

# **Southern California Bight Model Monitoring**

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**[www.sccwrp.org](http://www.sccwrp.org)**

# Background and Rationale

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- **Ocean monitoring for over 30 years**
  - inequities among monitoring agencies
- **Many questions answered, but monitoring continues unchanged**
- **New questions arise, but no mechanism to address them**

# Challenged to Develop a Model Monitoring Program

- **Four largest POTWs in southern California and three Regional Water Quality Control Boards**
  - Goal was consensus
- **Determine monitoring questions of greatest management need**
- **Inventory existing effort**
  - how well do they answer the monitoring question?
- **Recommend monitoring design alterations to improve efficiency and effectiveness**
  - not facility specific

# Philosophy for Model Monitoring Development

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- **Monitoring is a responsibility for having a discharge permit**
- **Monitoring must be question-based**
  - if no action, then why collect data?
- **Monitoring should be adaptive**
  - More impact = more monitoring (and converse)
- **Monitoring should address the needs of different audiences**
  - requires a framework for different designs approaches

# Attributes for Effective Monitoring Questions

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- **State management need**
  - permit limit, TMDL, public or ecosystem health....
- **Define decision criteria**
  - Ocean Plan, CA Toxic Rule, Sed Qual Obj, FDA action levels...
- **Envision expected products**
  - Specific graph or table
- **Identify the action**
  - Can be big or small, depends on confidence in answer

# Three Piece Framework For Model Monitoring

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- **Core monitoring**
  - Site specific routine compliance
- **Regional monitoring**
  - Cumulative impacts and public concern
- **Special studies**
  - Fills in data gaps raised by core/regional monitoring data

# Large POTW

## Five Monitoring Elements

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- **Effluent**
- **Water quality**
- **Microbiology**
- **Sediments**
- **Fish**

# **Effluent Monitoring As An Example**

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- **Is the effluent concentration of selected constituents below levels that will ensure public safety and protect aquatic life?**
- **What is the mass of selected materials that are discharged annually?**
- **Is the effluent concentration or mass changing over time?**



