

# **Managing Mercury, Other Metals, and More**

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# Methylmercury Criterion

- 2001 Criterion = 0.3 mg methylmercury/kg fish tissue
- Reference Dose designed to protect fetuses from developmental neuropsychological impairment
- States are expected to revise water quality standards

# Criteria Implementation

- Options for permitting authorities
- Permit limits and TMDLs
- Pretreatment Standards
- Pollutant Minimization Programs
- August 2006 – Draft Implementation Guidance

# Effluent Guidelines

- Preliminary 2008 Effluent Guidelines Program Plan
- Health Services Industry Category includes mercury discharges from dental offices
- EPA solicits data on the effectiveness of BMP or amalgam separators in reducing mercury in POTW influent, effluent, and/or sludge.

# **An Examination of Mercury Levels at Clean Water Agencies 2003-2006**

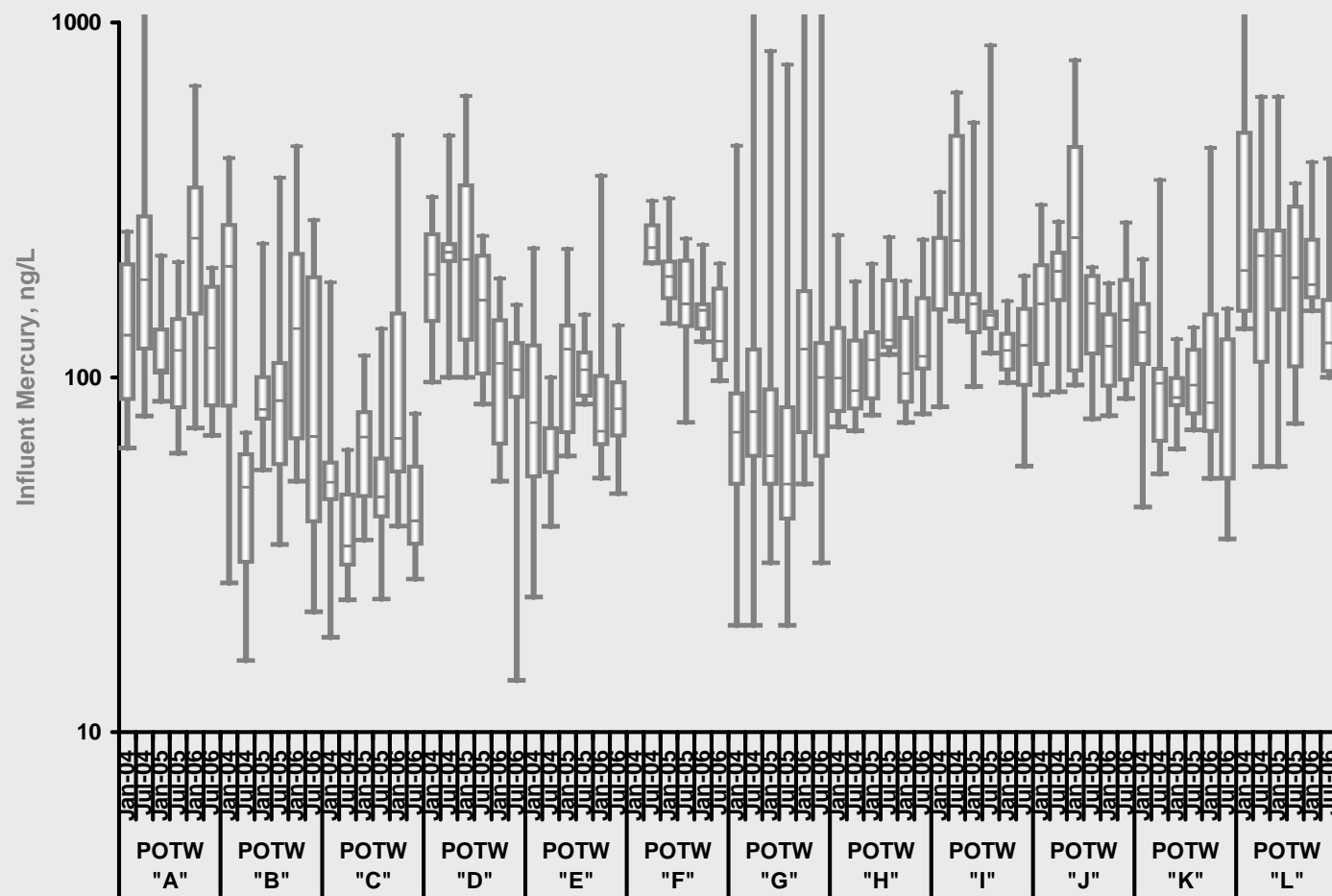
# Acknowledgements

- HRSD Central Environmental Laboratory
- Steve Anderson
- Keith Linn
- Seth Hothem
- Chris Hornback
- All of the Participating Agencies

# The Study

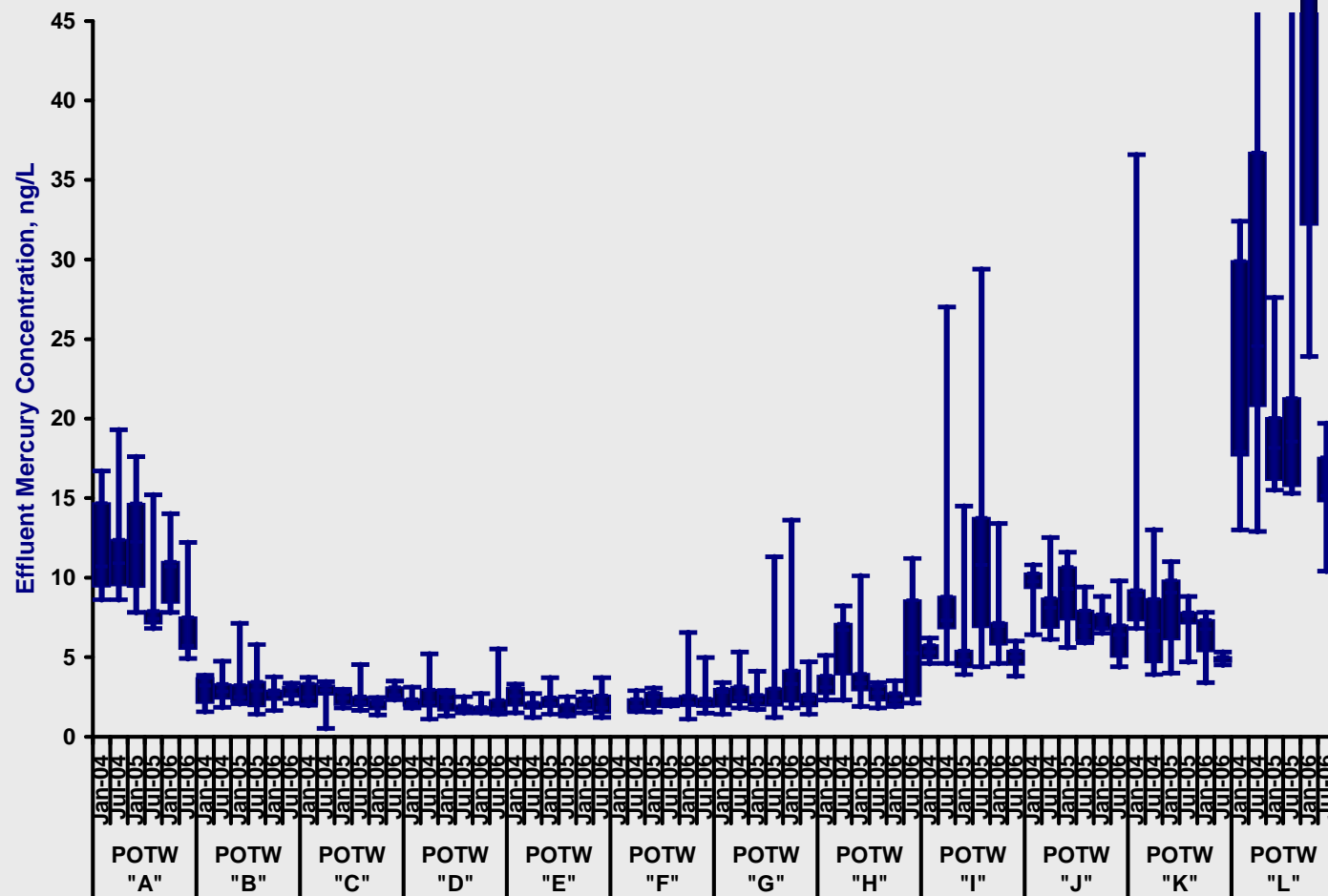
- 12 POTWs
- Various stages of mercury control programs
- Variables
- Methods
- Individually and Collectively

