

**ANNUAL REPORT: June 1, 2012 – May 31, 2013**  
**(i.e., Summer 2012, AY 2012-2013)**  
**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:	none				
FALL:	EFB 298	Research Internship/Envirn Biology	2 total	2	
	EFB 424	Limnology: Study of Inland Waters	3	64	
	EFB 498	Independent Research/Envirn Biology	3	1	
	EFB 524	Limnology Practicum	2	20	1
	EFB 624	Limnology: Study of Inland Waters (grad)	3	5	
SPRING:	EFB 298	Research Internship/Envirn Biology	6 total	2	
	EFB 498	Independent Research/Envirn Biology	5 total	2	
	EFB 797	Aquatic Ecology Seminar	1	6	
	ENS 498	Research Problems in Envirn Science	8 total	2	
	ESF 499	Honors Thesis/Project	6 total	2	

**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.

EFB 524, Limnology Practicum, had a significant service learning component for the third time this year. Students worked 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. This culminated in a scientific poster session and reception in 12 Illick Hall during finals week that was open to the public and attended by over 50 individuals including other undergraduate and graduate students not in the Practicum, faculty, and members of the Song Lake Association and COFOKLA, as well as the 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. Among other projects, the students looked at potential reproduction of introduced grass carp in Song Lake, microsite diversity

of organisms in Song Lake, and salt tolerance of organisms in one of the other kettle lakes that is potentially exposed to large amounts of road salt runoff in winter and spring. One group also followed up on previous work the past two years related to potential presence of an endangered fish, the lake chubsucker, which has not been seen in NY for 60 years in Song Lake (my lab is following up on these discoveries along with Donald Stewart and Christopher Whipps' groups following funding from the GLRC that will support genetic analyses in summer 2013). After the ESF poster presentation, the students were invited to present their posters at a COFOLKLA meeting on April 22, 2013 (after the fall term limnology class and during a busy time in the spring term), and students from every group brought the class posters to this meeting and met with the public and regional lake association members. Even a student who graduated in December 2012 and was about to start a job as working in the Caribbean as a dive assistant and marine ecology educator the following week came with his poster. This service learning component seemed highly beneficial for both students and the public, and I hope to continue similar efforts in the future with this class.

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

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>
SUMMER 2012				
	EFB 899	Masters Thesis Research	1	1
FALL 2012				
	EFB 420	Prof Internship/Envirn Biology	9 total	3
	EFB 899	Masters Thesis Research	10 total	3
	EFB 999	Doctoral Thesis Research	7 total	3
SPRING				
	EFB 420	Prof Internship/Envirn Biology	4	1
	EFB 495	Undergrad Exp/Coll Teach	1	1
	EFB 496	Advanced Topics in Marine Ecology	1	14
	EFB 899	Masters Thesis Research	10 total	4
	EFB 999	Doctoral Thesis Research	8	1

Note: Did 7 lectures in Diversity of Life; listed under guest lectures; this is almost 1/3 of that course

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

ESF Graduate Colloquium – Laboratory and field trips workshop, co-taught with Art Stipanovich

4. Guest Lecture Activities

	<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
FALL			
	EFB 415	Ecological Biogeochemistry	1
	EFB 797	Grant Proposals/Fish & Wildlife	1

	ESC 132	Environmental Science Seminar	1
SPRING	EFB 202	Diversity of Life	7
	EFB 496	Senior Synthesis in Aquatic and Fisheries Science	2
	EFB 797	Cross-disciplinary Seminar in Hydrological and Biogeochemical Processes	1

## II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 27 (this time period: EFB and Environmental Science) and unofficial advisor 8

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., January 2010-current; Ph.D. candidate
2. Stephanie Figary, Dual degree candidate M.S./MPA Maxwell, August 2009-current (M.S. defense date set for 15 July 2013)
3. Jacob Gillette, Ph.D., January 2006-current; Ph.D. candidate
4. Cheryl Whritenour, Ph.D., June 2010-current
5. K. Chad Walz, M.P.S., January 2012-current (anticipated August 2013 graduation)
6. Alex Looi, M.S., August 2012-current

