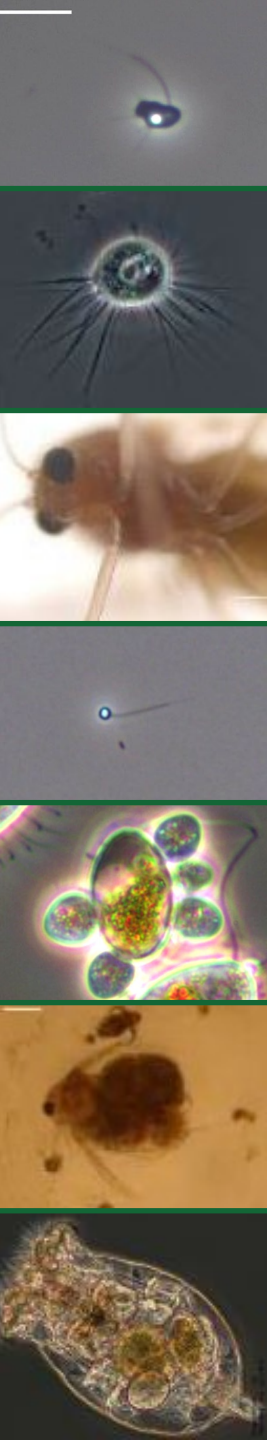# Barriers to Scale: Algae Crop Protection Workshop

Session 4: Current and Future Pest Monitoring Practices

Moderator: Daniel Fishman

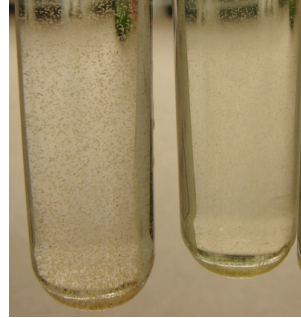*Rapporteur: Scott Edmundson*

Scales of pond monitoring

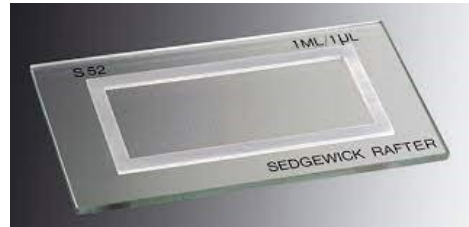**Pond appearance and characteristics e.g. smell, daily data trends**

Macroscopic Phenotype
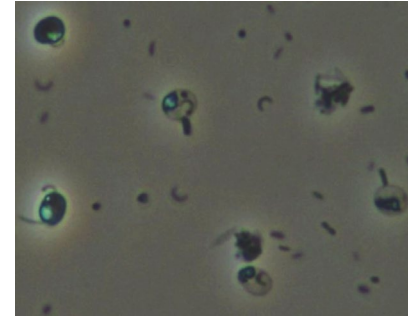Trends/Experience
General "Health"

Small sample observation

Presence / Absence
Larger pests e.g. rotifers
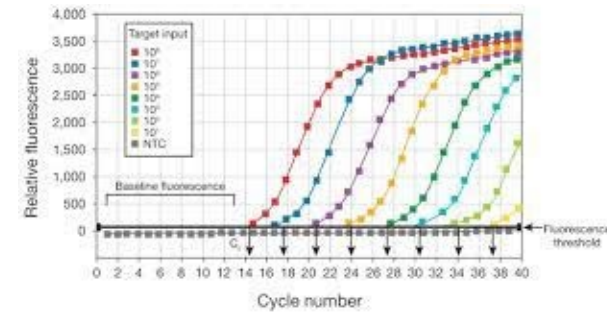Algal phenotpyes e.g. clumping

10-40x mag

Presence/Absence
Medium sized pests e.g.
Poterioochromonas
Algal phenotype

100-1000x mag

Presence/Absence
small sized pests e.g.
FD111, zoosporic fungi
Algal phenotype

Molecular

Quantitative Presence
Identification
Small rapidly infectious
pests e.g. zoosporic fungi

- Some of these approaches have been automated e.g. imaging cytometers
- Can more phenotypes be quantified in a cost-effective manner for a predictive crop protection tool?
- Does that replace or augment current methods?
- Are some techniques more suited for research vs production?
- Can tools be multi-functional?

Panelists

- Jerilyn Timlin
  - Sandia National Lab
- Natalie Cookson
  - CEO, Quantitative BioSciences, Inc. (QBI)
- Ryan Simkovsky
  - University of California San Diego