# Influent

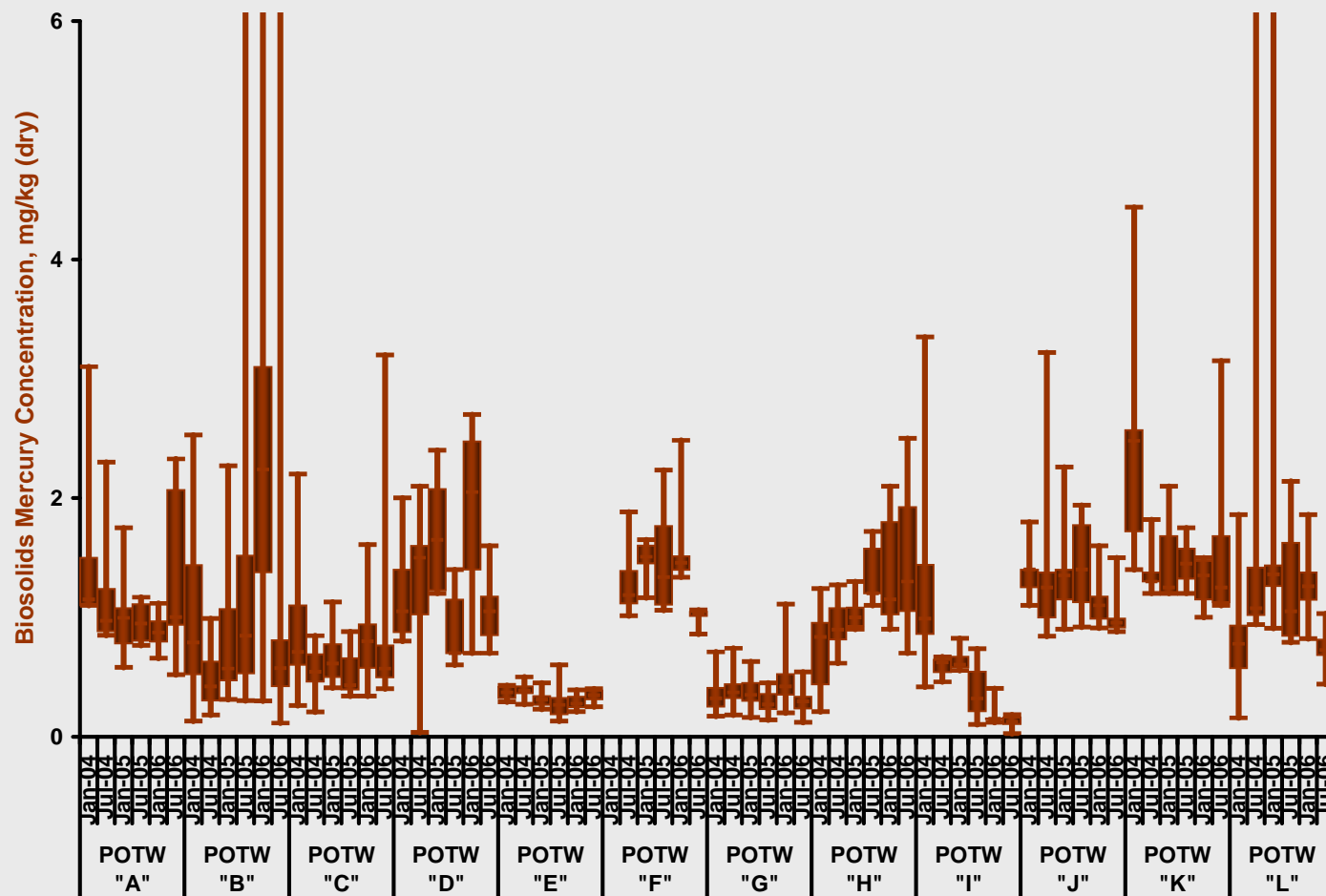




# Effluent



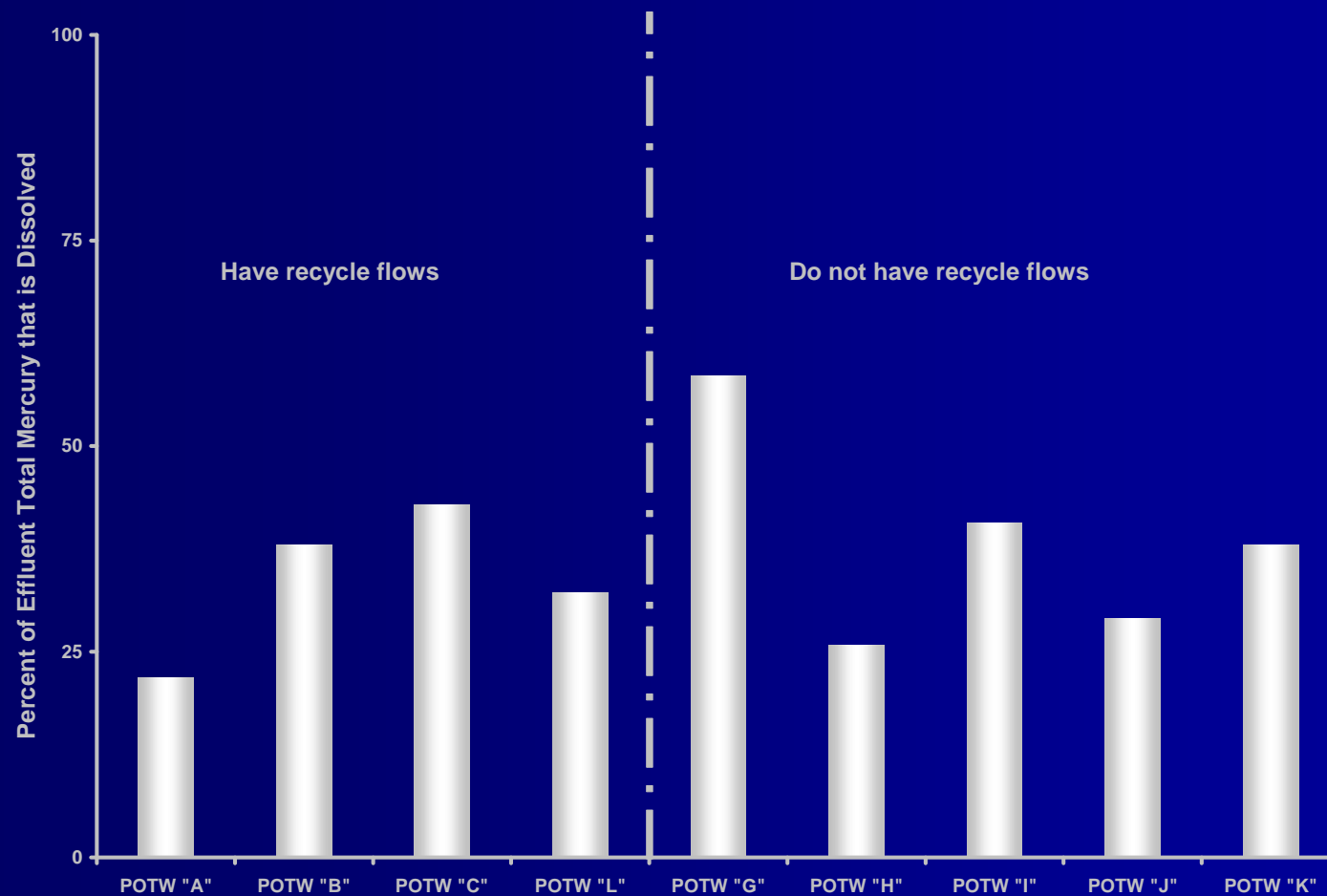
# Biosolids



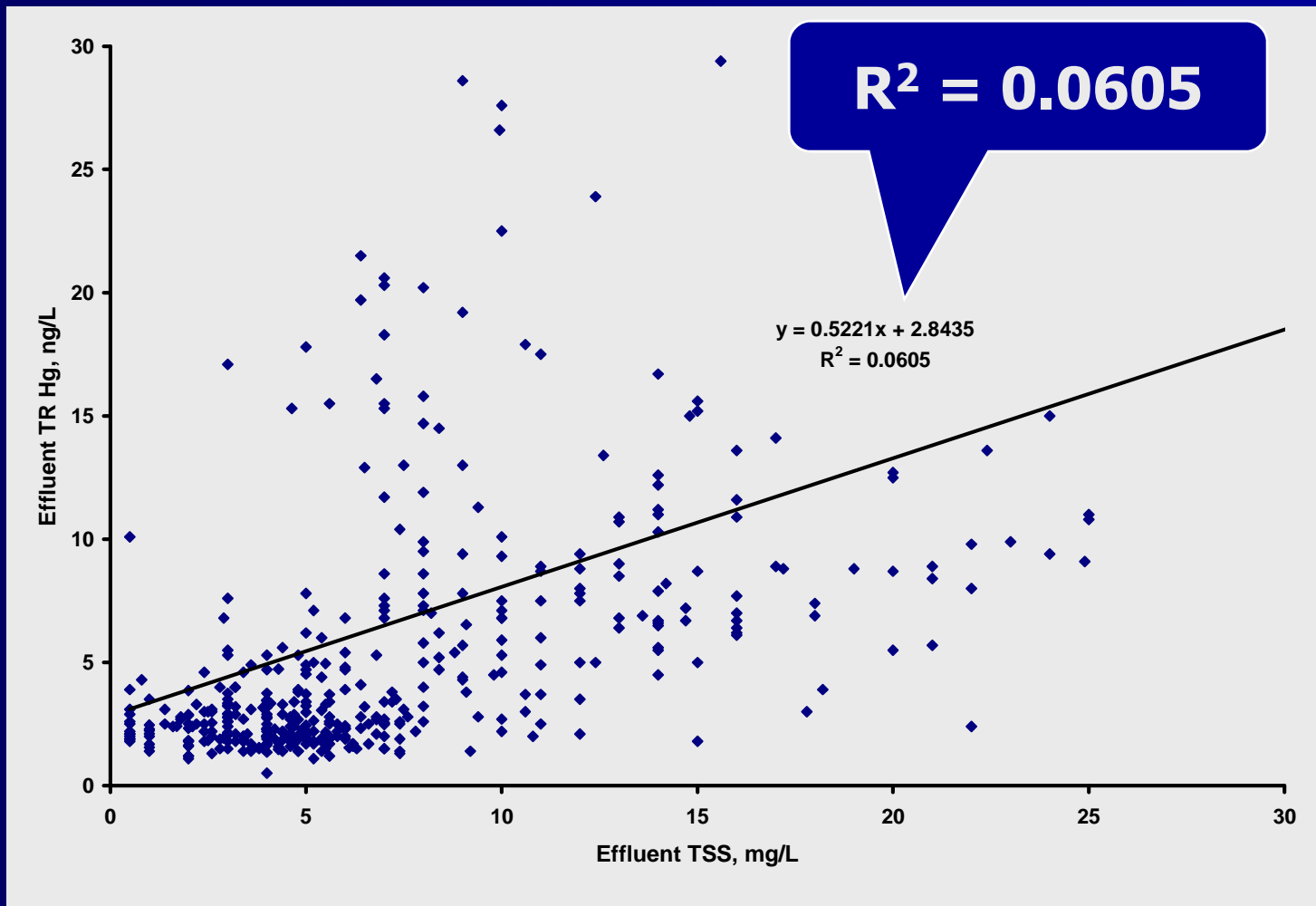
# Significant Findings

- Dissolved Mercury
- Hg and TSS
- Mercury Concentrations and Dentists
- Dentists without Separators per Flow
- Non-Industrial Flow
- Iron Salts/Freshwater