# **Inventory of Existing Effluent Monitoring Effort**

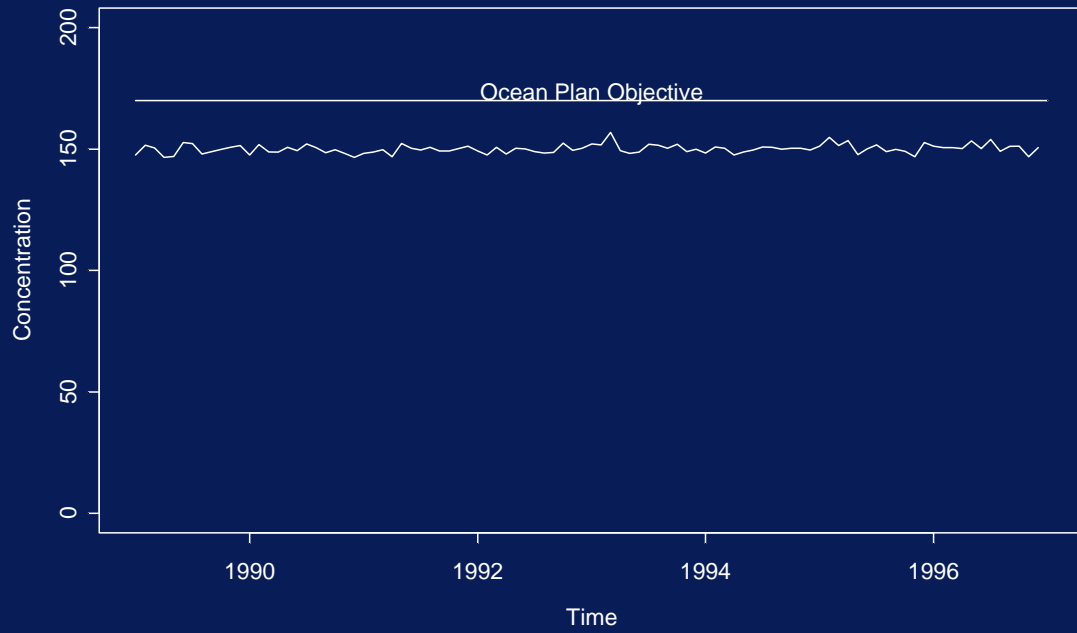
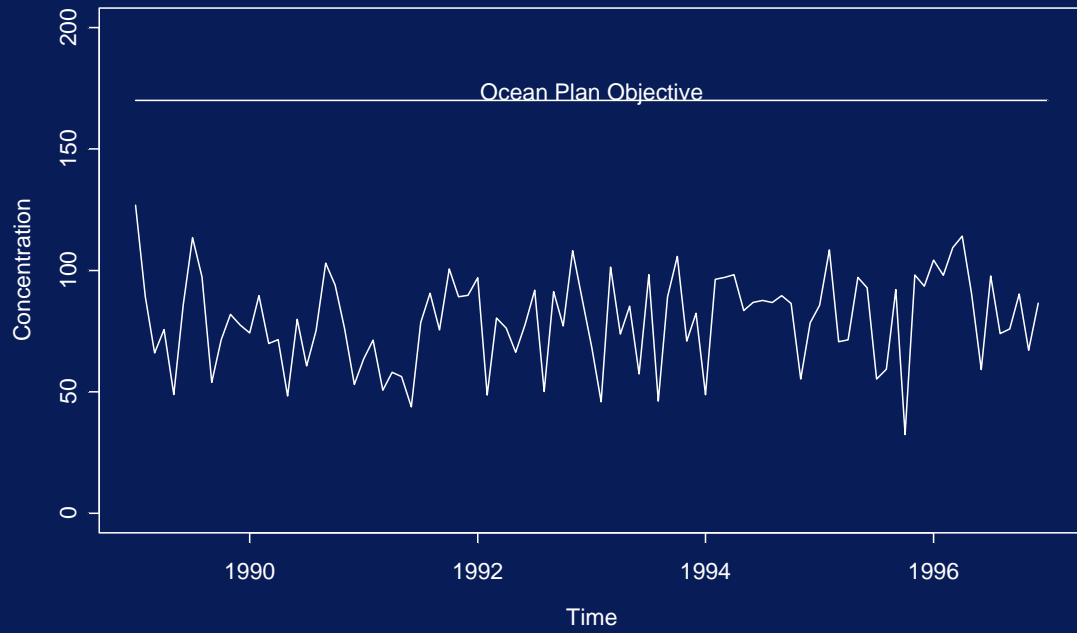
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- **Between 2,000 and 5,000 effluent measurements per year depending on facility**
- **At least 20% of constituents not measured in common**
- **Wide range in frequencies and detection limits**

