Department of Environmental Resources Engineering

Annual Report

Summer 2009
Academic Year 2009-2010

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1) Introduction

The Department of Environmental Resources Engineering (ERE) continues to be a young, energetic, dynamic and productive department. Perhaps the biggest accomplishment during the previous year has been the change in the name of our department, from Environmental Resources and Forest Engineering (ERE) to Environmental Resources Engineering (ERE), and our undergraduate program from a Bachelor of Science in Forest Engineering to a Bachelor of Science in Environmental Resources Engineering. I am ecstatic to report that the new BS program has been approved by both the State University of New York and the New York State Education Department, and we will be accrediting this new program during the 2012/13 accreditation cycle under the EAC-ABET Criteria for Environmental and Similarly Named Engineering Programs. All ERE faculty and staff members have contributed to the continuing success and substantial evolution of our department within the last 5 years, and I believe our new name will position us for even greater success in the future.

As part of our ongoing assessment process, we have reviewed and updated ERE's undergraduate program educational objectives, which are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve. The new objectives are more consistent with SUNY ESF's Mission and better meet the needs of our program's major constituents (students, faculty, alumni, and employers). ERE's undergraduate educational objectives are to prepare baccalaureate students who can successfully:

- Engage in professional engineering practice specializing in natural and designed environments
- Pursue graduate studies in environmental resources engineering, including ecological, geospatial and water resources engineering, and
- Expand and adapt their knowledge and skills to address the technological, environmental and social challenges of a changing world

ERE is currently comprised of 8 faculty members, as outlined in Table 1. Five ERE faculty members are currently Assistant Professors, one is an Associate Professor, and two hold the rank of Full Professor. Ex-Chair and friend of our department, Dr. James Hassett, officially retired in August 2009, though he did continue on a part-time appointment during the 2010. The loss of Dr. Hassett's teaching and research expertise is huge for our department, and greatly weakens our undergraduate and graduate programs, especially those associated with Water Resources Engineering. We are expecting a replacement for this position to maintain our teaching and research expertise in Water Resources Engineering, as well as alleviate some of the current teaching and advising burden on our faculty. In addition, we currently have two Instruction Support Specialists and one Secretary who provide extensive support to the teaching, research, and outreach activities of our department and College. They are also listed in Table 1.

There continues to be strong interest in ERE undergraduate and graduate programs. In the fall of 2009, we had 112 undergraduates (the same as fall of 2008), including 35 students with freshmen standing (3 less than in fall of 2008). Our new undergraduate curriculum is unique and attracting high quality students to our program, and this year's freshmen class has a large number of high achieving students (7 of our 35 freshmen were in the ESF honors program). Our

graduate program also has high numbers, with 48 graduate students enrolled in the fall of 2009 (an increase from 41 in 2008).

Table 1: Summary of ERE Faculty and Staff	
Faculty Member Name	**Rank**
Douglas Daley	Associate Professor
Stewart Diemont	Assistant Professor
Theodore Endreny	Professor
Jungho Im	Assistant Professor
Charles Kroll	Professor
Giorgos Mountrakis	Assistant Professor
Lindi Quackenbush	Assistant Professor
Wendong Tao	Assistant Professor
Staff Member Name	**Position**
Teri Frese	Secretary
Mark Storrings	Instructional Support Specialist
Paul Szemkow	Instructional Support Specialist

This annual report reflects the accomplishments of ERE faculty and staff during the summer of 2009 and the 2009-2010 academic year. The material presented was provided by both faculty and staff members and offices across the SUNY ESF campus. In addition, this report reflects on the major accomplishments of ERE, as well as our progress on our strategic plan. The format of the report is consistent with the Department Annual Report Format AY2009-2010 that was distributed by the SUNY ESF Provost.

1) Teaching

This section outlines ERE's teaching activities for the 2009-2010 year. It contains a workload summary, a discussion of curriculum changes, and teaching awards and recognitions.

a) Workload summary

ERE courses were taught by the 8 full-time ERE faculty members and 4 Visiting Professors who taught a total of 3 courses (7 credits total). Dr. Hassett, who retired in August 2009, taught FEG448 Open Channel Hydraulics in the Spring of 2010, but will no longer offer this course. Given the fundamental nature of FEG448, a replacement professor for this course will be needed in the future.

Table 2 outlines the main courses taught by ERE faculty members during the last year. Included are the course numbers, course names, credits, and enrollment. Thesis, professional experience, research, and study abroad credits were not included in this table. This table was developed from information provided by the SUNY ESF Office of Institutional Planning. Appendix 1: ERE Faculty Workload Report, contains a more comprehensive table outlining each ERE Faculty member's teaching workload, including thesis, professional experience, research, and study abroad credits.

Table 2: Summary of courses taught by ERE Faculty (does not include 498, 798, 898, 899, or 999 courses)					
Professor	**Course Number**	**Course Name**	**Credits**	**Enrollment**	**Notes**
Daley	ERE796	Phytotechnology	3	7	
	FEG430	Engineering Decision Analysis	3	17	
	FEG437	Transportation Systems	3	16	
	FEG489	Forest Eng Plan & Design	3	18	
Diemont	ERE496/596	Ecosystem Restoration Design	3	18	
	ERE796	Ecological Engineering and Design for Sustainability	3	9	
	FEG275	Ecological Engineering I	3	36	
Endreny	ERE596	Hydrometeorology Seminar	1	6	
	ERE797	Forest Engineering Seminar	1	14	
	ERE797	Hydrogeology and Biogeochemistry Seminar	1	3	
	FEG340/ERE540	Engineering Hydrology & Hydraulics	3	21	
	FEG412/612	River Classification	3	13	
Gerber	FEG454	Power Systems	2	19	Visiting Instructor
Hassett	FEG448	Open Channel Hydraulics	3	14	Emeritus
Hosmer-Briggs	ERE796	Graduate Research Writing in Engineering	2	15	Visiting Instructor
Im	ERE596	GIS-Based Modeling	3	4	
	ERE596	Remote Sensing of the Environment	3	4	
	FEG335	Numerical and Computing Methods	3	17	

Table 2 (continued): Summary of courses taught by ERE Faculty (does not include 498, 798, 898, 899, or 999 courses)					
Professor	**Course Number**	**Course Name**	**Credits**	**Enrollment**	**Notes**
Kroll	APM395	Probability and Statistics for Engineers	3	18	
	ERE496	Fundamentals of Eng Prep	1	14	
	ERE496/796	Environmental Systems Engineering	3	11	
	FEG132	Orientation Seminar: Forest Engineering	1	44	
Lake and Dunkle	ERE596	Storm Water Management	3	18	Visiting Instructor
Mountrakis	ERE596	Spatial Analysis	3	9	
	ERE596	Digital Image Analysis	3	5	
	FEG365/ERE565	Principles of Remote Sensing	4	27	
Quackenbush	ERE371	Surveying for Engineers	4	43	
	ERE551	GIS for Engineers	3	11	
	ERE596	Introduction to Spatial Information	1	1	
	ERE596	Introduction to Global Positioning Systems	1	1	
	FEG133	Introduction to Engineering Design	3	32	
Tao	ERE440/643	Water Pollution Engineering	3	40	Fall 2009
	ERE440/643	Water Pollution Engineering	3	34	Spring 2010
	ERE596	Ecological Engineering for Waste Management	3	10	
	ERE796	Analysis of Ecological Treatment Systems	3	4	

Table 3 contains the total credit hour workload of ERE Faculty, including research, seminar, and class credit hours. ERE Faculty delivered 1889 total credit hours during the last year, for an average of 236 credit hours per faculty member (an increase from 222 the previous year).

Table 3: Credit Hour Workload of ERE Faculty		
Category	**ERE Total**	**Hour per Fulltime Faculty Member**
Undergraduate Research Credit Hours	68	9
Undergraduate Class Credit Hours	1277	160
Graduate Research Credit Hours	189	24
Graduate Seminar Credit Hours	30	4
Graduate Class Credit Hours	325	41
ERE Total	1889	236

b) Curriculum changes

ERE is currently transitioning to a new undergraduate curriculum. During the 2009-2010 academic year, our freshmen, sophomores, and juniors followed our new curriculum, while our seniors followed our old curriculum. The new ERE undergraduate curriculum can be viewed at www.esf.edu/ERE/undergrad_curric.htm. ERE faculty members continue to develop new courses which support our undergraduate and graduate programs, as well as our strategic plans. We continue to offer an increased number of undergraduate design electives, which provides more flexibility within the undergraduate curriculum. Table 4 includes courses taught for either the first or second time during the 2009-2010 academic year.

