

A Picture Speaks a Thousand Words: Remote Sensing in Ecohydraulics

Antóin M. O’SULLIVAN

University of New Brunswick, Fredericton, New Brunswick, Canada

Canadian Rivers Institute, Fredericton, New Brunswick, Canada

O’Sullivan Ecohydraulics Inc., Fredericton, New Brunswick, Canada

✉ aosulliv@unb.ca

Abstract

The camera has a storied history, with the oldest recorded camera, the camera obscura, linked to Han Chinese philosopher Mozi c. 470–390 BC. Today, cameras (or sensors) are omnipresent, floating around the Earth acquiring data, gazing into space as we seek to explain our universe, and rest in your hand as you photograph a stream. In Earth science sensors are providing deep insights into hydrologic, geologic, ecologic, and hydraulic processes. In this talk I will provide an overview of the physics that underlies sensors, followed by a suite of remote sensing case studies relevant to ecohydraulic researchers, practitioners, and resource managers. These studies illustrate the utility of remote sensing for ecohydraulic studies at the catchment to patch scale, and from a snap shot in time to 10-minute resolution data collected throughout a summer.

Keywords: behavioural thermoregulation, hydraulic habitats, multi-scale, optical bathymetry, thermal infrared.

Received 9 May 2022

Accepted 16 May 2022