TRASH AND MICROPLAS **IN CALIFORNIA** SHELLY MOORE Southern California Coastal Water Research Project (SCCWRP)

TRASH HAS BECOME A FOCAL POINT IN C

- Statewide and local bans
 - Bag bans
 - Styrofoam bans
 - Cigarette bans
 - Straws
- Total Maximum Daily Loads (TMDLs)
 - 15+ in LA region alone
 - LA River most known
- Statewide Trash Policy
 - Trash Amendments
 - Track 1 vs Track 2

CONCEPTUAL MODEL FOR TRASH



TRANSLATING MANAGEMENT QUESTIONS INTO SCIENT



EXAMPLE OF ANSWERING MANAGEMENT QUESTIONS



FOCUS IS TRANSITIONING TO MICROPL

•AB 888 - Passed October 2015 - Plastic microbeads

 \circ Prohibits the sale of personal care products in California that contain plastic microbeads \circ Effective on January 1, 2020

•SB 1422 – Passed September 2018 - Drinking Water

- Charges the State Water Board with defining microplastics in drink water and developing methods to detect
- \circ Have two years to develop standardized methods

•SB 1263 – Passed September 2018 - Ocean Protection Council: Statewide Microplastics Strategy

- Charges the Ocean Protection Council to develop a Statewide Microplastics Strategy in Collaboration with the State Water Board
- Authorizes the Ocean Protection Council to appropriate funds for research on microplastics

2018 OCEAN LITTER STRATEGY

- Developed statewide priorities around litter
 - California Ocean Protection Council
 - NOAA Marine Debris Program
 - California Stakeholders
- Microplastics identified as an area of concern
 - Increase understanding of the scale and impact of microplastics and microfibers on the marine environment and develop solutions to address them.
 - Convene an expert workgroup to develop a matrix of standard sample collection, processing, and characterization methods for measuring temporal changes in microplastics and macro -debris in different environments.



2018 California

Ocean Litter Prevention Strategy: Addressing Marine Debris from Source to Sea

STARTING POINT

- California must select a method(s) for quantifying microplastics
 - They have a mandate to do so for drinking water within two years
 - Needs one for other matrices if they are to develop an ocean microplastics strategy
 - California selecting "official" methods will set precedent for other locales
- California needs a method evaluation study
 - They desire to make their selection based on solid data about method performance
 - But much of that information doesn't yet exist
- Our goal is to design a study that will provide that information
 - Scientists need the same information so we can better integrate our own studies

WHAT DO WE NEED FROM A STUDY?

- Method accuracy
 - How much bias is there from a true answer?
- Method repeatability
 - How different are the answers when two people employ the same method?
- Relative cost among methods
 - Capital costs
 - Variable costs
 - Personnel time to implement



METHOD	MONITORING QUESTIONS	BIAS	REPEATABILITY	RESOURCES
A				\$\$\$\$
В				\$\$\$
С				\$\$
D				\$

MICROPLASTICS METHODS WORKSHO

Dates: April 4-5 2019 at SCCWRP in Costa Mesa, CA Hosted by: HORIBA Southern California Coastal Water Research Project

University of Toronto

In coordination with: State of California Water Resources Control Board and the California Ocean Protection Council

Participants: Most of the leading researchers in the world on microplastics

Meeting Objectives:

- 1. Understand policy -maker needs in regards to microplastics methods
- 2. Agree on the state of the science and determine the research necessary to reach shared goals
- 3. Co-develop a manuscript on best practices for microplastics analyses
- 4. Design a study plan to develop standardized methods, including collection, laboratory and data management, for microplastics analysis.

AGENDÆIRST DAY

- Recent Legislation Representatives
 - Ocean Protection Council Perspective Deborah Halberstadt
 - State Water Resources Control Board Perspective Darrin Polhemus
- Microplastic Overview and Aspects Related to Human Health for Consideration - Bob Andrews and Chelsea Rochman
- Methods: State of the Science
- Planned European method evaluation study Amy Lusher
- Example microplastics data collection programs in California
 - Microplastics in San Francisco Bay Carolynn Box
 - Microplastics in wastewater effluent Steve Carr
 - USEPA Region 9 progress toward standardizing microplastic measurement methods - Anna-Marie Cook

METHODS: STATE OF THE SCIENCE

- Methods for sampling microplastics Paul Helm
- Extracting microplastics from different environmental matrices Amy Lusher
- Techniques for identifying and quantifying microplastics prior to, or in lieu of, spectroscopy - Keenan Munno
- FTIR in microplastic research: Towards a harmonized and standardized analysis Sebastian Primpke
- Microplastics quest using pyrolysis GC -MS Ashok Deshpande
- Raman Spectroscopy in correlative microscopy / spectroscopy workflows Silke Christiansen
- Microplastics in drinking water: Development and Automation of Raman Microspectroscopy - Marco Pittroff
- QA/QC for microplastics sampling, analysis and reporting Chelsea Rochman

WILL FINISH WITH GROUP DISCUSSION STAKEHOLDERS ABOUT THEIR NEEDS

- What is your most urgent need at this moment?
- What would you like to see in a best practices report?
- What types of methods would you like to see developed?
- What are some of the key concerns that should be taken into consideration when developing/choosing best methods and practices?

WIDE RANGE OF STAKEHOLDERS



What sector are you representing?

SECOND DAY

- Small group of experts convene
- Develop a collaborative review paper
- Develop a study plan for testing and identifying standardized practices
 - Sampling
 - Extraction and Cleanup
 - Chemical Confirmation
 - QA/QC

QUESTIONS?

For updates before and after the workshop: <u>http://bit.ly/uplastic</u>

SHELLY MOORE shellym@sccwrp.org