

Fluid Imaging Technologies is currently developing a new version of the FlowCAM system that is optimized for larger particles (50µm to 5mm). One potential application of the MacroCAM is to process zooplankton samples. The MacroCam is an all in one system that combines the flow cell, computer hardware, and VisualSpreadsheet, a software that evaluates over 30 morphological measurements, and allows user interaction with captured images.

We assessed the application and efficacy of the MacroCam for zooplankton analyses. Initially, we addressed the development of a preliminary protocol using MacroCam to process preserved samples. Secondly, we compared the image quality and taxonomic resolution from the MacroCAM with another laboratory imaging system. We applied a balanced, nested-block Analysis of Variance design to MacroCam results of zooplankton samples from the northern Gulf of Mexico that were previously imaged, and analyzed, by the ZooScan-Zooprocess system. In addition, varying frame rates and pump speeds as controlling factors were used to evaluate the utility of the system for processing a range of samples varying in zooplankton abundance and species richness.

Our results indicated that the MacroCAM has good potential as a bench-top instrument for processing preserved samples. Both strengths and limitations will be highlighted along with recommendations for modifications and operations to obtain the best data from the system.