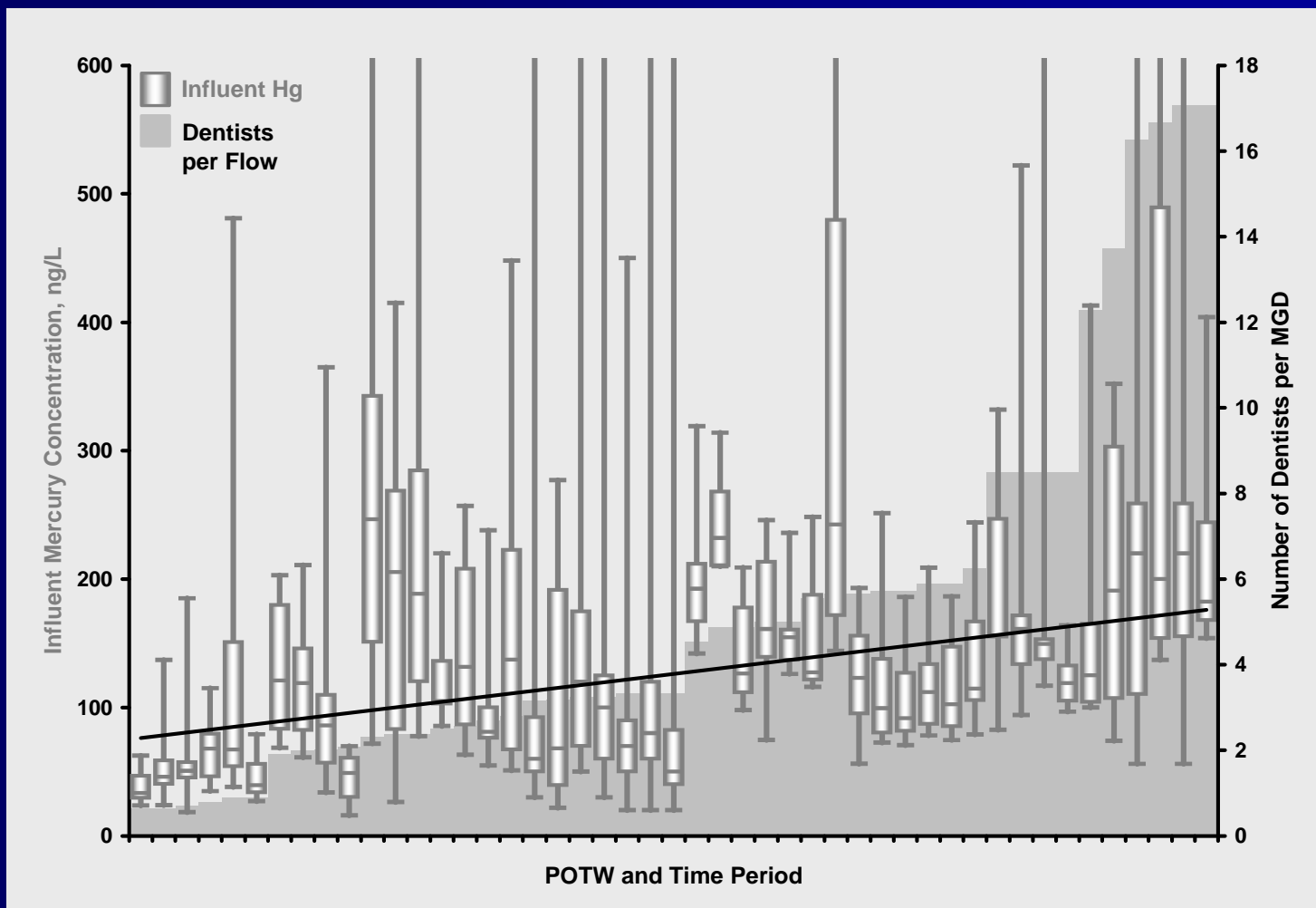
# Dissolved Mercury Concentrations



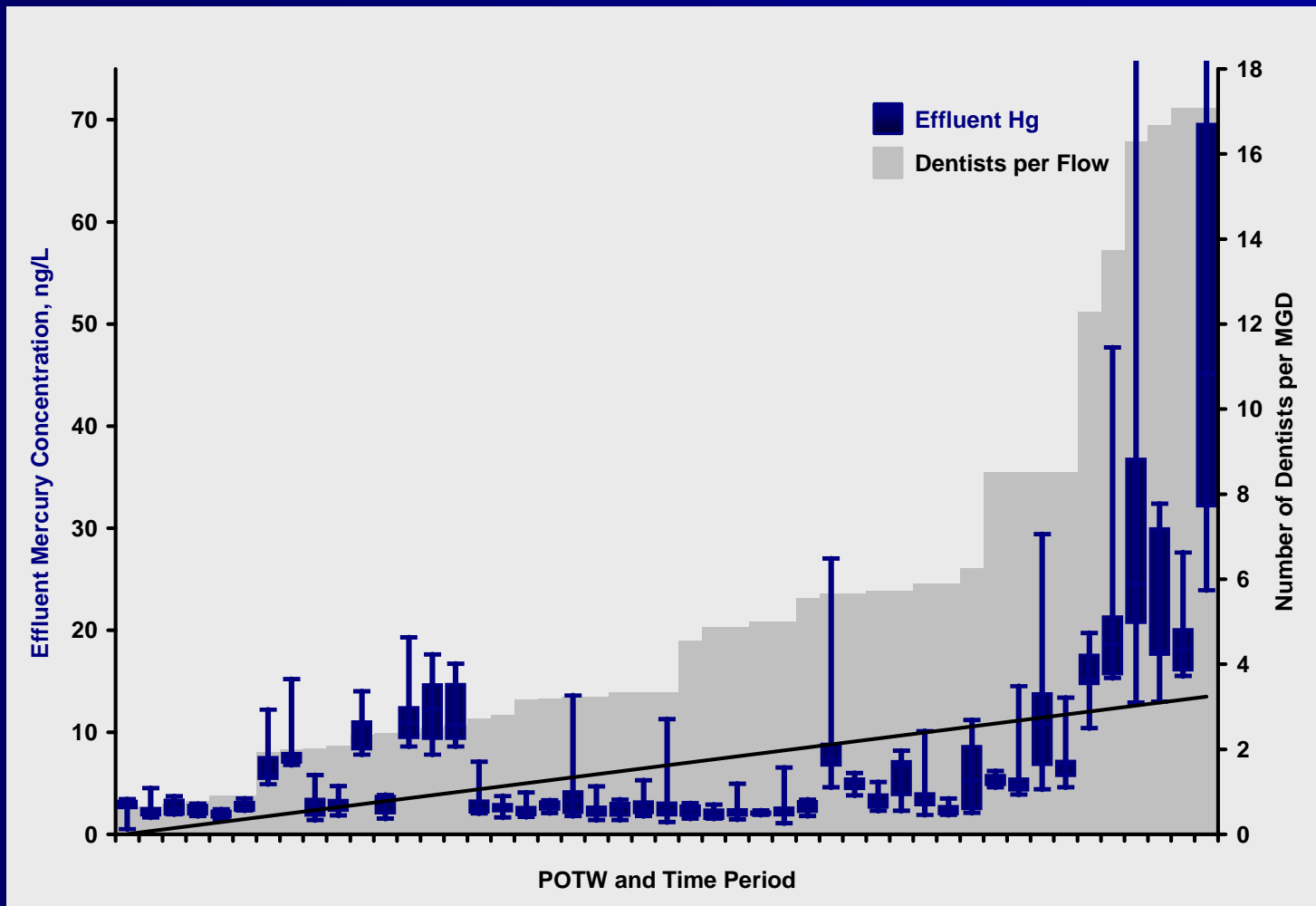
# Effluent Mercury Concentrations and Effluent TSS Concentrations



