Contaminants of Emerging Concern (CEC)
Steering Committee

Considerations for Development of a State-led Contaminants of Emerging Concern (CEC) Program

A Virtual Webinar for the ASTSWMO Membership
July 1, 2021– 2:00 PM EST

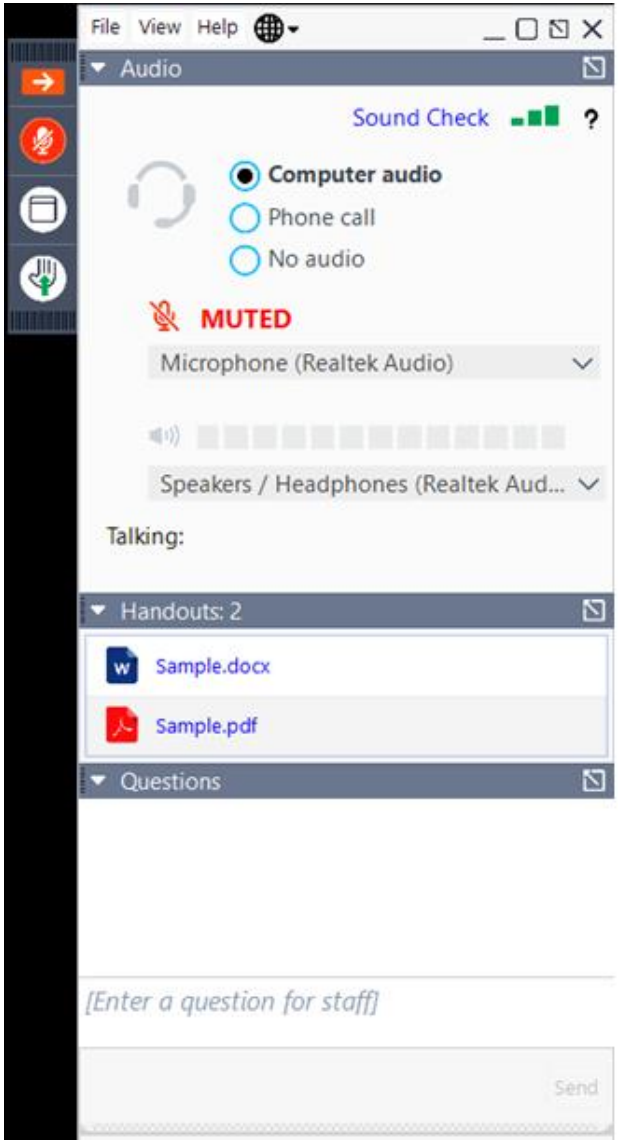
Logistics

Audio

If you cannot hear us speaking right now or hear an echo, make sure your audio settings are configured correctly →

