BACWA Board Meeting

PFAS Study Phase 1 Results

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RMP

Background: Phase 1 Study Objective

- State Water Board requires PFAS sampling in CA (13267/13383) orders
- R2 granted exception to conduct regional study of PFAS
  - Resource efficiency
  - Leverage RMP to synthesize findings
- Study design and reporting consistent with SWB investigation orders

- Phase 2 study would be developed based on Phase 1 results.
  - Goal to inform management.

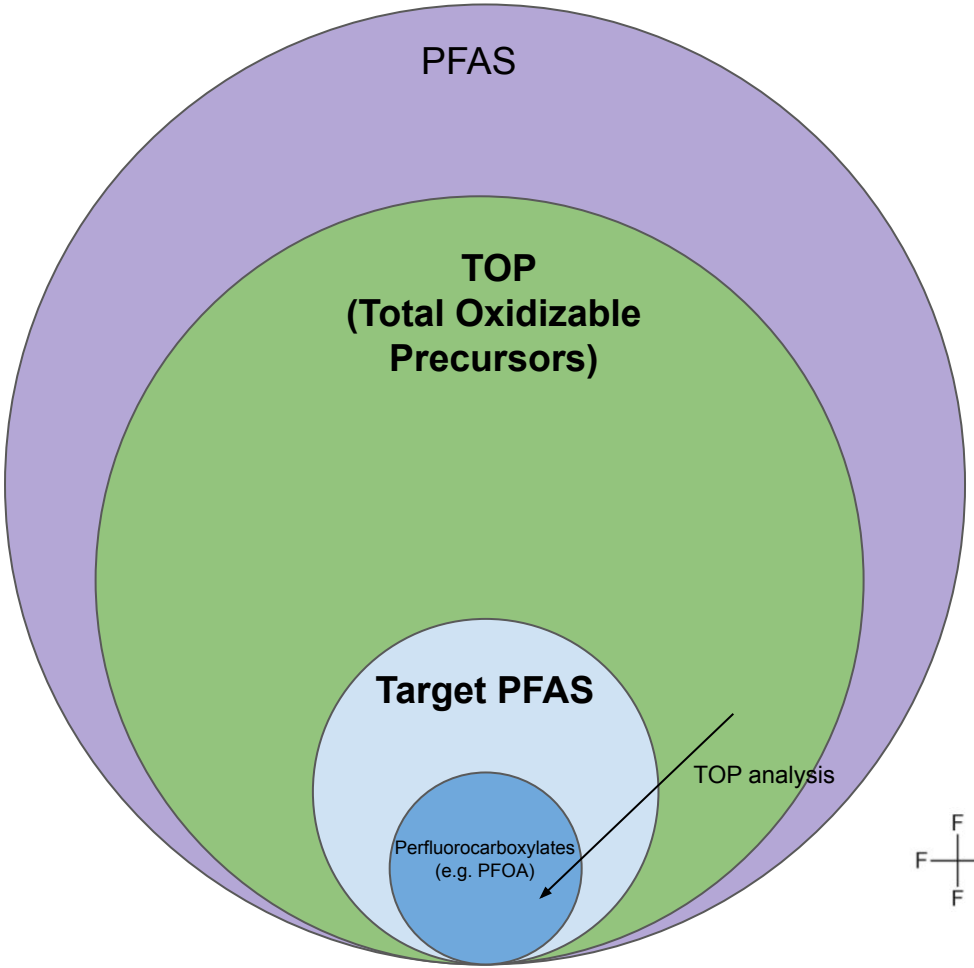
Phase 1 study design: select representative set of facilities for participation

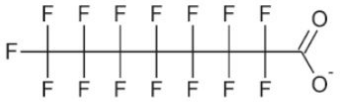
- Discharge volume
  - 1 – 170 MGD
- Service population and industries
  - 0 - 100% residential/commercial
  - Fabricated metals, electronic manufacturing, industrial laundries, automatic vehicle washing, hospital, military, landfill
- Treatment
  - Secondary and advanced secondary filtration
  - Activated sludge, trickling filter, batch nitrification reactor, oxidation tower
- Participation in 2014 study to evaluate trends
- Geography
  - All Bay subembayments represented

