

# **Clean Water Perspective on CECs in Aquatic Ecosystems**

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# Presentation Overview

- Introduction
- Issue Balancing
- Case Study
- Suggestions to the Panel

# Introduction

## Existing Efforts

- DTSC
- DPR

## Timeline Summary

- January – March 2019
- August – December 2019 – NL, AB 756, RL
- January 2020 – AB 2560 (Quirk) & SB 996 (Portantino)
- April 2020 – OPC & SWB reconvenes CEC's panel

# Issue Balancing

- Source Control / Engineering High-Energy Solutions
- Pollution Prevention / Ubiquitous Contaminants
- Presence-Absence / Contaminated-Background
- Approved Methods / User-Defined Methods
- Regulatory Purpose / Investigatory Purpose
- Science Based Policy / Scientific Timetable
- Best Available Science / Latest Scientific Results
- Regulation / Regrettable Substitutions
- Targeted Methods /Classes of Contaminants
- Comprehensive Monitoring / Representative Monitoring
- Numeric Approach / Watershed Approach

# Issue Balancing: Source Control / Engineering High-Energy Solutions

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- we cannot treat our way out of these issues
- contaminants are not destroyed by advanced treatment, only transferred to another matrix

# Issue Balancing: Pollution Prevention / Ubiquitous Contaminants

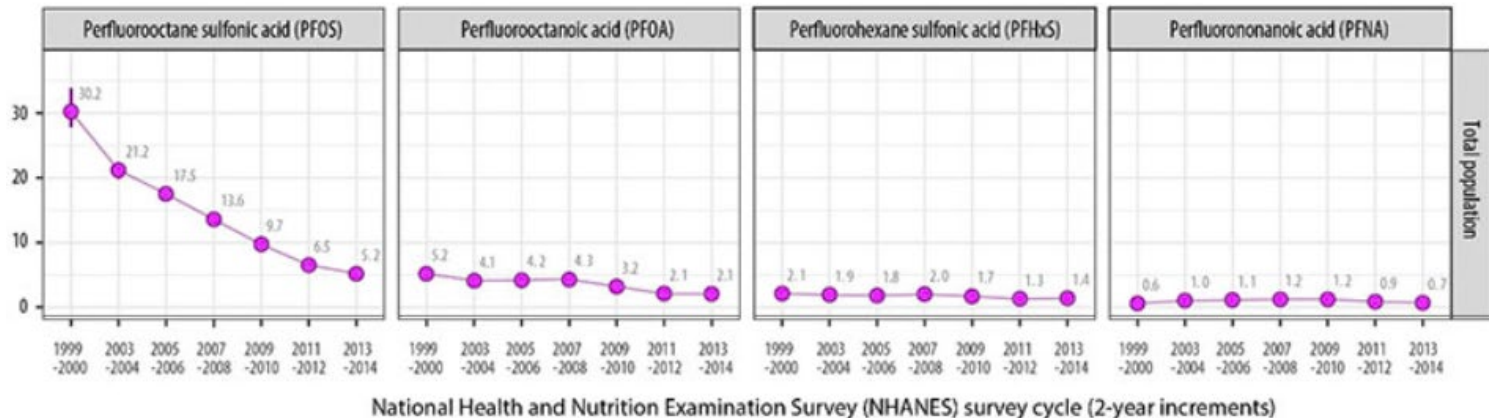
## PFASs exposure is a health concern





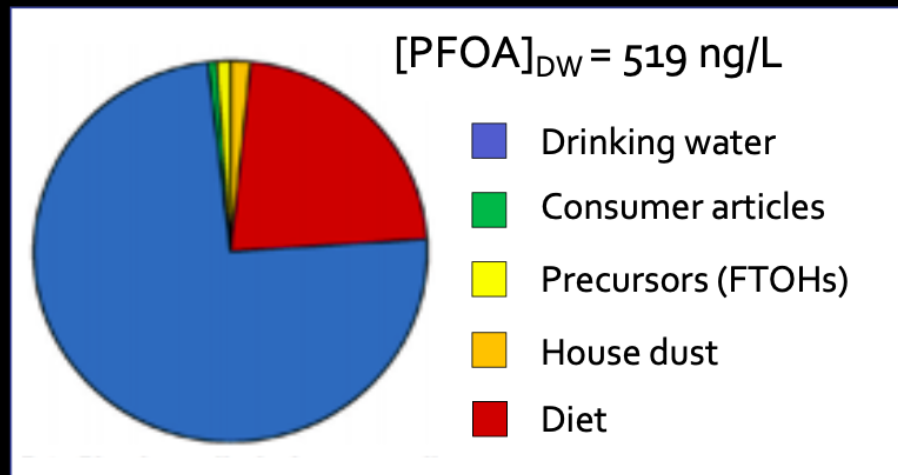
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# Issue Balancing: Presence-Absence / Contaminated-Background

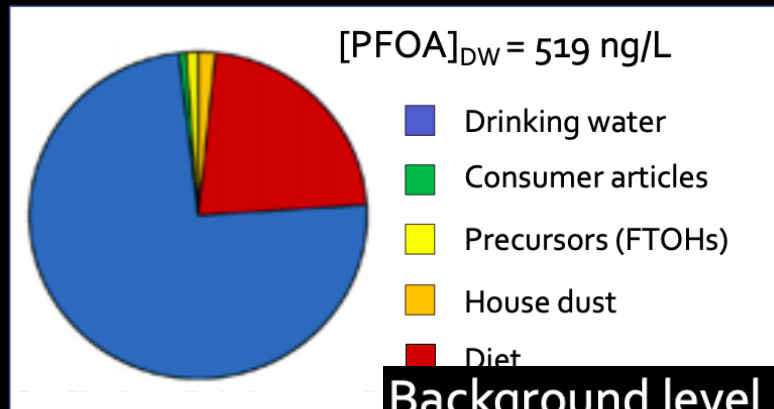
## Contaminated drinking water



Vestergren & Cousins, ES&T, 2009. DOI: 10.1021/es900228k

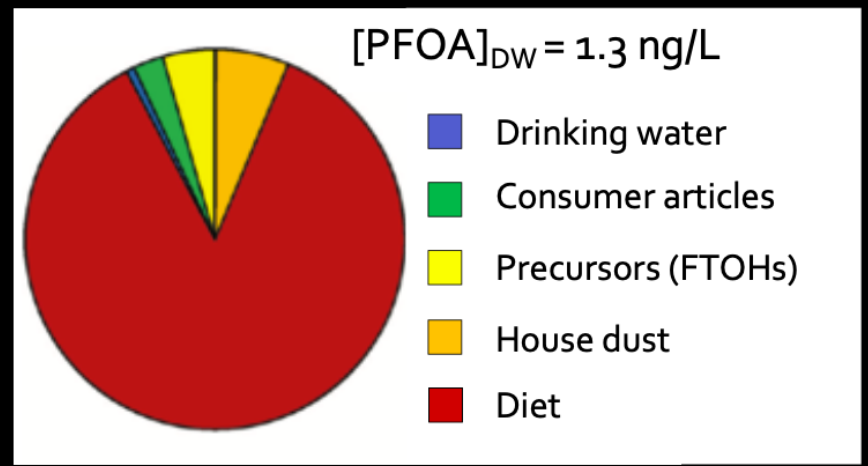
# Issue Balancing: Presence-Absence / Contaminated-Background

## Contaminated drinking water



Vestergren & Cousins, ES&T, 20

## Background level in drinking water



# Issue Balancing: Approved Methods / User-Defined Methods

## Practical Considerations: Method Selection

### Standard Methods

- Commercial lab
- Discrete analyte list
  - Available standards
- Prompt turnaround
- Standardized QA, data management
- Readily comparable across studies

### Exploratory Methods

- Academic lab
- Adaptable analyte list
  - New CECs
- Academic timetable
- Training needed for QA, reporting
- Uncertainty regarding comparability