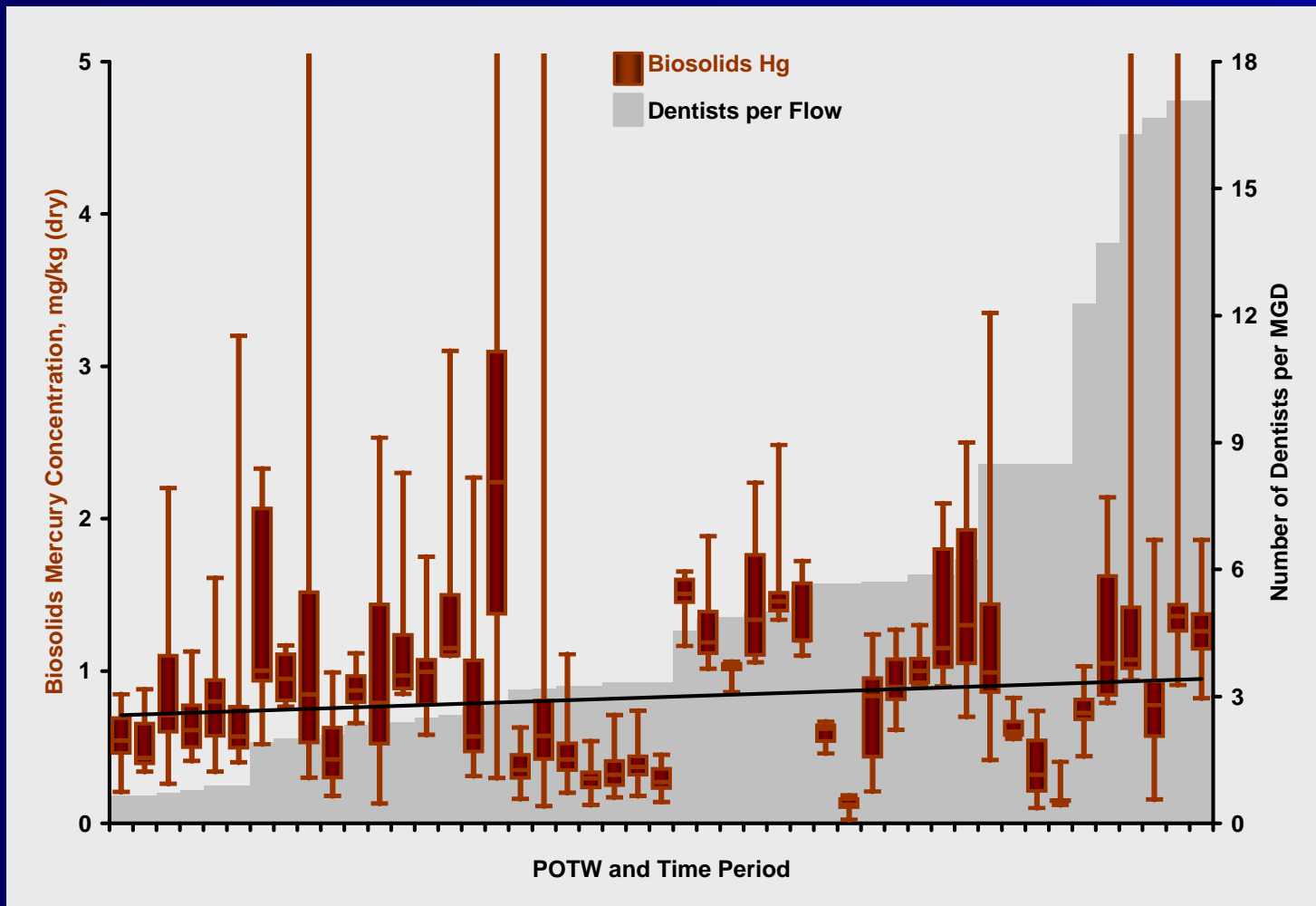
# Relationships with Dentists and Mercury Concentrations



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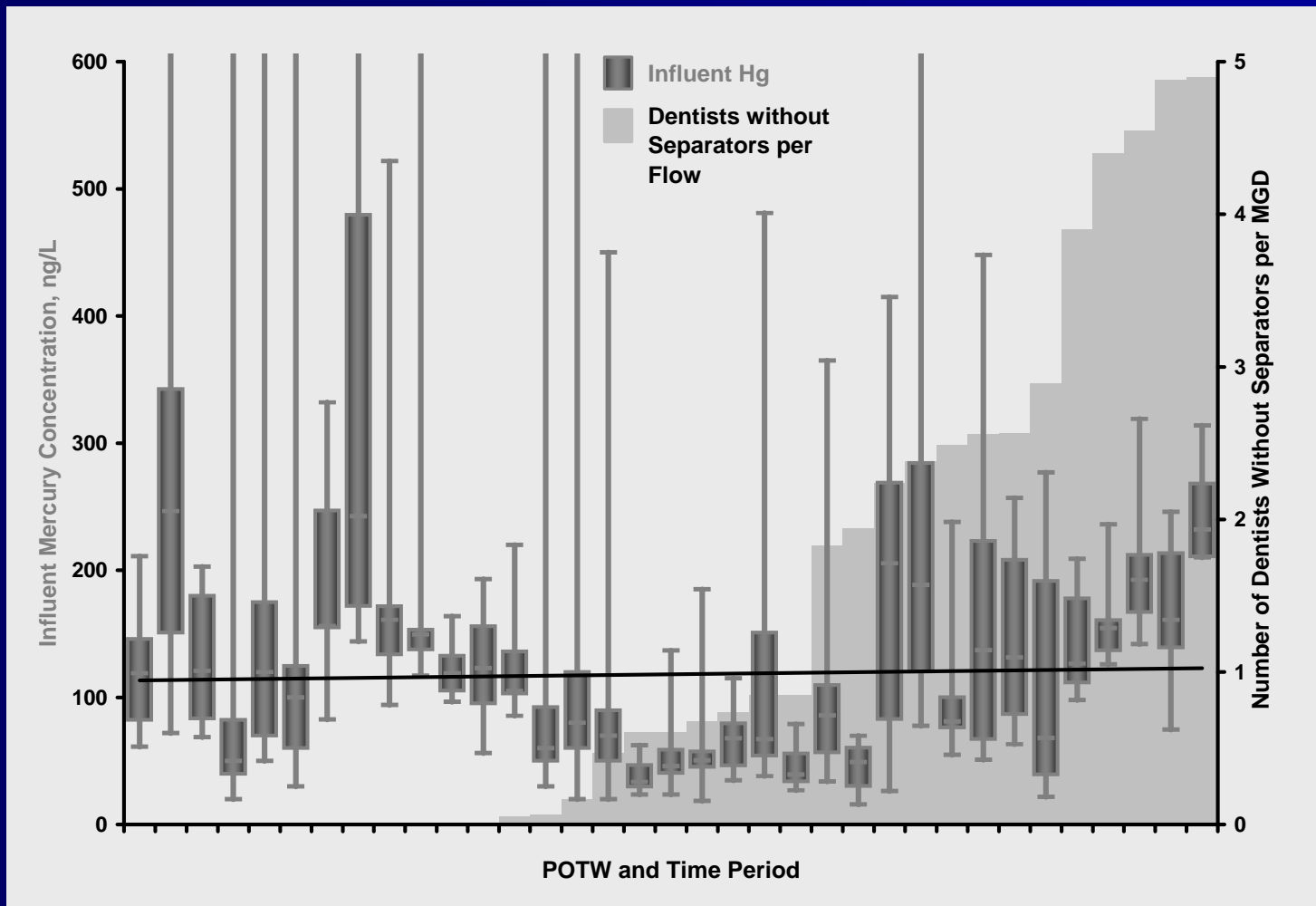


