Poster Board No. 102 - EFFECT OF LIGHT INTENSITY ON PRODUCTIVITY OF IRISH CONNERS AND ROYAL BURGUNDY BUSH BEANS IN AQUAPONIC CULTURE. Miranda E. Gessner, gessneme@mountunion.edu, (Charles Mcclaugherty, mcclauca@mountunion.edu), University of Mount Union, 1972 Clark Ave., Alliance OH 44601.

Aquaponic culture has potential for food production outside of the growing season or in regions where it is difficult to grow crops. Aquaponics provide a controlled environment for growing plants and fish without requiring pesticides and minimizing the potential for environmental and insect damage. A challenge facing aquaponic systems is providing adequate quantity and quality of light in an indoor environment. This experiment examined the impact of unequal amounts of sunlight exposure on bean plants in a greenhouse aquaponic system. The greenhouse had only south facing windows, creating a light intensity gradient across the grow beds. The system consisted of 3 separate 150-gallon grow beds (filled with expanded clay pellets) connected to a 250-gallon fish tank containing goldfish and cichlids, a filter, and a 200-gallon sump. Photosynthetic performance was assessed using a LI-COR® Photosynthesis System by measuring gas exchange in leaves receiving light intensities ranging from 0 to 2000 µmol m^{-2} s^{-2}. Light response curves constructed using this data showed maximum CO_2 assimilation rates (A_{max}) differed notably between plants receiving different intensities of light. Leaves exposed to more sunlight had A_{max} consistently above 20 µmol m^{-2} s^{-2} whereas leaves on the side of the grow bed exposed to less sunlight had A_{max} between 15 and 18 µmol m^{-2} s^{-2}. Generally, out of about 75 plants, the bean plants exposed to lower light intensities were smaller, had lower fruit production, and had lighter colored leaves in comparison to plants receiving more sunlight, demonstrating the importance of the light environment on plant productivity in aquaponic systems.

Poster Board No. 103 - DEPTH DISTRIBUTION OF PHYTOPLANKTON IN WESTERN LAKE ERIE: CORRELATIONS BETWEEN BUOY AND FLUOROPROBE-DERIVED DATA. Alex J. Johnson[1,2], a.j.johnson32@vikes.csuohio.edu, Douglas D. Kane[2,3], dkane@defiance.edu, Justin D. Chaffin[2], chaffin.46@osu.edu, [1]Cleveland State University, 2121 Euclid Ave., Cleveland OH 44115, [2]The Ohio State University, Franz Theodore Stone Laboratory, [3]Defiance College.

Cyanobacterial harmful algal blooms (cHABs) are a recurring problem in Lake Erie as it is shallow, warming, and prone to nutrient runoff. Since the Toledo "do-not-drink" advisory in 2014, data buoys have been deployed to monitor water-quality parameters in real time to warn against future toxic blooms. Data buoys are located 0.7 meters below the surface while water-intakes draw water at lower depths. For this research, water was sampled at meter intervals, from 0 to 5 meters, next to 3 buoys located in western Lake Erie. A FluoroProbe was used to determine the distribution of cyanobacteria throughout the water column. The purpose of this research was to evaluate any correlations between buoy-derived data and FluoroProbe-derived data to see if buoys were accurately measuring cyanobacteria and potentially serving as an early warning system for cHABs. Based on the results of linear regressions, the buoy data and FluoroProbe were highly correlated for total chlorophyll *a* (chla) ($P<0.001$, $R^2=0.997$) and cyanobacteria-chla ($P<0.01$, $R^2=0.647$) for the water column average and specifically at 1 meter depth (chla: $P<0.001$, $R^2=0.9927$; cyanobacteria-chla: $P<0.01$, $R^2=0.673$). In previous buoy studies, buoys had a more significant correlation with cyanobacteria-chla than chlorophyll *a*. Overall, there does not seem to be great differences between buoy data and FluoroProbe derived data. Based on the distribution of cyanobacteria in the water column relative to buoy depth, data buoys can accurately measure, and be used for, cHAB and associated predictions.

Poster Board No. 104 - COMPARISON OF SOIL PROPERTIES BETWEEN A MANAGED POWERLINE RIGHT-OF-WAY AND AN ADJACENT MATURE FOREST. Darren J. Krolikowski, krolikdj@mountunion.edu, Charles A. McClaugherty, mcclauca@mountunion.edu, University of Mount Union, Dept. of Biology, 1972 Clark Ave., Alliance OH 44601.

Powerlines and other utility right-of-ways (ROW) pass through a variety of ecosystems. Management of these ROWs often involves suppression of woody vegetation by repetitive physical removal and herbicides. Recent research is examining ways to manage these areas in ways that promote plant and wildlife diversity while minimizing chemical use and labor costs. One key to the management of these areas is an understanding of how soil properties of the managed areas have been modified. This study compared soil properties along a topographically diverse ROW with soils in a parallel transect in an adjacent mature hardwood forest at the Huston-Brumbaugh Nature Center in Stark County, Ohio. Soil characteristics examined were texture, pH, moisture, and organic matter. Four samples of the A-horizon were taken from each of the 5 plots along the 2 parallel transects for a total of 40 samples. Nine out of the 20 power line plots had a higher pH value compared with undisturbed land. Data showed that the ROW plots had an average of 5.3, while forest plots average 4.7. Soil moisture showed no statistically significant differences between managed and forested sites, but was higher on both transects at the lowest elevation plot. These 8 plots showed an average 10% difference. Soil organic matter was consistently higher in the forested plots with a 7% average. Organic matter in the soil may be a result of greater litter inputs within the forested area. Despite the ROW plots having a lower organic matter content, the other parameters proved to be lower than expected. Due to these findings, slope and aspect have little effect on the vegetation of the ROW plots.

Poster Board No. 105 - ECOLOGICAL IMPLICATIONS OF EMERALD ASH BORER DAMAGE AT THE JOHN HUSTON NATURE CENTER. Jacob A. Stallman, stallmja@mountunion.edu, (Charles A. McClaughty, mcclsuca@mountunion.edu), University of Mount Union, Dept. of Biology, 1972 Clark Ave., Alliance OH 44601.

The emerald ash borer (EAB) (*Agrilus planipennis* Fairmaire) is affecting the American ash tree in most of the mid-western states. The effects of EAB are apparent in southeast Stark County, Ohio. This project examines the implication of EAB damage on forest success which has management implications. During the fall of 2017, all 240 ash (*Fraxinus americana* L) trees were dead or dying in a 2.16-hectare plot in the northwest quadrant of the nature center; they were tagged, surveyed and mapped using GPS. The percentage canopy cover was measured using a spherical densitometer at 20 points along transects through the plot. All the trees that were tagged were infested with the emerald ash borer. The only healthy trees were 5 saplings. The mean diameter at breast height (DBH) of infected trees was 31.3 cm and DBH values ranged from 10.9 to 71.4 cm. The percentage of canopy cover ranged from 51% to 80%. The mean canopy cover in adjacent intact plots was 80%. Multiflora rose (*Rosa multiflora*) was present in 63% of this area and was more common in the areas beneath the affected trees. The nearly simultaneous death of these ash trees has caused the succession of the forest to be disrupted. The most common saplings entering the voids caused by the diseased ash trees are sugar maple (*Acer saccharum* Marshall) and Tuliptree (*Liriodendrin tulipifera* L.). Management of the area should focus on favoring these species, because these species are native in this area and will help the succession of the forest.