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***“EPA's criteria for certifying a new standard method, pursuant to 40 CFR Part 136, requires a thorough demonstration of accuracy, precision, method detection levels, representativeness, comparability and availability for the proposed analytical procedure.”***

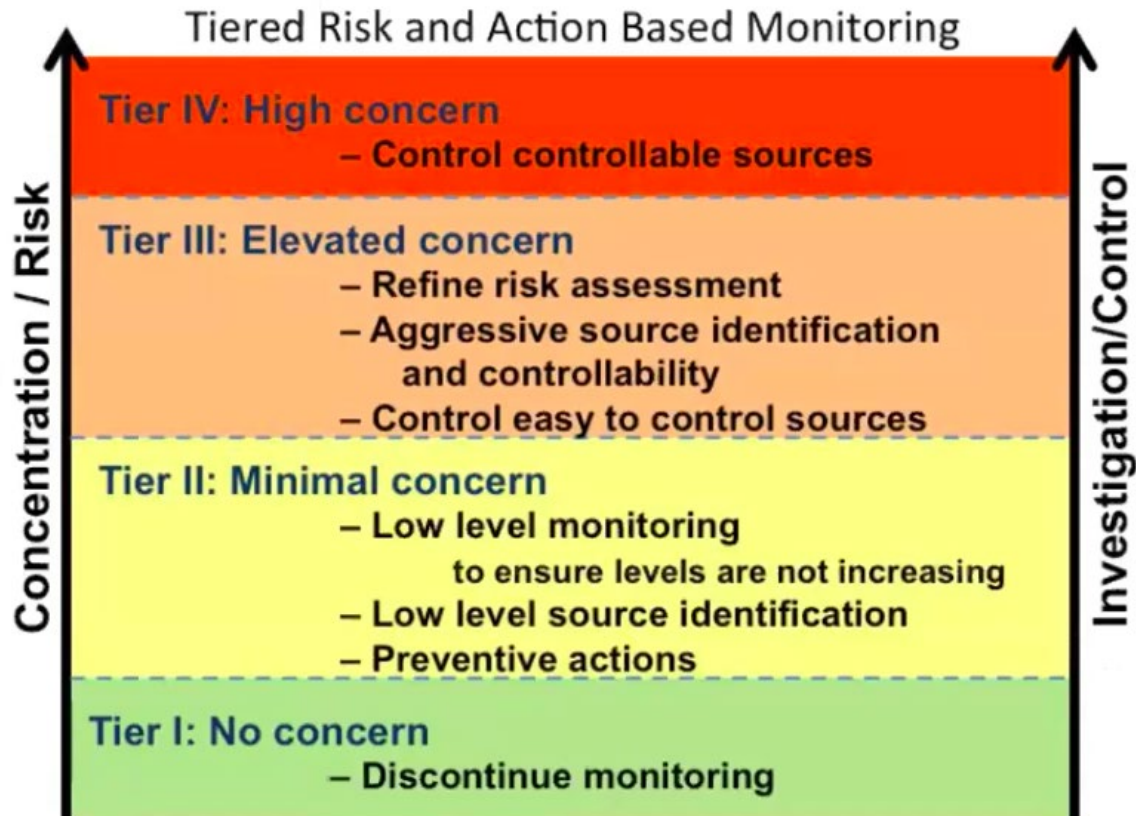
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# Issue Balancing: Science Based Policy / Scientific Timetable

“Science moves at a snail’s pace.”



