The University of West Florida
Center for Environmental Diagnostics and Bioremediation
7 year Program Review Self Study

Date of Previous Program Review: N/A

Site Visit Date(s):
March 15th 2010

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Date Submitted:
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15 February 2010

Signature Page

The University of West Florida
Program Review

Confirmation of Processes

I hereby confirm that the enclosed program review has included all processes outlined in Board of Governors requirements.

Requirements:

1. Indication of whether or not the program review was conducted in conjunction with any external reviews.
2. The date of the last review of this program.
3. A brief description of major changes made since the previous program review.
4. A summary of the current strengths of the program.
5. A summary of the current weaknesses of the program.
6. A summary of the recommendations and/or proposed action plans made as a result of the review.

These items are included in the Executive Summary.

Further, each program review was conducted according to University of West Florida approved policy.

Center Director	Date
AVP Res & Dean/Grad Studies	Date
Provost	Date

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Executive Summary

Date of current program review: 15 March 2010

Date of previous program review: N/A

Major changes in program(s) since previous review:
A change was made in the CEDB Director with the retirement of Dr. K Ranga Rao and the appointment of Dr. Richard A. Snyder. Loss of 20.83% of base funding has prevented the hiring of a replacement faculty member.

Summary of current strengths of the program:
The CEDB, although consisting of only 4-5 core faculty, has an outstanding record of research, teaching and service. Over the past 7 years, the CEDB has an extramural funding to base (E&G) ratio of 2.67:1, and accounting for 12-32% of the F&A return of the entire University. CEDB research activities employ numerous students and maintain specialized equipment and facilities for research through extramural funding. CEDB faculty provide high quality teaching in major required courses for the sciences in addition to more specialized electives and mentoring undergraduate and graduate students in independent research projects. CEDB faculty are also engaged in service activities as active participants and leaders in university governance, regional, state and national advisory capacities, and in service to the sciences as reviewers of journal manuscripts and grant proposals. CEDB faculty are held in high regard and respected by their peers.

Summary of current weaknesses of the program:
The CEDB has sustained a 21% loss of base funding which will impact the ability of the Center to secure funding, maintain equipment and facilities, and limit expansion into new directions dictated by the regional, state, national and international needs for science.

Summary of recommendations and proposed action plans made as a result of the review:
CEDB base funding should be restored, and additional base funding should be provided to hire more faculty. The CEDB model has proven itself to be highly successful in pursuing the UWF and SUS mission, and should be rewarded, not reduced. Management strategy for the future will continue the successful CEDB model as E&G funding allows, and research activities will continue to be responsive to societal needs.

Program Vision, Mission and Values

Vision

The Center for Environmental Diagnostics and Bioremediation (CEDB) seeks to be the premier environmental research center for Northwest Florida by pursuing international caliber basic and applied research, integrating cutting edge research into high quality teaching and training at the undergraduate and graduate level, and addressing regional environmental problems through research and service activities.

Mission

The CEDB has a combined teaching, research and service mission consistent with traditional university academics, but with an emphasis on research. Our research is investigator-driven and interdisciplinary, of service to the region and state while maintaining a scope and quality to influence science and technology at national and international scales. This high caliber and cutting edge activity infuses the teaching and regional service we also provide, and elevates the quality of our academic department partners by providing equipment, training and research opportunities to undergraduate and graduate students as well as faculty collaborators.

Unique among State of Florida University System (SUS) research centers, the CEDB model has integrated high caliber research into a small university within the SUS while maintaining a balance with service and teaching. Our perspective is that these three pursuits comprise a seamless whole, each benefiting from and contributing to the other.

The contributions of the CEDB in teaching, research, and service are aligned with the overall mission and goals of the University of West Florida, and the Board of Governors strategic plan for the State University System of Florida.

Information contained in this document, as well as greater detail, is available on the CEDB website: http://uwf.edu/cedb/.

Program Goals and Objectives

1. **Provide high quality academic coursework for allied departments supported by current research, including experience and training opportunities for students.**
2. **Maintain active grant supported research programs to address basic scientific and local applied needs.**
3. **Provide expertise to the university, the region, state, and nation in service activities.**
4. **Maintain current and high caliber research and analytical facilities to support faculty and student research and service inside CEDB, in the University, and in the region.**

Values

CEDB faculty and staff are dedicated to maintaining the highest levels of academic integrity in their research, teaching and service, providing an environment that encourages students to pursue excellence in their explorations and training, maintaining an atmosphere of innovation and exploration of new knowledge and applications of science, fostering an atmosphere of collaborative teamwork between colleagues and students here and at other institutions worldwide, to set an example for the stewardship of academic freedom and excellence as well as stewardship of the natural resources that our global society depends upon.

Historical Background

The Center for Environmental Diagnostics and Bioremediation (CEDB) was established in 1990 to enable the University of West Florida to strengthen its working relationship with the Gulf Breeze Environmental Research Laboratory (GBERL) of the U.S. Environmental Protection Agency, to implement new collaborative research programs in applied environmental sciences, and to enhance educational and training opportunities for undergraduate and graduate students. The funds appropriated by the legislature (E&G funds) for the Center are utilized to recruit tenure-earning faculty whose expertise is in contemporary molecular biology, genetics, and environmental assessment. These core faculty, as well as other research faculty (not tenure-earning; funded largely by extramural grants), enabled the CEDB to serve as a unique resource to build viable research programs pertinent to the assessment and improvement of environmental health, to provide opportunities for undergraduate and graduate students to participate in contemporary research endeavors, to develop new courses and tracks in biology programs, and to contribute to public service.

Since its establishment in 1990, the CEDB succeeded in securing substantial extramural support (total grant funding in excess of $20,000,000 from diverse agencies, achieving a roughly 2:1 ratio of secured funding to base support. From 2002 to 2009, CEDB faculty requested $23,092,881 in funding via 85 proposals. Sixty one of these were funded (71.8%) for a total of $9,408,126 in extramural funding for the 7-year period (41% of the amount requested) representing a 2.67:1 ratio of extramural support to State supplied base E & G. These projects enabled the CEDB to establish productive working relationships with various academic institutions and research laboratories, and to provide students with financial support and research opportunities not available in their academic departments. The results of these research endeavors have been published in peer-reviewed journals, technical reports, and presented at professional meetings.

One of the major goals in establishing the CEDB was to recruit tenure-track faculty with expertise in areas of microbial genetics, microbial biochemistry, and applied environmental science. Because of this unique expertise, CEDB faculty have been able to develop and teach contemporary courses in areas such as genetics, ecology, microbiology, and genetic engineering, as well as additional courses for enriching the biology curriculum. These formal instructional contributions, along with the academic advising, participation in student recruitment and retention activities, supervision of directed studies, and supervision of graduate thesis research

by the CEDB faculty illustrate the Center's important role in the education and training of students. The current four core faculty of the CEDB are: Dr Jane Caffrey, Associate Professor, Dr. Joe Lepo, Professor, Dr. Wade Jeffrey, Professor, and Dr. Richard Snyder, Professor and Director.

In addition to the extensive involvement in teaching and research, the CEDB faculty continues to provide considerable public service. The service contributions include service to the institution, profession, and community -- including public schools. These service contributions of CEDB faculty and students extend and supplement the efforts of academic departments, and thereby aid in augmenting the connectivity and external recognition of the institution. The "CEDB Model" of a research center based on the traditional three part academic mission of teaching, research and service, but with an emphasis on research, has worked extremely well to bring expertise and opportunities to a small, predominantly teaching university in an underserved region.

Teaching Activities 2002-2009 (http://uwf.edu/cedb/teaching.cfm)

The faculty of the CEDB are each engaged in teaching at least one major course per semester, including the director. The classes taught range from "core" required classes for undergraduates and graduate students in the Biology and Environmental Studies departments like Ecology and Microbiology, to electives and specialized courses for undergraduates and graduates, including on-line offerings (Table 1; Appendix I). CEDB faculty were also responsible for establishing and running the seminar series for the Biology Department, bringing current research reporting and discussions to both faculty and students. Over the 7-year period 2002-2009, a total of 1532 students were enrolled in 173 total credit hours for CEDB-taught courses. Of the total, 75% of the students were enrolled in undergraduate required core courses for their major tracks.

Table 1. Undergraduate and graduate courses taught by CEDB faculty during 2002-2009.

Course Code/Level	Course Title	Credit hours
BOT 4404	Aquatic Botany*	4
BSC 4263/5265	Biological Oceanography	3
BSC 4990/5990	Marine Biotechnology	3
BSC 6840	Professional Development	3
MCB 3020	Microbiology*	4
MCB 4733/5735	Marine Microbiology	3
OCB 4104/5990	Marine Field Ecology	2
PCB 3063	Genetics*	4
PCB 4043	Ecology*	4
PCB 4048/5445	Estuarine Ecology	4
PCB 4922/5924	Biology Seminar	1

*required core courses.

CEDB faculty also mentor undergraduates, graduate students and occasionally local high school students in independent research projects. CEDB faculty serve as advisors (10 completed M.S. with thesis) and committee members (7) for Biology graduate students (Appendix I), and have served as hosts and committee members for graduate students (M.S. and Ph.D. candidates) from other institutions, nationally and internationally. CEDB also makes available our research facilities and equipment to any graduate students requiring assistance, and has offset the cost of analysis for graduate students in our analytical lab (WRL, under Resources below).

Scholarly and Creative Activities (Research) 2002-2009 (http://uwf.edu/cedb/research.cfm).

The CEDB model has been a highly successful one that has been a net (2.67:1, Extramural:Base E&G) generator of funds to support the mission of the university (Table 2, Appendix II). The scope of grant funded research is quite broad, as are the agencies providing funding (Appendix II), and has focused on several areas: pollution detection and quantification in rivers, estuaries, and offshore; diagnostics for bioterrorism; developing estuarine indicators; estuarine biogeochemistry; and marine plankton response to UV damage.

An outstanding run of funding success began in 2002 and has slowed to a more "normal" pace in the last few years (Table 2). Major federal grants contributed to an average of funding per faculty member ranging from $130,000 to $562,147 during the 7-year review period. Our unofficial internal minimum goals are $100,000 grant receipts per faculty per year including salary to cover their summer appointment. Availability of funding and grant receipts have been cyclical in the past, and we are now in a lull, even though still about our target, and expect that with the improving economy research activity will increase again. Critical to this process, however, will be the restoration of base funding withdrawn during rounds of budget cuts with the recent economic downturn (20.83%; see below under "Future Needs"). The only significant base funding increases that have occurred are due to pay raises (3.6% in 05-06) and increased fringe benefit costs (08-09).

Table 2. CEDB funding history (Wetlands Lab excluded, see Table 4).

Year	E & G base	Extramural	Average Extramural funding per CEDB faculty (5)
2002-2003	$560,095	$1,652,787	$330,557
2003-2004	$559,548	$2,810,736	$562,147
2004-2005	$560,575	$1,746,378	$349,275
2005-2006	$592,402	$1,587,312	$317,462
2006-2007	$596,151	$1,698,439	$339,687
2007-2008	$617,495	$914,456	$182,891
2008-2009	$652,618	$650,805	$130,161
2009-2010	$653,571		

One of the largest projects CEDB has ever undertaken occurred in this period, the Partnership for Environmental Research and Community Health (PERCH), which began in 2002. This project covered air, water, soil and seafood contamination in the region, developing an unprecedented (regionally and nationally) documentation of the state of environmental quality that is likely to be used as a benchmark for years to come. The Executive Summary of that work can be found on the CEDB website: http://uwf.edu/cedb/PERCH_Executive_Summary.pdf, along with other reports and descriptions of individual research projects.

There are approximately 500 faculty members at the University of West Florida, thus CEDB's 5 faculty members, including the Center Director, who has administrative duties, make up about 1% of the UWF total. As a reflection of the impact these 5 faculty members have, in addition to their direct research, teaching and service activities, Facilities and Administration (F&A; "overhead") returns from all sources show CEDB accounting for 12-32% of the total for the entire university, 33 to 105% of the total return from all academic colleges (Arts and Sciences, Business, Professional Studies-Education), and 22 to 97% of the total return from all other Institutes and Centers at UWF (Table 3, Figure 1).

Table 3. UWF F&A revenue from all UWF sources

YEAR	UWF Total	Colleges	CTRS & INST minus CEDB	CEDB	CEDB % of all Colleges	CEDB % of other Ctrs & Inst.	CEDB % of UWF total
2005	$980,770	$293,804	$378,087	$308,879	105.13%	81.70%	31.49%
2006	$857,725	$303,737	$281,464	$272,524	89.72%	96.82%	31.77%
2007	$1,161,375	$462,556	$369,424	$329,396	71.21%	89.16%	28.36%
2008	$1,092,268	$401,915	$536,683	$153,670	38.23%	28.63%	14.07%
2009	$1,094,656	$384,288	$583,973	$126,395	32.89%	21.64%	11.55%

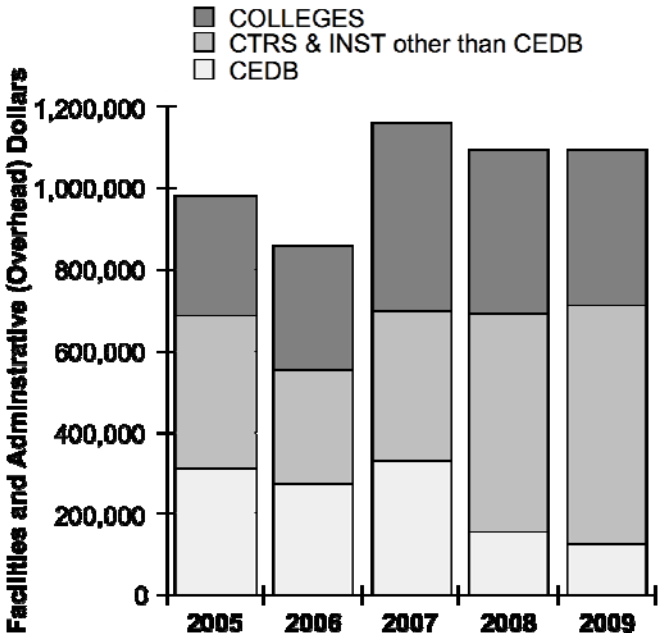

Figure 1. University of West Florida F&A revenue (the total bar height) generated by other academic faculty (colleges), other centers and institutes (Archaeology Institute, Archaeology Network, Academic Technology Center, Conference Center, Continuing Education, Haas Business Center, Institute for Innovative Community Learning, Small Business Development Center, and Student Affairs administrative division) and the 5 CEDB faculty.

Communication of research findings is one of the responsibilities of academic research, and CEDB faculty have met that challenge in peer reviewed scientific journal articles, book chapters, technical reports, meeting presentations and local public lectures, many of which involve students as co-authors. During the past 7 years, CEDB faculty have authored or co-authored 38 peer-reviewed scientific journal articles, 4 book chapters or proceedings, and 8 technical research reports. Presentations at scientific meetings (local, national, and international) total 127 for the 7-year period. The combination of peer-reviewed grant awards, peer-reviewed publications, and presentations at scientific meetings, elevates not only the stature of CEDB in the scientific community, but the stature of UWF as well. Regional and local communication through lectures and presentations also elevates the stature of CEDB and UWF with the public, and solidifies the image of the Center as the go-to source for accurate environmental information and interpretation.

Service Activities 2002-2009 (http://uwf.edu/cedb/service.cfm)

Faculty and staff at UWF are committed to contributing to the function and governance of the UWF, and at the community and national/international levels where our scientific expertise can be of use and where our contributions as private citizens are needed. Within the university, CEDB faculty are often found in lead roles contributing to the governance of the institution. Outside the UWF, it is the nature of CEDB to respond to the need for the application of science to the problems facing society in addition to pursuing sound and high caliber, basic research. A listing of agencies and groups actively served by CEDB faculty during the 2002-2009 period is listed in Appendix IV. An additional service function of the CEDB will be housed in the development of a Watershed Center to integrate expertise and activities both within and external to the UWF to address environmental problems for regional watersheds (See below under Watershed Center).

CEDB service to the scientific profession as reviewers for both grants and journal manuscripts, including editorial board appointments (Appendix IV) also elevates the stature of CEDB and the UWF within the scientific community. CEDB faculty expertise is well recognized and respected by their peers.

Resources: Personnel

During 2008, the founding director Dr. K. Ranga Rao, whose vision created the CEDB model, has retired from public service and now holds Emertitus status at the UWF. Dr. Richard A. Snyder, has been appointed to the position of the Director. Budget cuts have virtually eliminated base support for WRL, and use of faculty salary base funds to prop up the WRL (see Future Needs, below), has prevented advertising for and hiring an additional faculty member for the center, reducing our core group to 4. CVs of the core faculty and other personnel can be found on the CEDB website: http://uwf.edu/cedb/personnel.cfm.

In addition to maintaining high caliber research programs in CEDB, and providing F&A funds to the University, research funding secured by CEDB faculty has also provided employment and training for a large number of undergraduate and graduate students, post-graduate technicians, and Post-doctoral fellows (Appendix V). This small army of people adds to the science culture of the UWF, and graduates B.S. students with hands-on experiences in research unavailable at larger institutions. We are often told by hiring agencies that our graduates have the reputation of being well trained and often equivalent to higher level degree students elsewhere.

