

ANNUAL REPORT: June 1, 2012 – May 31, 2013
(i.e., Summer 2012, AY 2012-2013)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Christopher M. Whipps

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>
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SPRING:

EFB103	General Biology II: Cell Biology and Genetics	3cr.	180	
EFB453	Parasitology	3cr	21	1
EFB653	Parasitology	3cr	3	1

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>
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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>
EFB797	Grant Proposals in Fish and Wildlife Studies	1
EFB217	Peoples, Plagues, and Pests	1

II. STUDENT ADVISING

A. Number of undergraduates for whom you are the student's official advisor 23 and unofficial advisor 2

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

Megan Kirchgessner, Ph.D. completed Summer 2012, Start Aug 2009

Kelly Fitzsimmons, MS sought, Start Aug 2010

Eric Bauer, MS sought, Start Aug 2011

CO-MAJOR PROFESSOR

William Helenbrook, Ph.D. sought, Start Aug 2008 (co-advise with Dr. William Shields)

Emily Ogburn, MS sought, Start Aug 2011 (co-advise with Dr. Karin Limburg)

Joelle Chille, MS sought Start Jan 2012 (co-advise with Dr. Melissa Fierke)

MEMBER, STEERING COMMITTEE (other than those listed above)

Completed in Review Period

Weidong Pan, PhD complete Spring 2013 (MP Nakas)

Rosanna Stoutenburg, PhD complete Spring 2013 (MP Nakas)

Ongoing:

Geoffrey Eckerlin, PhD candidate (MP Farrell)

Lauren Goldmann, PhD candidate (MP Weir)

Andrew MacDuff, MS sought (MP Frair)

Mark Leopold, MS sought (MP Farrell)

Leticia Izquierdo, MS sought (MP Nomura)

Christopher Foelker, PhD sought (MP Fierke)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Examiner

Christopher Nack, MS complete Spring 2013 (MP Limburg)

Chair

Kathleen J. Saxton, MS completed Fall 2012 (MP Donaghy)

III. RESEARCH COMPLETED OR UNDERWAY

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

Myxozoan parasites of brackish water fishes (boot-legged - 1%)

Genome sequencing of the emerging salmon parasite *Ichthyophonus hoferi* (boot-legged -1%)

Survey of wild fish parasites in the Great Lakes and Adirondacks (boot-legged 5%)

Population genetics of Lake and Creek Chubsuckers (internal funds through GLFC – 3%)

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)

Whipps CM, Fierke MK, Parry D. USDA-CREES/McIntire-Stennis Program (05/01/13-09/30/15) - \$52,000.

Development of Molecular Techniques to Inform Management of *Sirex noctilio*, an Introduced Woodwasp. (10% AY) Role: Lead development of molecular biology techniques in parasitoid insects.

Supports: Christopher Foelker, PhD Student.

Farrell J, Kapsinski K, **Whipps CM**. NY-DEC (03/31/2013 – 03/31/2016) - \$715,001. St. Lawrence River Fisheries Management and Research. (2% AY) Co-Investigator. Role: Comparative genomics of male and female pike. Development of a sex-specific PCR assay and application to field studies.

Ringler NH, Schulz KL, Farrell JM, Leopold DJ, **Whipps CM**. National Science Foundation (1/1/10-12/31/12) \$1,757,801. Renovation of Wet Labs and Cyber-Infrastructure to Enhance Integrated Research and Teaching in Aquatic Science at ESF. (5% AY) Co-Investigator. Role: Provide specifics and design for animal rooms, isolation room, microscope rooms).

Whipps, CM. SUNY-ESF Seed Grant Program (04/01/11-04/30/13) - \$8,000. Molecular Prospecting: Genomic DNA Sequence Data for Myxozoans. (5% AY).

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

Cohen J, Ryan S, **Whipps CM.** New York DEC (8/1/12-4/30/2016) \$854,516. Factors Limiting New England Cottontail (*Sylvilagus transitionalis*) Populations in New York: Implications for Habitat Restoration. (5% AY)
Role: Genotyping cottontail rabbits.

