

## Institute/Center Information and Program Review Approval

### Center for Environmental Diagnostics and Bioremediation

The Florida Board of Governors and University Policy and Procedures related to Institutes and Centers provides for a periodic review to assess if such institutes and centers continue to meet the mission, goals, and objectives under which they were established.

*Authority: State University System of Florida Board of Governors Regulation 10.015*  
([http://www.flbog.org/documents\\_regulations/regulations/10\\_015\\_Institutes\\_and\\_Centers.pdf](http://www.flbog.org/documents_regulations/regulations/10_015_Institutes_and_Centers.pdf))

Institute/Center Type	University
Code	
Academic Program Area (if applicable)	
College or Other Administrative Unit	Hal Marcus College of Science and Engineering
Date of Previous Program Review	March 15, 2010
Date of Current Program Review	May 12, 2017
Site Visit Dates (if applicable)	May 12, 2017
Program Review Contact	Wade H. Jeffrey
Date Submitted	May 1, 2017

### Signatures



May 1, 2017

\_\_\_\_\_  
Institute/Center Director  
Wade H. Jeffrey

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chair of Associated Department  
[Name]

\_\_\_\_\_  
Date

\_\_\_\_\_  
Dean/Other Administrative Officer  
[Name/Title]

\_\_\_\_\_  
Date

\_\_\_\_\_  
Provost

\_\_\_\_\_  
Date

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### **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. CEDB moved to the UWF main campus full time in 1995. While losing immediate access to the facilities at the EPA lab, it did increase student interactions with CEDB faculty and staff.

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 and oceanography curricula. 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.

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.

### **Program Vision, Mission and Values**

The University of West Florida's Mission Statement includes; *UWF's mission is to provide students with access to high-quality, relevant, and affordable undergraduate and graduate learning experiences; to transmit, apply, and discover knowledge through teaching, scholarship, research, and public service; and to engage in community partnerships that respond to mutual concerns and opportunities and that advance the economy and quality of life in the region. UWF is committed to planning and investing strategically to enhance student access and educational attainment; to build on existing strengths and develop distinctive academic and research programs and services that respond to identified regional and state needs; and to support highly*

*qualified faculty and staff who engage students in rigorous, high-impact, student-oriented learning experiences that enhance personal and professional development and empower alumni to contribute responsibly and creatively to a complex 21st Century global society.*

This is essentially the mission of CEDB which 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. CEDB is unusual among State of Florida University System (SUS) research centers as it integrates research excellence into a small university within the SUS while maintaining a balance with service and teaching. CEDB's belief is that it must actively engage in all aspects of the three-legged stool of academia, teaching, research, and service, and that each benefits and contributes to the other.

The University of West Florida Strategic Plan (<http://uwf.edu/about/at-a-glance/strategic-plan/>) is focused on four targets; *student success, high quality teaching and research, partnerships, and a culture of excellence*. While a research focused center, as stated above, CEDB strongly believes that at a smaller regional university, it is essential that all of our activities are student - focused. If at all possible, every grant we write includes support for undergraduate and or graduate students. We hold strongly to the ideal that teaching and research are intimately connected, each enhances the other. We also recognize that in the sciences, much of the most effective teaching occurs outside the classroom. In that regard, the research experiences afforded by CEDB projects provide unique opportunities to our students better preparing them for the next steps in their career development. Active research programs are one of the things that separate a university education from a State College or Community College and we strive to provide these experiences at every opportunity. We continue to respond to local and regional needs (e.g., water quality issues, Deepwater Horizon oil spill) and use our resources to effectively hire and support staff and students working to address these issues as they arise. Our approach includes building partnerships with local groups (e.g., environmental, community, governmental) and agencies to provide expertise and opportunities. We work closely with University Marketing to effectively publicize CEDB opportunities and expertise to both address important environmental issues but also to recruit students to our campus. Finally, all of our activities are focused on creating a culture of excellence. CEDB is small and we pride ourselves on quality over quantity. Our first priority is to provide a quality education to our students such that their University of West Florida degree represents both themselves and the university well as students seek out their own careers.

As a member of the State University System (SUS), UWF strives to meet its mission as put forward by the State Board of Governors Strategic Plan ([http://www.flbog.edu/pressroom/doc/2025\\_System\\_Strategic\\_Plan\\_Amended\\_FINAL.pdf](http://www.flbog.edu/pressroom/doc/2025_System_Strategic_Plan_Amended_FINAL.pdf)). The four fundamental mission goals include (i) student development for success in the global marketplace; (ii) transform Florida's society through research, creativity and innovation; (iii) mobilize resources to address challenges facing Florida's citizens; and (iv) to engage the

community in service. Since its creation by the State in 1990, CEDB efforts have addressed each of these targets. Student development is our priority and our student training and research efforts provide the information to better strengthen the economy of Florida. We respond to local, regional, and state needs on as part of our research and service missions.

### **CEDB Program Goals and Objectives**

- *Provide high quality academic coursework for allied departments supported by current research, including experience and training opportunities for students.*
- *Maintain active grant supported research programs to address basic scientific and applied needs on local, regional, national and international scales.*
- *Provide expertise to the university, the community, state, and nation in service activities.*
- *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.*

### **TEACHING**

The standard teaching assignment of faculty in CEDB, including the director, is at least one major course per semester. The classes taught range from “core” required classes for undergraduates and graduate students in the Biology and Earth and Environmental Studies departments like *Ecology* and *Microbiology*. CEDB is also responsible for one of the required graduate student core courses, *Professional Development in Biology*. CEDB faculty also offers 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. This course has now been expanded to three levels (PCB3930/4922/5990) and serves as the final assessment tool for graduating seniors in the Department of Biology. CEDB faculty have taught and run these seminar courses as uncompensated overload since their creation. Our priority has been focused on providing experiences to our students rather than concern for job assignments. However, since the course has expanded into three levels and enrollment increased from approximately 30 to over 70 per semester, this model may need to be re-examined.

CEDB faculty also mentors undergraduates, graduate students and occasionally local high school students in independent research projects. CEDB faculty serve as advisors (14 completed M.S. with theses) and committee members (23) for Biology and Earth and Environmental Sciences graduate students (Appendix I), and have served as committee members for graduate students (M.S. and Ph.D. candidates) from other institutions, nationally and internationally during this review period. CEDB faculty are currently supervising four MS thesis track graduate students and serving on eleven other MS theses committees. Several new graduate students are expected in Fall semester of 2017. During the review period CEDB faculty have also supervised four post-doctoral associates. CEDB also makes available our research facilities and equipment to any undergraduate and graduate students requiring assistance, and has often absorbed the cost of analysis for students projects in our analytical lab (WRL, under Resources below).

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

\* Required course for majors. Does not include Directed Studies credits.

Course Code/Level	Course Title	Credit hours
BOT 4404 /5990	Aquatic Botany + Lab*	4
BSC 4263/5265	Biological Oceanography	3
IDH 4032	Wastelands to Wetlands (honors program)	3
BSC 6840	Professional Development*	3
MCB 3020	Microbiology + Lab*	4
OCP4550	Global Climate Change	3
OCB 4104/5990	Marine Field Ecology	2
PCB 3063L	Genetics Lab*	4
PCB 4043	Ecology + Lab*	4
PCB 4048/5445	Estuarine Ecology + Lab	4
OCB3108	Field Studies in Marine Biology	1
BSC2311	Introduction to Oceanography and Marine Biology	3
BSC2311e	Introduction to Oceanography and Marine Biology (online)	3
IDH4037	Honors Seminar-The Art and Science of Brewing	3
BSC1005L	General Biology Lab	1
PCB3930/4922/5990	Seminar in Biology*	1
MCB4990	Pathogenic Microbiology	3

## SCHOLARLY ACTIVITIES AND RESEARCH

The CEDB model has been successful, netting approximately \$4 million in extramural funds during the review period (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: Deepwater Horizon oil spill, artificial reefs, water quality, local habitats, and a partnership with the National Park Service. Projects related to the Deepwater Horizon spill made up the majority (~\$2.5 M) of CEDB research grants during the review project. Those funds are running their course and new sources of funding are being pursued by all CEDB faculty. Other large projects include those associated with artificial reefs (~\$280,000) and biodegradation (~\$250,000). Major grants and contracts contributed to an average of funding per faculty member ranging from \$25,000 to \$250,000 during the 7-year review period or an average of \$140,000 per faculty per year. 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 has been cyclical in the past, even though we are still above our target. Uncertainty regarding national scientific research priorities makes future funding unknown, but CEDB faculty will continue to pursue grants from identified relevant sources.

Communication of our productivity is a critical responsibility in academic research. Evidence for CEDB faculty meeting that responsibility are indicated by peer reviewed scientific journal articles, book chapters, technical reports, meeting presentations and local public lectures, most of which involve students as co-authors. During the review period CEDB faculty and staff have been responsible for approximately 80 peer-reviewed publications (Appendix III) and almost 200 presented abstracts (Appendix IV). Students are presenting or co-authors on the vast majority of

these presentations. Both of these are significant increases compared to the last review period. CEDB Scholarly productivity (grants, contracts, publications, presentations) continues to establish CEDB in the scientific community and the quality of University of West Florida programs as well. Public lectures and presentations demonstrate our commitment of service to the local and regional community and solidifies the image of the Center as the go-to source for accurate environmental information and interpretation (see next section).

## **SERVICE**

Faculty and staff at UWF are active contributors to university operations as well as local, regional national, and international levels where our scientific expertise can be of use and where our contributions as private citizens are beneficial and constructive. Within the university, CEDB faculty take 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. Of particular importance during the review period was the lead role CEDB faculty took regarding the Deepwater Horizon Oil Spill and water quality issues. A listing of agencies and groups actively served by CEDB faculty during the review period is listed in Appendix V.

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

### **Summary of Major Changes Since Previous Program Review**

In June 2015, Wade H. Jeffrey was named the Director of CEDB when previous Director, Richard Snyder, left UWF to accept a position at another university. In 2014 the University of West Florida underwent an academic reorganization. At that time, CEDB went from reporting to the Vice President for Research to reporting to the Dean of the College Science, Engineering, and Health (since renamed the Hal Marcus College of Science and Engineering). This has proved advantageous to CEDB faculty in that they are now recognized and treated as an active member of an academic unit.

CEDB has undergone several significant changes in its personnel model since the last review. The result has been a reduction in tenure track faculty but an increase in the total number of PhD level scientists. In 2013 UWF entered into a Memorandum of Understanding with the National Park Service to create the Gulf Islands Research and Educational Center. Dr. Jeff Eble was named as the UWF Coordinator of that program and the operations were placed under the administration of CEDB. After the initial UWF Pace Scholarship used to pay that position expired, CEDB absorbed the salary costs of Dr. Eble's position for one year. This past year support came from the University President's office. Status of future funding of that position remains unclear. Highlights of the program development include a student internship program [4-5 students per year], STEM workshops for middle and high school teachers, citizen science monitoring of water quality, nesting sea turtles, native bees, and invasive lionfish, DNA-barcoding of invasive lionfish prey [500 high school student participants per year], proposal development assistance for teachers [\$123k awarded in 2015-16, \$74k in review], and Bioblitz 2016.

In 2015 Dr. Jim Spain joined CEDB as a Research Professor. He had recently retired from Georgia Tech but wanted to continue his research examining biodegradation of organic compounds (e.g., pesticides and munitions). Lab space was provided in Dr. Snyder's former lab. Since joining CEDB he has secured approximately \$250,000 in contracts, supervised one graduate student (MS near completion), and published numerous papers.

In 2016 a national search was conducted to fill Dr. Snyder's vacant position. The goal was to hire a mid-career scientist with expertise in molecular biology, environmental chemistry, or environmental engineering. The search was unsuccessful, mostly owing to a lack of modern research space needed to attract an established scientist. The lack of space for expansion is a limitation for the growth of CEDB (see below). As a result of that failed search, an alternative approach was taken to hire a semi-soft money research assistant professor. With cooperation from the Hal Marcus College of Science and Engineering (HMCSE), Dr. Lisa Waidner was hired bringing in an expertise in marine microbiology and molecular biology. Her appointment started this year with 70% support from the university that will decline to 40% by her third year of employment. The objective is for her to secure salary support through extramural funds. She has also partially supplemented her salary by teaching Genetics Lab sections.

In 2016 the Center for Research and Economic Opportunity (CREO) announced a program to support Post Doctoral associates for a two-year period. Drs. Florian Cesbron and Lisa Nigro joined CEDB in February and July, respectively. Dr. Cesbron is supervised by Dr. Jane Caffrey and is working on projects related to artificial reefs and sea grasses. Dr. Nigro is supervised by Dr. Wade Jeffrey and is involved with two projects examining microbial diversity of microbial communities in diverse environments in Chile. Both post docs are actively engaging with students as well as working toward developing proposals to apply for extramural grants.

## **FACILITIES AND EQUIPMENT**

A summary of CEDB facilities and equipment is included in Appendix VI. CEDB has benefitted during the last two years by CREO and HMCSE infrastructure support that has allowed the procurement of approximately \$300,000 in new and upgraded equipment.

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 potable and 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). In addition to contract work, the WRL provides research support and student employment and training opportunities. The staff of WRL also routinely provide analytical and technical support for faculty, staff, and students in the Department of Chemistry, Department of Biology, and the Department of Earth and Environmental Science, as well as CEDB. Budget cuts



during the previous review period 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.

## **PERSONNEL**

A list of CEDB employees during the review period is presented in Appendix VII. The center has supported a total of 171 employees. Of note are the 52 undergraduate and 47 graduate students supported by CEDB grants and contracts. This list does not include the numerous directed study projects and volunteers who have also worked under CEDB supervision.