Table 4: New Courses Offered by ERE Faculty			
Course Number	**Course Name**	**Offering**	**Professors**
APM395	Probability and Statistics for Engineers	First (in 5 years)	Kroll
ERE496	Fundamentals of Engineering Preparation	Second	Kroll
ERE496/596	Ecological Restoration Design	First	Diemont
ERE496/796	Environmental Systems Engineering	First	Kroll
ERE596	Remote Sensing of the Environment	Second	Im
ERE596	Hydrometeorology	First	Endreny
ERE796	Phytotechnology	First	Daley
ERE796	Ecological Engineering and Design for Sustainability	First	Diemont
ERE796	Analysis of Ecological Treatment Systems	First	Tao
FEG335	Numerical and Computing Methods	First	Im

c) Teaching awards and recognitions

Lindi Quackenbush received the 2010 ESF College Foundation Award for Exception Achievement in Teaching. The Foundation Award was established in 1999 to celebrate the accomplishments of ESF faculty members who have achieved excellence in their teaching responsibilities. Dr. Quackenbush currently teaches Surveying, GIS for Engineers, and Introduction to Engineering Design. We commend her on this well deserved award.

2) Research

ERE faculty members continue to focus attention on increasing their overall research productivity and output in terms of publications and grants. The following sections outline our publications and presentations, grant activity, and research awards and recognitions.

a) Summary of publications/presentations

As outlined in ERE's strategic plan, a greater emphasis is being put on increasing the number and quality of publications and professional presentations by ERE Faculty. Table 5 summarizes the number of ERE Faculty publications and presentations from June 2009 to May 2010. Included in this table for each ERE faculty member is the number of published, in press, and pending refereed journal articles, book chapters, science meeting articles, professional publications, and presentations at the SUNY ESF Spotlight on Research. Appendix 2: ERE Publications and Presentations, provides details regarding the publications and presentations listed in Table 5. This information was provided by ERE faculty members.

ERE averaged 2.9 published or in press refereed publications per faculty member during the last year (an increase from 2.3 the previous year), with an average of 2.1 published articles per faculty member. ERE faculty members were responsible for 3 book chapters either published or in press, and one patent for Dr. Giorgos Mountrakis which was developed from his past research activities. The professional presentations listed in Table 5 include both poster and oral presentations by ERE faculty members, though exclude presentations at SUNY-ESF's Spotlight on Research in the Spring of 2010. ERE faculty members had a total of 37 professional presentations during the last year (nearly 5 per faculty member). These presentations occurred at a wide variety of venues, including local, regional, national, and international conferences, and invited talks at other universities.

A separate column in Table 5 contains graduate student posters at SUNY-ESF's Spotlight on Research. The ERE Faculty believe in the importance of the Spotlight on Research to promote ongoing research and project activities of our faculty and students. Of the 69 total graduate poster presentation, 23 were from ERE students and faculty. Of the 41 undergraduate posters, 5 were from ERE (all from Doug Daley's FEG489), and ERE students presented 1 of 3 class projects and 1 of 6 graduate oral presentations. Stew Diemont's graduate student, Hui Lin, received the first place prize in the graduate student oral presentations, while Ted Endreny's graduate student, Yang Yang, received the third place prize in the graduate student poster presentations.

Table 5: ERE Faculty Publications and Presentations June 2009 – May 2010							
Faculty Member	**Refereed Journal Published**	**Refereed Journal In Press**	**Refereed Journal Pendings**	**Book Chapters (Pending)**	**Science Meeting Articles**	**Professional Presentations**	**Spotlight Grad Student Posters**
Daley	-	-	-	-	-	3	2
Diemont	2	1	3	-	2	8	3
Endreny	1	-	3	-	-	5	4
Im	6	1	6	2	1	6	2
Kroll	1	-	3	(2)	-	1	2
Mountrakis	1	1	6	-	-	9	5
Quackenbush	3	4	2	-	2	1	1
Tao	3	-	2	1	3	4	4
ERE Total	17	7	25	3(2)	8	37	23

While number of publications is an important metric for scholarly output, the citations of publications also provides useful information regarding the importance of published work to the scholarly literature. Table 6 contains citation information for ERE Faculty. This information was provided by the SUNY ESF Library, and was obtained via the Scopus database. While most ERE Faculty members are relatively young in their academic careers, citations of publications by ERE Faculty members are increasing. In 2009, 195 citations of ERE publications occurred (an increase from 143 in 2008, and there have been over 600 citations in the last 5 years (an increase from 504 in 2008).

Table 6: Citations of ERE Publications				
Faculty Member	**#Citations 2009**	**#Citations 2005-2009**	**#Citations 2000-2009**	**h-Index***
Diemont	17	44	44	5
Endreny	28	107	127	8
Hassett	28	100	127	7
Im	26	60	60	4
Kroll	67	268	409	11
Mountrakis	2	6	10	2
Quackenbush	10	37	43	3
Tao	17	46	47	4
ERE Total	195	668	867	

*The **h index** is based on the highest number of papers that have had at least the same number of citations

b) Summary of grant activity

ERE is actively pursuing research funding to support our expanding teaching and research activities. Table 7 provides a summary of research expenditures for each ERE faculty member during the 2009-2010 fiscal year. This information was provided by the SUNY ESF Office of Research Programs. ERE Faculty members were responsible for over $1.17 million in expenditures during this period (over a 30% increase from last year), with over 22 credited projects. Appendix 3a: ERE Faculty Research Expenditures, contains an itemized description of each grant contributing to these totals.

Table 7: ERE Research Expenditures (Fiscal Year 2009-2010)

Name	Credited Number	Credited Amount	Credited Direct	Credited Indirect
Daley	0.45	$86,160	$61,084	$25,077
Diemont	0.25	$845	$845	$0
Endreny	6.08	$141,459	$119,274	$22,185
Hassett	3.15	$530,343	$496,465	$33,877
Im	1.25	$7,342	$5,752	$1,590
Kroll	5.33	$157,965	$157,965	$0
Mountrakis	2.90	$170,671	$122,759	$47,912
Quackenbush	2.05	$41,566	$36,345	$5,222
Tao	1.50	$36,017	$36,017	$0
ERE Total	22.97	$1,172,368	$1,036,506	$135,862

Table 8 provides a summary of research proposals from ERE Faculty over the last year. Over 21 project proposals with nearly $6 million in funding were credited to ERE Faculty. Appendix 3b: ERE Faculty Proposal Activity, contains an itemized description of each proposal contributing to these totals.

Table 8: ERE Research Proposals (Fiscal Year 2009-2010)

Name	Credited Number	Credited Amount	Credited Direct	Credited Indirect
Daley	0.53	$81,858	$55,342	$26,516
Diemont	0.68	$312,332	$285,797	$26,534
Endreny	7.43	$1,230,561	$993,183	$237,376
Im	5.62	$1,228,062	$876,859	$351,204
Kroll	0.83	$63,317	$58,888	$4,429
Mountrakis	2.67	$1,380,609	$1,020,559	$360,050
Quackenbush	1.40	$774,992	$700,898	$74,094
Tao	2.67	$744,361	$509,378	$234,983
ERE Total	21.83	$5,816,091	$4,500,904	$1,315,186

Table 9 outlines new research awards and funding changes for ERE Faculty during the last year. Over 5 new projects were credited to ERE Faculty, with over $600,000 in new funding. Appendix 3c: ERE Faculty New Research Funding, contains an itemized description of each newly funded project.