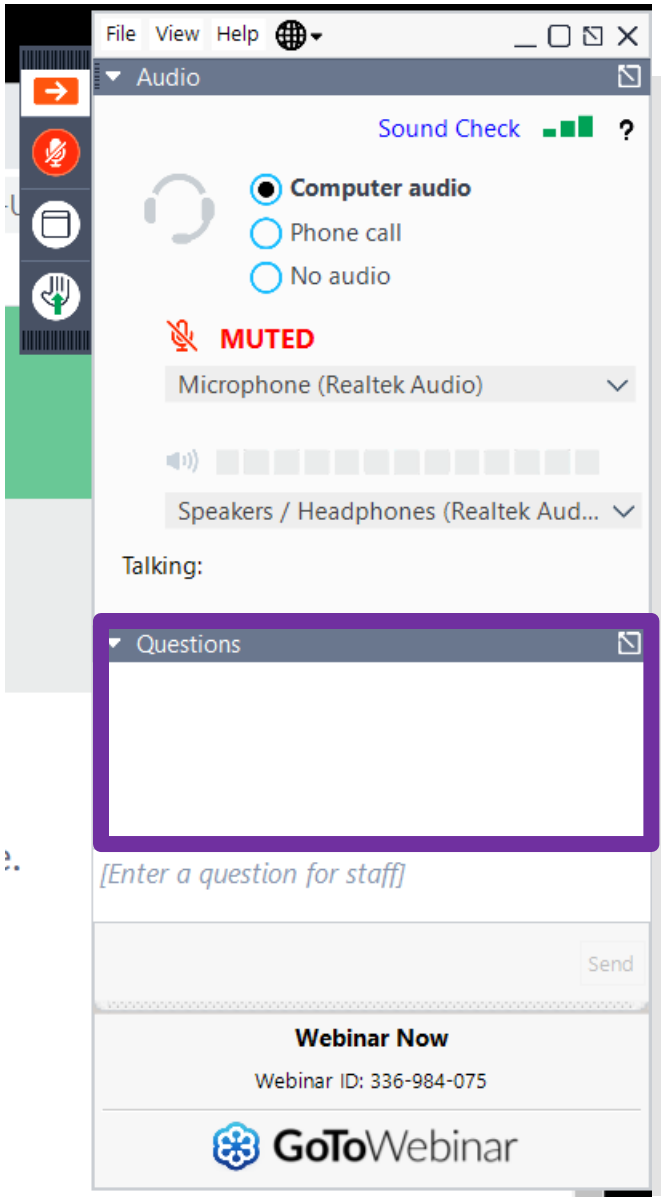
Handouts

Bios from each speaker are available to download here→



Before We Start

- All attendees will be muted throughout the webinar.
- **Questions:** Use the **Questions Panel** in the dashboard to send questions to the speakers during the webinar.
- **Note who the question is directed to in your submittal.**
- Questions will be answered at the end of the webinar.
- You can also "Raise Your Hand" so that we can unmute your microphone to ask any questions as well.
- The webinar is being recorded and will be made available on the ASTSWMO website.



Today's Agenda

Agenda

- Welcome Remarks
- CEC Steering Committee Activities Update (November 2020 – June 2021)
- Poll Question #1
- Webinar Presentation: *Considerations for Development of a State-led Contaminants of Emerging Concern (CEC) Program*
- Poll Questions #2 and #3
- Question & Answers Session
- Webinar Wrap-Up / Next Steps

CEC Steering Committee Activities Update

(Nov 2020 – June 2021)

- **CECSC Leadership:**
  - Steve Sliver (MI, MPART Executive Director) retired in March 2021
  - Tracie White (CO) appointed as Steering Committee Chair
  - Kasey Kathan (VT) appointed as Steering Committee Vice-Chair

- **Resources and Tools:** http://astswmo.org/cec-steering-committee/
  - New ASTSWMO CEC Steering Committee webpage was introduced in March 2021, showcasing information about the Committee and ASTSWMO resources specific to CECs
  - ASTSWMO PFAS Position Paper released in March 2021.
    - *A position paper is the highest level of policy documents for ASTSWMO and represents the Association's official position in discussions with Congress, other Associations, and federal agencies over the next few years.*

CEC Steering Committee Activities Update

(Nov 2020 – June 2021)

- **Activities and Communications**:
  - CEC Steering Committee/DoD virtual meeting held in February 2021 to PFAS/ other CEC coordination opportunities
  - CEC Steering Committee comments to EPA's Interim PFAS Destruction and Disposal Guidance: http://astswmo.org/astswmo-cec-steering-committee-comments-to-epas-interim-pfas-destruction-and-disposal-guidance/
  - Joint comments with ECOS, ASDWA, ACWA: Clean Water Act Effluent Limitations Guidelines and Standards
  - Meeting with EPA OLEM leadership took place June 21, 2021
  - "Considerations for Development of a State-led Contaminants of Emerging Concern (CEC) Program" webinar planning
  - Continuous coordination with ECOS, ITRC, and others to avoid work efforts/product overlap.

Considerations for State CEC Program Development

LEADERSHIP

SCOPE

COLLABORATION

HOW TO IDENTIFY CECS

HOW TO PRIORITIZE OR ASSESS CECS

HOW TO ADDRESS OR MANAGE CECS

LEADERSHIP

Considerations for State CEC Program Development

Leadership Engagement, Commitment & Buy-in

- Develop an objective, evidenced-based *CEC Problem Statement:*
  - Proactive vs. reactive CEC Program development
  - CEC Program leader/champion
  - Recognize rapid changes in science that impact what is known and what is <u>not</u> known
  - Underscore potential outcomes given absence of a State CEC Program
    - Public health, environment, safety and welfare impacts
    - Liability concerns (e.g., State, responsible parties, third parties, etc.)
    - Citizen concerns
    - Political pressure

LEADERSHIP

Considerations for State CEC Program Development

Leadership Engagement, Commitment & Buy-in

- Gain support of senior leadership to form a CEC Workgroup, inclusive of program leads with a CEC nexus:
  - All relevant programs in agency (remediation, solid waste, air, hazardous waste, drinking water, wastewater, climate, research offices, etc.)
  - Reach out to other State programs/agencies, as necessary (i.e. health/toxicology, agriculture, etc.)
- Schedule standing CEC Workgroup meetings to ensure continuity of efforts across programs and develop strategy recommendations
- Schedule regular CEC Workgroup report-outs to agency leadership, who is ultimately responsible for approving a CEC strategy.