Resources: Facilities and Equipment

A complete list of Facilities and Equipment is included as Appendix VI. CEDB maintains molecular biology diagnostics laboratories in addition to individual faculty labs for molecular

biology, basic microbiology, field ecology, and biogeochemical analysis. In addition to the main CEDB labs and equipment, the following facilities are operated within our Center.

The Wetlands Research Laboratory (WRL). The WRL, a 3500 sq. ft. facility renovated in 2003, is an analytical arm of CEDB. The WRL is State of Florida certified for environmental water analysis (Lab ID:E71969), conforming to the standards set out by the National Environmental Laboratory Accreditation Conference as adopted into Chapter 64E-1 of the Florida Administrative Code. The laboratory complies with full chain of custody sample storage and handling practices and performs state-certified analyses for nutrients, pH, salinity, conductivity, and microbiology in non-potable water. Other non-certified analyses are available for research purposes. CEDB manages the lab as a service for regional analytical needs (County Health Departments, State of FL DEP, Gulf Islands National Seashore Department of the Interior, International Paper Co.), research support, and student employment and training opportunities. Recent budget cuts have removed essentially all base funding for the lab, putting it in jeopardy of closing and requiring the use of CEDB research faculty/staff salary funds to maintain operations.

The UWF Herbarium. The Michael I. Cousens Herbarium of the University of West Florida was established 30 October 1974 as the Herbarium of the University of West Florida documenting the Flora of the Florida panhandle and neighboring states. The Herbarium is now under management by CEDB without base funding from the State of Florida, supported by grant funds. Currently its holdings include approximately 22,000 vascular plant specimens of 3500 species and smaller collections of bryophytes and macroalgae, with an emphasis on Florida panhandle plant communities. Important collectors represented are R. K. Godfrey, L. C. Anderson, J. B. Nelson, B. F. Hansen, J. R. Abbott, J. R. Burkhalter, and O. Degener. The core of the permanent collection consists of approximately 10,500 specimens from over 600 locations in Escambia County, FL, representing 1,600 species, making it one of the most biodiverse county floras in the United States.

The Watershed Center. US EPA has invited CEDB to be recognized as a Center of Excellence in Watershed Management, to encourage outreach and service to the watersheds of NW Florida, south Alabama and Georgia, from St. Andrew's Bay to Perdido Bay (Appendix VII). The Watershed Center would be a clearing house for information and expertise to aid private and public entities in environmental issues, from land use, habitat restoration, water quality, pollution issues, and resource management. The goal would be to integrate expertise from all departments at UWF with other academic and governmental agencies across the panhandle to provide resources for advice and grant writing addressing regional environmental problems. Currently this effort is in the planning stages, with a part-time, mostly volunteer Watershed Coordinator. Additional base funding for faculty and staff within CEDB would be needed to expand our expertise in stream/river systems, provide a public service interface and ensure the success of this venture.

Resources: Future needs

The CEDB was established with additional E&G base funds allocated to the UWF by the Florida Legislature. This base funding has been supplemented to account for raises and increases in

fringe benefits, but has also been cut by the UWF administration over the years, sometimes with a promise of replacement that has never materialized. The result of the past cuts has reduced the CEDB expense allocation from $50,000 in the initial legislative allotment to a current $21,828. The CEDB receives no funding from the University for equipment maintenance or replacement, and indeed CEDB has in the past purchased equipment for other units and made its resources available to non-CEDB faculty and students. Overhead return on grants to the Center (10% of F&A charges) is used to fund these items. In 2004, CEDB assumed responsibility for the Wetland Research Laboratory (WRL) and was given half the requested funds to properly run that facility as a NELAC-certified analytical laboratory, and paid for half of the needed renovation costs. That meant dropping certification for all but nutrients and fecal bacteria indicators, for which current certification is maintained.

The CEDB has sustained a 20.83% reduction in total E&G base funding (CEDB+WRL) over the last two years which has effectively eliminated the base funding to WRL (Table 4). Loss of these funds will directly impact our ability to provide outreach service in the analysis of samples for water quality monitoring for public safety, and will also affect our ability to maintain a NELAC-certified analytical facility. The cuts are a loss of research faculty salary, WRL expenses are covered by fees for services. We cannot absorb additional cuts and keep the analytical lab operational. The Lab Manager salary is now being funded by a position in CEDB that was to hire an additional research faculty member to teach, establish an active research program and provide service, and further limits securing extramural grant funds that keep the CEDB alive. The current situation in the WRL is not sustainable.

Table 4. Wetlands Research Lab funding history

Year*	E&G base	Analytical Fees**
2004-2005	$149,522	$92,901
2005-2006	$152,070	$95,128
2006-2007	$162,452	$127,801
2007-2008	$169,401	$136,684
2008-2009	$93,507	$132,909
2009-2010	$ 28,751	

*CEDB assumed management of the lab in 2004

**Includes both extramural contracts and research grant charges

The CEDB model has been a highly successful one that has been a net (2.67:1) generator of funds for the university mission. In order to ensure the continued success of CEDB and the survival of the WRL, base funding needs to be restored. Additional funding beyond getting back to where we started would allow expansion of this model as a net gain to the UWF in dollars, teaching, research and service. Successful launch of the Watershed Center under US EPA cooperation will also require additional base funding (3-4 positions needed) for research faculty and staff focused on watershed issues not covered by the currently available expertise within CEDB or the UWF. If the Watershed Center is built on the CEDB model, it should also be a net generator of funds and opportunities once established, but more importantly these activities would be targeted to and enhance our service mission to the region. The CEDB can continue to

provide for its own equipment needs if the base funding is provided for the faculty to establish active research, teaching, and service programs.

Future Directions

Management Style. It is the nature of academic scientists to be creative and highly motivated persons, driven by their passions to explore the world through research, driven to communicate science to peers, students and the public, and driven to help others. These types of persons do not fit common models of business management, are not amenable to micromanagement of their activities, and attempts to exert control over academic freedom, if tolerated at all, usually result in negative outcomes. It has been the philosophy of the past Director and founder of CEDB to enhance academic freedom and facilitate the faculty's pursuit of their passions for scientific research, teaching and service. The new director's management philosophy does not differ from this leader-as-servant philosophy.

The success of the CEDB model arises from it being investigator-driven. Research directions taken by CEDB have been established by investing in people with particular interests to develop their own programs rather than dictating research directions to individuals. Certainly there have been opportunities for integrated research proposals where the CEDB has acted as a team to address large projects, the PERCH investigations are an excellent example of this where such a project was funded. However, even within this large multidisciplinary project, individual investigators were not told what to do, but asked what they wanted to pursue under the overall framework. Critical elements that were needed but not covered by CEDB expertise were sought as collaborators, and CEDB invested in those persons who could work with the CEDB to accomplish the overall goals rather than assigning tasks to CEDB faculty.

We are public servants, addressing issues important to society as reflected in the funds made available for research, both basic and applied. In this sense the future direction of CEDB will be reactive to local, national, and international needs. Within that context, the overall research direction will still be set by individuals pursuing their creative passions. This is why replacing lost E&G dollars and adding additional funding for new faculty are critical for the Center's future, especially as the existing faculty are nearly all the same age. New hires are needed to bring in young academic scientists to be mentored by the existing faculty.

New research directions. Several areas of research have been considered for new hires including toxicology, stream and river ecologists, landscape ecologists, pollution, and bioremediation. Some of this direction will be responsive to research needs of the developing Watershed Center in service to the region, as previously described. As in the past, needed expertise to augment the research base of CEDB will be sought beyond the immediate faculty, driven largely by PIs seeking interdisciplinary collaborators to respond to available research funding in pursuit of their interests.

CEDB has in the past, and will continue to extend our umbrella of facilitating the work of such collaborators as is done for our own faculty. These types of interactions have involved faculty in

Biology, Environmental Studies, Chemistry, Business, Education, and Mathematics/Statistics. In one case, we have extended an "affiliate researcher" title to accommodate the needs of a faculty member from the college of business pursuing his interest in natural resource economics, where research grant administration was not available in his home department. This type of arrangement may be used to formalize interdisciplinary collaborations in the future. In another case, an analytical chemist retired from local industry and wanted to help build up analytical chemistry capacity and training at UWF, including bringing in equipment. CEDB worked closely with the Chemistry Department to provide lab and office space to facilitate this person's desire to serve. These kinds of integrative functions will continue.

Appendix I. Teaching data.

Summary

Undergraduate and graduate courses routinely taught by CEDB faculty during 2002-2009.

Course Code/Level	Course Title	Credit hours
BOT 4404	Aquatic Botany*	4
BSC 4263/5265	Biological Oceanography	3
BSC 4990/5990	Marine Biotechnology	3
BSC 6840	Professional Development	3
MCB 3020	Microbiology*	4
MCB 4733/5735	Marine Microbiology	3
OCB 4104/5990	Marine Field Ecology	2
PCB 3063	Genetics*	4
PCB 4043	Ecology*	4
PCB 4048/5445	Estuarine Ecology	4
PCB 4922/5924	Biology Seminar	1

*required core courses

Appendix I. Teaching data continued

Detailed Course offerings

Required Core Courses	# enrolled	Cr Hrs	Total student hours
PCB 3063 - Genetics 2008	38	4	152
BOT 4404 - Aquatic Botany, Spring 2009	22	4	88
MCB 3020 - Microbiology, Fall 2003	46	4	184
MCB 3020 - Microbiology, Fall 2004	46	4	184
MCB 3020 - Microbiology, Spring 2005	25	4	100
MCB 3020 - Microbiology, Fall 2005	50	4	200
MCB 3020 - Microbiology, Spring 2006	41	4	164
MCB 3020 - Microbiology, Fall 2006	84	4	336
MCB 3020 - Microbiology, Spring 2007	52	4	208
MCB 3020 - Microbiology, Fall 2007	92	4	368
MCB 3020 - Microbiology, Spring 2008	67	4	268
MCB 3020 - Microbiology, Fall 2008	66	4	264
MCB 3020 - Microbiology, Spring 2009	72	4	288
MCB 3020 - Microbiology, Fall 2009			0
PCB 4043 - Ecology, Fall 2003	41	4	164
PCB 4043 - Ecology, Spring 2005	40	4	160
PCB 4043 - Ecology, Fall 2005	27	4	108
PCB 4043 - Ecology, Spring 2006	45	4	180
PCB 4043 - Ecology, Fall 2006	53	4	212
PCB 4043 - Ecology, Spring 2007	50	4	200
PCB 4043 - Ecology, Fall 2007	51	4	204
PCB 4043 - Ecology, Spring 2008	45	4	180
PCB 4043 - Ecology, Fall 2008	22	4	88
PCB 4043 - Ecology, Spring 2009	42	4	168
PCB 4043 - Ecology, Fall 2009	37	4	148
Total	**1154**	**96**	**4616**
% of total teaching	**75.33%**	**55.49%**	**89.95%**
average/year	**192.33**	**16.00**	**769.33**

Appendix I. Teaching data continued

Detailed Course offerings continued

Undergraduate Elective Courses	# enrolled	Cr Hrs	Total student hours
BSC 4263 Biological Oceanography Fall 2004	9	3	27
BSC 4263 - Biological Oceanography Spring 2008	11	3	33
BSC 4990 - Marine Biotechnology Fall 2007	3	3	9
BSC 4991 - Spring 2005	3	3	9
MCB 4733 - Marine Microbiology Spring 2004	4	3	12
OCE 4990 - Marine Field Ecology, Summer 2003	2	2	4
PCB 4922 - Biology Seminar Fall 2007	20	1	20
PCB 4922 - Biology Seminar Spring 2008	25	1	25
PCB 4922 - Biology Seminar Fall 2008	29	1	29
PCB 4922 - Biology Seminar Spring 2009	28	1	28
PCB 4922 - Biology Seminar Fall 2009	33	1	33
PCB 4048 - Estuarine Ecology, Spring 2008	9	3	27
PCB 4048 - Estuarine Ecology Fall 2009			0
PCB 4990 - Biology Seminar, Spring 2004	29	1	29
PCB 4922 - Biology Seminar, Fall 2004	20	1	20
PCB 4922 - Biology Seminar, Spring 2005	11	1	11
PCB 4922 - Biology Seminar, Fall 2005	13	1	13
PCB 4922 - Biology Seminar, Spring 2006	17	1	17
PCB 4922 - Biology Seminar, Fall 2006	18	1	18
PCB 4922 - Biology Seminar, Spring 2007	22	1	22
OCB 4104 – Marine Field Ecology, Summer 2008	6	2	12
OCE 4990 - Marine Field Ecology, Summer 2005	5	2	10
OCE 4990 - Marine Field Ecology, Summer 2007	7	2	14
Total	**324**	**38**	**422**
% of total teaching	**21.15%**	**21.97%**	**8.22%**
average/year	**54.00**	**6.33**	**70.33**

Appendix I. Teaching data continued

Detailed Course offerings continued

Graduate Courses	# enrolled	Cr Hrs	Total student hours
BSC 5265 - Biological Oceanography Fall 2004	5	4	20
BSC 5990 - Marine Biotechnology Fall 2007	5	3	15
BSC 5991 - Spring 2005	2	3	6
BSC 6840 - Professional Development Spring 2009	6	3	18
MCB 5735 - Marine Microbiology Spring 2004	6	3	18
OCE 5990 - Marine Field Ecology, Summer 2003	6	2	12
PCB 5924 - Biology Seminar Fall 2007	1	1	1
PCB 5924 - Biology Seminar Fall 2008	4	1	4
PCB 5445 - Estuarine Ecology– Spring 2008	4	3	12
PCB 5445 - Estuarine Ecology– Fall 2009			0
PCB 5924 - Biology Seminar, Spring 2007	1	1	1
OCE 5990 - Marine Field Ecology, Summer 2004	3	2	6
OCE 5990 - Marine Field Ecology, Summer 2005	3	2	6
PCB 5924 - Biology Seminar, Spring 2005	1	1	1
PCB 5924 - Biology Seminar, Fall 2005	5	1	5
PCB 5924 - Biology Seminar Fall 2009	3	1	3
PCB 5990 - Estuarine Ecology, Fall 2003	3	1	3
Total	**58**	**32**	**131**
% of total teaching	**3.79%**	**18.50%**	**2.55%**
average/year	**9.67**	**5.33**	**21.83**

Appendix I. Teaching data continued

Current graduate students

Erin Hunter, Chair: Wade Jeffrey; Committee Member: Jane Caffrey
Melissa Overton, Chair: Wade Jeffrey; Committee Member: Jane Caffrey
Jennifer Chastain, Committee Members: Wade Jeffrey, Jane Caffrey
Jon Stewart, Committee Member: Jane Caffrey
Abidemi Ajidahun, Chair: Joe Lepo
Elizabeth Kennedy, Chair: Joe Lepo; Committee Members: Wade Jeffrey, Richard Snyder
Allyson Bradley, Committee Member: Wade Jeffrey
Austin Dixon, Chair: Richard Snyder

Graduated Master's Students- CEDB primary advisor

Phillips, Lori. 2004. Fungal epiphytic community dynamics on leaves of crops, as revealed by length heterogeneity PCR and quantitative PCR. Chair/Advisor: Joe Lepo

Brooks-Barry, Rachel. 2005. Leaf-epiphytic communities on domain bacteria elucidated by quantitative PCR and terminal restriction fragment length polymorphism analysis: sentinel diagnostics for plant stress, disease, and crop agroterrorism. Chair/Advisor: Joe Lepo

Moss, Joseph. 2005. Stability and change in estuarine biofilm bacterial community diversity. Chair/Advisor: Richard Snyder. Committee member: Joe Lepo

Allison, Jeffrey. 2006. Dynamics of estuarine microphytobenthos in a shallow water sand bottom habitat. Chair/Advisor: Richard Snyder. Committee member: Jane Caffrey, Joe Lepo

Smith, Kristin. 2006. The effects of human and climatic impacts on sediment nitrogen dynamics in Escambia Bay, Florida. Chair/Advisor: Jane Caffrey. Committee members: Wade Jeffrey, Richard Snyder

Wagner, Matthew. 2006. Spatial patterns of phytoplankton and periphyton growth as indicators of estuarine condition in Escambia Bay, Florida. Chair/Advisor: Richard Snyder. Committee member: Jane Caffrey

Baldwin, Amy. 2007. Marine microbial biogeography: a survey of bacterioplankton diversity through the Pacific Ocean, the Gulf of Mexico and the Ross Sea, Antarctica. Chair/Advisor: Wade Jeffrey

Stevenson, Carrie. 2007. Enhancement of recruitment and nursery function by habitat creation in Pensacola Bay, Florida. Chair/Advisor: Richard Snyder

Gibson, Suzanne. 2008. Culture of red snapper (*Lutjanus campechanus*): from rearing larvae with naked ciliates to tracking juveniles with otolith chemistry. Chair/Advisor: Richard Snyder. Committee member: Wade Jeffrey

Hellein, Kristen. 2009. Leaf-epiphytic pseudomonads as diagnostic indicators of disease and stress in cotton (*Gossypium* spp.). Chair/Advisor: Joe Lepo. Committee members: Richard Snyder, Wade Jeffrey

Appendix I. Teaching data continued

Graduated Master's Students
CEDB as Committee members only

Deneke, Lori. 2004. Comparision of genetic structure and morphology of fragmented populations of the Santa Rosa Beach Mouse (*Peromyscus polionotus leucocephalus*). Committee member: Wade Jeffrey

Conner, Sara. 2006. Effect of density and exotic invasive snail on growth in juvenile apple snails *Pomacea paludosa*. Committee member: Wade Jeffrey

McGill, Cheryl. 2007. Effects of bleaching and nutrient supplementation on *Cassiopea xamachana* (cnidaria: scyphozoa). Committee member: Wade Jeffrey

Jarvis, Brandon. 2008. Effects of organic carbon loading on coupled nitrification/denitrification in estuarine sediments. Committee member: Jane Caffrey

Shepard, Katherine. 2008. King mackerel population dynamics and stock mixing in the United States Atlantic Ocean and Gulf of Mexico. Committee member: Jane Caffrey

Tauchman, Eric. 2008. Effects of ultraviolet radiation on developing variegated sea urchins, *Lytechinus variegatus*. Committee member: Wade Jeffrey

Addis, Dustin. 2009. Site fidelity and movement of reef fishes tagged at unreported artificial reef sites off Northwest Florida. Committee member: Wade Jeffrey

Appendix II. Research data

CEDB GRANT SOURCES
2002 to Present

Federal
U.S. EPA
National Science Foundation
U.S. Department of Agriculture
National Park Service
Centers for Disease Control and Prevention (CDC)
Computer Sciences Corporation (CSC) (US Navy SPAWAR)
NOAA

State
Florida DEP
Three Rivers RC & D
South Carolina Department of Natural Resources
West Florida Regional Planning Council
University of South Florida (US Army)
Northwest Florida Water Management District
Florida Dept of Health, Okaloosa County
Florida Dept of Health, Escambia County
Florida Institute of Oceanography
Florida DEP
University of Florida

Local
Escambia County
Santa Rosa County
City of Pensacola
Bay Area Resource Council

Private
Emerald Coast Utilities Authority
Electric Power Research Institute
Gulf Oyster Industry
YSI, Inc.

