

4.2.2 Water Resources: Williams River Estuary and Commissary Brook Estuary, Saxtons River, Herricks Cove, Upper Meadows and CT River Reach around the BF Island (formed by the canal)

Goals and Objectives

5.9 (b)(1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to evaluate the Water Quantity and Quality of water entering the project area reservoir and impoundment area especially the Saxtons River, Commissary Brook Estuary and Williams River Estuary, Upper Meadows, Herricks Cove and CT River Reach around the BF Island formed by the canal.

One objective is the water quality impacted by the lack of water quantity below the dam in BF, creating a nearly always dry reach, and particularly dissolved oxygen and temperature in this reach.

Second objective of this proposed study is to define a baseline condition that will provide for a better understanding of the potential for project-related effects, impact of mitigation measures drafted in 2007 and possible further mitigation strategies.

The objectives of this study are to evaluate the success of the following mitigation strategies on the issues and identify if further mitigation is required:

*draft 4/12/07 CT River Joint Commissions*

1. Monitor river water quality to identify problems and track improvements. Town conservation commissions, tributary watershed groups, school groups, and other interested citizens should work with their state's water quality agency to ensure more regular and sustained monitoring of the Connecticut River and its tributaries.

2. Ensure that wastewater discharges no longer compromise the quality of the river.

Communities with combined sewer overflows, including those upstream of the Mt. Ascutney region, should continue their efforts to eliminate them as quickly as possible. EPA should provide funding to assist with these expensive projects. The region is affected by three large wastewater discharges just upstream in the Upper Valley region, as well as those within.

3. Discourage development too close to the river. Towns should adopt ordinances prohibiting building in the 100-year floodplain and ensure that buildings are set a safe distance back from the river even when outside of the floodplain, to reduce the risk of property loss in erodible areas. Vermont should

adopt statewide shoreland protection. NH towns and NH DES should inform landowners about the Shoreland Protection Act, and should not issue permits for projects that violate state law.

8. Improve stormwater management. Towns should look at ways to include “low impact development” ideas as they review projects, and at how to change existing development to reduce runoff and promote stormwater infiltration.

9. Ensure that farm operations help protect water quality. Farmers should employ best management practices and work with conservation districts and the Cooperative Extension Service to prepare a total nutrient management plan for their farm, to make best use of available nutrients, reduce potential for water quality impacts, and save money in purchasing fertilizer.

10. Reduce mercury contamination. The states should continue to act to reduce sources of mercury contamination that affects Connecticut River fish and other wildlife. Congress should join this effort.

5.9 (b)(2) – If Applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

5.9 (b)(3) – If the requestor is not a resource agency, explain any relevant public interest consideration in regard to the proposed study.

Sections 4(e) and 10(a) of the Federal Power Act (FPA) require the Commission to give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values. Any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

Adequate levels of water quantity and quality, are required by aquatic organisms for subsistence, and are therefore essential to the integrity and sustainability of a healthy ecosystem. Describing the project effects on these resources is necessary to fulfill the Commission’s responsibilities under NEPA. Ensuring that environmental measures pertaining to these resources are considered in a reasoned way is relevant to the Commission’s public interest determination.

### Background and Existing Information

5.9 (b)(4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

- Current information is not sufficiently available in the Pre-Application Document) (PAD includes .... ) or watershed assessment documents on the baseline measurements or monitoring programs associated with water quantity and quality. Issues and mitigation plans have been identified as necessary in the past, and sufficient updated information on mitigation success or continued necessity is not available.

### Project Nexus

5.9 (b)(5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Project related activities impact the water quantity, tributaries and watersheds in the project area impact the water quantity and quality.

The project operations at the dam and canal produce low water quantity entering the reach around the BF Island.

A profile of the water quantity and quality in the project reservoir and impoundment area is considered necessary to develop a more complete understanding of potential project-related effects.

The requested study would help establish a baseline condition for the system in question, and form the basis for inclusion of potential license requirement to protect the water quality of the project area.

### Proposed Methodology

5.9 (b)(6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Using generally accepted practices in the scientific community:

- Monitor and record water quantity and quality with special focus on the estuaries and tributaries. Sampling should take place at least once per week beginning on July 1<sup>st</sup> and ending on October 1<sup>st</sup>. During each sampling event, reservoir surface elevation should be recorded

- Monitor and record water quantity and quality at 4 separate sites, beginning at the northernmost estuary/ tributary with subsequent sampling sites located longitudinally downstream from the previous sampling site and at approximately equidistant intervals. Exact locations for the sampling should be chosen at random, using a scientifically accepted method. The habitat type of each sampling location should be identified and recorded (i.e. pool, run, riffle, etc.)
- Prepare a report that includes an analytical summary and graphical representations of the data from the above studies, including water quantity and quality Impacts. All data points used to develop the report (including date and time of collection), should be included within an appendix to the report

#### Level of Effort and Cost

5.9 (b)(7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The estimated cost of this work is: \$9,600. The study may be completed in one study season (12 weeks). 2 to 3 technicians would be expected to spend 4 - 5 hours weekly to conduct field work. Report preparation should take a biologist 1 – 2 work days.