# Relationships with Dentists and Mercury Concentrations

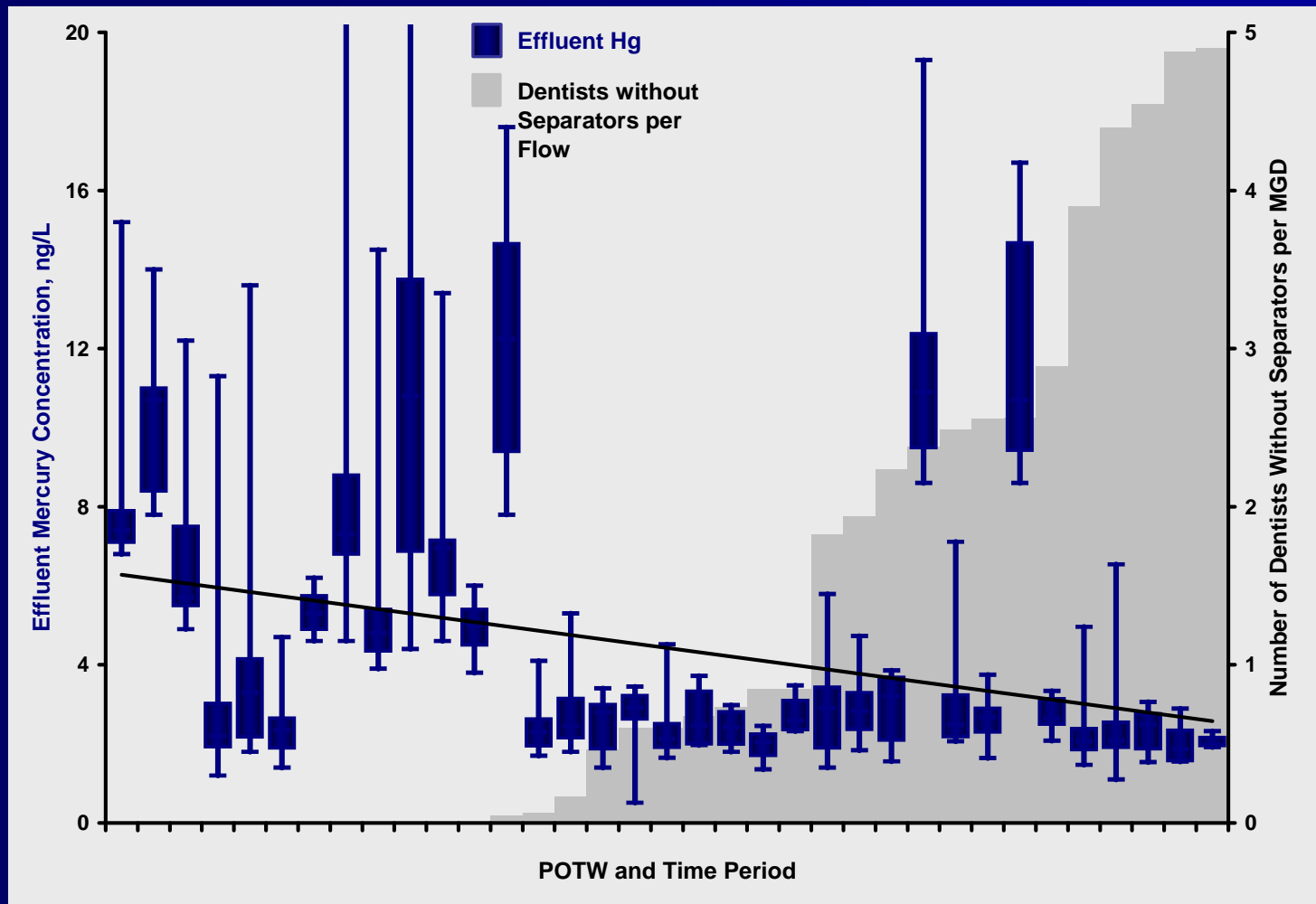




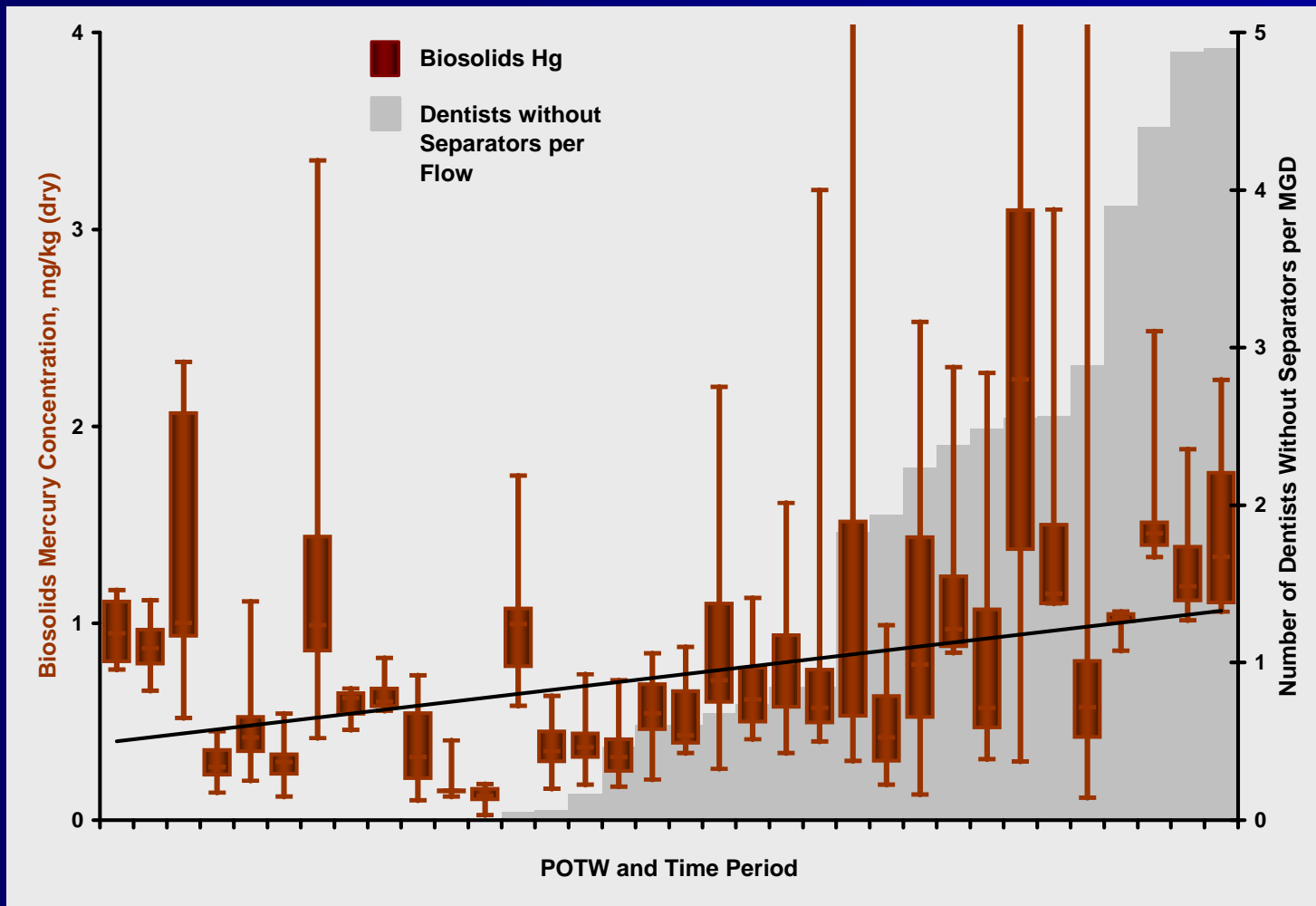
# Dentists w/o Separators per Flow



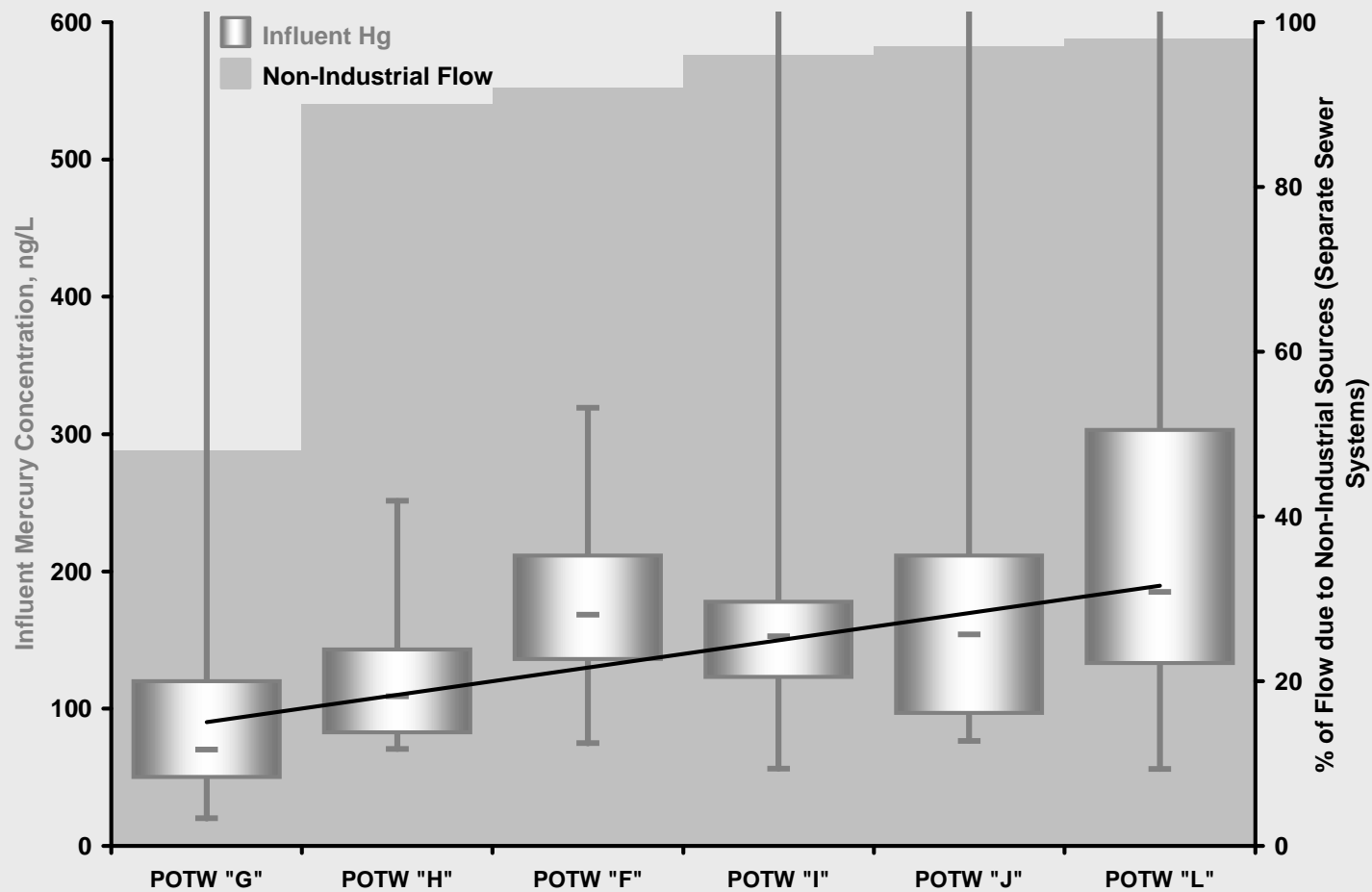
# Dentists w/o Separators per Flow



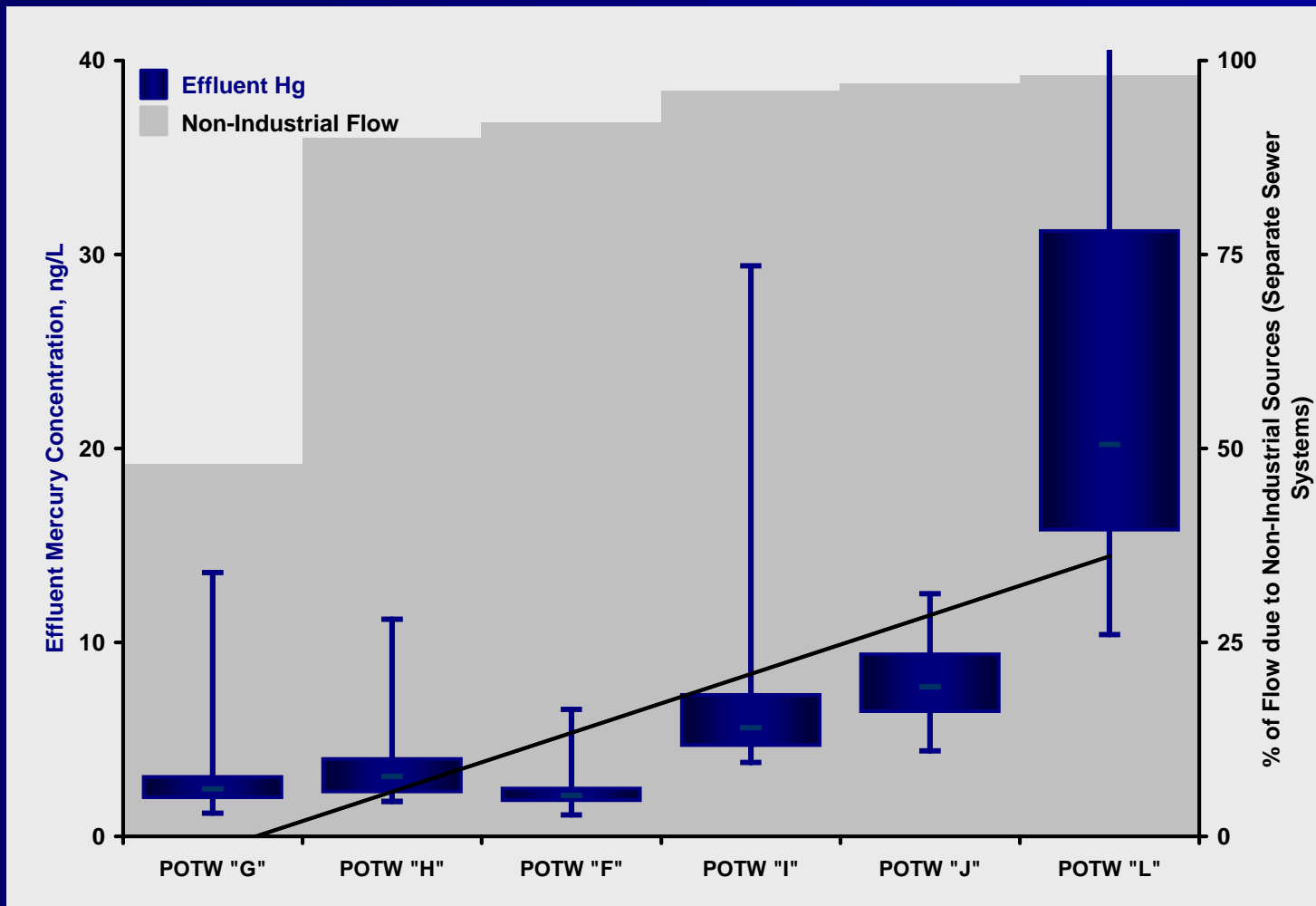
