

Conservation strategies for Dal lake and its catchment in Himalaya

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Dal lake, situated at 34.13°N latitude and 74.87°E longitude in the Kashmir Himalaya, spans an area of approximately 11.45 km² with a catchment area of 337 km². The lake's water budget is influenced by precipitation, surface inflows, and groundwater interactions, while its drainage pattern is shaped by multiple micro-watersheds, contributing to varied hydrological dynamics. Spring shade areas play a crucial role in maintaining the lake's water balance, aiding in groundwater recharge and regulating land cover stability. However, extensive land-use changes, deforestation, and erosion have increased sedimentation and nutrient loading, accelerating the lake's ecological decline. Eutrophication and harmful algal blooms (HABs) have emerged as significant environmental concerns, primarily driven by agricultural runoff, household waste, and industrial discharges. The proliferation of algae and aquatic weeds has led to oxygen depletion (anoxia), reduced water clarity, and habitat degradation. Over the years, unchecked sewage disposal, aquaculture, and encroachments have transformed Dal lake from a pristine water body into a nutrient-rich, stagnant system. To mitigate these impacts, organic farming within the catchment is proposed as a sustainable solution to reduce nutrient runoff and restore the lake's ecological integrity. By eliminating synthetic fertilisers and pesticides, this approach promotes biodiversity, improves soil health, enhances water conservation, and provides economic benefits to local farmers. Additionally, implementing effective conservation policies, land-use planning, and sustainable agricultural practices can aid in mitigating eutrophication and preserving Dal lake's long-term ecological health, ensuring sustainable development for local communities.

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