

Legislative Requirements for Microplastics in Drinking Water

Hélène Baribeau, PhD, PE
State Water Resources Control Board
Division of Drinking Water



February 11 and 13, 2025

California Regulations/Legislations

Year	Bill	Summary	Effective Date	Impact
2007	AB 258	Control of discharges of pre-production plastics from point and non-point sources	January 1, 2009	Require waste discharge monitoring and reporting of plastic manufacturing, handling, and transportation facilities
2014	SB 270	Ban on single-use plastic bag	July 1, 2015	Reduction of ~13 billion bags per year
2015	AB 888	Ban on personal care plastic microbeads	January 1, 2020	Inspired by federal legislation to ban microbeads
2018	SB 1335	State-owned facilities (and concessionaires) must use recyclable, reusable, or compostable food service packaging	January 1, 2021	Enacted the Sustainable Packaging for the State of California Act (2018); Limited to state-owned facilities
2018	AB 1884	Single-use plastic straws available only upon consumer request at sit-down restaurants	January 1, 2019	Limited because not applicable at fast food restaurants
2018	SB 1422	Microplastics in Drinking Water	July 1, 2020 & July 1, 2021	Adopt a definition of microplastics and testing for microplastics in drinking water
2018	SB 1263	Statewide Microplastics Strategy	Dec. 31, 2021 & Dec. 31, 2025	To lessen the ecological risks of microplastics to coastal marine ecosystems

SB 1263 (2018) Statewide Microplastics Strategy

- Goals:
 - To increase the understanding of the scale and risks of microplastic materials on the marine environment
 - To identify proposed solutions to address the impacts of microplastic materials, to the extent feasible
- Multi-year roadmap for California to manage microplastic pollution in coastal ocean and other aquatic systems
- Two-track approach to manage microplastic pollution

SB 1263 (2018) Statewide Microplastics Strategy

- Two-track approach
 - Solutions: Immediate, no-regrets actions and multi-benefit solutions that California can act upon now while the scientific knowledge of microplastics further develops
 - Pollution prevention
 - Pathway interventions
 - Outreach & education
 - Science: Comprehensive research strategy to advance scientific knowledge of microplastics to develop and refine future solutions
 - Monitoring
 - Risk thresholds & assessment
 - Sources & pathways prioritization
 - Evaluating new solutions

SB 1422 (2018) Microplastics in Drinking Water (Health and Safety Code §116376)

HEALTH AND SAFETY CODE - HSC

DIVISION 104. ENVIRONMENTAL HEALTH [106500 - 119406] (*Division 104 added by Stats. 1995, Ch. 415, Sec. 6.)*

PART 12. DRINKING WATER [116270 - 117130] (*Part 12 added by Stats. 1995, Ch. 415, Sec. 6.)*

CHAPTER 4. California Safe Drinking Water Act [116270 - 116755] (*Chapter 4 added by Stats. 1995, Ch. 415, Sec. 6.)*

ARTICLE 3. Operations [116350 - 116407] (*Article 3 added by Stats. 1995, Ch. 415, Sec. 6.)*

116376. (a) The state board, on or before July 1, 2020, shall adopt a definition of microplastics in drinking water.

(b) The state board, on or before July 1, 2021, shall do all of the following:

- (1) Adopt a standard methodology to be used in the testing of drinking water for microplastics.
- (2) Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results.
- (3) If appropriate, consider issuing a notification level or other guidance to aid consumer interpretations of the results of the testing required pursuant to this section.
- (4) Accredite qualified laboratories in California to analyze microplastics.

(c) The state board may implement this section through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

(Added by Stats. 2018, Ch. 902, Sec. 1. (SB 1422) Effective January 1, 2019.)