## **Funding for the CEDB**

CEDB was created by legislative appropriation in 1990 and is primarily supported by Educational and General (E&G) funds. In its mission, CEDB also strives to secure extramural funds to support its research endeavors and support student training. During the economic downturn of 2006-8, CEDB absorbed a 21% reduction in its base funding. In order to continue effective operations, the loss of funding was accommodated by maintaining salaries of existing faculty but essentially eliminating funding the Wetlands Research Lab. During the review period E&G funding has increased incrementally serving to accommodate increases in operation costs and salaries, but not providing sufficient funds for growth and expansion (Table 2). On average, CEDB faculty and staff have successfully secured extramural funding approximately equal to its base funding. These funds are what provides research expenses (equipment, supplies, travel, salaries) and salaries and stipends to support undergraduate and graduate students. The current UWF model is that CEDB is returned 10% of all indirect costs (F&A) generated off of grants to the Center SEED account. Grant PIs are also returned another 10% to their personal SEED accounts. These funds are primarily used for new project development and unsupported travel and research costs. Contractual revenue by the WRL for analytical services has declined steadily during the review period. WRL operating costs have been absorbed by CEDB E&G and SEED funds. We are always looking for additional contracts and are actively engaged with several groups, but final contracts remain unknown as does the future of the operations of WRL. Internal support from UWF totaled \$463,957 in small grants and equipment during the review period (most during the last two years). CEDB success at securing extramural requests (~10% of proposals) reflects the increasing difficulty of securing grants nationwide. We do not anticipate that this trend will improve in the foreseeable future.

Table 2. Summary of Financial Support

Year	E & G Base	Awarded Extramural	Ave. Extramural per CEDB Faculty	Ratio of Extramural to E&G	Wetlands Lab Revenue
2011	\$666,004	\$742,268	\$185,567	1.11	\$134,480
2012	\$656,210	\$619,188	\$154,797	0.94	\$178,263
2013	\$660,924	\$623,818	\$155,955	0.94	\$75,540
2014	\$674,443	\$647,605	\$161,901	0.96	\$72,620
2015	\$708,462	\$99,514	\$24,879	0.14	\$57,643
2016	\$748,568	\$751,906	\$250,635	1	\$39,909
2017	\$753,338	\$140,384	\$46,795	0.19	\$24,848

Total Grant proposals submitted \$40,032,306. Total Extramural Support \$3,956,297

**Recommendations**

Until recently, CEDB has received no funding from the University for equipment maintenance or replacement. Indeed, CEDB often cost shares the purchase of equipment for other units and has always 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. Between 2006 – 8, essentially all base funding for WRL was removed (~\$150,000 per year). Loss of these funds directly impacts our ability to provide outreach service in the analysis of samples for water quality monitoring for public safety, and threatens our ability to maintain a NELAC-certified analytical facility. To maintain its operation, CEDB E&G funds that could be used for hiring new faculty are used to pay the salaries of the WRL staff. While continuing to provide essential services to the university and the community, productivity is lost since new grants and teaching are not part of the duties of WRL staff. WRL expenses are covered by fees for services that are declining. We cannot absorb additional cuts and keep the analytical lab operational for both contractual work as well as the free support provided to faculty and students in numerous departments. 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.

The CEDB model has been successful in returning approximately a dollar in extramural funds for every dollar of E&G allocation. 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.

CEDB, like much of the campus, is also hindered by the lack of modern research facilities and lack of space to expand. The original concept of the soon to be constructed Building 58 annex would have allowed CEDB to expand into renovated space in the old building 58. Unfortunately, as the cost of the new Annex has grown, research facilities have been removed from its design such that its construction will offer no benefits to CEDB. Campus-wide need for new facilities is recognized and should remain a priority if the university is to expand its research programs.

### **FUTURE DIRECTIONS**

The prior Directors of CEDB felt that their role including support for their faculty 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.

CEDB has been successful because its research agenda is 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. When necessary, CEDB faculty have successfully sought out collaborators to compliment the strengths of CEDB. While CEDB faculty will continue to address issues important to societal local, national, and international needs, 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.

CEDB was always designed to be interdisciplinary. As the center has developed, much of its expertise has focused on microbial processes. While clearly a strong program, it is recognized that future growth and expansion of CEDB should include faculty with expertise in other complimentary disciplines including chemistry, engineering, or mathematics. Similarly, the center is not limited to collaborating with current faculty in biology but rather hopes to continue to build interactions with faculty from Earth and Environmental Studies, Chemistry, Business, Education, and Mathematics/Statistics, and Engineering as well as other institutions.

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

**APPENDIX I**  
**Student Engagement**

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

\* required course for majors. Does not include Directed Studies courses.

<b>Course Code/Level</b>	<b>Course Title</b>	<b>Credit hours</b>
BOT 4404 /5990	Aquatic Botany* + Lab	4
BSC 4263/5265	Biological Oceanography	3
IDH 4032	Wastelands to Wetlands (honors program)	3
BSC 6840	Professional Development*	3
MCB 3020	Microbiology + Lab*	4
OCP4550	Global Climate Change	3
OCB 4104/5990	Marine Field Ecology	2
PCB 3063L	Genetics Lab*	4
PCB 4043	Ecology + Lab*	4
PCB 4048/5445	Estuarine Ecology + Lab	4
OCB3108	Field Studies in Marine Biology	1
BSC2311	Introduction to Oceanography and Marine Biology	3
BSC2311e	Introduction to Oceanography and Marine Biology (online)	3
IDH4037	Honors Seminar-The Art and Science of Brewing	3
BSC1005L	General Biology Lab	1
PCB3930/4922/5990	Seminar in Biology*	1
MCB4990	Pathogenic Microbiology	3

**CEDB Graduate Students**

**Master's Degrees Advised and Completed**

Nine Henrickson. MS (2017)

Rachel Capps. MS (2017)

Gary Baine. MS (2017)

Marthe Covell. MS (2016)

Josette Hutcheson. MS (2015)

Katelyn Houghton. MS (2014) Outstanding Master's Thesis Award 2015-2016

Sarah Tominack., MS (2014) Outstanding Research Assistant award, UWF Dept. of Biology.

Cinnamon Morrison. MS (2014)

Bryan Davis. MS (2014) Outstanding Thesis Award

Erin Hunter .(MS - 2014)

Kendra Straub Amacker. MS (2013)

Jessie Rosanbalm. MS (2012) Awarded Outstanding Graduate Assistant. 2012-13.

Abidemi Ajidahun. MS (2011) Outstanding Thesis Award

Elizabeth M. Kennedy. MS (2011)

**Graduate Student mentoring: Thesis Committee member**

Amy Brower. MS (current)

Nichelle Vantassel. MS (current)

Amanda Morrow MS (current)

Katelyn Knight. MS (current)

Matthew Davis. MS (current)

Jennifer Chastain. MS (current)

Heather Policicchio. MS (current)

Amanda Morrow. MS (current)

Kendra Brooke. MS (current)

Tiffany Baskerville. PhD (current) Florida A & M University

Gary Baine. MS (2017)

Rachel Capps. MS (2017)

Philip Coppola. MS (2016)

Reena Torrance. MS (2016)

Angel Rain Franco. MS (2016) Universidad de Concepcion, Concepcion, Chile

Marthe Covell. MS (2016)

Kathryn McCarthy. MS (2016)

Catherine Gross. MS (2014)

Josette Hutcheson. MS (2014)

Alexander Penabade. MS (2014)

Katelyn Houghton. MS (2014)

Cinnamon Morrison. MS (2014)

Erin Hunter. MS (2014)

Joseph Tarnecki. MS (2014)

Joshua Neese. MS (2014)

Bryan Davis. MS (2014)

Sarah Tominack. MS (2014)

Bethany Wight. MS (2013)

Dawn Prince. MS (2012)

Jessie Rosanbaum. MS (2012)

Britta Hays. MS (2012)

Elizabeth Kennedy. MS (2011)

Amy Macaluso. PhD (2010) Temple University

**Current Graduate Students Advised**

Kendra Brooks (MS-Current)

Katelyn Knight (MS-Current)

Erika Neat (MS-Current)

Mallory Palatucci (MS-Current)

**Post Doctoral Mentoring**

Florian Cesbron. University of West Florida. 2016 - present

Stefano Bonaglia. Lund University. 2016

Lisa Nigro. University of West Florida. 2016 - present

Christian Reisenfeld University of West Florida. 2012-15

**APPENDIX II**  
**List of Funded Grants**

FY	PI	PROPOSAL TITLE	AGENCY	FUNDED	BEGIN DATE	END DATE
2017	Eble, Jeffrey A.	Gulf Islands National Seashore (Students/Internships) 2017-	National Park Service	\$36,290	08/15/2016	09/30/2019
2017	Eble, Jeffrey A.	Gulf Islands National Seashore (Students/Internships) 2017-19	National Park Service	\$9,988	08/15/2016	09/30/2019
2017	Eble, Jeffrey A.	GC-CESU: Reptile and Amphibian Monitoring at Gulf Islands National SeashoreFlorida Unit – Naval Live Oaks area (GUIS-NLO)	National Park Service	\$14,112	09/01/2016	12/31/2017
2017	Spain, Jim	Aerobic Biodegradation of Chlorobenzenes and Dichloronitrobenzenes	E. I. du Pont de Nemours and Company	\$79,994	09/01/2016	10/31/2017
2016	Caffrey, Jane M.	Seagrass Abundance and Productivity in Pensacola Bay and Santa Rosa Sound	Fish & Wildlife Service	\$100,000	10/15/2015	11/30/2016
2016	Spain, Jim	Aerobic Biodegradation of Chloro-, Nitro-, and Amino-aromatic Contaminants	The Chemours Company	\$74,957	09/10/2015	09/09/2016
2016	Spain, Jim	Nitration enzyme toolkit for the biosynthesis of energetic materials	US Department of Energy	\$99,006	09/01/2015	09/02/2016
2016	Eble, Jeffrey A.	GC-CESU: Reptile and Amphibian Monitoring at Gulf Islands National SeashoreFlorida Unit – Naval Live Oaks area (GUIS-NLO)	National Park Service	\$8,247	08/01/2015	12/31/2016
2016	Caffrey, Jane M.	Water Quality in Bang’s Lake: Effects of Recurrent Phosphate Spills to a Coastal Estuary Yr 2	University of Southern Mississippi	\$5,346	03/01/2015	02/28/2016
2016	Caffrey, Jane M.	Water Quality in Bang’s Lake: Effects of Recurrent Phosphate Spills to a Coastal Estuary Year 2	Geological Survey	\$7,985	03/01/2015	02/28/2016
2016	Caffrey, Jane M.	Evaluating Fish Production and Ecosystem Impacts of Artificial Reefs	US Department of The Treasury	\$293,992	09/01/2015	08/31/2017
2016	Jeffrey, Wade H.	Center for Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE) II	Gulf of Mexico Alliance (GOMA)	\$77,645	01/01/2015	12/31/2016
2016	Jeffrey, Wade H.	Assessment of Escambia East Large Area Artificial Reef Site Refugia Reefs 2016-17	Florida Fish and Wildlife Conservation Commission	\$84,728	01/29/2016	06/30/2017
2015	Eble, Jeffrey A.	Gulf Islands National Seashore (Students/Internships)	National Park Service	\$20,000	09/30/2014	12/31/2015
2015	Caffrey, Jane M.	Water Quality in Bang’s Lake: Effects of Recurrent Phosphate Spills to a Coastal Estuary	University of Southern Mississippi	\$4,118	03/01/2014	02/28/2015
2015	Jeffrey, Wade H.	Center for Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE) II	Gulf of Mexico Alliance (GOMA)	\$75,396	01/01/2015	12/31/2015
2014	Caffrey, Jane M.	Water Quality in Bang’s Lake: Effects of Recurrent Phosphate Spills to a Coastal Estuary	Geological Survey	\$3,814	03/01/2014	02/28/2015
2014	Eble, Jeffrey A.	GC-CESU: Reptile and Amphibian Monitoring at Gulf Islands National SeashoreFlorida Unit – Naval Live Oaks area (GUIS-NLO)	National Park Service	\$11,321	06/02/2014	12/31/2015
2014	Snyder, Richard A.	Vegetation Analysis for the Westervelt mitigation bank, Garcon Point, FL FY2013-14	Westervelt Ecological Services, LLC	\$15,999	07/01/2013	06/30/2014
2014	Caffrey, Jane M.	GC-CESU Multi-scale synthesis of water quality data for Gulf Coast Parks –Biscayne Bay Addendum	National Park Service	\$11,070	08/30/2013	05/31/2014
2014	Snyder, Richard A.	Assessment of Escambia East Large Area Artificial Reef Site Refugia Reefs: Impacts of Invasive Lionfish	Florida Fish and Wildlife Conservation Commission	\$59,991	07/01/2013	06/30/2014
2014	Jeffrey, Wade H.	Center for Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE)	Gulf of Mexico Alliance (GOMA)	\$175,511	09/01/2011	12/31/2014
2014	Snyder, Richard A.	Deep-C: Deepsea to Coast Connectivity in the Eastern Gulf of Mexico	Gulf of Mexico Alliance (GOMA)	\$369,900	10/01/2011	12/31/2014
2013	Snyder, Richard A.	Vegetation Analysis for the Westervelt mitigation bank, Garcon Point, FL FY2011-12	Westervelt Ecological Services, LLC	\$19,391	07/01/2012	06/30/2013
2013	Jeffrey, Wade H.	Center for Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE)	Gulf of Mexico Alliance (GOMA)	\$175,403	09/01/2011	12/31/2013
2013	Snyder, Richard A.	Deep-C: Deepsea to Coast Connectivity in the Eastern Gulf of Mexico	Gulf of Mexico Alliance (GOMA)	\$399,024	10/01/2011	12/31/2013