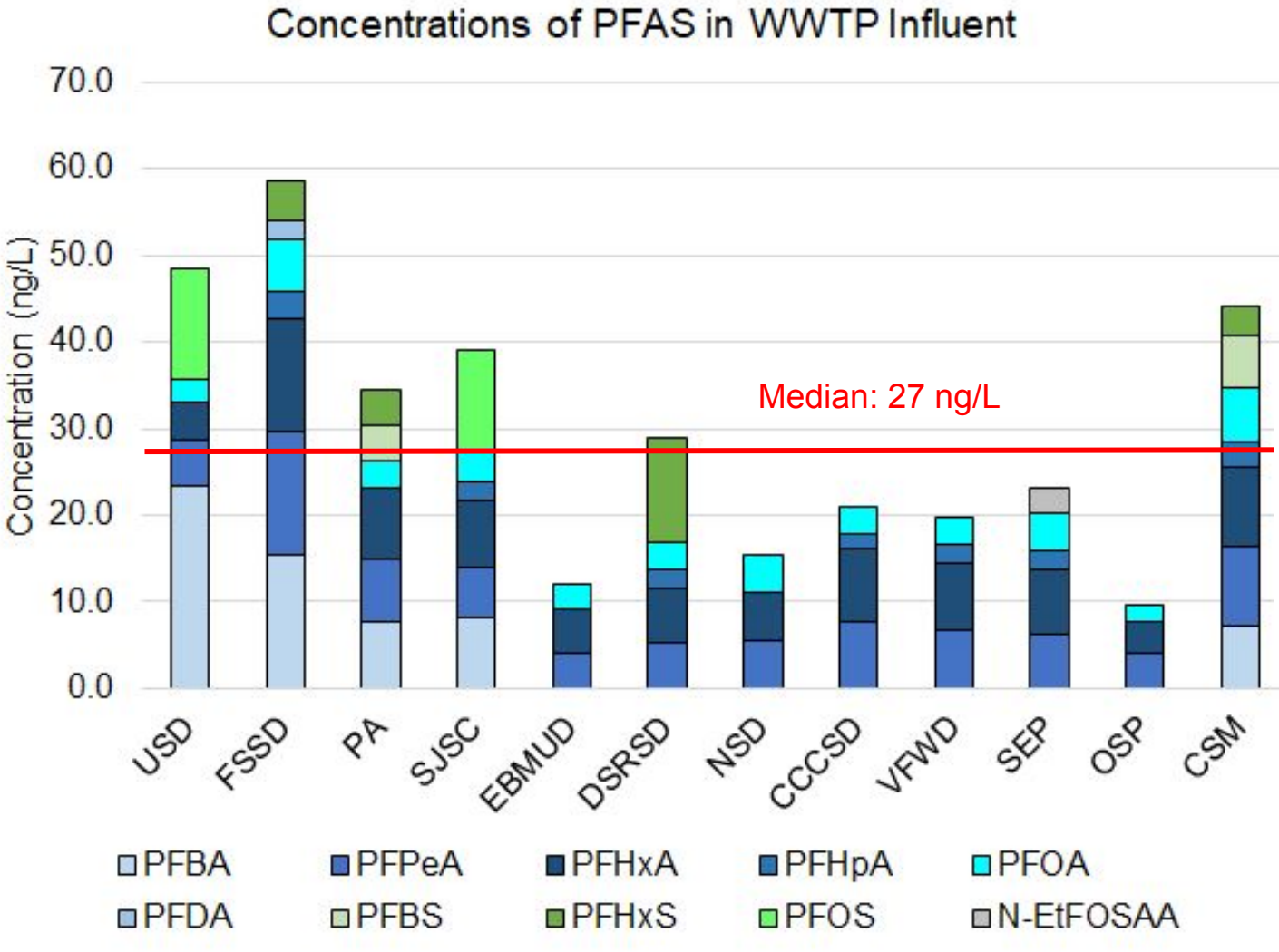
Phase 1 study design

- Sample influent, effluent, biosolids at 15 facilities
  - Utilize Target analytical method (41 analytes)
  - Evaluate whether samples sufficiently representative for R2, particularly for biosolids
- Utilize Total Oxidizable Precursors (TOP) assay
  - Influent and biosolids

