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

NAME: John M. Farrell

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

	Course No.	Title	Credit Hrs.	No. Students	No. of Lab. Sections
FALL:	EFB 681	Aquatic Restoration Ecology	2	11	
SPRING:	EFB 492	Senior Synthesis AFS	1	7	

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)

	Course No.	Title	Credit Hrs.	No. Students
SUMMER:				
FALL:	EFB 420	Prof. Internship	1	3
	EFB 498	Research Problems	4	1
	EFB 899	Master's Research	1	2
SPRING:				
	EFB 420	Prof. Internship	1	4
	EFB 498	Research Problems	1	2
	EFB 899	Master's Research	3	12

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

4. Guest Lecture Activities

Course No.	Title	No. of Lectures
EFB 796	Graduate Core Course	1

EFB Limnology 1 weekend field trip

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. Ericka Augustyn, MS (Enrolled August 2015) *Larval esocid ecology and lower trophic processes in coastal wetlands*

2. Jessica Goretzke, MS (January 2016) *Restoration of submersed aquatic habitat for muskellunge in the St. Lawrence River*

3. Stacy Furgal, MS (January 2017) *Natural reproduction of Lake Trout in Lake Ontario*

CO-MAJOR PROFESSOR

1. Alison Halpern, PhD (graduated May 2017, 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*.

MEMBER, STEERING COMMITTEE (other than those listed above)

1. Kapil Mandraker, EFB, PhD (Stewart)
2. Ceili Bachman, EFB, MS (Mitchell and Schulz)
3. Alex Looi, EFB, MS (Schulz)
4. Alison Kocek, EFB, PhD (Cohen)
5. Chris Nack, EFB, PhD (Limburg)
6. Caitlyn Slife, MS (Paterson)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

1. Chair, Christopher Wood, PBE, PhD defense (Amidon) Graduated December 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)

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

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).

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

Farrell, J. M.10/1/2017-9/30/2020. 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). $616,801).

Leydet B. L. and J. M. Farrell. 2017. Influence of Spawning and Nursery Habitat in Shaping the Northern Pike (*Esox lucius*) Gut Microbiome. (3/1/17 – 12/31/19) Great Lakes Research Consortium ($22,500)

Cooke, S. J. and J. M. Farrell. 9/1/2017-12/31/2017. Application of Acoustic Telemetry Technology to Identify Critical Habitat for Sympatric Juvenile Muskellunge and Northern Pike. US Fish and Wildlife Service, National Fish and Wildlife Foundation Special Project. ($24,750 to Carleton University).

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. 2016. Rapid colonization of the Niagara River by non-native flowering rush *Butomus umbellatus* (Linnaeus, 1753). Aquatic Invasions Volume 11, Issue 4: 369–380.

Crane, D. P., and J. M. Farrell. 2017. Trends in body condition of smallmouth bass and northern pike (1982-2013) following multiple ecological perturbations in the St. Lawrence River. Canadian Journal of Fisheries and Aquatic Sciences. 10.1139/cjfas-2016-0160.

Farrell, J. M., R. G. Getchell, K. L. Kapuscinski, and S. R. LaPan. In press. Long-term Trends of St. Lawrence River Muskellunge: Effects of Viral Hemorrhagic Septicemia and Round Goby Proliferation Creates Uncertainty for Population Sustainability. American Fisheries Society Special Publication 85.

Casselman, J. M., T. Lusk, J. M. Farrell, and C. Lake. In press. Die-Off of Muskellunge in the Upper St. Lawrence River Caused by Viral Hemorrhagic Septicemia, 2005–2008. American Fisheries Society Special Publication 85 (Extended abstract).

Gallagher, A., P. Szekeres. S. Cooke, and J. M. Farrell, In press. Tracking Young-of-Year Northern Pike and Muskellunge: Monitoring Behavior and Habitat Use During Fall Outmigration from Nursery Sites. American Fisheries Society Special Publication 85(Extended abstract).

Hanchin , P., B. L. Sloss and K. Turnquist, K.L. Kapuscinski J.M. Farrell and L.. Miller. In press. Brood Source Identification and the Effects of Supplementation on Muskellunge in the Great Lakes. American Fisheries Society Special Publication 85. (Extended abstract).

Leblanc, J. P., B. L. Brown, J. M. Farrell. In press. Increased Walleye *Sander vitreus* Egg-to-Larvae survival following spawning habitat enhancement in a tributary of Eastern Lake Ontario. North American Journal of Fisheries Management.

Lewis, C., J. M. Farrell, K. l. Sams, E. R. Cornwell, R. G. Getchell. In press. A Comparison of Virulence of Four Viral Hemorrhagic Septicemia Virus IVb Strains in Muskellunge. American Fisheries Society Special Publication 85.

Miller, L. M., J. M. Farrell , K. L. Kapuscinski, K. Scribner, B. L. Sloss, K. Turnquist, C. C. Wilson. In press. A Review of Muskellunge Population Genetics: Implications for Management and Future Research Needs. American Fisheries Society Special Publication 85.

