

HIGH FREQUENCY MONITORING IN THE MOHAWK VALLEY

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High frequency monitoring captures rare events, rapid fluctuations, and episodic pulses which manual approaches to data collection cannot. It provides a robust baseline from which we can detect change and develop models to predict future conditions. A high frequency observational network is an essential tool for management efforts and the continued beneficial use of the Hudson River and its tributaries.

The Hudson River Environmental Conditions Observing System is a network of water quality and weather stations in the Hudson River collecting data at a high frequency and reporting this data in near-real time to a public website (www.hrecos.org). This network is operated by a consortium of government, academic, and NGO partners and is used for research, regulation, ecosystem management, river forecasting, navigation and education.

Proposed HRECOS Monitoring in the Mohawk River

The HRECOS team proposes a new monitoring station in the Mohawk River located at the Canal Corporation's lock 8. This station will report near-real time water quality and weather conditions and will be operated jointly by the USGS and the NYS DEC.

This station will benefit multiple users in the lower Mohawk valley and is actively supported by the Canal Corporation, Union College, Schenectady Office of Emergency Management and the National Weather Service.

Benefits to Flood Prediction

The lower Mohawk River has chronic ice jam problems. Conditions are particularly difficult between the Stockade District and Rexford Knolls where water levels have repeatedly risen fifteen feet or more (Garver and Cockburn, 2009; Marsellos, Garver and Cockburn 2010).

The new HRECOS station at the Lock 8 will allow us to provide advanced flood warnings to Schenectady County Emergency Managers. Water levels from this station will be compared to measurements collected at the USGS gauge at Freemans Bridge. When dramatic differences are observed, we will send e mail notifications to the emergency managers to notify them of a potential flood. Additionally, the National Weather Service will harvest this high frequency data to provide forecasts and life-saving flood warnings.

Benefits to Baseline Monitoring

High frequency monitoring at the HRECOS Mohawk station will help to improve existing models including weather models produced by the National Weather Service for the Eastern Mohawk valley. Most significantly, this data will establish a robust environmental baseline from which we can detect change including the impacts of climate and land use changes.

Benefits to Education

Remote monitoring has the unique advantage of providing students with a hands on experience from the classroom. As one enthusiastic supporter stated, "Giving students the experience with real data gives them the confidence to look into science careers more seriously. 'If I understand this and this is real then science is real.'"

References

- Garver, J.I., and Cockburn, J.M.H. 2009. A historical perspective of Ice Jams on the lower Mohawk River. In: Cockburn, J.M.H. and Garver, J.I., Proceedings from the 2009 Mohawk Watershed Symposium, Union College, Schenectady NY, p. 25-29.
- Marsellos, A.E., Garver, J.L., and Cokburn, J.M.H. 2010. Mapping and Volumetric Calculation of the January 2010 Ice Jam Flood, Lower Mohawk River, Using LiDAR and GIS. In: Cockburn, J.M.H. and Garver, J.I., Proceedings from the 2010 Mohawk Watershed Symposium, Union College, Schenectady NY, p. 23-27.