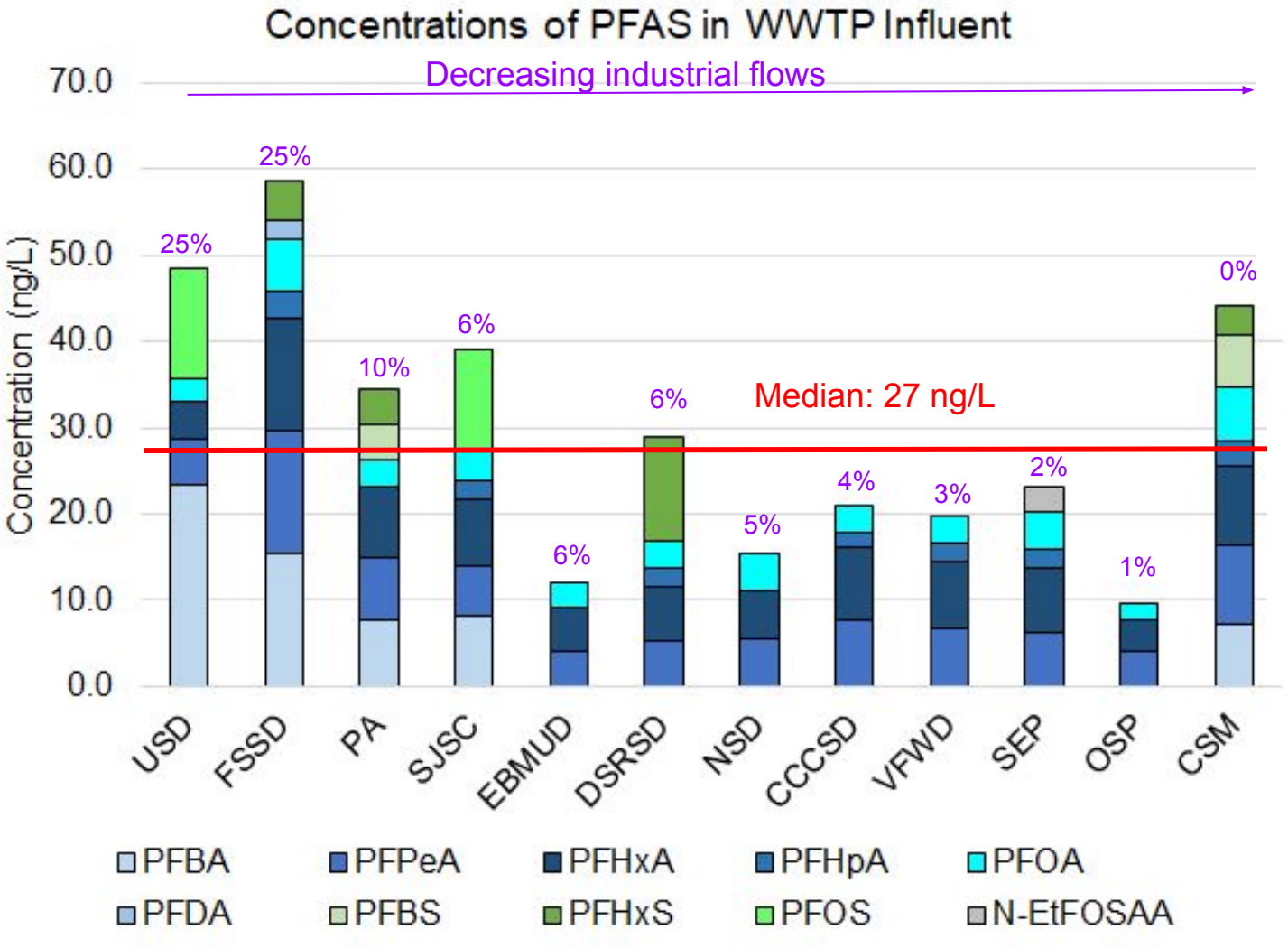
PFAS Analytical Methods



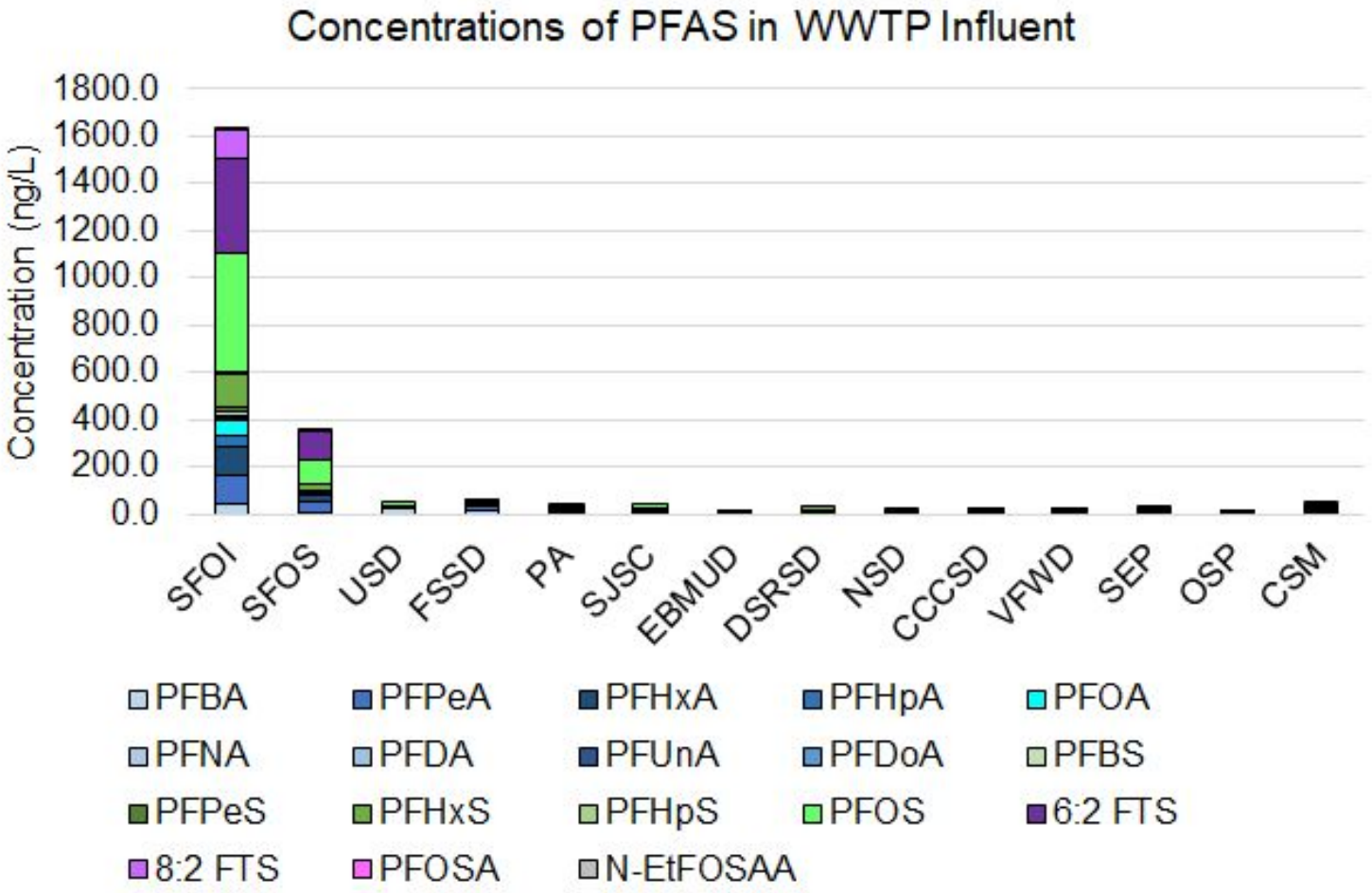




- PFAS in municipal facilities generally comparable