2013	Huth, William L.	Measuring Florida Artificial Reef Economic Benefits: A Synthesis	Florida Fish and Wildlife Conservation Commission	\$30,000	07/02/2012	12/31/2013
2012	Caffrey, Jane M.	GC-CESU Synthesis of Water Quality Data for Gulf of Mexico Coastal Parks	National Park Service	\$54,584	05/01/2012	05/31/2013
2012	Snyder, Richard A.	HUDCO Antifouling Study	Hudco Industrial Products, Inc.	\$16,535	04/01/2012	12/31/2012
2012	Caffrey, Jane M.	Gulf of Mexico Alliance Meeting Sponsorship	Electric Research Power Institute	\$10,000	10/15/2011	12/31/2011
2012	Snyder, Richard A.	Vegetation Analysis for the Westervelt mitigation bank, Garcon Point, FL FY2011-12	Westervelt Ecological Services, LLC	\$16,185	09/01/2011	06/30/2012
2012	Caffrey, Jane M.	Atmospheric Deposition of Mercury and Trace Metals to the Pensacola Bay Watershed Phase III	Electric Research Power Institute	\$54,811	07/01/2010	12/31/2012
2012	Jeffrey, Wade H.	Center for Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE)	Gulf of Mexico Alliance (GOMA)	\$157,086	09/01/2011	08/31/2012
2012	Snyder, Richard A.	Deep-C: Deepsea to Coast Connectivity in the Eastern Gulf of Mexico	Gulf of Mexico Alliance (GOMA)	\$309,987	10/01/2011	09/30/2014
2011	Snyder, Richard A.	Evaluation of the Impacts of Storm Surge Flooding on the Water Quality of the Near-shore Environment and on Coastal Aquifers in Sewered and Un-sewered Communities	National Oceanographic and Atmospheric Administration	\$71,013	01/14/2010	12/30/2011
2011	Lepo, Joe E.	Studies of Microbial Communities Affected by the Deepwater Horizon Spill	Alabama State University	\$10,000	01/01/2011	12/31/2011
2011	Lepo, Joe E.	BioBlend Technologies Consultation	Bio Blend Technologies LLC	\$61,966	01/25/2011	10/14/2011
2011	Snyder, Richard A.	Vegetation Analysis for the Westervelt mitigation bank, Garcon Point, FL	Westervelt Ecological Services, LLC	\$16,268	10/15/2010	03/31/2011
2011	Huth, William L.	Assessment Study for Post-Harvest Processed (PHP) Oysters	Interstate Shellfish Sanitation Conference	\$33,000	09/07/2010	08/31/2011
2011	Snyder, Richard A.	Wet Prairie Habitat Restoration Evaluation and Management Strategies for the Garcon Point Water Management Area FY2011	NW Florida Water Management	\$8,800	07/01/2010	06/30/2011
2011	Snyder, Richard A.	Assessing the Impact of the Deepwater Horizon Oilspill on Coastal Waters of the Florida Panhandle Water Sediments and Fish	Florida Institute of Oceanography	\$133,623	08/13/2010	08/12/2011
2011	Snyder, Richard A.	Coast Watch: Remote Sensing and Verification Sampling of Oil Spill Impact on Florida Coast	Florida Institute of Oceanography	\$192,577	08/13/2010	08/12/2011
2011	Jeffrey, Wade H.	Uncoupling of Autotrophy and Heterotrophy: Effects of the Deepwater Horizon Oil Spill on Microbial Food Webs	Florida Institute of Oceanography	\$215,021	08/13/2010	08/12/2011



**APPENDIX III**  
**CEDB publications**

- Cesbron F.**, Geslin E., Le Kieffre C., Nardelli M.P., Langlet D., Mabillean G., Jorissen F., Jézéquel D. and Metzger E. Sequestered chloroplasts in the benthic foraminifer *Haynesina germanica*: cellular organization, oxygen fluxes and potential ecological implications. *Journal of Foraminiferal Research* (in press)
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- Nienow, J., **R.A. Snyder**, W.H. Jeffrey, and S. Wise Jr. 2017. Fine structure and ecology of *Nanoneis longta* in the northeastern Gulf of Mexico with a revised definition of the species. *Diatom Research* 32:43-58. doi.org/10.1080/0269249X.2016.1268978.
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**APPENDIX IV**  
**CEDB Abstracts**

**2017**

**Jeffrey, W.H.**, J.A. Moss, J.D. Pakulski, and R.A. Snyder. 2017. Microbial Plankton do not follow a Latitudinal Gradient in Diversity. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.

**Jeffrey, W.H.**, M. Brock, R. Richardson, E. de la Torre, and M. Ederington-Hagy. 2017. Seasonal Variability of Microbial Response to Crude Oil Water Accommodated Fractions. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. February 6 – 9.

Andrews, S., C. Richardson, **W. Jeffrey**, and R. Snyder. 2017. Effects of Macondo 252 crude oil WAF on microplankton. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. February 6 – 9.

Bann, P., C. Brannon, **W.H. Jeffrey**, and P.P Vaughan. 2017. Biological Toxicity of Extracts from Photochemically Degraded Water Accommodated Fractions. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. February 6 – 9.

Bann, P., S. Bifulco, C. Brannon, J. Fair, M. Seivert, **W.H. Jeffrey**, and P.P Vaughan. 2017. Biological Toxicity of Extracts from Photochemically Degraded Crude Oil Water Accommodated Fractions. American Chemical Society National Meeting. San Francisco, CA. April 2 – 6.

Brannon, C., P. Bann, S. Bifulco, J. Fair, M. Seivert, **W.H. Jeffrey**, and P.P Vaughan. 2017. Fractionation and Biological Toxicity Studies of Crude Oil Water Accommodated Fractions with Dispersant. American Chemical Society National Meeting. San Francisco, CA. April 2 – 6.

Brock, M.L., R. Richardson, E. de la Torre, M. Ederington-Hagy, R.A. Snyder, and **W.H. Jeffrey**. 2017. Seasonal variability of microbial response to crude oil water accommodated fractions. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.

Daniel, C., M. Ederington-Hagy, **W.H. Jeffrey**, and L. Waidner. 2017. Thompson Bayou Microcosm Experiments: Aerobic Anoxygenic Phototrophic Bacteria Community Shifts Upon Particle Enrichment. UWF Student Scholars Symposium and Faculty Research Showcase, Pensacola, FL April 20, 2017

- Henriksson, N.L., R.A. Snyder, J.A. Moss, and **W.H. Jeffrey**. 2017. Microbial Biogeography in the Water Column and Sediments of the Northeastern Gulf of Mexico. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.
- Knight, K., J.A. Moss, R.A. Snyder, N. Henriksson, and **W.H. Jeffrey**. 2017. Temporal Changes in Bacterioplankton Community Structure on the Northwest Florida Shelf. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.
- Nigro, L.M., V. Pérez, L. Kurte, C. Dorador, M. Hengst, V. Molina, K. Hernandez, and **W.H. Jeffrey**. 2017. Metagenomic Investigation of Microorganisms Exposed to High Solar Radiation Stress in Salar De Huasco, Chile. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.
- Seivert, M., C.A. Davis, A.M. McKenna, Y.E. Corillo, R.A. Snyder, **W.H. Jeffrey**, and P.P. Vaughan. 2017. FT-ICRMS Analysis of Photochemically Degraded and Burned Surrogate Oil. American Chemical Society National Meeting. San Francisco, CA. April 2 – 6.
- Simmering, A., C. Quina, M. Ederington-Hagy, and **W.H. Jeffrey**. 2017. Establishment of a long term database for Pensacola Beach Microbial Ecology. UWF Student Scholars Symposium and Faculty Research Showcase, Pensacola, FL. April 20, 2017
- Waidner, L., S. Matallana Surget, L. Nigro, P. LeBaron, M. Ederington Hagy, M. Brock, C. Daniel, J. Valek, and **W.H. Jeffrey**. 2017. Aerobic Anoxygenic Phototrophic Bacteria in Coastal Gulf of Mexico Community Shifts Upon Exposure to MC252 Water Accommodated Fraction and Dispersant. The Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI. February 26 – March 3.
- Hofstetter, T., J. Bolotin, M. Palatucci, and **J.C. Spain**. 2017. Carbon and nitrogen isotope fractionation reveals the biodegradation of 2,4-dinitroanisole. American Chemical Society National Meeting, San Diego CA
- Palatucci, M., and **J.C Spain**. 2017. Biodegradation of dichloronitrobenzenes. Remediation Technology Summit, Denver CO.

- Clark, A., J. Reidy, H.-M Chung, and L. Waidner. 2017. Furthering the Mitochondrial Genome Investigation of *Donax variabilis* using PCR and Plasmid Vectors: A Course Based Undergraduate Teaching Project. UWF Student Scholars Symposium and Faculty Research Showcase, Pensacola, FL. April 20, 2017
- Caffrey, J.M. et al. Nitrogen fixation in seagrass beds dominated by *Thalassia testudinum* and *Halodule wrightii*. UWF Student Scholars Symposium. April 20, 2017. R. Capps presenter.
- Caffrey, J.M. et al. Changes in primary production, nutrient fluxes and rates of succession follow the deployment of an artificial reef system in the Northeast Gulf of Mexico. UWF Student Scholars Symposium. April 20, 2017. K. Brooks presenter. Honorable Mention for graduate Biology poster
- Caffrey, J.M. et al. Primary production and respiration on artificial reefs. UWF Student Scholars Symposium. April 20, 2017. B. Gore presenter.
- Caffrey, J.M. et al. Biogeochemical baseline before artificial reef deployment in the shallow Northeastern Gulf of Mexico. Aquatic Sciences. ASLO meeting. Feb 26 – Mar 3, 2017. Honolulu, HI. F. Cesbron presenter.
- Caffrey, J.M. et al. Nitrogen fixation in seagrass beds dominated by *Thalassia testudinum* and *Halodule wrightii*. Aquatic Sciences. ASLO meeting. Feb 26 – Mar 3, 2017. Honolulu, HI. R. Capps presenter.

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## 2016

- Zielinski, N.\*, I. Bollinger\*, R. Lavoie\*, J. Rawson\*, J. Eble. The circumtropical triggerfish *Melichthys niger*: A single species or species complex? Joint Meeting of Ichthyologists and Herpetologists. New Orleans LA (July 2016)
- Jeffrey, W.H., M.L. Brock, R.L. Richardson, M. Ederington- Hagy, and R.A. Snyder. 2016. The effect of oil spills on marine microbes: the importance of where, when, and how. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Tampa, FL. February 1-4.
- Jeffrey, W.H., J.A. Moss, J.D. Pakulski, and R.A. Snyder. 2016. Latitudinal Trends in Abundant and Rare Bacterioplankton Community Structure and Diversity in Surface Waters of the Pacific Ocean. Association for the Sciences of Limnology and

Oceanography, Ocean Sciences Meeting. New Orleans, LA February 21-16.

Brock, M.L., M. Ederington- Hagy, R.L. Richardson, RA. Snyder, **W.H. Jeffrey**. 2016. The effect of oil spills on marine microbes: the importance of where, when, and how. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. New Orleans, LA February 21-16.

Brock, M., R. Richardson, E. de la Torre, M. Ederington-Hagy, and **W.H. Jeffrey**. 2016. Seasonal variability of microbial response to crude oil water accommodated fractions. Gulf Estuarine Research Society Annual Meeting. Pensacola Beach, FL. Nov. 2-5.

Brock, M.L., R. Richardson, E. Marshall, S. Solgard, M. Ederington-Hagy, and **W.H. Jeffrey**. 2016. Seasonal Patterns of marine microbes sensitivity to crude oil. University of West Florida Student Research Symposium. Pensacola, FL April 21. Winner of Outstanding Coastal Science Award.

Henriksson, N.L., R.S. Snyder, J.A. Moss, and **W.H. Jeffrey**. 2016. Spatial Distribution and Biogeographical Patterns of Bacteria the Water Column and Sediments of the Northeastern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. New Orleans, LA February 21-16.

Henriksson, N.L., R.A. Snyder, J.A. Moss, and **W.H. Jeffrey**. 2016. Spatial Distribution and Biogeographical Patterns of Bacteria the Water Column and Sediments of the Northeastern Gulf of Mexico. Gulf Estuarine Research Society Annual Meeting. Pensacola Beach, FL. Nov. 2-5.

Hernandez, K, B, Yannicelli, **W. Jeffrey**, and N. Silva. 2016. Productividad primaria y secundaria (bacteria vs arquea?) desde el continente hacia el Giro del Pacifico Sue e islas oceanicas. Programa del Taller De Exposición De Resultados Preliminares Del Crucero Cimar 21 "Islas Oceánicas." Valparaiso, Chile. November 22.

Horak, R., W. Qin, T. Bertagnolli, A. Nelson, **W.H. Jeffrey**, A. Ingalls, D. Stahl, and A. Devol. 2016. Variable Influence of Light on the Activity of Ammonia-Oxidizing *Thaumarchaeota* in the North Pacific Ocean. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. New Orleans, LA February 21-16.

Knight, K.T., J.A. Moss, R.A. Snyder, N. Henriksson, **W.H. Jeffrey**. 2016. Temporal Analysis of Bacterioplankton Community Structure in the Northeastern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. New Orleans, LA February 21-16.