Kent ML, **Whipps CM,** Dolan B, Tanguay R. NIH Resource Related Research Projects for Development of Animal Models and Related Materials (R24) (07/1/2013 -06/30/2017) \$858,720 (SUNY Subaward \$370,950). Control and Impact of Diseases in Zebrafish. Role: Conduct outbreak investigations, characterize *Mycobacterium* species, assess disinfection and treatment options.

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

Bauer, E.F., **Whipps, C.M.** (In Review) The bass parasites of Oneida Lake, eighty years later. Journal of Parasitology.

Whipps, C.M., Moss, L.G., Murray, K.N., Moss, J.B. (Accepted with Minor Revisions) Detection of autofluorescent *Mycobacterium chelonae* in living zebrafish. Zebrafish.

Reeve, B.C., Crespi, E.J., **Whipps, C.M.,** Brunner, J.L. (In Press) Natural stressors and ranavirus susceptibility in larval wood frogs (*Rana sylvatica*). EcoHealth.

Peterson, T.S., Kent, M.L., Watral, V.G., **Whipps, C.M.** (In Press) Comparison of Fixatives and Fixation Times on PCR Amplification and Detection of *Mycobacterium marinum* and *Mycobacterium chelonae* DNA in Paraffin-Embedded Zebrafish (*Danio rerio*).

Bauer, E.F., **Whipps, C.M.** (In Press) Comparative analysis of native fish parasite communities of Adirondack lakes with and without introduced fish species. Journal of Parasitology.

Whipps, C.M., Font, W.F. (In Press) Interaction of two Myxozoan parasites from naked goby *Gobiosoma bosc*, in Lake Pontchartrain, Louisiana. Journal of Parasitology.

Kirchgesner, M.S. Dubovi, E.J., **Whipps, C.M.** (In Press) Disease Risk Surface for *Coxiella burnetii* Seroprevalence in White-Tailed Deer. Zoonoses and Public Health.

Kirchgesner, M.S., Freer, H., **Whipps, C.M.,** Wagner, B. (2013) Detection of *Borrelia burgdorferi* outer surface protein antibodies in wild white-tailed deer (*Odocoileus virginianus*) in New York and Pennsylvania, USA. Veterinary Immunology and Immunopathology. 153, 165-169.

Kirchgesner, M.S. Dubovi, E.J., **Whipps, C.M.** (2013) Spatial point pattern analyses of Bovine viral diarrhea virus infection in domestic livestock herds and concomitant seroprevalence in wild white-tailed deer

(*Odocoileus virginianus*) in New York State, USA. Journal of Veterinary Diagnostic Investigation. 25(2), 226-233.

Liu, Y., **Whipps, C.M.**, Gu, Z.M., Huang, M.J., He, C., Yang, H.L., Molnár, K. (2013) *Myxobolus musseliasae* (Myxozoa: Myxobolidae) from the gills of common carp *Cyprinus carpio* and revision of *Myxobolus dispar* recorded in China. Parasitology Research. 112(1), 289-296.

Kirchgessner, M.S. Dubovi, E.J., **Whipps, C.M.** (2012) Seroepidemiology of *Coxiella burnetii* in wild white-tailed deer (*Odocoileus virginianus*) in New York, United States. Vector-Borne and Zoonotic Diseases. 12(11), 942-947.

Whipps, C.M., Lieggi, C., Wagner, R.A. (2012) Mycobacteriosis in zebrafish colonies. Institute for Laboratory Animal Research Journal. 53(2), 95-105.

Kirchgessner, M.S., Dubovi, E.J., Porter, W.F., Zyllich, N.C., **Whipps, C.M.** (2012) Prevalance and spatial distribution of antibodies to Bovine Viral Diarrhea Virus and *Coxiella burnetii* in white-tailed deer (*Odocoileus virginianus*) in New York and Pennsylvania. Journal of Zoo and Wildlife Medicine. 43(3), 466-472.