# Dentists w/o Separators per Flow



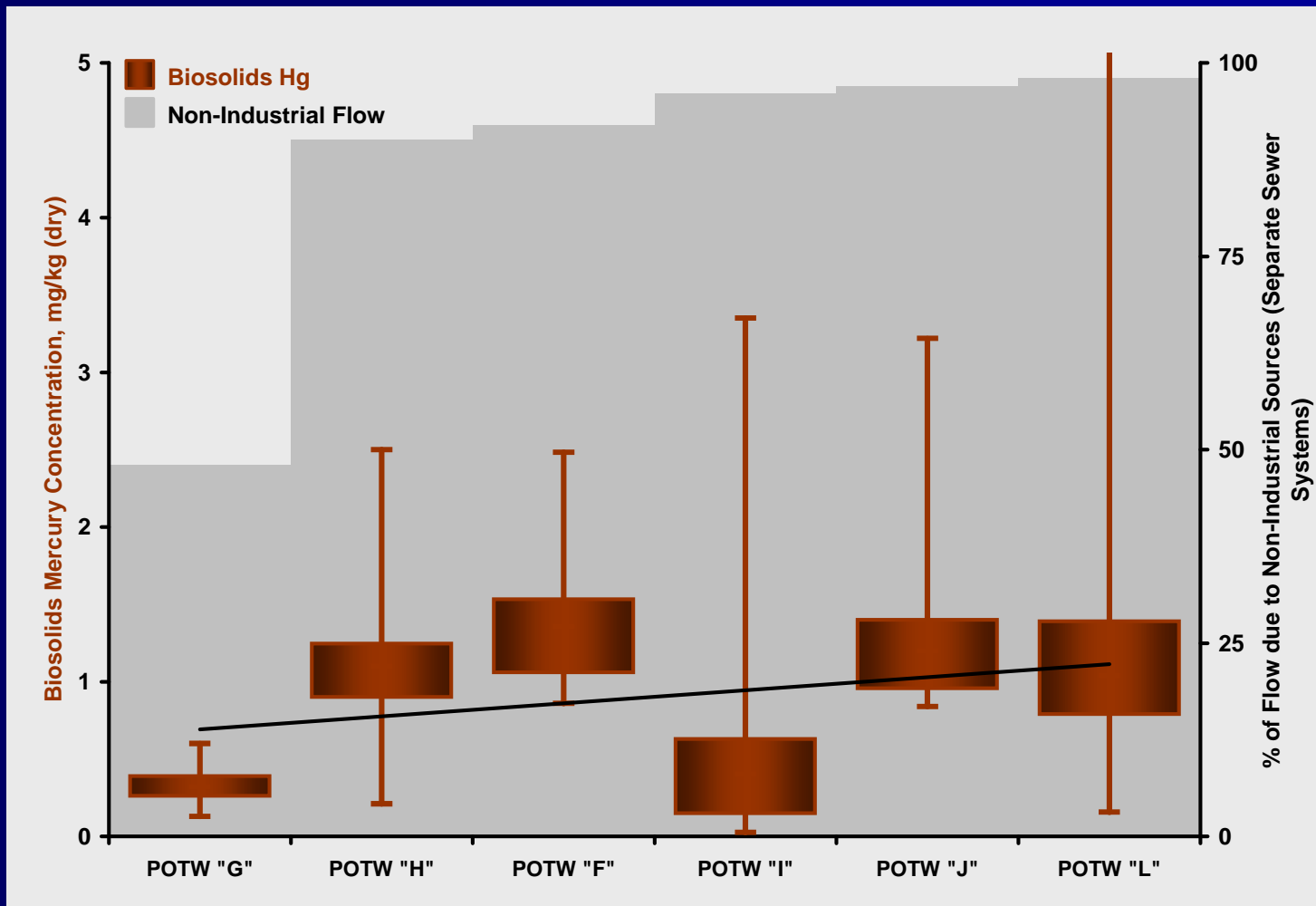
# Non-Industrial Flow



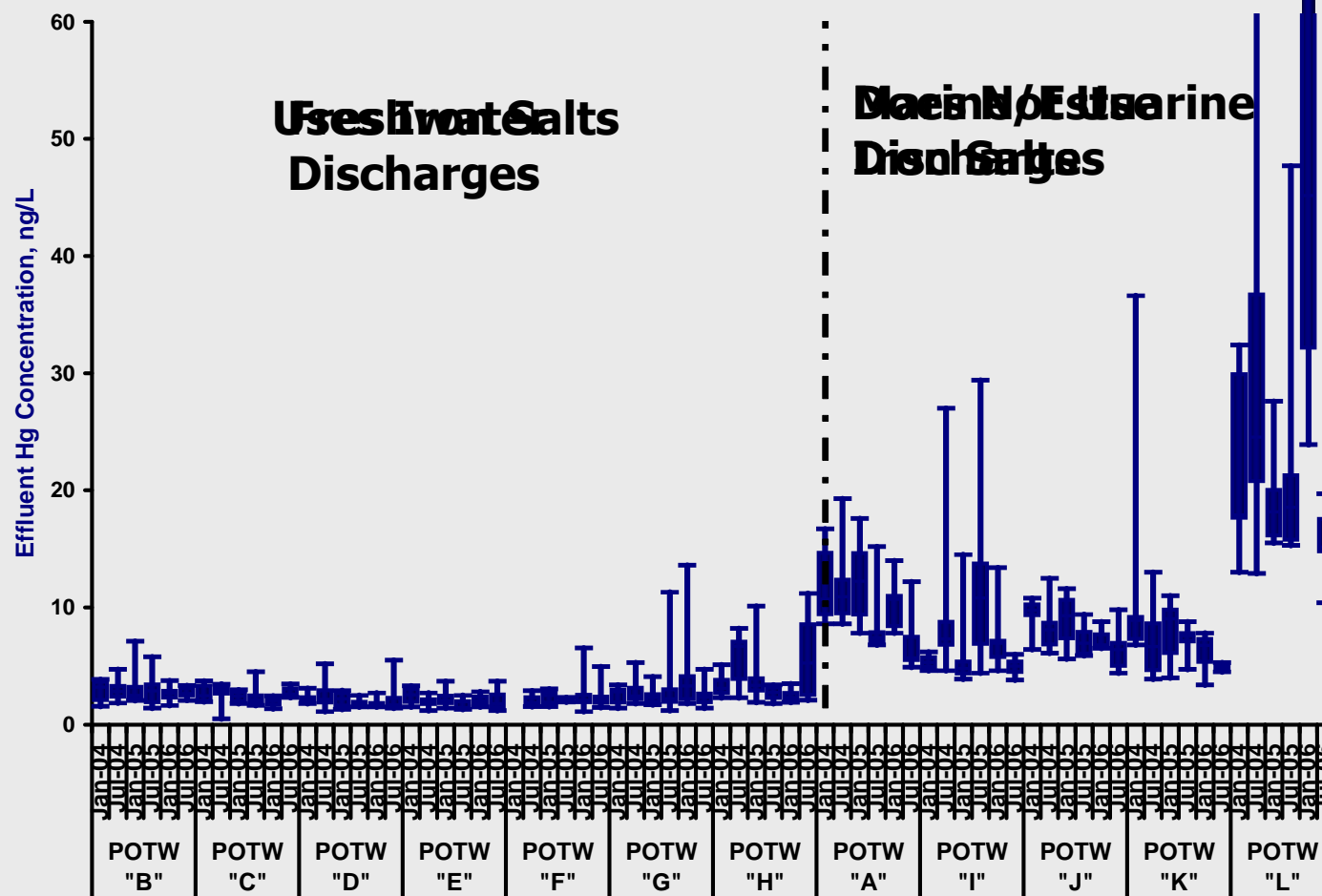
# Non-Industrial Flow



# Non-Industrial Flow



# Iron Salts/Freshwater



# So Now What...

- Several implications for further research
- Other uses of the data that could lead to improved understanding
- Using the data that has already been collected
- Supplementing the collected data



# So Now What...

- Dissolved Hg Data
- Influent Variability
- Loadings
  - Influent
  - Biosolids
  - Effluent

# So Now What...

- Iron Salts/Freshwater Discharges
- Treatment Chemicals
- Composite Samples versus Grab Samples
- Temporal Differences
- Follow-up sampling and analysis