### CO-MAJOR PROFESSOR

1. Daniele Baker, M.S., August 2008-present (co-major professor, M. Mitchell)
2. Ceili Bachman, M.S. August 2011-present (co-major professor, M. Mitchell)

### MEMBER, STEERING COMMITTEE (other than those listed above)

1. James Arrigoni (James Gibbs, major professor)
2. Nate Barlet (Stuart Diemont, major professor)
3. Caresse Fernandez (Mark Teece, major professor); defended successfully 12 September 2012
4. Matt Gunderson (Kevin Kapuscinski, major professor)
5. Alison Halpern (John Farrell and Don Leopold, co-major professors); on leave/inactive
6. Chris Holmes (Carla Cáceres, University of Illinois, major professor); M.S. student at U. Illinois
7. Matthew Isles (Sharon Moran, Environmental Studies, major professor)
8. Stefan Karkuff (John Stella, major professor)
9. Phil-Goo Kang (Myron Mitchell, major professor); resigned from committee fall 2012
10. Stefanie Kring (Michael Twiss, Clarkson University, major professor); Ph.D. student at Clarkson University

11. Suman Maity (M. Sepulveda, Purdue University, major professor); Ph.D. student at Purdue University – serving as external committee member; passed candidacy exam fall 2010.
12. Joie Matillano (Don Stewart, major professor); defended M.S. successfully August 2011; now serve on his Ph.D. committee
13. Marci Savage (Greg Boyer, major professor)
14. Justine Schmidt (Greg Boyer, major professor)
15. Sara Turner (Karin Limburg, major professor)

**CHAIRMAN OR READER ON THESIS EXAMS, ETC.**

-Katherine Perri, PhD candidacy examiner (Chemistry)

-Jill Mandel, MS thesis examiner (Limburg and Shields, chairs; Biology)

**III. RESEARCH COMPLETED OR UNDERWAY**

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

None

- 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)

- *Funding Agency:* SUNY ESF seed grant  
*PI:* Stewart Diemont, with K. Schulz and Nate Barlett  
*Amount:* \$8,000  
supports M.S. research of Nate Barlett (Diemont chair)  
*Dates:* May 2012-2013
- *Funding Agency:* National Science Foundation (NSF)  
*Title:*, “Collaborative Research: EAGER – Eco-evolutionary feedback on community assembly,”  
*PI:* K.L. Schulz, *co-PI:* C.E. Cáceres (U. Illinois);  
*Amount:* \$300,000 (\$143,667 to SUNY ESF)  
*Dates:* Sept 2009-Aug 2012  
This grant supported Stephanie Figary, M.S. student EFB for two years
- *Funding Agency:* NSF  
*Title:* REU Collaborative research: Eco-evolutionary feedback on community assembly  
*PI:* K.L. Schulz  
*Amount:* \$8,000  
*Dates:* 1 May 2012-31 August 2012  
Supports undergraduate fellow for summer 2012, no graduate students
- *Funding Agency:* NSF  
*Title:* Renovation of wet labs and cyber-infra-structure to enhance integrated research and teaching in aquatic science at SUNY-ESF  
*PI:* Neil Ringler; *co-PIs:* J.M. Farrell, D.J. Leopold, K.L. Schulz (point of contact), C.M. Whipps  
*Amount:* \$1,470,000  
*Dates:* October 2010-September 2013
- *Funding Agency:* Great Lakes Research Consortium  
*Title:* Genetic analysis of potential lake chubsuckers (*Erimyzon sucetta*), a threatened fish in the Lake Ontario