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - *Adopt a definition of microplastics in drinking water*
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - Adopt a [definition of microplastics in drinking water](#)
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

*“Solid polymeric materials to which chemical additives or other substances may have been added, which are particles which have at least three dimensions that are **greater than 1 nm and less than 5,000 μm**. Polymers that are derived in nature that have not been chemically modified (other than by hydrolysis) are excluded..”*

(Adopted June 16, 2020)

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - *Adopt a definition of microplastics in drinking water*
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

Two lab methods for extraction and measurement of microplastics in drinking water (May 2022):

- [Raman spectroscopy](#) ($\geq 20 \mu\text{m}$)
- [Infrared spectroscopy](#) ($\geq 50 \mu\text{m}$)

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - *Adopt a definition of microplastics in drinking water*
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

[Microplastics in
Drinking Water Policy
Handbook \(Aug. 2022\)](#)

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - *Adopt a definition of microplastics in drinking water*
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

Insufficient evidence at the time to issue a notification level or other numerical guidance (Sept. 2021)

- Impacts to humans are largely unknown due to significant knowledge gaps
- [Microplastics Health Effects Workshop - Southern California Coastal Water Research Project](#)

SB 1422 (2018) Microplastics in Drinking Water (HSC 116376)

- *“The State Water Resources Control Board shall review existing research and studies to accomplish the following tasks:*
 - *On or before July 1, 2020:*
 - *Adopt a definition of microplastics in drinking water*
 - *On or before July 1, 2021:*
 - *Adopt a standard methodology for testing of microplastics in drinking water*
 - *Adopt requirements for four years of testing and reporting of microplastics in drinking water, including public disclosure of those results*
 - *Consider issuing quantitative guidelines (e.g., notification level) to aid consumer interpretations of the testing results, if appropriate*
 - *Accredit qualified laboratories in California to analyze microplastics in drinking water.”*

Ongoing

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water



POLICY HANDBOOK ESTABLISHING A STANDARD METHOD OF
TESTING AND REPORTING OF MICROPLASTICS IN DRINKING
WATER

August 9, 2022

Prepared by:
THE DIVISION OF DRINKING WATER
STATE WATER RESOURCES CONTROL BOARD
STATE OF CALIFORNIA

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

- Key points
 - Pilot Phase (Phase Zero) to build infrastructure for monitoring
 - Two-phase iterative approach for monitoring and reporting
 - Monitoring orders
 - Analysis of surrogates
 - Reporting to DDW and positive detections in CCRs

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

- Key points

- Pilot Phase (Phase Zero) to build “infrastructure” for monitoring
- Two-phase iterative approach for monitoring and reporting
- Monitoring orders
- Analysis of surrogates
- Reporting to DDW and positive detections in CCRs

- Develop sample collection method (ASTM vs. in-line filtration)
- Fine tune the method by measuring microplastics in source and finished water
- Provide in-person and virtual training
- Allow time for lab accreditation by ELAP
- Develop tools to communicate risks

