

## Kansas Department of Wildlife and Parks – Cheyenne Bottoms Wildlife Area

The Kansas Department of Wildlife and Parks (KDWP) operates five regional offices that are responsible for the fisheries, wildlife, law enforcement and park staff within their area. The 19,857-acre Cheyenne Bottoms Wildlife Area is part of a 41,000-acre natural land sink located just northeast of Great Bend. With over 300 species of birds and 40 species of waterfowl and shorebirds, this water basin is considered one of the most important ecosystems in Kansas and has been designated as a ‘Wetlands of International Importance’.



During the 1940's and 1950's, the State of Kansas acquired the land and constructed dikes to collect water in five pools. Renovation projects in the 1990's included the sub-dividing of the pools and construction of pump stations that allowed for improved management of the water and increased water conservation efforts during dry weather. Canals and dams were also built to divert water from nearby rivers and streams. Annually, one or more of the ponds may be drained, as needed, for management of the marsh for water birds.

According to Karl Grover, Field Supervisor of the Cheyenne Bottoms Wildlife Area, “We have surface water rights to streams that we divert water from to supplement flows to the water fowl area. The wildlife area is managed principally for water fowl hunting and includes the monitoring of diversion rates to remain in compliance with the water rights.”



Flo-Dar Sensor installed in a box culvert application at Cheyenne Bottoms Wildlife Area

Flow meters are utilized to monitor the flow rates of several 54-inch concrete lines as well as in a box culvert in the Cheyenne Bottoms Wildlife Area. An additional open expanse creek site is currently being monitored by a USGS monitoring station.

When open channel flow meters purchased in the early '90's that utilized submerged style sensors needed replacing, Grover went on a search for flow meters that did not have submerged sensors. He adds, "I just wanted to get rid of the submerged sensors. I got tired of the cables being yanked out of them. A lot of these pipes were submerged and the sensors were installed in siphons and were flooded all of the time. Even when we're not running water the pipe is full of water. When you've got to replace the sensors you have to pump the siphon out and you're talking days to repair those meters."

An internet search led Grover to Hach Company's Marsh-McBirney Flo-Dar Non-Contact Flow Meters. The Flo-Dar sensor is mounted above the flow and utilizes radar velocity. It's uniqueness lies in its ability to accurately monitor open channel flow from above the fluid eliminating sensor fouling, a problem experienced by KDWP personnel. Flo-Dar sets the standard for ease-of-use, accuracy, and reliability. Meter accuracy has been independently verified by Alden Labs, as well as by the satisfaction of thousands of users worldwide.

According to Grover, a state bid was issued and the Flo-Dar meters were selected. He adds, "The reason we went with the Flo-Dar's is because their sensors don't have to be in the water like the old flow meters we had before. On those meters debris would get into the inlet system and yank the cables out of the sensors and they were just a maintenance nightmare."

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***Karl Grover, Field Supervisor  
Kansas Dept Wildlife and Parks***

To date, the KWDP has purchased four Flo-Dar meters. While the first meters were purchased directly, subsequent meters were ordered through the local Hach flow rep Tim Curtis of Heartland Controls. Three meters have been installed for over four years now and the last meter will be installed soon.

Pleased with their Flo-Dar meters, Grover adds, "With Flo-Dar we are saving lots of time and doing other things rather than flow meter maintenance." Regarding meter accuracy he adds, "I've had the USGS come out and they will do their calculations for the flow and compare it with the Marsh-McBirney Flo-Dar and it's dead on! I even had the Division of Water Resources come out and check the first Flo-Dar we put in and even their estimates were right on with the flow meter, so they are working great!"