Comparator site selection for screening-level causal assessments

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Abstract

Sites in poor ecological condition require causal assessment to determine appropriate follow-up steps. A key component of this process – though one that lacks standardization - is to identify a series of ecologically similar sites used to assess potential stressors at the impaired site. A good set of comparators should: 1. Be capable of supporting similar biota to the impaired site; 2. Comprise a gradient of biotic condition; and 3. Contain enough sites to assess variability. We propose a quantitative approach to select sets of comparators from a large pool of potential sites in Southern California using expected biological similarity. Expected biological similarity was measured as Bray-Curtis dissimilarity values (BC) calculated from the expected taxa lists produced by a predictive biotic index of stream health. We were able to select more than 100 comparators for all but 1 of 15 case study streams at a BC <0.1. Sets of comparators have many possible applications for bioassessment monitoring programs, but will be particularly useful for deriving evidence for causal assessment. DISCLAIMER: Views expressed are the authors' and not views or policies of the U.S.EPA