

Knysna Estuary health: ecological status, threats and options for the future

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Abstract

The Knysna Estuary is South Africa's most important estuary in terms of conservation, containing an estimated 42% of all estuarine biodiversity. Despite formal protection the estuary is open access and vulnerable to resource exploitation, development, pollution and freshwater inflow alterations. Through a review of current research and available data, the current study evaluated the ecological status of the Knysna Estuary, identified major pressures and proposed future management and conservation actions. Notable impacts included deteriorating water quality, development and resource use pressures. Nuisance macroalgal blooms in response to eutrophication have increased, displacing important seagrass habitats and affecting biota, including an increase in alien species. This review found that the ecological health of the Knysna Estuary is deteriorating, which suggests limited success from current conservation and management actions. Monitoring data to effectively assess system change over time were notably absent. Suggested remediation actions include halting non-compliant discharges from the Knysna Waste Water Treatment Works and the development of goal-orientated monitoring programmes to enable proactive conservation. Successful conservation depends on cross-sectorial management of the estuary and surrounds, and support is required from multiple institutions to achieve this.