

Science Advisory Panel for Constituents of Emerging Concern (CECs) in California's Aquatic Ecosystems

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SCCWRP Commission Meeting 3/3/23



Why are Constituents of Emerging Concern (CECs) a problem?

- Many, many chemicals have large data gaps for environmental occurrence, sources, behavior, toxic effects
- Which ones should be monitored?
 - Especially when new CECs appear all the time?
- How can monitoring for these CECs be prioritized?
 - Strategy to do this needed

Background

- State of California formed CEC scientific advisory panel for ambient waters a decade ago
- 2012 Panel's report, adopted by State, offered risk assessment framework to prioritize chemicals to be monitored
- Implementing framework hampered by sparse available data

Current Panel's goals

- Field has expanded greatly over last decade
 - Much more data on CECs now, and advances in technology
- Current Panel charged with updating CEC management strategy given all these changes
 - Provide recommendations for monitoring program development for State

Panelists

➤ Dr. Jörg Drewes (Chair)

- Civil Engineer, Technical University of Munich, Germany



➤ Dr. Paul Anderson

- Human Health Toxicologist/Risk Assessor, Independent Consultant



➤ Dr. Daniel Schlenk

- Ecotoxicologist, UC Riverside



➤ Dr. Adam Olivieri

- Risk Assessor, EOA Incorporated



➤ Dr. Nancy Denslow

- Biochemist, University of Florida



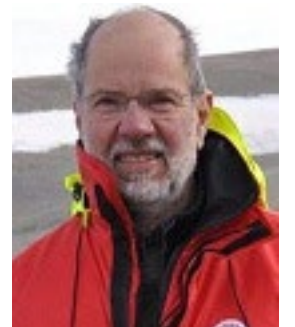
➤ Dr. Shane Snyder

- Analytical Chemist, Nanyang Technological University, Singapore



➤ Dr. Derek Muir

- Environmental Chemist, Environment and Climate Change Canada



Panel's timeline

- Launched October 2020 by webinar
- Met numerous times by videoconference working meetings and offline work
- Met in-person February 2022 and May 2022
- Draft report released November 2022
- Report-out of findings and recommendations by webinar December 12, 2022
- Final report to be submitted later this month

Panel's major products

1. Affirm earlier Panel's risk-based framework for CECs
2. Address challenges with implementing framework

Affirm earlier Panel's risk-based framework for CECs

- 2012 Panel's risk-based framework relied on both chemical occurrence, and chemical toxicity
 - What's there, and is it too much?
- Current Panel found that this approach is sound
- Sound data for occurrence and toxicity needed to make framework go
 - 2012 Panel lacked this information

Address challenges with implementing framework

- Current Panel has a lot of new information to apply to framework
- Many problems with both occurrence and effects data
- Panel's efforts focused on fixing these problems
 - Devil is in the details, and Panel worked through those details