SCOPE

Considerations for State CEC Program Development

Scope: Expanding Upon the CEC Problem Statement

- How do CECs emerge?
  - Sampling Under EPA Unregulated Contaminant Monitoring Rule (UCMR), CERCLA cleanup programs, wastewater sampling, etc.
  - Use of enhanced analytical methods by drinking water, cleanup, and/or wastewater programs
  - Awareness through research work published by industry groups / associations
- What tools can be employed to further the problem statement / formulation process?
  - Conceptual Site Models
  - Occurrence identification and monitoring
  - Cancer, non-cancer cluster studies

SCOPE

Considerations for State CEC Program Development

Scope: Expanding Upon the CEC Problem Statement

- How do States arrive at a CEC definition?
  - Consider CEC fundamentals when developing a CEC definition
  - Decide if State should develop a State-specific definition or borrow an existing CEC definition
  - Arrive at a definition that supports State's knowledge-base and boundaries
- Key common terminology and themes
  - Synthetic/natural chemical
  - Not commonly monitored
  - Potential for entering ecosystem
  - Causes adverse effects to human and ecological health

SCOPE

Considerations for State CEC Program Development

Example: CEC Definitions

ASTSWMO: "any physical, chemical, biological, or radiological substance or matter in any environmental media that may pose a risk to human and/or ecological health, is under regulated, and the presence, frequency of occurrence or source of which is not well understood, routinely monitored, and/or may lack analytical methods."

ECOS: "chemicals of interest for which there is a perceived or real threat to human health or the environment and for which there is no currently published enforceable federal environmental or health standard, or the existing standard is evolving or being re-evaluated"

COLLABORATION

Considerations for State CEC Program Development

Collaboration

- Active dialogue can generate CEC information by numerous entities, agencies, and programs, yet information often exists in siloed formats and context
- Identify common questions, issues, and goals across programs
- Identify partners for collaborative engagement
  - Federal programs: CERCLA, RCRA, CAA, CWA, SDWA, TSCA, etc.
  - Federal / State offices: EPA, DoD, USGS, State programs, etc.
  - Local municipalities: BOH, fire departments, utility operators, etc.
  - Health agencies/academia/labs: CDC, ATSDR, etc.
  - Associations / research groups: ASTSWMO, ECOS, ITRC, SERDP/ESTCP
- Consider partnering on projects/tasks that further a State's CEC Program development
  - ITRC proposals
  - ECOS-DoD proposals
  - EPA Action Plan tasks

HOW TO IDENTIFY CECS

Considerations for State CEC Program Development

How to Identify CECs?

- CECs are present in the environment but often go undetected and/or not included in routine monitoring programs

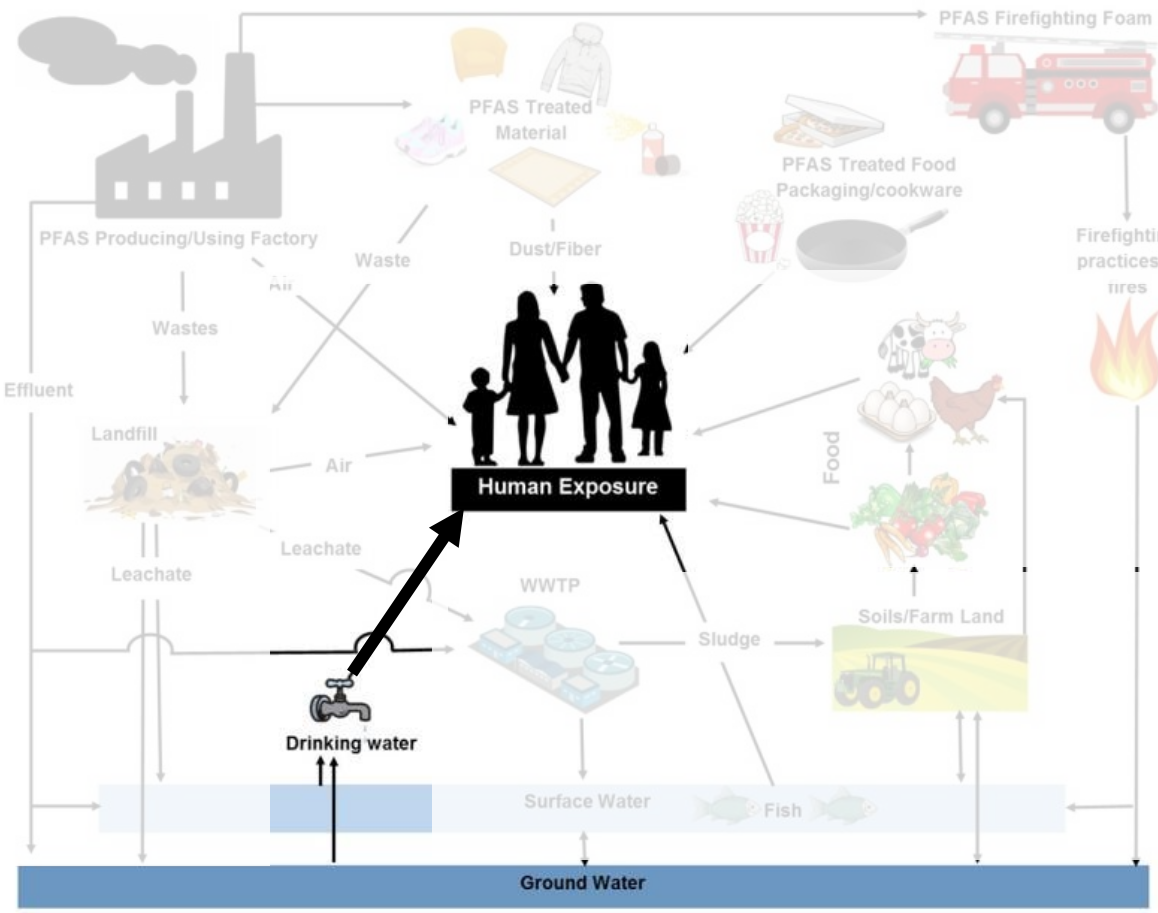
Consider:

