

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

NAME: Karin Limburg

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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SUMMER:

FALL: This fall I hired Kevin Kapuscinski to teach EFB 487/687 (Fisheries Science and Management) and EFB 488 (Fisheries Science Practicum). I paid him off my Grand Canyon research grant in order to be able to spend needed time pulling that project into shape. This was a “win-win” in that the course was taught well, Kevin obtained needed experience for his resumé, and I was able to make substantial progress on my project.

SPRING: See Non-Scheduled Offerings below

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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Fall 2012:

<u>Course ID</u>	<u>Section</u>	<u>Course Title</u>	<u>Credit Hrs</u>	<u>NumStudents</u>	<u>Total credit hours</u>
EFB498	39	Resrch Prob/Env&For Bio	3	2	6
EFB899	39	Masters Thesis Research	4.3	3	13.0
EFB999	39	Doctoral Thesis Research	1	1	1

Spring 2013:

<u>Course ID</u>	<u>Section</u>	<u>Course Title</u>	<u>Credit Hrs</u>	<u>NumStudents</u>	<u>Total credit hours</u>
EFB498	39	Resrch Prob/Env&For Bio	1.67	3	5
EFB796	2	Grant Writing and Management	1	10	10
EFB796	8	A Self-Help Course in R	1	12	12
EFB798	39	Resrch Prob/Env&For Bio	1	8	8
EFB899	39	Masters Thesis Research	1.0	2	2

Total credit hours: 59

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

4. Guest Lecture Activities

- Guest lecturer, EFB 487/687, Fisheries Science & Management, October 28 & 31, 2012
- Guest lectured at the Univ. of Texas at Austin (via skype). MNS308 - Humans and a Changing Ocean, March 28, 2013
- Guest lectured in EFB Graduate Core Course, April 3, 2013

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

Nack, Christopher; MSc, began 9-2009; **defended and completed thesis April 2013.**

- Thesis title: Habitat Use and Diet of Post Yolk-Sac Larval American Shad in the Hudson River Estuary During the Summer of 2010 and 2011
- Began doctoral program, May 2013

Turner, Sara; Ph.D, began 9-2009. Passed qualifier exam, November 2011.

Evans, Thomas; Ph.D. Began 9-2012.

CO-MAJOR PROFESSOR

Ogburn, Emily, MSc, began 9-2011; became co-adviser with Chris Whipps spring 2012.

Jackman, George; PhD, began 9-2008 (CUNY Queens College, with John Waldman); passed qualifier exams, June 2010.

Mandel, Jill; MSc, began 9-2010 (with Bill Shields)

Smith, Alexander J.; PhD, began 9-2010 (with Neil Ringler); passed qualifier exams September 2012

MEMBER, STEERING COMMITTEE (other than those listed above)

Baker, Danielle, MSc

Gurdak, Daniel, PhD (passed qualifier exams October 2011)

Hazell, C.J.; PhD (passed qualifier exams 2006?)

Hermann, Ted, PhD

Ingel, Claire S., MSc (Cornell U.) **defended August 2012**

Johnson, Stephanie, PhD **defended April 2013**

Karbowski, Curt, MSc

Kirby, Lucas (passed qualifier exams, spring 2011)

Legard, Chris, MSc **defended April 2013**

Matillano, Joie, PhD
Mohan, John, PhD (U. Texas at Austin) passed qualifier exam
Payne, Molly, MSc (U. Southern Maine)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

- Xingfei Zhao, Environmental Chemistry – qualifier exam
- Bangshuai Han, Environmental and Resource Engineering - defense

III. RESEARCH COMPLETED OR UNDERWAY

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

I continue to have non-funded collaboration with Swedes and now other Baltic Sea partners, studying Baltic Sea cod, flounder, and eels. To date this has resulted in 4 publications, a dissertation (in Sweden), and numerous presentations.

Last year, after 5 years of trying, a group of Swedes and I obtained a large (roughly \$446.6K), 3-year grant from the Swedish Research Council Formas to conduct R&D work at Lund University to develop next-generation methods for micron-scale, non-destructive, stable isotope analysis. This work is only now beginning. My involvement will probably begin next year. Funding is mostly at Lund U.

My Scandinavian colleagues and I continue to put in grant applications; this spring a group of ca. 20 participants representing a dozen research institutions in 7 Baltic States, with me as a “silent partner” since Americans cannot participate officially, put together a truly ambitious research agenda to study Baltic fishes. The program is called BONUS (Baltic Organisations' Network for Funding Science). We just learned that we ranked 3rd out of 90 applications and that we will be moving ahead into budget negotiations (our proposed budget is 3.9 M Euros). What does ESF get out of this? Quite a lot of business for Analytical and Technical Services via me, plus my deepened collaborations, and if I can swing it, perhaps a graduate student can be involved.

