

**ANNUAL REPORT: June 1, 2015 – May 31, 2016**  
**(i.e., Summer 2015, AY 2015-2016)**  
**DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY**  
**SUNY-ESF**

**NAME:** John M. Farrell

**I. INSTRUCTIONAL ACTIVITIES**

1. Regular Course Offerings

	<u>Course No.</u>	<u>Title</u>	<u>Credit Hrs.</u>	<u>No. Students</u>	<u>No. of Lab. Sections</u>
SUMMER:	EFB 388	Adirondack Fish Ecology	3	15	
SPRING:	EFB 492	Senior Synthesis AFS	1	9	

**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.

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:				
FALL:	EFB 298	Research Internship	2	1
	EFB 899	Master's Research	2	2
	EFB 999	Doctoral Research	1	8
SPRING:				
	EFB 420	Internship EFB	5	1
	EFB 498	Research Problems	1	1
	EFB 899	Master's Research	3	9

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

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
EFB 796	Graduate Core Course	1

**II. STUDENT ADVISING**

- A. Number of undergraduates for whom you are the student's official advisor \_\_19\_\_ and unofficial advisor \_\_\_\_\_
- 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. Geof Eckerlin, PhD (began Jan 2009), *Viral haemorrhagic Septicaemia Virus Type: Evaluation of fish hosts as a viral reservoir, a community perspective.*
2. Scott Schlueter, MPS (Graduated May 2016) *Restoration of Lake Sturgeon in the Oswegatchie River.*
3. Andrew Miano (Graduated December 2015)  
  
Miano, A. M. 2015. Invasive Round Goby Diet Patterns and Egg Predation on Broadcast Spawning Fishes in Upper St. Lawrence River Coastal Habitats. Master's Thesis, State University of New York, College of Environmental Science and Forestry, Syracuse, New York.
4. Ericka Augustyn, MS (Enrolled August 2015) *Larval esocid ecology and lower trophic processes in coastal wetlands*
5. Jessica Goretzke, MS (January 2016) *Restoration of submersed aquatic habitat for muskellunge in the St. Lawrence River*

**CO-MAJOR PROFESSOR**

1. Alison Halpern, PhD (defended April 2016, Co-advised with Dr. Donald Leopold) 5/00, *Aquatic nuisance species: ecology and control of the invasive plant Hydrocharis Morsus-ranae in Eastern Lake Ontario and St. Lawrence River wetlands.*
2. Kelly Huffman, MPS (Co-advised with Dr. Chris Whipps) Graduated May 2016, *Environmental determinants of gender ratio in Northern Pike (Esox lucius L.)*

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

1. Kapil Mandraker, EFB, PhD (Stewart)
2. Errol Sheid, EFB, MS (McGrath)
3. Ceili Bachman, EFB, MS (Mitchell and Schulz)
4. Matt Regan, EFB, MS (Leopold)
5. Alex Looi, EFB, MS (Schulz)
6. Alison Kocek, EFB, PhD (Cohen)
7. Chris Nack, EFB, PhD (Limburg)
8. Caitlyn Slife, MS (Paterson)
9. Erik Hazelton, MS (Ringler)
10. Anne Carrier, MSc. Laval University, Quebec, CA (Brodeur and Bernatchez)

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

1. Chair, PhD Canadacy Exam PBE, Yang Xing (MP, Liu)
2. Examiner, Sarah Mount, EFB, MS (Limburg) Graduated May 2016

### **III. RESEARCH COMPLETED OR UNDERWAY**

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

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)

Farrell, J. M. 4/1/16-3/31/21. Water Level Regulation Adaptive Management Research: Coastal Wetland Health Indicators and Sportfish Production in the Upper St. Lawrence River. NYS Department of Environmental Conservation Coastal Lakes and Oceans Program (funded \$1,417,046; at-risk \$60.3K)

Farrell, J.M., C. Whipps, and K.L. Kapuscinski. 4/1/2013-3/31/2016. St. Lawrence River Fisheries Research and Management. Federal Aid in Sportfish Restoration, NYS Department of Environmental Conservation, \$715,001.

GA's supported – Ericka Augustyn; Jessica Goretzke (summer)

Farrell, J. M. 8/1/12-9/30/15 (extended to 9/30/16). The St. Lawrence River Fish Habitat Conservation Strategy: Evaluation of Habitat Enhancements and Development of Novel Restoration Approaches. National Fish and Wildlife Foundation, \$610,073.