- ***Focusing*** on improved method detection limits
- ***Evaluating*** data from past and current monitoring programs throughout the State
  - Drinking Water: UCMR and other sampling initiatives (private wells)
  - Soil/Groundwater: Superfund/DoD/State cleanup sites
  - Surface Water/Sediments: USGS
  - Air: permitted facilities
  - Ecological Receptors: U.S. Fish & Wildlife, USDA
- ***Drawing*** conclusions to understand prevalence and extent of occurrence
- ***Reviewing*** non-regulatory (e.g., academic research) sampling & analyses
  - URI STEEP Superfund Research Program
- ***Researching*** CEC toxicity and risk potential

HOW TO IDENTIFY CECS

Considerations for State CEC Program Development

Environment & Human Exposure to PFAS

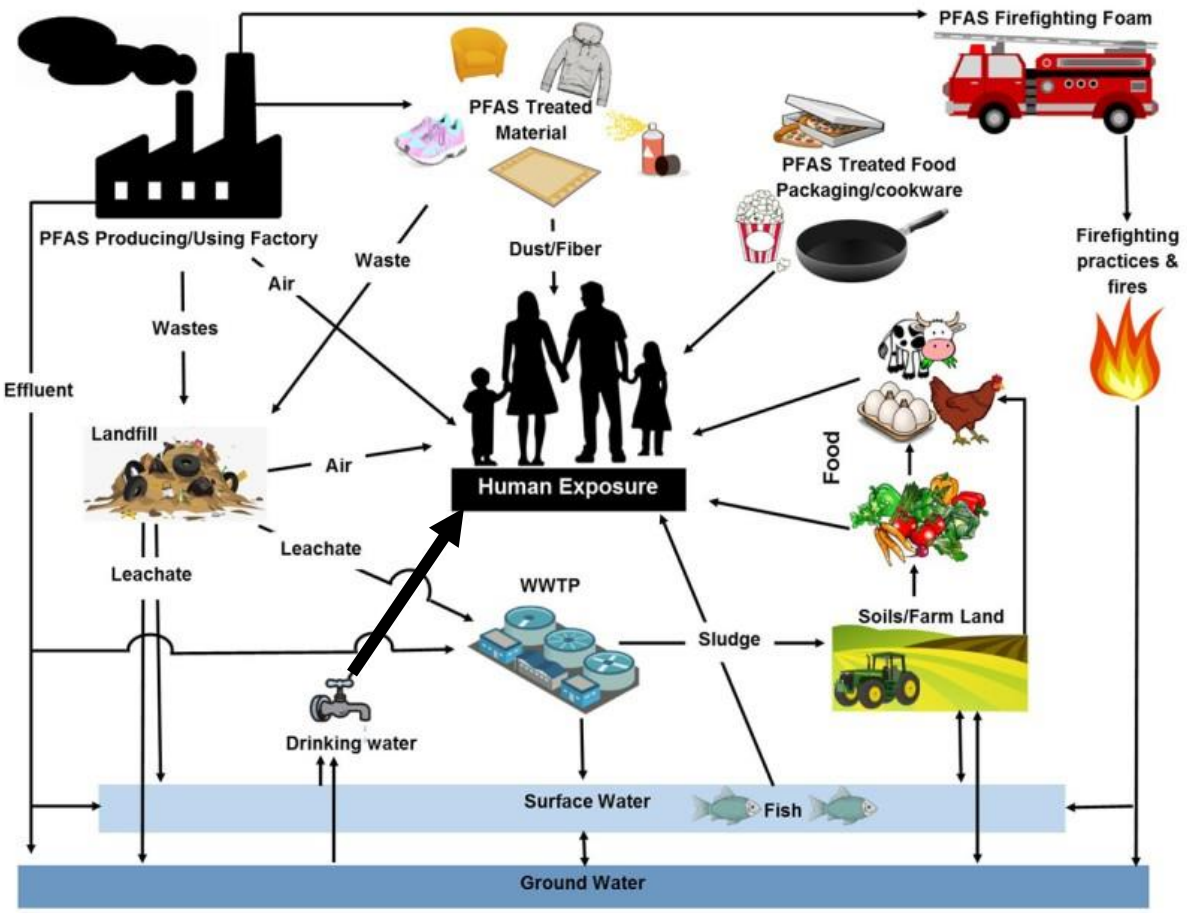


Human Exposure and sources of PFAS
Image: DWP, adapted from Oliaei et al. 2013.

HOW TO IDENTIFY CECS

