RMP OBJECTIVES AND MANAGEMENT QUESTIONS (ANNOTATED VERSION)

DRAFT 2007

GENERAL GOAL OF THE PROGRAM

Provide information needed to support management decisions

OBJECTIVES AND MANAGEMENT QUESTIONS

Objective 1. Describe spatial patterns and long-term trends of pollutant concentrations in the Estuary

1.1 Do pollutant spatial patterns and long-term trends indicate particular regions of concern?

1.2 How are spatial patterns and long-term trends in the Estuary affected by management actions?

Includes characterization of inventory.

Priority management actions to monitor include:

- Source control (including chemical bans)
- Wastewater and stormwater treatment
- Habitat restoration
- Pollution prevention

1.3 What are the most cost-effective indicators of spatial patterns and long-term trends in impairment to support decision-making?

Objective 2. Project future impairment

2.1 What patterns of impairment are forecast for major segments and the Estuary as a whole under various management scenarios?

Implies need to predict:

- Future loads from important sources and pathways
- Losses through different mechanisms
- Recovery of each Bay segment (which, in turn, implies the need for accurate models – conceptual and numeric – of pollutant fate)
- Future trends in estuarine processes. Important estuarine processes include:
  - sea level rise
  - changing river inflows

- rising temperatures
- changes in sedimentation patterns
- food web shifts
- exotic species invasions

Management scenarios include:

- Source control (including chemical bans)
- Wastewater and stormwater treatment
- Habitat restoration
- Development

2.2 Which pollutants are predicted to increase in the Estuary?

Captures need to identify emerging pollutants based on chemical properties and actual or proposed uses

2.3 What are the most cost-effective methods for making predictions to support decision-making?

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Objective 3. Describe sources, pathways, and loading of pollutants entering the Estuary

3.1 Which sources and pathways contribute most to impairment?

Implies need to understand:

- Mass loads – essential for TMDLs
- Speciation (availability)
- Temporal dynamics
  - seasonality
- Spatial patterns
  - Local impacts
- Linkage to impairment calls for modeling

For all of the major pathways:

- Wastewater effluents
- Urban runoff
- Nonurban runoff
- Atmospheric deposition
- Delta outflow
- Dredging and dredged material disposal
- Remobilization from Bay sediment
- In-Bay hotspots
- Wetlands

3.2 What are the best opportunities for management intervention for the most important pollutant sources and pathways?

- Where are/were the largest pollutant sources?
- What processes cause release of pollutants from these sources?
- What are the best points for management intervention between source areas and the Bay?

3.3 How do the most important loads change over time in response to management activities?

3.4 What are the most cost-effective indicators of loadings to support decision-making?

Objective 4. Characterize ecological and human health risks due to pollution of the Estuary ecosystem

4.1 Which chemicals pose ecological and human health risks and should be monitored?

- Captures need to identify pollutants of concern, including new and emerging pollutants

4.2 What ecological and human health risks exist due to Bay pollution?

This includes risks due to:

- individual pollutants of concern
- the combined effects of pollutant mixtures
- the interaction of pollutants with other stressors

Includes risks at regional and local scales

Sub-question: What are appropriate thresholds for concern?

4.3 Are management actions effective in reducing ecological and human health risks due to Bay pollution?

4.4 What are the most cost-effective indicators of ecological and human health risks to support decision-making?

Objective 5. Use monitoring information for comparison to relevant regulatory guidelines and for establishing regulatory guidelines

- Guidelines include TMDL targets, tissue screening values, water quality objectives, sediment quality objectives, and effluent concentrations

5.1 What percentage of the Bay is impaired?

5.2 What is the degree of beneficial use impairment in each Bay segment?

5.3 What are appropriate thresholds for protection of beneficial uses?

This includes:

- Effluent limits – CTR monitoring
- Water quality objectives – e.g., copper and nickel
- Sediment effects thresholds – e.g., 1 ppm PAH threshold

Objective 6. Effectively communicate information from a range of sources to present a comprehensive picture of the sources, distribution, fate, and effects of pollutants and beneficial use attainment or impairment in the Estuary ecosystem.

This objective applies to all of the questions listed under objectives 1 – 5.