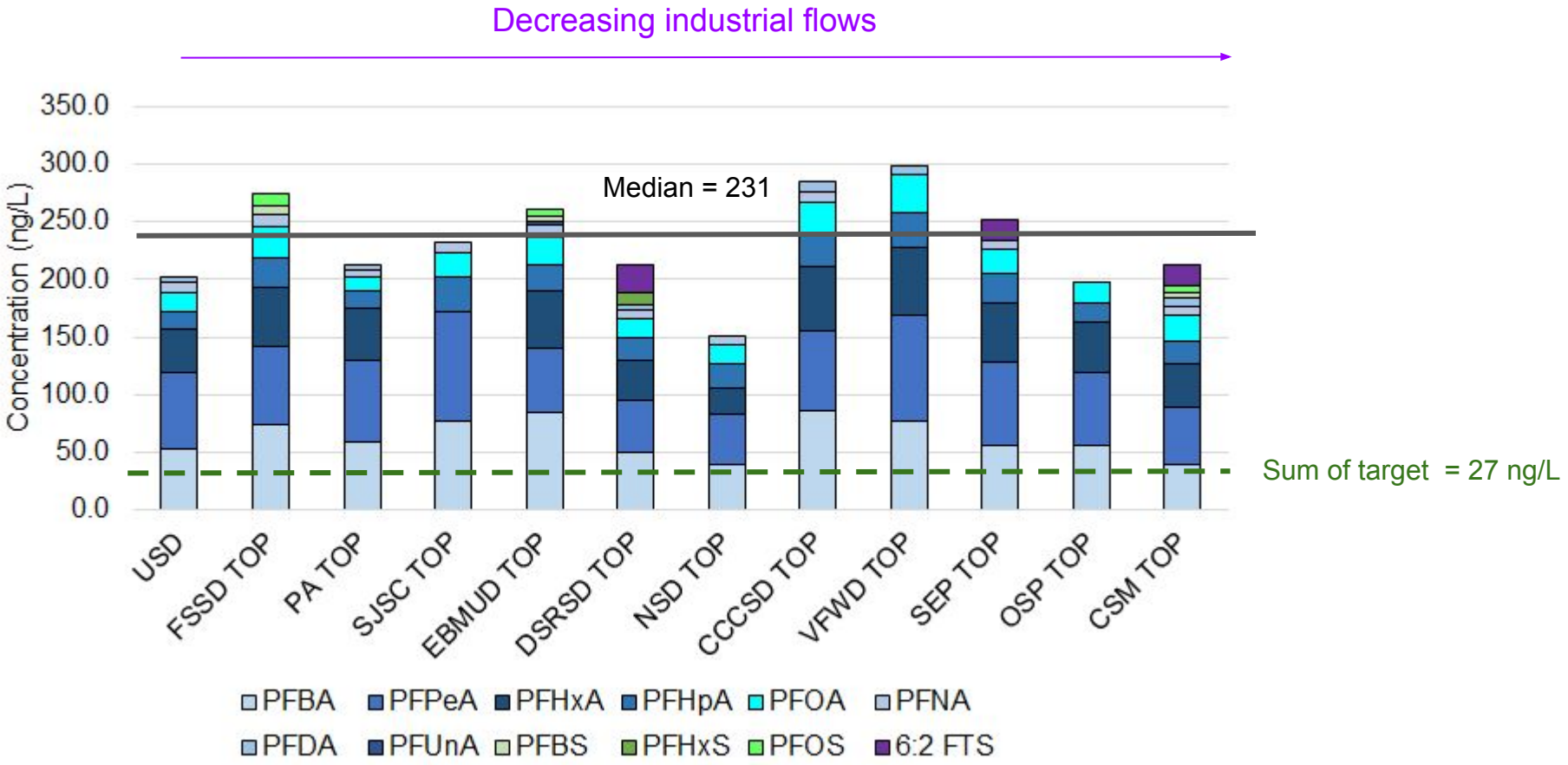


- No clear trend observed from industrial flows
- PFAS in municipal facilities generally comparable

