

ANNUAL REPORT: June 1, 2016 – May 31, 2017
(i.e., Summer 2016, AY 2016-2017)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Kimberly L. Schulz

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

	Course No.	Title	Credit Hrs.	No. Students	No. of Lab. Sections
SUMMER:	EFB 202	Ecological Monitoring and Biodiversity Assessment Project week and presentations (6 days)		3	76 N/A

FALL:

EFB 424	Limnology: Study Inland Waters (UG)	3	50	N/A
EFB 624	Limnology: Study Inland Waters (Grad)	3	11	N/A
EFB 525	Limnology Practicum	2	20	1

Individual instruction and mentoring:

EFB 420	Prof Internship/Env Biology	3	1	
EFB 495	Undergrad Exp/Coll Teach	1/2	3	N/A

SPRING:

EFB 496	Undergraduate Seminar in Marine Ecology	1	11	N/A
EFB/FOR 797	Managing and Archiving Research Data (co-taught with John Stella)	1	8	1

Individual instruction and mentoring:

EFB 420	Prof Internship/Env Biology	3	1	
EFB 498	Independent Research/Env&For Bio	1	1	N/A

NOTE: PLEASE INDICATE WHICH COURSE(S) HAD A SERVICE-LEARNING COMPONENT AND BRIEFLY EXPLAIN THE NATURE OF THIS COMPONENT. For examples of service-learning in courses, see: <http://www.esf.edu/students/service/courses.htm>. Service-learning is a form of structured experiential education in which students engage with the community to be active learners, to enrich their sense of civic responsibility, and to explore practical application for course content. Faculty oversight, reflective thinking, and reciprocity are key components of service-learning.

For the seventh consecutive year, EFB 525, Limnology Practicum, had a significant service learning component. Students could choose to work with two allied local lake associations (Song Lake Association and COFOKLA – Cortland Onondaga Federation of Kettle Lake Associations) to develop their independent projects on topics that were both scientifically relevant and of interest to the homeowners. About half of student time in the course was devoted to developing and performing these independent projects, in co-operation with homeowners (when applicable) or sometimes with managers and practitioners in other areas.

The independent projects culminated in a scientific poster session and reception in 12 Illick Hall during finals week (16 December 2016) that was open to the public and attended by other undergraduate and graduate

students not in the Practicum, faculty, members of the Song Lake Association and COFOKLA, as well as the general community. The projects continue to expand a database of water quality and species presence data that will be useful to the homeowners in lake management decisions.

Three of the poster projects were used as final capstone projects in Environmental Science or Environmental Studies, another one was presented by students at the New York meeting of the American Fisheries Society; two students from 2015's class (one graduate student and one undergraduate) are following up on their project with me this summer to do additional research and writing to produce a paper for publication (planned submission to *Limnology and Oceanography Methods* in Fall 2017).

John Stella and I also included a service learning project in our Managing and Archiving Research Data class. With the help of Heidi Webb, the students performed a collaborative project designing a database of teaching spaces at ESF and their capabilities that should be able to assist ESF, the Physical Plant Personnel and the Capital Planning Committee with identifying priority spaces for renovation and quickly assessing the current capacities, attributes and conditions of ESF teaching spaces. Stella, Schulz and Webb will provide this database to the Capital Planning Committee and the relevant Physical Plant personnel in early fall 2017 (or the next meeting if sooner).

I also volunteered to assist Ann Moore (Environmental Science) with the "Team Owasco" seminar in which students are developing capstone projects related to the issues of lake management and harmful algal blooms on Owasco Lake. These projects will continue over the next year.

2. Non-Scheduled Course Offerings (e.g., 496, 899, 999)

	Course No.	Title	Credit Hrs.	No. Students
FALL:	EFB 498	Independent Research/Env&For Bio	1	2
	EFB 899	Masters Thesis Research	2	2
	EFB 999	Doctoral Thesis Research	2	2
SPRING:	EFB 498	Independent research in EFB	1	1
	EFB 899	Masters Thesis Research	2	2
	EFB 999	Doctoral Thesis Research	2	2

3. Continuing Education and Extension (short courses, workshops, etc.)

- ESF Graduate Colloquium – "Facing the Challenge: Where the Rubber Meets the Road, 25 August 2016 panel participant
- Cortland County Field Days – 22 and 23 September – Elementary school outreach program with Cortland Onondaga Federation of Lake Associations; helped design, implement and present an educational program related to aquatic invasive species to elementary school students in Cortland County

4. Guest Lecture Activities

Course No.	Title	No. of Lectures	
CIE 457/657	Biogeochemistry (Stoichiometry)	1	(2 Nov 2016)
EFB 211	Diversity of Life (3 Protists and 3 Invertebrates)	6	(Spring 2017)
EFB 492	Senior Synthesis in Aquatic & Fisheries Sci.	2 (panels)	(Spring 2017)
EFB 797	EFB Core Course – Data Management	1	(21 Mar 2017)
ENS 496	Owasco Lake Seminar – Team Owasco	6 (group)	(Spring 2017)

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 24 (in academic year) and unofficial advisor 4

B. Graduate Students: (list name, degree sought, starting date, month & year; if a degree was completed, please give date and full citation for the thesis or dissertation).