- Knight, K.T., J.A. Moss, R.A. Snyder, N.L. Henriksson, and **W.H. Jeffrey**. 2016, Temporal Analysis of Bacterioplankton Community Structure in the Northeastern Gulf of Mexico. Gulf Estuarine Research Society Annual Meeting. Pensacola Beach, FL. Nov. 2-5.
- Pérez, V., L. Kurte, M. Hengst, C. Dorador, **W.H. Jeffrey**, R. Wattiez, S. Matallana-Surget. 2016. Adaptation to Extreme UV Radiation: A comparative proteomics study of *Rhodobacter* sp, isolated from high altitude wetlands in Chile. International Symposium on Microbial Ecology (ISME). Montreal, Canada. August 21-26.
- Pérez, V., L. Kurte, M. Hengst, C. Dorador, **W.H. Jeffrey**, R. Wattiez, S. Matallana-Surget. 2016. Adaptation to Extreme UV Radiation Doses: A comparative proteomics study of *Rhodobacter* sp. isolated from high altitude wetlands in Chile. Congreso de Microbiología de Chile (SOMICH). Valdivia, Chile. November 22 – 25.
- Vaughan, P.P., M.E. Hagy, T. Wilson, R. Kamerman, A. McKenna, H. Chen, and **W.H. Jeffrey**. 2016. Photochemical Changes in Water Accommodated Fractions of MC 252 and Surrogate Oil Created During Solar Exposure as Determined by FT-ICRMS. 251<sup>st</sup> ACS National Meeting & Exposition. San Diego, CA. March 13-17.
- Tavano, Danielle, Nelie Noel, and **Joe Eugene Lepo**. 2016. Molecular characterization of free-living fungi that inhabit the rice rhizosphere. UWF Student Scholars Symposium. Pensacola, Florida. 21 April 2016.
- Tooma, Terah, and **Joe Eugene Lepo**. 2016. Nitrogen fixation in marine bacteria. UWF Student Scholars Symposium. Pensacola, Florida. 21 April 2016.
- Toms, C.** and Worthy, G. (August, 2016). Filling the gaps: Preliminary assessment of seasonal abundance and site fidelity patterns in common bottlenose dolphins (*Tursiops truncatus*) in Pensacola Bay, Florida. *Proceedings of the 2016 Ecological Society of America Conference*. Fort Lauderdale, FL.
- Toms, C.**, Och, T., Hartigan, L., Whitehurst, M., Findley, H., Worthy, G. (April, 2016). A report on the potential influence of a record-breaking flood event on bottlenose dolphin (*Tursiops truncatus*) populations in Pensacola Bay, Florida. *Proceedings of the 2016 Annual Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS)*. Savannah, GA.

- Toms, C. N.** and Worthy, G. A. J. (March, 2016). Seasonal movement patterns of bottlenose dolphins (*Tursiops truncatus*) in the Florida Panhandle. *Southeastern Ecology and Evolution Conference*. Tallahassee, FL.
- Caffrey, J.M.** et al. What happens when phosphate spills into an estuary? Collaboratively examining phosphogypsum inputs in the Grand Bay NERR to plan for the future. NERR annual meeting Nov 16, 2016. K. Cressman presenter.
- Caffrey, J.M.** et al. Changes in primary production at Grand Bay National Estuarine Research Reserve: indications from long-term monitoring data. GERS-SWS meeting Nov 2-5, 2016. K. Cressman presenter.
- Caffrey, J.M.** et al. Biogeochemical baseline before artificial reef deployment in the shallow Northeastern Gulf of Mexico. GERS-SWS meeting Nov 2-5, 2016 Pensacola Beach, FL. F.Cesbron, presenter
- Caffrey, J.M.** et al. Seasonal and spatial changes in phytoplankton biomass on the shallow Northeastern Gulf of Mexico Shelf near Pensacola, FL. GERS-SWS meeting Nov 2-5, 2016 Pensacola Beach, FL. K. Brooks and P. Hernandez, presenters
- Caffrey, J.M.** et al. Nitrogen fixation in seagrass beds dominated by *Thalassia testudinum* and *Halodule wrightii*. GERS-SWS meeting Nov 2-5, 2016 Pensacola Beach, FL. R. Capps, presenter.
- Caffrey, J.M.** et al. Response of benthic microalgae to phosphorus inputs in Grand Bay National Estuarine Research Reserve. GERS-SWS meeting Nov 2-5, 2016 Pensacola Beach, FL. J. Sleek, presenter
- Caffrey, J.M.** et al. Effects of nutrient input on phytoplankton productivity and community structure in the Grand Bay estuary in Mississippi. GERS-SWS meeting Nov 2-5, 2016 Pensacola Beach, FL. G. Baine, presenter.
- Caffrey, J.M.** et al. Effects of nutrient input on phytoplankton productivity and community structure in the Grand Bay estuary in Mississippi. National Monitoring Conference May, 2-6 2016. Tampa, FL. G. Baine, presenter.
- Caffrey, J.M.** et al. Nitrogen fixation in seagrass beds dominated by *Thalassia testudinum* and *Halodule wrightii*. National Monitoring Conference May, 2-6 2016. Tampa, FL. R. Capps, presenter.
- Caffrey, J.M.** et al. Understanding long-term changes by linking monthly chlorophyll measurements to high-frequency water quality data. National Monitoring Conference May, 2-6 2016. Tampa, FL. K. Cressman, presenter

- Caffrey, J.M.** et al. Effects of nutrient input on phytoplankton productivity and community structure in the Grand Bay estuary in Mississippi. Student Scholars Symposium. April 21, 2016. UWF. G. Baine, presenter.
- Caffrey, J.M.** et al. The phytoplankton community in the dune lakes of Walton County. Student Scholars Symposium. April 21, 2016. UWF. S. Buchanan, presenter.
- Caffrey, J.M.** et al. Nitrogen fixation in seagrass beds dominated by *Thalassia testudinum* and *Halodule wrightii*. Student Scholars Symposium. April 21, 2016. UWF. R. Capps, presenter.
- Caffrey, J.M.** et al. The effects of artificial reefs on primary production. Student Scholars Symposium. April 21, 2016. UWF. K. Haynes and C. Barfield, presenters. Winner of best Biology poster
- Caffrey, J.M.** et al. Effects of nutrient input on phytoplankton productivity and community structure in the Grand Bay estuary in Mississippi. Ocean Sciences Meeting. February 21-26, 2016. New Orleans, G. Baine, presenter.
- Caffrey, J.M.** et al. Nitrogen Availability in Seagrass Beds Dominated by *Thalassia testudinum* and *Halodule wrightii* and Its Effect on the Seagrass Health and Proliferation. Ocean Sciences Meeting. February 21-26, 2016. New Orleans, LA. R. Capps, presenter
- Caffrey, J.M.** et al. Response of benthic microalgae to phosphorus inputs in Grand Bay National Estuarine Research Reserve. Ocean Sciences Meeting. February 21-26, 2016. New Orleans, LA. J. Sleek, presenter

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## 2015

- Jeffrey, W.H.**, M. Ederington-Hagy, M. Head, K. Houghton, J. Hutcheson. C. McCurry, J. Moss, C. Reisenfeld, S. Tominack, and R.A. Snyder. 2015. Temporal and Spatial Patterns on The Northwest Florida Shelf: Implications for microbial response to oil spills. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. February 16-19.
- Jeffrey, W.H.**, M. Ederington-Hagy, R.A. Snyder, S. Cleveland, L.K. Han, T. Holden, O. Battel, R. Richardson, M. Brock. 2015. The effect of oil spills on marine microbes: the importance of where, when, and how. Annual meeting of the Society for Industrial Microbiology and Biotechnology. Philadelphia, PA. August 2-6.

- Jeffrey, W.H.**, T. Morrison, P.P. Vaughan, M. Ederington- **Jeffrey, W.H.**, J.D. Pakulski, R.A. Snyder, and J.A. Moss. 2015. Latitudinal Patterns of Bacterioplankton Diversity in Pacific Ocean Surface Waters from the Arctic to Antarctica. Congreso de Microbiología de Chile (SOMICH). La Sarena, Chile. December 1 – 4.
- Jeffrey, W.H.**, and M. Overton. 2015. Seasonal Responses of Bacterioplankton to Ultraviolet Radiation in Coastal and Estuarine Waters of Northwest Florida. Association for the Sciences of Limnology and Oceanography, Aquatic Sciences Meeting. Granada, Spain. February 22 -27.
- Jeffrey, W.H.**, J.D. Pakulski, R.A. Snyder, and J.A. Moss. 2015. Latitudinal Patterns of Bacterioplankton Diversity in Pacific Ocean Surface Waters from the Arctic to Antarctica. Congreso de Microbiología de Chile. La Sarena, Chile. December 1 – 4.
- Joux, F., N. Chédri, F-Y. Bouget, P. Schatt, **W.H. Jeffrey**, M. Tedetta, C. Guigue, and M. Goutx. 2015. Toxic effects of crude oil, dispersant and oil-dispersant on the marine microalgae *Ostreococcus tauri* assessed by a luminescent biosensor approach. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. Feb. 16-19.
- Snyder, R.A., M. Ederington-Hagy, F. Hileman, M. Head, K. Houghton, J. Hutcheson, C. McCurry, J. A. Moss, C. Riesenfeld, S. Tominack, **W.H. Jeffrey**. 2015. Time series PAH concentrations in shoreline mollusks and continental shelf sediments of the Florida Panhandle. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. February 16-19.
- Snyder, R.A., J. Moss, C. McCurry, S. Tominack, I.C. Romero, D. Hollander, and **W.H. Jeffrey**. 2015. The Deep-Sea Water-Sediment Interface: Eukaryotic Microbial Communities From the NE Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. February 16-19.
- Vaughan, P.P., **W.H. Jeffrey**, T. Wilson, R. Kamerman, M. Hagy, A. McKenna, H. Chen, and R. Rodgers. 2015. Photochemical Changes in Water Accommodated Fractions of MC252 and Surrogate Oil Created During Solar Exposure as determined by FT-ICRMS. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. February 16-19.
- Vaughan, P.P., **W.H. Jeffrey**, M. Ederington-Hagy T. Wilson, R. Kamerman, , A. McKenna, H. Chen, J.C. Putman, and R. Rodgers. 2015. Photochemical Changes in Water Accommodated Fractions of MC252 and Surrogate Oil Created During Solar Exposure as determined by FT-ICRMS. 10<sup>th</sup> North American FT MS conference Key

West, FL. April 12- 16.

Walsh, J.J., J.M. Lenes, B.P. Darrow, A.A. Parks, R.H. Weisburg, L. Zheng, C. Hu, B.B. Barnes, K.L. Daly, G.R. Brooks, **W.H. Jeffrey**, R.A. Snyder, and D.J. Hollander. 2015. A Simulation Analysis of the Plankton Fate of the Deepwater Horizon Oil Spills. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX. February 16-19.

Dees, Daniel, Danielle Tavano, Kelsee Bing, and **Joe Eugene Lepo**. 2015. Fungal colonization in the rhizosphere of rice plants. UWF Student Scholars Symposium. Pensacola, Florida. 23 April 2015.

**Snyder, RA**. 2015. Gulf of Mexico oil spill and marine microbenthos. Invited seminar, Salisbury University, Salisbury, MD, 17 September 2015.

**Snyder, RA**. 2015. Gulf of Mexico oil spill and marine microbenthos. Invited seminar, Horn Point Laboratory, Cambridge, MD, 28 October 2015.

Dahl, KA, WF Patterson, and **RA Snyder**. 2015. Targeted lionfish removals on Northern Gulf of Mexico artificial reefs: effectiveness and impacts to native fish communities. Gulf and Caribbean Fisheries Institute meeting, 11 November 2016, Ciudad de Panama, Panama.

Lynch, R., H. Pham, **R. Snyder** and F. Hileman. 2015. Analysis of Polychlorinated biphenyls in deep water shark liver tissue. National American Chemical Society Conference, Denver, CO, March 24, 2015.

**Toms, C. N.** and Worthy, G. A. J. (December, 2015). Seasonal movement patterns of bottlenose dolphins (*Tursiops truncatus*) in the Florida Panhandle. *Proceedings of the 2015 Biennial Conference on the Biology of Marine Mammals*. San Francisco, CA.

**Caffrey, J.M.** et al. Oysters as a tool for removing fixed nitrogen from estuaries. Faculty and Student Scholars Symposium. April 23, 2015. UWF.

**Caffrey, J.M.** et al. Factors influencing primary production and respiration in the Grand Bay National Estuarine Research Reserve. Mississippi Water Resources Research Institute Symposium, April 7, 2015. Jackson, MS.

**Caffrey, J.M.** et al. Oysters as a tool for removing fixed nitrogen from estuaries. Interagency Ecological Program, March 18-21, 2015. Folsom, CA (Hollibaugh presenter)

**Caffrey, J.M.** et al. Living oysters as active sites of nitrification and denitrification. Association of the Sciences of Limnology and Oceanography. February 22-28, 2015. Granada Spain

**Caffrey, J.M.** et al. Bringing together research and management to examine the consequences of repeated phosphorus spills in a coastal estuary. Association of the Sciences of Limnology and Oceanography. February 22-28, 2015. Granada Spain

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## 2014

**Jeffrey, W.H.**, T. Morrison, P.P. Vaughan, M. Ederington-Hagy, W. New, G. Battel, R.A. Snyder, A.M. McKenna, H. Chen, and R.P. Rodgers. 2014. Inhibition of Microbial Growth is Dependent on Photochemical Changes in MC252 Water Accommodated Fractions. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.

**Jeffrey, W.H.**, T. Morrison, P.P. Vaughan, M. Ederington-Hagy, R.A. Snyder, A.M. McKenna, H. Chen, and R.P. Rodgers. 2014. The role of Photochemistry in Determining the Effects of MC252 Surrogate Oil on Microbial Growth. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.

**Jeffrey, W.H.**, T. Morrison, P.P. Vaughan, M. Ederington- Hagy, R.A. Snyder, S. Cleveland, A.M. McKenna, H. Chen, and R.P. Rogers. 2014. Photochemical and pyrogenic changes in Deepwater Horizon Oils and their effects on marine microbial production. 16<sup>th</sup> International congress on photobiology. Cordoba, Argentina. Sept. 8 – 12.

**Jeffrey, W.H.** 2014. Does cold ultraviolet radiation affect microbes the same as hot? 16<sup>th</sup> International congress on photobiology. Cordoba, Argentina. September 8 – 12.

Baskerville, T., J. Sarkodee-Adoo, C. Riesenfeld, **W.H. Jeffrey**, A. Chauhan, J. Chanton, and J. Cherrier. 2014. Assessing the Impact of the Deepwater Horizon Oil Spill on Inigenous Bacterial Communities: A Biogeochemical and Molecular Approach. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.