Appendix II Research data. CEDB Grants in force

2002-2003

EPA GED/UWF Science Training in Ecology Program	K. R. Rao, W. Jeffrey	US EPA	4/10/98 - 8/9/02	$898,024
Collaborative Research: UV Effects on Marine Production of Phytoplankton: Assessing the Impact of UVB	W. Jeffrey	National Science Foundation (NSF)	0/1/98 - 12/30/02	$161,697
Environmental Monitoring of South Palafox Marina	J. Lepo	City of Pensacola	7/1/98 - 9/30/02	$ 34,636
LEXEN: Hitchhiking: a mechanism for bacterial speciation in an extremely cold environment.	W. Jeffrey	NSF	10/1/00 - 9/30/03	$138,459
Characterization and Management of Effluent from Aquaculture Ponds in Florida – A Treatment System Evaluation	J. Lepo	FL Dept of Agricultural and Consumer Services, US EPA, FL DEP, Three Rivers RC & D	7/16/01 -12/31/02	$23,000
A Synthesis of Water Quality Data from the National Estuarine Research Reserve System Wide Monitoring Program	J. Caffrey	South Carolina Department of Natural Resources- NOAA	8/13/01 - 12/31/02	$51,948
Impact of Agricultural Runoff on Total Maximum Daily Loads	J. Lepo and R. Snyder	U.S. Department of Agriculture	10/1/00 - 9/14/04	$532,000
Bayou Texar Nutrient Level Water Quality Sampling	R. Snyder	W. FL Regional Planning Council	10/15/01 - 9/30/02	$2,000
Phytopathogens as Bioterrorism Agents	J. Lepo	University of South FL- US Army	11/02/01 - 11/30/02	$88,750
Microbial Biofilms as Indicators of Estuarine Ecosystem Condition	J. Lepo and R. Snyder	US EPA	9/1/01–8/3/05	$1,563,111
An Assessment of the Source of Human Sewage Waste Input into Coldwater and Pond Creeks	R. Snyder	Bay Area Resource Council- Santa Rosa County	2/6/02 - 12/31/02	$18,998
Microzooplankton Sample Analysis	R. Snyder	US EPA	9/28/01 - 9/30/02	$2,400
Wet Prairie Habitat Restoration Evaluation and Management Strategies for the Garcon Point Water Management Area	R. Snyder	Northwest Florida Water Management District	4/01/02 - 3/31/03	$7,081
Collaborative Proposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytoplankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02-8/31/05	$356,109
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	US EPA	7/1/02 – 6/30/09	$850,000
Environmental Health Studies Escambia and Santa Rosa Co., FL	K. R. Rao	Center for Disease Control (CDC)	8/1/02 - 7/31/02	$832,233
Tracking Source of Fecal Contamination in Environmental Waters	J. Lepo	FL Department of Health, Escambia Co.	7/1/02 - 6/30/03	$130,000
Water Quality Microbiological Analysis of Bathing Places	J. Lepo	Florida Dept of Health, Escambia Co.	7/1/02 - 6/30/03	$46,302
Phytopathogens as Bioterrorism Agents 2003	J. Lepo	University of South FL- US Army	10/01/02 – 9/30/03	$394,047
Healthy Beaches Sampling for Okaloosa County	J. Lepo	FL Dept of Health, Okaloosa County	1/1/03 - 6/30/03	$ 9,922
Biological Survey of FCT Project #96-034-P7A	R. Snyder	W. FL Regional Planning Council	1/1/03 - 6/30/04	$2,400

Appendix II Research data. CEDB Grants in force

2002-2003 continued.

Wet Prairie habitat Restoration Evaluation and Management Strategies for Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	4/1/03 - 3/30/04	$7,081
Evaluation of Ciliate Protozoans as a First Food for Red Snapper *Lutjanus campechanus* Larvae	R. Snyder	NOAA National Marine Fisheries Service	5/1/03 - 10/31/04	$87,151
Marine Field Ecology, Shiptime grant	W. Jeffrey	Florida Institute of Oceanography	2003	$8,800
Estuarine Ecology, Shiptime grant	R. Snyder	Florida Institute of Oceanography	2003	$4,000

2003-2004

LEXEN: Hitchhiking: a mechanism for bacterial speciation in an extremely cold environment.	W. Jeffrey	NSF	10/1/00 - 9/30/03	$138,459
Impact of Agricultural Runoff on Total Maximum Daily Loads	J. Lepo and R. Snyder	U.S. Department of Agriculture	10/1/00 - 9/14/04	$532,000
Microbial Biofilms as indicators of Estuarine Ecosystem Condition	J. Lepo and R. Snyder	US EPA	9/1/01–8/3/05	$1,563,111
Wet Prairie Habitat Restoration Evaluation and Management Strategies for the Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	4/01/02 - 3/31/03	$7,081
Collaborative Proposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytoplankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02-8/31/05	$356,109
The Interactive Effects of UV Radiation and Temperature on Lake Ecosystems. Integrated Research Challenges in Environment	W. Jeffrey	NSF	10/1/02 - 9/30/07	$263,626
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	US EPA	7/1/02 – 6/30/09	$850,000
Wet Prairie habitat Restoration Evaluation and Management Strategies for Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	4/1/03 - 3/30/04	$7,081
Evaluation of Ciliate Protozoans as a First Food for Red Snapper *Lutjanus campechanus* Larvae	R. Snyder	NOAA National Marine Fisheries Service	5/1/03 - 10/31/04	$87,151
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	US EPA	7/1/02 – 6/30/2006	$1,819,075
Environmental Health Studies in Escambia and Santa Rosa Counties, Florida	K. R. Rao	CDC	8/1/02 - 9/29/04	$832,233
Phytopathogens as Bioterrorism Agents	J. Lepo	USF- US Army	10/01/02 - 2/28/04	$394,047
Biological Survey of FCT Project #96-034-P7A	R. Snyder	W. FL Regional Planning Council	1/1/03 - 6/30/04	$2,400

Appendix II Research data CEDB Grants in force

2003-2004 (continued)

Wet Prairie Habitat Restoration Evaluation and Management Strategies for Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	4/1/03 - 3/31/04	$7,081
Evaluation of Ciliate Protozoans as a First Food for Red Snapper *Lutjanus campechanus* Larvae	R. Snyder	NOAA National Marine Fisheries Service	5/1/03 - 10/31/04	$ 87,151
Biological Impacts of Crop Production Systems in Transition from the Use of Methyl Bromide	K. Martin	U.S. Department of Agriculture	5/31/03 - 5/30/06	$15,000
Tracking Source of Fecal Contamination in Environmental Waters	J. Lepo	FL Dept of Health, Escambia County Health Department	9/15/03 - 6/30/04	$100,000
Phytopathogens as Bioterrorism Agents 2004	J. Lepo	University of South Florida (US Army)	11/1/03 - 10/30/04	$305,532
Water Quality Microbiological Analysis of Bathing Places FY 2004	J. Lepo	FL Dept of Health, Escambia County Health Department	7/1/03 - 6/30/04	$46,427
Health Beaches Sampling for Okaloosa County	J. Lepo	FL Dept of Health, Okaloosa County Health Department	7/1/03 - 6/30/04	$24,950
Microbiological Indicators of Water Quality in Submerged Karst Caves of Northern Florida	R. Snyder	Florida DEP	12/2/03 - 6/30/04	$44,995
RUI: Effect of Diurnal and Weekly Water Column Hypoxic Events on Nitrification and Nitrogen Transformations in Estuarine Sediments	J. Caffrey	NSF	3/15/04 - 12/31/06	$450,405
Oceanographic Sampling Methodologies (Shiptime)	W. Jeffrey	FIO	06/25/04 – 6/27/04	$ 9,000
Estuarine Ecology Shipboard Laboratory (Shiptime)	R. Snyder	FIO	06/29/04 – 6/30/04	$ 6,000
U.S. – France Cooperative Research: Effect of Nutrient Limitation on Response of Marine Bacterioplankton to Solar Ultraviolet Radiation	W. Jeffrey	NSF	02/15/04 – 1/31/07	$ 18,000
Importance of Microalgal Production on the Northern Gulf of Mexico Sand Bottom Nutrient Trapping and Support of Fisheries Production	R. Snyder	Escambia County	04/20/04 – 2/30/05	$ 24,000
Wet Prairie Habitat Restoration Evaluation and Management Strategies Agreement for the Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	05/01/04 – 4/30/05	$ 7,081
Environmental Monitoring of Bathing Places	R. Snyder, and J. Lepo	FL Dept of Health, Escambia County Health Department	07/01/04 – 6/30/05	$ 39,000
Fecal Source Tracking Research	L. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	07/01/04 - 06/30/05	$ 76,500

Appendix II Research data CEDB Grants in force

2003-2004 (continued)

Impact of Agricultural Runoff on Total Maximum Daily Loads	J. Lepo and R. Snyder	US Dept of Agriculture	9/15/01 - 9/14/05	$532,000
Microbial Biofilms as Indicators of Estuarine Ecosystem Condition	J. Lepo and R. Snyder	USEPA	11/1/01 – 11/20/05	$1,563,111
Collaborative Prosposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytopankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02 - 8/31/05	$515,870
The Interactive Effects of UV Radiation and Temperature on Lake Ecosystems. Integrated Research Challenges in Environment	W. Jeffrey	NSF	10-/1/02 - 9/30/07	$263,626
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	EPA	7/1/02 – 6/30/06	$1,819,075
Environmental Health Studies in Escambia and Santa Rosa Counties, Florida	K. R. Rao	CDC	9/29/02 - 9/29/04	$832,233
Evaluation of Ciliate Protozoans as a First Food for Red Snapper *Lutjanus campechanus* Larvae	R. Snyder	NOAA National Marine Fisheries Service	5/1/03 - 10/31/04	$ 87,151
Biological Impacts of Crop Production Systems in Transition from the Use of Methyl Bromide	K. Martin	U.S. Department of Agriculture	5/31/03 - 5/30/06	$ 15,000
Phytopathogens as Bioterrorism Agents 2004	J. Lepo	USF (US Army)	11/1/03 - 10/30/04	$305,532
RUI: Effect of Diurnal and Weekly Water Column Hypoxic Events on Nitrification and Nitrogen Transformations in Estuarine Sediments	J. Caffrey	NSF	3/15/04 - 2/28/07	$450,405
U. S. - France Cooperative Research: Effect of Nutrient Limitation on Response of Marine Bacterioplankton to Solar Ultraviolet Radiation	W. Jeffrey	NSF	02/15/04 - 01/31/07	$ 18,000
Importance of Microalgal Production on the Northern Gulf of Mexico Sand Bottom Nutrient Trapping and Support of Fisheries Production	R. Snyder	Escambia County	04/20/04 - 12/30/05	$ 24,000
Wet Prairie Habitat Restoration Evaluation and Management Strategies For Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	5/1/04 - 4/30/05	$ 7,081
Environmental Monitoring of Bathing Places	R. Snyder, and J. Lepo	FL Dept of Health, Escambia County Health Department	07/01/04 - 06/30/05	$ 39,000
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	07/01/04 - 06/30/05	$ 76,500
Healthy Beaches Sampling for Okaloosa County	J. Lepo	Okaloosa County Health Department	7/1/03 - 6/30/04	$ 19,652

Appendix II Research data CEDB Grants in force

2003-2004 (continued)

Post Hurricane Opal Assessment GUIS	R. Snyder	National Park Service	07/28/04 - 07/01/06	$ 9,962
Early Detection and Diagnosis of Phytopathogens as Bioterrorism Agents	J. Lepo	USF (US Army)	10/1/04 - 06/30/06	$273,522

2005-2006

Impact of Agricultural Runoff on Total Maximum Daily Loads	J. Lepo and R. Snyder	U.S. Department of Agriculture	9/15/01 - 9/14/05	$532,000
Microbial Biofilms as Indicators of Estuarine Ecosystem Condition	J. Lepo and R. Snyder	Part of Consortium for Estuarine Ecoindicators	11/1/01 – 11/20/05	$1,563,111
Collaborative Prosposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytopankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02-8/31/05	$515,870
The Interactive Effects of UV Radiation and Temperature on Lake Ecosystems. Integrated Research Challenges in Environment	W. Jeffrey	NSF	10-/1/02 - 9/30/07	$263,626
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	EPA	7/1/02 - 6/30/06	$1,819,075
Environmental Health Studies in Escambia and Santa Rosa Counties, Florida.	K. R. Rao	CDC	9/29/02 - 9/29/04	$832,233
Evaluation of Ciliate Protozoans as a First Food for Red Snapper *Lutjanus campechanus* Larvae	R. Snyder	NOAA National Marine Fisheries Service	5/1/03 - 10/31/04	$ 87,151
Biological Impacts of Crop Production Systems in Transition from the Use of Methyl Bromide	K. Martin	U.S. Department of Agriculture	5/31/03 - 5/30/06	$ 15,000
Phytopathogens as Bioterrorism Agents 2004	J. Lepo	USF (US Army)	11/1/03 - 10/30/04	$305,532
RUI: Effect of Diurnal and Weekly Water Column Hypoxic Events on Nitrification and Nitrogen Transformations in Estuarine Sediments	J. Caffrey	NSF	3/15/04 – 2/28/07	$450,405
U. S. - France Cooperative Research: Effect of Nutrient Limitation on Response of Marine Bacterioplankton to Solar Ultraviolet Radiation	W. Jeffrey	NSF	2/15/04 - 01/31/07	$ 18,000
Importance of Microalgal Production on the Northern Gulf of Mexico Nutrient Trapping and Support of Fisheries Production	R. Snyder	Escambia County	4/20/04 – 12/30/05	$24,000
Wet Prairie Habitat Restoration Evaluation and Management Strategies for Garcon Point Water Management Area	R. Snyder	Northwest Florida Water Management District	5/1/04 – 4/30/05	$ 7,081

Appendix II Research data CEDB Grants in force

2005-2006 continued

Environmental Monitoring of Bathing Places	R. Snyder, J. Macauley, and J. Lepo	FL Dept of Health, Escambia County Health Department	7/1/04 – 6/30/05	$ 39,000
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	7/1/04 – 6/30/05	$ 76,500
Health Beaches Sampling for Okaloosa County	J. Lepo	FL Dept. of Health, Okaloosa County Health Department	7/1/03 – 6/30/04	$ 19,652
Post Hurricane Opal Assessment GUIS	R. Snyder	National Park Service	7/28/04 – 7/1/06	$ 9,962
Early Detection and Diagnosis of Phytopathogens as Bioterrorism Agents,	J. Lepo	USF (US Army)	10/1/04 - 06/30/06	$273,522