Considerations for State CEC Program Development

Environment & Human Exposure to PFAS



Human Exposure and sources of PFAS
Image: DWP, adapted from Oliaei et al. 2013.

HOW TO IDENTIFY CECS

Considerations for State CEC Program Development

How Concerned Should We Be About a CEC?

- Are the releases of the CECs rare?... Common?
- Are the quantities of CECs released small?... Large?
- Are the CECs of low toxicity?... High?
- Are the CECs easily biodegraded?... Are they persistent?
- Are the CECs insoluble and/or non-volatile?... Are they mobile?

Small, rare releases of relatively non-toxic, immobile biodegradable material that we fully understand

More Concern

Less Concern

Large, common releases of mysterious, persistent toxic chemicals that migrate quickly in the environment

HOW TO IDENTIFY CECS

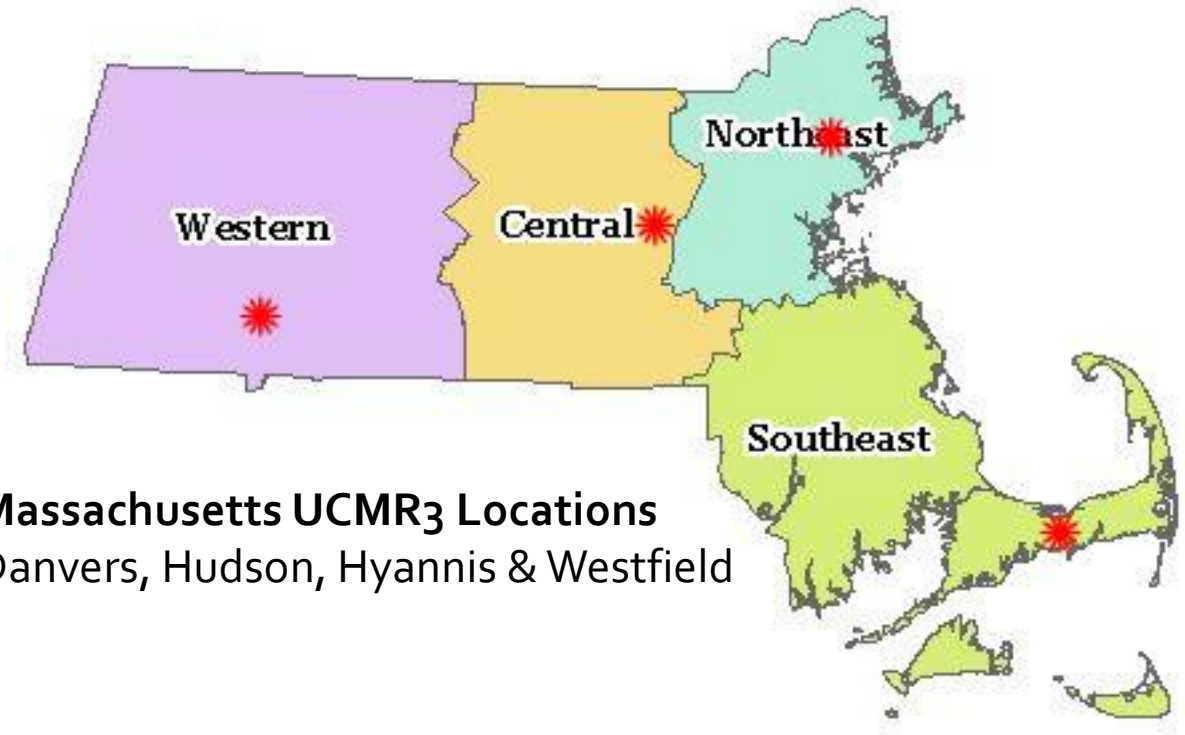
Considerations for State CEC Program Development