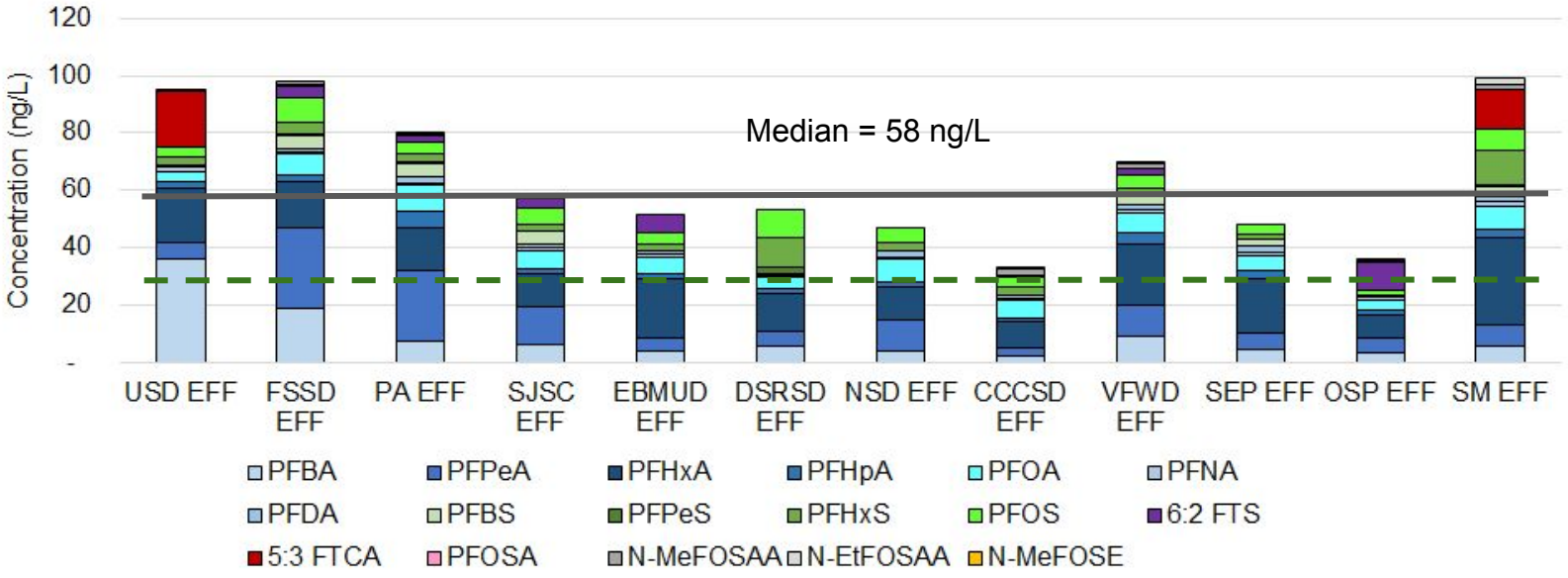


- PFAS concentrations in SFOI and SFOS different from municipal facilities

TOP results indicate significant presence of precursors



Concentrations of PFAS in WWTP Effluent