I have one other grant proposal in play with the Swedish Research Council Formas in which I am a co-PI.

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)

- In-kind grant awards, Cornell High Energy Synchrotron Source (CHESS): Beam time at the synchrotron for X-ray fluorescence analyses: October 2011, March 2012. Note that these are NSF sponsored awards. During these runs in AY 2012-13, 2 EFB grad students conducted research that will be part of their respective theses.
- Grant award, Hudson River Foundation: “Geochemical Markers in Otoliths to Aid in Stock Identification and Conservation of River Herring,” \$184,660, 6/1/09 – 12/31/12. Supported 2 grad students (S. Turner and R. Monteiro) and one summer intern (M. Payne)
- Grant award, USGS (via U. Florida): “Near Shore Fish Ecology in the Grand Canyon,” 10/01/2001 to 8/15/2013. \$1,178,711 total, \$272,976 to ESF. Role: co-PI, but PI at ESF. Supported one post-doc (T. Hayden) and currently one Ph.D. student (T. Evans).

- Grant award, National Fish and Wildlife Foundation (via UC Santa Cruz), “Determining Origins of River Herring Bycatch,” 7/1/2012-5/31/2014; total \$428,401 to a group, of which ESF receives \$187,137. Supports Ph.D. student (S. Turner) and a Master’s student (J. Mandel) as well as undergraduate assistants.
- Grant award (combined), NYS DEC and New England Interstate Water Pollution Control Commission: “Analysis of samples collected in the Hudson River Estuary for various Alosa projects.” \$40,000, 2 years, supports 1 grad student (C. Nack) and 1 undergrad summer assistant.
- Grant award, Riverkeeper Inc.: “Filling in the gaps: building the knowledge base on ecosystem function, utilizing partnerships to move forward.” \$115,000, 3 years, supports 1 grad student (C. Nack) and 1 summer assistant.
- Grant award, Hudson River Foundation: “Assessing Silver Eels in the Hudson River Tributaries;” 6/1/2013-5/31/2015; \$165,151; two years, supports one incoming grad student (S Mount) and 1 summer technician.
- Fellowship awards to PhD student Tom Evans: “The Distribution of Larval Lamprey and their Potential Diet Overlap with Mayflies in the Hudson River” T.T. Polgar Fellowship, \$2,000, summer 2013.; “Survey of Hudson River Sea Lamprey;” Sussmann Fellowship, \$7,000, summer 2013.
- Grant award, NYS Water Resources Institute: “Relative Abundance of Blueback Herring (*Alosa aestivalis*) in Relation to Permanent and Removable Dams on the Mohawk River;” 5/18/2012-2/28/2013; \$20,000; supported 1 MSc student (C. Legard)
- Grant award, NSRC: “Impacts of Forest Management on Regulating Services in Northern Forest Watersheds: Development of the Forest Ecosystem Services Toolkit.” C. Beier, PI. 9/01/2011 – 8/31/2013. \$115,117. Supports one of Colin’s doctoral students.

Although not reflected in the above list, I also have helped my grad students who are on TAs to obtain research support in the Hudson River estuary through the T.T. Polgar Fellowship program. At ESF I have mentored 8 students (2 undergrad and now 6 grad students) in writing the proposals, doing the research, and writing it up.

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

- Proposal to U.S. Geological Survey: “Investigation of Humpback Chub natal origins in Grand Canyon using otolith microchemistry;” 5/15/2013-1/14/2016; \$122,617. Year 1 is approved. Will fund one Ph.D. student (T. Evans).
- Swedish Research Council FORMAS: “SPICE Spatial Patterns of fish revealed by Chemical markErs in otoliths;” \$481,200; 1/1/2014 12/31/2016; will provide some partial support for student research.

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

- Proposal to National Science Foundation: “Collaborative Research: Consequences of sub-lethal hypoxia exposure for marine teleosts tracked with biogeochemical markers: a trans-oceanic comparison.” 9/1/2013-8/31/2016; \$461,554 total, \$219,996 to ESF; would support 1-2 grad students (declined, will re-submit in January)