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

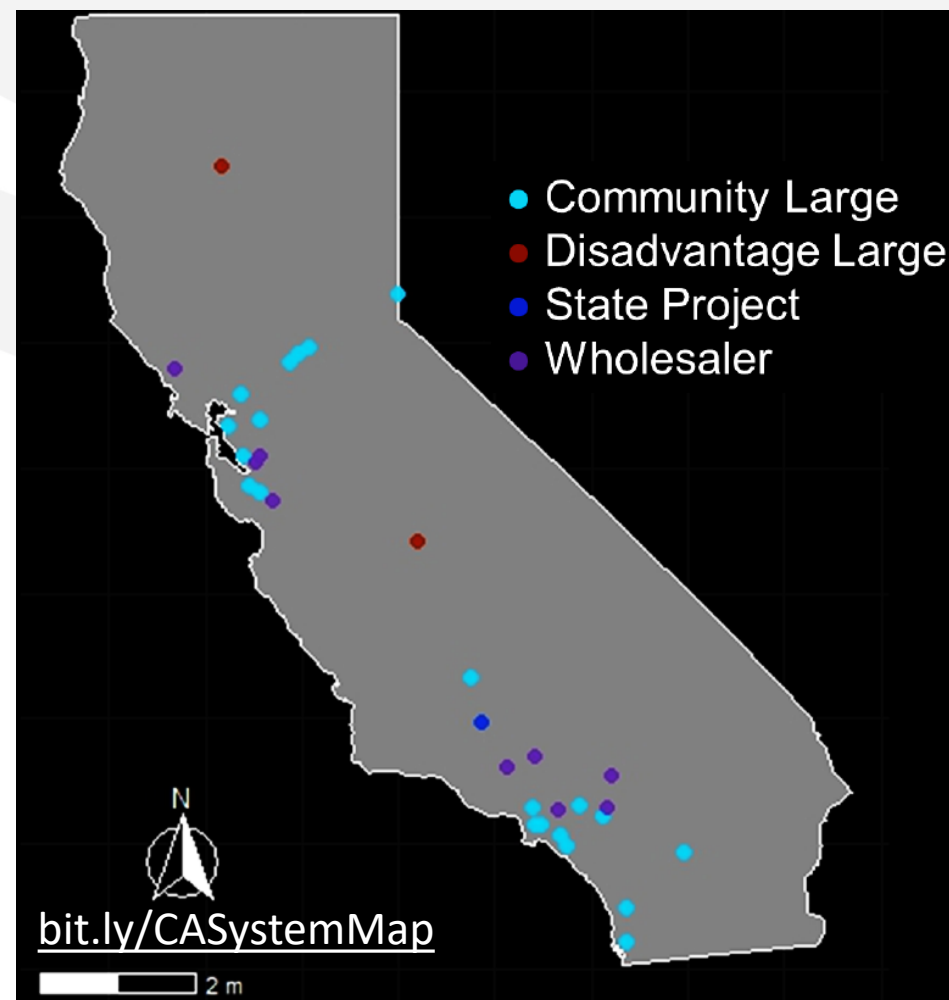
- Key points

- Pilot Phase (Phase Zero) to build infrastructure for monitoring
- Two-phase iterative approach for monitoring and reporting
- Monitoring orders
- Analysis of surrogates
- Reporting to DDW and positive detections in CCRs

- Two years each phase with a 6-month interim phase to assess results and plan the second phase
- Sampling by ASTM D8332-20 or in-line filtration
- Analysis by Raman spectroscopy or infrared spectroscopy

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

- Key points
 - Pilot Phase (Phase Zero) to build infrastructure for monitoring
 - Two-phase iterative approach for monitoring and reporting
 - Monitoring orders
 - Analysis of surrogates
 - Reporting to DDW and positive detections in CCRs



Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

- Key points

- Pilot Phase (Phase Zero) to build infrastructure for monitoring
- Two-phase iterative approach for monitoring and reporting
- Monitoring orders
- Analysis of surrogates
- Reporting to DDW and positive detections in CCRs

- Turbidity
- Total organic carbon (TOC)
- Total suspended solids (TSS)
- Total dissolved solids (TDS)
- And others (optional)

Policy Handbook for Testing and Reporting of Microplastics in Drinking Water

- Key points
 - Pilot Phase (Phase Zero) to build infrastructure for monitoring
 - Two-phase iterative approach for monitoring and reporting
 - Monitoring orders
 - Analysis of surrogates
 - Reporting to DDW and positive detections in CCRs

“Studies of rodents exposed to some types of microplastics through drinking water indicate potentially adverse effects, including on the reproductive system. However, more research is needed to understand potential impacts on human health, including determining concentrations at which effects may occur. California is monitoring microplastics in drinking water to understand its occurrence and is supporting ongoing research.”