MAJOR PROFESSOR

1. Andrew Brainard, Ph.D. candidate, January 2010-current
2. Alex Looi, M.S., August 2012-current
3. James Arrigoni (Ph.D., EFB Conservation Biology; joined my lab in 2016)

CO-MAJOR PROFESSOR

1. Ceili Bachman, M.S. August 2011-present (co-major professor, M. Mitchell)

MEMBER, STEERING COMMITTEE (other than those listed above)

1. Ericka Augustyn (M.S. EFB, John Farrell major professor)
2. Xiaoxia Chen (Ph.D., Syracuse University Civil Engineering, Charlie Driscoll, major professor); defended 17 October 2016.
3. Michael Connerton (Ph.D., EFB Fish & Wildlife Biology and Mgt; Neil Ringler, major professor); on leave/inactive
4. Eric Diefenbacher (Ph.D., EFB Conservation Biology, James Gibbs, major professor)
5. Alison Halpern (Ph.D., EFB Ecology; John Farrell and Don Leopold, co-major professors); defended 20 April 2016; finished summer 2016.
6. Joie Matillano (Ph.D., EFB Fish & Wildlife Biology and Mgt; Don Stewart, major professor)
7. Margaret Pavlac (Ph.D.; FCH Environmental Chemistry; Greg Boyer, major professor)
8. Katherine Perri (Ph.D.; FCH Environmental Chemistry; Greg Boyer, major professor)
9. Jeremy Sullivan (M.S., Biochemistry; Greg Boyer, major professor)
10. Samantha Weber (M.S., Environmental Chemistry, Greg Boyer, major professor)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

- Chairman: Hanchi Chen, Paper Science (Shijie Liu, major professor); Chair for candidacy exam (exam summer 2016).
- Chairman: Vanessa Gravenstine, M.S., Environmental Studies, 9 November 2016

- External examiner for Undergraduate Honor's Dissertation at Hobart William Smith College, 26 April 2017

III. RESEARCH COMPLETED OR UNDERWAY

A. Departmental Research (unsupported, boot-legged; title - % time spent)

- Worked with Matt Cowen and Jessica Vacarre to run lab simulations and complete lake bathymetry methods manuscript. 1% of time; unsupported; will be completed summer/fall 2017
- Several undergraduate projects – Joshua Crane, Dan Mattinson, Alex Romer
- Urban pond research as a follow up to a graduate seminar and a Limnology Practicum project. Being pursued with Steve Balough and Andrew Brainard. 2% of time; unsupported.

B. 1. Grant-supported Research (source, subject, amount - total award and current year, award period starting and ending dates; list graduate research assistants supported by each grant)

- *Source:* Great Lakes Research Consortium
Title: Analysis of a Large Multi-Lake Dataset to Advance Understanding and Management of Harmful Algal Blooms in New York State Lakes
coPIs: Matthews, D.A., Schulz, K.L., S.A. Kishbaugh, and N.J. Mueller
Amount: \$14,838 (\$5,000 to KLS)
Dates: 3/31/2016-3/31/2017; extended to 3/31/2018
No graduate students supported on this grant
- *Source:* Owasco Lake Enhanced Watershed Restoration Action Plan (DEC, Cayuga Community College)
Title: Development of Monitoring Buoys to Provide Real-Time Surveillance of Harmful Algal Blooms in Owasco Lake (Schulz subcomponent: Food web monitoring program)
coPIs: Schulz, K.L. and Upstate Freshwater Institute
Amount: \$22,000 to KLS, \$47,320 to UFI
Dates: summer 2016-summer 2018 (final dates awaiting various DEC, permitting and QAPP approvals at several levels); money arrives on campus summer 2017 due to delays in contracting from OWLA to UFI
Student summer salary and an undergraduate intern will be supported on this grant.
- *Source:* New York State Aquatic Invasive Species Spread Prevention Program
coPIs: C-OFOKLA (Cortland-Onondaga Federation of Kettle Lake Associations), Cortland County Soil and Water Conservation District (CCSWCD) and SUNY-ESF (subcontractor)
Amount: \$99,039.40 to CCSWC, with subcontracts to COFOKLA and SUNY ESF
Dates: May 2016-April 2019
ESF undergraduate interns are supported on this grant through Cortland Soil and Water