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

- Hasselman, D.J., and K.E. **Limburg**. 2012. Alosine management in the 21st century: challenging the status quo. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 4:174-187.
- Hayden, T.A., K.E. **Limburg**, and W.E. Pine, III. 2012. Using otolith chemistry tags and growth patterns to distinguish movements and provenance of native fish in Grand Canyon. *River Research and Applications* (online; DOI 10.1002/rra.2627)
- Limburg**, K.E., D.P. Swaney, and M.H. Hall. 2012. Temporal and spatial dynamics of a "Rust-Belt" urban stream: metabolic and water quality responses to hardened land. *Urban Ecosystems* doi: 10.1007/s11252-012-0273-0.
- Turner, S.M., and K.E. **Limburg**. 2012. Comparison of juvenile alewife growth and movement in a large and small watershed. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 4:337–345.
- Walther, B.D., and K.E. **Limburg**. 2012. The use of otolith chemistry to characterize diadromous migrations. *Journal of Fish Biology* 81: 796-825.
- Brown, J.J., K. E. **Limburg**, J.R. Waldman, K. Stephenson, E. Glenn, F. Juanes, and A. Jordaan. 2012. Fish and hydropower on the U.S. Atlantic coast: failed fisheries policies from half-way technologies. *Conservation Letters* DOI: 10.1111/conl.12000.
- Arend, K.K., and K.E. **Limburg**. 2013 in revision. Spatial heterogeneity in sources to Lake Ontario coastal embayment food webs: recognizing the influence of areal and temporal scaling on ecosystem and habitat connectivity. *Estuaries and Coasts* (in revision)
- Finch, C., W.E. Pine III, and K.E. Limburg. 2013 Submitted. Differential growth of humpback chub in regulated and unregulated portions of the Colorado River basin. *River Research and Applications* (in review).
- Monteiro, R.O., K.E. **Limburg**, and I. Valiela. 2013 in revision. Effects of urbanization of coastal watersheds on growth and condition of juvenile alewives in New England. *Estuaries and Coasts* (in revision).
- Nack, C.C., K.E. **Limburg**, and D.E. Miller. 2013 submitted. Assessing the quality of four inshore habitats used by post-yolk-sac larval American shad in the Hudson River: a prelude to restoration. *Restoration Ecology* (submitted 5/2013)
- Palkovacs, E.P., D.J. Hasselman, E.E. Argo, S.R. Gephard, K.E. **Limburg**, D.M. Post, T.F. Schulz, and T.V. Willis. 2013 submitted. Combining genetic and demographic information to prioritize recovery efforts for anadromous alewife and blueback herring. *Evolutionary Applications*. (submitted)

B. Non-refereed Publications

- Limburg**, K.E., D.P. Swaney, and D.L. Strayer. 2012. River Ecosystems. In *Encyclopedia of Biodiversity* (S.A. Levin, editor), 2nd Edition. Elsevier.

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

- Limburg, K.E. Otolith Chemistry in Brief. NOAA NMFS meeting on River Herring and Climate Change (for ESA listing); Gloucester, MA, July 2012.
- Limburg, K.E. In Search of the Dead Zone: Use of Otoliths for Tracking Exposure to Hypoxia. American Fisheries Society Annual Meeting, Minneapolis, MN, August 2012.
- Monteiro, R., K. Limburg, and I. Valiella. Opening the Black Box: A Look at the Marine Phase of Anadromous Alewife. American Fisheries Society Annual Meeting, Minneapolis, MN, August 2012.
- Palkovacs, E., K. Limburg, T. Willis, S. Thorrold, D. Post, S. Gephard, S. Turner, E. Argo, E. Labbe. Where Do They All Come From? Determining the Provenance of Anadromous River Herring in Marine Bycatch.

American Fisheries Society Annual Meeting, Minneapolis, MN, August 2012.

Limburg, K.E. A plausible mechanism for uptake of manganese in fish otoliths - evidence and a model. ICES Annual Science Meeting, Bergen, Norway, September 2012.

Brown J., K. Limburg, J. Waldman, K. Stephenson, E. Glenn, F. Juanes, and A. Jordaan. Dams, Fishways, and Successful Fish Passage: Win-Win or Death by Half-Way Technologies? ICES Annual Science Meeting, Bergen, Norway, September 2012.

Limburg, K.E., C. Nack, K. Hattala, A. Higgs. Update on American shad spawning and nursery habitat evaluations. Shad Restoration Workshop at Hudson River Foundation; New York City, September 2012.

Limburg, K.E. River Herring: Status and threats review. A Bight of Herring - New York Region River Herring Restoration Workshop; New York City, October 2012.

Limburg, K.E. Fish tales from fish heads: What can be learned from Baltic Sea fish otoliths. Conference "Östersjöfisket – från stenålder till nutid," Visby, Gotland, Sweden, November 2012.

Limburg, K.E. Elements of Interdisciplinary Research – how to get it going? 1st Annual Meeting - LabEx COTE, Bordeaux, France, December 2012.