Davis, B., C. Wallace, H. Chau, J.A. Moss, C. Riesenfeld, **W.H. Jeffrey**, R.A. Snyder, and J.E. Lepo. 2014. Taxonomic, metabolic, and physiological properties of bacteria from Gulf of Mexico deep-sea sediments impacted by the Deepwater Horizon oil spill. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.

- Hernández, K., **W.H. Jeffrey**, C. Dorador, L. Olsen, F. Remossellés, V. Molina, and M. Hengts. 2014. Does solar radiation affect evenly microbial activity? 2785 m closer to the stars: Salar de Huasco study case. 16<sup>th</sup> International congress on photobiology. Cordoba, Argentina. September 8 – 12.
- Houghton, K., J. M. Hutcheson, J. A. Moss, C. Reisenfeld, R. A. Snyder, **W.H. Jeffrey**. 2014. Bacterioplankton community structure after exposure to oil and dispersants using 16S rRNA and alkB genes in the northeastern Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.
- Houghton, K., J. Hutcheson, J.A. Moss, C. Reisenfeld, R.A. Snyder, and **W.H. Jeffrey**. 2014. Effects of Oil and Dispersants on Bacterioplankton Community Structure and Function using 16S rRNA and alkB genes in the Northeastern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.
- Hutcheson, J., K. Houghton, J. Moss, C. Riesenfeld, R.A. Snyder, and **W.H. Jeffrey**. 2014. Combined Effect of Solar Radiation and Crude Oil on Microbial Community Structure in the NE Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.
- Hutcheson, J., K. Houghton, J.A. Moss, C. Reisenfeld, R.A. Snyder, and **W.H. Jeffrey**. 2014. Bacterioplankton Community Response to Solar Radiation in the Northeastern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.
- McCurry, C., J. A. Moss, S. Tominack, **W.H. Jeffrey**, R. A. Snyder. 2014. Benthic foraminifera diversity and distribution in the Gulf of Mexico. Gulf of Mexico deep-sea sediments impacted by the Deepwater Horizon oil spill. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.
- McCurry, C., J.A. Moss, S. Tominack, **W.H. Jeffrey**, and R.A. Snyder. 2014. Benthic Foraminifera Community Diversity and Distribution in the Northern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.
- Moss, J.A., C. McCurry, S. Tominack, **W.H. Jeffrey**, and R.A. Snyder. 2014. Ciliate microbial diversity on the Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.

- Moss, J.A., C. McCurry, S. Tominack, **W.H. Jeffrey**, and R.A. Snyder. 2014. Ciliate Microbial Diversity in the Northeast Gulf of Mexico. Association for the Sciences of Limnology & Oceanography, Ocean Sciences Mtg. Honolulu, HI. February 23 -28.
- Riesenfeld C.S, **W.H. Jeffrey**, B. Davis, W. Overholt, J.E. Kostka, J.E. Lepo J.E., and R.A. Snyder. 2014. Pensacola Beach Surf Zone Microbial Communities Before, During, and After Oil Contamination. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.
- Tominack, S., J.A. Moss, C. Riesenfeld, **W.H. Jeffrey**, and R.A. Snyder. 2014. Spatial and Temporal Variations in the Community Structure of Marine Archaea in the Northeastern Gulf of Mexico. Association for the Sciences of Limnology and Oceanography, Ocean Sciences Meeting. Honolulu, HI. February 23 -28.
- Vaughan, P.P., **W.H. Jeffrey**, M. Ederington-Hagy, H. Chen, A. McKenna, R. Rodgers. 2014. FT-ICRMS Analyses of photochemical changes in water accommodated fractions of MC252 and surrogate oil created during solar exposure. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29.
- Snyder, R.A.** 2014. Northern Gulf of Mexico microbial oceanography in the wake of the BP oil spill. Invited seminar, Virginia Institute of Marine Science, Gloucester Point, VA, 13 January.
- Snyder, R.A.** 2014. The BP Oil well failure in the Gulf of Mexico: perceptions and reality. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL January 26-29. Invited.
- Jeffrey, W.H., T. Morrison, P.P. Vaughan, M. Ederington- Hagy, **R.A. Snyder**, S. Cleveland, A.M. McKenna, H. Chen, and R.P. Rogers. 2014. Photochemical and pyrogenic changes in Deepwater Horizon Oils and their effects on marine microbial production. 16<sup>th</sup> International congress on photobiology. Cordoba, Argentina. Sept. 8 – 12.
- Lenes J.M., B. P. Darrow, J. J. Walsh, K. L. Daly and **R. A. Snyder** 2014. Crossing trophic levels with ecosystem models: Data needs during evolution of DWH event. GOMRI Oil Spill Conference Mobile AL, 27-29 Jan.
- Tominack, S.; J. Moss; C. Riesenfeld; W. Jeffrey; **R. Snyder**. 2014. Spatial and temporal variations in the community structure of marine Archaea in the Northeastern Gulf of Mexico. GOMRI Oil Spill Conference Mobile AL, 27-29 Jan.



Tominack, S.; M. Gaona; J. Rosanbalm; C. Hester; J. Moss; W. Jeffrey; **R. Snyder**. 2014. A Time Series Hydrographic Dataset for the Northeastern Gulf of Mexico. GOMRI Oil Spill Conference Mobile AL, 27-29 Jan.

**Caffrey, J.M.** et al. Response of benthic microalgae to phosphorus inputs in Grand Bay National Estuarine Research Reserve. Bays and Bayous. December 2 - 3, 2014. Mobile AL. K. Price and T. Jones (presenters)

**Caffrey, J.M.** et al. Multi-scale synthesis of water quality data for Gulf Coast Parks. Webinar for National Park Service. September 24, 2014

**Caffrey, J.M.** et al. Biological effects of repeated phosphorus spills on the Grand Bay National Estuarine Research Reserve. Biology Seminar, UWF. September 5, 2014

**Caffrey, J.M.** et al. Evaluating water and sediment quality in the Gulf of Mexico Coastal National Parks. The 9<sup>th</sup> National Monitoring Conference April 28 - May 2, 2014. Cincinnati, OH.

**Caffrey, J.M.** et al. The value of long term monitoring to research and management: Using high frequency water quality data to understand ecological processes. Texas Bays and Estuaries. April 23-24, 2014. Port Aransas, TX

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## 2013

**Jeffrey, W.H.**, N. Harris, G. Daniel, R. Pichulo, D. Brankle, J. Trindell, and P.P. Vaughan. 2013. Photochemical Degradation and Bacterial Growth Response to Crude Oil. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.

**Jeffrey, W.H.**, and R.A. Snyder. 2013. Considerations on the interactions of microbial ecology and oil on the formation of Marine Snow. Marine Oil Snow Sedimentation & Flocculent Accumulation (MOSSFA) Conference. Tallahassee, FL October 22-23.

Atkinson, R. **W.H. Jeffrey**, and P. Vaughan. 2013. Toxicity Effects of Polycyclic Aromatic Hydrocarbons During Varied Sunlight and Temperature Exposure. University of West Florida Student Scholars Symposium. Pensacola, FL April 25.

Baskerville, T., J. Sarkodee-Adoo, **W.H. Jeffrey**, A. Chauhan, J. Chanton, and J. Cherrier. 2013. Assessing the Impact of the Deepwater Horizon Oil Spill on Indigenous

- Bacterial Communities: A Biogeochemical and Molecular Approach. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Cherrier, J., S. Valentine, **W.H. Jeffrey**, and J. Marra. 2013. Light-Mediated Release of Dissolved Organic Carbon by Phytoplankton: Implications for Carbon Cycling. The 45<sup>th</sup> International Liège Colloquium. Primary Production in the ocean: from the synoptic to the global scale. Liège, Belgium. May 13 – 17.
- Daniel, G., N. Harris, R. Atkinson, R. Pichulo, D. Brankle, J. Trindell, **W.H. Jeffrey**, and P. Vaughan. 2013. Photochemical Degradation and Bacterial Growth Response Crude Oil. 245<sup>th</sup> Amer. Chemical Society National Meeting, New Orleans, LA. April 7 – 11.
- Daniel, G., N. Harris, R. Atkinson, R. Pichulo, D. Brankle, J. Trindell, **W.H. Jeffrey**, and P. Vaughan. 2013. Photochemical Degradation and Bacterial Growth Response Crude Oil. Univ. West Florida Student Scholars Symposium. Pensacola, FL April 25.
- Davis, B., J.E. Lepo, Z. Li, and **W.H. Jeffrey**. 2013. Petroleum Hydrocarbon-Degrading Bacteria Enriched from Deep-Sea Sediments Associated with the Deepwater Horizon Gulf of Mexico Spill. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Davis, B., **W.H. Jeffrey**, R. Snyder, and J. Lepo. 2013. Petroleum Hydrocarbon-Degrading Bacteria Enriched from Deep-Sea Sediments Associated with the Deepwater Horizon Gulf of Mexico Spill. University of West Florida Student Scholars Symposium. Pensacola, FL April 25.
- Houghton, K., J. Hutcheson, R. Snyder, C. Reisenfeld, J. Moss, and **W.H. Jeffrey**. 2013. Temporal and spatial responses in bacterioplankton community structure and function after exposure to oil and dispersants in the Northeastern Gulf of Mexico. University of West Florida Student Scholars Symposium. Pensacola, FL April 25. (Awarded Outstanding Graduate STEM Poster)
- Hutcheson, J., K. Houghton, R. Snyder, C. Reisenfeld, J. Moss, and **W.H. Jeffrey**. 2013. Bacterioplankton Community Response to UV Radiation in the Northeastern Gulf of Mexico. University of West Florida Student Scholars Symposium. Pensacola, FL April 25. (Awarded Outstanding Graduate STEM Poster)
- Ortega-Retuerta, E., F. Joux, **W.H. Jeffrey**, and JF Ghiglione. 2013. Spatial variability in attached and free living bacterial diversity in surface water from the MacKenzie River to the Beaufort Sea (Canadian Arctic). Association for the Sciences of

- Limnology and Oceanography Aquatic Sciences meeting. New Orleans, LA. February 17-22.
- Pichulo, R., G. Daniel, J. Trindell, R. Atkinson, N. Harris, D. Brankle, **W.H. Jeffrey**, P. Vaughan. 2013. Photochemical Degradation and Bacterial Growth Response Crude Oil. Univ. West Florida Student Scholars Symposium. Pensacola, FL April 25.
- Riesenfeld, C., J. Moss, S. Tominack, K. Houghton, B. Davis, J. Hutcheson, J. Lepo, **W.H. Jeffrey**, and R.A. Snyder. 2013. Microbial reactivity to water masses in the northeastern Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Rosanbalm, J., T. Baskerville, J. Cherrier, A. Chauhan, and **W.H. Jeffrey**. 2013. Effects of oil and dispersants on phytoplankton communities in northern Gulf of Mexico estuaries: nutrient and light interactions. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Shisgal, P., R. Snyder, J. Moss, C. Riesenfeld, and **W.H. Jeffrey**. 2013. Ciliate protist community structure in the plankton of the northeastern Gulf of Mexico determined by particle analysis and molecular diagnostics. University of West Florida Student Scholars Symposium. Pensacola, FL April 25.
- Snyder, R.A., **W.H. Jeffrey**, M. Ederington-Hagy, F. Hileman, J. Moss, L. Amick, R. Carruth, M. Gaona, and J. Marks. 2013. Polycyclic aromatic hydrocarbon concentrations across the Florida Panhandle Bight Shelf after the BP MC 252 well failure. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Tominack, S., M. Gaona, J. Rosanbalm, C. Hester, J. Moss, **W.H. Jeffrey**, R. Snyder. 2013. A time series hydrographic dataset for the northeastern Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.
- Tominack, S., C. Riesenfeld, J. Moss, **W.H. Jeffrey**, and R. Snyder. 2013. Spatial and Temporal Variations in the Community Structure of Marine Archaea: The Gulf of Mexico. Univ. West Florida Student Scholars Symposium. Pensacola, FL April 25.
- Lepo, J.E.**, Lori Phillips, Kendall Martin. 2013. qPCR and Fungal Automated rRNA Intergenic Spacer Analysis (F-ARISA) Characterizes Phyllosphere Fungal Communities of Crops: Diagnostics for Plant-Pathogens or –Stress 30 July 2013; Invited presentation to BIT's 3<sup>rd</sup> Annual Congress of Microbiology (Chair of

Mycology session), Wuhan, China.

Davis, Bryan, **Joe Eugene Lepo**, Zongjun Li, and Wade Jeffrey. 2013. Petroleum Hydrocarbon-Degrading Bacteria Enriched from Deep-Sea Sediments Associated with the Deepwater Horizon Gulf of Mexico Spill. Poster Presentation to the Deep-C All Hands Meeting, within the Gulf of Mexico Research Initiative, Tallahassee, Florida. 27-28 Feb 2013.

Davis, Bryan, **Joe Eugene Lepo**, Zongjun Li, and Wade Jeffrey. 2013. Petroleum Hydrocarbon-Degrading Bacteria Enriched from Deep-Sea Sediments Associated with the Deepwater Horizon Gulf of Mexico Spill. Poster Presentation to the University of West Florida Student Scholars Symposium. 2 May 2013.

Davis, Bryan, Caitlin Wallace, Hieu Chau, Joseph A. Moss, Wade H. Jeffrey, Richard A. Snyder, and **Joe Eugene Lepo**. 2013. Taxonomic, metabolic, and physiologic characterization of bacterial strains isolated from Gulf of Mexico deep-sea sediments impacted by the Deepwater Horizon oil spill. Southeastern Branch meeting of the American Society for Microbiology. Auburn, Alabama 18 – 19 November 2013.

Riesenfeld, C.S., J.A. Moss, J Hutcheson, K. Houghton, S.A. Tominack, J. Marks, C. McCurry, **J.E. Lepo**, W.H. Jeffrey, and R.A. Snyder. 2013. Northeastern Gulf of Mexico Microbiological DNA Biodiversity Observations. Presentation to the Deep-C All Hands Meeting, within the Gulf of Mexico Research Initiative, Tallahassee, Florida. 27-28 Feb 2013.

