Results

*Pond characteristics*

The ponds we sampled ranged from 800 to 1600 m2 and were mesotrophic to slightly oligotrophic (shallow, lots of allochtonous matter). Overall DOC was relatively high, 29.2 mg C L-, and increased significantly through the study period (F = ,df = , p =, Table 1). Similarly, the AFDM of FPOM was high, 2.3 ug C/350 ml, and varied significantly between ponds (F = ,df = , p =, Table 1), but stayed relatively consistent throughout the season (F = ,df = , p =, Table 1). There was significant variation in DOC between ponds (F = ,df = , p =) from 2.3 mg C L-1 at Golf, to 40 mg C L-1 at Vulgaris. DOC was positively correlated with NH4 (r = 0.48, Supplemental Table) and moderately positively correlated with pH (r = 0.27, Supplemental Table), but did not covary with any other parameter we measured. Total phosphorus was 17.7 ug L-1, and varied significantly almost tenfold between ponds (F = ,df = , p =). Ammonium and nitrate/nitrate values were 38.5 ug L-1 and 30.8 ug L-respectively, and varied considerably between ponds, but less so than phosphorus.

*PLFA results: Biofilm*

Describe the composition of biofilm. Maybe the C:N ratio data too. And/or food quality experiment.

*Mosquito density*

Ponds varied significantly in the density of early instar larval mosquitoes (F = 8.65, df = 7, 196, p < 0.001) from about 4 larvae/liter (Ice) to about 55 larvae/liter (Vulgaris). As mosquitoes matured into third and fourth instars, the difference in abundance between ponds reduced from about 4 larvae/liter (Ice, East, Golf) to about 16 larvae/liter (Vulgaris), but still varied significantly between ponds (F = 8.32, df = 7, 147, p < 0.001). Ponds with higher initial abundances typically experienced higher per-capita-mortality. The abundance of late instar mosquito larvae was not a significant predictor of grazing pressure (F = 0.77, df = 1, 6, p = NS), however there as a notable positive trend. Additionally, biofilm productivity was not a significantly predictor of average wing length of emerging mosquitoes, however there was also a notable positive trend (F = 0.77, df = 1, 6, p = NS).

*Biofilm-meters*

Biofilm productivity, calculated as the difference between biofilm in the exclosure treatment, and the initial biomass after thirteen days within each block varied significantly between ponds (F = 4.68, df = 7, 14, p = 0.007). Vulgaris pond had the highest average productivity (35 µg C/ 350 cm2/ 20 days), while NoOil and Oil had negligible gains in biofilm production after the first thirteen days. Overall the exclosure treatment had about 1.5 µg C/ 350 cm2/ week more biomass than the no exclosure treatment (t = 2.7, df = 7, p = 0.016). There was no significant difference in grazing pressure (calculated as the difference between exclosure and no exclosure treatments per block) between ponds (F = 0.36, df = 7, 16, p = 0.910).

* Grazing pressure ~ Density/Population estimates for mosquitoes
* Biofilm production/productivity ~ Size of emerging mosquitoes
* Biofilm production/productivity ~ Per-capita mortality at pond level