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Sommario/riassunto	Data collected from four Lake Erie beaches during the recreational seasons of 2004-5 and from one Lake Erie beach during 2000-2005 were used to develop predictive models for recreational water quality by means of multiple linear regression. The best model for each beach was based on a unique combination of environmental and water-quality explanatory variables including turbidity, rainfall, wave height, water temperature, day of the year, wind direction, and lake level. Two types of outputs were produced from the models--he predicted Escherichia coli concentration and the probability that the bathing-water standard will be exceeded. The model for one of beaches, Huntington Reservation (Huntington), was validated in 2005. For 2005, the Huntington model yielded more correct responses and better predicted exceedance of the standard than did current methods for assessing recreational water quality, which are based on the previous day's E. coli concentration. Predictions based on the Huntington model have been available to the public through an Internet-based "nowcasting" system

since May 30, 2006. The other beach models are being validated for the first time in 2006. The methods used in this study to develop and test predictive models can be applied at other similar coastal beaches.