**Snyder, R.A.**, A. Vestal, C. Welch, G. Barnes, R. Pelot, M. Ederington- Hagy, and F. Hileman. 2013. Coquina (*Donax* spp.) as an indicator of oil spill impact to sandy beach shorelines. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA. January 21-23.

**Snyder, R.A.**, Christian Riesenfeld, Joseph Moss, Sarah Tominack, Katelyn Houghton, Josette Hutchinson, Chelsea McCurry, Bryan Davis, Wade Jeffrey. 2013. Microbial loop dynamics on the NE Gulf of Mexico shelf. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

**Snyder, R.A.** 2013. Biological partitioning and dispersal of marine pollutants. Ecology of Marginal Seas and Youth Scientific School, 30 Sept 2013. Far Eastern Federal University, Vladivostok, Russia.  
<http://www.dvfu.ru/documents/11957/3992850/Ecology%20of%20the%20marginal%2>

Oseas%20and%20their%20basins.pdf?version=1.

**Snyder, R.A.** 2013. Oil Spill in the Gulf of Mexico and plankton microbial ecology dynamics. Youth Scientific School, Vostok Field Station. Ecology of Marginal Seas and Youth Scientific School, 2 Oct 2013. Far Eastern Federal University, Vladivostok, Russia.

**Snyder, R.A.** 2013. Persistent organic pollutants in the marine environment. Youth Scientific School, Vostok Field Station. Ecology of Marginal Seas and Youth Scientific School, 2 Oct 2013. Far Eastern Federal University, Vladivostok, Russia.

**Snyder, R.A.** 2013. Eukaryotic microbe evolution and biodiversity in the marine plankton. Youth Scientific School, Vostok Field Station. Ecology of Marginal Seas and Youth Scientific School, 3 Oct 2013. Far Eastern Federal University, Vladivostok., Russia.

**Snyder, R.A.** 2013. The BP Oil well failure in the Gulf of Mexico: perceptions, reality, and research. Seventh Nature without Borders Conference, 10-11 October 2013, Vladivostok, Russia. [www.naturewithoutborders.ru](http://www.naturewithoutborders.ru)

**Snyder, R.A.** 2013. The nature of science and our approach to environmental issues. High School Marine Biology Scholars Program, Far Eastern Institute of Marine Science, Russian Academy of Sciences, Vladivostok, Russia. 15 October 2013.

**Snyder, R.A.** 2013. The nature of science and our approach to environmental issues. The English Club, Far Eastern Federal University, Vladivostok, Russia. 17 October 2013.

**Snyder, R.A.**, 2013. PCBs in the Pensacola Bay watershed and offshore waters. FSU Department of Oceanography Seminar series, Tallahassee, FL.

Davis, B., Bryan Davis, Caitlin Wallace, Hieu Chau, Wade H. Jeffrey, **Richard A. Snyder**, and Joe Eugene Lepo. 2013. Taxonomic, metabolic, and physiologic characterization of bacterial strains isolated from Gulf of Mexico deep-sea sediments associated with the Deepwater Horizon oil spill. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Houghton, K., Josette Hutcheson, Joe Moss, Christian Riesenfeld, **Richard A. Snyder**, and Wade H. Jeffrey. 2013. Temporal and spatial responses in bacterioplankton community structure and function after exposure to oil and dispersant in the NE Gulf

of Mexico DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Hutcheson, J., Katelyn Houghton , Joe Moss, Christian, **Richard Snyder** , Wade Jeffrey. 2013. Combined Effect of Solar Radiation and Crude Oil on Microbial Community Structure in the NE Gulf of Mexico. 2013. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Jeffrey, W. H., Taylor Morrison, Pamela P. Vaughan, Melissa Ederington-Hagy, **Richard A. Snyder**, Amy McKenna, Ryan, Huan Chen, and Ryan Rogers. 2013. The role of photochemistry in determining the effects of MC252 Surrogate oil on microbial growth. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

McCurry, C., Joseph A. Moss, Sarah Tominack, Katelynn Houghton, Josette Hutcheson, Bryan Davis, Marie Gaona, Joel Marks, Wade Jeffrey, Patrick Schwing, **Richard A. Snyder**. 2013. Benthic foraminifera diversity on the Northeastern Gulf of Mexico shelf. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Moss, J.A., Chelsea McCurry, Sarah Tominack, Katelynn Houghton, Josette Hutcheson, Bryan Davis, Marie Gaona, Joel Marks, Wade Jeffrey, **Richard A. Snyder**. 2013. Microzooplankton distribution and abundance in the N.E. Gulf of Mexico. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Riesenfeld, C., J. Moss, K. Houghton, J. Hutcheson, S. Tominack, B. Davis, J. Marks, C. McCurry, W. Overholt, J. Kostka, J.J. Lepo, W.H. Jeffrey, and **R.A. Snyder**. 2013. Molecular Characterization of Surface and Benthic Eubacterial Communities from Three Gulf of Mexico Transects on the NW FL Shelf. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

Stevenson, C, B. Fugate, and **R.A. Snyder**. 2013. Estuarine ecological enhancement. Projects on Water Resources Protection and Environmental Monitoring. 5-8 October 2013. Biology and Soil Institute, Far-Eastern Branch of the Russian Academy of Sciences Conference, Vladivostok, Russia.

Stevenson, C, B. Fugate, and **R.A. Snyder**. 2013. Estuarine ecological enhancement. Science Festival, 12 October 2013. Far Eastern Federal University, Vladivostok.

Tominack, S., Joseph Moss, Christian Riesenfeld, Wade Jeffrey, **Richard Snyder**. 2013. Spatial and temporal variations in the community structure of marine Archaea in the

Northeastern Gulf of Mexico. DEEP-C GOMRI research consortium all hands meeting, Sept 9-10, Tallahassee FL.

**Caffrey, J.M.**, et al. Influence of Environmental Factors on Diversity and Abundance of Meiofauna in Three Florida Estuaries Coastal and Estuarine Research Federation. November 3-7, 2013. San Diego, CA. G. Afonso presenter

**Caffrey, J.M.**, et al. Seasonal changes of epiphyte populations and overlying water nutrients in bodies of water in Pensacola, FL. Coastal and Estuarine Research Federation. November 3-7, 2013. San Diego, CA. N. Hunt presenter

**Caffrey, J.M.**, et al. Sediment biogeochemistry in restored and native subtropical seagrass beds. Association of the Sciences of Limnology and Oceanography. February 18-21 2013. New Orleans, LA

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## 2012

**Jeffrey, W.H.**, J.L. Rosanbalm, T.C. Baskerville, A. Chauhan, J. Cherrier, and M.C. Ederington-Hagy. 2012. The effect of oil and dispersed oil on microbial production and carbon flow. American Society of Limnology and Oceanography Ocean Sciences Meeting. Salt Lake City, UT February 20 – 24.

Agbali, A.E., B.P. Flower, S.M. Foley, D. Hollander, **W.H. Jeffrey**, N.R. Myers, J.A. Nienow, R.A. Snyder, and S.W. Wise, Jr. 2012. After-the-fact estimations of the composition and quantity of calcareous nanoplankton assemblages present during the 2010 Macondo Oil Spill in the Gulf of Mexico—Preliminary results. Geological Society of America Annual Meeting in Charlotte, North Carolina. November 4 – 7.

Baskerville, T.C., J. Cherrier, A. Chauhan, J.L. Rosanbalm, and **W.H. Jeffrey**. 2012. The effects of Deepwater Horizon contamination on microbial community structure and biogeochemical cycling in oil impacted Gulf marine systems. American Society of Limnology and Oceanography Ocean Sciences Mtg. Salt Lake City, UT Feb. 20 – 24.

Ortega-Retuerta, E., F. Joux, **W.H. Jeffrey**, and J.-F. Ghiglione. 2012. Exploring bacterioplankton diversity in the Canadian Arctic: patterns of bacterial communities from the Mackenzie River to the Beaufort Sea. American Society of Limnology and Oceanography Ocean Sciences Meeting. Salt Lake City, UT February 20 – 24.

Rosanbalm, J.L., T.C. Baskerville, A. Chauhan, J. Cherrier, and **W.H. Jeffrey**. 2012. The effects of oil and dispersant on phytoplankton communities in northern Gulf of Mexico estuaries. American Society of Limnology and Oceanography Ocean Sciences Meeting. Salt Lake City, UT February 20 – 24.

Vaughan, P.P., **W. H. Jeffrey**, S. McFarland, J. Baptiste, N.I Jones, and J. Rosanbalm. 2012. Biological and photochemical degradation of Macondo 252 oil in the presence of nutrients and Corexit 9500A. 243<sup>rd</sup> American Chemical Society National Meeting, San Diego, CA, March 25-29.

Cravero, K., Kennedy, E.M., and **J. E. Lepo**. 2012. Comparison of a Novel DNA Based Technology with Traditional Culture EPA Method 1600 for Water Quality Monitoring. Oral Presentation to the Annual GOMA Workshop Meeting, 9-11 April 2012, St. Petersburg, Fla.

Cravero, K., Kennedy, E.M., and **J. E. Lepo**. 2012. Comparison of a Novel DNA Based Technology with Traditional Culture EPA Method 1600 for Water Quality Monitoring. ***Honors-Award Winning*** Poster presentation to the University of West Florida Student Scholars Symposium. 3 May 2012.

Kennedy, E.M., K. Cravero, and **J. E. Lepo**. 2012. Persistence of Molecular Indicators for Fecal Pollution in Environmental Waters. Oral Presentation to the Annual GOMA Workshop Meeting, 9-11 April 2012, St. Petersburg, Fla.

Kennedy, E.M., K. Cravero, and **J. E. Lepo**. 2012. Persistence of Molecular Indicators for Fecal Pollution in Environmental Waters. Poster presentation to the University of West Florida Student Scholars Symposium. 3 May 2012. UWF, Pensacola, Fla.

Riesenfeld, C., J.A. Moss, S.A. Tominack, K. Houghton, B.D. Davis, **J.E. Lepo**, W.H. Jeffrey, and R.A. Snyder. 2012. Florida panhandle Bight Shelf microbial loop dynamics studies at U.W.F.C.S. Deep-C All Hands Meeting, Tallahassee, Florida. 21-22 August 2012.

**Snyder, R.A.**, 2012. Toxicity Risk, Bioavailability, and biodegradation of oil. NOAA Deepwater Horizon Educator Workshop, 28 Jan 2012. Webcast workshop presentation to 10 sites in FL, AL, MS, and AL.

**Snyder, R.A.**, 2012. Pensacola Bay System Fish PCB monitoring. Seafood Safety Symposium 2012. Escambia County Marine Resources, FL



- Caffrey, J.M.**, et al. Comparing nutrient levels and phytoplankton response in 3 northern Gulf of Mexico Estuaries. Gulf Estuarine Research Society. November 8-9, 2012. Dauphin Island Sea Lab, AL. K. Straub presenter
- Caffrey, J.M.**, et al. Temporal and Spatial Variability of Mercury, pH, and Non-Sea Salt Sulfate Fluxes Associated with Changes in Anthropogenic Emissions in the Pensacola Bay Region. April 30-May 4, 2012. Portland, OR. A. Maestre presenter
- Caffrey, J.M.**, et al. Implementing the National Monitoring Network in the Florida Panhandle. 5<sup>th</sup> Annual Mattie Kelly Environmental Symposium on Choctawhatchee Bay. April 27, 2012. Niceville, FL. Invited speaker.
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## 2011

- Marra, J., **W.H. Jeffrey**, J. Cherrier, and S.-K. Valentine. 2011. The role of light in phytoplankton extracellular production and bacterial consumption of dissolved organic matter: implications for coastal carbon cycling. American Society of Limnology and Oceanography Annual Meeting. San Juan, Puerto Rico. February 13-18.
- Ortega-Retuerta, E., F. Joux, **W.H. Jeffrey**, and J.-F. Ghiglione. 2011. Prokaryotic heterotrophic activity and diversity in the western Arctic Ocean: Patterns and controlling factors. American Society of Limnology and Oceanography Annual Meeting. San Juan, Puerto Rico. February 13-18.
- Kennedy, E.M., K. Cravero, K. N. Hellein, and **J. E. Lepo**. 2011. Comparative Efficiency of Light Sources for PMA Activation to Distinguish Live vs. Dead Cells using qPCR. Poster presentation to the 111th Annual Meeting of the American Society for Microbiology, 21-24 May 2011, New Orleans, La.
- Snyder, R.A.**, Allyson Bradley, Brandy Singleton, Cinnamon Morrison. 2011. Restoration of Gulf Coast Wet Prairie Habitat from Slash Pine Plantation. NCER 2011, Baltimore, MD.
- Snyder, R.A.**, Melissa Ederington-Hagy, Fredrick Hileman, Joseph Moss, Lauren Amick, Rebecca Carruth, Marie Gaona, and Joel Marks. 2011. Polycyclic aromatic hydrocarbon concentrations across the Florida Panhandle Bight Shelf after the BP MC

252 well failure. Coastal and Estuarine Research Federation Daytona Beach, FL Nov 2011.

Barnes, G., Christina Welch, **Richard Snyder**. 2011. Use of Coquina (*Donax variabilis*) as an indicator of oil pollution UWF Student Research Symposium April 2011

Barnes, G., Christina Welch, Alexandra Vestal, Robert Pelot, Melissa Ederington-Hagy, Fredrick Hileman, and **Richard Snyder**. 2011. Coquina *Donax variabilis* as indicators of coastal PAH pollution along sandy beach shorelines. Coastal and Estuarine Research Federation Daytona Beach, FL Nov 2011.

Liebens, J., C.J. Mohrherr, N.K. Karouna-Renier, **R.A. Snyder**, K.R. Rao. 2011. Associations between Dioxins/Furans and Dioxin-Like PCBs in Sediment and Blue Crab in Anthropogenically Impacted Estuaries. 21st Annual International Conference on Soils, Sediments, Water, and Energy. March 14-17, 2011. San Diego, CA.