Influent = 27 ng/L

Comparison of Effluent Concentrations 2009, 2014, and 2020 Studies

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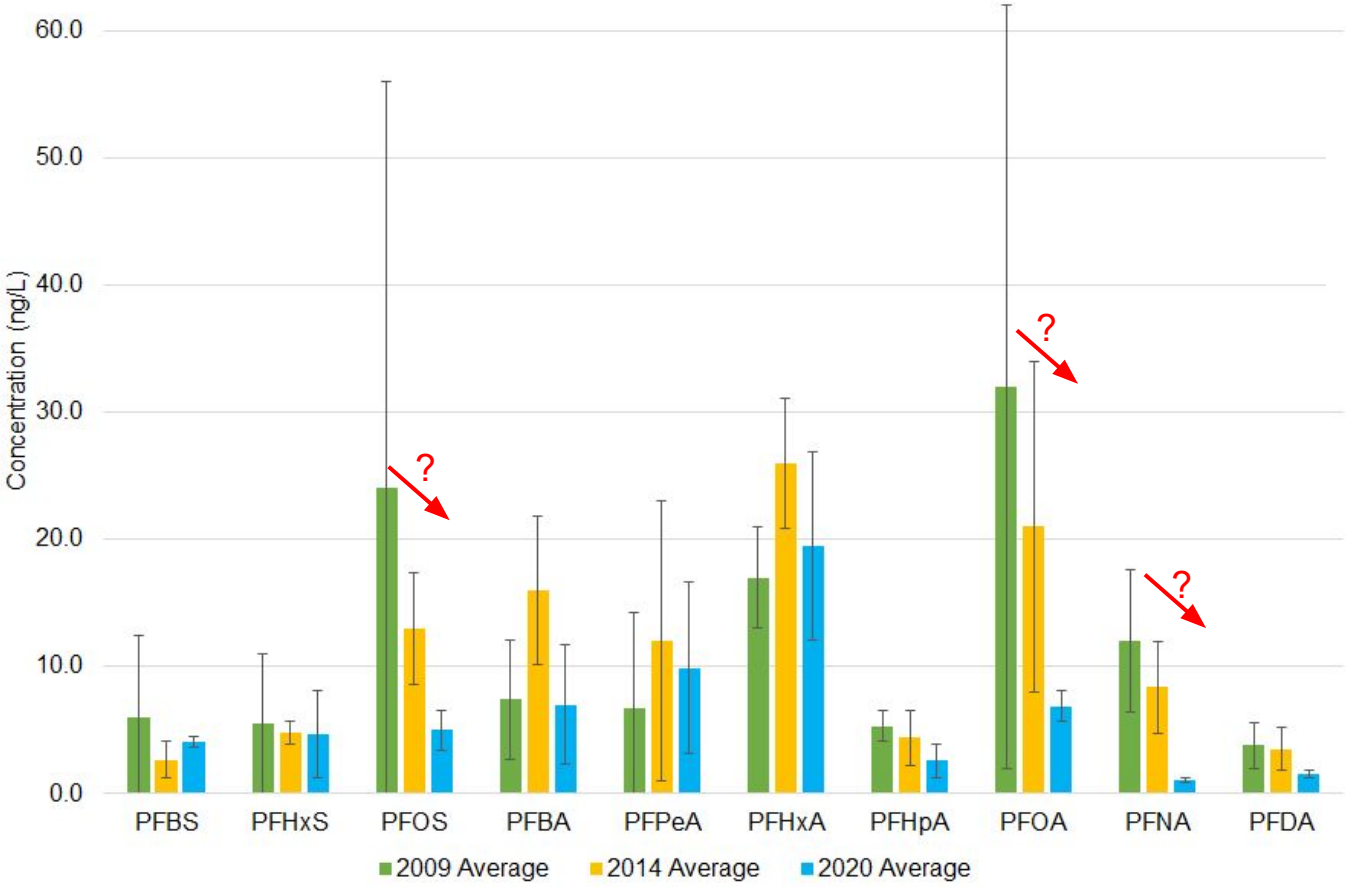
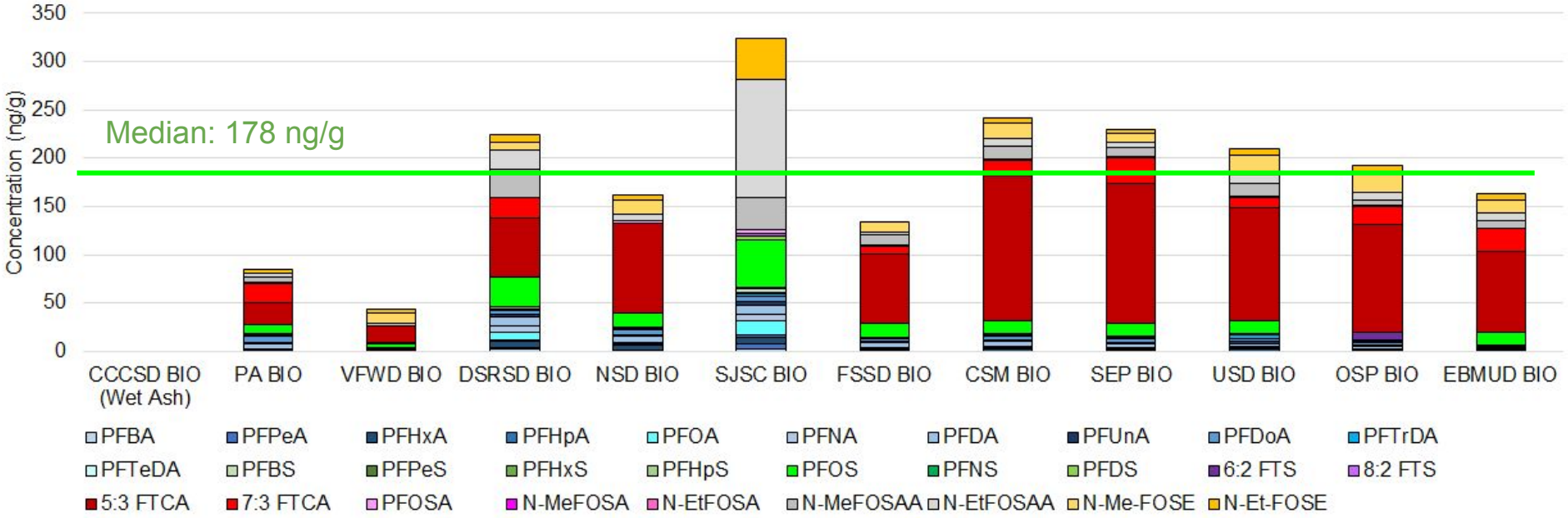


