Criteria Assessment Procedure for Scenarios

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Calibrated Model

Model Scenario

Change Analysis

1993-1995 Observed Data

Criteria Assessment Procedures

Criteria Achievement in critical period

1993-1995 scenario “Observations”

Criteria Assessment Procedures

Criteria Achievement Under Scenario
Regression methods for criteria assessment

Least Squares regression

WIP2 vs Calibration

\[ y = 0.63x + 2.30 \]
\[ R^2 = 0.97 \]
One regression for each point and each month.
Quantile Mapping vs CBP Method

Quantile Mapping
• Calculate bias of model
  – Using quantile bias adjustment
• Adjust model
• Assess bias-corrected model scenarios

CBP Method
• Calculate scenario change of model
  – Using regression
• Adjust data
• Assess scenario-adjusted data
• Avoids effect of change in data density
• True measure of TMDL attainment will be sparse data
Regression methods for criteria assessment

Least Squares regression has been used for the TMDL, but climate change scenarios lack correlation with the calibration case.

WIP2 vs Calibration

Climate WIP versus calibration
Quantile Mapping

Graph showing the relationship between DO (mg/l) and Percentile.
Criteria Assessment Procedures

Calibrated Model

Climate Change Only

CC and Nutrient Scenario

Percentile

OLS

1993-1995 Observed Data

Climate Change “Observations”

CC and Nutrient “Observations”

Criteria Assessment Procedures

Criteria Achievement in critical period
Allocated loads must result in achievement of the states’ Bay water quality standards

Here’s Where We Want to Get to

Modeled implementation
difference since 1994

Fewer Violations

Reduced Loads
Three big questions

- Is the modeled oxygen attainment different from measured?
- What is happening with phosphorus?
- For how long should we ask the question “What is the necessary difference in BMP implementation between 1994 and attainment?”