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Morphological Identification of Freshwater Sponges in Minnesota

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Sponges (phylum: Porifera) are among the most ancient and primitive living animals, lacking true tissue organization. Sponges are sessile animals that survive as filter feeders in both marine and freshwater environments. There have been over 200 freshwater sponge species described worldwide and only 32 have been described in North America. In Minnesota, only five species have ever been described and this was over 30 years ago. There is no current data about the diversity of freshwater sponges in Minnesota. Therefore, we have collected freshwater sponges in lakes and rivers throughout Minnesota to determine what species are present.

Freshwater sponges are composed of a hard skeleton made of silica called spicules. There are three broad categories of spicules: megascleres, microscleres and gemmuscleres. The morphology of each of these spicules varies by species and are useful for species identification. Collected sponges were digested using boiling nitric acid to leave only the spicules behind. The spicules were washed and mounted on microscope slides. The spicules were imaged using differential interference contrast imaging and measured for size. The images and size of spicules were compared to freshwater sponge taxonomical keys for species identification. In this poster, will present the overall findings of the morphological characteristics and species of freshwater sponges collected in Minnesota.