Table 9: New ERE Research Funding (Fiscal Year 2009-2010)				
Name	**Credited Number**	**Credited Amount**	**Credited Direct**	**Credited Indirect**
Endreny	0.92	$85,325	$76,277	$9,048
Hassett	0.25	$3,238	$2,654	$584
Im	1.00	$11,697	$9,284	$2,413
Kroll	1.33	$266,565	$266,565	$0
Mountrakis	1.40	$208,944	$154,900	$54,044
Quackenbush	0.40	$39,028	$30,723	$8,305
ERE Total	5.30	$614,797	$540,404	$74,393

c) Research awards and recognitions

Assistant Professor Jungho Im was the recipient the 2010 John I. Davidson President's Award for Practical Papers and the 2010 ESRI Award for Best Scientific Paper in GIS for co-authoring the paper "A Remote Sensing and GIS-assisted Spatial Decision Support System for Hazardous Waste Site Monitoring" which appeared in Photogrammetric Engineering & Remote Sensing (PE&RS). PE&RS is considered one of the top GIS and Remote Sensing journals, and we congratulate Jungho this distinguished award.

As mentioned previously, Stew Diemont's graduate student, Hui Lin, received the first place prize in the graduate student oral presentations section of the SUNY-ESF Spotlight on Research in April 2010. In addition, Ted Endreny's graduate students, Yang Yang, received the third place prize in the graduate student poster presentations at the 2010 Spotlight on Research. Wendong Tao co-author a poster presented by his MS student Matt Huchzermeier which won the CNY AWMA presenter prize.

3) Outreach and Service

ERE faculty and staff members have been involved with a wide variety of outreach and service activities during the last year. This section enumerates the main outreach activities by each faculty member, provides a summary of grant panel service and journal review and editorial board service, and lists service awards by ERE Faculty.

a) Enumeration of outreach activities

This section highlights 3 outreach and service activities for each ERE Faculty and Staff member. Our Staff have a history of service and outreach activities, and we appreciate their continued efforts to improve ESF, their profession, and the local community. Appendix 4: ERE Outreach and Service Activities, provides an itemized list of outreach and service activities for each ERE faculty member.

Doug Daley
1. Director, SUNY Center for Brownfield Studies, 2000 - Present.
2. ERE Representative and General Education Subcommittee Chair, SUNY-ESF Committee on Instruction, 2009-10.
3. Member, SUNY-ESF Middle States Accreditation Self Study Group, SUNY ESF, 2010.

Stew Diemont
1. Treasurer, American Ecological Engineering Society, 2009 – Present.
2. Communications Committee Member, International Society for the Advancement of Emergy Research, 2008 – Present.
3. Panelist, SUNY-ESF Faculty Mentoring Colloquium and Graduate Assistants Colloquium, January 2010 and August 2009.

Ted Endreny
1. Graduate Curriculum Coordinator, ERE, SUNY-ESF, 2006 – present.
2. Advisor, SUNY ESF Engineers without Borders, 2003 - present.
3. Coordinator, ERE Hydraulics Laboratory, 2008 - present.

Jungho Im
1. Coordinator, New York View Remote Sensing Consortium, NY State, 2009 – present.
2. ERE Representative, SUNY-ESF Campus Faculty Meetings, 2009 – 2010.
3. Editorial Board, GIScience and Remote Sensing, 2008 – present.

Chuck Kroll
1. Department Chair, ERE, SUNY ESF, 2008 - present.
2. Undergraduate Curriculum Coordinator, ERE, SUNY ESF, 2006 – present.
3. Advisor for Forest Engineering Club, ERE Undergraduates, 2000 – present.

Giorgos Mountrakis
1. ERE Representative, SUNY-ESF Committee on Instruction, 2009 – present.
2. Coordinator, ERE Geospatial Computing Laboratory, 2008 - present.
3. Panel Member, NASA Review Board, 2010.

Lindi Quackenbush
1. Assessment Coordinator, Department of Environmental Resources Engineering, 2009 – present.
2. NYS GIS Conference Co-Chair, NYS, 2006 – present.

3. Member, Mohawk Valley Community College Industrial Advisory Committee, 2010 – present.

Mark Storrings
1. Search Committee Member, SUNY-ESF's Information Technology Department's Programmer Analyst, 2009-2010.
2. Coordinator, ERE's annual NYS Fair display, 2000-2010.
3. Designer and Constructor, SUNY ESF submission to the "Duck Race to End Racism", 2007-2009.

Paul Szemkow
1. Committee Member, New York State GIS Conference Advisory Council, 2003-2010.
2. Newsletter Editor, Central New York Region of American Society of Photogrammetry and Remote Sensing (ASPRS), 1986-2010.
3. Organizer and Instructor, Boy Scouts of America Engineering Camp, Syracuse, NY 2008-2010.

Wendong Tao
1. Presenter, Ecological Engineering at SUNY-ESF, Beijing University of Chemical Technology, 2009.
2. Coordinator, ERE Ecological Engineering Laboratory, 2008-present.
3. Judge, SUNY-ESF Spotlight on Student Research poster session, 2010.

b) Summary of grant panel service

ERE Faculty members have held the following positions on grant panels during the last academic year:

Giorgos Mountrakis
Review Panel Member, NASA, April 2010.

c) Summary of journal review and editorial board service

ERE Faculty members have held the following editorial positions with journals:

Ted Endreny
Associate Editor, Journal of River Basin Management, IAHR & INBO, 2003 – present.
Board Member, Hydrological Processes, Wiley & Sons, 2005 – present.

Jungho Im
Editorial Board, GIScience and Remote Sensing, 2008 – present.

In addition, ERE faculty members have provided professional service in the form of journal and proposal review. For each faculty member in the list below, the number of journals and agencies, followed by the total number of reviews is provided (i.e. 3/6 means 6 articles reviewed for 3 journals):

Stew Diemont:	4/5
Ted Endreny:	9/16
Jungho Im:	5/15
Chuck Kroll:	1/1
Giorgos Mountrakis:	4/4
Lindi Quackenbush:	3/4
Wendong Tao:	11/7

d) Enumeration of other significant service activities

As outlined in Appendix 4, during the last year ERE Faculty and Staff provided ample service to their department, college, profession, and their local and global communities. In addition to these services, 6 of the 8 ERE Faculty members served on Empire Innovation Faculty Search Sub-committees, and all were active with interviewing candidates while on campus, though none of the hires from this search entered our department. This college service exemplifies the continued selfless service of the ERE faculty.

e) Service awards and recognitions

Lindi Quackenbush was awarded the 2010 Undergraduate Student Association's Best Advisor Award. This student initiated award is given to the professor students feel is most giving of their time and energy for the advising of students. Dr. Quackenbush has always been an exceptional advisor, understanding the needs of her advisees and developing individualized educational and career plans to address these needs. This is another deserving award for Dr. Quackenbush.

4) Service-Learning

Service-learning is an important component of our curriculum. Our engineering students continue to combine their engineering activities with outreach activities that aid local and global communities. Table 10 contains a list of service learning projects completed as part of courses delivered by ERE. This table contains the course number, course name, a brief description of the service activity, the instructor, and the estimated instructor and graduate student input in terms of hours/week.

Table 10: Summary of Course-Based ERE Service-Learning Activities (2009-2010)					
Course Number	**Course Name**	**Brief Description of Service Activity**	**Instructor**	**Estimated Instructor Input to Activity (hours/week)**	**Estimated Graduate Student Input to Activity (hours/week)**
ERE 796	Ecological Engineering and Sustainable Design	Worked with the Boys and Girls club of Syracuse designing a constructed urban garden, modified swale and rain barrel - educational and maintenance activities continue through the summer.	Diemont	3	0
FEG 275	Ecological Engineering I	Working with the Onondaga Environmental Institute (OEI) and building upon their Onondaga Creek Revitalization Plan (2009) in class designs.	Diemont	1	3
ERE 496/596	Ecosystem Restoration Design	Working with the Onondaga Environmental Institute (OEI) and building upon their Onondaga Creek Revitalization Plan (2009) in class designs. OEI has posted class reports on their website.	Diemont	3	3
FEG489	Engineering Planning and Design	Design of an Aquaponic CEA/CHP System for a Former Paper Mill Site in Lyons Falls, NY	Daley	2	1
FEG489	Engineering Planning and Design	Design & Development of Brownfield Sites for Food Security	Daley	2	1
FEG489	Engineering Planning and Design	Stormwater and Flood Mitigation at Franklin Park in Dewitt, NY.	Daley	2	1
FEG489	Engineering Planning and Design	Urban Flooding Mitigation: A case study at PPC INC., East Syracuse, NY	Daley	2	1
FEG489	Engineering Planning and Design	Clark Mills Wastewater Treatment Plant Upgrade	Daley	2	1

5) Graduate Students

Much of ERE's success can be attributed to our high quality graduate students. The following sections outline the number of graduate students by degree objective and funding source, as well as the courses with teaching assistant (TA) support.

a) Number of students by degree objective and funding sources

ERE faculty members were the major professor for 48 graduate students during the last year. Table 11 summarizes the graduate student numbers by degree and funding source. In total, ERE had 9 MPS students, 24 MS students, and 15 PhD students. Students with fellowships were typically funded by an international fellowship (such as Fulbright). Appendix 5: ERE Graduate Students, provides details regarding individual graduate students, as well as their funding, expected degree date, and major professor.

