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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 45031-2024

**Technical guidelines for monitoring and effectiveness
evaluation of seagrass bed ecological restoration**

海草床生态修复监测与效果评估技术指南

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed by the Ministry of Natural Resources of the People's Republic of China. This document is under the jurisdiction of the National Technical Committee for Marine Standardization (SAC/TC283). This document was drafted by: Institute of Oceanology, Chinese Academy of Sciences, the Third Institute of Oceanography, Ministry of Natural Resources, Hainan Academy of Marine and Fishery Sciences, Guangxi Mangrove Research Center, First Institute of Oceanography, Ministry of Natural Resources, South China Sea Institute of Oceanology, Chinese Academy of Sciences, Ocean University of China, The Fourth Institute of Oceanography of the Ministry of Natural Resources, the North Sea Ecological Center of the Ministry of Natural Resources, the Yellow Sea Fisheries Research Institute of the Chinese Academy of Fishery Sciences, and the Hebei Provincial Geological and Mineral Resources Bureau The Second Geological Brigade of the Mineral Exploration and Development Bureau (Hebei Mine Environmental Restoration and Management Technology Center), Tangshan Ocean Ranch Industrial Co., Ltd., Mashan Group GROUP LIMITED. The main drafters of this document are. Zhou Yi, Zheng Xinqing, Wu Zhongjie, Qiu Guanglong, Xu Shaochun, Pu Xinming, Jiang Zhijian, Chen Shiquan, Zhang Peidong, Zhang Xiaomei, Liu Songlin, Yu Shuo, Bao Mengmeng, Gao Yaping, Liu Jianbing, Li Wentao, Chen Guangcheng, Chen Xuyang, Yue Shidong, Feng Jie, Lin Chenggang, Zhang Yunling, Wang Xiaodong, Li Fenghui, Jiang Zengjie, Zhou Bin, Lei Yanli,

Zhang Libin, Wen Guoyi, Zhang Xuelel, Chen Shang, Zhang Tao, Dong Guoming, Fan Hangqing, Huang Xiaoping, Chen Bin, Yang Hongsheng. Technical Guidelines for Monitoring and Effect Evaluation of Seagrass Bed Ecological Restoration

1 Scope

GB/T 45031-2024 gives the Chinese technical guidelines for monitoring seagrass bed restoration and evaluating whether it worked. Seagrass has been lost from Chinese coasts at a great rate and is now being replanted under state programmes, which raises the question these guidelines exist to answer: restoration is judged on shoot counts a year after planting, but a bed that has not recovered its sediment stability, its epifaunal community and its capacity to spread is not restored, merely planted. The standard sets the work content and process, the collection and analysis of the baseline and monitoring data, the monitoring of the restoration itself, its indicators, its stations, its frequency and its methods covering the seagrass coverage, density, biomass and reproductive status, the sediment and water quality and the associated fauna, and then the effectiveness evaluation, the indicator system, the criteria and grading, and the reporting and the adaptive management response. It takes effect on 1 July 2025.

This document provides the workflow, monitoring indicators and methods, evaluation indicators and methods for seagrass bed ecological restoration monitoring and effect evaluation, and Guidance on report preparation, etc. This document is applicable to the monitoring and effect evaluation of seagrass bed ecological restoration.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB 3097 Seawater Quality Standard

GB/T 12763.2 Specification for marine surveys Part

3 Terms and definitions

The terms and definitions defined in GB/T 41339.4-2023 and the following apply to this document.

3.1 seagrass A monocotyledonous angiosperm that can live entirely in salt water, either in the sea or in estuarine waters.

Note. Seagrasses belong to the order Alismatales. Seagrasses distributed in my country

include four families. Zosteraceae, Cymodoaceae, ceaceae), Hydrocharitaceae and Ruppiaceae. [Source: GB/T 41339.4-2023, 3.1]

3.2 A process that assists the restoration of degraded, damaged or destroyed seagrass bed ecosystems. [Source: GB/T 41339.4-2023, 3.3]

3.3 reference ecosystem Specific ecosystems that can serve as targets or benchmarks for ecological restoration.

4 Seawater Analysis

GB 17378.5 Marine Monitoring Specifications Part

5 Sediment Analysis

GB 17378.7 Marine Monitoring Specifications Part

6 Marine Biological Survey

GB/T 12763.8 Marine Survey Specifications Part

7 Ecological Survey and Biological Monitoring of Coastal Pollution

GB 18668 Marine Sediment Quality

GB/T 41339.4-2023 Technical Guidelines for Marine Ecological Restoration Part

4.Seagrass Bed Ecological Restoration HY/T 083 Technical regulations for seagrass bed ecological monitoring

8 Marine Geological and Geophysical Surveys

GB/T 12763.9 Marine Survey Specification Part

9 Guidelines for Marine Ecological Survey

GB 17378.4 Marine Monitoring Specifications Part