Farrell, J. M. and S. J. Cooke. 10/1/2015-9/30/2017. The St. Lawrence River Fish Habitat Conservation Strategy: Evaluation of Habitat Enhancements and Development of Novel Restoration Approaches. US Fish and Wildlife Service, National Fish and Wildlife Foundation Special Project. J. M. Farrell and S. Cooke (Carleton University). \$583,967 (\$299,407 to ESF).

Getchell, R., and J. M. Farrell. 2/1/14-1/31/16. The Impact of VHSV on the Population Dynamics of St. Lawrence Muskellunge. Cornell University/NY Sea Grant (\$5,000 to ESF).

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

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

### **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

Gunderson, M. D., K. L. Kapuscinski, D. P. Crane, and J. M. Farrell (in press). Rapid colonization of the Niagara River by non-native flowering rush *Butomus umbellatus* (Linnaeus, 1753). Aquatic Invasions.

Crane, D. P., and J. M. Farrell. 2015. Muskellunge egg incubation habitat in the upper Niagara River. Journal of Great Lakes Research 448-453.

- Crane, D P., L. M. Miller, J. S. Diana, J. M. Casselman, J. M. Farrell, K. L. Kapuscinski, J. K. Nohner. 2015. Muskellunge and Northern Pike Ecology and Management: Important Issues and Research Needs. *Fisheries* 40:6, 258-267, DOI: 10.1080/03632415.2015.1038382. (FEATURE ARTICLE & COVER ISSUE)
- Kapuscinski, K. L., J. M. Farrell, M. A. Wilkinson. 2015. Abundance, biomass, and macrophyte consumption by rudd in Buffalo Harbor and the Niagara River, and potential herbivory by grass carp. *Journal of Great Lakes Research* 41(2)387-395. (<http://www.sciencedirect.com/science/article/pii/S0380133015000441>)
- C. Papers Presented at Science Meetings (give title, date, occasion, and location)
- Farrell, J. M., R. G. Getchell, and E. R. Cornwell. 2016. St. Lawrence River Muskellunge and Effects of Invasive Species and VHSV: Population Indicators and Potential Effects of Emerging Viral Variants. Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Casselman, J. M., T. Lusk, J. M. Farrell, C. Lake. 2016. Die-Off of Muskellunge (*Esox masquinongy*) in the Upper St. Lawrence River Caused by Viral Haemorrhagic Septicaemia, 2005–2008: Impacts and Consequences. Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Miller, L.M., J. M. Farrell, K. L. Kapuscinski, K. Scribner, B. S. Sloss, K. Turnquist, and C. C. Wilson. 2016. A review of Muskellunge population genetics: implications for management and research directions. Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Carrier, A., A. Ferchaud, P. Brodeur, J. M. Farrell, and L. Bernatchez. 2016. Population Genomics of Muskellunge (*Esox masquinongy*) in the St. Lawrence River and the Inland Waters of Québec (Canada). Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Turnquist, K., J. M. Farrell, K. L. Kapuscinski, L. M. Miller, K. Scribner, B. S. Sloss, C. C. Wilson. 2016. Impact of 47 years of Stocking and Management Implications of a Trophy Fishery Muskellunge Genetic Integrity and Structure in the Great Lakes: Implications for Propagation Programs. Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Hanchin, P., B. L. Sloss, K. Turnquist, K. L. Kapuscinski, J. M. Farrell, L. M. Miller, K. Scribner, and C. C. Wilson. 2016. Brood Source Identification and the Effects of Supplementation on Muskellunge in the Great Lakes. Hugh C. Becker Muskie Symposium “50 Years of Cooperation – Anglers, Science and Management” Muskies Inc., NC Division American Fisheries Society, Minnetonka, MN
- Miano, A., J. M. Farrell. 2016. Invasive round goby diet patterns in upper St. Lawrence River coastal habitats. New York Chapter of the American Fisheries Society, Cooperstown, NY
- Farrell, J. M. 2015. Long-term Research on a Large River Ecosystem: From Flood Pulse to Fisheries. INVITED SEMINAR, Eastern Illinois University, Charleston, IL.
- Tucci, J. P., B. Brown, and J. M. Farrell. 2015. Investigating the relationship of zooplankton and land use in small Eastern NY lakes. North American Lake Management Society Annual Meeting, Saratoga Springs, NY.