2006-2007

Microbial Biofilms as Indicators of Estuarine Ecosystem Condition	J. Lepo and R. Snyder	Part of Consortium for Estuarine Ecoindicators Research for the Gulf of Mexico, STAR EaGLes Coop Agreement, USEPA	11/1/01 – 5/20/07	$1,563,111
Collaborative Prosposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytopankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02-8/31/07	$515,870
The Interactive Effects of UV Radiation and Temperature on Lake Ecosystems	W. Jeffrey	NSF	10/1/02 - 9/30/07	$267,450
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	EPA	7/1/02 – 6/30/09	$3,055,675
Biological Impacts of Crop Production Systems in Transition from the Use of Methyl Bromide	K. Martin	US Dept of Agriculture	5/31/03 - 5/30/08	$ 15,000
RUI: Effect of Diurnal and Weekly Water Column Hypoxic Events on Nitrification and Nitrogen Transformations in Estuarine Sediments	J. Caffrey	NSF	3/15/04 – 2/28/07	$450,405
PERCH Project: Environmental Health Studies in Northwest Florida	K. R. Rao	CDC	8/18/05 – 8/17/07	$198,400
Pre-Reefing Environmental Assessment for the ex-Oriskany	R. Snyder & W. Patterson	Computer Sciences Corporation (CSC) (SPAWAR Flow-Thru)	2/1/06 – 12/31/06	$315,056
Wet Prairie Habitat Restoration Evaluation and Management Strategies For Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	5/1/06 – 4/30/07	$ 7,081

Appendix II Research data CEDB Grants in force

2006-2007 continued

Environmental Monitoring of Bathing Places	R. Snyder, J. Macauley, and J. Lepo	FL Dept of Health, Escambia County Health Department	7/1/06 – 6/30/07	$ 41,000
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	7/1/06 – 6/30/07	$ 76,500
Healthy Beaches Sampling for Okaloosa County	J. Lepo	FL Dept of Health, Okaloosa County Health Department	7/1/06 - 6/30/07	$ 19,843
Science Training in Ecology Programs II 2007-2009	W. Jeffrey	EPA	1/1/07-12/31/09	$ 49,132
Microbial Source Tracking and Its Application to the Northern Gulf of Mexico	J. Lepo	NOAA	2/1/07-7/31/08	$ 25,014

Appendix II Research data CEDB Grants in force

2007-2008

Collaborative Prosposal: Interactive Effects of UV Radiation and Vertical Mixing on Phytopankton and Bacterial Productivity of Ross Sea Phaeocystis Blooms	W. Jeffrey	NSF	9/1/02 – 8/31/07	$515,870
The Interactive Effects of UV Radiation and Temperature on Lake Ecosystems	W. Jeffrey	NSF	10/1/02 – 8/31/07	$267,450
Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	EPA	7/1/02 – 6/30/09	$3,055,675
RUI: Effect of Diurnal and Weekly Water Column Hypoxic Events on Nitrification and Nitrogen Transformations in Estuarine Sediments	J. Caffrey	NSF	3/15/04 – 2/29/08	$450,405
Science Training in Ecology Programs II 2007-2009	W. Jeffrey	EPA	1/1/07 – 12/31/09	$ 49,132
Biological Impacts of Crop Production Systems in Transition from the Use of Methyl Bromide	K. Martin	US Dept of Agriculture	5/31/03 – 5/30/08	$ 15,000
Microbial Source Tracking and Its Application to the Northern Gulf of Mexico	J. Lepo	NOAA	2/1/07 – 7/31/08	$ 25,014
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	7/1/07 – 6/30/08	$ 40,000

Appendix II Research data CEDB Grants in force

2007-2008 continued

Wet Prairie Habitat Restoration Evaluation and Management Strategies For Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	7/1/07 – 6/30/08	$ 7,790
Validation and Field Testing of Microbial Source Tracking Methodologies in the Gulf of Mexico	J. Lepo	USF	8/3/07 – 8/2/08	$ 70,559
Atmospheric Deposition of Mercury and Trace Metals in the Pensacola Bay Watershed.	J. Caffrey	Electric Power Research Institute	1/1/08 – 4/30/08	$ 27,844
Preliminary Data Analysis to Test Land-Use Influence on Red Tide in Choctawhatchee Bay Florida	M. Schwartz & W. Jeffrey	University of Florida	2/1/08 – 5/31/08	$ 3,500
Enhancement of Public Health Preparedness for Dealing with Bioterrorism: Diagnostics for Intentionally Released Human Pathogens in Surface- And Drinking- Water	J. Lepo	USF	9/26/07 – 9/25/09	$218,125
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	7/1/08 – 6/30/09	$ 40,000
Wet Prairie Habitat Restoration Evaluation and Management Strategies For Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	7/1/08 – 6/30/09	$ 7,790

Appendix II Research data CEDB Grants in force

2008-2009

Assessment of Environmental Pollution and Community Health in Northwest Florida	K. R. Rao	EPA	7/1/02 – 6/30/09	$3,055,675
Science Training in Ecology Programs II 2007-2009	W. Jeffrey	EPA	1/1/07 – 12/31/09	$ 49,132
Microbial Source Tracking and Its Application to the Northern Gulf of Mexico	J. Lepo	NOAA	2/1/07 – 7/31/08	$ 25,014
Validation and Field Testing of Microbial Source Tracking Methodologies in the Gulf of Mexico	J. Lepo	USF	8/3/07 – 8/2/08	$ 70,559
Atmospheric Deposition of Mercury and Trace Metals in the Pensacola Bay Watershed	J. Caffrey	Electric Power Research Institute	1/1/08 – 7/31/09	$ 27,844
Enhancement of Public Health Preparedness for Dealing with Bioterrorism: Diagnostics for Intentionally Released Human Pathogens in Surface- And Drinking- Water	J. Lepo	USF	9/26/07 – 9/25/09	$218,125
Fecal Source Tracking Research	J. Lepo and R. Snyder	FL Dept of Health, Escambia County Health Department	7/1/08 – 6/30/09	$ 40,000
Wet Prairie Habitat Restoration Evaluation and Management Strategies For Garcon Point Water Management Area	R. Snyder	NW FL Water Management District	7/1/08 – 6/30/09	$ 7,790
Gulf Oyster Industry Program – Oyster Demand Adjustments to Alternative Consumer Education and Post Harvest Processes in Response to *Vibrio vulnificus*	W. Huth	Gulf Oyster Industry	7/1/08-5/30/10	$185,229
Novel Protection and Decontamination Strategies	J. Lepo	Florida Gulf Coast University	9/11/09 – 2/4/11	$ 24,990
Minding Planet 3	J. Caffrey	Yellow Springs Instruments (YSI)	1/1/10 – 12/31/12	$ 25,000

Appendix III. CEDB Publications and Presentations

2002-2003 Publications

Kelley, C.A., and W.H. Jeffrey. 2002. Dissolved methane concentrations profiles and air-seafluxes from 410 S to 270 N. *Global Biogeochemical Cycles* 10.1029/2001GBOOI809.

Wilhelm, S.W., W.H. Jeffrey, and C.A Suttle, and D.L. Mitchell. 2002. Estimation of Biologically Damaging UV levels in Marine Surface Waters with DNA and Viral Dosimeters. *Photochemistry and Photobiology* 76(3): 268-273.

Buma, AG.J., P. Boelen and W.H. Jeffrey. 2003. UVR-induced DNA damage in aquaticorganisms. In: W. Helbling and H. Zagarese (eds.), Comprehensive series in Photosciences "UV effects in aquatic organisms and ecosystems." *The Royal Society of Chemistry*, Cambridge, UK. pp.291-327

Wilhelm, S., W.H. Jeffrey, A. Dean, J. Meador, and D.L. Mitchell. 2003. Ultraviolet radiation induced DNA damage in marine viruses along a latitudinal gradient. *Aquatic Microbial Ecology* 31: 1-8.

Martin, K. J., J. M. Henson, L. L. Phillips, R A. Brooks and J. E. Lepo. 2003. Phytopathogens as Bioterrorism Agents. Proceedings of the Annual Meeting ofthe Consortium of Biological Defense Researchers. (Soldiers Biological Chemical Command; SBCCOM) 28 - 30 April 2003. Lubbock, Texas.

Sipura, J., Lores, E.M., and Snyder, R.A. 2003. Effect of copepods on estuarine microbial plankton in short-term microcosms. *Aquatic Microbial Ecology*, 33: 181-190.

Karouna-Renier, N.K., W.-K. Yang, and K.R. Rao. Cloning and characterization ofa 70kDa heat shock cognate gene (HSC70) from two species of *Chironomus. Insect. Mol. Biol.,* 12: 1926.

Caffrey, J.M., N.E. Harrington, I. Solem, and B.B. Ward. 2003. Biogeochemical Processes in a Small California Estuary: 2. Nitrification Activity, Community Structure and Role in Nitrogen Budgets. *Marine Ecology Progress Series*. 248: 27-40.

Caffrey, J.M., N.E. Harrington, and B.B. Ward. 2002. Biogeochemical Processes in a Small California Estuary: 1. Benthic Fluxes and Pore Water Constituents Reflect High Nutrient Freshwater Inputs. *Marine Ecology Progress Series*. 233:39-53.

Caffrey, J.M., M. Brown, B. Tyler, M. Silberstein (eds.) 2002. *Changes in a California Estuary: an Ecosystem Profile of Elkhorn Slough*. Elkhorn Slough Foundation. Moss Landing, CA.

Presentations and Invited Seminars

Jeffrey, W.H. 2002. Spatial and temporal variation in bacterioplankton response to ultraviolet radiation. Ann. Mtng American Society for Photobiology, Quebec City, Canada. July 13-17.

Jeffrey, W.H. 2003. Ultraviolet radiation effects on marine bacteria. University of California Irvine, Irvine, CA. January 17.

Jeffrey, W.H. 2003. Molecular and physiological effects of ultraviolet radiation on marine bacterioplankton. Florida A & M University, Tallahassee, FL. February 7.

Jeffrey, W.H. 2003. The power of partnerships between scientists and educators for promoting ocean science in Florida. Florida Center for Ocean Science Education Excellence (FCOSSEE) Florida Community Building Workshop, Tallahassee. FL. May 17.

Jeffrey, W.H. 2003. Molecular and physiological effects of ultraviolet radiation on marine bacterioplankton. Universite Pierre et Marie Curie (Paris VD, Observatoire Oceanologique). Banyuls-sur-Mer, France. June 6.

Lepo, J. 2003. Tracking Sources of Fecal Contamination in Environmental Waters. Presented at the Comprehensive Meeting of the EPA Gulf of Mexico Program Focus and Project Teams. New Orleans, Louisiana. 26 June.

Snyder, R. A., and J. E. Lepo, J. Liebens, and C. Briscoe. 2003. Agricultural Runoff Impacts on Total Maximum Daily Loads and Water Quality: Field and Watershed Scale Studies and Science-Teacher Education. USDA National Water Quality Coordinators Conference: Building the Network, Strengthening Partnerships, Tucson, Arizona, 12 January 2003.

Snyder, R.A., J. E. Lepo, A. Nocker, L. M. Proctor, L. Pennington, J. Moss, M. Ederington-Hagy, and S. MacAuley. 2003. Microbial Biofilms As Indicators of Estuarine Condition. American Society for Microbiology, National Meeting, Washington, D.C. 19 – 21 May 2003.

Proctor, L.M., S. MacAuley, A. Nocker, J. E. Lepo, and R. A. Snyder. 2003. Analysis ofN Cycling Microorganisms in Biofilm Communities from Estuarine Environments, National Meeting, Washington, DC. 19 - 21 May 2003.

Snyder, R. A. and J. E. Lepo. 2003. Agricultural runoff imacts on total maximum daily loads and water quality: Field and Watershed Scale Studies and Science-Teacher Education, (poster and talk) USDA all investigators meeting in Tuscon, AZ, January 2003.

Snyder, R.A., S. Lacina, S. Brown, and W. Cleckley. Restoration of Gulf Coast Wet Prairie Habitat from Slash Pine Plantation. The Fourth agro-ecology conference: Ecosystem Restoration and Stewardship In Florida, Florida Center for Environmental Studies, St Augustine, FL. January 2003.

2003-2004

Publications

Edwards, K. R., J. E. Lepo, and M. A. Lewis. 2003. Toxicity Comparison of Biosurfactants and Synthetic Surfactants Used in Oil Spill Remediation to Two Estuarine Species. *Marine Pollution Bulletin* 46:1309-1316.

Lepo, J. E., C. R. Cripe, S. Zhang, J. L. Kavanaugh, and G. P. Norton. The effect of amount of crude oil on extent of its biodegradation in open water- and sandy beach- laboratory simulations. *Environ. Technol*. 24 (10): 1291-1302.

Kiely, C. L., R. A. Snyder, A. M. Lazur, and J. E. Lepo. 2004. Evaluation of a Vegetated Filter Strip as a Best Management Practice for Treating Catfish Pond Stormwater Effluent. Global *Aquaculture Advocacy* 7:67-68.

Simmon, K., D. Steadman, S. Durkin, A. Baldwin, W.H. Jeffrey, P. Sheridan, R. Horton and M.S. Shields. 2004. An autoclave method for rapid preparations for bacterial PCR template DNA. *Journal of Microbiological Methods.* 56: 143-149.

Caffrey, J.M. 2003. Production, Respiration and Net Ecosystem Metabolism in U.S. Estuaries. *Environmental Monitoring and Assessment*. 81: 207-219.

MacFadyen, E. J., C. E. Williamson, G. Grad, M. Lowery, W. H. Jeffrey, and D. L. Mitchell. 2004. Molecular Response to Climate Change: Temperature Dependence of UV-induced DNA Damage and Repair in the Freshwater Crustacean *Daphnia pulicaria*. *Global Change Biology* 10: 408-416.

Presentations and Invited Seminars

Lepo, J. E. 2003. *Microbial Biofilms as Indicators of Estuarine Condition*. Seminar to Department of Biology, University of Mississippi, Oxford, Miss. 31 October 2003.

Lepo, J. E., K. J. Martin, L. L. Phillips, R. Brooks, T. Huggins, and J. M. Henson. 2004. Early Detection and Diagnosis of Phytopathogens as Bioterrorism Agents: Progress into Year 3. 5th Annual Meeting of the Consortium for Biodefense. Clearwater Beach, Fla. 13 May 2004.

Phillips, L. L., R. A. Brooks, K. J. Martin, and J. E. Lepo. 2003. Combining QPCR and TRFLPs to detect bioterrorism agents on plant surfaces. Annual Meeting of the American Phytopathological Society. 9 – 13 August 2003. Charlotte, North Carolina.

Martin, K. J., L. L. Phillips, R. A. Brooks, and J. E. Lepo. 2003. Combining real-time quantitative PCR with terminal restriction fragment length polymorphism methods to detect crop-bioterrorism agents. Annual Meeting of the Soil Science Society of America. Denver, Colorado. 9 November 2003.

Snyder, R.A., J. E. Lepo, A. Nocker, L. Proctor, L. Pennington, J. Moss, and T. Huggins. 2003. Microbial biofilms as indicators of estuarine condition. Estuarine Research Federation Annual Meeting; Seattle, WA. 14-18 September 2003.

Nocker, A., R.A. Snyder, J. E. Lepo, J.A. Moss, and T. Huggins. 2003. Molecular analysis of habitat specificity in estuarine microbial biofilm community structures. Estuarine Research Federation Annual Meeting; Seattle, WA. 14-18 September 2003.

Moss, J.A., R.A. Snyder, and J. E. Lepo. 2003. Fluorescein diacetate hydrolysis as a surrogate for microbial heterotrophic activity in estuarine biofilms. Estuarine Research Federation Annual Meeting; Seattle, WA. 14-18 September 2003.

Pennington, L.J.,R.A. Snyder, J. E. Lepo, M. Ederington-Hagy, A. N. Rondon, and R. H. Davis. 2003. Habitat Fidelity of Estuarine Microbial Biofilms determined from analysis of phospholipids. Estuarine Research Federation Annual Meeting; Seattle, WA. 14-18 September 2003.

Proctor, L. M. S. MacAuley, J. E. Lepo, R. Snyder, and A. Nocker. 2003. Characterization of N-Cycling Microorganisms in Biofilms from Estuarine Environments in the Gulf of Mexico. Estuarine Research Federation Annual Meeting; Seattle, WA. 14-18 September 2003.

Lepo, J. E., A. M. Lazur, R. A. Snyder, C. L. Kiely, and M. E. Griggs. 2004. Evaluation of a Vegetated Filter Strip as a Best Management Practice for Treating Catfish Pond Stormwater Effluent. Presented at the Annual Meeting of the World Aquaculture Society, 1 – 5 March 2004; Honolulu, Hawaii.

Phillips, L. L., K. J. Martin, J. E. Lepo. 2004. Analysis of Fungal Epiphytic Communities on Leaves of Crops by LHPCR and QPCR. 5th Annual Meeting of the Consortium for Biodefense. Clearwater Beach, Fla. 11 – 14 May 2004.

Nocker, A., J. E. Lepo, L. L. Martin, J. Moss, A. D. Launder, R. A. Snyder. 2004. Molecular Analysis of Microbial Biofilm Communities in a Sewage Outfall Impacted Environment in Comparison with a Reference Site in Pensacola Bay, Florida. 104th Ann. Mtg of the Amer. Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no. I-039.

Brooks, R. A., T. L. Huggins, K. J. Martin, J. E. Lepo. 2004. Analysis of Bacterial Epiphytic Communities on Crops by TRFLP and QPCR as Potential Indicators of Agricultural Terrorist Events. 104th Annual Meeting of the American Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no. Y-091.

Kiely, C. L., R. A. Snyder, M. Wagner, J. Allison, A. D. Launder, and J. E. Lepo. 2004. Microbial Ecology of a Grass-Filter-Strip Best Management Practice for Attenuation of Nutrients and Suspended Solids in Overflow Discharge from a Catfish Aquaculture Pond. 104th Annual Meeting of the American Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no. N-078.

