Modeling impacts of water transfers on alleviation of phytoplankton aggregation in Lake Taihu

APPENDIX A

The hydrodynamic-phytoplankton model has been calibrated and validated based on data measured from Lake Taihu between 2008 and 2009 (Huang et al. 2012). The dataset obtained between 17 April and 22 September 2008 was used for model calibration, and the dataset obtained between 23 April and 25 June 2009 was used for model validation. This dataset for calibration and validation consists of Chl a, water temperature, wind conditions, cloud cover, dissolved phosphorus, and nitrogen. The model fit was evaluated using a statistic of $P$ calculated by

$$P = \frac{\sum_{i=1}^{n} \sum_{j=1}^{k} f(\hat{C}_{ij}^{\text{Chl}}, C_{ij}^{\text{Chl}})}{nk} \times 100\%$$  \hspace{1cm} (1)$$

where $\hat{C}_{ij}^{\text{Chl}}$ is the simulation Chl a level at grid cell $i$ and day $j$, $C_{ij}^{\text{Chl}}$ is the observed Chl a level at grid cell $j$ and day $i$, $k$ is the number of grid cells selected for calibration, and $n$ is the number of days when both model and observed results are available. The $P$ value of 100% indicates that the simulation results exactly agree with the measurement. A $P$ value was 74.0% in the calibration period (17 April–22 September 2008) and was as high as 78.7% in the validation period (23 April–25 June 2009). Further details about the calibration and validation can be found in Huang et al. (2012).

REFERENCE