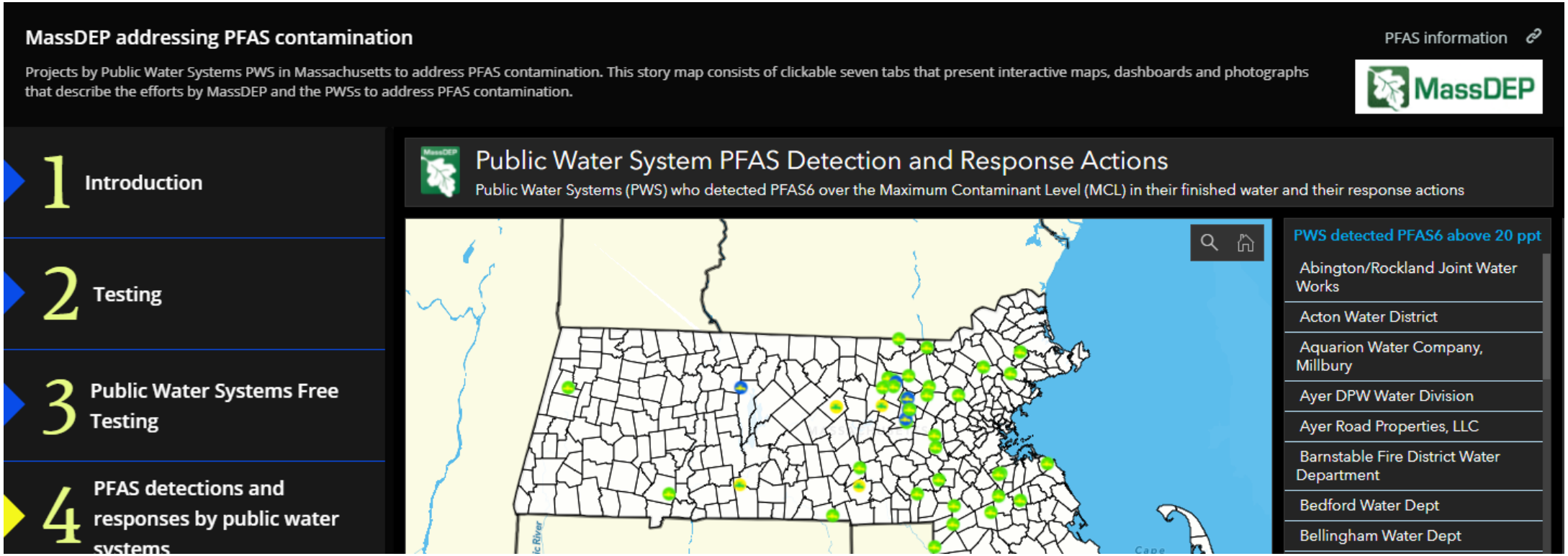
STEEP tested untreated water samples from 101 private wells in 12 towns across Cape Cod. Water samples were analyzed for 25 PFAS chemicals, including the 5 PFAS chemicals in the Massachusetts drinking water guideline. Also measured were nitrate and boron, which indicate potential septic system influence, and some metals, such as lead and iron.

https://web.uri.edu/steep/files/wellwater_prelim-findings_web.pdf

New MassDEP website to learn about PFAS in public water supplies

www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas

Click on: “PFAS detected in drinking water supplies in Massachusetts”



ASK • LEARN • ACT

To sign up for our private wells study:

Visit: web.uri.edu/steep/wellwater

Email: Alyson McCann (amccann@uri.edu)
Laurel Schaider (schaider@silentspring.org)

Visit the STEEP website for our past webinars:

PFAS in drinking water – February 3

PFAS health effects – March 11

PFAS in consumer products – April 14

https://web.uri.edu/steep

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