Example: *EARLY* Occurrence Monitoring in Support of **CEC Identification (2008)**

UCMR3 - PFAS Public Water Supply Testing

Massachusetts:
145 PWS Systems Tested, 1,208 samples

PFOS: 1.3% systems (2) >70 ng/L (none >MRL & <70)
PFOA: 0 systems > 70 ng/L (2.7% (4) >MRL & <70)



Massachusetts UCMR3 Locations
Danvers, Hudson, Hyannis & Westfield

Example: *RECENT* Occurrence Monitoring in Support of **New PFAS6 MMCL Promulgation** of 20 ng/L or ppt

PFAS6 Public Water Supply Testing (2020-ongoing)

582/1624 PWS Systems Tested (so far)

55 PWS (COM, NTNC and TNC) with results >20 ng/L or ppt

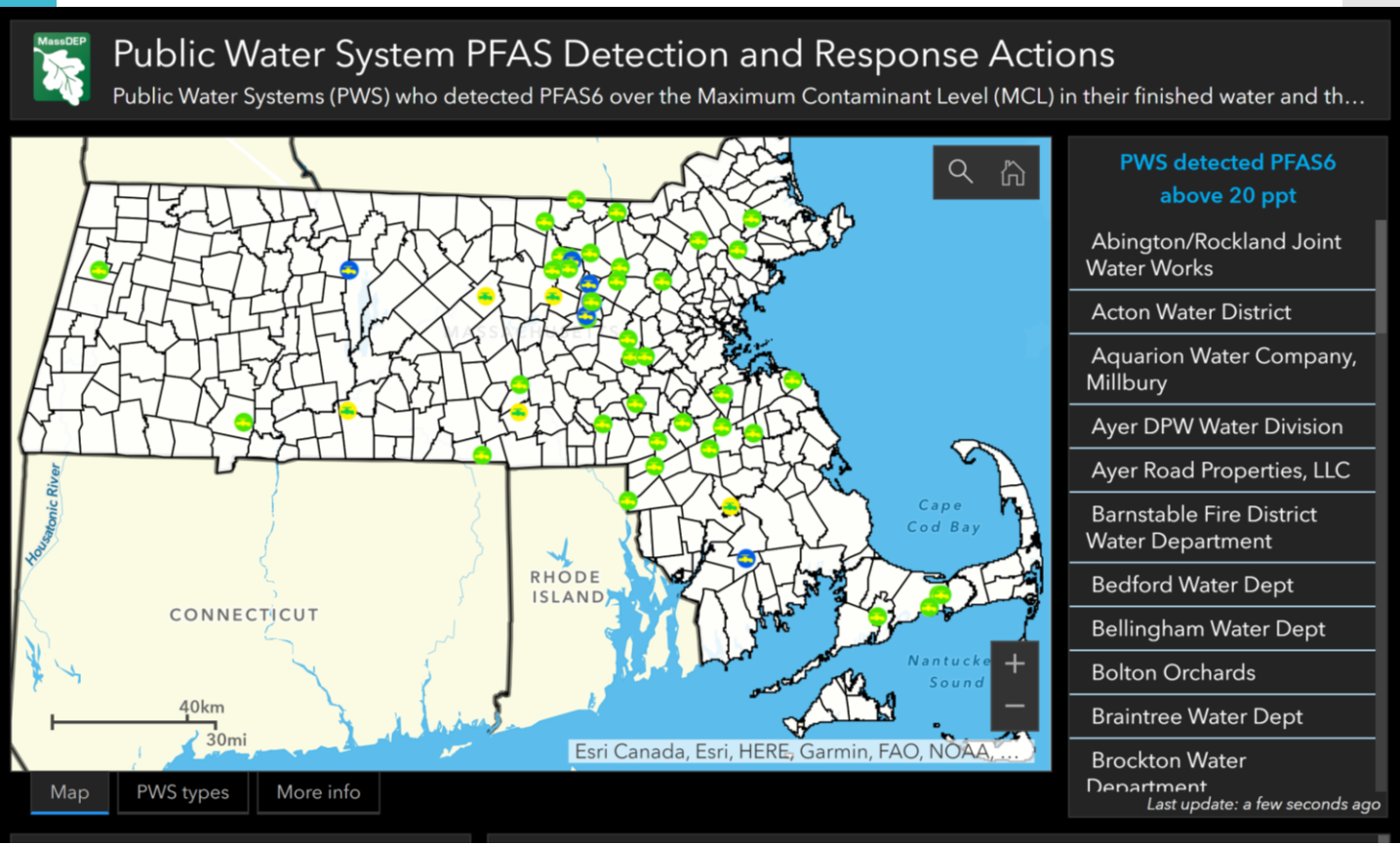
HOW TO IDENTIFY CECS

2 Testing

3 Public Water Systems Free Testing

4 PFAS detections and responses by public water systems

