

Interim Guidance for Thermal Mitigation  
2017 Flexible Flow Management Program  
Version 2: September 2018

## BACKGROUND

The water temperature of the Delaware River tailwaters may occasionally become elevated when air temperatures are high, especially during periods of low baseflow in the Basin. At these times, the release rate of cold water from the New York City Delaware Basin reservoirs has a strong influence on the temperature of the downstream tailwaters. The 2017FFMP established a Thermal Mitigation Bank consisting of 2,500 cfs-days from the Interim Excess Release Quantity in Section 3.c.ii of Appendix A. The allocation of water to the Thermal Mitigation Bank in advance will facilitate the response of managers by eliminating the need to obtain unanimous consent from all five Decree Parties on a case-by-case basis. This bank is intended to partially mitigate the negative effects from extended periods of elevated water temperature by allowing for additional releases from the New York City reservoirs. Releases from the Thermal Mitigation bank are not expected to completely eliminate short periods of elevated water temperature.

The 2017 Flexible Flow Management Program (2017FFMP) defines management objectives based on the Joint Fisheries White Paper (2010). These management objectives incorporate four levels of protection for the several reaches in the Upper Delaware system. The reach from the confluence of the West and East Branches at Hancock, NY to Lordville, NY is classified as “Good” protection according to Plate 1 in Appendix A of the 2017FFMP. Accordingly, elevated water temperatures for this section will occasionally be an issue with daily maximum water temperatures exceeding 75 °F for short periods. The Thermal Mitigation Bank provided under 2017FFMP is not intended to upgrade the protection level of the upper mainstem from “Good” to “Excellent.” Implementation is therefore aimed at reducing the frequency, magnitude and duration of episodes of severe thermal stress in this reach.

## OPERATING PRINCIPLES

This document describes a procedure intended as an interim guidance and is expected to be replaced or updated after additional experience is gained and/or future studies on the subject are completed.

Use of the Thermal Mitigation Bank shall be made as follows, unless otherwise specified by the Decree Parties:

1. The application of the Thermal Mitigation procedure shall not result in any release that is not sufficient to meet the Montague Flow Objective or maintain the minimum release required by the 2017 FFMP.
2. Use of the Thermal Mitigation Bank will be directed by the New York State Department of Environmental Conservation and guided according to two sets of criteria depending on the time of year and the amount of water remaining in the bank. However, these criteria are not binding. Decisions on bank usage will be rooted in professional judgement and made on a case-by-case basis.
3. The Primary Phase shall commence on June 1<sup>st</sup> and will last until July 6<sup>th</sup> unless 1,250 cfs-days are released from the Thermal Mitigation Bank at which point the Primary Phase shall end. Regardless of the volume of water remaining in the bank, Primary Phase will resume on September 15<sup>th</sup> and will last until May 31<sup>st</sup>. The objective for the use of the Thermal Mitigation Bank during Primary Phase will be to prevent a maximum water temperature equal to or greater than 75 °F measured at the USGS gage at Lordville, NY.
4. The Secondary Phase shall commence on July 7<sup>th</sup> and will last until September 14<sup>th</sup>. The objectives for the use of the Thermal Mitigation Bank during Secondary Phase will be to prevent a maximum water temperature exceeding 77 °F or a period of more than 2 consecutive days when the maximum water temperature is equal to or greater than 75 °F measured at the USGS gage at Lordville, NY.
5. Criteria for use of the Thermal Mitigation Bank for the East Branch and Neversink Rivers will be based on professional judgement and the applicable habitat protection levels defined in 2017FFMP.
6. Water temperature projections will be developed through analysis of past hydrological, meteorological, and release conditions. The water temperature forecasting procedure will be updated as methods improve and are described in Annex B.
7. If the anticipated streamflow at Lordville, NY is greater than 1360 cfs, discretion shall be used regarding Thermal Mitigation Bank releases due to the reduced cooling power of cold water reservoir releases at higher flows. Relevant considerations may include the volume of water remaining in the bank, the number of days remaining until bank renewal on June 1<sup>st</sup>, and the volume of water used vs. expected ecological benefit, among other considerations.
8. Only the actual quantity of water that is released for thermal mitigation purposes shall be debited from the Thermal Mitigation bank.
9. The quantity of water and ramping schedule will be determined by the New York State Department of Environmental Conservation (NYSDEC) and reported to the New York City Department of Environmental Protection, the Office of the Delaware

River Master (ODRM), and the Delaware River Basin Commission (DRBC) for implementation without conflict with other release requirements and bank usages. The Decree Parties will be notified about Thermal Mitigation Bank usage as soon as practicable.

10. The above use criteria were developed collaboratively with Pennsylvania Fish and Boat Commission. In addition, PFBC staff may be consulted regarding decision-making and strategy on Thermal Mitigation Bank usage on a case-by-case basis, but frequent discussions are expected for decisions regarding mainstem usage.
11. ODRM will provide regular reporting to the Decree Parties and the Delaware River Basin Commission on the status and availability of the Thermal Mitigation Bank.
12. The total volume of the Thermal Mitigation releases shall not exceed the total volume of the Thermal Mitigation Bank. Thermal Mitigation releases shall cease when the volume of the bank is exhausted. If Steps 3, 4, or 5 above would otherwise apply to a release reduction but there is insufficient water remaining in the Thermal Mitigation Bank to meet the target release(s), then the Steps 3, 4, or 5 target release(s) shall be made until the volume of the bank is exhausted.