

NONPOINT SOURCE PLANNING GRANT



Department of
Environmental
Conservation

In-Waterbody Control for Nutrients Feasibility Study/Engineering Report Outline

Feasibility studies or engineering reports for projects that reduce internal loading of nutrients within waterbodies must include the required elements listed below. Practices to address these issues include: hypolimnetic aeration, aeration destratification systems for polymictic lakes, hypolimnetic withdrawal, and dredging. The feasibility study or engineering report must provide justification for the recommended practice

Required Elements

- I. **Cover Page** (project title, owner, prepared by, professional's stamp, and date)
- II. **Executive Summary:** Overview of the project's purpose
- III. **Projective Objectives:** Describe goals of the in-waterbody practice element(s). Indicate whether the elements are a portion of a larger project.
- IV. **Existing Conditions:** Description of existing water quality conditions including:
 - a. Morphometry, including but not limited to surface area, mean depth, and maximum depth.
 - b. Bathymetry, if available, with a description of data and collection method.
 - c. Time, duration, area and volume (acre-foot) extent of oxygen deficit.
 - d. Water quality conditions demonstrating oxygen deficit
 - e. Evidence of water quality impacts driven by oxygen deficit. For example, water quality data that demonstrates increased hypolimnetic phosphorus (monthly average), increased hypolimnetic metals or ammonia.
 - f. Water quality conditions demonstrating waterbody as a polymictic lake, if applicable to the proposed action. For example, profile data that shows mixing throughout growing season or during the growing season.
- V. **Project Description:** Provide a narrative that explains the proposed actions considered for addressing the problem and a justification for the recommended practice. Include a summary of the expected results, potential side effects, and measures to evaluate success of the proposed practice. For destratification systems, the project description must identify the waterbody as a polymictic lake.
- VI. **Engineering Design Specifications:** Specifications must include equipment sizing and configuration, location of air compressors, diffusers/oxygen distribution system, pumps, electricity and other power demands, maintenance needs, etc.
- VII. **Safety Measures:** Provide a narrative of measures that would be required to protect public safety after the practice has been installed.
- VIII. **Anticipated Regulatory Approval and Permits:** List all permits and/or approvals that will apply, e.g. NYSDEC, NYSDOT, etc. and include environmental impact study requirements, monitoring requirements and any local approvals required.

IX. Installation and Operating Cost Estimate

X. Project Timeline