watershed

*PI:* Kimberly L. Schulz, *co-PIs:* C.M. Whipps and D. Stewart

*Amount:* \$3,500

***Additional funded projects as collaborator***

- *Source:* NOAA Coastal and Marine Habitat Restoration Project Grants under the American Recovery and Reinvestment Act.  
*Title:* “Recovery Act – Coastal Fisheries Habitat Restoration in the St. Lawrence River.”  
*PI:* Farrell, J.M. (with D.J. Leopold, M. Mitchell, J. Gibbs, K.L. Schulz).  
*Amount:* \$202,317 subcontract to ESF of \$1,086,010 Ducks Unlimited  
*Dates:* 9/2011-8/2013  
This grant supports Ceili Bachman, M.S. student working with Myron Mitchell and me beginning fall 2011 and supported Alex Looi, M.S. student, in Spring 2013 and for summer 2013
- SUNY-ESF McIntire-Stennis Research Program, “Restoring small, ephemeral wetlands in forested landscapes of New York State: Initiating a large-scale, long-term collaborative research program based at Heiberg Forest”  
*PI:* James Gibbs; *coPIs:* John Stella, D.J. Leopold, K. Schulz *Amount:* \$80,000; *Dates:* May 2009-December 2012; no graduate students under my supervision are supported on this grant (J. Arrigoni, MP James Gibbs is supported on this grant).

***Graduate Student Led Grants (on which I am PI of record; other graduate student grants not listed):***

- *Funding Agency:* NOAA  
National Estuarine Research Reserve Fellowship (Estuarine Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, NOAA)  
*PIs:* Andrew Brainard and K.L. Schulz;  
*Amount:* \$60,000;  
*Dates:* May 2012-May 2015  
This grant supports the Ph.D. research of Andrew Brainard
- *Funding Agency:* NSF  
*Title:* Dissertation Research: Quantifying the role of mixotrophic feeding in aquatic food webs  
*PI:* K.L. Schulz; *co-PIs:* Jacob Gillette  
*Amount:* \$15,000  
*Dates:* June 2011-May 2014 (extension requested by Gillette and granted to extend to 2014)  
This grant gives additional funds for dissertation work (not salary or tuition) to Jacob Gillette
- *Funding Agency:* NOAA  
National Estuarine Research Reserve Fellowship (Estuarine Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, NOAA)  
*Title:* “Salt Marsh Restoration: The Importance of a Better Biofilm,”  
*PIs:* Cheryl Whritenour and K.L. Schulz;  
*Amount:* \$60,000;  
*Dates:* June 2010-May 2014  
This grant supports the Ph.D. research of Cheryl Whritenour (extension requested by Whritenour and granted to extend to 2014)

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

Pre-proposal accepted for:

“An Integrated Assessment of NY’s Great Lakes recreational harbors”, New York Sea Grant; full proposal to be submitted in June 2013; Diane Keuhn PI; Schulz’s role as co-PI

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

- Schulz, K.L., C.E. Cáceres, J. Gibbs, and J. Stella. A trait-based approach integrating evolutionary, community and ecosystem ecology; 871,281 requested; pre-proposal accepted, but full proposal rejected.
- Stella, J., M. Teece and K. Schulz, "Quantifying Forest Subsidies to Vernal Pool Food Webs"; ESF 2013 Faculty Seed Grant Program
- Boyer, G., Nomura, C., Doelle, K., Schulz, K.L. and Kiemle, D. "Analytical Methods to Measure Pharmaceuticals in Water and Other Matrices"; ESF 2013 Faculty Seed Grant Program
- Kimmerer, R.W. and S.A. McNulty, S.A. REU Site: Adirondack Climate and Ecosystem (ACE); Schulz participated as senior personnel

