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InVEST MODEL-BASED EVALUATION OF RIVER NON-POINT SOURCE POLLUTION LOAD

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Abstract

This paper introduces the InVEST model and the design of an evaluation method of the river non-point source pollution load. Through analyzing the current river pollution problems, the key points of load evaluation are determined, and the specific steps of pollution load evaluation are designed. The evaluation method of total river pollutant load is designed by InVEST model. The optimization of river pollution load evaluation method is performed by linear analysis, and the evaluation of river non-point source pollution load is completed. To validate effectiveness of the proposed method, the waters near Hainan Island are divided into five regions to estimate the total chlorine and total phosphorus non-point source pollution loads. The results showed that the total chlorine pollution load was 446200 tons/year and the total phosphorus pollution load was 57700 tons/year. The chlorine pollution of cultivated land was the most serious, and the phosphorus pollution of construction land and cultivated land was the largest. The mass concentration of total phosphorus in Haikou, Dongfang and Lingao areas is between 0.05 and 0.075 mg/L, and the risk of eutrophication is serious, which needs to be controlled. The relative error of runoff simulation in this paper is less than 0.5%, and the simulation effect is better.

Key words: InVEST model, linear analysis, non point source pollution, pollution load

Received: November, 2020; Revised final: August, 2021; Accepted: December, 2021; Published in final edited form: February, 2022

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