Table 11: Graduate Students Numbers by Degree and Funding Source

Degree	Funding Source	Number
MPS	Self	9
MS	Fellowship	2
MS	Self	3
MS	Provost GA	2
MS	Research	5
MS	State GA	12
PhD	Fellowship	2
PhD	Self	3
PhD	Provost GA	1
PhD	Research	6
PhD	State GA	3
ERE Total		48

All ERE Faculty advise graduate students. Table 12 lists the number of graduate students each ERE Faculty member was assigned as the major professor during the last year.

Table 12: Number of Graduate Student for Each ERE Faculty Member

Faculty Member	Number of Graduate Students
Daley	7
Diemont	6
Endreny	9
Hassett	4
Im	3
Kroll	5
Mountrakis	5
Quackenbush	5
Tao	4
ERE Total	48

b) Courses having TA support

Table 13 outlines the courses with ERE teaching assistant (TA) support. Primarily these courses were taught by ERE Faculty or Visiting Professors, with the exception of support provided for ERE223 and ERE362 which are taught by CMWPE to primarily ERE students, and PSE361 which was taught by PBE.

Table 13: Course with ERE TAs			
Course	**Semester**	**Professor**	**# of TAs**
ERE223 – Statics and Dynamics	Fall 2009	Hussien	0.5
ERE 371 – Surveying for Engineers	Fall 2009	Quackenbush	2.5
ERE440/ERE643 – Water Pollution Engineering	Fall 2009	Tao	1
ERE496 – Ecological Restoration Design	Fall 2009	Diemont	1
ERE496/796 Environmental Systems Engineering	Fall 2009	Kroll	0.5
ERE551 – GIS for Engineers	Fall 2009	Quackenbush	0.5
ERE596 – GIS-based Modeling	Fall 2009	Im	0.5
ERE596 - Phytotechnology	Fall 2009	Daley	0.25
ERE596 – Spatial Analysis	Fall 2009	Mountrakis	0.5
ERE796 – Analysis of Ecological Treatment	Fall 2009	Tao	0.25
FEG335 – Numerical and Computing Methods	Fall 2009	Im	1
FEG412/ERE612 – River Classification	Fall 2009	Endreny	0.5
FEG430 – Engineering Decision Analysis	Fall 2009	Daley	1
APM395 – Probability and Statistics for Engineers	Spring 2010	Kroll	0.75
ERE133 – Introduction to Engineering Design	Spring 2010	Quackenbush	1.5
ERE275 – Ecological Engineering I	Spring 2010	Diemont	1
ERE362 – Mechanics of Materials	Spring 2010	Hussien	0.5
ERE440/643 – Water Pollution Engineering	Spring 2010	Tao	1
ERE496 – FE Exam Preparation	Spring 2010	Kroll	0.25
ERE448/548 Open Channel Hydraulics	Spring 2010	Hassett	0.5
ERE596 – Digital Image Analysis	Spring 2009	Mountrakis	0.5
ERE596 – Ecological Engineering for Waste Management	Spring 2009	Tao	0.5
ERE596 – Remote Sensing of the Environment	Spring 2010	Im	0.5
FEG 437 – Transportation Systems	Spring 2010	Daley	0.5
FEG 489 – Forest Engr Planning and Design	Spring 2010	Daley	1.5
FEG340/ERE540 – Engineering Hydrology and Hydraulics	Spring 2010	Endreny	1
FEG365/ERE565 – Principles of Remote Sensing	Spring 2010	Mountrakis	1
FEG454 – Power Systems	Spring 2009	Gerber	0.5
PSE361 – Engineering Thermodynamics	Spring 2010	Amato	0.5

6) Governance Structure

ERE Faculty members have a number of assigned duties. Table 14 provides a list of faculty governance positions within ERE.

Table 14: ERE Governance Structure	
Governance Position	**Faculty Member**
Department Chair	Chuck Kroll
Undergraduate Coordinator	Chuck Kroll
Graduate Coordinator	Ted Endreny
Coordinator of Assessment	Lindi Quackenbush
ERE Committee on Instruction Representative	Doug Daley
ERE Committee on Research Representative	Giorgos Mountrakis
Coordinator of Hydraulics Laboratory	Ted Endreny
Coordinator of Intelligent Geospatial Computing Laboratory	Giorgos Mountrakis
Coordinator of Ecological Engineering Laboratory	Wendong Tao
Coordinators of ERE Web Site	Chuck Kroll (all but graduate pages) Ted Endreny (graduate pages)
Faculty & Alumni Scholarship Review Panel	Lindi Quackenbush

7) Student Learning Outcomes Assessment

ERE has a formal assessment protocol that has been implemented as part of their accreditation with the American Engineering Councils' Accreditation Board for Engineering and Technology (AEC/ABET). AEC/ABET outlines 11 program outcomes to be assessed. These outcomes are listed in Table 15. ERE has developed a procedure, as outlined in the Spring 2010 ERE Handbook for Program Assessment, of assessing each of these 11 outcomes at least once every 2 years. In addition, an annual assessment report is to be produced that presents results of assessments of the past year, as well as triggers from assessments that indicate the need for curricular changes. At the time of this report, the 2009-2010 assessment report has not yet been developed. As such, results of the 2008-2009 assessment report are discussed here. The 2008-2009 report was complete in September 2009.

a) Response to previous assessment recommended actions

The 2007-2008 Annual Assessment Report contained a number of recommended actions. The 2008-2009 responses to each previously recommended action are discussed:

> **Recommended Action 1:** The Handbook for Program Assessment needs to be completed and distributed to the ERFEG faculty. This handbook should accurately describe the context, background, layout (i.e. who does what when), and cataloguing of our assessment activities. It should also summarize our ongoing direct and indirect assessment activities, and provide a standardize format for all direct and indirect assessments.
> **Response 1:** The Handbook for Program Assessment was revised with significant faculty input. The revised handbook was distributed to all faculty in January 2009. The handbook, as

a working document, will be reviewed during the next year. Additional information will be developed to create more consistent assessment reports and the use of indirect assessments, such as the alumni survey, exit interviews, and end-of-course student surveys.

Recommended Action 2: Indirect assessment activities for all ABET outcomes must be identified and documented.
Response 2: We began this process in the last year, and will finalize and document appropriate methods in the next year.

Recommended Action 3: We should continue to reflect on our current and future assessment needs, using the Annual Assessment Report, newly constructed course hierarchies, and assessment reviews and updates at faculty meeting and retreats to improve our assessment activities.
Response 3: We included discussion of curriculum and assessment-related items in several faculty meetings in the academic year, including the faculty retreat on 12/17/08. Assessment activities were revised based on course hierarchies associated with the revised curriculum.

