



## A Digital Terrain Model of Bathymetry and Shallow-Zone Bottom-Substrate Classification for Spednic Lake and Estimates of Lake-Level-Dependent Habitat to Support Smallmouth Bass Persistence Modeling: Usgs Scientific Report 2010-5255

By Robert W Dudley, Charles W Schalk

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.In 2009, the U.S. Geological Survey entered into a cooperative agreement with the International Joint Commission, St. Croix River Board to do an analysis of historical smallmouth bass habitat as a function of lake level for Spednic Lake in an effort to quantify the effects, if any, of historical lake-level management and meteorological conditions (from 1970 to 2009) on smallmouth bass year-class failure. The analysis requires estimating habitat availability as a function of lake level during spawning periods from 1970 to 2009, which is documented in this report. Field work was done from October 19 to 23, and from November 2 to 10, 2009, to acquire acoustic bathymetric (depth) data and acoustic data indicating the character of the surficial lake-bottom sediments. Historical lake-level data during smallmouth bass spawning (May-June) were applied to the bathymetric and surficial-sediment type data sets to produce annual historic estimates of smallmouth-bass-spawning-habitat area. Results show that minimum lake level during the spawning period explained most of the variability ( $R^2 = 0.89$ ) in available spawning habitat for nearshore areas of shallow slope (less than 10...



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