MassDEP recently adopted a drinking water standard limiting the sum of six specific PFAS to no more than 20 parts per trillion. Together, these six PFAS are referred to as "PFAS6." The following interactive map displays locations where public water systems have detected the sum of these six state-regulated PFAS at levels over 20 parts per trillion in "finished" water, or in water that is made available for public use.



https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#pfas-detected-in-drinking-water-supplies-in-massachusetts-

Example: *RECENT* Occurrence Monitoring in Support of **New PFAS6 MMCL Promulgation** of 20 ng/L or ppt

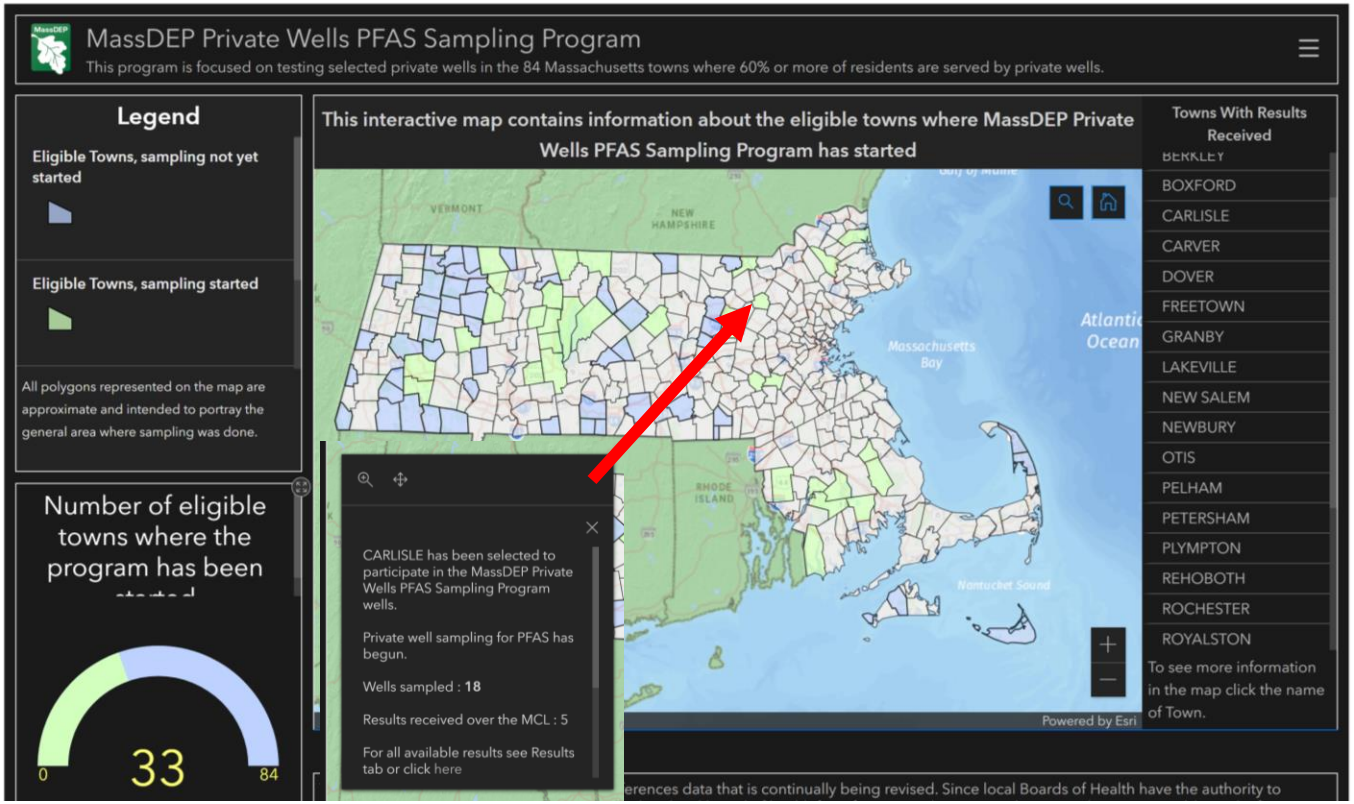
Private Water Supply Testing (2020-ongoing)