Recommended Action 4: We should develop a new 1 credit course which provides a review of FE exam structure and materials.
Response 4: A 1 credit hour course was delivered in Spring 2009 to assist students with FE exam preparation. Enrollment was optional. Student pass rate on the Spring 2009 FE exam increased substantially.

b) Results from assessments

Table 15 contains a summary of the 2008-2009 direct assessment activities. Assessments were performed for 7 of the 11 Criterion (a – k), with some Criteria having more than one assessment activity. Most of the triggers were due to the poor performance of a small number of students. Three triggers that were not of this nature were in respect to Criterion a), h), and i). With respect to Criterion a) (an ability to apply knowledge of mathematics, science and engineering), while our passing rate on the FE exam has increased to nearly the national average, we expect our passing rate to be above the national average. As such, we will continue our FE Review Class to help student prepare for this exam. With respect to Criterion h) (the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context), we feel we must do more to help our students increase their knowledge of how engineering interfaces with society. To help with this, we are trying to develop more student projects that involve real problems in the local community, as well as encourage our students to become more involved with outreach activities, such as their work with Engineers Without Borders. With respect to Criterion i) (a recognition of the need for, and an ability to engage in life-long learning), we have created an exercise in our freshmen Introduction to Engineering Design course where students map out their career path. While some students struggled with this assignment, we feel it is important for students to realize that their undergraduate education is one step in their career learning. We continue to be encouraged by the large percentage of students who take the FE exam, indicating knowledge of the importance of professional licensure.

Table 15: Summary of 2008-2009 Assessments					
	Criteria	**08/09 Assessment**	**Class/ Activity**	**Collection Agent**	**Action Item**
a.	An ability to apply knowledge of mathematics, science and engineering	Yes	ERE496	Kroll	Trigger Continue FE review course.
		Yes	FE Exam Results	Kroll	Trigger Continue FE review course.
b.	An ability to design and conduct experiments, as well as to analyze and interpret data	Yes	FEG350	Mountrakis	No trigger
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	Yes	FEG340	Endreny	No trigger
c.		Yes	FEG489	Daley	No trigger Students should better consider global or societal issues in engineering design.
d.	An ability to function on multi-disciplinary teams	Yes	FEG489	Daley	Trigger One student failed to meet minimum expectation. Recommend vigorous mentoring and one additional mid-semester formative assessment
e.	An ability to identify, formulate, and solve engineering problems	No			Due in 2009-2010
f.	An understanding of professional and ethical responsibility	Yes	FEG489 FEG300	Daley	No trigger More guidance should be provided regarding expectation of assessment vehicle.
f.		Yes	FEG133	Quackenbush	No trigger

Table 15 (continued): Summary of 2008-2009 Assessments

	Criteria	08/09 Assessment	Class/ Activity	Collection Agent	Action Item
g.	An ability to communicate effectively: Overall	No			Due in 2009-2010
	An ability to communicate effectively: Oral	Yes	FEG489	Daley	No trigger Consider additional oral presentations throughout curriculum.
	An ability to communicate effectively: Written	Yes	FEG430	Kroll	No trigger Additional writing exercises throughout curriculum would further strengthen this skill.
	An ability to communicate effectively: Graphically	No			Due in 2009-2010
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.	Yes	FEG340	Endreny	Trigger Further mentoring necessary to ensure individual success.
i.	A recognition of the need for, and an ability to engage in life-long learning	Yes	FEG133	Quackenbush	Trigger Individual students require additional guidance to address this outcome.
j.	A knowledge of contemporary issues	Yes	FEG430	Kroll	No trigger Continue to discuss contemporary issues with our students throughout the curriculum.
k.	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	No			Due in 2009-2010

c) Recommended actions

Based on the results of the 2008-2009 direct assessments and ongoing assessment activities, the following recommended actions have been identified:

Recommended Action 1: Based on the continued non-uniform reporting of assessment activities and results, a further update the Handbook for Program Assessment is needed. The Handbook should clearly describe the required assessment reporting protocols, and their should be consistency between performance criteria as stated in the Handbook and the assessment tools used by instructors to assess these criteria. In addition, the Annual Assessment Report should reflect the use of indirect assessment tools, such as end of course surveys, exit interviews and alumni surveys.

Recommended Action 2: Since outcome (i) lifelong learning was only assessed at the freshmen level, there is a need for further assessment of this outcome later in the undergraduate program. To accomplish this, there is a need to develop and implement a longitudinal assessment tool for this outcome.

Recommended Action 3: Identify and perform direct assessments for all outcomes not assessed during AY 2008-2009. In particular, this refers to Criteria e), j), and parts of g).

Recommended Action 4: Provide continued guidance and resources to faculty as they develop and implement assessment tools. Provide critical review of performance criteria, assessment tools and findings by an assessment expert external to the Department. Identify strengths and areas for improvement in Program Assessment.

Recommended Action 5: Provide training at ABET-sponsored workshops to prepare an assessment coordinator and faculty to lead preparations for the next ABET visit.

d) Conclusions

The assessment results collected from the ERE faculty continue to be excellent. I personally feel we are on the right track with our assessment efforts, and are developing a structured program of assessment that will satisfy both our needs and ABET's requirements. We are clearly on a path of continued success within our Faculty, and the time, effort, and attention we put on assessment activities during the 2008-2009 academic year aids this success.

8) Progress on Goals for 2009-2010, and Plans for Goals for 2010-2011.

ERE developed a new Strategic Plan in November 2008. The Strategic Plan revolves around four primary goals:

Goal 1: Continue to develop innovative and diverse educational approaches to enhance our ability to train engineers to meet changing needs

Goal 2: Strengthen our engineering and scientific research through increased publications, funded proposals, and collaborative relationships

Goal 3: Integrate service with teaching and research to address local to global needs

Goal 4: Expand the professional capabilities of ERE Faculty and Staff to enhance our teaching, research, and outreach

For each of these goals, both short and long-term tasks were identified which would aid ERE in achieving a specific goal. These tasks were partitioned into Departmental Tasks and Individual Tasks, and represented an implementation plan which was part of ERE's new Strategic Plan. In addition to identifying tasks, a completion date for each task was also identified.

In the following sections, for each task under each goal, the progress made during 2009-2010 is outlined (Progress 2009-2010), as well as the Plans for 2010-2011.

a) Goal 1: Continue to develop innovative and diverse educational approaches to enhance our ability to train engineers to meet changing needs

Departmental Implementation Plan

By January 2009:

1) Improve the way we promote the educational activities of our faculty, students, and staff (web presence, newsletter, Baker hallways, etc.).

2009-2010 Progress:

ERE internet site has been updated.
New departmental display units for Baker hallways have been designed, constructed and displayed. Content have changed throughout the year.
New electronic projection screen have been installed on the 1st and 4th floors of Baker Lab.
The ERE Newsletter was written, printed, and sent to alumni (for the first time in 3 years).

2010-2011 Plans:

Continue the ERE Newsletter on a once a year basis.
Four additional departmental display units will be constructed, and content rotated at least 4 times a year.
Continue to develop content for digital display screens.
Develop and print promotional pamphlets for the undergraduate and graduate programs.

2) Continue to coordinate and develop formal assessment activities, review these activities on an annual basis, and use this information to reflect on adequacy of curriculum to satisfy ABET and departmental outcomes (communication, technical skills, etc.).

2009-2010 Progress:
ERE Assessment Handbook has been revised and updated.
ERE assessment format was recreated and distributed.
Faculty has formulated and implemented 2009-10 assessment schedule.
ERE Advisory Board performed both direct assessment and assessment of our assessment protocols during their May 2009 meeting.

2010-2011 Plans:
Continue assessment procedures.
Seek external evaluation of assessment protocols and curriculum.

By September 2009:

3) Facilitate the change of department and degree name at the undergraduate and graduate level.

2009-2010 Progress:
The new department name, Environmental Resources Engineering, has been proposed and accepted by SUNY ESF.
The BS in Environmental Resources Engineering has been approved by SUNY and the New York State Education Department.
The ERE Chair met in person with ABET Officials in San Antonio, TX in October 2009, and via a conference call in January 2010 to discuss the accreditation of our new degree program.

2010-2011 Plans:
Continue to communicate changes in our department name and degree programs to ABET and other constituency groups.

4) Create outreach courses that serve community needs, promote ERE, and aid ERE's financial development.

2009-2010 Progress:
A 2-day course, an Introduction to GPS, was developed and offered by an ERE staff member (Paul Szemkow) for free to all ESF employees.
ERE faculty coordinated and delivered a Professional Engineering (PE) and Fundamentals of Engineering (FE) review course.

2010-2011 Plans:
Given other priorities in the department, few additional offerings of this type are expected in the future.