2. Research Proposals pending (include information as in B.1., above).

- *Source:* New York Department of Environmental Conservation, Invasive Species Rapid Response and Control Grant
Title: Otisco Lake Invasive Species Rapid Response and Control
PI: Otisco Lake Preservation Association
ESF (Schulz) subcontract: \$17,579
 Partial summer graduate student stipend and undergraduate intern
- *Source:* Syracuse Center of Excellence

Title: River Restoration as a Control on Urban-Contaminant Pathways: Assessing the Effectiveness of Riparian Floodplains to Attenuate Contaminant Loads in Urban Stream Networks

PI: John Stella

Co-PIs: L. Lautz (SU), P. Vidon, K. Schulz, and C. Kelleher (SU)

Amount: \$17,029 (\$4,916 to ESF; \$12,113 to SU)

3. Research Proposals submitted, but rejected (include information as in B.1, above)

- *Source:* Environmental Protection Agency
Title: Expansion of Great Lakes Invertebrate Barcode Libraries
PI: Hyatt Green,
Co-PIs: Neil Ringler, A.J. Smith (NY State Museum), Rebecca Rundell, K.L. Schulz
Amount: \$396,495

IV. PUBLICATIONS (Full bibliographic citation, i.e., do not use "with Jones," or "Jones, et al."; please list only publications published, in press, or actually submitted during this reporting period --- **do not list manuscripts in preparation**).

A. Refereed Publications

- Brainard, A.S. and **K.L. Schulz**. 2017. Impacts of the cryptic macroalgal invader, *Nitellopsis obtuse*, on macrophyte communities. *Freshwater Science* 36(1): 55-62. DOI: 10.1086/689676.

B. Non-refereed Publications

- None this year

C. Papers Presented at Science Meetings (give title, date, occasion, and location)

- None this year

D. Public Service Presentations (lectures, seminars, etc. to and for the public; give group or occasion, date(s), and attendance)

- Cortland County Field Days – 22 and 23 September – Elementary school outreach program with Cortland Onondaga Federation of Lake Associations; helped design, implement and present an educational program related to aquatic invasive species to elementary school students in Cortland County; served several hundred students and their teachers.

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

1. Government Agencies (Federal, State, Local):

None

2. Industrial and Commercial Groups, etc.

- Assisted C-OFOKLA on educational outreach for invasive species grant

B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

- Upstate Freshwater Institute Board Member October 2011-current
- Onondaga County Water Protection Scientific Advisory Board 2012-current

- Assisted Otisco Lake Association with grant proposal preparation for control of invasive species

VI. PROFESSIONAL DEVELOPMENT

A. Professional Honors and Awards (for teaching, research, outreach, etc.)

- None

B. 1. Activities in Professional Organizations (offices held, service as chairman, member, participant or consultant)

- None this year

2. Professional Society Membership

American Association for the Advancement of Science

American Institute of Biological Sciences

Association for the Sciences of Limnology and Oceanography

American Association of University Professors

Ecological Society of America

International Association for Great Lakes Research

International Association of Theoretical and Applied Limnology (SIL)

North American Lake Management Society

Phycological Society of America

Sigma Xi

Society for Freshwater Scientists

Xerces Society

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

None in this period

Other (books, symposia, etc.)

None in this period

b. Reviewer

Journal(s)

No. of manuscripts

Limnology and Oceanography

1

Agency

No. of proposals

None this year (invited to panel but had to decline due to time conflict)

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
• Finger Lakes Water Quality Multiagency and Stakeholder Meeting	27 February	Samson State Park, Romulus, NY

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

- HABs and Drinking Water Webinar (7 July 2016)
-

D. Foreign Travel (Where, When, Purpose)

None this year

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

- Ecotoxicologist Search Committee member
- EFB Course and Curriculum Assessment Committee Chair
- Faculty mentor for Greg McGee, Beth Folta
- Occasional participant on GPAC

B. College-level

- Vice President of Research committee member
- Capital Planning Committee Member
- Nautilus Club Advisor
- Environmental Science advisor and Curriculum Group Participant in Division of Environmental Science area of Watershed Science
- EFB representative to the Water Resources Minor
- Faculty advisor to the Nautilus Club (student marine science club)
- Marine Science Minor coordinator
- Member of AEC advisory board
- Roosevelt Wild Life Station Scientist-in-Residence: Roosevelt Aquatic Ecologist
- Coordinating effort to develop CIRTAS – Center for Integrated Research and Teaching in Aquatic Science, to find funding to develop a collaborative aquatic science experimental facility for teaching and research at ESF, and participating in efforts to further organize aquatics group in EFB

C. University-wide, including Research Foundation

- None this year

VIII. SUMMARY OF SIGNIFICANT ACTIVITIES AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD, ESPECIALLY THOSE MOST NOTEWORTHY AND RELATIVE TO THE COLLEGE'S AND DEPARTMENT'S MISSION.