HOW TO IDENTIFY CECS

Considerations for State CEC Program Development

234 results/ 1,820 homeowners applied (so far)

65% ND … 23% <10 ppt; … 7% ,<20 ppt; … 5% >20 ppt



https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq#pfas-testing-in-private-wells-

HOW TO PRIORITIZE OR ASSESS CECS

Considerations for State CEC Program Development

How to Prioritize or Assess CECs for State Action?

- What does the occurrence data show? Are results reliable and reproducible?
- Are physical and chemical properties understood?
- Are detections at levels of toxicological concern? Are exposures threatening human health & environment?
- Is treatment readily available & economically feasible?
- Is the legislature and/or public calling for action?
- Is there dedicated funding for PFAS-related work (e.g.,testing, treatment or cleanup)

HOW TO PRIORITIZE OR ASSESS CECS

Considerations for State CEC Program Development

Example: CEC Screening Process*

PRIORITY LIST

- Database Scans
- Expert / Ground Level Knowledge
- High Urgency and High Visibility Issue

SCREENING PROCESS: STEP 1

- Impact/Risk, "Importance"
- Work Being Done by Others (EPA, States)
- Existing State or Federal standard or guideline
- Jurisdictional Issues

CREATE WATCH LIST

SCREENING PROCESS: STEP 2

- Certainty in Available Science
- Possibility of Tangible Outcomes
- Cross-Media Contaminant

OUTCOMES

- Prioritize Emerging Contaminants
- Nominations for Short-Term Action with Recommended Long-Term Strategy to Address CEC

*MassDEP Process, 2007-current

HOW TO PRIORITIZE OR ASSESS CECS

Considerations for State CEC Program Development

Example: Sample CEC List (MassDEP2008)

Priority List CECs:

PCE*
TCE*
MtBE*
RDX* / HMX* / TNT*
Tungsten*
Pharmaceuticals/Personal Care Products/Endocrine Disrupting Compounds*
Nanomaterials*

Watch List CECs:

9 VOCs
Detergents
Fire / Flame Retardants
Brominated Flame Retardants *
Disinfectants
Plasticizers
Pesticides
Microbial
PFOA (teflon)
DEET (insect repellant)

* *Denotes that a strategy has been identified for the CEC and it may no longer be in either list.*

HOW TO ADDRESS OR MANAGE CECS

Considerations for State CEC Program Development

Managing and Addressing Specific CEC(s) Through Strategic Thinking

- Have federal health advisories, guidelines and/or standards been established? If not, States may need to decide course of action:
  - Wait for federal action (if no standards or guidelines exist)
  - "Borrow" federal or other State benchmarks
  - Develop own benchmarks
- Is the State's CEC Workgroup working closely with Agency leadership and partners in the development of a coordinated CEC strategy?
  - Internally & Externally
- Is the CEC Workgroup considering, harmonizing and prioritizing the needs of each Agency program area?
  - Resources are limited (staff, budget, time, competing priorities)
  - Prioritization may look like this:
    - 1st - Drinking Water Program
    - 2nd - Site Cleanup Program
    - 3rd - Wastewater / Biosolids Program
    - 4th Solid Waste Program
- Expect the unexpected!!
  - CECs may show up unexpectedly "at your doorstep" (e.g., PFAS in mosquitocide used for EEE spraying?? Hint: the answer is no.)
  - Need for enlisting subject matter expertise on-demand
  - No shortage of CECs awaiting Agency action or pause

Considerations for State CEC Program Development

Summary

- Establish a CEC Workgroup inclusive of relevant program leads with a CEC nexus
- Develop a CEC Problem Statement
- Identify partners for collaborative engagement
- Evaluate occurrence monitoring data/trends
- Apply screening criteria to prioritize and assess CECs for State action; develop living CEC priority and watch lists
- Identify strategy for managing and addressing specific CEC(s)

Questions and Further Discussion

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