

A POOL NUMBER FOR FISH HABITAT ASSESSMENT

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Pools are essential habitat elements for salmonids. Pools provide a complex of deep low-velocity areas, backwater eddies, and submerged structural elements that provide cover. This complex can provide salmon with safe areas in which to find refuge when low-flows and/or winter conditions inhibit their migration, or to find rest during floods. Because of the importance of pools as fish habitat, their behaviour has been studied by various investigators using several physical characteristics, including their depth, cross-sectional area, top width, and volume. A general index to describe the characteristics of pools as fish habitat would therefore be useful. In this study, a dimensionless 'Pool Number' (\mathbf{P}) was developed and applied to an instance of fish-habitat assessment. It is defined using nominal Hydraulic Retention Time (HRT), and related herein to some of the variables mentioned above. The magnitude of \mathbf{P} indicates how lentic, or pool-like, a given pool is. Fig. 1 shows the definition of \mathbf{P} using its dependence of HRT on dimensionless discharge. The question of a critical Pool Number in connection with fine sediment problems and high summer temperature problems is addressed. \mathbf{P} is also used to estimate Newcombe's Stress Index. It is expected that the value of \mathbf{P} can indicate the habitat quality of a pool and be used to compare pools found in different stream systems. However, the question of critical \mathbf{P} values will require more data from different climatic zones and from pools of a wider range of sizes and shapes.

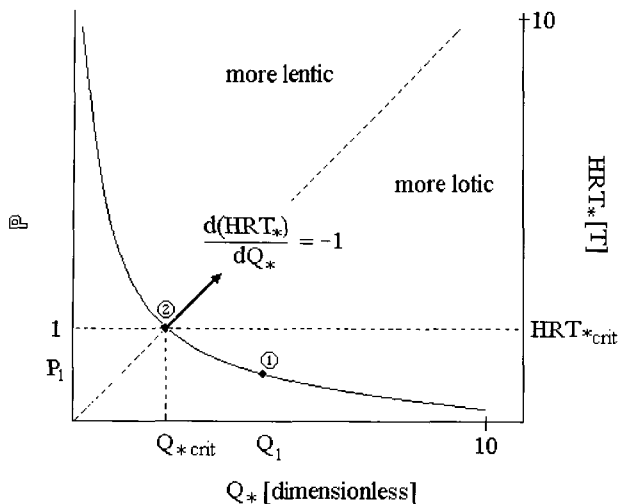


Fig. 1 Definition of Pool Number using dependence of HRT* on Q*.

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