One paragraph on each of the following (i.e., three paragraphs total) would be most helpful: this past year, what have you done for our students, department/college, and self professionally? NOTE: The information in this section (along with the supporting specific information elsewhere in this report) should be your strongest case for being considered for a discretionary raise (when available), which I'll continue to award based on your contributions to the

department and college this reporting period.

Teaching: This year I overhauled my 6 guest lectures in Diversity of Life and believe the changes were well-received. I continued to develop video and other demonstration exercises for the Limnology class, and developed several new activities for the Limnology Practicum. We continued and expanded our partnership with a local lake association to provide opportunities for interested students to develop their independent projects on questions of interest to the homeowners. John Stella and I overhauled the graduate level Managing and Archiving Research Data course after Jess Clemon's departure. I also worked with Ann Moore and others in Environmental Science to help undergraduates develop capstone projects around Owasco Lake and worked with agency personnel to help make these experiences relevant and sustainable in the future.

Department/college:

I worked with Greg McGee to continue assessment efforts as head of the CCAC, co-ordinated the large Marine Science Minor and represented EFB in the Water resources minor. I also served on the Ecotoxicology search committee, and participated in several of the GPAC (Graduate Committee) discussions. At the college level I participated on the Capital Planning Board and the search committee to hire the new Vice President of Research. I have nearly completed the outstanding to do list for remaining CIRTAS issues.

Self

In the second year my own lab was available for use after the flooding and roof project, I again submitted a number of small grants for work on invasive species, harmful algal blooms, climate change and other issues, with several local grants funded successfully and more submitted. My current graduate students are nearing completion and we are submitting manuscripts from their dissertations, one of which (first authored by Brainard) was published earlier this year and is already receiving a number of citations. It is rewarding to see their projects coming to completion so successfully. I worked on establishing some new longer-term collaborations that I will be following up in the coming year.

IX. A. FUTURE PLANS, AMBITIONS, AND POTENTIAL CONTRIBUTIONS FOR YOUR OWN PROFESSIONAL DEVELOPMENT AND THE ENHANCEMENT OF THE PROGRAM IN ENVIRONMENTAL AND FOREST BIOLOGY (brief summary)

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2017

a. Course(s) to be offered

- EFB 202 – project week advisor for Session D at Cranberry Lake
- I am completely revising the course packs and lab manuals for Limnology, Limnology Practicum and Marine Ecology over the summer

b. Proposed research activity

- Work on Owasco Lake Harmful Algal Bloom project and Otisco Lake invasive plant project
- Complete manuscript on GLRC funded project analyzing CSLAP data

- Work with two former undergraduates to complete submission of their honor's theses for publication (in final stages)
- Rebuild the EFB culture collection of aquatic organisms
- Work with 4 graduate students who will be defending this summer/fall on completion of manuscripts and dissertations
- Complete several other manuscripts in progress
- Develop at least one pre-proposal or proposal (likely pre-proposal for submission to NSF in fall)
- Finish lab reorganization
- Submit CIRTAS paperwork formally
- Revise lab website
- Post CIRTAS or shared aquatics website
- Work on sabbatical plan
- Finalize promotion packet

c. University, professional society, and public service

- work on EFB assessment report
- complete CIRTAS formalization and paperwork; work to establish formal re-billing system and web presence
- Provide database to COFOKLA
- Continue work with COFOKLA on public education related to their DEC grant and work with Otisco Lake Association on their upcoming invasive plant project

2. Fall Semester 2017

a. Course(s) to be offered

- Limnology (undergraduate) – EFB 424
- Limnology (graduate) – EFB 624
- Limnology Practicum – EFB 525

b. Proposed research activity

- Continue research underway
- Submit promotion packet
- Submit pre-proposal

c. University, Professional society, and public service

- Capital Planning Committee member
- EFB Course and Curriculum Assessment Committee Chair; help co-ordinate SUNY Assessment of EFB
- EFB representative to the Water Resources Minor
- Faculty advisor to the Nautilus Club (student marine science club)
- Marine Science Minor coordinator
- Environmental Science advisor and Curriculum Group Participant in Division of Environmental Science area of Watershed Science
- Member of AEC advisory board
- Roosevelt Wild Life Station Scientist-in-Residence: Roosevelt Aquatic Ecologist
- Formally open Center for Integrated Research and Teaching in Aquatic Science
- Upstate Freshwater Institute Board Member

•Onondaga County Water Protection Scientific Advisory Board

3. Spring Semester 2018

a. Course(s) to be offered

Marine Ecology (UG) -- EFB 423

Marine Ecology (Grad) – EFB 623

Likely Diversity of Life Guest Lectures, but time may conflict

b. Proposed research activity

-continuing and new projects

c. University, professional society, and public service

-see fall