- Only 2014 municipal participants included in comparison
- Possible reductions in long-chain PFAS, but trends require further investigation

Municipal biosolid samples generally comparable



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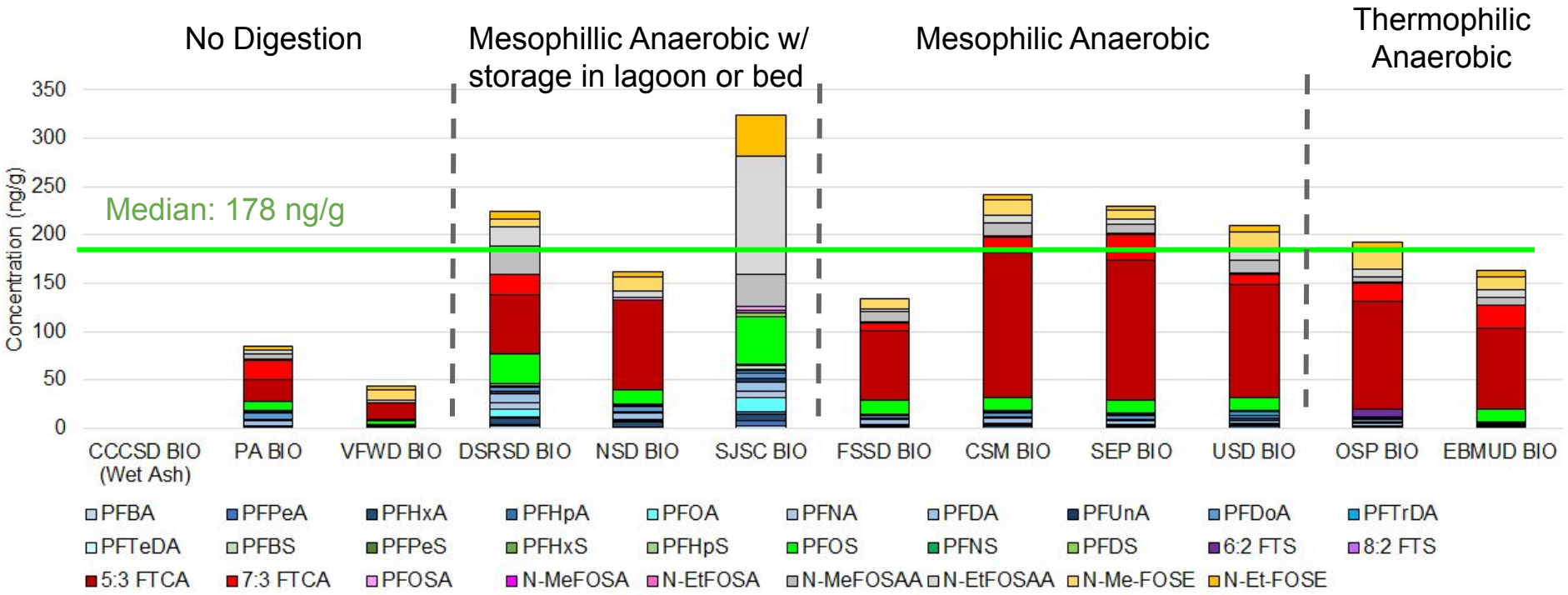

