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Integrating perennial and intermittent rivers into regional ambient assessments in dry climates: Case studies from southern California

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Abstract

Despite the prevalence and importance of intermittent rivers in dry climates, these habitats are traditionally excluded from ambient bioassessment programs. In Southern California, several monitoring agencies are exploring ways of integrating perennial, intermittent, and ephemeral streams into probabilistic watershed assessments. On Santa Rosa Island, a phased approach is used, whereby riparian indicators (which are indifferent to flow conditions) are assessed in the first year, and sites where aquatic indicators are likely to be sampleable are identified for future assessment. In the San Gabriel River, a synoptic tiered approach is used: a full suite of indicators at flowing sites, a subset at arid sites, and riparian indicators at dry sites. In San Diego, terrestrial indicators are under development for assessment of ephemeral riverbeds. In the Santa Ana River, predictive modeling will allow characterization of historical and present-day flow regimes, which supports interpretation of bioassessment indices and informs future survey design. Each of these efforts will provide lessons for other monitoring efforts in the region to create a path forward for integrated assessment of intermittent, ephemeral, and perennial rivers.