Turnquist, K. N., W. A. Larson, J. M. Farrell, P. A. Hanchin, K. L. Kapuscinski, L. M. Miller, K. T. Scribner. In press Spatial Genetic Structure of Muskellunge in the Great Lakes Region and the Effects of Supplementation on Genetic Integrity of Remnant Stocks. American Fisheries Society Special Publication 85 (Extended abstract).

Turnquist; K. N., Wesley L., J. M Farrell, P. A. Hanchin, K. L.Kapuscinski; L. M. Miller; K.T Scribner; C. C. Wilson, and B. L. Sloss. In press. Genetic structure of muskellunge in the Great Lakes region and the effects of supplementation on genetic integrity of wild populations. Journal of Great Lakes Research.

Miano, A., and J. M. Farrell. In revision. Laboratory evaluation of spawning substrate type on potential egg predation by round goby (*Neogobius melanostomus*) Journal of Great Lakes Research.

Farrell, J. M., C. C. Killourhy, and S. V. Stehman, resubmission. Nest Predation on Three Sympatric Centrarchids in the St. Lawrence River Following Introduction of Round Goby (*Neogobius melanostomus*) Journal of Great Lakes Research.

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

Farrell, J. M. 2016. St. Lawrence River Fisheries Long-Term Research in a Changing Environment. Great Lakes Fishery Commission Lake Ontario Unit Meeting (Invited). Watertown, NY.

Farrell , J. M., J. P. Leblanc, N. Satre, A. J. Miano , R. G. Getchell , P. R.Bowser, and E. R. Cornwell. 2017. Round Goby dynamics in the upper St. Lawrence River: Population trends and complex effects on native fishes. (Invited) New York Chapter of the American Fisheries Society Annual Meeting. Buffalo, NY.

Motwani, S., Augustyn, E. A., and J. M. Farrell, 2017. A Look At Piscivorous Insect Distribution in a Partially Restored Drowned River Mouth. Spotlight on Student Research & Outreach Symposium. State University of New York College of Environmental Science and Forestry. Syracuse, New York.

Augustyn, E. A. and J. M. Farrell. 2017. Restored connectivity in Typha dominated wetlands: Effects on early life stages of northern pike. Oral presentation at: New York Chapter of the American Fisheries Society Annual Meeting. Buffalo, NY. February 1-3, 2017. Best Student Paper Award Recipient.

Augustyn, E. A. and J. M. Farrell. 2016. Restored connectivity in Typha dominated wetlands: Effects on early life stages of northern pike. Poster presented at: SUNY ESF Board of Trustees Conference. Clayton, NY.

Augustyn, E. A. 2016. Restored connectivity in Typha dominated wetlands: Effects on early life stages of northern pike. Oral presentation at: 2016 Esocid Working Group Conference. Clayton, NY.

Augustyn, E. A. and J. M. Farrell. 2016. Restored connectivity in Typha dominated wetlands: Effects on early life stages of northern pike. Poster presented at Great Lakes Coastal Managers Meeting. Clayton, NY.

Getchell, R G., E. R. Cornwell, J. M. Farrell , S. Bogdanowicz , J. Andrés, J. G. Choi, J. Kramer, A.Schulman and P. R. Bowser Following two invaders: The infection dynamics of VHSV and Round Goby in the Upper St. Lawrence River. New York Chapter of the American Fisheries Society Annual Meeting. Buffalo, NY. (Poster presentation).

Walton, S.E, J.M. Farrell and S.J. Cooke. 2016. Spatial ecology of YOY esocids in nursery embayments in the St. Lawrence River. Oral presentation at: SMARTER (Stream Monitoring and Research Team - Eastern Region) Meeting. Ottawa, ON.

Walton, S.E, J.M. Farrell and S.J. Cooke. 2016. Spatial ecology of YOY esocids in nursery embayments in the St. Lawrence River. Oral presentation at: International Esocid Working Group Meeting. Clayton, NY.

Walton, S.E, J.M. Farrell and S.J. Cooke. 2017. Seasonal spatial ecology of age-0 Esocids in nursery embayments of the St. Lawrence River. Poster presented at: CCFFR (Canadian Conference for Fisheries Research). Montreal, QC.

Walton, S, J.M. Farrell and S.J. Cooke. 2017. Seasonal spatial ecology of age-0 Esocids in nursery embayments of the St. Lawrence River. Poster presented at: GLATOS (Great Lakes Acoustic Telemetry Observation System) Conference. Ann Arbor, MI..

Walton, S.E, J.M. Farrell and S.J. Cooke. 2017. Seasonal spatial ecology of age-0 Esocids in nursery embayments of the St. Lawrence River. Poster presented at: AFS-OC (American Fisheries Society-Ontario Chapter) Conference. Orillia, ON.

Walton, S.E, J.M. Farrell and S.J. Cooke. 2017. Spatial and behavioural ecology of juvenile esocid fish: Muskellunge and Northern Pike. Poster presentation at: OCIB (Ottawa-Carleton Institute of Biology) Symposium. Ottawa, ON..