Alexandra Vestal, Robert Pelot, **Richard Snyder**. 2011. Isolation and characterization of Polynuclear Aromatic Hydrocarbons from *Donax Variabilis* affected by the gulf oil spill. UWF Student Research Symposium April 2011

**Caffrey, J.M.**, et al. Resolving drivers of variability in estuarine metabolism from sustained observations of water quality in the SE US. MAA Chapter Meeting: Environmental Statistics. November 18-19, 2011. Pensacola, FL.

**Caffrey, J.M.**, et al. Comparing nutrient levels and phytoplankton response in 3 northern Gulf of Mexico Estuaries. Coastal and Estuarine Research Federation. November 6-10, 2011. Dayton Beach Florida. K. Straub presenter

**Caffrey, J.M.**, et al. Community metabolism and nutrient fluxes in transplanted and natural seagrass beds in Pensacola, FL. Coastal and Estuarine Research Federation. November 6-10, 2011. Dayton Beach Florida. Smith, Hester, Gaona & Langsten presenters

**Caffrey, J.M.**, et al. Role of light, pore water nutrients and hydrogen sulfide in the success of seagrass restoration in Pensacola Bay, FL. Coastal and Estuarine Research Federation. November 6-10, 2011. Dayton Beach Florida. A. O'Connor presenter

**Caffrey, J.M.**, et al. The Contribution of Benthic Nutrient Regeneration to Primary Production in a Shallow Eutrophic Estuary, Weeks Bay, Alabama. Coastal and

Estuarine Research Federation. November 6-10, 2011. Dayton Beach Florida. B. Mortazavi presenter

**Caffrey, J.M.**, et al. Resolving drivers of variability in estuarine metabolism from sustained observations of water quality in the SE US. Coastal and Estuarine Research Federation. November 6-10, 2011. Dayton Beach Florida.

**Caffrey, J.M.**, et al. Role of climate and local emission sources in the wet deposition of mercury and major ions in the Pensacola Bay region 10<sup>th</sup> International Conference on Mercury as a Global Pollutant. July 24-29, 2011. Halifax, Nova Scotia, Canada

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## 2010

**Jeffrey, W.H.**, Baldwin, A.J., Pakulski, J.D., Phillips-Kress, J., and P.J. Neale. 2010. The effects of ultraviolet radiation on bacterioplankton production in the Ross Sea polynya. XXXI SCAR Open Science Conference, Buenos Aires, Aregentina. Aug 3 – 6.

**Jeffrey, W.H.**, J.D. Pakulski, A.J. Baldwin, J.P. Kase, J.A. Moss, F. Joux, and P.J. Neale. 2010. Spatial patterns of light stimulated bacterial heterotrophic production. The microbial view of marine biogeochemical cycles workshop. Banyuls-sur-Mer, France. May 19-21.

Arnosti, C., A.D. Steen, K. Ziervogel, S. Ghobrial, and **W.H. Jeffrey**. 2010. Latitudinal gradients in degradation of marine dissolved organic carbon. American Society of Limnology and Oceanography Summer Meeting. Santa Fe, NM. June 6 – 11.

Richards, K., A. M. Mallet, P. Vaughan, and **W.H. Jeffrey**. 2010. Examination of Triclosan Photo-toxicity with Varied Salinity and Organic Matter Content of Natural Waters, 2010 Florida Annual Meeting and Exposition of the American Chemical Society, Innisbrook, FL, May 13 – 15.

**Lepo, J. E.** 2010. Microbial Ecology and Role of Prokaryotes in Biodegradation of Hydrophobic Organic Pollutants: Microbial Biosurfactants and Microbial Catabolic Capability. Keynote Presentation to the Southeastern Branch Meeting of the American Society for Microbiology, 5 November 2010, Montgomery, Ala.

Brownell, M.J., V.J. Harwood, **J. E. Lepo**, S.Y. Wang, K.N. Hellein, E.M. Kennedy, and X. Ye, .2010. Field Testing of Library-Independent Microbial Source Tracking Methods

in the Gulf of Mexico. Poster presentation to the 110<sup>th</sup> Annual Meeting of the American Society for Microbiology, 23-27 May 2010, San Diego, Calif.

Hellein, K. N., E. M. Kennedy, A. Morrow, and **J. E. Lepo**. 2010. A Filter-Based PMA Technique to Distinguish Live from Dead Bacteria in Environmental Waters. Poster Presented at UWF Seastars 2010.

Kennedy, E.M., K. N. Hellein, A. Morrow., and **J. E. Lepo**.2010. A Filter-Based PMA Technique to Distinguish Live- from Membrane-Compromised Microorganisms in Environmental Waters. Q-2393. Poster presentation to the 110th Annual Meeting of the American Society for Microbiology, 23-27 May 2010, San Diego, Calif.

**Caffrey, J.M.**, et al. Effects of Deepwater Horizon Oil Spill on Community Respiration in the Intertidal Zone. Bays and Bayous. Mississippi and Alabama Sea Grant. November 2010. Mobile, AL.

**Caffrey, J.M.**, et al. Spatial and Temporal Trends in Atmospheric Deposition in the Pensacola Bay Watershed. National Water Quality Monitoring Conference. April 25-29, 2010. Denver, CO.

## APPENDIX V

### Service Activities

#### Journal Reviews

*AMBIO, Applied Geochemistry, Applied Microbiology, Aquaculture Environmental Interactions, Aquatic Science, Applied and Environmental Microbiology, Aquatic Microbial Ecology, Aquatic Botany, Arctic, Antarctic, and Alpine Research, Association for Marine Oil Pollution, Biogeochemistry, Biogeosciences, Biological Journal of the Linnaean Society, Bioremediation Journal, Canadian Journal of Zoology, Continental Shelf Research, Coral Reefs, Deep Sea Research, Diatom Research, Ecological Engineering, Environmental Microbiology, Environmental Microbiology and Environmental Microbiology Reports, Environmental Monitoring and Assessment, Environmental Pollution, Environmental Science and Technology, Environmental Technology, Estuarine Coastal and Shelf Science, European Journal of Protistology, Estuaries and Coasts, Evolution, FEMS Microbiology Ecology, Gulf of Mexico Science, Heredity, Hydrobiologia, International Society of Microbial Ecology Journal, International Journal of Environmental Health, International Journal of Biodegradation and Bioremediation, Journal of Advances in Biology and Biotechnology, Journal of the World Aquaculture Society, Journal of Fish Biology, Journal of Bacteriology, Journal of Coastal Research, Journal of Applied Ecology, Journal of Applied Microbiology, Journal of Eukaryotic Microbiology, J. Exp Marine Biology & Ecology, Journal of Hazardous Materials, Journal of Heredity, Journal of Pathogens, Journal of the North American Benthological Society, Journal of Marine Research, Journal of Water and Health, Kuwait Journal of Science and Engineering, Letters in Applied Microbiology, Limnology and Oceanography, Limnology and Oceanography Methods, Marine Biology Research, Marine Ecology, Marine Ecology Progress Series, Marine Genomics, Marine Microbial Food Webs, Marine Pollution Bulletin, Microbial Ecology, Mitochondrial DNA, Nature, PLoS ONE, Reviews in Fish Biology and Fisheries, Process Biochemistry, Proteomes, Science, Science of the Total Environment, Transactions of the American Fisheries Society, Trends in Biotechnology, Water Research, Water Resource*

#### Proposal Review Panels

Panel Chair, NASA Exobiology and Evolution Program. NASA Astrobiology Institute (NAI), Northern Gulf Institute BP oil spill research program, Florida Institute of Oceanography BP oil spill research program, Florida Institute of Oceanography Ship time awards, NOAA Diversion Panel March, Northern Gulf Institute BP oil spill research program

#### Proposal External Review

Department of Energy, Florida Sea Grant, Georgia Sea Grant, National Science Foundation, Nat. Undersea Res. Program NOAA, US Environmental Protection Agency, US Department of State, Florida Institute of Oceanography, The Dutch Research Council for Marine Biology, New Zealand, Natural Environment Research Earth and Life Sciences Council (United Kingdom), Texas Sea Grant, Mississippi Sea Grant, NASA, North Carolina Sea Grant, (Chile), FONDOCYTE (Chile) Maryland Department of Natural Resources, Tidewater Administration, Chesapeake Bay Research and Monitoring Division, US Department of Energy NABIR Program, Mississippi-Alabama Sea Grant Review Panel, Maryland Sea Grant program, Natural Environmental Research Council (UK), Hudson River Foundation. Florida Sea Grant, Rhode Island Sea

Grant, National Marine Fisheries Service Marine Fisheries Initiative, UWF Office of Undergraduate Research Student Project Awards, Portuguese Foundation for Science and Technology

### **Other Professional Service**

- Member National Water Quality Monitoring Council and member of National Monitoring Network Steering Committee.
- Member Science Advisory Committee for Georgia Coastal Ecosystem Long Term Ecological Research
- Judge for Graduate Student Symposium, Dauphin Island Sea Lab
- Associate Editor, *Limnology and Oceanography*
- Member, American Association for the Advancement of Science (AAAS) review panel of the National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR) for the state of Rhode Island.

### **University Service**

- Chair, Hal Marcus College of Science and Engineering Selection committee for Research Faculty
- Member, Provost's Committee for Development of Interdisciplinary Center
- Member, Search Committee, Director of Florida Institute of Oceanography
- Member, Search Committee, Director of Sponsored Research, University of West Florida
- Member, Strategic Plan Committee, Florida Institute of Oceanography
- Chair, Provost's Task Force to Improve and Enhance Research at the University
- Member, University Radiation Safety Committee
- UWF Scientific Diving Control Board
- STEM Scholars Unit Advisor
- Co-organizer STEM Student Recruitment
- Co-organizer 1<sup>st</sup> Annual High School Science Symposium
- Student Scholars Symposium Lead Judge
- Scholarly Activities Task Force and Subcommittee on the organization and operation of the Office of Research and Sponsored Programs. member of committee and subcommittee
- Selection Committees for Dean of College of Science, Engineering and Health and Biology
- Visiting Assistant Professor positions
- Marine Biology Review Committee member (Department)
- Selection Committees for Marine Biology (Biology) and post-doctoral (CEDB) positions
- Office of Undergraduate Research - Research Advisory Committee – Reviewer and Review Panel member
- Faculty Sponsored Merit Scholarship - Committee
- Faculty/Staff Campaign – Peer Communicator (University)
- Search Committee for Microbiologist, Department of Biology
- Marine Biology Program Review Committee, Department of Biology
- Chair, Florida Institute of Oceanography Advisory Committee
- Marine Services Executive Committee
- Dive Control Board
- Institutional Animal Care and Use Committee
- Health and Occupational Safety Committee

- Graduate Program Admissions Committee Biology Department
- Faculty Senate
- College of Arts and Sciences Faculty Council
- Faculty search committees for Biology, Environmental Studies, Library
- Host Scientists from Chile, France, Scotland, China
- Advisor and Mentor for University of West Florida-American Society for Microbiology
- UWF Library Academic Program Review

**Community Service:**

- Invited speaker for Escambia County Restore Non-Profit Workshop, Pensacola, FL
- Participant in Seagrass Awareness Day, Gulf Breeze, FL
- Numerous presentations to the Gulf Coast Citizens Diplomacy Council
- Member, Environmental Advisory Board, City of Pensacola
- Judge, Northwest Florida Regional Science Fair
- Member, City of Pensacola Climate Mitigation and Adaptation Task Force, (2016 – present)
- Faculty and content provider, Florida Center for Research in Science, Technology, Engineering & Mathematics (FCR-STEM) Earth Science Institute workshop for 6-12 science teachers in the state of Florida (2014) (2015) (2016)
- Guest speaker, Navarre Beach Marine Science Station, Santa Rosa County Schools
- Member Technical Advising Group to Escambia County RESTORE Act Committee
- Instructor and facilitator, Biology Institute and Online Support: Collaborative Opportunities to Promote Excellence in Science (BIOSCOPEs), a Next Generation Science Partnership of the Florida Center for Research in Science, Technology, Engineering and Mathematics (FCR-STEM) at Florida State University and Escambia County School Districts to improve science education for 6-12 teachers
- Supervision and assistance for middle and high school science fair projects
- Mentor and supervisor International Baccalaureate Senior Extended Essay projects
- Volunteer, Gulf Islands National Seashore, Fort Pickens National Park.
- Supervision and assistance for three middle school science fair projects
- Volunteer, Great Gulfcoast Arts Festival
- Chairman, Advisory Board, South Santa Rosa Utilities, Inc., Gulf Breeze, FL
- International Paper Citizens Advisory Committee, Cantonment FL
- Numerous public speaking engagements on oil spills, PCB pollution, Science and Society, media interviews for print, internet, video and radio short sound bites to hour long video

## APPENDIX VI

### CEDB Facilities and Equipment

**The Center for Environmental Diagnostics and Bioremediation (CEDB)** is located at the main campus of the University of West Florida (UWF). Administrative office and storage space total about 1538 sq. ft. CEDB has additional office space in an adjacent modular facility (1700 sq. ft.) and a separate analytical services laboratory (3500 sq. ft.). Five research laboratories (5,500 sq. ft.) house individual faculty research programs, shared molecular biology and other analytical work. **The Department of Biology** is also located on the main campus. Faculty have their own dedicated lab space (~700 ft<sup>2</sup>) and access to all shared equipment within the department and CEDB.