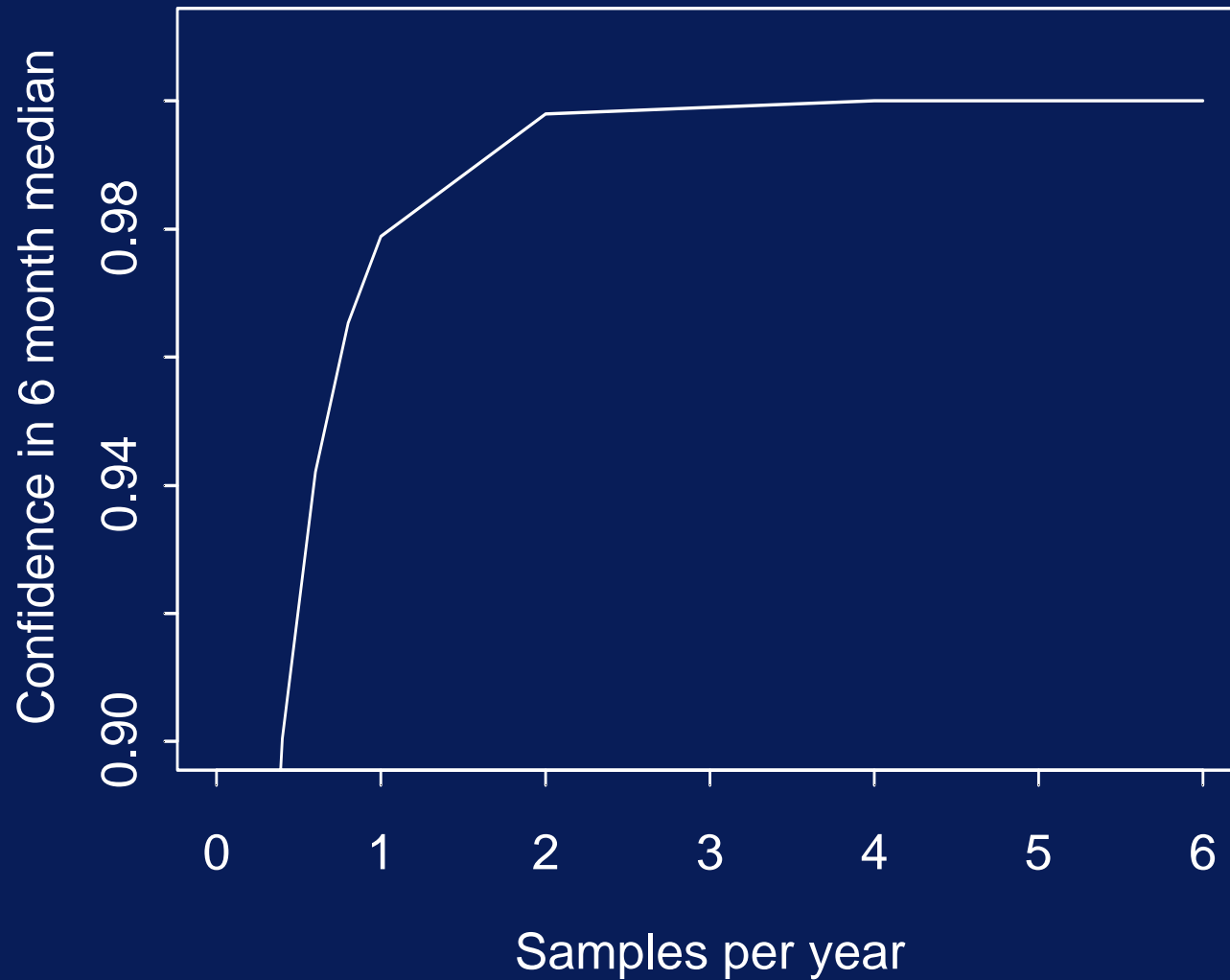
# Evaluation and Recommendations

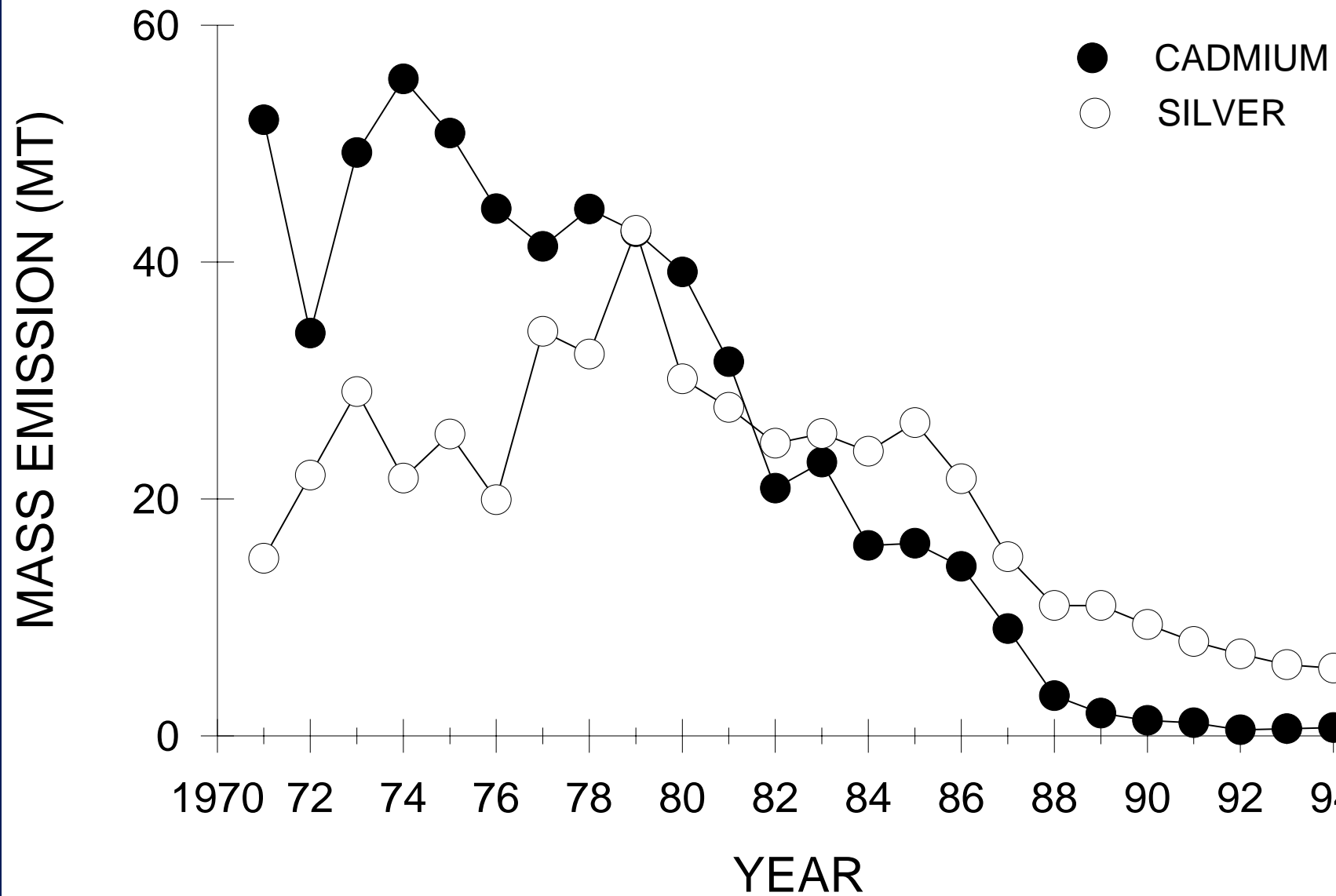
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- **Current monitoring is effective at answering the management questions**
- **Efficiency can be improved through optimizing frequency**
  - use a risk-based approach
- **Use power analysis to determine most efficient designs**
  - Comparison to a threshold
  - Trend detection



# Exceedence of Lead Permit Limit





# **% Detectable Trend After Five Years**

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	<b>HTP</b>	<b>JWPCP</b>	<b>OCSD</b>	<b>PLWWTP</b>
<b>TSS</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>7</b>
<b>Cadmium</b>	<b>12</b>	<b>19</b>	<b>17</b>	<b>6</b>
<b>Silver</b>	<b>9</b>	<b>44</b>	<b>12</b>	<b>5</b>
<b>Lead</b>	<b>18</b>	<b>15</b>	<b>37</b>	<b>6</b>

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# **Outcome of the Model Monitoring Program**

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- **Used for the new permit and monitoring program at two Large POTWs**
  - other two permit renewals are pending
- **Embraced the model monitoring concepts**
  - Three-part framework is prominent
- **Model monitoring development process adopted for Municipal Stormwater and Small POTW permits**