5) Develop a prudent protocol for maintaining and improving ERE technology (research, institution, development financing).

2009-2010 Progress:
Congressional earmark for Information Technology granted to department in 2009.
Resources employed to upgrade departmental hardware and software, and purchase new analytical equipment and geospatial data.
Current equipment continues to be catalogued.
Began rotation of surveying equipment for long-term maintenance.

2010-2011 Plans:
Maintenance schedule for all departmental equipment needs to be formulated and reviewed by faculty.

By September 2010:

6) Increase local to global field-based opportunities for students to integrate learning, research, and service.

2009-2010 Progress:
SUNY ESF Engineers Without Borders (EWB), which is primarily ERE students and is supported by ERE department, continues to work on a water distribution project in northern Honduras.
Multiple research projects in Central America involve undergraduate and graduate students.
Undergraduate students participated in semesters abroad.

2010-2011 Plans
Formal transfer agreements will be developed with multiple universities. Initially agreements will be developed with universities in Canada and Mexico.

7) Develop and implement an undergraduate and graduate student recruiting program that increases the quality and diversity of our student body.

2009-2010 Progress:
ERE Chair and Faculty have continued recruitment of high quality undergraduate students with engaging open houses, and phone, e-mail, and personal communication with potential candidates and their families.
Department internet site improved to aid in recruitment of undergraduate and graduate students.
Open house for accepted graduate students occurred in March 2010.

2010-2011 Plans:
Department plans activities to increase the diversity of undergraduate students.
Need more creative and formal recruitment of graduate students. Open house for accepted graduate students in the spring should continue.
Develop pamphlets, fliers, and posters to promote undergraduate and graduate programs.
Continue to improve internet site, including protocols to update and change content.

8) Provide more formal assessment of faculty and graduate student teaching, and encourage creative teaching approaches that stimulate student interest while achieving program outcomes.

2009-2010 Progress:
As part of the renewal of 4 faculty members, peer teaching evaluations were developed and performed.

2010-2011 Plans:
We will continue to create and implement protocols for peer-review of teaching, including of senior faculty members by junior faculty members.

9) Increase the number and level of graduate course offerings to support our research and graduate mentoring, creating engineering design electives when possible.

2009-2010 Progress:
Department has increased number of graduate and engineering design elective offerings in Geospatial and Ecological engineering.

2010-2011 Plans:
ERE Faculty are currently teaching at the proper load, and no additional courses can be offered.
There is currently a lack of Water Resource Engineering courses. This has been discussed with SUNY ESF Provost, and department hopes to hire a new faculty member within this specialty.

10) Create more formal structure to graduate program options, identifying core courses, preferred courses, required seminars, etc.

2009-2010 Progress:
The ERE internet site has been updated to present information on the graduate student experience and graduate student expectations.
Lists of prerequisites and requirements of graduate programs have been developed.0

2010-2011 Plans:
Information developed in 2009-2010 should be reviewed.

11) Better facilitate the development of undergraduate student portfolios.

2009-2010 Progress:
Little has been done to address this issue.

2010-2011 Plans:
The ERE faculty is currently uncertain if this need is properly balanced with the time and energy necessary to develop undergraduate portfolios, especially given the increasing size of

the undergraduate student body and the small faculty size. This is not a priority area for the next year.

12) Coordinate with SUNY ESF Outreach services to develop distance-learning opportunities.

2009-2010 Progress:
Little has been done to address this issue.

2010-2011 Plans:
Given our small faculty size, this does not currently seem to be a priority issue.

13) Develop courses that encourage the participation of local professionals and other non-traditional students (night courses, courses taught at local companies).

2009-2010 Progress:
Little has been done to address this issue.

2010-2011 Plans:
Given small faculty size and increased undergraduate enrollment, little has been done to address this need. Should ERE faculty size increase, we may have the resources to implement this plan.

14) Encourage club activities that have teaching, research, and/or service components.

2009-2010 Progress:
EWB has again thrived this year, with increased energy, new connections, and an important water supply project in Honduras is now at the implementation phase.
A new student chapter of the New York State Water and Environmental Association (NYWEA) has been proposed.
The Forest Engineering (FEG) Club continues to be active with increased student participation. The FEG Club worked on a stream restoration in the Syracuse area during the last year.
The Advisory Board has proposed to take a more active role in student design projects.

2010-2011 Plans:
There continues to be interest in both EWB and the FEG Club. Both organizations are targeting continued service activities during the next year.
Advisory Board will be used to identify community needs for developing service learning engineering design projects, as well as a more formal review of student progress on their capstone designs.
SUNY-ESF's NYWEA Student Chapter will be formalized.

15) Develop and promote more formal arrangements for industry, government, and research internships, and encourage our students to participate in these opportunities.

2009-2010 Progress:
The second annual ERE Advisory Board Panel Discussion and Employer Information Session was held in November 2009.

2010-2011 Plans:
The ERE Advisory Board will be involved with planning the November 2010 Advisory Board Panel Discussion and Employer Information Day.
The ERE Advisory Board and has the goal of four panel discussions throughout the next academic year.
Only informal activities have occurred to develop permanent internship programs with local industry. The current economic situation has dampened some interest in this opportunity.
Department will support and encourage participation in SUNY ESF job/internship internet site (GreenLinks).

16) Develop ways to improve student preparedness for entering the workforce, such as resume writing workshops, job fairs, etc.

2009-2010 Progress:
Panel discussion regarding the first 5 years on the job occurred in November 2009.
Second annual Employer Information Session occurred in November 2009.
A Faculty resume review for undergraduates occurred in the fall 2009 to prepare students for Employer Information Session.

2010-2011 Plans:
Other topics for panel discussions are being discussed for the 2010-2011 academic year.
Another Employer Information Session will occur in early November 2010, targeting both permanent positions and summer internships.

Individual Implementation Plan

By September 2009:
1) Creatively employ modern technology and instructional support to aid in course delivery and management (Blackboard, CMS, ITS, etc.).

2009-2010 Progress:
ERE faculty continues to develop creative uses of Blackboard.
The department employed academic replacement funds to purchase a digital projection unit for classroom teaching.

2010-2011 Plans:
Continued use of modern technology for instruction will be employed.

2) Integrate formal assessment of ABET outcomes with teaching activities to maintain ABET accreditation and improve assessment efficiency and effectiveness.

2009-2010 Progress:
New assessment protocols were developed to include all ERE faculty members, encouraging them to integrate assessments into teaching activities.
The ERE Handbook of Assessment was redeveloped and now provides excellent guidance on our assessment activities, making them more efficient and effective.
The ERE Chair attended a 1-day ABET workshop on assessment.

2010-2011 Plans:
Continue our assessment activities, updating and revising the Handbook of Assessment as necessary.
Continue to communicate with ABET regarding our upcoming accreditation visit (fall 2012).

3) Effectively utilize new ERE spaces to improve student hands-on laboratory experiences and in-class teaching experiences.

2009-2010 Progress:
A new classroom for water chemistry laboratories has been developed. This space is a shared resource with SCM.
The hydraulics laboratory continues to be integrated into ERE courses.
Classroom spaces continue to be utilized to deliver creative teaching experiences, and the instruction of a new digital projection unit in Baker 432 greatly expands the potential use of this classroom.
Greenhouse space in SUNY-ESF's Old Greenhouse building continues to provide experiential learning opportunities.

2010-2011 Plans:
The department will continue to explore creative and effective educational activities to maximize the use of our educational spaces.

By September 2010:
4) Develop protocols to optimize use of Graduate Assistant (GA) allocations and improve communication between faculty, staff, and GAs.

2009-2010 Progress:
GAs have been creatively assigned to address departmental teaching and research needs.
ERE graduate seminar completely redeveloped (led by Ted Endreny) to better involve faculty and to communicate faculty interests to students.
Faculty-Graduate Student function arranged to create an avenue for informal interactions between faculty and graduate students.
The ERE Chair proposed to start the academic year the Monday before classes in the fall semester to better utilize new GAs for the beginning of the fall semester. This change should improve GA use within the department.

2010-2011 Plans:
Plans similar to 2009-2010 will be implemented during the next academic year.
Additional Faculty-Graduate Student functions should be pursued.