**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

None published in this period

B. Non-refereed Publications

None published in this period

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

- Barlet, N.T., S.A.W. Diemont, K.L. Schulz and M.A. Teece. Applying a trophic cascade concept for the ecological disinfection of wastewater. AEES Conference, Syracuse, NY, 7 June 2012.
- Holmes, C.J., K.L. Schulz, S. Figary, J.H. Pantel and C.E. Cáceres. Eco-evolutionary feedbacks on colonization dynamics in newly formed ponds. Ecological Society of America Conference. Portland, OR, August 2012.
- Walz, K.C., K.L. Schulz, Z.Y. Lim, S. Figary, J.H. Pantel, and C.E. Cáceres. Is any water good water? Clonal growth and reproduction differences in response to abiotic and biotic factors in vernal pools. Ecological Society of America Conference. Portland, OR, August 2012.
- Brainard, A.S. and K.L. Schulz. Propagule pressure and disturbance as drivers of invasive macrophyte abundance in public versus private lakes. Ecological Society of America Conference. Portland, OR, August 2012.
- Gillette, J.P., K.L. Schulz and M.A. Teece. You are what you eat (or produce): Using stable carbon isotope analysis to quantify mixotrophic feeding in three freshwater Chrysophyte algae. Ecological Society of America Conference. Portland, OR, August 2012.
- DellaVentura, T. and K.L. Schulz. Exploring whether bell pulsing rates of *Cassiopea* are more correlated to photosynthesis by their symbiotes, body size, or respiration. Spotlight on Student Research, SUNY ESF, 10 April 2013.
- Symonds, D.E. and K.L. Schulz. Is current diversity and abundance of unionids related to stream habitat parameters? Spotlight on Student Research, SUNY ESF, 10 April 2013.
- Brainard, A.S. and K.L. Schulz. Testing propagule pressure and disturbance in relation to non-native abundance in a lake district. 14<sup>th</sup> Annual Onondaga Lake Forum, SUNY ESF, 22 March 2013.
- Baker, D.M., K.L. Schulz and M.J. Mitchell. Why is there only a weak relationship between chlorophyll-a and total phosphorus concentrations in Onondaga Lake? 14<sup>th</sup> Annual Onondaga Lake Forum, SUNY ESF, 22 March 2013.
- Brainard, A.S. and K.L. Schulz. Testing propagule pressure and disturbance in relation to non-native abundance in a lake district. Spotlight on Student Research, SUNY ESF, 10 April 2013.
- Heath, T., Lang, K. and K.L. Schulz. Working with neighbors: The Cortland-Onondaga Federation of Kettle Lake Associations and State University of New York College of Environmental Science and Forestry. May 4, 2013, New York State Federation of Lake Associations Annual Conference, Hamilton, N.Y.
- Schulz, K.L. POSTER Resiliency of the Great Lakes to Climate and Storm Events: A SUNY Conference in the Disciplines Program, SUNY ESF, 22 May 2013.

Brainard, A.S. and K.L. Schulz. The role of a non-native benthic oligochaete in nutrient release and competition: Implications for future climate change in the Great Lakes Region. Great Lakes Conference in the Disciplines; Climate Change and Resiliency, 22 May 2013.

Schulz, K.L. Water breakout group summary. Resiliency of the Great Lakes to Climate and Storm Events: A SUNY Conference in the Disciplines Program, SUNY ESF, 23 May 2013.

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

Understanding stressors in aquatic food webs: The importance of quality and quantity at many levels. SUNY ESF exemplary researcher award talk. Adaptive Peaks Seminar, 24 January 2013.

Limnology Poster Session for the Cortland-Onondaga Federation of Kettle Lake Associations, Inc. (COFOKLA). ~80 attendees; April 22, 2013

Led breakout session on water on 22 May 2013 at Resiliency of the Great Lakes to Climate and Storm Events: A SUNY Conference in the Disciplines Program, SUNY ESF, and gave summary presentation on this on 23 May 2013.

## V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

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

- National Science Foundation Panel, Division of Environmental Biology; 26-29 March 2013

2. Industrial and Commercial Groups, etc.

None

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

## VI. PROFESSIONAL DEVELOPMENT

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

Exemplary Researcher Award, ESF (2012)

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

2. Professional Society Membership

American Association for the Advancement of Science  
American Institute of Biological Sciences  
American Society of Limnology and Oceanography  
American Society of Naturalists  
Ecological Society of America  
International Association for Great Lakes Research

International Association of Theoretical and Applied Limnology  
 North American Benthological Society  
 North American Lake Management Society  
 Phycological Society of America  
 Sigma Xi  
 Xerces Society

3. Other Professional Activities

a. Editorial activity

<u>Journal (s)</u>	<u>Responsibility</u>
none	
<u>Other (books, symposia, etc.)</u>	

