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Dynamic Evaluation of Shallow Lake Habitat Quality Based on InVEST Model: A Case in Baiyangdian Lake

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Abstract : Water level changes in a shallow lake always introduce dramatic land pattern changes. To achieve sustainable ecosystem service, it is necessary to evaluate habitat quality dynamic and its spatio-temporal variation resulted from water level changes, which can provide a scientific basis for protection of biodiversity and planning of wetland ecological system. Landsat data in the spring was chosen to obtain landscape data at different times based on the high, moderate and low water level of Baiyangdian Shallow Lake. We used the InVEST to evaluate the habitat quality, habitat degradation, and habitat scarcity. The result showed that: 1) the water level of shallow lake changes from high to low lead to an obvious landscape pattern changes and habitat degradation, 2) the most change area occurred in northwestward and southwest of Baiyangdian Shallow Lake, which there was a 21 percent of suitable habitat and 42 percent of moderately suitable habitat lost. Our findings show that the changes of water level in the shallow lake would have a strong relationship with the habitat quality.

Keywords : habitat quality, habitat degradation, water level changes, shallow lake
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