Augustyn, E. A and J. M. Farrell. 2016. Ecology of the riverine flood pulse: effects of perturbations on lower trophic levels and larval esocid performance. New York Chapter American Fisheries Society 50th Annual Meeting, Cooperstown, New York.

Augustyn, E. A and J. M. Farrell. 2016. Effects of perturbations on floodplain connectivity, lower trophic levels, and larval esocids. Spotlight on Student Research & Outreach Symposium. Syracuse, New York.

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

Farrell, J. M. 2015. Long-term Research and Management at the Thousand Islands Biological Station and the role of Citizen Science. Northeast Underwater Explorers (NEUE) Clayton, NY (40 participants)

Northeast Underwater Explorers (NEUE), training for citizen science data collection for TIBS (10 participants)

Project Baseline & Northeast Underwater Explorers (NEUE), interview and assistance with development of program education video <http://www.projectbaseline.org/project-baseline-volunteer-shares-project-new-york-dive-show>

Thousand Islands Land Trust, Ichthyologist for a Day – led children ages 5-12 and adults through a series of modules on fish and river ecology on the St. Lawrence River (40 participants)

Thousand Islands Biological Station, numerous tours to community members throughout the season (~100 participants).

Thousand Islands Land Trust Zenda Farms Picnic, Provided live fish and poster displays as part of community event (June 2015; ~250 attendees)

Thousand Islands Land Trust, Grindstone Island Informational Session, gave presentation and answered questions. (20 participants)

Farrell, J. M. 2015. Long-term Research and Management at the Thousand Islands Biological Station. Fish Community Objectives, DEC Public Information Meeting, Clayton, NY (30 participants)

Farrell, J. M. 2015. Long-term Research and Management at the Thousand Islands Biological Station. Fish Community Objectives, DEC Public Information Meeting, Ogdensburg, NY (30 participants)

Farrell, J. M. 2015. Ecology and Management of Muskellunge: From Program Foundations to Future Challenges. Muskies, Inc. Chapter 69 meeting, Rochester, NY (30 participants).

## **V. PUBLIC SERVICE**

A. Funded Service (include consulting activities)

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

DEC – numerous activities related to long-term research partnership

Great Lakes Fisheries Commission – contributed reports to the GLFC Lake Ontario Report and information towards the annual meeting.

USFWS – Research and monitoring activities related to Fish Habitat Conservation Strategy and habitat enhancement projects.

2. Industrial and Commercial Groups, etc.

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

USGS – contributions to their educational program including ESF student visits to the USGS Lake Ontario Biological Station, Oswego NY and the Tunison Laboratory, Cortland NY.

NY Chapter American Fisheries Society – Native Fishes Committee

Save The River, Inc. Clayton NY, Muskellunge Release Program

Thousand Islands Land Trust, events and land stewardship and research partnerships

Northeast Underwater Explorers (NEUE) Citizen science programing

Project Baseline, interview and video production

Muskies Inc., tours, presentations, research and management activities

Ducks Unlimited, proposal development, project management

USGS, employee evaluations, educational activities, research partnerships

**VI. PROFESSIONAL DEVELOPMENT**

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

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

American Fisheries Society (AFS), NY Chapter AFS, International Association of Great Lakes Researchers

2. Professional Society Membership

American Fisheries Society (AFS), NY Chapter AFS, International Association of Great Lakes Researchers, Great Lakes Research Consortium,

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

b. Reviewer

Journal(s)  
Ecological Engineering

No. of manuscripts  
1

Molecular Ecology	1
Transactions of the American Fisheries Society	1
<u>Agency</u>	<u>No. of proposals</u>

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
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C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

D. Foreign Travel (Where, When, Purpose)

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

A. Department-level

Served on Promotion and Tenure Committee

Mentored an Assistant Professor in EFB

Reviewed teaching performance of several faculty seeking promotion/tenure

ENS department presentation at CIRTAS

Hosted AFS major potluck meeting with graduating seniors

Served as Director, TIBS; maintained facility, boats, gear, equipment, hired and supervised staff, students and volunteers, managed long-term data collection and research program, conducted community outreach.

I hosted a group from Mahidol University brought by Dr. Lee Newman at TIBS.

