

Total Maximum Daily Loads for the North Shore of St. Croix

U.S. Environmental Protection Agency Region 2

St. Croix, U.S. Virgin Islands

Services Rendered

- Watershed Loading (WTM), Hydrodynamic and Water Quality Modeling (EFDC)
- Regulatory Compliance
- Allocation of Reduction Percentages to Various Pollutant Sources
- Regulatory Agency Approval

Project Summary

ATM completed a comprehensive study for EPA Region 2 comprising nine Total Maximum Daily Load (TMDL) assessments for dissolved oxygen, fecal coliform, total phosphorus, and turbidity in coastal waters along the north shore of St. Croix, including Christiansted Harbor. TMDLs are determinations of a water body's ability to assimilate pollutants and still maintain regulatory standards for water quality made through regular water quality sampling. The studies also provide the regulatory basis for determination of required pollutant reductions.

For the North Shore St. Croix TMDLs, ATM employed features of the Watershed Treatment Model to estimate rainfall runoff pollutant loads for each of the contributing watersheds and used the Environmental Fluid Dynamics Code (EFDC) model to simulate hydrodynamics and pollutant transport throughout the water body. Model simulation results were compared with known observed conditions to establish a calibrated modeling system. This computer modeling system was then used to estimate the pollutant loading reductions that would be necessary to achieve the appropriate water quality standards under critical climatic conditions.

The TMDLs resulted in recommended point source and nonpoint source loading reductions for each of the pollutants considered. Sediment oxygen demand was also determined to be a significant contributor to the occurrences of low dissolved oxygen. The EPA subsequently approved the recommended TMDL's.

