Optimization of ImageJ Cell Counting of *Ulva* spp. Zoospores

Delia Satriano[1], Kayla Kurtz[2] & Vinka Craver[3]

[1]College of Environment & Life Sciences, University of Rhode Island, Kingston, RI
[2]Chemical Engineering, University of Rhode Island, Kingston, RI
[3]Civil & Environmental Engineering, University of Rhode Island, Kingston, RI

Ulva spp. is a type of algae known for causing biofouling of marine sensors. One method of studying the ability to remove *Ulva* spp. spores from a surface is to count and compare their zoospores after being treated by a pressurized waterjet. On June 6th and 20th, 2022, *Ulva* spp. were collected from Mackeral Cove, Jamestown RI. They were combined with sterile seawater to stimulate the release of *Ulva* spores due to temperature shock. Next, the quadriflagellated zoospores were identified with a microscope. The slides underwent 20psi from the water jet in order to remove loosely adhered spores. For each sampling, 12 control samples and 12 water jet samples were imaged with 7 fields of view taken for each. An upper threshold of 144 and a lower threshold of 255 were applied, which highlighted the *Ulva* separate from other particles. Likewise, a 14.5-infinity pixel size was also set in order to properly count cells based on their size. When compared to manual counts, the mean percent error was 2.28% and the range was 0 to 4.96%.   There was a large reduction in the adhered cells after the water jet test. Both the cell count and area distribution on the slide saw a major decline.