5) Integrate ERE and ESF facilities and properties into teaching to provide new educational experiences and exercises.

2009-2010 Progress:
Only limited new activities have been developed, though the faculty is better utilizing spaces on the main SUNY ESF campus.

2010-2011 Plans:
Faculty will pursue opportunities at expand educational activities to other SUNY ESF properties as needed.

b) Goal 2: Strengthen our engineering and scientific research through increased publications, funded proposals, and collaborative relationships

Departmental Implementation Plan

By January 2009:

1) Improve the way we promote the research activities of our faculty, students, and staff (web presence, newsletter, Baker hallways, etc.).

2009-2010 Progress:
Web site was updated.
Digital and poster departmental displays have been created and displayed.

2010-2011 Plans
We continue to need a formal protocol for updating internet site content, as well as the content in the departmental displays throughout Baker Lab.

By September 2009:

2) Strategically allocate GA positions to improve our research efficiency and output, awarding positions to faculty members who fund graduate students who produce peer-reviewed publications and additional external funding.

2009-2010 Progress:
GAs have been assigned to both reward faculty success and recruit high quality students.

2010-2011 Plans:
We will continue to pursue a strategy to reward successful faculty members and recruit high quality students.

3) Strategically allocate ERE personnel in college committees, and use involvement in these committees to leverage sponsored research opportunities.

2009-2010 Progress:
Some ERE faculty members have been strategically allocated to college committees.

2010-2011 Plans:
There is still inequity in these allocations, with only a few senior faculty members and one junior faculty member carrying a large administrative burden.
Newer faculty members will be asked to become more involved with departmental and university administrative activities.

By September 2010:

4) Increase the number of departmental post-doctoral and PhD positions to enhance research efficiency and output.

2009-2010 Progress:
The department hosted a post-doctoral position during this year (under Giorgos Mountrakis).
A limited number of PhD students began in the fall 2009.

2010-2011 Plans:
We will continue to pursue high-caliber PhD students, who are important to our continued scholarly success.
We are exploring ways to raise the salary of graduate students to improve our competitiveness with other universities.

5) Create opportunities to improve graduate student stipends (development, endowments).

2009-2010 Progress:
Limited progress has been made on this issue.
Some faculty have sought ways to augment State Graduate Assistant stipends with increased summer research funding.

2010-2011 Plans:
We will continue to address this important issue, as attracting high-quality graduate students is our primary goal for the next year.
We will examine creative avenues to increase graduate stipends and provide rewards to successful graduate students.
We are discussing ways to combine GAships to increase graduate student salaries.

Individual Implimentation Plan

By September 2009:

1) Continue to develop ways to integrate ERE strengths in our research activities.

2009-2010 Progress:
ERE faculty members have been involved with a variety of multidisciplinary research activities which promote ERE strengths.

2010-2011 Plans:
We will examine additional ways we can work within ERE to develop strategic collaborations amongst our own department.

2) Maintain and improve the number of competitive proposals to national funding agencies (NSF, NASA, NOAA, USDA, EPA, etc.).

2009-2010 Progress:
The number and total dollar amount of ERE proposals continues to be strong, with involvement of all ERE faculty members.
Faculty have targeted more national funding agencies for proposals, and will continue to do so in the future.

2010-2011 Plans:
ERE Faculty members have been encouraged to continue to pursue research funding from national agencies as a way to promote themselves, ERE, and SUNY ESF.
Younger faculty members have been encourage to pursue Young Investigator awards from NSF and other national funding agencies.

3) Develop and/or participate in interdisciplinary seminars to improve the depth and breadth of our knowledge.

2009-2010 Progress:
The department continues to be involved with a number of interdisciplinary seminars.
The ERE graduate seminar was restructured this year, with a focus on presenting faculty and advanced graduate student work as a way to better educate faculty and students about ongoing and future research interests and activities.
Many faculty members participate in interdisciplinary seminars across campus, such as the Hydrogeology and Biogeochemistry Seminar.

2010-2011 Plans:
ERE Faculty will continue to coordinate and participate in interdisciplinary seminars on campus.

4) Develop interdisciplinary collaborative relationships within ERE, the ESF community, and with external researchers that improve our research proposals and publications on a local to global scale (students and faculty exchanges with esteemed programs, lecture series, etc.).

2009-2010 Progress:
ERE faculty members were involved with many multidisciplinary proposals and papers during the past year, integrating ERE strengths with faculty members from many departments on campus as well as researchers from other universities.
ERE faculty were involved with researchers throughout the world, building new ties and fostering older relationships.

2010-2011 Plans:
We will continue to pursue multidisciplinary research activities on campus.
We will continue to explore relationships with researchers and educators throughout the world.

By September 2010:

5) Continue to strengthen our scholarly output and abilities with an emphasis on high quality peer-reviewed publications.

2009-2010 Progress:
The ERE Faculty averaged 2.9 refereed publications during the last year, an increase from 2.3 the previous year.
Many of the newer ERE Faculty have shown incredible promise for producing peer-reviewed publications, and efforts have been made allow them to continue their productivity.

2010-2011 Plans:
ERE continues to encourage their faculty members to pursue high quality peer-reviewed publications.

6) Sustain an appropriate level of sessions convened and presentations at local, national, and international conferences.

2009-2010 Progress:
The 8 ERE Faculty were involved with 37 professional presentations during the last year.
ERE Faculty attended a wider variety of profession conferences than in past years.

2010-2011 Plans:
Faculty members are encouraged to convene conference sessions.
Faculty members have been asked to pursue different conference so that we can promote our department and college to a wider audience.

7) Improve the level of ERE faculty involvement in governance of national and international professional organizations and journal editorial positions.

2009-2010 Progress:
2 ERE faculty members held positions of journal associate editor.
1 ERE faculty member was the treasurer for a national organization.
ERE faculty members were encouraged to become more involved with national organizations and to pursue opportunities for leadership within these organizations.

2010-2011 Plans:
ERE will continue to support faculty involvement with journals and national and international organizations, as these are important to continuing to promote our department and college.

8) Create opportunities to improve graduate student stipends (proposals, summer salary increases).

2009-2010 Progress:
ERE faculty members have made efforts to improve graduate student stipends through increased summer salary.

2010-2011 Plans:
As mentioned previously, ERE faculty members continue to pursue opportunities to improve the financial support to graduate students.

9) Integrate research activities with service and teaching, strategically using partnerships with engineering firms, governmental agencies, and academic institutions to advance research efforts at local, national and international scales.

2009-2010 Progress:
A number of strategic partnerships continued to be developed, including teaching, research, and service activities in Honduras and Mexico.
We have also partnered with a number of local agencies to pursue projects of local to regional interest.

2010-2011 Plans:
We will continue to pursue strategic partnerships which allow us to integrate research, teaching, and service activities.

c) Goal 3: Integrate service with teaching and research to address local to global needs

Departmental Implementation Plan

By September 2009:
1) Identify, promote, and celebrate our ongoing service activities.

2009-2010 Progress:
Some service activities have been promoted on our internet site and in departmental displays.

2010-2011 Plans:
We continue to engage our Advisory Board to identify local service projects to integrate into our teaching and research.
We will make an effort to better promote our ongoing service activities on campus and to the local community.

2) Identify and ensure that "critical" professional societies have ERE representation (e.g. ASABE, ASEE, ASCE-EWRI, AGU, ASPRS, etc.).

2009-2010 Progress:
A number of faculty members have joined new organizations (such as the American Ecological Engineering Society) to widen our professional representation.

2010-2011 Plans:
We need to do a better job being more strategic about what organizations we have a well established relationship, and what organization we need to build a relationship.
Encourage ERE faculty members to become more involved with organizations we identify as needing to build a relationship with.
Encourage ERE faculty to take positions of leadership within national organizations.

By September 2010:
3) Encourage and support student and club involvement in engineering design competitions.

2009-2010 Progress:
Another US EPA P3 proposal was written, which would involve students in a national design competition.

2010-2011 Plans:
Students should be encouraged to increase their involvement in activities outside of the classroom.
Design competitions that are identified as consistent with our strategic plan should be pursued.

Individual Implementation Plan

By September 2009:
1) Continue to develop service learning opportunities for our graduate and undergraduate students (capstone design projects, EWB, class projects, etc.).