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

Farrell, J. M. 2016. The ESF Thousand Islands Biological Station Long-Term Aquatic Research in a Changing Environment. Dinner Speaker. ESF College Foundation Board Meeting, Clayton NY (40 attendees)

Farrell, J. M. 2016. Managing Fisheries in a changing environment: Long term studies on the St. Lawrence River Depauville Free Library Lecture Series. (25 attendees).

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Farrell, J. M. 2016. The St. Lawrence River Ecosystem Long-Term Research in a Changing Environment. Chippewa Bay Community Association (40 attendees).

Farrell, J. M. 2016. Aquatic Research in the Upper St. Lawrence River: Long-term Studies in a Changing Environment. Wellesley Island Nature Center, NYS Parks and Recreation, lecture series (40 participants).

Walton, S.E, J.M. Farrell and S.J. Cooke. 2017. Seasonal spatial ecology of age-0 Esocids in nursery embayments of the St. Lawrence River. Oral presentation and poster presented at: Cape Vincent Dive Club Meeting. Cape Vincent, NY.

Save The River! and LaFargeville Central Schools. In The Schools Program. Welcome to TIBS teachers tour, presentation and interpretive program. Clayton NY. (20 participants).

Antique Boat Museum, Campers Program. Welcome to TIBS! Presentation and tour. (10 participants)

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)

Muskies Inc. Canada International Fishing Day. Interpretive program and tour of TIBS. (25 participants).

Muskies Inc. Canada. Meeting and visit of TIBS Muskellunge Research Program. Led to feature article in Muskies magazine (>10,000 subscribers) on muskellunge conservation and management efforts by TIBS and the St. Lawrence River.

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, diver citizen science program

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

Ducks Unlimited, proposal development, project management

USGS, educational activities, research partnerships

VI. PROFESSIONAL DEVELOPMENT

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

Exemplary Researcher Award, SUNY ESF Research Foundation

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

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

2. Professional Society Membership

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

3. Other Professional Activities

a. Editorial activity

Journal (s)	Responsibility

b. Reviewer

Journal(s)	No. of manuscripts
American Fisheries Society	6
Journal of Great Lakes Research	1

Agency	No. of proposals

Other

c. Participation (workshops, symposia, etc.)

Name of workshop, etc.	Date	Place

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 as Chair of the Environmental Toxicologist Search Committee

Brought on three new graduate students – one to be co-advised with Dr. John Stella and one co-advised with Dr. Brian Leydet

Served on Promotion and Tenure Committee

Mentored an Assistant Professor in EFB

Reviewed teaching performance of several faculty seeking promotion/tenure

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.

Hosted a group from Russia from Tyumen University brought by Drs. Lee Newman and Don Leopold at TIBS.

B. College-level

Gave presentation with students at ESF College Foundation Board meeting in Clayton NY

Working on agreement between Thousand Islands Land Trust, the Research Foundation (W. Nicholson) ESF (D. Artz) that led to construction of a new mainland research 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; 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:
The aquatics lab at TIBS is again filled to capacity students while they participate in extramurally funded research and monitoring initiatives. I brought on three new graduate students to begin in Fall 2017. I provided significant student interaction and experiences in both teaching and research with a number of professionals from a variety of agencies. I supported students to attend and participate in professional venues. One student Ericka Augustyn was honored with the Best Student Presentation award at the annual meeting of the New York American Fisheries Society Meeting.

For the department/college:

I secured a new 3-year contract with US Fish and Wildlife Service for $1.4M and continue to pursue novel population of and habitat restoration initiatives to support St. Lawrence River and Great Lakes fisheries. We opened a new mainland storage and research facility on the mainland in Clayton as a new addition to TIBS. I chaired a search for a new colleague in Environmental Toxicology to work with EFB and the Environmental Health major. I recently hosted our annual 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:

Finishing up co-edited and peer reviewed publication for the American Fisheries Society. I will have six co-authored papers and extended abstracts in this volume that represent a historical advance in the biology and management of muskellunge. I have helped organize and led an effort to incorporate efforts to restore the St. Lawrence River

muskellunge population in collaboration with the NYS Hatchery system in a large-scale study. We plan to release over 5300 muskellunge each with an internal pit tag to track their success and movements using our long-term research approach. We also have a new contract with US Fish and Wildlife Service that continues the SLR Fish Habitat Conservation Strategy for three more years with a goal of implementing and evaluation some exciting habitat restoration projects.

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; mentor new PhD and MS level students

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2017

a. Course(s) to be offered

None.

b. Proposed research activity

Numerous projects at TIBS and the Great Lakes; I am wrapping up work as a co-editor of a peer-reviewed book with the American Fisheries Society

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 2017

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 2018

a. Course(s) to be offered

EFB 492

b. Proposed research activity

Numerous extramurally funded research projects

c. University, professional society, and public service