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
none	
<u>Agency</u>	<u>No. of proposals</u>
NSF	22
<u>Other</u>	

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
none		

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.  
 none

D. Foreign Travel (Where, When, Purpose)  
 none

**VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)**

A. Department-level

- EFB Course and Curriculum Assessment Committee Chair
- Faculty mentor for Greg McGee, Beth Folta

B. College-level

- 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 efforts to organize aquatics group in EFB
- EFB representative to the Water Resources Minor



- Faculty advisor to the Nautilus Club (student marine science club)
- Environmental Science advisor and Curriculum Group Participant in Division of Environmental Science area of Watershed Science
- Faculty representative to the SUNY ESF Presidential Search Committee

C. University-wide, including Research Foundation

none

**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.**

**Students**

This year I invested a significant effort into undergraduate and graduate training. First, I continued the service-learning component of Limnology Practicum and served as a mentor to a large number of undergraduate students doing research, including two honors students. I developed a new undergraduate course, Advanced Topics in Marine Ecology, which was two thirds seminar and one third professional skills building. This course was very well-received and I plan to propose it as a formal course alternating with Marine Ecology in the spring semester. A new M.S. student, Alexander Looi, entered in fall 2012, and is now working on a modeling project related to water levels in wetlands. I am working intensively with a number of graduate students as they work toward completion of manuscripts and dissertations over the coming year.

**Department/college**

I have served the college in several substantive ways during the past year. First, I helped negotiate a formal relationship between SUNY ESF and the Sea Education Association that provides special scholarship money for our students applying to these programs. I am continuing to work towards formalizing the marine science minor, which will likely incorporate these courses as potential options for students in the minor and a number of degree programs at SUNY ESF. I continue to serve as the Chair of the Course and Curriculum Assessment Committee and we passed field course guidelines, as well as a number of course proposals; we made some progress on assessment, although that is an ongoing project that is somewhat beyond the ability of our committee to complete for all of the majors without additional resources. I continue to spend a large amount of time writing quarterly reports, project execution plans and generally organizing the NSF renovation grant for CIRTAS (Center for Integrated Research and Teaching in Aquatic Science) and TIBS to apply for funds to renovate the laboratory spaces in Illick Hall (CIRTAS) and TIBS. This is a great opportunity for us to bring aquatic science at ESF to a new level. Finally I was elected as a faculty representative to the Presidential Search Committee at SUNY ESF that will be interviewing candidates in Fall 2013.

**Self**

This has been my most difficult year professionally at SUNY ESF, in no small part exacerbated by prolonged illness and subsequent health issues following the dust from the Illick Hall construction project. The continual disruptions to research activities in the lab due to construction have added to difficulties in carrying out research efforts for me and students in my research group, and contributed to a general malaise. For the most part I have been trying to catch up on missed time related to service, grant, and teaching responsibilities and work on a number of manuscripts. I have decided not to apply for grants that will require significant research within Illick Hall before the construction is complete, and look forward to that date. In the meantime I have been working on a publication backlog and have a number of manuscripts that will be submitted this summer and fall, as well as two planned grant submissions that will not require laboratory work.

**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 2013

#### a. Course(s) to be offered

Aquatic Ecosystems of the Adirondacks (Cranberry)

#### b. Proposed research activity

- ongoing manuscript revisions and writing; new grant submission; anticipate 1-2 students defending in summer or early fall
- catch up on laboratory work, construction permitting
- ongoing funded research

#### c. University, professional society, and public service

- CIRTAS grant reporting and renovation meetings; organization and formalization of CIRTAS
- Presidential search committee

### 2. Fall Semester 2013

#### a. Course(s) to be offered

Limnology and Limnology Practicum

#### b. Proposed research activity

manuscript writing and ongoing funded research

#### c. University, Professional society, and public service

Presidential search committee  
Curriculum committee  
CIRTAS

### 3. Spring Semester 2014

#### a. Course(s) to be offered

Marine Ecology

#### b. Proposed research activity

manuscript writing and ongoing funded research  
research proposal submission

#### c. University, professional society, and public service

Curriculum committee  
CIRTAS