Phillips, L. L., K. J. Martin, J. E. Lepo. 2004. Analysis of Fungal Epiphytic Communities on Leaves of Crops by LHPCR and QPCR. 104th Annual Meeting of the American Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no. N-186.

Brewer, E.N., K.J. Martin, and J.E. Lepo. 2004. Terminal Restriction Length Polymorphism Analysis to Identify Bacterial Source Indicators. 104th Annual Meeting of the American Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no.X-xxx.

Snyder, R.A., A. Nocker, L. Proctor and J.E. Lepo. 2004. Estuarine microbial biofilms as integrative sensors of environmental quality. International Symposium for Microbial Ecology, annual meeting, Cancun, Mexico.

Moss J., A. Nocker, J. E. Lepo, and R. A. Snyder. 2004. Temporal dynamics of estuarine microbial biofilm community structure. International Symposium for Microbial Ecology, annual meeting, Cancun, Mexico.

Jeffrey, W. H. 2003. Molecular and physiological effects of ultraviolet radiation on marine bacterioplankton. Ann. Mtng American Society for Photobiology, Baltimore, MD. July 5-9.

Meador, J. W. H. Jeffrey, and D.L. Mitchell. 2003. Characterization of diverse photobiological responses of marine bacterioplankton. Annual Meeting American Society for Photobiology, Baltimore, MD. July 5-9.

Jeffrey, W. H., J.D. Meador, J.D. Pakulski, T.A. Douki, A.J. Baldwin, and D.L. Mitchell. 2004. Solar induced DNA photoproducts across a latitudinal gradient in the eastern Pacific ocean. American Society for Limnology and Oceanography Mtng, Honolulu, HI. February 15-20.

Baldwin, A.J., J.D. Pakulski, and W. H. Jeffrey. 2004. Effects of prolonged solar exposure on bacterial response to UVR along a latitudinal gradient. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 15-20.

Pakulski, J.D., A.J. Baldwin, R. Stephens, J. Moss, and W. H. Jeffrey. 2004. Variable responses of heterotrophic bacteria to surface solar conditions in the Pacific ocean. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 15-20.

Mioni, C.E., S.M. Handy, M.R. Twiss, J. Sudre, R.D. Frew, W. H. Jeffrey, P.W. Boyd, V. Garcon, and S.W. Wilhelm. 2004. Deployment of a heterotrophic bioluminescent bioreporter to estimate the bioavailability of iron in seawater. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 15-20.

Snyder, R. A., J.E. Lepo, and M.A. Lewis, 2003. Microbial Biofilms as Integrative Sensors of Environmental Quality. Estuarine Indicators Workshop, Sanibel Island, FL. October 29-31

Snyder, R. A., A. Launder, A. Nocker, A. Rogerson, W. Huth, and R. Dehan. 2004. Microbiological indicators of water quality in submerged karst caves of Wakulla Springs. Wakulla Springs Scientific Symposium, Tallahassee, FL. May 13. Florida Geologic Survey.

Karouna-Renier, N.K., R.A. Snyder, J. G. Allison, M. E. Wagner, and K. R. Rao. 2004. Contaminant residues in blue crabs and oysters from the Pensacola Bay region. Fourth SETAC World Congress, Portland, OR.

Mohrherr, C.J., J. Liebens, J. E. Lepo, and K. R. Rao. 2004. Profiles of pollutants impacting Bayou Texar, Pensacola, FL. Fourth SETAC World Congress, Portland, OR.

Caffrey, J. M., J. Hagy, J. Cherry, J. Campbell, and M. Murrell. The Role of Nitrification in the Nitrogen Budget of Pensacola Bay. June 2004. American Society of Limnology and Oceanography. Savannah, GA

2004-2005

Publications

Chapin, T.P., J.M. Caffrey, H.W. Jannasch, L. Coletti, J.C. Haskins and K. Johnson. 20d4.Nitrate sources and sinks in Elkhorn Slough, CA: results from continuous in situ nitrate analyzers. *Estuaries* 27:882-894

Caffrey, J.M. 2004 Factors controlling net ecosystem metabolism in U.S. estuaries. *Estuaries* 27:90-101

Lepo, J. E. and J. M. Henson. 2004. *Crop Bioterrorism: Risk, Diagnosis, Control, Prevention,the Future.* Invited Review Chapter *In* Emerging Concepts in Plant Health Management.ISBN: 81-7736-227-5; Robert T. Lartey and Anthony J. Caesar, Eds.; Chapter 1, pp.l 15.

Nocker A., J. E. Lepo, and R A. Snyder. 2004. Diversity of microbial biofilm communities associated with an oyster reef and an adjacent muddy-sand bottom habitat. Appl. Environ. Microbiol. 70:6834-6845.

Liu, J., W.-J. Yang, X.-J. Zhu, N.K. Karouna-Renier, and K. R Rao, 2004. Molecular cloning and expression of two HSP70 genes in the prawn, *Macrobrachium rosenbergii. Cell Stress and Chaperones* . 9(3): 313-323.

Presentations and Invited Seminars

Smith, K., F. Aftanas, and J. M. Caffrey. Factors Controlling Nitrification In Deep And Shallow Sites In Pensacola Bay During The Summer 2004. March 2005. Gulf Estuarine Research Society and Society of Wetland Scientists. Pensacola Beach, FL

Mohrherr, C.J., J. Liebens, J. E. Lepo, and K. Rao. 2004. Profiles of pollutants impacting Bayou Texar, Pensacola, FL. Annual Meeting of the Society for Environmental Toxicology and Chemistry (SETAC) Fourth SETAC World Congress 14- 18 November 2004; Portland, Oregon. Abstract no. MOH-l 085-693999

Karouna-Renier, N. K., R. A. Snyder, J. G. Allison, M. E. Wagner, and K. R. Rao, 2004. Contaminant residues in blue crabs and oysters from the Pensacola Bay region. Proceedings of Fourth SETAC World Congress and 25th Annual Meeting in North America. p. 411.

Moss J., A. Nocker, J. E. Lepo, and R A. Snyder. 2004. Temporal dynamics of estuarine microbial biofilms. *International Symposium for Microbial Ecology triennial meeting, Cancun, Mexico, August 2004*

L.M. Proctor, M.T. Peglar, A. Nocker, J. E. Lepo, and R.A. Snyder. 2004. Investigating the use of microbial biofilms as indicators of estuarine status: baseline data on n cycling microbial guilds in an unimpacted estuary. *International Symposium for Microbial Ecology triennial meeting, Cancun, Mexico, August 2004*

Nocker, A., J. E. Lepo, L. L. Martin, J. Moss, A. D. Launder, R. A. Snyder. 2004. Molecular Analysis of Microbial Biofilm Communities in a Sewage Outfall Impacted Environment in Comparison with a Reference Site in Pensacola Bay, Florida. 104 Ann, Mtng of the Amer. Society for Microbiology, 22- 25 May 2004; New Orleans, Louisiana. Abstract no. 1-039.

Arnosti, C., S. Ghobrial, and W.H. Jeffrey. 2005. Spatial patterns in the activities of microbial extracellular enzymes: A Factor in the persistence of "semi-labile" DOC? American Society for Limnology and Oceanography Meeting, Salt Lake City. Feb. 20 - 25.

Abboudi, M., R. Sempere, F. Joux, B. Charriere, D. Levevre, M Tedetti, M. Pujo-Pay, and W.H. Jeffrey. 2005. Impact du rayonnement ultraviolet sur le recyclage de la matiere organique par les bacteries marines. Colloque d'Ecologie Microbienne, Obernai, France. May 9-12.

Aftanas, F., K. Smith and J.M. Caffrey. Nitrification And Biogeochemical Cycling In Tidal Creeks On Sapelo Island, Ga. March 2005. GulfEstuarine Research Society and Society ofWetland Scientists. Pensacola Beach, FL

Wagner, M. Snyder, R. & Lepo, J. 2005. Biofilms and Water Quality An Integrated Approach to Evaluate the Condition of Estuarine Ecosystems. Gulf Chapter Estuarine Research Society meeting, Pensacola Beach, FL. May 2005.

Moss J., Nocker A., Lepo J., Snyder R.A. 2005. Alternating Stable States within Nascent Estuarine Microbial Biofilm Community Structure Gulf Chapter Estuarine Research Society meeting, Pensacola Beach, FL. May 2005.

Snyder, R.A., J.E. Lepo, J. Liebens, C. Briscoe. 2005. Agricultural Runoff, TMDLs and Water Quality: Field and Watershed Scale Studies, Science-Teacher Education, Agricultural Extension Activities. USDA-CSREES National Water Quality, La Jolla, CA, Feb 2005.

Jeffrey, W.H. 2004. Photographer Frank Hurley and The Endurance Expedition to Antarctica: Extreme Photography and Historical Documentation. Pensacola Junior College, Pensacola, FL. September 9.

Jeffrey, W.H. 2005. Ozone depletion, ultraviolet radiation, icebergs, whales, penguins, and bacteria: This must be Antarctica. University of West Florida, April 1.

Jeffrey, W.H., A.J. Baldwin, J.A. Moss, J.D. Pakulski , F. Joux. 2005. Microbial Diversity in a Pacific Ocean transect from the Arctic to Antarctic Circles. American Society for Limnology and Oceanography Meeting, Santiago de Compostela, Spain, June 19 - 24.

Joux, F., P. Conan, F. Lantoine, I. Obernosterer, W.H. Jeffrey , and M. Abboudi. 2005. Depth distributions of solar UV radiation effects on bacterioplankton and phytoplankton in NW Mediterranean coastal water during summer. American Society for Limnology and Oceanography Meeting, Santiago de Compostela, Spain, June 19 - 24.

Neale, P.J., W.H. Jeffrey, C. Sobrino, L.A. Franklin, and J. Phillips-Kress. 2005. UV Inhibition Of phytoplankton photosynthesis during the late stage of an extensive Ross Sea polynya bloom. American Society for Limnology and Oceanography Meeting, Santiago de Compostela, Spain, June 19 - 24.

Jeffrey, W.H. 2006. March of the Pensacolians: UWF's Antarctic Research Program. University of West Florida, Pensacola, FL March 3.

Jeffrey, W.H. 2006. From Pensacola to Penguins. The Lacawac Sanctuary. Lake Ariel, PA. June 24.

2005-2006

Publications

Murrell, M.C. and J.M. Caffrey. 2005. High cyanobacterial abundance in three Gulf of Mexico estuaries. *Gulf and Caribbean Research*. 17:95-106.

Snyder, R.A., 2005. An Evaluation of Restoration strategies for wet prairie habitat on garcon Point, Santa Rosa, FL, NWFWMD. Year 5 report.

Snyder R.A. 2005. *Analysis of Fecal Loadings Into Bayous Grande, Chico, and Texar, Pensacola Bay System, FL.* Prepared for: Florida Department of Health, Escambia County Health Department.

Arnosti, C., S. Durkin, and W.H. Jeffrey. 2005. Patterns of extracellular enzyme activities among pelagic microbial communities: Implications for cycling of dissolved organic carbon. *Aquatic Microbial Ecology* 38: 135-145.

Snyder, R. A., M. A. Lewis, A. Nocker, J. E. Lepo. 2005. Microbial Biofilms as Integrative Sensors of Environmental Quality. Proceedings of Symposium on Estuarine Indicators, Sanibel, Florida; S. A. Bortone, Ed. pp. 111 – 126. (CRC Press LLC)

Mitchell, D.L., and W.H. Jeffrey. 2005. Can you really put something where the sun don't shine? *Journal of Irreproducible Results* 49: 6- 10.

Baldwin. A.J., J.A. Moss, J.D. Pakulski, P. Catala. F. Joux, and W.H. Jeffrey. 2005. Microbial diversity in a Pacific Ocean transect from the Arctic to Antarctic circles. *Aquatic Microbial Ecology* 41: 91-102.

Presentation and Invited Seminars

Launder, A., A.Nocker, A. Rogerson, H. Castillo, W. Huth, and R.A. Snyder. Microbiological indicators of water quality in submerged karst caves of Northern Florida. International Society for Subsurface Microbiology/International Society for Environmental Biogeochemistry. Jackson, WY. August 2005. (Student travel award recipient)

Allison, J. and R.A. Snyder. Importance of Microalgal Production at the Benthic Boundary Layer in an Estuarine Sand Bottom Habitat. Estuarine Research Federation biennual meeting, October, 2005. Norfolk, VA.

Wagner, M. J. Allison, M. Hagy, J. Lepo & R. Snyder. 2005. Spatial Patterns of Periphyton Growth as Indicators of Estuarine Condition. Estuarine Research Federation biennual meeting, October, 2005. Norfolk, VA. (Student Presentation Award Recipient).

Sang Hyon Lee, Kristen N. Hellein, Alan Knowles, Hugo A. Castillo-Gonzales, Richard A. Snyder, and Joe E. Lepo Diversity of *nifH* in Microbial Biofilm Response to Added Nutrients Generated in Flow-Through Seawater Microcosms

Gibson, S., W Patterson, & R.A. Snyder. 2005. Ciliate protozoa as food for Red snapper larvae. UWF Sea Stars.

Ajidahun, A. R. W. Cross, and J. E. Lepo. 2006. PCR Detection of *Helicobacter pylori* Prevalence in Pig Feces.106th Annual Meeting of the American Society for Microbiology, 21- 25 May 2006; Orlando, Florida. Abstract no. N-195.

Lee, Sang-Hyon, Kristen N. Hellein, Alan Knowles, Hugo A. Castillo-Gonzales, Richard A. Snyder, and Joe E. Lepo. 2006. Diversity of *nifH* in Microbial Biofilm Response to Added Nutrients Generated in Flow-hrough Seawater Microcosms.106th Annual Meeting of the American Society for Microbiology, 21- 25 May 2006; Orlando, Florida. Abstract no. N-180.

Richards, Casey, Lori Louisa Phillips, and Joe Eugene Lepo. 2006. Detection of *Phakopsora pachyrhizi* in Northwest Florida using Quantitative PCR. 7*th Annual Meeting of the Consortium of Biodefense Researchers.* Clearwater Beach, Florida; 30 May – 2 June 2006.

Phillips, Lori Louisa, Kendall J. Martin, and Joe Eugene Lepo. 2006. Fungal Epiphytic Community Dynamics on Leaves of Soybeans. 7*th Annual Meeting of the Consortium of Biodefense Researchers.* Clearwater Beach, Florida; 30 May – 2 June 2006.

Lepo, Joe Eugene. 2006. Sentinel Molecular Diagnostics for Crop Agroterrorism. 7*th Annual Meeting of the Consortium of Biodefense Researchers.* Clearwater Beach, Florida; 30 May – 2 June 2006.

Joux, F., I. Obernosterer, P. Conan, F. Lantoine, W.H. Jeffrey, and A. Baldwin. 2005. Impact of solar UV radiation on bacterioplankton and phytoplankton biomasses and activities at different depths in NW Mediterranean coastal water during summer. 11th Congress of the European Society for Photobiology, Aix-les-Bains, France. September 3-8.

Jeffrey, W.H., J.D. Pakulski, S. Connelly, A.J. Baldwin, D. Karentz, J.Phillips-Kress, C. Sobrino, L. Franklin, and P.J.Neale. 2006. Effects of ultraviolet radiation on bacterioplankton in the Ross Sea, Antarctica. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 19-24.

Arnosti, C., S. Ghobrial, A. Baldwin, and W.H. Jeffrey. 2006. Evidence of Functional Diversity Among Pelagic Microbial Communities: Variations in Rates and Patterns of Extracellular Enzyme Activities with Site and Depth. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 19-24.

Baldwin, A.J., J.D. Pakulski, S. Connelly, and W.H. Jeffrey. 2006. Effects of prolonged solar exposure on marine bacterioplankton community structure and function. American Society for Limnology and Oceanography Meeting, Honolulu, HI. February 19-24.

Guida, T., J.Porter, C. Williamson, and W. Jeffrey. 2006. Exposure of Bacteria to UV-B Radiation Over Chronic and Acute Time Scales: Evidence for Dose-rate Dependence. American Society for Limnology and Oceanography Meeting. Victoria, British Columbia. June 4 – 9.

Smith, K., E. Gaige, and J.M. Caffrey. Comparing nitrification and nutrient dynamics in three estuaries: Weeks Bay, AL; Pensacola Bay, FL; and the Duplin River, GA. October 2005 Estuarine Research Federation Society Meeting. Norfolk, VA.

Gaige, E., T. Martin, K. Smith and J.M. Caffrey. Comparing porewater nutrients and sediment characteristics in three estuaries: Weeks Bay, AL; Pensacola Bay, FL; And The Duplin River, GA October 2005 Estuarine Research Federation Society Meeting. Norfolk, VA.

Caffrey, J.M. Combining long-term and high frequency water quality data to understand ecological processes in estuaries October 2005 Estuarine Research Federation Society Meeting. Norfolk, VA

2006-2007

Publications

DiDonato, G.T., E.M. Lores, M.C. Murrell, L.M. Smith, and J.M. Caffrey. 2006. Benthic nutrient flux in a small estuary in northwestern Florida (USA). *Gulf and Caribbean Research*. 18:15-25.

