

CONSUMPTIVE USE AND IN-LAKE RESTORATION IN THE LAKE JESUP BMAP

Prepared for Lake Jesup BMAP Technical Working Group REVISED – July 2008

The development of Basin Management Action Plans (BMAPs) to implement Total Maximum Daily Loads (TMDLs) involves estimation of the benefits of pollutant load reduction projects. Pollutant load reduction projects can take many forms, including external load reductions and in-lake restoration. Within each BMAP, consideration is given to what projects are eligible for pollutant load reduction credit and what types of projects are ineligible. This determination depends on the calculation methods used in the original TMDL as well as current best professional judgment regarding the efficacy of various pollutant removal technologies. In the Lake Jesup BMAP, two related questions have emerged regarding pollutant removal credit for consumptive use and in-lake restoration projects. These issues are discussed in detail below.

QUESTION #1

Should consumptive use projects that remove water from surface waters qualify for pollutant reduction credits in the Lake Jesup BMAP?

Background: “Consumptive use” is officially defined as any use of water which reduces the supply from which it is withdrawn or diverted (FAC 62-40.301). Under this definition, surface water withdrawals are considered “consumptive” if the water is not directly returned to the source so that it is available for immediate further use. Although it is arguable that withdrawals for water supply purposes are not wholly consumptive (e.g. some water withdrawn for irrigation is eventually returned to a waterbody through groundwater recharge or runoff), the lack of a direct return of water to the waterbody from which it was taken would define water supply as a “consumptive use.” Consumptive use of surface waters can affect the calculations involved in TMDL development by changing the basic assumptions about the waterbody (e.g. lake volume, residence time, etc.) used in TMDL model development. In addition, removal of water for consumptive use could affect in-lake pollutant concentrations and loads. This has the potential to require revision of the TMDL and alter allocation scenarios in the BMAP process.

Decision: Consumptive use projects will not be considered for pollutant removal credit in the first iteration of the Lake Jesup BMAP.

Explanation:

- This affects consumptive use of lake water, not stormwater. Stormwater reuse would remain eligible for BMAP credit.
 - In most cases, projects to reduce pollutant loads to meet a TMDL are those intended to reduce external loads to waterbodies, not internal loadings.
 - Consumptive use water withdrawals may or may not affect the basic assumptions used in the development of a TMDL. Prior to any consideration of pollutant load reduction credits associated with water withdrawal, the TMDL would need to be revisited to determine if the water withdrawals changed the TMDL and its associated allocations.
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QUESTION #2

Should in-lake restoration projects qualify for pollutant reduction credits in a BMAP?

Background: In-lake restoration projects (e.g. whole alum treatment, algae scrubbers, dredging, etc.) can significantly affect the balance between internal and external sources of pollutants. In-lake projects also could play a significant role in BMAP allocations (e.g., potential allocation for internal processes) and project selection.

Decision: In general, in-lake projects are eligible for BMAP credit if the following conditions are met: 1) in-lake processes as a pollutant source are identified as part of the load allocation and 2) pollutant load reductions from specific projects can be estimated with confidence. Specific to Lake Jesup, the BMAP working group determined that in-lake projects are not eligible for credit in this first iteration of the BMAP because of the uncertainties associated with quantifying in-lake nutrient processes. In the next iteration of the BMAP, in-lake projects may be eligible for credit, provided that the above two conditions can be met at that time.

Explanation:

- This decision is consistent with the BMAP approach taken by the Lake Jesup BMAP Technical Working Group. This decision is also consistent with the Lake Jesup Interagency Restoration Strategy (January 2008) which directed that external load reductions be addressed prior to conducting in-lake restoration activities.
- Projects that have both stormwater treatment and in-lake treatment components remain eligible for credit. However, calculation of credit will be based on stormwater pollutant load removal. Pollutants removed from lake water would not be eligible for credit against an entity's allocation. This approach may be altered in the second iteration of the BMAP if the level of understanding allows for accurate quantification of in-lake nutrient dynamics (e.g. sediment phosphorus flux).
- Projects that draw water from the lake and return treated water to the lake would remain eligible for BMAP credit. These types of projects would be considered similar to treating external loads from tributary water. This is in contrast to a project that is designed to treat internal loads (e.g. reduction of nutrient levels in sediments, removal of aquatic plants, etc.). Projects that have multiple purposes (treatment and return of water *and* treatment of internal loads) will be evaluated on a case-by-case basis.
- If planned studies demonstrate significant internal recycling (or loading), then the TMDL will need to be revisited and revised to include this pollutant source within the allocations. As part of the evolution of the BMAP, in-lake projects can be provided an allocation and such projects could be included in the BMAP and receive load reduction credit.
- Example: The St. Johns River Water Management District is currently operating a Pay-for-Performance project for phosphorus removal in Lake Jesup. However, this is a pilot project with proprietary technology with limited data on nutrient removal. As such, the benefits of this project cannot be estimated with confidence, and the project does not qualify for load reduction credit. However, if the load reduction benefits of this technology can be proven and made available to the general public in the near future, this project would be eligible for credit in the second iteration of the BMAP. Similarly, efforts are underway to understand the effect of nitrogen fixation and sediment flux in Lake Jesup. Due to insufficient available information, these effects were considered inconsequential in the development of the TMDL. As such, the BMAP Technical Working Group agreed that sediment and other in-lake removals should be placed on the back burner in favor of focusing on external reductions in the BMAP. The effect of in-lake processes will be revisited as data becomes available. This information may lead to revising and readoption of the TMDL to account for these processes which were not considered in the original TMDL. A readopted TMDL and associated allocations could then prompt revision and readoption of the BMAP.