Whipps, C.M., Fournie, J.W., Morrison, D.A., Azevedo, C., Matos, E., Thebo, P., Kent, M.L. 2012. Phylogeny of fish-infecting *Calyptospora* species (Apicomplexa: Eimeriorina). Parasitology Research, 111(3), 1331-1342.

B. Non-refereed Publications

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

February 22, 2013. Aquaculture America 2013. Nashville, TN. Mycobacteria – Chlorine disinfection, facility clean-up, and autofluorescence. **Whipps, C.M.**

Co-Authored

November 11-14, 2012. Entomological Society of America, 60th Annual Meeting. Knoxville, TN. *Molecular techniques elucidate cryptic relationships within the Sirex noctilio North American parasitoid guild*. Chille, J.C., **Whipps, C.M.**, Parry, D., and Fierke, M.K.

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

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

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

2. Industrial and Commercial Groups, etc.

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

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 Fish Health Section (AFS-FHS) Technical Standards Committee (elected position appointment June 2010-June 2014) and Current Chair (June 2012 – June 2013).

American Fisheries Society Fish Health Section (AFS-FHS) Executive Committee (June 2012-June 2013).

2. Professional Society Membership

American Fisheries Society (2001-present)

American Society of Parasitologists (2002-present)

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
Comparative Parasitology	1
Diseases of Aquatic Organisms	1
International Journal for Parasitology: Parasites and Wildlife	1
Journal of Fish Diseases	2
Journal of Parasitology	2
Journal of the American Association for Laboratory Animal Science	1
Parasites and Vectors	1
Parasitology Research	5
PLoS One	1
Systematic Parasitology	2
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TOTAL =	17

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)

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

EFB Curriculum Committee (Jan-Feb 2008, Aug 2008-present). Chair: Kim Schulz.

B. College-level

ESF Institutional Animal Care and Use Committee (Aug 2011-present). **Chair: Whipps**

ESF Honors Program Faculty Council (Aug 2011-present). Chair: William Shields.

ESF Committee on Curriculum (Aug 2010 – present). Chair: John Hassett.

ESF Academic Research Building Core Team (Apr 2010 – present).

ESC Health and the Environment Curriculum Group Participant (Mar 2011-present)

C. University-wide, including Research Foundation

SUNY Center for Applied Microbiology (Feb 2013 – present) **Director**

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.

Students

This past year I was pleased to see my first PhD student, Megan Kirchgessner, through to the completion of her degree. In the course of her project, Megan and I co-authored 5 publications and it was a pleasure to see her writing skills quickly develop to the point where later manuscripts required minimal editing on the first draft. Similarly my Masters student Eric Bauer plans to defend this year, and he and I have one manuscript in press, one submitted, and a third on the verge of submission. Eric has been accepted to a PhD program at Auburn University. I co-advise 3 other graduate students. PhD student Will Helenbrook is making significant progress in his research at the same time as he has been taking on some departmental teaching responsibilities (Conservation Biology and Genetics). Emily Ogburn is nearing completion of her Masters and has learned Parasitology from scratch and is now helping with a microbiology project. I had 6 undergraduates working in my lab this year on a range of projects, either directly supervised by me or my graduate students. I continue to teach General Biology II which had 180 students enrolled this year. As this is now my fifth year of teaching the course, I believe I have found a good balance of requirements for the course, including online tutorials and quizzes, written assignments, exams, and self assessment. This year I included a popular science article on all written assignments to bring in more depth (beyond what I cover in lecture) of interesting research that is relevant to the course material and this gave students time to explore the subject. I also used popular science articles in EFB453/653 Parasitology. Here, I had students seek out an article in the primary literature and from that write an article for a general audience. I used a peer review system for initial review, followed by my own review prior to final submission, and the students really responded to this feedback. I plan to continue with this and incorporate more of these readings next year. My advising load was 23 this year and my focus has been primarily on students interested in the health professions. In the review period, I served on 3 graduate defense committees and am on 6 ongoing committees.

