Regional Water Board
Perspective on PFAS Sources and Management Approaches
Virtual Forum: PFAS in San Francisco Bay Fish
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SF Bay PFAS Management and Monitoring Strategy

- Assess PFAS in the Bay and sources and loadings
- Inform national and statewide efforts
- Identify and control controllable sources
Bioaccumulation in the Bay Food Web

Bioaccumulation
An organism’s net contaminant accumulation from all sources
- Air
- Water
- Sediment
- Food

Bioaccumulation Conceptual Model
PCBs Conceptual Model
Urban Runoff

Spills & On-Land Contaminated Sites

Surface Waters

Biologically Active Sediment Layer

Buried Sediment Layer

Fish

Benthic Invertebrates & Plants

Fish eating Wildlife

Humans

PCBs Conceptual Model
PFAS Conceptual Model?
Atmospheric Deposition
Treated Wastewater
Urban Runoff
Spills & On-Land Contaminated Sites
Non-Urban Runoff & Nonpoint Sources
Delta Inflow
Bioturbation, Scouring, Deposition & Resuspension, Transport, Dredging
Golden Gate Outflow
Surface Waters
Biologically Active Sediment Layer
Buried Sediment Layer
Degradation, Sorption & Desorption, Diffusion
Fish
Benthic Invertebrates & Plants
Human
Fish eating Wildlife
Benthic & Plant eating Wildlife
PFAS Conceptual Model?
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PFOS decline in bird eggs
No PFOA decline in eggs and seals

PFAS Conceptual Model?
SF Bay PFAS Management Challenges

- Many PFAS and many products w/ PFAS
  - International production
- Focus on industries = some benefit, but residential sources are comparable or >
- Potential for regrettable substitutions
- Undesirable regulatory consequences
- High cost and limited benefit of wastewater and stormwater treatment
Better Living Through Better Managed Chemistry!