Hoch, M.P., W.H. Jeffrey, R.A. Snyder, K. Dillon, and R.B. Coffin. 2006. Expression of glutamine synthetase and glutamate dehydrogenase by marine bacterioplankton: assay optimizations and efficacy for assessing nitrogen to carbon metabolic balance. *Limnology and Oceanography: Methods* 4: 294-307.

Mioni, C.E., A.J. Baldwin, M.R. Twiss, L. Poorvin, J.D. Pakulski, W.H. Jeffrey, and S.W. Wilhelm. 2007. Variability in the *in situ* bioavailability of Fe to bacterioplankton communities in the eastern subtropical Pacific Ocean. *Aquatic Microbial Ecology* 46: 239-251.

Pakulski, J.D., A. Baldwin, A. Dean, S. Durkin, D. Karentz, C.A. Kelley, K. Scott, H. J. Spero, S. Wilhelm and W. H. Jeffrey. 2007. Responses of heterotrophic bacteria to latitudinal variation in solar irradiance. *Aquatic Microbial Ecology* 47:153-162.

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Sang Hyon Lee, Kristen N. Hellein, Alan Knowles, Hugo A. Castillo-Gonzales, Richard A. Snyder, and Joe E. Lepo 2006. Diversity of *nifH* in Microbial Biofilm Response to Added Nutrients Generated in Flow-Through Seawater Microcosms American Society for Microbiology Annual meeting.

Karouna-Renier, N. K., S. M. Gibson, R. A. Snyder, K. R. Rao. 2006. Contamination Profiles in Largemouth Bass and Mullet Collected in Northwest Florida. SETAC Annual Meeting, Montreal, Canada, November, 2006.

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Caffrey, J.M. and K. Smith. Nitrification Response to Intermittent Hypoxia in Three Southeastern Estuaries. February 2007. American Society of Limnology and Oceanography Meeting, Santa Fe., NM.

Smith, K. and J. M. Caffrey. The effects of human and climatic impacts on sediment nitrogen dynamics in Escambia bay, Florida. February 2007. American Society of Limnology and Oceanography, Santa Fe., NM.

Caffrey, J.M. Nitrification and Benthic Fluxes in Three Southeastern Estuaries: Response to Intermittent Hypoxia. Invited presentation - Louisiana Universities Marine Consortium. December 2006

Caffrey, J.M. Sources and Sinks of Nitrogen in Weeks Bay, AL. Alabama-Mississippi Bays and Bayous Symposium. November 2006. Mobile, AL

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2007-2008

Publications

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Caffrey, J. Ammonia oxidation and ammonia-oxidizing Bacteria and Archaea populations from estuaries with differing histories of hypoxia. Estuarine Research Federation meeting November 2007, Providence, RI.

Caffrey, J. Application of the diagenetic model CANDI in Pensacola Bay. Ocean Sciences meeting. March 2-7, 2008. Orlando, FL N. Davila - presenter

Caffrey, J. Atmospheric deposition of mercury, trace metals and major ions in the Pensacola Bay watershed: implications for Choctawhatchee Bay. Symposium on Choctawhatchee Bay. June 1-2, 2008.

Caffrey, J. Atmospheric Deposition of Mercury, Trace Metals and Major Ions in the Pensacola Bay Watershed. National Monitoring Conference May 18-23, 2008. Atlantic City, NJ

Caffrey, J. Atmospheric Deposition of Mercury, Trace Metals and Major Ions in the Pensacola Bay Watershed. NW Florida Symposium. October 5, 2007, Pensacola, FL.

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Jeffrey, W.H. 2007. The Effects of Ozone Depletion on Bacterioplankton in Antarctic Waters. The University of West Florida, Pensacola, FL Sept. 7

Jeffrey, W.H. 2008. An oceanographer's thoughts on climate change. American Chemical Society, Pensacola Chapter. Pensacola, FL. January 24.

Jeffrey, W.H. 2008. Climate Change 101: Facts, Fantasies, and Solutions? Earth Day Symposium. University of West Florida. April 22.

Jeffrey, W.H. 2008. Ultraviolet radiation effects on microbial communities in Pocono Mountain Lakes. University of West Florida, Pensacola, FL March 28.

Jeffrey, W.H. 2008. Climate Change 101: Facts, Fantasies, and Solutions? Leisure Learning Lectures. University of West Florida, Pensacola, FL. February 7.

Lepo, J.E. and R.A. Snyder. 2008. Molecular Assessment of Estuarine Microbial Biofilm Community Response to Environmental Conditions. BIT's 1st Annual World Congress of ibio, Hangzhou, China, May 2008.

Joux, F., W. Jeffrey, M. Abboud, M. Pujo-Pay, L. Oriol, and J.-J. Naudin. 2007. UV radiation penetration and biological impact on low salinity Rhone River mesoscale structures in the NW Mediterranean Sea. 10th Symposium on Microbial Ecology, Faro, Portugal. Sept. 2 – 7.

Lee, S. H., A. C. Knowles, R. A. Snyder, and J. E. Lepo, 2007. Effect of Dissolved Oxygen on the Diversity of *nifH* in Microbial Biofilms Generated in Flow-Through Seawater Microcosms. 107th Annual Meeting of the American Society for Microbiology, 21- 25 May 2007; Toronto, Ontario, Canada. Abstract no. N-109.

Lepo, J.E.. *"Biological Research at the University of West Florida, Pensacola, Florida"* 18 December 2007; Seminar to multiple Departments of the Hunan Agricultural University, Changsha, Hunan Province, China.

Lepo, J.E.. *"Molecular Assessment of Estuarine Microbial Biofilm Community Response to Environmental Conditions"*; 18 May 2008, Hangzhou, China (see appended invitation letter).

Lepo, J.E.. *"Round-Robin Validation of Non-Culture Methods for Microbial Source Tracking*; 4 April 2008; Seminar to Department of Biology, University of West Florida, Pensacola.

Lepo, J.E.. *"The University of West Florida's Center for Environmental Diagnostics and Bioremediation:* 14 May 2008; Seminar to China Centers for Disease Control and Prevention, Nanjing, China.

Miller, A. L., M.A. Cochran, J.A. Serdula, K. Davis, D. Ann, W.H. Jeffrey, and P.P. Vaughan. 2008. Bacterial growth response to photoactive quinines. 2008. American Society of Limnology and Oceanography Annual Meeting. Orlando, FL. March 2-7.

Mitchell, D. L., C.J. Connelly, W.H. Jeffrey, A. Macaluso, R.E. Moeller, M.H. Olson, J.A. Porter, R.W. Sanders, A.J. Tucker,and C.E. Williamson. 2008. Photoprotection against UV-B radiation in freshwater plankton: a comparative approach across a broad trophic spectrum. American Society of Limnology and Oceanography Ann. Meeting. Orlando, FL. March 2-7.

Neale, P. J., W.H. Jeffrey, R.E. Moeller, J. Phillips-Kress, J.D. Pakulski, J.A. Porter, A. Heinze, A. Macaluso, R.W. Sanders, and C.L. Speekman. 2008. Planktonic response to UV in a changing environment: effects of early spring warming on biolocical weighting functions. American Society of Limnology and Oceanography Ann. Meeting. Orlando, FL. March 2-7.

Patterson, W.F. III, R.A. Snyder, K.R. Rao, and S. Gibson. 2008. Bioaccumulation of PCBs and Mercury in marine fishes in the northern central Gulf of Mexico. ASLO- AGU- ERF Ocean Sciences Meeting Orlando, FL, March 2008.

Patterson, W.F., III, R.A. Snyder, K.R. Rao, S. Gibson, S. Jeffers, and A. Ren. 2007. Bioaccumulation of PCBs and mercury in marine fishes off northwest Florida. FL AFS Meeting, Jan 2007.

Snyder Richard A. Science and its role in environmental management. UWF Earth Day Environmental Symposium April 22, 2008.

Snyder, Richard A. PCBs and Hg in fish. NW Florida Regional Environmental Symposium. UWF, BARC, FAEP, 5 October 2008.

Snyder, Richard A., Natalie Karouna-Renier, Alexander Ren, Suzanne Gibson and K. Ranga Rao. 2008. PCBs in fish and shellfish in the Pensacola Bay system. ASLO- AGU- ERF Ocean Sciences Meeting Orlando, FL, March 2008.

Williamson, C. E., G. Dee, L. J. Shirey, J. E. Saros, R. W. Sanders, J. A. Porter, W. J. Palen, M. H. Olson, P. J. Neale, A. L. Macaluso, K. Kessler, W. H. Jeffrey, T. Guida, S. Gilroy, M. DeLange, S. J. Connelly, and A. A. Clauser. 2008. Do ultraviolet (UV) tolerance and photoenzymatic repair vary across trophic levels from bacteria and phytoplankton to zooplankton and fish? American Society of Limnology and Oceanography Annual Meeting. Orlando, FL. March 2-7.

Meador, J.A., W.H. Jeffrey, T. Douki,, J.D. Pakulski, A. J. Baldwin, J. Cadet, D. Johnston, and D.L. Mitchell. 2009. A comprehensive comparison of UV induced DNA damage in marine microorganisms. *Photochemistry Photobiology*, 85: 412-420.

Appendix IV. Service data

University Service

Department Level

Department of Biology 5 year planning committee
Curriculum Committee, Biology Department (1997, 2000)
Graduate Program Admissions Committee Biology Department (1998-)
Facilities Coordinator: CEDB / Biology greenhouse
Search Committee, Microbiologist, Department of Biology
Search Committee, Marine Ecologist, Department of Biology
Search Committee, Hydrogeologist, Environmental Studies Dept.
Search Committee, Remote Sensing/GIS, Environmental Studies Dept.
Search Committee, Vertebrate Physiologist, Biology Dept.
Search Committee, Wetlands Ecologist, Biology Dept.
Search Committee, Plant Physiologist, Biology Dept.
Search Committee, Librarian, Library
Search Committee, Microbiologist, Biology Dept.
Environmental Studies Department Advisory Committee (2001-)
UWF Biology and Chemistry Safety Committee

University wide

Sponsored Research Advisory Committee
Secretary, Board of Directors, University of West Florida Research Foundation
University Employee Benefits Committee
College of Science and Technology Resource Allocation Committee
Selection committee for the Art in State Buildings Program
University Radiation Safety Committee
SCUBA Diving Safety Control Board
Marine Services Center Executive Committee
Presidential Faculty Advisory Council
Campus Master Plan Task Force, Main Campus Sub Group
Distinguished University Professorship Committee
Faculty advisor, Environmental Club
General Studies Committee (1998-2000)
Library Committee Chairman (1999-2002)
UWF High School Science Seminar Convener, (2000)
College of Arts and Sciences (CAS) Faculty Council
Governance Committee, CAS Council
University Health and Safety Committee (2000-)
University Planning Council Facilities Planning Committee Environmental Conservation and Beautification Committee (2003-2005)
University Growth and Development Committee 2005-2007

Appendix IV. Service data

University Service

University wide (continued)

Animal Care and Use Committee 2007-
Faculty Advisor, UWF Optimist's Club 2008-
University of West Florida Faculty Senate
University Faculty Senate Governance Committee
University Faculty Senate Academic Council
Search Committee, Director of Government Relations
Search Committee, Assistant Controller, Office of Sponsored Research
Search Committee, Associate VP for Research and Dean of Graduate Studies
Search Committee, University Provost
Search Committee, University Interim Provost
Search Committee, Director of Environmental Health and Safety, UWF

Community Service

South Santa Rosa Utilities Advisory Board Chairman
Speakers for the Lunch & Learn Seminar Series, Leisure Learning Society
Speakers for High School Science Seminar Series
Regional High School and individual middle and high school Science Fair Judges
Santa Rosa County Commission Tree Ordinance Sub-Committee
Santa Rosa Shores Homeowners Association Canal Committee
Citizens Advisory Board to Santa Rosa County Commissioner W.A. "Buck" Lee
Northwest Florida Legislative Delegation Natural Resources Advisory Committee
Environmental Advisory Board, City of Pensacola
Escambia County Citizens Environmental Committee
Bay Area Resource Council (BARC)
BARC Technical Advisory Council
Escambia Soil and Water Conservation Board
Natural Resources Conservation Service, Escambia County (US Department of Agriculture)
Escambia County Department of Health (Environmental)
Escambia County Neighborhood and Environmental Services Department
Santa Rosa County Stormwater Runoff Task Force
Marine Pollution Show, Sponsored by Escambia County NESD
WEAR TV 3 Interview on Water Quality Issues
NPR Radio Earth and Sky consultant.
Tournament Official Biologist/weighmaster, Gulf Breeze Optimists Club Annual Fishing Rodeo
Optimists Club of Gulf Breeze
St Frances of Assisi Episcopal Church member
Annual Seagrass field day, Oriole Beach Elementary School
Assisted development of *Trinity DNA* (small business in Santa Rosa County)

Appendix IV. Service data (continued)

State/Regional Service

Three Rivers RC & D Council
Florida Institute of Oceanography Advisory Committee
Institute of Food and Agricultural Science
Northwest Florida Legislative Natural Resources Advisory Committee
Envision EscaRosa
Northwest Florida Water Management District
Technical Advisory Committee with the Florida Department of Environmental Protection for the Allocation of Total Maximum Daily Loads (TMDL)
Florida Department of Community Affairs
Florida Department of Agricultural and Consumer Services
Florida Coastal Ocean Observation System Consortium
Science Advisory Committee to Georgia Coastal Ecosystem Long Term Environmental Research

Federal Service

US Environmental Protection Agency
US Department of Agriculture
National Science Foundation
Faculty Representative, Federal Demonstration Partnership (FDP)
Raytheon Polar Services and NSF Office of Polar Programs "Palmer Area Users Committee"
Representative to National Water Quality Monitoring Council
(see additional service contributions as grants and manuscript reviewers next page)

Appendix IV. Service data (continued)

CEDB faculty reviewer services for granting agencies and scientific journals.

Review Panels

Antarctica New Zealand
Delaware Sea Grant
Department of Energy
Department of Homeland Security (DHS)
US EPA National Center for Environmental Research, Science to Achieve Results (STAR)
Florida Institute of Oceanography
Florida Sea Grant
Georgia Sea Grant
Hudson River Foundation
Indo-US Science & Technology Forum
Maryland Department of Natural Resources, Tidewater Administration, Chesapeake Bay Research and Monitoring Division
Maryland Sea Grant program
Mississippi Sea Grant
Mississippi-Alabama Sea Grant Review Panel
NASA
Nat. Undersea Res. Program NOAA
National Science Foundation (NSF) Polar Programs
National Science Foundation (NSF) Biocomplexity GEN-EN
Natural Environmental Research Council (UK)
Texas Sea Grant
The Dutch Research Council for Marine Biology
US Department of Energy NABIR Program
US Department of State

Manuscript Reviews

Applied and Environmental Microbiology
Aquatic Microbial Ecology
Aquatic Science
Arctic, Antarctic, and Alpine Research
Association for Marine Oil Pollution
Biogeochemistry
Biogeosciences
Bioremediation Journal
Canadian Journal of Zoology
Coral Reefs
Deep Sea Research
Earth and Life Sciences
Environmental Pollution
Environmental Research
Environmental Science and Technology
Environmental Technology
Estuaries and Coasts
Estuarine Coastal and Shelf Science
FEMS Microbiology Ecology
Hydrobiologia
J. Exp Marine Biology & Ecology
Journal of Plankton Research
Journal of Applied Microbiology
Journal of Bacteriology
Journal of Coastal Research
Journal of Environmental Detection
Journal of Eukaryotic Microbiology (Editorial Board Member)
Journal of Hazardous Materials
Journal of Marine Research.
Journal of Phycology
Journal of the North American Benthological Society
Kuwait Journal of Science and Engineering
Limnology and Oceanography
Limnology and Oceanography Methods
Marine Microbial Food Webs
Marine Ecology Progress Series
Marine Pollution Bulletin

Appendix IV. Service data (continued)

CEDB faculty reviewer services for granting agencies and scientific journals, continued.

