

**Essex North Shore Agricultural & Technical School**

**Environmental Technology Program**

**Fall Advisory Meeting**

**18 October 2018**

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6:40: Introductions and Attendance

- Ellen Keane
- Lynn Fletcher
- Joe Buttner
- Sophia and Lucia Ponte
- Curtis Dragon
- Mike Armstrong
- Marc Mahan
- Jason McCarthy
- Brad Perron
- Anthony Wilbur
- Laura Gallant

\*Advisory board members also checked and corrected contact information (see attached for changes/edits)

Discussion about change in teachers:

-Adam teaching biology this year. Adam will teach this year seniors Hazardous Waste Clean-up. Advisors were happy that Adam was able to teach seniors.

-Anne retired, Laura full time in ET

-Down one teacher from last year and no paraprofessional is really available

The advisory board and Env Tech staff discussed changes in teachers and some of the challenges with fewer teachers in the Env Tech program. Discussion focused on field work challenges (e.g., yellow bus required for larger classes sometimes can't fit into different areas & less teacher-to-student contact during field work), class work and lab activities challenges (e.g., teacher-to-teacher instruction and support), and shop management challenges (e.g., time for purchase orders, budget management, planning field work, etc.).

Review of minutes from last year - focus on equipment needs & requests:

-Env Tech received three new pH meters (through a grant from the Essex Tech Parent Organization) but didn't get the big ticket items, such as remotely operated vehicle or microscopes.

-Mike Armstrong will help Tony figure out if old YSI units work and are/or are repairable.

-Photospectrometer—do we have them? Laura thinks so, but not sure in working order. Jason might be able to get one from his office and also teach the teachers how to use it.

-Drone—we shouldn't be flying one for educational purposes without a drone license. We are in Beverly airspace. Professional license to fly it is complicated. One test good for 2 years, 100 questions. Would be good for teachers to get licensed and then maybe the students could get licensed. Airspace Waver takes longer than license. Jason McCarthy is willing to demo the use of drones for environmental science on campus.

-Underwater camera: Then we could explore underwater areas

-Soil food web update. Curtis Dragon brought it up last year. Not sure if it's a special microscope, might be a special slide grid, which could be even easier to incorporate into the classroom. Quick and detailed way to count the soil microorganisms.

#### Open up floor to other equipment we could add to the industry wish list?

-More / new compound light microscope

-Remotely operated vehicle / autonomous underwater vehicle

#### Review of courses offered to Env Tech Students

##### **-Freshmen:**

##### Intro to Environmental Science

\*units on wildlife biology, mapping tech, marine biology, geology (co-taught with Adam, Laura, and Tony last year)

##### **-Sophomores:**

##### Fisheries and Aquaculture (biological and technological approach) - Tony

\*Potential trips / field work: The Northeast Aquaculture Conference (in Boston) / coordinate with Kevin Madley (NOAA) on potential projects / MA DMF Annisquam Lab

\*Ellen Keane (NOAA) - NOAA is focusing more on aquaculture now.

\*Other meetings to consider Southern New England Chapter American Fisheries Society, also New England Estuarine Research Society. Both good professional conference to have students attend. They could even present and perhaps receive a travel award.

\*AFS has Hutton program, high school internship program (<https://hutton.fisheries.org/>).

\*Long Hill (Trustees property) can serve as field trip site for aquaculture (aquaponic system) & forest ecology (variety of trees / shrubs on property)

Forest Ecology (Laura)

**-Junior year:**

Marine Ecology (Tony)

\*Organized multi-day / overnight trip to University of Maine's Darling Marine Center last spring. UMaine was excited to host us, and we are returning this May (2019).

Environmental Impacts and Analysis (Laura)

**-Senior year:**

Wetlands and Wastewater (Tony)

\*hopeful that students will study and sit for Grade 2 WW operators licence. Cost was a limiting factor last year; students did not want to spend \$75-70 for the exam. Discussion on how to fund the exam fee, including incorporating the fee into Env Tech budget.

\*Wetland Delineation: delineation is a marketable skill with consulting companies (Mike Armstrong suggested including delineation in curriculum). We do have gradients on campus where we can show the transition from upland to wetland. Teachers will look into this.

\*Brad Perron & Jason McCarthy offered tours to senior class to observe and describe operations at drinking water and wastewater plants.

Hazmat (being taught by Stackhouse)

Senior Research (Tony & Laura)

- went really well last year, symposium went smoothly (only the second year of this).

What are some examples of senior research? Testing the effects of caffeine on the behavior of fish, coast sweeps quantified marine debris, crab studies in Salem Sound, closed system terrarium, 3D printed small scale aquaponics

## Other Course Topics Discussed

### GIS Discussion:

- Ann used to teach water tech and a lot more GIS, but Tony and Laura have integrated these into courses. Through time, Tony and Laura are adding more GIS skills into class work (but there is certainly a loss of GIS instruction with Ann's retirement).
- Do we use MassGIS? We get our own data sometimes and also use MassGIS (e.g., use MassGIS to download statewide wetland data).
- Mike Kastonotis (Weston & Sampson) may be available to help / facilitate GIS projects for students.
- Mark Mahan: conferences on climate resiliency USGS data. Katie Kahl UMass extension in Lanesville, Gloucester
- Laura trying to get NEON data info and partnership going.

### Sustainability:

- more focus on decreasing carbon. People can become carbon neutral coach, interesting career to have students explore. Carbon neutral buildings etc...
- sustainable agriculture maybe could work with Trustees on farming practices. They have a big 5 year plan there for soil science.

### New trends in jobs, employment etc:

- Waste water and drinking water still needs new operators, more than 50% are at retirement ages.
- Tours of facilities etc, how can we add more into the curriculum (Brad and other wastewater operators).
- Solar farm by the airport (might be able to have the board check on that for contacts).
- Aquaponics long hill reservation Buttman knows about it.
- Can we bring students to the advisors sites, and just set up field trips that way. Students could also be introduced to the potential field opportunities of internships etc. Sort of like job recruiting.
- Limiting factor on site visits is the time, and not having enough time to visit everywhere.
- Discussions about different sites to visit and how to maximize times there. Including having scientists coming to lunch.

Student Perspectives:

-Question to Sophia about how this year is going with two teachers. GIS isn't happening as much. They used to be in the computer a lab a lot as sophomores.

-GIS: could maybe do project with the trustees their GIS analyst was employee of the year (Forest Ecology / Marine Ecology).

-Joe Buttner brought up relating more to students and bringing younger alumni back to gather interest: Value in bringing in alumni who are just 2 -7 years out of college or tech school, give a contemporary perspective on jobs, adds realism. He takes responsibility to keep up with alumni himself. Thomas Lopez and Kalie Silba (graduated from Essex Tech) and would be good alumni from here to come speak to students. Frankie Olson working with zebrafish culture. Tony / Laura will follow-up with Dr. Buttner on contact information.

8:09: adjourn