ASSESSMENT OF THE ABUNDANCE OF THE FRESHWATER STALKED DIATOM *DIDYMOSPHENIA GEMINATA* IN RIVER SEDIMENT FROM THE S. FORK AMERICAN RIVER, SIERRA NEVADA FOOTHILLS, NORTHERN CALIFORNIA

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Analysis of surface sediment downstream from *Didymosphenia geminata* blooms in the South Fork of the American River, Sierra Nevada Foothills, reveal that *D. geminata* is the dominant lotic component, measured in biovolume. This finding justifies further coring programs downstream in Folsom Reservoir to help improve the current understanding of historical abundance patterns. This study focused on measuring abundances in both river water and surface sediment deposited between a *D. geminata*-clogged reach of the river and Folsom Reservoir, an expected depocenter with the potential to preserve an 80 year record of lotic contributions in an aggradational sedimentary system. The purpose of this study was to test methodologies and determine the feasibility of eventually using cores from lakes and reservoirs with *D. geminata* in inlet streams to quantify past and present *D. geminata* growth patterns. Samples were collected from 3 localities along a 6 km stretch of the river using a Ponar grab sampler, and the intact upper 1cm surface layer was removed and bagged for analysis. Samples were freeze-dried, weighed, and spiked with *Lycopodium* spores to allow for the calculation of biovolume per mg sediment. Strewn slides were made and 400 diatoms were counted per sample and identified to the genus level. Measurements were made of each operational taxon for biovolume calculations.
Genus level identifications indicate a strong river signature with minor reservoir contributions, possibly from upstream reservoir populations. *D. geminata* contributed between 27-49% of dry sediment by biovolume. Surface water samples were also analyzed and found to contain similar percentages of dislodged *D. geminata.* The strong contribution of *D. geminata* communicates that the species is likely to persist in detectable levels, even when diluted by lacustrine floras downstream in the reservoir. Future study justified by the present analysis has the potential to improve understanding of observed changes in *D. geminata* abundance and distribution patterns in the Sierra Nevada Foothills, and assist in regional monitoring efforts of *D. geminata*.

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