Review Panels	Manuscript Reviews
	Microbial Ecology
	Nature
	Photochemistry and Photobiology
	Plant Ecology
	Plant Pathology Journal
	Process Biochemistry
	Science
	Science of the Total Environment
	Scientific Journals International
	Transactions of the American Fisheries Society
	Trends in Biotechnology
	Water Resource

Appendix V. Personnel

CEDB Employees Summary 2002-2009

	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	
Faculty	5	5	5	5	5	5	5	35
Staff/Other	20	9	21	26	15	13	17	121
Post Doc	9	8	7	7	4	3	1	39
Graduate	12	14	15	19	9	10	12	91
Undergrad	37	38	43	33	17	13	11	192
	83	74	91	90	50	44	46	478
								411
White	66	65	80	70	52	42	36	311
Black	4	7	6	5	2	3	4	131
Hispanic	2	3	2	2	2	2	0	341
Asian	5	5	7	5	5	4	3	11
Other	0	0	0	0	0	1	0	

CEDB Personnel by name and position, 2002-2009

Abel, Kathryn	Student Assistant	1/2/01	8/9/02
Adams, Brian	Graduate Student	8/26/05	9/2/05
Aftanas, Francine	Student Assistant	5/10/04	8/5/05
Ajidahun, Abidemi	Student Assistant, Assistant in CEDB	2/25/03	7/7/08
Alford-Hasty, Emily	Student Assistant	12/7/07	9/21/08
Allard, Guy	Student Assistant	5/8/06	5/30/07
Allison, Jeffrey	Assistant in CEDB	8/12/02	8/12/06
Aristizabal, Manuela	Student Assistant	4/15/02	8/20/04
Arozqueta, Sandra R.	Student Assistant	7/12/06	4/26/07
Arruda, Nigel	Student Assistant	6/11/08	8/15/08
Baird, John H.	Associate in CEDB	8/8/02	2/25/04
Balderston, Nicholas	Work Study	8/22/05	12/9/05
Baldwin, Amy	Graduate Student, Assistant in CEDB	5/7/01	8/31/07
Barry, Rachel	Student Assistant, Graduate Student, Associate in CEDB	3/4/02	12/30/06
Baumstark, Holly	Assistant in CEDB	8/24/05	1/31/06
Boller, Amanda	Student Assistant	10/22/01	8/9/02
Bosso, Jeremy	Assistant in CEDB	1/20/03	12/1/04
Bosso, Jeremy	Assistant in CEDB	8/21/06	present
Bowen, Sabrina	Student Assistant	11/7/02	6/18/04

Bradley, Allyson	Graduate Student	7/16/07	4/12/08
Bradley, Brian Kevin	Graduate Student	9/8/04	11/16/06
Brawley, Autumn	Student Assistant	7/28/04	8/20/05

Appendix V. Personnel

CEDB Personnel, 2002-2009 (continued)

Bretana, Whitney	Student Assistant, Graduate Student	11/7/05	present
Brewer, Eric	Student Assistant	9/16/01	8/20/04
Brisco, Carol	Associate Professor	5/8/02	8/5/04
Brown, Jessie	Student Assistant	2/18/08	present
Bushway, Karen	Graduate Student	9/8/99	8/7/02
Caffrey, Jane	Research Asst. Professor, Associate Professor	8/31/01	present
Campuzano, Claudia	Student Assistant	1/29/07	5/1/08
Cancro, Gustav	Student Assistant	5/23/05	12/15/05
Carlton-Franco, C.	Graduate Student	12/1/05	8/13/07
Castillo, Hugo	Research Associate	11/1/04	4/16/06
Chastain-Gaskin, J.	Graduate Student	3/31/08	3/7/09
Chavalier, Jamila	Student Assistant	1/20/05	12/9/05
Claypool-Wright, J.	Assisted in CEDB	9/4/01	1/24/03
Claypool-Wright, J.	Assistant in CEDB	9/10/08	present
Colbert, Maria	Student Assistant	8/19/02	1/24/03
Couch, John	Associate in CEDB	12/15/04	1/29/05
Cramer, Paige	Student Assistant	5/27/04	8/31/05
Creekmore, Sean	Student Assistant	6/19/06	9/30/06
Croker, Rena	Student Assistant	5/10/05	7/28/06
Cross, Robert	Student Assistant, Graduate Student	10/9/03	8/27/08
Dalton, Orijane	Student Assistant, Graduate Student	10/25/07	present
Davila, Nathaniel	Student Assistant	4/3/06	5/25/08
Davis, Robert	Assistant in CEDB	8/29/02	11/22/02
DiGirolamo, Anthony	Graduate Student	4/28/04	6/30/04
Dittmar III, J. Drew	Student Assistant	8/27/07	5/31/08
Dunn, Autumn Sheree	Student Assistant	5/7/08	8/24/08
Ehlers, Ryan	Student Assistant	9/6/04	4/19/05
Eller, Virginia	Student Assistant	9/19/05	1/5/06
Eme, John	Graduate Student	4/8/04	5/26/05
Esterberg, Robert	Student Assistant	9/6/01	8/7/02
Farley, Patricia	Assistant in CEDB	8/19/02	10/16/02
Fielding, Joanna	Work Study	8/28/06	2/2/07
Finks, Benjamin	Student Assistant	1/12/04	8/20/04
Ford, Andrew	Student Assistant	10/13/04	6/30/05
Gaige, Elizabeth	Associate in CEDB	6/13/05	1/31/06

Gallagher, Jennifer	Student Assistant	12/11/03	1/31/04
Gibson, Suzanne	Assistant in CEDB, Graduate Student, Assistant in CEDB	10/21/03	4/13/07

Appendix V. Personnel

CEDB Personnel, 2002-2009 (continued)

Glover, Adam	Student Assistant	6/30/06	6/22/07
Goldman, Mary	Student Assistant	1/27/04	4/29/05
Griffey, Chris	Student Assistant	1/28/02	12/31/04
Grim, Jeffrey	Graduate Student	5/14/04	8/20/04
Hagy, Melissa	Associate in CEDB	2/25/02	10/26/07
Hames, Megan	Student Assistant	2/25/03	4/29/05
Hammond, James	Instrument Designer	1/27/03	5/7/03
Harbison, Raymond	Research Professor	11/1/02	1/31/04
Harmuth, John	Associate in CEDB	12/13/04	present
Heard, Michael	Student Assistant	11/7/02	12/31/03
Hellein, Kristen	Student Assistant, Graduate Student, Assistant in CEDB	1/20/05	present
Hicks, Ashton	Work Study	8/23/04	4/29/05
Higgins, Rebecca	Student Assistant, Assistant in CEDB	4/10/06	8/31/07
Hileman, Fred	Research Associate	2/2/09	3/6/09
Hill, Rebecca	Assistant in CEDB	10/4/04	6/30/05
Hines, Christopher	Work Study	8/28/03	9/19/03
Hohmann, Bernadette	Work Study	8/23/04	4/29/05
Hooe, Jennifer	Student Assistant	5/3/05	4/7/06
Hott, Amanda	Student Assistant	5/21/07	present
Hu, Zhiyong	Assistant Professor	5/25/07	8/15/08
Huggins, Timothy	Student Assistant, Assistant in CEDB	8/1/02	7/16/04
Hughes, Casey	Student Assistant	4/21/06	10/1/07
Hunt, Natalie	Student Assistant	6/11/08	8/15/08
Huth, Jonathan	Student Assistant	5/19/03	8/7/03
Igbo-Nwoke, Brandon	Work Study	8/26/03	5/31/04
Jackson, Jeffrey	Graduate Student	12/9/07	5/31/08
Jakubowski, Simon	Research Associate	1/17/06	1/25/07
Jarvis, Brandon	Graduate Student	11/16/06	4/28/07
Jeffers, Sarah	Graduate Student	5/1/06	12/30/06
Jeffrey, Wade	Associate Professor, Professor	1/1/03	present
Jenkins, Johanna	Graduate Student	9/1/04	12/31/04
Johns, Juanita	Office Assistant, Grant Specialist, Office Specialist	7/16/04	present
Karouna-Renier, N.	Research Associate	8/8/03	1/13/06

Kay, Christopher	Student Assistant	2/3/05	4/29/05
Kennedy, Elizabeth	Student Assistant, Graduate Student	1/29/07	present
Kiely, Candace	Graduate Student	8/23/02	5/31/04
Kinser, Michael	Student Assistant	1/28/02	11/3/02

Appendix V. Personnel

CEDB Personnel, 2002-2009 (continued)

Klein, Bianca	Graduate Student	9/25/03	5/31/04
Kline, Alan	Assistant in CEDB	3/20/06	12/15/06
Knoebl, Iris	Graduate Student	5/21/99	8/9/02
Knowles, Alan	Associate in CEDB	6/16/03	6/30/07
Knowles, John	Student Assistant	7/2/04	8/19/04
Kohok, Indrajeet	Student Assistant	5/3/05	9/8/05
Krivosheyev, Dmitri	Lab Tech	11/19/02	1/31/03
Krothapalli, Ranga	Director, CEDB, Professor Emeritus	10/1/90	present
Kummer, Lisa	Work Study, Student Assistant	8/28/06	5/12/08
Kuykendall, Bradley	Student Assistant	11/1/04	4/29/05
Lambright, Christian	Student Assistant	2/15/08	5/31/08
Laughery, Jeremy	Student Assistant	8/26/04	11/20/04
Launder, Ariel	Student Assistant, Assistant in CEDB, Graduate Student	1/31/02	8/7/03
Lavender, Michael	Marine Service Supv.	7/7/03	6/30/04
Lee, Sang Hyon	Research Associate	3/17/05	8/26/07
Legan, Shauna	Lab Assistant	1/25/06	2/15/07
Lepo, Joe	Associate Professor	8/1/91	present
Lewis, Nicholas	Student Assistant, Lab Tech	5/13/02	7/17/03
Liebens, Johan	Professor	5/27/05	8/15/08
Loughridge, John	Student Assistant	3/13/06	8/28/06
Macauley, Janet	Assistant in CEDB	11/18/98	8/7/07
Machovec, Debra	Student Assistant	7/22/04	7/31/05
Maeda, Momoka	Work Study	8/28/06	5/4/07
Maisel, Rayne	Student Assistant, Graduate Student	5/27/04	8/26/06
Malden, Michael	Student Assistant	11/6/03	11/30/03
Martin, Keith	Graduate Student	9/2/04	4/29/05
Martin, Kendall	Research Associate	8/8/02	8/7/05
Martin, Linda	Student Assistant	3/25/03	8/20/04
Martin, Tanner	Student Assistant	5/2/05	10/26/07
Mayo, Christopher	Student Assistant	1/28/02	12/31/02
McAllister, Michael	Student Assistant, Associate in CEDB	7/29/02	7/15/05
McDaniel, Kyle	Graduate Assistant	4/1/02	8/7/02
McDaniel, Randall	Student Assistant	1/19/01	6/30/04
McDonald, Kevin	Lab Tech	4/27/05	12/3/05

McDowell, Brianna	Student Assistant	2/3/03	8/7/03
Medar, Cherly	Work Study	8/23/04	4/29/05
Mihalic, Falon	Student Assistant	5/30/01	8/16/02

Appendix V. Personnel
CEDB Personnel, 2002-2009 (continued)

Mohrherr, Carl	Research Associate	10/28/88	present
Molaison, Christopher	Student Assistant	3/1/04	5/6/04
Molaison, Melissa	Student Assistant, Assistant in CEDB	5/14/01	8/7/02
Montgomery, Syretta	Student Assistant	3/21/02	12/31/02
Moore, Ashley	Student Assistant	2/10/03	10/8/05
Moore, Jason	Student Assistant	10/9/03	8/4/04
Moore, Jason	Student Assistant	10/9/03	8/4/04
Moss, Joseph	Graduate Student, Associate in CEDB	5/9/02	present
Muller, Gloria	Student Assistant	10/21/04	1/25/05
Nelson, Diana	Work Study	8/26/02	4/30/03
Nocker-Einsiedler, A.	Research Associate	6/17/02	11/20/04
O'Neal, Rachel	Student Assistant	11/4/02	12/6/02
Osborne, Elizabeth	Student Assistant	1/27/04	6/30/05
Oubre, Joseph	Dive Safety Officer	5/17/06	7/28/06
Overlade, Colette	Student Assistant	1/2/01	8/9/02
Overton, Melissa	Graduate Student	8/18/08	present
Pakulski, J. Dean	Research Associate	1/28/02	8/31/07
Patterson, Kathyrn	Student Assistant	5/1/00	8/9/02
Pennington, Laura	Graduate Student	1/7/02	9/19/03
Peterson, Danielle	Student Assistant	1/31/06	5/8/06
Phillips, Lori	Student Assistant, Graduate Student, Associate in CEDB	5/7/01	4/15/08
Polk, William D.	Assistant in CEDB	7/1/02	12/22/04
Porter, Kathleen	Student Assistant	6/29/08	present
Prioleau, Charlotte	Office Assistant	2/5/04	7/16/04
Pryor, Rachel	Student Assistant	6/26/07	5/31/08
Radzik, Karon	Graduate Assistant	6/3/05	2/24/06
Raley, Patrick	Student Assistant	3/26/06	10/30/06
Raupp, Jason	Assistant in CEDB	10/29/04	11/19/05
Ray, Rikki	Student Assistant	1/31/02	12/31/02
Reinhart, Lauren	Student Assistant	12/7/07	9/6/08
Ren, Alexander	Student Assistant, Graduate Student	5/19/04	8/27/06
Reynolds, Christina	Student Assistant	7/21/03	11/30/04
Richardson, Richette	Student Assistant	1/23/03	2/5/04

Riggs, Bridget	Graduate Student, Associate in CEDB	6/19/04	9/26/05
Roberts, La Voria	Work Study	8/22/05	5/30/06
Rondon, Natasha	Student Assistant	8/7/00	9/24/03
Rowland, Barbara	Office Assistant	9/19/02	10/31/02

Appendix V. Personnel
CEDB Personnel, 2002-2009 (continued)

Saloom, Patrick	Student Assistant	5/23/05	9/26/05
Sample, Betty	Associate in CEDB	5/12/05	12/3/05
Schneider, Lindsey	Student Assistant	10/11/04	6/30/06
Scott, Monika	Work Study	8/28/06	5/4/07
Seebach, Jeffrey	Student Assistant	5/12/04	8/22/05
Shah, Alpita	Student Assistant	2/11/02	8/7/02
Shettler, Robin	Graduate Student, Lab Tech	1/6/03	8/7/03
Sigler, Nikai	Work Study	8/22/05	9/27/05
Sinha, Arup	Graduate Student	1/21/09	present
Skrobacki, James	Student Assistant	5/3/05	10/6/05
Smith, George	Student Assistant	6/19/06	9/30/06
Smith, Greta	Research Associate	7/12/00	8/7/02
Smith, Kristin	Graduate Student	7/27/04	12/31/06
Smith, Rachael	Student Assistant	9/25/03	12/31/03
Snyder, Richard	Associate Professor, Professor, Interim Director, Director	3/28/91	present
Somerville, Michael	Graduate Student	7/16/07	12/19/08
Spencer, Crystal	Student Assistant	5/15/08	present
Stephens, Richard	Student Assistant	8/13/02	12/31/03
Streeter, Tanya	Office Administrator	10/23/90	present
Swilley, Allison	Student Assistant, Assistant in CEDB	7/29/04	1/11/06
Tauchman, Eric	Graduate Student, Associate in CEDB	8/6/08	present
Taylor, Crystal	Work Study	8/23/04	4/29/05
Taylor, Josi	Student Assistant	5/28/03	5/30/04
Tuberty, Shea	Research Associate	12/4/98	8/7/02
Vanaparthy, Ramnath	Graduate Student	5/10/04	5/10/05
Vasquez, Tara	Student Assistant	3/17/03	6/30/04
Vaughan, Pamela	OPS Faculty	6/7/04	8/7/05
Vrbova, Klara	Student Assistant	10/21/2004	6/13/06
Wagner, Matthew	Assistant in CEDB, Graduate Student, Associate in CEDB	5/1/02	8/31/06
Wales, Kellie	Assistant in CEDB	8/22/02	12/19/02
Walsh, Kristal	Graduate Student, Assistant in CEDB	1/7/02	12/19/08
Wang, Hui	Research Associate	11/12/02	8/8/03

Westenberg, Tony	Student Assistant	7/16/01	1/22/04
Worley, Angela	Assistant in CEDB	1/3/05	12/31/05

Appendix VI. Facilities

The Center for Environmental Diagnostics and Bioremediation (CEDB) is located at the main campus of the University of West Florida (UWF). CEDB's administrative and faculty offices and research laboratories are located in the biology/chemistry building (Bldg. 58). The Center's administrative office and storage space total about 1538 sq. ft. CEDB has additional office space in an adjacent modular facility (Bldg. 6) and a separate analytical services laboratory (**Wetlands Research Laboratory**; Bldg. 83).

Currently CEDB has five research laboratories (total space of ~5,372 sq. ft.) equipped to carry out studies in diverse areas.

The available instruments include: Fotodyne gel image analysis system; PCR thermal cyclers: two Corbett Research Rotor-Gene R6.3000 Q-PCR machines; four Perkin Elmer GeneAmp 2400, one Perkin Elmer GeneAmp 9700, and three Corbett Palm Cyclers; PCR hoods; electrophoresis units; Western blotting system; electroporation apparatus; ABI Avant 3100 automated DNA sequencer with Genescan and sequencing software; refrigerated Sorvall high speed and Sorvall RC M15GX Micro-Ultra-centrifuges; one ThermoFinnigan Flash EA Elemental Analyzer; bench top centrifuges; UV-Vis spectrophotometers; Genequant Pro Classic RNA/DNA CALC/ spectrophotometer; Spectrofluorometer; anaerobic chamber, and anaerobic gassing manifold; oxygen, pH, redox electrodes; Hydrolab DataSondes; hand-held water quality multimeters; Fisher Tensiomat surface tensiometers; refrigerators, -20 °C and -70 °C freezers; Turner Designs TD-700 fluorometer; Biospherical Instruments GUV511C and PUV500 ultraviolet radiometers, chromatography equipment and fraction collectors; water purification systems; analytical balances; pH meters; shakers and incubators; laminar flow hoods; rotary evaporators; nitrogen evaporators; rotary hybridization ovens; compound and binocular microscopes; epifluorescence microscope; one inverted microscope; vacuum pumps; and desiccators.