#### GENERAL LABORATORY INSTRUMENTATION

Refrigerated Sorvall high speed and Sorvall RC M15GX Micro-Ultra-centrifuges. Dedicated Radiochemistry laboratory with Perkin-Elmer Tricarb 2900TR Scintillation Analyzer; walk-in environmental chambers and cold rooms. UV-Vis spectrophotometers; Perkin Elmer LS45 Luminescence spectrofluorometer; Turner Designs TD-700 and Trilogy fluorometers, anaerobic chamber, and anaerobic gassing manifold; oxygen, pH, redox electrodes; -20 °C and -70 °C freezers; Li-Cor underwater cosine light sensors and LI1400 logger, Biospherical Instruments GUV511C and PUV500 ultraviolet radiometers, chromatography equipment and fraction collectors; water purification systems; analytical balances; pH meters; shakers and incubators; recirculating water baths; laminar flow hoods; rotary evaporators; nitrogen evaporators; rotary hybridization ovens; stereoscopes and microscopes including research-grade Olympus, Automated epifluorescence Olympus AX70 microscope with Z control, with wide range of fluorophore detection, enabling FISH, microFISH, and cyanobacterial/picoeukaryote autofluorescence, and inverted compound microscopes including an Olympus DP72 and Cellsens imaging system, UVP BioDocIt-2 Imaging System and Nikon gel image analysis systems; FireStingO<sub>2</sub> (4 channels) fiber-optical oxygen meter, vacuum pumps; and desiccators. Fisher Tensiomat surface tensiometers, Becton-Dickenson Accuri C6 flow cytometer, and a Fluid Imaging Technologies Flow Cam.

The Biology Department maintains a 600 square foot greenhouse with automated watering and temperature controls. It also maintains the Marine Research Facility (MRF) that encompasses 3200 ft<sup>2</sup> of laboratory space divided into a photoperiod and climate controlled wet laboratory area and a marine/wetland plant conservatory. The wet laboratory area is equipped with running water both de-chlorinated freshwater as well as filtered seawater (1500-gallon capacity) — and a regenerative air supply (5000 cfm) capable of supporting large aeration or head-box demands. Climate control is maintained in winter and summer by two thermostatically controlled HVAC units. Animal holding tanks range between 20 and 750-gallon capacity and are equipped with either flow-through or re-circulating biological filtration systems.

#### MOLECULAR BIOLOGY LABORATORY INSTRUMENTATION

LiCor Odyssey Fc gel imaging 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. NanoDrop DNA/RNA/Protein spectrophotometer. StepOnePlus Real-Time PCR System; QuantStudio 3 96well 0.2ml Block Real-



Time PCR System, Maxwell RSC Instrument: Automated DNA and RNA purification system, Perkin Elmer and Bio Tek fluorescence plate readers.

### **BIOLOGICAL INFORMATICS**

Dedicated informatics workstation (3.4GHz iMac with 16Gb RAM) running OSX 10.7.3 and Parallels Desktop and three Dell OptiPlex 9020 Mini Towers. Capabilities utilized for DNA sequence processing and molecular microbial community composition determination include; 1) CodonCode Aligner 4.1.1; 2) rdp multiclassifier 1.1; 3) Molecular Evolutionary Genetic Analysis (MEGA) 5.05; 4) mothur 1.27.0; 5) PRIMER6; and 6) Geneious. The graphing packages, KaleidaGraph 4.1, Prism 6.0, MATLAB R2012b and R statistical package are in use for data analyses. For computationally-intense tasks we have a dedicated server with dual AMD Second Generation Opteron 6344 2.6 GHz processors with 64 GB of RAM, 21 TB of storage and a 10GB network adapter.

**THE WETLANDS RESEARCH LABORATORY (WRL)**, a 3500 sq. ft. facility, an analytical arm of CEDB, 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. Additional equipment in the WRL includes a Bran and Luebbe AutoAnalyzer 3 nutrient analyzer with autosampler; Lachat Quikchem FIA with IC; two autoclaves; block digesters; sonicator; a Varian SPECTRAA 220FS flame atomic absorption spectrometer (AAS); Varian SPECTRAA 220Z Zeeman furnace AAS and an ICP-MS (inductively coupled plasma-mass spectroscope). Other analytical equipment includes a ThermoFinnigan Flash EA 1112 Elemental Analyzer, two Agilent 5890 GCs equipped with flame ionization detectors, electron capture detectors and thermal conductivity detectors, ThermoFisher/Finnigan 4500 mass spectrometer with positive and negative ion modes and mass range of 1000 daltons, ThermoFisher/Finnigan Incos 50 GC/MS system, and an Agilent 1050 liquid chromatograph.

**APPENDIX VII**

**CEDB Employees 2010-2017**

Faculty – 5  
 Other – 38  
 Post Docs- 4  
 Grad – 47  
 Undergrad – 52  
 Workstudy - 7  
 Crossovers – 20  
 Current Emp - 36  
 Ttl Employees = 171

Afonso, Gelies	Graduate Student	08/01/2013	07/012/2014
Albrecht, Barbara	Associate in CEDB	12/31/2015	current
Amick, Lauren	Student Assistant	01/11/2011	05/28/2011
Baine, Gary	Graduate Student	12/08/2014	current
Barfield, Chelsea	Student Assistant	12/07/2015	current
Benz, Mary Adelyn	Student Assistant	01/12/2015	05/02/2015
Bijou, Christopher	FWS	08/22/2016	current
Blackmon, Timothy	Student Assistant	02/22/2010	02/28/2011
Bosso, Jeremy	Associate in CEDB	01/20/2003	current
Bottenfield, Melinda	Student Assistant	06/27/2010	09/04/2010
Bradley, Allyson	Grad, OPS	07/16/2007	05/04/2013
Bretana, Whitney	Student Asst, Grad, OPS	11/07/2005	current
Brock, Melissa	Lab Tech, Student Asst	06/10/2015	08/22/2016
Brooks, Kendra	Lab Asst, Grad Asst	07/11/2016	current
Brown, Jessie	Student Asst, OPS	02/18/2008	09/14/2012
Burger, Christopher	Student Asst, OPS	03/01/2015	12/31/2015
Burkhalter, James	OPS Faculty	12/13/2009	current
Caffrey, Jane	Asst Prof, Assc Prof, Prof	08/13/2001	current
Campanella, Lauren	Student Asst	03/19/2012	05/10/2014
Capps, Rachel	Graduate Student	08/17/2015	current
Cardenas, Jennifer	FWS	08/23/2010	04/29/2011
Carruth, Rebecca	Graduate Student	02/10/2011	01/07/2012
Cates, Taylor	Grad Asst, OPS	10/17/2013	01/09/2015
Celestial, Stephen	Office Assistant	05/25/2016	current
Cesbron, Florian	Research Associate	01/26/2016	current
Cleveland, Sierra	Student Asst	06/25/2014	08/02/2014
Coppola, Philip	Graduate Student	07/21/2014	04/30/2016
Cravero, Karen	Student Asst	01/01/2011	08/11/2012
Daniel, Carrie	FWS	08/22/2016	current
Valentine-Darby, Patricia	Research Associate	04/21/2014	06/27/2014
Davis, Bryan	Graduate Student	10/14/2012	08/02/2014
Davis, Matthew	Graduate Student	06/09/2016	08/22/2016
De La Torre, Elba	Student Asst	05/05/2016	08/05/2016
Della Sala, Phillip	FWS	08/23/2010	12/25/2010
Dixon, Austin	Graduate Student	07/18/2010	12/11/2010
Dominguez, Kristen	Graduate Student	01/27/2011	02/28/2011
Doubek, Lauren	Lab Tech	05/09/2016	08/05/2016
Eble, Jeffrey	Research Associate	09/10/2012	current
Goff, Christina	Student Asst, OPS	02/07/2011	10/14/2011

Green, Faith	Student Assistant	09/15/2014	10/25/2014
Hagy, Melissa	Associate in CEDB	02/25/2002	current
Harmuth, John	Associate in CEDB	12/13/2014	current
Haynes, Katherine	Student Assistant	12/07/2015	09/01/2016
Head, Marie Gaona	Student Asst, OPS	09/12/2011	10/11/2014
Hellein, Kristen	Student Asst, Grad, Assoc	01/20/2005	02/04/2011
Henriksson, Nine	Graduate Student	08/25/2014	current
Hester, Chelsea	Student Asst, OPS	08/22/2011	09/20/2012
Hiljus, Sophia	Student Assistant	08/26/2016	current
Hileman, Fred	Vis. Research Associate	02/02/2009	10/01/2014
Houghton, Katelyn	Graduate Student	08/06/2012	09/30/2014
Hunt, Natalie	Student Asst, OPS	06/11/2008	02/13/2014
Hutcheson, Josette	Graduate Student	08/20/2012	05/09/2015
Jeffrey, Virginia	Graduate Student	11/07/2010	05/07/2011
Jeffrey, Wade	Professor, Director	09/20/1991	current
Johns, Juanita	Office Asst and Specialist	07/16/2014	05/21/2016
Jones, Tashana	Student Assistant	06/16/2014	12/31/2014
Karmakar, Gaurang	Graduate Student	01/05/2011	08/20/2011
Kennedy, Elizabeth	Student Asst, Grad, Assoc	01/29/2007	08/17/2012
Kester, Jeremy	Lab Tech	08/30/2010	04/16/2011
Knight, Katelyn	Graduate Student	09/22/2014	current
Krothapalli, Ranga Rao	Professor Emeritus	10/01/1990	current
Lanum, Amanda	Student Assistant	03/22/2015	10/31/2015
Lavoie, Ryan	Student Assistant	01/21/2015	08/31/2016
Lepo, Joe	Professor	08/01/1991	current
Maestre, Alexander	Graduate Student	01/03/2011	01/13/2012
Main, Christopher	Associate in CEDB	03/29/2010	08/23/2010
Manickam, Dhivyaa	Student Assistant	05/22/2012	08/10/2012
Marks, Joel	Student Assistant	07/25/2011	12/16/2011
Maxwell, Christopher	Graduate Student	02/07/2011	05/09/2012
McCowan, Allison	Student Assistant	03/11/2013	03/20/2013
McCurry, Chelsea	Student Assistant	03/19/2012	07/21/2014
Milletary, Joshua	Student Asst, Grad, OPS	01/20/2011	09/24/2013
Mohl, Lynn	Graduate Student	08/17/2010	06/29/2012
Mohrherr, Carl	Research Associate	10/28/1988	01/09/2013
Morgan, LaJaun	FWS	09/09/2014	05/02/2015
Morrison, Cinnamon	Graduate Student	01/13/2011	05/03/2014
Morrow, Amanda	Student Assistant	04/27/2009	08/17/2011
Moss, Joseph	Grad, Assoc, Res Assoc	05/09/2002	current

Mullen, Dana	Student Assistant	09/05/2016	current
Murrell, Kyra	Student Assistant	03/16/2015	07/31/2015
Nash, Cody	Graduate Student	05/09/2016	08/22/2016
Neat, Erika	Graduate Student	01/15/2017	current
Nigro, Lisa	Research Associate	08/08/2016	current
Overton, Melissa	Graduate Student	08/18/2008	06/30/2010
Palatucci, Mallory	Graduate Student	01/04/2016	current
Patterson, William	OPS Faculty	08/08/2011	2016
Pearson, Phylcia	FWS	10/02/2011	05/05/2012
Perz, Stephen	Graduate Student	08/27/2012	05/03/2014
Pitts, James	Student Assistant	03/22/2015	12/31/2015
Price, Kaleb	Student Assistant	06/16/2014	12/31/2014
Pysz, Samantha	Student Assistant	01/17/2017	current
Quaresma, Jessica	Student Assistant	08/22/2011	12/24/2011
Raines, Jordan	Lab Tech	08/22/2016	12/31/2016
Rappa, Erik	Graduate Student	01/25/2016	08/05/2016
Rawson, D. Scott	Student Assistant	02/07/2011	05/14/2011
Ren, Alexander	Student Asst, Grad, Assoc	05/19/2004	04/06/2012
Rice, Rachel	Student Assistant	02/10/2011	11/10/2012
Richardson, Rachel	Student Assistant	05/03/2015	12/13/2015
Riesenfeld, Christian	Research Associate	02/27/2012	12/31/2014
Rosanbalm, Jessie	Graduate Student	08/23/2010	09/01/2012
Sauveur, Laison	FWS	09/09/2013	05/03/2014
Shehee, Patrick	Grad, Lab Tech	02/11/2015	12/23/2015
Shisgal, Preston	Student Assistant	08/25/2011	04/26/2013
Simmering, Arianna	FWS	08/22/2016	current
Singleton, Brandy	Student Assistant	07/07/2010	12/11/2010
Skowronski, Hillary	FWS, Grad	09/06/2009	04/30/2016
Sleek, Jenna	Student Assistant	05/26/2015	02/10/2017
Snyder, Richard	Professor, Director	03/28/1991	05/31/2015
Spain, Jim	Research Professor	10/01/2015	current
Speaks, Justin	Graduate Student	05/03/2010	08/21/2010
Stachler, Christian	Student Assistant	03/01/2015	06/30/2015
Straub, Kendra	Student Asst, Grad	11/29/2009	08/04/2012
Streeter, Tanya	Office Administrator	10/23/1990	current
Thomas, Katherine	Lab Tech	06/30/2014	07/16/2014
Thomason, Logan	Lab Tech	02/13/2017	current
Toebe, Kaitlyn	Student Assistant	08/22/2011	09/29/2012
Tominack, Sarah	Graduate Student	05/01/2012	12/31/2014
Toms, Christina	OPS Staff	06/03/2013	current
Torrence, Reena	Graduate Student	09/15/2014	06/17/2016
Uriz, Sarabeth	OPS Staff	09/15/2014	current
Vaccaro, Katherine	Graduate Student	09/15/2014	12/06/2014
Vestal, Alexandra	Student Assistant	02/07/2011	03/17/2012

Waidner, Lisa	Research Associate	08/08/2016	current
Walker, Logan	Student Assistant	05/09/2016	current
Welch, Christina	Student Assistant	02/07/2011	05/23/2012
Wight, Bethany	Lab Tech	10/03/2013	12/31/2013
Woody, Jordan	Lab Tech	09/26/2016	12/31/2016