Limburg, K.E. In Search of the Dead Zone: Use of Otoliths for Tracking Exposure to Hypoxia. IMBIZO III (meeting of International Marine Biogeochemistry and Ecosystem Research), Goa, India, January 2013.

Limburg, K.E. Dramatic declines in North Atlantic diadromous fishes. New England Assoc. of Biologists Annual Meeting (plenary), Lake Placid, NY, March 2013.

Karboski, C., K. Limburg, N. Ringler. Using otolith microchemistry to discern fine scale movement of brown trout (*Salmo trutta*) in a polluted urban system. New England Assoc. of Biologists Annual Meeting (plenary), Lake Placid, NY, March 2013.

Limburg, K.E. River Herring: Past, Present, Future? Mohawk Watershed Symposium, Schenectady, NY, March 2013.

Limburg, K. E., K. Hattala, A. Kahnle, A. Higgs, J. Waldman, and R. Schmidt. Status of Hudson River Fishes: Local and Regional Perspectives. Hudson River Science Symposium, New Paltz, NY, April 2013.

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

Invited seminar, Clarkson University: "Dramatic Declines in North Atlantic Diadromous Fishes" April 19, 2013. Attendance: ca. 40.

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

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

2. Industrial and Commercial Groups, etc.

- Wrapped up work for Marine Stewardship Council to evaluate Maryland striped bass fishery for potential certification
- B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.
- Panelist for Maryland Sea Grant (December 2012; see below)
 - Panelist for NSF Ecosystems (April 2013; see below)
 - External reviewer for P&T decision, University of Vermont
 - External reviewer for P&T decision, Ohio State University
 - External reviewer for “Habilitation” promotion (like P&T), IRSTEA-Bordeaux, France
 - IMBER-LOICZ Continental Task Team (IMBER = Integrated Marine Biogeochemistry and Ecosystem Research; LOICZ = Land-Ocean Interactions in the Coastal Zone) – member, 2011-2014
 - Member, Conseil Scientifique (Science Advisory Board) for “LabEx COTE – Evolution, Adaptation and Governance of Continental-to-Coastal Ecosystems” – Bordeaux, France

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)

- Publications Committee, Coastal and Estuarine Research Federation
- Ran for (unopposed), President of Estuaries Section, American Fisheries Society

2. Professional Society Membership

- American Fisheries Society
- American Institute of Biological Sciences
- American Society of Limnology and Oceanography
- Coastal and Estuarine Research Federation
- Ecological Economics (both the International and U.S. chapters)
- Ecological Society of America
- Hudson River Environmental Society
- Sigma Xi

3. Other Professional Activities

a. Editorial activity

<u>Journal (s)</u>	<u>Responsibility</u>
• Ecology and Society	Subject editor
• Reviews in Ecological Economics	Founding editor (w/ R. Costanza & I.Kubieszewski)
• Estuaries and Coasts	Subject Editor
• Frontiers in Ecology & the Environment	Subject Editor

Other (books, symposia, etc.)

b. Reviewer

<u>Journal(s)</u>	<u>No. of manuscripts</u>
ICES J Mar Sci Marine & FW Res. L & O CJFAS Fisheries Mag. Endangered Sp. Res. Ecol. Econ. Cons Biol Ecol. FW Fish FIEE Air, Water & Soil Res.	1 ms. per journal

<u>Agency</u>	<u>No. of proposals</u>
Maryland Sea Grant	7
National Science Foundation	18

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
•River herring and climate change	July 2012	NOAA, Gloucester, MA
• A Bight of River Herring	Oct. 2012	Hudson River Foundation
• Continental Margins Working Grp.	June 2012	Halifax, Nova Scotia
• ----- “ -----	Jan. 2013	Goa, India
• Co-convener, Theme Session J, International Council for the Exploration of the Seas (ICES) Annual Science Conference (September 2012)		
•Co-convener of upcoming symposia at 2013 meetings of American Fisheries Society and Coastal & Estuarine Research Federation		

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

D. Foreign Travel (Where, When, Purpose)

Travel for attendance at working group meetings (Halifax, Goa); for Science Advisory Board meeting and promotion review (Bordeaux), and conference presentations/organizing symposia (Bergen, Visby, Bordeaux, Goa)

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

- Chair, EFB Graduate Program Advisory Committee
- Member, EFB Promotion and Tenure Committee

B. College-level

C. University-wide, including Research Foundation

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.

What I have done in 2012-2013 for...