Additional general facilities available in the biology-chemistry building include: radiochemistry laboratory; analytical chemistry laboratory equipped with chemical fume hoods; H-1 flammable storage facilities; electron microscopy laboratory; dark rooms; walk-in environmental chambers and cold rooms; dish-washing facilities; autoclaving facilities; biological and radiochemical waste disposal services; and a stock room for general glassware and chemicals.

Appendix VI. Facilities (continued)

The Wetlands Research Laboratory (WRL, Bldg. 83), a 3500 sq. ft. facility, is an analytical arm of CEDB. The WRL is State of Florida Certified for environmental water analysis (Lab ID:E71176), conforming to the standards set out by the National Environmental Laboratory Accreditation Conference as adopted into Chapter 64E-1 of the Florida Administrative Code. The laboratory complies with full chain of custody sample storage and handling practices.

The WRL is equipped with pH, salinity and conductivity meters; a Bran and Luebbe AutoAnalyzer 3 nutrient analyzer with autosampler; a Lachat Quikchem FIA with IC; ovens; incubators; a muffle furnace; analytical and top-loading balances; two autoclaves; water baths; block digesters; sonicator; research-grade (Leica) compound microscope; a Varian SPECTRAA 220FS flame atomic absorption spectrometer (AAS); a Varian SPECTRAA 220Z Zeeman furnace AAS and an ICP-MS (inductively coupled plasma-mass spectroscope).

Field equipment includes: data loggers, Seabird CTD fro water column profiling, an atmospheric deposition unit to collect rain samples, Dodge Ram Van (1996), Dodge Dakota Truck (2002), gasoline powered field generators, an enclosed 24-foot mobile lab, and standard sediment (vibra core, Shipek, Ponar, etc), water (Niskin/Van Dorn bottles, pumps, filtration apparatus), plankton, and nekton sampling gear. The CEDB is a founding partner of the UWF Marine Services Center, (http://uwf.edu/marineservices/) providing boats and diving operations for aquatic work from the rivers to offshore.

Appendix VII. The Watershed Center

A WATERSHED CENTER IN NORTHWEST FLORIDA

The University of West Florida's (UWF) Center for Environmental Diagnostics and Bioremediation (CEDB) has been invited by US Environmental Protection Agency (USEPA) to coordinate a Watershed Center for northwest Florida and south Alabama watersheds.

Mission Statement:
The Watershed Center would assist watershed stakeholders in assessing impairments to area watersheds, and brokering innovative and integrated solutions that will promote environmental health and quality of life for regional residents. In addition, the Watershed Center will serve to coordinate northwest Florida and south Alabama area resources and academic institutions to enhance interdisciplinary watershed scale research and education throughout the area.

Background and need:
The CEDB at UWF has a proven success record of research, teaching and service in addressing local and regional environmental quality issues, and maintains an analytical lab for water quality analysis. One of the recurring themes in regional environmental health assessments is the division of stewardship and environmental responsibility from river headwaters to the offshore environment by groups and individuals who often do not communicate and integrate effectively. As a result, long-term environmental monitoring data is often incomplete or interrupted and volunteer and governmental support is in jeopardy with the closure of the NWFDEP water chemistry lab in an already underserved region.

The Watershed Center
The Watershed Center would be centered on UWF's Campus and would be available physically and virtually to provide expertise, connections, and direction to land managers, cities, counties, states, municipalities, as well as the multitude of smaller organizations that have local environmental quality and land and water use interests. The university is poised to offer interdisciplinary research within numerous departments (Biology, Chemistry, Environmental Studies, Computer Science, GIS Applications, Archaeology, and Business) to develop academic and research support for watershed science and management.

Get Integrated
- What environmental and land use problems do you or your organization face?
- What services can you or your organization provide to be integrated into an expertise clearinghouse?
- Would you like your organization's mission and meeting dates to be located on a central website?
- What type of assistance would you or your organization like to see from the Watershed Center?

Tax deductable donations will help the Watershed Center help others.

For additional information, please contact:

Barbara Albrecht
Watershed Coordinator
University of West Florida
Balbrecht@uwf.edu
Phone: 850.384.6696

Richard A. Snyder, Ph.D.
Professor and Director
Center for Environmental Diagnostics and Bioremediation
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APPendix VIII. Annual Report, 2008-2009
Department/Division: Center for Environmental Diagnostics and Bioremediation

Part I-SP, Summary Report on Status of Strategic Planning Goals/Objectives

Program/ Function/ Service	Strategic Goal/Objective[a]	Method of Assessment	Summary of Assessment Results[bc]	Use of Assessment Results to Improve Program/Function/Service[d]
Teaching	Provide instructional support to the affiliated academic department(s).	Contact hours; Dept. Assessments	See Part II-A: 1A, B; 2A	Requested Faculty to continue teaching efforts and add new courses
Research Activity	Maintain a strong externally-funded research program involving individual and collaborative projects, with research participation opportunities for students and other trainees	Publications; Presentations; Student Research and Employment	See Part II-A: 1C, D; 2A	Encouraged faculty to continue seeking research funding and engage students. Provided support for some research personnel.
Service	Engage in service activities pertinent to the institution, community, and profession	Number and type of service activities	See Part II-A: 3A, B, F	Encouraged continued high level of service commitment by CEDB personnel
Regional mission	Address critical needs relevant to the diagnosis and improvement of environmental health in Northwest Florida.	Responsiveness to client agency needs	See Part II-A: 3C, D; E; 4A, B	Continued and expanded dialog with local officials and citizens; engaged in FLCOOS efforts
Research Funding	Identify and pursue additional sources of funding for research and student training, including federal appropriations for additional projects.	New Research funding secured; Collaborations and networking	See Part II-A: 1B, C; 4C	Facilitated research grant applications; Provided support for PI travel to discuss research and establish networks.
Leadership Change	Implement leadership change in relation to the impending retirement of the Director of CEDB.	Uninterrupted leadership change	Transition period past smoothly.	Continued dialog and training between retired Director and new Director
Strategic Planning	Examine the historical performance outcomes of CEDB and propose targets for short-term and long-term success.	Review of above Goals and Objectives	CEDB performance has been outstanding	Sought ways to sustain performance by supporting CEDB personnel and fostered Institutional support for broader research activities at UWF.

[a]From unit's 2008-2009 strategic or action plan. Add lines as necessary.
[b]Data/information used to determine goal/objective status.
[c]Can comment on status of goal as "met," "not met," or "in progress."
[d]Describe decisions made based on assessment results to improve program

Part II-A, Major Unit Accomplishments and Changes in Programs and Services

This section of the annual report replaces the Notable Accomplishments report that was required in past years.

List major department/division accomplishments and changes in programs and services for 2008-2009. (Add lines as needed.)

1. Promote programs and activities, and learning and living environments that encourage the development of individual potential in students, faculty, and staff; communities of learners; and the valuing of lifelong learning:

A. CEDB faculty taught core courses in Ecology and Microbiology, coordinated the Biology Seminar course, and offered elective courses in Estuarine Ecology, Global Climate Change, Marine Field Ecology, supervised numerous Directed Independent Studies, and contributed lectures to courses taught by others. In support of field-oriented courses, CEDB faculty secured extramural funding. CEDB faculty contributed 28 undergraduate course credit hours and 10 graduate credit hours, including thesis research advising for 6 graduate students, 4 of whom completed degrees. Faculty also served on graduate committees for 8 other graduate students from three departments, and directed an undergraduate honors thesis.

B. CEDB promoted the creative potential of students by providing them financial support and research participation opportunities. This support was extended to 8 undergraduate students, 11 graduate students, and 1 post-doctoral trainee. Scholarly output from CEDB faculty and students included 12 publications in peer-reviewed journals and peer-reviewed reports and 12 presentations at professional meetings. Sixty seven percent of the publications and professional presentations resulting from research endeavors that included students as co-authors. Additionally, 4 others were hired as assistants and associates in research, all of whom were former UWF students.

C. CEDB provided a supportive environment for faculty to develop and maintain active research programs, and achieve national/international recognition. CEDB faculty secured external support for research, largely through peer-reviewed, national-level, competitive grants from agencies such as NSF, EPA, NOAA, and DOD. External support for single-year and multi-year projects in force during 2006-2007 in the CEDB amounted to $4,434,360, including $582,365 of new funding received during the year. Much of our effort to augment extramural support involves inter-institutional and inter-agency collaborative proposals in response to RFPs. Eleven grant proposals were submitted, and a project was also proposed for a federal appropriation.

D. External recognition of the scholarship and expertise of CEDB faculty in their respective fields was evident from invited services as editorial board members or Associate Editors of 5 scientific journals, and to review 28 articles for 20 different journals, and review 8 research proposals for NSF, NOAA, and Sea Grant.

2. Attract and inspire a diverse and talented student body committed to uncompromising academic excellence

A. The research opportunities provided by CEDB attract a large number of students to participate in cutting-edge research and receive excellent training in contemporary technologies. Students (23) former students (4) and post-doctoral trainees (1) in the CEDB constitute a talented and diverse group of individuals – including 18 males and 22 females; 33 whites, 4 African American, and 3 Asians.

3. Provide solutions to educational, cultural, economic, and environmental concerns

A. CEDB serves as a regional resource for information and advice pertinent to environmental health issues. This service was rendered through opinions and advice, as noted in the articles/reports released through newspaper, electronic, radio, and TV media, as well as through displays at public events (e.g., Capitol Day; Earth Day), presentations to local citizens groups and work on diverse advisory committees.

B. CEDB faculty served on 8 different committees for regional/national organizations. Examples include: Dr. K.R. Rao, Member, Environmental Advisory Committee, Pensacola Chamber of Commerce; Dr. R.A. Snyder, Chairman, Advisory Board, South Santa Rosa Utilities Inc.; Dr. J.E. Lepo, Member, Environmental Advisory Board, City of Pensacola; Dr. J.M. Caffrey, Member National Water Quality Council; Wade Jeffrey, Member, Executive Committee, Florida Institute of Oceanography Advisory Committee.

C. CEDB contributed to economic development goals by identifying critical needs and pursuing research relevant to the diagnosis and improvement of environmental and community health in NW Florida. This was done through Partnership for Environmental Research and Community Health (PERCH), established by CEDB in collaboration with the health departments of Escambia and Santa Rosa counties, and by several externally-funded projects.

D. CEDB assisted the Escambia County health department, the Florida Department of Environmental Protection, the US Department of the Interior, and International Paper Corporation in assessing water quality in bathing/recreational waters through certified analyses done at the Wetlands Research Laboratory. Other regional projects have been pursued pertinent to the West FL Regional Planning Council, NW FL Water Management District, US Dept of Agriculture (Escambia County Extension), FL Geological Survey, Escambia and Santa Rosa Counties, and the City of Pensacola, illustrating service to the regional community.

E. CEDB contributed its expertise towards science education in public schools. CEDB's activities included: Mentoring high school student in independent research projects resulting in presentations at science fairs and national scientific meetings, judges at the Regional Science Fair and local School Science fairs; presentations to Gulf Breeze Middle School Students; volunteer for Gulf Breeze Middle School Science Olympiad; field trips for elementary school children.

4. Manage growth and development responsibly through focus on continuous quality improvement of programs and processes

A. The CEDB is managing the Wetlands Research Laboratory (WRL), to improve the quality and efficiency of WRL operations as a core facility for inter-departmental student and faculty research and providing increased service opportunities for UWF's participation in regional environmental research.

B. The WRL facilities maintain State of Florida certification for environmental analysis conforming to the national accreditation standards of NELAC. This certification and renovated facilities will enable us to meet QA/QC standards required for analysis in support of environmental studies with regulatory consequences.

C. In order to facilitate the growth of extramural support for interdisciplinary projects and to promote cutting edge research, CEDB developed collaborative relations with several other academic units at UWF, regional and state organizations, and 20 academic institutions in the country and abroad.

D. CEDB continues to be a partner in the development and management of the UWF Marine Service Center (MSC) located at Ellyson Industrial Park in support of safe and efficient boating and diving operations critical to the teaching and research mission of the University programs in Archeology, Environmental Studies, Biology, and CEDB.

Department/Division: Center for Environmental Diagnostics and Bioremediation

Part II-B, Distinguished Individual (Faculty, Staff, and Student) Accomplishments

List college/departmental distinctions earned by faculty, staff, and students during 2006-2007. (University- and Academic Affairs-level recognitions—such as promotion, tenure, Distinguished Teaching Award—need not be listed. This information is already available in the Provost's Office.)

A. Faculty

Dr. R.A. Snyder was appointed Director of CEDB to complete the transition process. As Director, he has negotiated a partnership with the Nature Conservancy to address watershed scale environmental quality and restoration for the panhandle region. He has filed for a patent on a device and method to greatly improve the detection of human pathogens in contaminated surface water.

Dr. J.E. Lepo continued a remarkable record of research support and has continued to foster productive working relationships with collaborators at UNF, USF and USM for fecal source tracking research though securing Federal funding opportunities. He was promoted to the Rank of Full Professor at UWF, and was awarded a UWF Distinguished Research and Creative Activities Award.

Dr. Jane Caffrey was hired as a tenure track Associate Professor. She has developed an active research and teaching program securing funding to support herself and students, and continues to serve on panels concerned with national water quality issues, and is Co-Chair of National Water Quality Monitoring Council Nutrients Working Group.

Dr. Carl Mohrherr, in collaboration with Dr. Johan Liebens of Environmental Studies, has completed a massive study of sediment pollution levels in Escambia Bay and the urban Bayous of Pensacola.

Dr. K.R. Rao has directed the PERCH (Partnership for Environmental Research and Community Health) Program for environmental health studies in Escambia and Santa Rosa Counties to an incredibly productive conclusion. (Total support: $4,086,308).

Dr. William Huth, College of Business, was appointed as a Research Affiliate to accommodate his grant supported research on the economics of oyster pathogens.

Mr. Jeremy Bosso has actively shepherded the WRL as lab manager and analyst, and has been instrumental in engaging students and faculty and student needs for teaching, training and research in the analytical facility.

B. Staff

Ms. Juanita Johns, Office Specialist, is doing a wonderful job taking on multiple grant-related tasks including purchasing, payroll, travel, web page design and maintenance, and external/internal communications, and has pursued training to improve her skills set. She was awarded a *U-Care* Certificate as part of the *Excellence Matters* program. She has become a valuable asset to the Center.

Ms. Tanya L. Streeter, Office Administrator, is doing an admirable job in coping with the workload created by the increasing number of grants and personnel, as well as added responsibilities related to purchasing, accounting,

payroll, and external/internal communications. She has taken on the responsibility for producing the *Quarterly BioChem Safety Committee* newsletter serving all lab sciences in building 58.

C. Students

Kristen Nicole Hellein completed her Master's degree. She continues to work with our research group making good use of her molecular biology training.

Avery Bullock is a High School student at Pensacola High School. She worked in a CEDB lab over the summer and presented her work at the American Society for Microbiology meeting in Jacksonville, FL, winning 2nd place in the undergraduate presentation competition.

Nigel Arruda and Natalie Hunter, two other Penscaola High students have been actively engaged in CEDB research and training, advancing to state and international competition levels in science fairs.

Department/Division: Center for Environmental Diagnostics and Bioremediation

Part III-A, Strategic Planning Goals/Objectives for 2008-2009

List strategic plan goals/objectives for 2008-2009 and planned method of assessment (if applicable).

Strategic Goal/Objective[a]	Method of Assessment[b]
Provide instructional support to the affiliated academic department(s)	Number of courses taught; directed studies; grant-supported training
Maintain a strong externally-funded research program involving individual and collaborative projects, with research participation opportunities for students and other trainees	Amount of extramural support; collaborative ventures; number of students supported; scholarly output (publications and presentations)
Engage in service activities pertinent to the institution, community, and profession.	Number and type of service activities; service outcomes
Address critical needs relevant to the diagnosis and improvement of environmental health in Northwest Florida.	Grant-supported research in environmental health; interactions with local and regional agencies
Identify and pursue additional sources of funding for research and student training, including federal appropriations for additional projects.	Proposals submitted to agencies and for federal appropriations
Complete 7 year review of performance outcomes of CEDB and propose targets for short-term and long-term success.	To be done as part of CEDB review

[a]Add lines as needed.
[b]If applicable.

Department/Division: Center for Environmental Diagnostics and Bioremediation

Part III-B, Strategic Planning Goals/Objectives for 2010-2014

List strategic plan goals/objectives for 2010-2014 and planned method of assessment (if applicable).

Strategic Goal/Objective[a]	Method of Assessment[b]
Regain lost E&G support to rebuild lost capacity to hire additional faculty.	
Recruit additional tenure-track faculty in the areas of environmental chemistry, molecular diagnostics, and watershed/landscape work.	
Expand office/laboratory facilities for CEDB, in conjunction with facilities expansion for biology and/or life and health sciences.	
Seek additional E&G support to develop the watershed Center as a partnership with the Nature Conservancy	
Strengthen collaboration among the various academic units within the university to foster interdisciplinary programs in environmental/community health research in the region.	
Strengthen inter-institutional partnerships to foster interdisciplinary research programs of national priority.	
Maintain a productive research program.	
Augment and supplement the course offerings and program support in the affiliated academic department(s).	
Maintain a strong record of service to the institution, profession, and community.	

[a]Add lines as needed.
[b]If applicable.