Policy Title: Water Injection Dredging (WID) Policy Statement

Date Last Updated: September 13, 2021

Friends of the Kaw Position on Water Injection Dredging:

Background

Tuttle Creek Lake, like many of the other Kansas reservoirs, continues to lose capacity due to sedimentation at an accelerated rate. Recent estimates from the Kansas Water Office indicate that approximately 46% of Tuttle Creek Lake's original storage capacity (conservation pool) has been lost due to sedimentation. Tuttle Creek Lake is a vital resource within the Kansas River Basin, and its continued loss of capacity and impending impact to the authorized purposes is a major concern for the state of Kansas. The Kansas River is a drinking water source for over 800,000 Kansans.

Successful demonstration of Water Injection Dredging (WID) technology at Tuttle Creek Lake will help to advance other innovative methods aimed at extending the life of reservoir storage in Kansas, including the use of WID with hydrosuction or other sustainable sediment management techniques.

The Kansas Water Office (KWO), in partnership with the Corps of Engineers, plans to implement a WID demonstration project at Tuttle Creek Lake to promote sustainable long-term reservoir sediment management. WID is a process in which large volumes of water are injected at low pressure into the sediment bed near the bottom of the reservoir through the use of pumps and a series of nozzles located on a horizontal pipe positioned above the sediment bed. The injected water effectively fluidizes the sediment creating a ' density current' that allows the sediment to flow by gravity to deeper areas. In the case of Tuttle Creek Lake, the proposed WID demonstration project would be aimed at moving the sediment toward the existing low level outlet in the dam and monitoring the flow of the density current through the outlet during controlled discharges. Sediment fluidization testing performed by the Corps' of Engineers' Engineer Research and Development Center (ERDC) with sediment from Tuttle Creek Lake (video below) demonstrates the mechanics of the water injection dredging process.

Friends of the Kaw Position on Water Injection Dredging (WID)

Friends of the Kaw advocates for the protection of Kansas River water quality and aquatic life. Friends of the Kaw advocates and supports streambank stabilization and land use practices that protect our reservoirs by preventing erosion and keeping sediment out of our waterways. We emphasize that any project that reintroduces sediment to the Kansas River is not the same as reestablishing the natural regime.

Friends of the Kaw recognizes that as this project moves forward, at a minimum, the project team of the US Army Corps of Engineers and the Kansas Water Office should monitor the sediment size and chemical composition of the discharge, the suspended sediment concentration resulting from the pulses in the Big Blue River and the Kansas River, and the aquatic biological impacts on sensitive organisms in the river, including mussels, that might have their habitat harmed.

Our specific recommendations include:

Friends of the Kaw recommendation:
Discharge pulses should be timed to coincide with natural sediment cycles to sync with life history of organisms in the Big Blue River and the Kansas River. For example, discharges should occur at the same time that the river would naturally experience high sedimentation.

Friends of the Kaw recommendation:
Friends of the Kaw recommends sampling of the discharge events for complete chemical composition.

Friends of the Kaw recommendation:
Friends of the Kaw recommends that monitoring of sediment include size and distribution to the rivers downstream including the Big Blue River, Kansas River, Missouri River and Mississippi River and corresponding percentages. In addition to physical and chemical parameters, measurement of all species but particularly any sensitive or endangered species should be part of a monitoring plan.

Friends of the Kaw recommendation:

Publicly release all raw data as well as any compiled reports with ample time for public discourse about the success of the project before engaging in any further water injection dredging projects that impact the Kansas River.

Overall Friends of the Kaw recommendation:
Friends of the Kaw encourages this pilot to coordinate with the Sustainable Rivers Program to look for opportunities to time the WID activities with the establishment of environmental flows. This provides opportunities to allow sediment to settle out in ecologically appropriate places in the river.