附件2. 学术报告摘要模板

**积极管理加速湿地生态系统恢复——以横琴二井湾湿地公园为例**

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**摘要：**二井湾湿地公园地处横琴岛西侧，作为横琴粤澳深度合作区最大的生态湿地、试点国家湿地公园，其主要功能包括生态修复、生物多样性保育，科研教育等。然而，该湿地的生态功能并没有充分发挥。主要原因包括1). 过往填埋中减少了底栖生物的生境；2). 初期设计规划不足，未提供水鸟休憩觅食的滩涂区域；3).采用市政管养方式，导致生物量未能足够累积。主管部门已与高校合作确立了二井湾湿地公园（一期）生态管养方案，并从2023年1月实施，期望以基于自然的解决方案进行生境改造，并规范日常管养工作。截至目前，已营造内部滩涂逾3hm2、陆地微生境多处，规范了管养方式以减少人为干扰，促进营养循环。截至2023年10月，共监测到湿地鸟类35种（同比增长67%），营造滩涂区域已监测到多种涉禽，并发现了水雉（*Hydrophasianus chirurgus*）、棉凫（*Nettapus coromandelianus*）等国家二级保护动物。湿地周边绿地区域出现了线柱兰 (*Zeuxine strateumatica*)、美冠兰（*Eulophia graminea*）等野生兰科植物，昆虫多样性也有所增加。二井湾湿地公园（一期）的生态管养的规划思路和实践方法，为后期园内其他区域以及其他湿地公园的建设管理和生态修复提供了经验。这将有助于横琴范围内湿地公园生态功能的提升，充分发挥其生态补偿功能，提升作为粤港澳大湾区水鸟廊道上关键节点的效用。

**关键词：**二井湾湿地公园；生态管养；基于自然的解决方案；生态修复

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**Macrobenthic Community Structure and Coastal Ecological Assessment: A Study of Benthos along Representative Waterbird Habitats in Zhuhai City, China**

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**Abstract:** Due to the boosting anthropogenic activities and extreme climate events through recent decades, the natural coastal zones have been altered and even deteriorated in various ways. As ideal bio-indicators, benthic macrofauna play a key role in the energy flow and food web in coastal ecosystems. Therefore, investigating the benthos community is vital to assess the impact of environmental changes and provide a more scientific basis for ecological management and conservation. Zhuhai City, a key stopover and wintering place on the East Asia-Australasia Flyway (EAAF), is essential for many rare and endangered migrating shorebirds feeding on indigenous benthic animals. While local studies have explored macrobenthic community spatiotemporal variations, few have examined the relationship with environmental physicochemical factors. The present study carried out biological surveys of benthic organisms in three representative sites (including preserved tidal flats and national wetland park) along the Zhuhai coastline, meanwhile conducted ecological monitoring of the sediment properties and water quality of their habitats. Cluster and non-metric multidimensional scaling (NMDS) analysis showed clear spatial community patterns of benthic fauna among the selected sampling sites. The distance-based redundancy analysis (dbRDA) and hierarchical partitioning (HP) showed water salinity, water total phosphorus, and sediment parameters are all environmental factors that contribute significantly to the relative abundance of the benthic polychaete community. Based on the findings, key environmental drivers of benthic community assembly can be revealed. The study can further propose suggestions for coastal ecosystem quality evaluation and provide theoretical support for ecological conservation implementation.

**Keywords**: Macrobenthos; Community structure; Coastal ecological assessment

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