

Theory and computation method of ecological flow

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Abstract This paper analyses river ecosystem structure and the impacts of river hydrological processes and characteristics on the river ecosystem and the life cycles of its living organisms. It also proposes the computation methods for determining the minimum ecological flow and the optimal ecological flow. The paper selects the middle-lower reach of the Yangtze River as the case study site, and employs the proposed methods to compute the minimum ecological flow processes and optimal ecological flow processes at three typical cross-sections, and their corresponding ecological water requirements. The results reveal that it is essential to preserve the characteristics of river flow processes and their variations for the protection of river ecosystem stability and health.

Key words Yangtze River; minimum ecological flow; optimal ecological flow; ecological water requirements