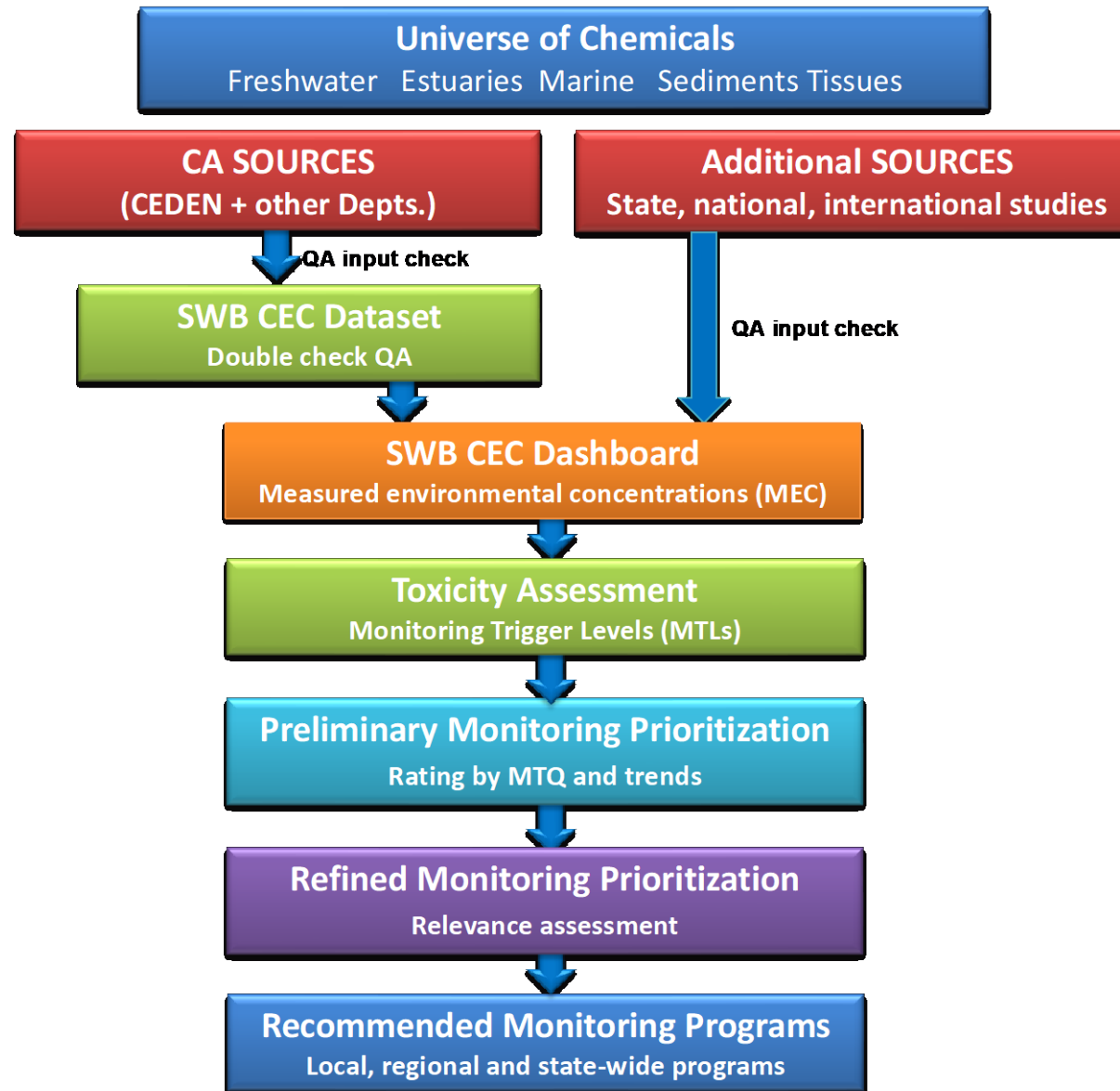
Challenges with occurrence data

- Data not of common quality, and some is poor quality
 - Many non-detects, missing information, multiple levels of detection limits, undocumented methods, and more
- Presence of bad data poisons entire dataset
 - Not always obvious what data is problematic
- Panel developed data quality criteria, and means to screen data, so framework can be effective

Challenges with effects data

- Data not of common quality, and often incompatible with each other
 - Thresholds from wildly different methods and endpoints, calculated by unclear means
- Panel identified suitable data sources for reliable ecotoxicology data
- Panel developed thresholds from data using uniform and consistent metrics
 - Readily applied to new data

Risk-based framework for prioritizing CECs for monitoring



Handoff

- Panel validated risk-based strategy, and addressed data quality issues limiting implementation
 - Necessary to create monitoring lists, but the Panel did not produce monitoring lists of CECs
- Panel trained and guided State Water Board to vet high-quality data and implement framework
 - State Water Board CEC Program currently executing this work

For more information

- Contact me! charlesw@sccwrp.org
- SCCWRP Panel website: <https://www.sccwrp.org/about/research-areas/emerging-contaminants/cec-ecosystems-panel/>
- State Water Board CEC Program website: https://www.waterboards.ca.gov/water_issues/programs/cec/index.html