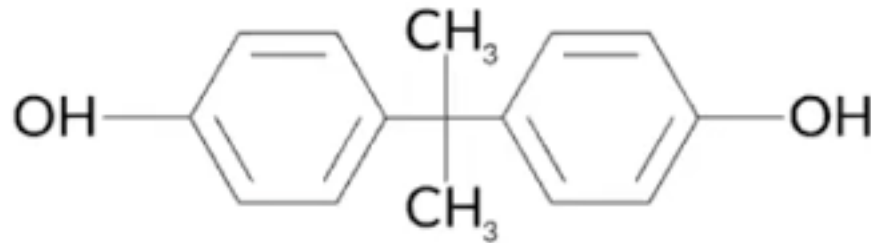
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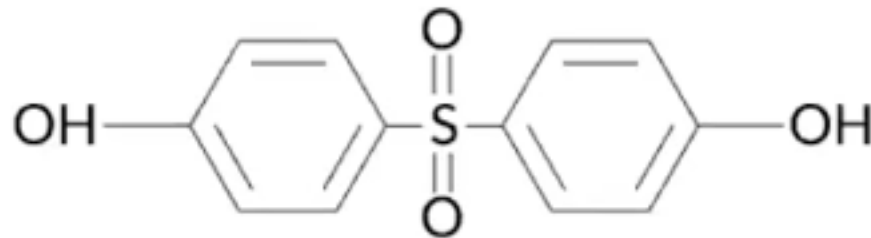
“Oh snail, climb Mt. Fuji, but slowly, slowly” ~ Kobayashi Issa

# Issue Balancing: Regulation / Regrettable Substitutions

**Bisphenol A**

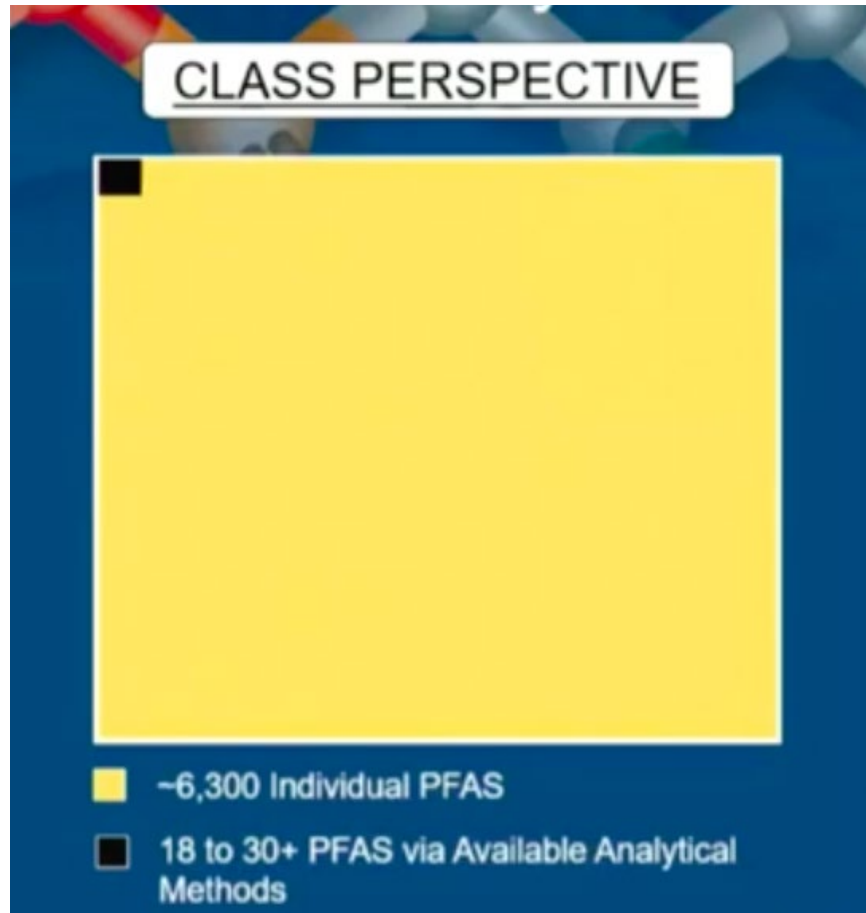


**Bisphenol S**



Bisphenol S has higher persistence in the aquatic matrix

# Issue Balancing: Targeted Methods /Classes of Contaminants



Sensitivity is lost.