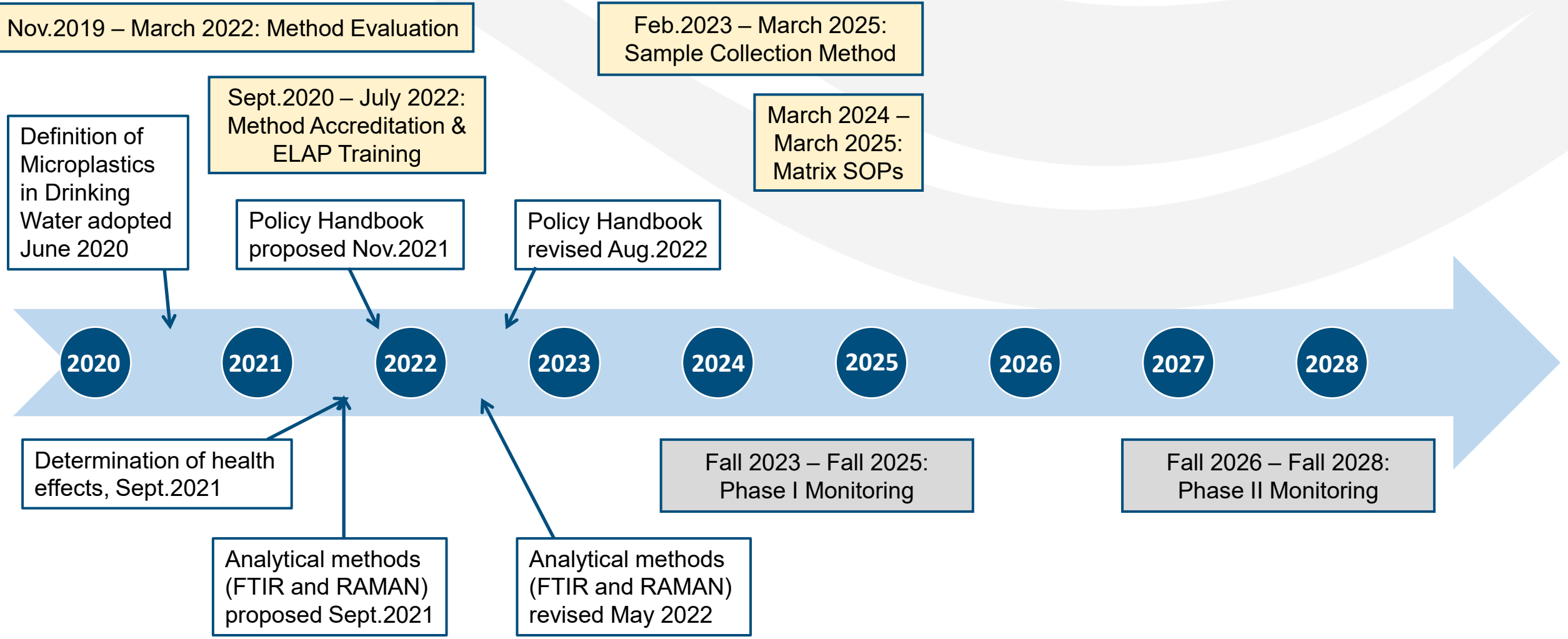
Timeline and Overview of Methods

Hélène Baribeau, PhD, PE
State Water Resources Control Board
Division of Drinking Water



February 11 and 13, 2025

Work Completed



Microplastic Measurement

STEP 1

Sample collection



STEP 2

Sample preparation

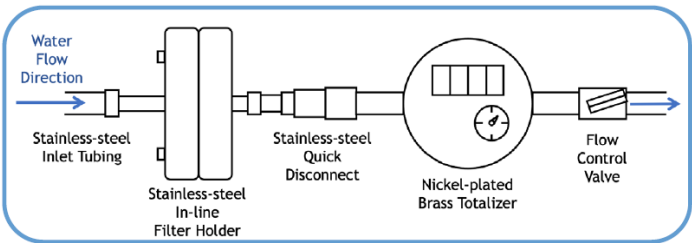
- Extraction of microplastic particles from sample collection devices
- Particle isolation from sediments, organic material, etc.



STEP 3

Microplastic analysis

- FTIR
- RAMAN



Univ. of Toronto



Legislative Requirements for Microplastics in Drinking Water



Hélène Baribeau, PhD, PE
SWRCB, Division of Drinking Water
Helene.Baribeau@WaterBoards.ca.gov
(619) 645-2573



February 11 and 13, 2025