

## **DOCUMENTING TAXONOMIC DATA QUALITY FOR FIELD FISH IDENTIFICATIONS: A PROPOSAL FOR NATIONAL SURVEYS**

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### **ABSTRACT**

The U.S. Environmental Protection Agency is in the midst of a multiyear series of national surveys of water resource conditions. Because communicating ecological condition is the primary objective of the surveys, quantitative biological indicators are key. To assure the defensibility of the raw data (identifications and counts), it is important that the taxonomic data are of known quality. For the National Rivers and Streams Assessment (NRSA), fish assemblage samples will be collected from approximately 1,800 river and stream sites over a 2-year period, beginning in 2008. To date, taxonomic data quality for fish in biological assessments has often focused on laboratory verification of questionable specimens, that is, only for specimens the person performing the primary identifications thinks necessary. As part of the NRSA, the vouchering system for fish assemblage samples will include the full complement of species in each sample. Digital images will be taken for each species that is rare, threatened, or endangered; ubiquitous, common, and distinct; or very large-bodied. For all others, at least one specimen will be preserved to represent the species. Sample vouchers will therefore be a combination of preserved specimens and digital images that regional experts can use to reconstruct a complete taxa list for each site. Our proposal is to have whole-sample species lists reproduced from a sample voucher by regional experts. Direct comparison of the taxa list from the voucher (Taxonomist 2) with that produced from the field (Taxonomist 1) will allow quantification of rates of differences by sample, as well as highlighting those species that are consistently difficult to correctly identify. This will be performed on a randomly-selected subset of the samples for each field taxonomist. Discrepancies between the two lists will be examined, and reasons for the differences determined. Corrective actions will be developed based on the comparison results and lead to updating of the database, and potentially lead to initiatives focused on taxonomic training for the identification of selected taxa. This paper will focus on our concept of this quality control initiative and its use as a component of national surveys.

### **KEYWORDS**

Fish taxonomy, data quality, taxonomic consistency, bioassessments, performance characteristics