

DOCUMENTATION OF UNDESCRIBED DIATOM TAXA IN SURVEY AND MONITORING PROGRAMS

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Diatomists frequently find undescribed diatom taxa in samples they analyze. In some projects (e.g., USGS NAWQA), a quarter of all taxa found may be undescribed. These taxa are often important as ecological indicators and are sometimes abundant. They are therefore typically given a project-specific provisional name so they can be included in data analysis and interpretation. There is usually insufficient funding to support formal description of these taxa, though many descriptions are eventually published. With increases in projects involving more than one analyst, in needs to combine and compare datasets, and in efforts to analyze trends over time, greater attention is being paid to procedures for documenting undescribed taxa and making that documentation publically accessible to other diatomists. There are strong needs to develop guidelines and standards for documenting undescribed taxa, to provide central locations for making images available, and to encourage diatomists to document undescribed taxa and make that information available.

At the Academy of Natural Sciences, Dr. Charles Reimer used an effective set of procedures to help maintain consistency in designations of undescribed taxa among several analysts involved in biological surveys initiated by Dr. Ruth Patrick over a period of several decades. They included naming conventions, pencil drawings of specimens organized in project specific loose-leaf books, circled specimens, and lists tracking changes in names. Modified versions of these procedures were used by participants in large-scale projects such as the USGS National Water-Quality Assessment program (NAWQA), the Paleoecological Investigation of Recent Lake Acidification project (PIRLA), and others. Elements of procedures found to be most useful include taking photographs and digital images of representative specimens, circling specimens on microscope slides and depositing the slides in diatom collections, documenting sample and slide information, and making images available on websites. These procedures should be used more widely to increase effectiveness of diatom data for environmental assessment and to provide resources for future formal published descriptions of taxa and their ecological characteristics.