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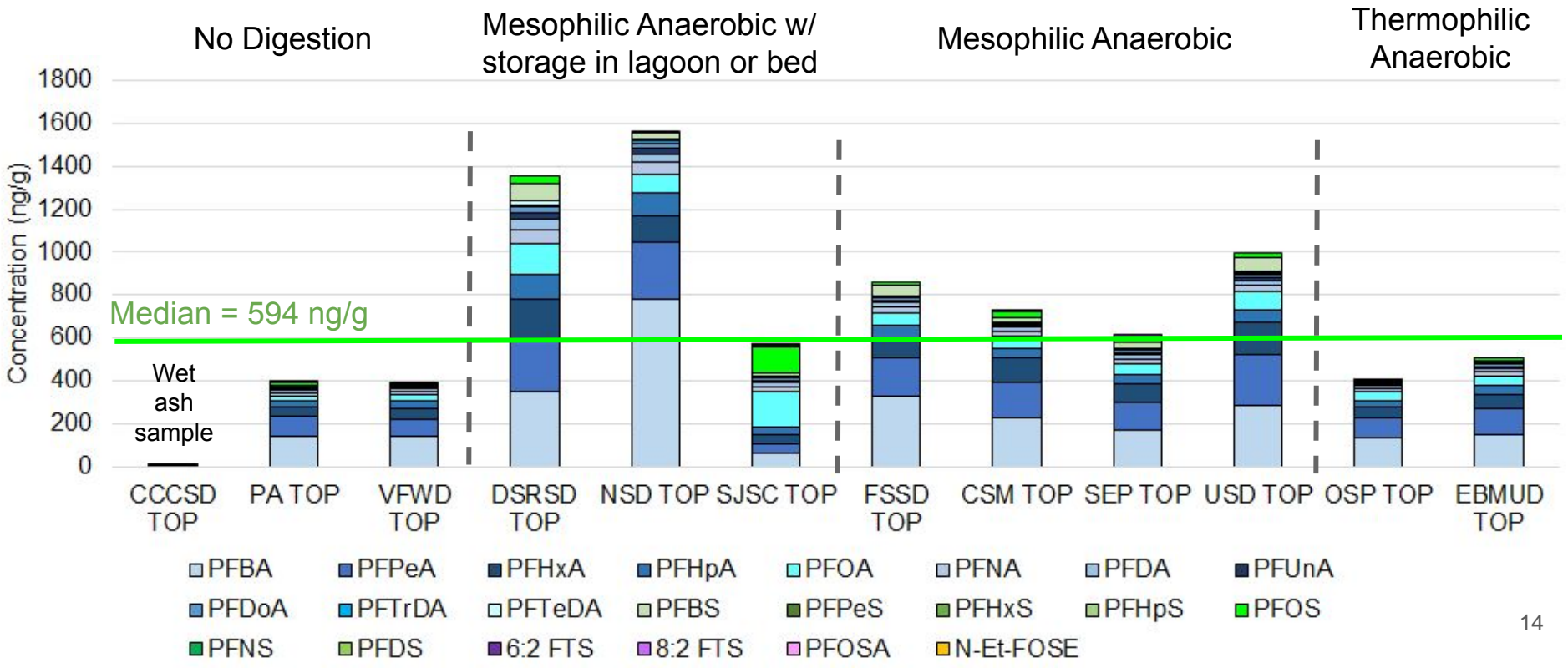
TOP results in Biosolids

- TOP results indicate significant presence of PFAS precursors
- Sum of target PFAS median was 178 ng/g



Main Takeaways from Phase 1

- Sum of PFAS concentrations in municipal influent, effluent, and biosolids generally comparable for each matrix
- Quantified concentrations of PFAS increased in effluent compared to influent due to conversion of PFAS precursors to terminal PFAS products through treatment process
- Significant presence of unknown PFAS precursors in influent and biosolids
- Gained experience of how to collect PFAS wastewater samples

Questions?

Discussion about Priorities for Phase 2 Study Objectives

- Proposed Priority Goal:
  - Inform management of PFAS entering Bay Area sewersheds
  - Sample upstream in sewershed to understand PFAS concentrations from different service populations in sewershed.

Possible study questions

- What industries or types of businesses are unique or are disproportionately high sources of PFAS (if any)?
  - Are there similarities in discharge patterns from certain industries in different geographic regions?
  - Can we identify businesses where additional pre-treatment may reduce loadings to wastewater?
- What is the relative importance of residential flows compared to commercial and industrial flows?

Project Timeline

- August
  - Phase 1 data interpretation
  - Discuss and prioritize Phase 2 study objectives
- September
  - Further develop and agree on Phase 2 study objectives
  - Contract for Phase 2
  - Finalize sampling plan
- October
  - Begin sampling

Questions?

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