2009-2010 Progress:
EWB continues to thrive, with an ongoing project in Honduras.
The senior capstone course Engineering Planning & Design continues to focus on service learning projects.
Additional courses have been developed with a service learning emphasis, though only a limited number of faculty are involved.

2010-2011 Plans:
Faculty are encouraged to pursue service aspects to their research and teaching activities.

By September 2010:
2) Sustain an appropriate level of sessions convened and presentations at local, national, and international conferences.

Note: This was addressed at the beginning of this goal under departmental implementation.

3) Improve the level of ERE faculty involvement in governance in national and international professional organizations and editorial board journal positions.

Note: This was addressed at the beginning of this goal under departmental implementation.

4) Provide lectures at local high schools, colleges and community events to promote our program and increase enrollment and development.

2009-2010 Progress:
Numerous faculty members have been involved with local middle, elementary, and high schools to promote environmental science and engineering.

2010-2011 Plans:
ERE faculty members have been asked to identify local colleges where they could give guest lectures to improve our recruitment of graduate students.

5) Create web-based products to improve our service to our constituents and promote our program (blogs, pod-casts, fact sheets, etc.).

2009-2010 Progress:
Little progress has been made on this issue.

2010-2011 Plans:
While this may be good to pursue in the future, given our limited resources, faculty size, and energy, this is not a high priority area.

6) Encourage student involvement in national professional societies.

2009-2010 Progress:
The new Air & Waste Management student chapter continues to gain momentum.
A new student chapter of NYWEA is in the planning stages.

2010-2011 Plans:
Post information regarding professional organizations in department as way to educate students about professional organizations.
Encourage student to become involved with professional organizations, both in lectures and through club activities.

d) Goal 4: Expand the professional capabilities of ERE Faculty and Staff to enhance our teaching, research, and outreach

Departmental Implementation Plan

By January 2009:

1) Develop position descriptions and justifications for new faculty members to add breadth and depth in strategic areas. Positions of particular interest in no particular order include:

a. Sustainable Energy Systems: An area of critical importance to ESF, New York State, the United States, and the world, we envision a faculty member who provides engineering expertise to SUNY ESF's energy research, as well as complements our ongoing efforts in Ecological Engineering.
b. Large scale Hydrologic Processes and Water Resource Engineering: This faculty member would address issues of large scale modeling of environmental processes, with a particular focus on climate change and its impact on the world's water resources. The ideal candidate would have additional expertise in Geospatial Engineering and Computer Science.
c. Geospatial Engineering: This faculty member would provide additional breadth and depth to ERE's expertise in this growing area of importance, allowing us to better promote our Geospatial Engineering program as one of the best programs in the country.
d. Ecological Engineering: We envision that Ecological Engineering will continue to be an area of growing interest within our department, and envision strengthening our current program by adding to our expertise in water chemistry, emergy analyses, and sustainable systems to develop one of the best Ecological Engineering programs in the country.
e. Water Resources: This position would be to support the needs of the growing Environmental Science (ES) undergraduate program at SUNY ESF. We believe ERE is the natural home for additional water resource faculty hires which support the ES program.

2009-2010 Progress
Position description for Large Scale Hydrologic Processes and Water Resources Engineering developed and presented to SUNY ESF Provost.
Entire faculty was involved with the Empire Innovation searches, though little institutional support was provided for our department.

2010-2011 Plans:
Continue to pursue new positions consistent with our strategic plan, with a particular emphasis on a new position in Water Resources Engineering.

2) Better promote and share individual faculty expertise and accomplishments to our faculty, staff, and students (publication board, seminars, social gatherings, computer monitors, etc.).

2009-2010 Progress:
A new display of recent departmental publications has been developed.
Faculty web sites have been updated and improved to help promote our expertise and accomplishments.
Digital display monitors purchased and currently display information regarding departmental research activities.

2010-2011 Plans:
Continue to promote the activities of ERE faculty, staff, and students.

By September 2009:

3) Continue mentoring of junior faculty members on an annual basis, and develop mentoring protocols for senior faculty members to ensure their continued success, productivity, and support of ERE's goals.

2009-2010 Progress:
Annual mentoring letters created for all untenured faculty members coming up for reappointment.
Chair held one-on-one sessions with all faculty members throughout year to discuss current and future professional activities and the needs of the department.
Faculty coming up for continuing appointment provided with timeline of activities for the upcoming year.

2010-2011 Plans:
Plans to are continue similar mentoring activities as those previously developed.
There are needs for mentoring of more senior faculty members, and it is hoped that interdepartmental mentoring can be fostered at all levels.
Faculty applying for continuing appointment will obtain more directed feedback throughout the year.

4) Strategically allocate ERE personnel in SUNY ESF committees, and use involvement in these committees to leverage sponsored research opportunities.

Note: This was discussed under Goal 2 Department Implementation Plan

5) Create a more interactive relationship with the ERE Advisory Board, defining areas of ERE need, communicating these needs, and enabling the Advisory Board to aid us in addressing these needs.

2009-2010 Progress
Large efforts continue to be made to reenergize the ERE Advisory Board, including elucidating departmental needs, and ways for the Board to address these needs.
New advisory board members have begun service, increasing the diversity and youth of our advisory board. Existing Advisory Board members were asked to renew their commitment to the Board.
Advisory Board met formally in November 2009 (Panel Discussion and Employer Information Session) and May 2009 (direct assessment and assessment of assessment protocols).

2010-2011 Plans:
The Board will be involved with a series of professional presentation on employment and professional development issues.
The Board will take a more active role in service learning project.

6) Assess our progress in implementing this strategic plan on an annual basis.

2009-2010 Progress:
This progress report directly addresses this issue.

2010-2011 Plans:
We will continue to reflect back on our progress with implementing tasks to accomplish our goals.

By September 2010:

7) Create opportunities for faculty and staff to be trained in critical needs (workshops, trainings, etc.), and to disseminate information obtained back to faculty, staff, and students in a formal manner.

2009-2010 Progress:
Little progress has been made on this issue.

2010-2011 Plans:
As needed, we will train faculty and staff in critical areas, as well as provide a forum for information they obtain to be disseminated to other faculty and staff members.

8) Make strategic hires of visiting professors to create long-term, effective and efficient relationships to help deliver our curriculum (e.g. Don Lake, Dave Gerber, etc.).

2009-2010 Progress:
We hired 4 visiting professors during the last academic year, including a new hire to address graduate research writing, especially that of non-native English speakers.

2010-2011 Plans:
We hope to hire additional visiting professors to address areas of weakness in the undergraduate curriculum, and high-need areas in our graduate program.

By September 2011:

9) Support sabbatical leaves which improve the capabilities of the department and faculty.

2009-2010 Progress:
No faculty are in a position for a sabbatical leave within the next year.

10) Revisit the Strategic Plan

2009-2010 Progress:
As part of the May 2010 faculty retreat, a review of the implementation plan was made to make faculty aware of the Strategic Plan.
No additional review of the current Strategic Plan has been made given the short amount of time that has elapsed since developing the original strategic plan.

2010-2011 Plans:

Additional faculty review of the Strategic Plan is warranted in the next year.

Individual Implementation Plan

By September 2009:
1) Develop collaborative relationships that expand the depth and breadth of our knowledge.

Note: This was addressed multiple times previously in this report.

2) Develop protocols to optimize use of GA and Research Assistant allocations.

Note: This was addressed under Goal 1 Individual Implementation Plan.

3) Improve knowledge of current literature to support ongoing research and teaching activities. Evidence of this will be use of citations in proposals, manuscripts, and class notes.

2009-2010
This has not been assessed on a departmental level, and assessment of this task is challenging.

4) Develop and/or participate in interdisciplinary seminars that improve the depth and breadth of our knowledge.

Note: This was addressed under Goal 2, Individual Implementation Plan.

By September 2010:
5) Encouraging professional registration and certification of faculty and staff.

2009-2010 Progress:
1 ERE faculty member continues to pursue professional registration.
2 ERE faculty members renewed their PE licenses.

2010-2011 Plans:
Future professional registration plans by faculty members may be pursued on an individual basis.