# Issue Balancing: Comprehensive Monitoring / Representative Monitoring

## Distribution of PFAS POTW Orders by Regional Board

Region Number	Location	# of POTWs
1	North Coast	13
2	San Francisco Bay	0
3	Central Coast	29
4	Los Angeles	25
5S	Sacramento	46
5F	Fresno	45
5R	Redding	11
6	Lahontan	19
7	Colorado River	16
8	Santa Ana	29
9	San Diego	26
<b>Total</b>		<b>259</b>

# Issue Balancing: Comprehensive Monitoring / Representative Monitoring

## Distribution of PFAS POTW Orders by Regional Board

Region Number	Location	# of POTWs
1	North Coast	12
2	San Francisco Bay	0
3	Central Coast	29
4	Los Angeles	25
5S	Sacramento	46
5F	Fresno	45
5R	Redding	11
6	Lahontan	19
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# Issue Balancing: Numeric Approach / Watershed Approach

## “Chasing zero” versus Innovative Solutions

WATER BOARD

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San Francisco Bay Regional Water Quality Control Board

**ORDER No. R2-2019-00XX**  
**NPDES No. CA0038873**

**WASTE DISCHARGE REQUIREMENTS FOR NUTRIENTS  
FROM MUNICIPAL WASTEWATER DISCHARGES TO SAN FRANCISCO BAY**

The following dischargers are subject to waste discharge requirements (WDRs) set forth in this Order, for the purpose of regulating nutrient discharges to San Francisco Bay<sup>1</sup> and its contiguous bay segments:

# Case Study – PFAS Investigative Order

## Status of PFAS Orders

	Drinking Water Wells	Airports	Landfills	Chrome Platers	POTWS
<b>Issued Date</b>	March 2019	March 2019	March 2019	October 2019	July 2020
<b>Number of Orders</b>	-	30	196	271	259
<b>Order Timeframe</b>	Quarterly/1-yr	One-time sampling event			Quarterly/1-yr
<b>Number of Sites Sampled (as of 6/2020)</b>	611	15	138	0	0
<b># of Samples Collected</b>	2,400+	30	196	TBD	5,200+
<b>% PFAS Detected</b>		100	97	TBD	TBD
<b>Matrices Sampled</b>		soil, groundwater, surface water	groundwater, leachate	soil, groundwater, surface water, effluent wastewater	influent and effluent wastewater, biosolids, reverse osmosis concentrate, groundwater monitoring wells
<b>Est. Completion Date of Sampling</b>	June 2020	Late 2020	Early 2021	2021	Late 2021

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# Case Study – PFAS Investigative Order

## Distribution of PFAS POTW Orders by Regional Board

Region Number	Location	# of POTWs
1	North Coast	13
2	San Francisco Bay	0
3	Central Coast	29
4	San Joaquin Hills	25
5S	Sacramento	46
5F	Fresno	45
5R	Redding	11
6	San Joaquin Hills	18
7	Colorado River	16
8	Santa Ana	29
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# Case Study – PFAS Investigative Order

## Distribution of PFAS POTW Orders by Regional Board

Region Number	Location	# of POTWs
1	North Coast	13
2	San Francisco Bay	0
3	Central Coast	29
4	Central Valley	102
5S	Sacramento	46
5F	Fresno	45
5R	Redding	11
6	Eastern	18
7	Colorado River	16
8	Santa Ana	29
9	San Diego	26
<b>Total</b>		<b>259</b>

**102 in the Central Valley, of which 68 are < 5 MGD**

# Suggestions to the Panel

- Continue serving as a clearinghouse and venue for the technical work being performed by others on CECs.
- Encourage reliance on work and case studies by DTSC and DPR for further source control and pollution prevention efforts.
- Build reliability into the design of monitoring where an approved method is not utilized, and use representative sampling except in the instance of high or moderate concern.
- Insist upon the best available science, and for investigatory monitoring, clearly caveat the limitations of the data.
- Recommend procedural guardrails certifying the costs of monitoring and impact to stakeholders.
- Endorse regulatory strategies that are part of a holistic approach for improving the health of an entire watershed.

# Thank you!

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