B. College-level

ESF Alumni event Clayton NY – Ribbon Cutting for new Cean Building at TIBS gave tour, presentations, coordinated student poster session and served as MC.

Working on agreement between Thousand Islands Land Trust and ESF for building of new mainland and storage facility for TIBS.

Roosevelt Wild Life Station (RWLS) – Scientist in Residence – provided input to RWLS initiatives; gave updates on research and educational activities related to RWLS

C. University-wide, including Research Foundation

PI on numerous grants; assistance with UAV regulations (drones) policy development; policy/agreements between RF and outside organizations

### **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.

#### **For the students:**

I have hired and supervised ~20 staff and students during this reporting period. Many of these people are undergraduates getting their first on-the-job experiences in their chosen field. I have two new MS graduate students funded on RA's and finished one MS and two MPS students this year. Two primary staff of TIBS left this past year for other jobs and I hired two new professionals (one Post-doc and a Senior Research Support Specialist) following a search process. There are 14 students and staff working at TIBS during spring and summer 2016. As a group we are making strong use of the new TIBS Clean Aquatic Researcher facility and it's filled to capacity. The aquatics lab at TIBS is teeming with research activity and students are getting priceless hands on experiences. For example, students helped culture and release nearly 50,000 advanced fry muskellunge for release into the wild as part of a DEC and USFWS sponsored research project.

#### **For the department/college:**

I secured a new 5-year contract with DEC for \$1.4M and continue to pursue novel population of and habitat restoration initiatives to support St. Lawrence River and Great Lakes fisheries. I assisted the ESF College Foundation and Alumnae office with the ribbon-cutting ceremony for the new Clean Aquatic Researcher Building at TIBS and served as a MC for the event. I continue to serve on the P&T committee and stay active in contributing in many EFB and Aquatic and Fisheries Science activities. I recently hosted a potluck and discussion for AFS May graduates and participating faculty to discuss their experiences at ESF and how we might improve our program.

#### **For self professionally:**

A highlight was being a co-author (with my former student Dr. Derek Crane as lead author and other colleagues) on the cover issue for *Fisheries* magazine in a feature article on muskellunge ecology and management published last June. Several of us are now co-editing (editor is former student Dr. Kevin Kapuscinski) a peer-reviewed book of the proceeding for the 50<sup>th</sup> anniversary conference for Muskies Inc. I also worked closely with an exciting new collaboration with Project Baseline, a group dedicated to understanding and monitoring ecological change in the world's oceans and freshwater aquatic environments using diver assisted data collection and targeted projects. The Northeast Underwater Explorers and the St. Lawrence River Institute have visited TIBS several times and we established a citizen science program where they collect data for TIBS to help monitor the river. We worked together to complete promotional materials including an informational video. The first data collections are being logged and interesting observations from deepwater environments are now available. Last fall I worked closely with a colleague at Carleton University to set up an acoustic telemetry array at three coastal wetlands in the upper St. Lawrence River. A post-doc and a group of ESF and Carleton University students and one student from Laval University worked together to tag fish and establish the array, the first of its kind for juvenile muskellunge research. We also continue the St. Lawrence River Fish Habitat Conservation Strategy that is leading to an impressive list of aquatic restoration and enhancement projects with agency partners including USFWS, DEC, and Ducks Unlimited.



**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)**

Continue growth and progress at TIBS; teach Aquatic Restoration Ecology and Management and Senior Synthesis in AFS; bring on two new PhD students

**B. PROJECTED ACTIVITIES FOR NEXT YEAR**

1. Summer 2016

a. Course(s) to be offered

None.

b. Proposed research activity

Numerous projects at TIBS and the Great Lakes; I accepted an invitation to serve as a co-editor of a peer-reviewed book on the proceedings of the Hugh Becker 50<sup>th</sup> Anniversary Conference of Muskies Inc. held this past spring in Minnetonka, MN.

c. University, professional society, and public service

Numerous events and activity at TIBS; new mainland research facility at TIBS in partnership with the Thousand Islands Land Trust

2. Fall Semester 2016

a. Course(s) to be offered

EFB 681

b. Proposed research activity

Numerous extramurally funded research projects

c. University, Professional society, and public service

TIBS facility enhancements

3. Spring Semester 2017

a. Course(s) to be offered

EFB 492

b. Proposed research activity

Numerous extramurally funded research projects

c. University, professional society, and public service