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Exploitative Degree Evaluation of Bay Based on PVS Framework

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The bay area as one of the most important parts of coastal zone, has endure strong human activities. Nevertheless, as the finite resource it possesses, the bay can’t be exploited infinitely. Therefore, the knowledge of the exploitative degree of bay is meaningful for the further exploitation of bays, and the planning scheme setting of the remainder resources of bays. This paper aimed at the exploitation of bays, a PVS framework was proposed for the evaluation of exploitative degree of bays. In the PVS framework, \( P \) stands for Pressure which represents natural or artificial factors affected by human beings in offshore land area, intertidal zone area and offshore sea area. \( V \) stands for vulnerability; it means the sensibility of bays to pressure, and the enduring ability of changes, destruction and unseful impacts to bays. \( S \) represents states of each component of bays, including water quality, environmental habitat and so on. Unlike the normally used FSR, DSR, and DPSIR framework, PVS framework takes the vulnerability of bays into account, and can better reflect the complex characteristics of bays. The evaluation procedure is as follows: Firstly, to choose indicators of each components of bays level by level, namely, in a sequence of pressure, vulnerability and state. Secondly, by the usage of remote sensing, statistic data, vector data and other data source, quantify or half-quantify processing was made with mathematical or experiential model. Thirdly, Delphi method was used for the further filtering of indicators, and the whole framework of indicators was formed. Fourthly, gray correlation analysis method was used to identify the weight sequence of indicator, and the Delphi method was combined to identify the final weight of each indicator. In the last of the paper, the exploitative degree of Daya Bay during 1980s and 2005 was evaluated by the method proposed.

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