- **ESF's students:** In the spring, I taught my grant-writing graduate seminar, in which I watch as students really start to understand what it means to write a well-worded, tight proposal. I also taught a graduate seminar titled "A Self-Help Course in R." Why "self-help"? Because I was learning R alongside the students. My interest in teaching the course was to see if a very basic, introductory seminar on the subject would get the students over the "learning hump" and become comfortable with the language. It certainly seemed to do so. This was the second time through, and it really does seem to de-mystify the language to the students.

I plan to teach this course again next spring, so that it precedes Jaqui Frair's advanced modeling class, which requires the use of R. Having sat in that course a few years ago, I found that learning R at the same time as learning complex statistical concepts was challenging, to say the least. Hence, if students can learn R in a separate course, they may be able better to grasp the modeling material in Frair's class.

- **The department and the college:** I continued to chair the EFB Graduate Program Advisory Committee. This year had sparse activity, although we began to discuss re-invigorating the MPS programs. We also selected two excellent co-winners of the EFB Outstanding Doctoral Student Award.

I also served on the department's P&T committee, which had a busy year.

Finally, I am part of the Biophysical and Ecological Economics Area of Study in the GPES program, and will be serving as the head of that in the fall of 2013 until Jack Manno returns from sabbatical.

• **For myself:** I seem to be in a career phase where I get asked to do many things outside of the College. This is reflected in the lists above of presentations (most of them invited) and service. As I accept and carry out various commitments, I always remember that I represent ESF.

I have been pushing to do more funded research on the topic of marine hypoxia, and have submitted four grant proposals (1 through ESF) this spring either entirely or in part on this topic. One has already been favorably reviewed.

I am also increasingly concerned about the impacts of large dams in large rivers. Not only are there many in existence, but many more are on the books for construction in the developing world. After two near-misses at Science magazine, a group of us published a paper in Conservation Letters titled “Fish and hydropower on the U.S. Atlantic coast: failed fisheries policies from half-way technologies?” This paper, out early in 2013, has garnered some attention in the world of river conservation.

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)

I am going to be more active in professional societies in the coming year. For one thing, I will be on the governing board of the American Fisheries Society (AFS) as the president of one of the sections (Estuaries). For another, I have been asked by the president-elect of the AFS to re-vamp and re-introduce a policy statement on human population growth and consumption. Third, I have gotten involved (embroiled?) in a small group that is trying to raise awareness among environmental scientists of the consequences of unbridled human population growth. There are contentious aspects of this, not least of which is how immigration plays into US population growth (it will outstrip birth increases by the year 2027, according to a new US Census Bureau report).

I will also continue my activities with international working groups on coastal marine science and management and the science advisory board I’m part of in France.

I will be continuing my research in current topics, but probably will also become engaged in a CNH proposal (discussions with CUNY colleagues are just beginning). In addition, if allowed to go forward by the Research Office, I will apply for a Major Research Instrumentation grant to acquire a high-resolution laser ablation/ICP-MS system for the college.

In addition to resuming my normal teaching duties, I plan to teach a seminar in the fall with Valerie Luzadis to explore the literature on human population growth and its consequences. I will also be serving as the coordinator for the Biophysical and Ecological Economics area of study in GPES. In the spring, I plan to launch an experimental course (grad level) on ecological modeling as well as continue to offer an introductory course in the R programming language. With the exit of Charlie Hall, I am concerned that we maintain our abilities to teach a range of ecological modeling courses to our grad students.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2013

- a. Course(s) to be offered -

I'll be teaching in a summer school at the University of Bordeaux (short course, July 8-12)

b. Proposed research activity –

- (1) write papers on hypoxia and proxies detectable in otoliths;
- (2) initiate new project to study eels in Hudson River tributaries;
- (3) continue to work with my grad students;
- (4) prepare for CNH grant writing.

c. University, professional society, and public service

- Continue to serve as Assoc. Editor for 3 journals

2. Fall Semester 2013

a. Course(s) to be offered

- EFB 487/687 Fisheries Science and Management
- EFB/EST 797 Dimensions of Human Population Growth and Consumption

b. Proposed research activity

- Current projects (shad, river herring, eel)
- New project (natal origins of humpback chub in Grand Canyon)
- Possibly other new projects if funding arises
- Submit at least one proposal

c. University, Professional society, and public service

- Continue to serve on EFB committees (P&T, GPAC)
- Serve on AFS board; continue to serve as Assoc. Editor for 3 journals
- Co-chair symposia at AFS and Estuarine Research Federation mtgs.

3. Spring Semester 2014

a. Course(s) to be offered

- EFB 796 Practical (or Classical) Ecological Modeling in R
- EFB 797 A Self-Help Course in R

b. Proposed research activity

- Same

c. University, professional society, and public service

- Same