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ROOT RIVER WATER QUALITY AND BIOLOGICAL DATA COLLECTION BEGINS YEARS IN ADVANCE OF WAUKESHA'S NEW WATER PROGRAM

UW-Parkside and U.S. Geological Survey Data Collection to Establish Baseline River Conditions

WAUKESHA, Wis. (Feb. 16, 2017) — A team of professors and science students from the University of Wisconsin-Parkside and researchers from the U.S. Geological Survey (USGS) began water chemistry and biological data collection of the Root River today. Their river data collection efforts will be used to understand the river's current water quality and biological conditions before treated water from Waukesha begins to flow into the river several years from now as part of the city's new water program. Prior analysis has shown treated water from Waukesha can improve water quality in the Root River and that additional flow will be beneficial to fisheries.

John Skalbeck, Ph.D., a UW-Parkside geosciences professor is leading the data collection with several other faculty and students from the school's College of Natural and Health Sciences. In addition to regular water quality data collection, UW-Parkside also will conduct fish and macroinvertebrate data collection this summer and fall. USGS staff also will be measuring stream flow and water quality parameters such as water temperature, oxygen levels, and water clarity. Data collection will occur at eight sites starting at Oakwood Road in Franklin and continuing downstream to downtown Racine near the mouth of the river.

"This a great opportunity for our students to apply the lessons learned in the classroom and laboratory in the field on a project of international significance," said Skalbeck. "That's quite a legacy that these students can be proud of."

Waukesha's new water program involves a pair of underground pipelines. Current plans call for the first to begin at a pumping station in Oak Creek, carrying treated drinking water from Lake Michigan about 20 miles through the communities of Franklin, Muskego and New Berlin on its way to Waukesha for use as the city's water supply. The second pipeline will return the water after use and treatment at the Clean Water Plant in Waukesha, that currently discharges into the Fox River, to an outfall point in Franklin that empties into the Root River and ultimately flows back into Lake Michigan.

"We are starting the river data collection several years in advance of what the Great Lakes Compact Council directed. The Council said we must monitor the river once we begin piping treated water to the Root River for its return to the lake," said Dan Duchniak, general manager of the Waukesha Water Utility. "We're starting now so we will more fully understand the river's current condition so that when we borrow Lake Michigan water and return it to the river, we can protect water quality in the river and enhance the river's fisheries."

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Last June, the eight governors who make up the Great Lakes Compact Council approved Waukesha's request to access drinking water from Lake Michigan on the condition the city return the same amount to the lake via the Root River. Waukesha sought that permission after spending more than ten years studying more than a dozen water supply alternatives. Waukesha's primary groundwater supply has dropped due to a geological feature that limits recharge. Levels of radium and other contaminants increased as water levels declined. Long-term exposure to radium is linked to increased risk of cancer, so a new, sustainable water source was needed.

"The City of Waukesha had a clear objective when it began investigating alternatives to its increasingly depleted water supply more than a decade ago: identify the most sustainable and environmentally responsible option. The Great Lakes Compact Council agreed that Lake Michigan was the only reasonable alternative," said Duchniak. "As the first community to prove it qualifies for an exception to the diversion ban under the Great Lakes Compact's straddling counties provision, we're keenly aware of our obligation not only to our neighbors in the area, but to the entire Great Lakes basin."

A new discharge to the Root River will be constructed to comply with the Great Lakes Compact Council's decision and to return water to Lake Michigan. Duchniak noted that 94% of the state's 503 wastewater utilities discharge their treated water to rivers and streams and that only a handful of communities in Wisconsin provide the same levels of treatment that Waukesha's Clean Water Plant does.

Waukesha's Clean Water Plant currently discharges to the Fox River. Duchniak said, "Waukesha itself is downstream from two communities that also discharge to the Fox River, which can make up 70% of the river's flow. But our residents waterski, kayak and fish in the river."

"The return flow will improve river conditions by reducing the concentration of phosphorus. Analysis we've completed using a SEWRPC water quality model has shown reduced phosphorus concentration also results in reduced algae in the river," said Duchniak. "The return flow from our Clean Water Plant will increase water levels during low-flow drier months when it is needed to help fish passage, but have insignificant effects on water levels during higher river flows."

The UW-Parkside students will test water samples for 15 standard parameters for water quality including dissolved oxygen, necessary for fish and aquatic life; nitrogen and phosphorus, which can contribute to algal growth; turbidity and total suspended solids, which measure water clarity; and other common water quality parameters to understand the river water chemistry.

"This is a great opportunity for our students, providing them valuable real-world experience in their field of study that cannot be replicated in the classroom," said Skalbeck. "It also aligns with university's mission in terms of community engagement and exemplifies the role the University of Wisconsin brought forward in the 'Wisconsin Idea.'"

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