Department/College

My role as Institutional Animal Care and Use Committee chair takes up a significant amount of my time. On average I estimate at least 10% of my time is dedicated to the IACUC, reviewing protocols, writing reports, conducting meetings, and keeping up on the literature for a huge range of vertebrate species we work with at ESF. In addition, either research on vertebrate animals has increased at ESF or compliance has improved (or both), as we have a record of 32 active protocols, and 4 more currently in review. I believe I have been able to streamline the review process and endeavor to turn around each protocol in a timely manner so research can proceed. My goal, as compliance improves, will be to emphasize the importance to faculty of completing these protocols well in advance. I also serve on our departmental curriculum committee (CCAC) and have just completed a 3 year term on the college level Committee on Curriculum (CoC). Serving on both committees has allowed for a great amount of overlap and flow of information between the committees, which I hope has served both the department and college beneficially. Perhaps related to both our students and the department, I led the purchase of 12 new stereozoom microscopes which will allow us to build up the number of functional and quality scopes for all classes.

Professional

My primary areas of research remain bacterial diseases of laboratory fish and parasites of wild fish. I was invited to a conference this winter to speak on zebrafish diseases and this has led to several collaborations I am excited about for the coming year. The zebrafish research has also led to some local collaboration with faculty at Upstate Medical. The work on parasites of wild fish has been productive as well, with several publications either in press or in review, and this also represents the work of graduate students. I have made several new international connections on the biodiversity of myxozoan parasites, and my future challenge will be to bring this together in a fundable proposal. I have branched out in my work, collaborating as a molecular biologist on parasitoid insects and using DNA sequence to identify fish and mammal species. Although not my main lines of research, these areas have been fruitful grounds for student training and collaboration within ESF. All together, 14 papers have been published or submitted in the review period and although this was a particularly good year for that, reflects much more where I want to be in terms of progress and publishing.

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)

Short term plans are to get my existing funded projects off and running and to prepare for what will likely be a 4 year project starting in July. I have a backlog of parasite samples for DNA sequencing, so my goal is to complete these this summer and move forward on publications with collaborators. I also have a huge folder of genome sequence data from a parasite that will require analysis, so I plan to learn how to work with these kinds of data sets. I may need to take a class. Some of my committee service will end or has ended this year (CoC, Technical Standards Chair) and this will reduce these commitments to a more reasonable load. There is plenty to do on the IACUC and CCAC. As I have been recently appointed Director of the SUNY Center for Applied Microbiology, I plan to explore options for utilizing this position to attract students and additional funding to the University. In teaching, I continue to develop laboratories for Parasitology and plan to put together a lab book from existing labs which, well into the future, can become a lab manual and resource for a variety of experiments in Parasitology.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2013

a. Course(s) to be offered

b. Proposed research activity
Zebrafish mycobacteriosis

Myxozoan phylogeny and evolution
Genome sequencing of myxozoan parasites
Baseline data on fish diseases in NY state
Northern Pike genomics
Creek Chubsucker population genetics
Cottontail rabbit genetic techniques

c. University, professional society, and public service

EFB Curriculum Committee (Jan-Feb 2008, Aug 2008-present). Chair: Kim Schulz.

ESF Institutional Animal Care and Use Committee (Aug 2011-present). **Chair: Whipps**

ESF Honors Program Faculty Council (Aug 2011-present). Chair: William Shields.

ESF Academic Research Building Core Team (Apr 2010 – present).

ESC Health and the Environment Curriculum Group Participant (Mar 2011-present)

SUNY Center for Applied Microbiology (Feb 2013 – present) **Director**

2. Fall Semester 2013

a. Course(s) to be offered

b. Proposed research activity
as above.

c. University, Professional society, and public service
as above.

3. Spring Semester 2014

a. Course(s) to be offered
EFB103 - General Biology II
EFB453/653 - Parasitology

b. Proposed research activity
as above

c. University, professional society, and public service
as above.