Self-Study for

Ph.D. Program Evaluation

College of Marine Science

University of South Florida

October 9, 2003

Mission, History, and Program

Mission of the College of Marine Science (CMS)

The primary mission of the College is to conduct basic and applied research in ocean science. Here, ocean science is defined by application of the traditional fields of science to the biology, chemistry, geology, and physics of the marine environment and to the interactions between the marine environment and the adjoining atmosphere and land systems - presently and throughout earth's history. Included in the primary ocean science mission is the development of new technologies and tools for exploring the coupled ocean-atmosphere-land systems. The College expects its faculty to develop research programs of outstanding caliber and to fully engage the national and international scientific communities, through the reporting of research results in the most respected oral and written venues, and by professional service.

Integral to the ocean science research mission is the education of graduate students. The College recruits, trains, and graduates productive, creative scientists at the Ph.D. and M.S. levels who are prepared to make independent contributions to ocean science. The faculty are expected to develop outstanding graduate education programs that will afford students the opportunity to participate in all aspects of research. The College recognizes that graduate education requires strong mentoring along with traditional classroom instruction. Faculty contact hours are largely determined by individual interactions in the laboratory, office, and during sea-going expeditions, in addition to traditional course offerings.

An ancillary but important mission of the College is educational outreach to students at all levels and to the public at large. Our outreach programs have significantly expanded our educational responsibilities, and they are intended to motivate all generations to become scientifically literate citizens and to understand the environment in which they live. The College pursues innovative avenues for educational outreach. Efforts are made to attract more junior and senior level undergraduates into both the ocean science core courses and into advanced courses for which they have pre-requisites. Historically, this is a way in which students have made career decisions to engage in ocean science. In this manner the College maintains close ties with the student body in other University of South Florida Colleges and campuses.

Fulfilling our primary and ancillary missions requires strong partnerships with international, federal, state, county, and local government agencies, and with the private sector. The College thus nurtures and strengthens existing partnerships, while developing new ones through a combination of increased public awareness, professional service, and excellence in our primary and ancillary missions.

A strong community involved in the activities of teaching, research, and service is central to the mission of the CMS. It is necessary that faculty governance be collegial and represent diverse points of view. At the same time, the governance process should be

efficient and aim to achieve broad participation of tenured, tenure-earning, and non-tenure-earning faculty and staff.

History of the College of Marine Science

The story of the College of Marine Science began in an old U.S. merchant marine training facility on a small, 11-acre branch campus of USF near the harbor in St. Petersburg, Florida. Officially, the Marine Science program at USF started there in 1967 when three faculty – Harold Humm (Director), Thomas Hopkins and Hugh Dewitt – set up makeshift laboratories in that facility and began to mentor graduate students working toward master's degrees. Their group was designated as the Marine Science Institute of the University of South Florida. By 1969 the group doubled in size and included a marine geologist (Thomas Pyle), an optical/physical oceanographer (Kendall Carder) and an ichthyologist (Ronald Baird). In 1971, a chemical oceanographer (Peter Betzer) was added, all of the major sub-disciplines of oceanography were thus covered, and the Institute had been re-designated as the Marine Science Department of the University of South Florida. Much later, the Department became a College within USF.

In the 36 years since its official beginning, Marine Science at USF has grown and prospered extremely well and is widely recognized as a leader in ocean science. There are now 31 faculty covering all sub-disciplines of oceanography, 127 graduate students, $25 million in annual research, an endowment (for student fellowships) of more than $5 million, 54 scientific/technical personnel (including 19 engineers in the College's Center for Ocean Technology), and 26 technical and administrative support staff. In addition, four other Federal and State agencies have been established in close proximity to the College – the USGS Coastal Geology division, the Marine Research Institute of the Florida Fish and Wildlife Conservation Commission, the Florida Institute for Oceanography (a Type I State center), and the Tampa Bay National Estuary Program. Together with the College, these agencies employ approximately 600 people, and it could therefore be argued that the College is at the center of the largest marine-science complex in the southeastern US. This complex affords many exciting opportunities for our graduate students to advance both their education and experience.

The rapid transformation of the USF marine science program is a tribute to a long series of effective collaborations involving our faculty, colleagues from other agencies, other colleges of the University of South Florida, community business leaders (especially the St. Petersburg Downtown Partnership), the City of St. Petersburg (mayor, council, staff), a host of private citizens, members of Florida's legislature, and our member of the United States House of Representatives, Congressman C.W. (Bill) Young.

Among the many highlights of the growth of USF Marine Science, several stand out. The first big boost came in 1978 when the Florida Board of Regents designated the Department as a "Center of Excellence." Each state university received one, and only one, of these centers, and the designation led to the near-doubling of the faculty when we were given permission by the Florida Legislature to hire eight new faculty simultaneously

a year later, in 1979. Another milestone came in 1982, when the Florida Board of Regents established our independent Ph.D. program (we could only grant M.S. degrees before then). That program permitted us to recruit a higher quality of graduate student and thus greatly enhance the level of our oceanographic research.

Over the years, the College has acquired 13 endowed fellowships. The College's premier fellowship, the Knight Fellowship, is awarded to an outstanding Ph.D. student, provides a yearly stipend plus expense funds, and, once awarded, remains in force until the student graduates. The remaining twelve fellowships are awarded for an academic year. Named in memory of Paul Getting, who greatly assisted the development of the Marine Science program at USF, the Getting Fellowship honors the highest ranked first-year Marine Science graduate student. The C.W. Bill Young Fellowship recognizes the support of Congressman Young for the Marine Science program and is given to a student working closely with the engineers in the College's Center for Ocean Technology. The Lake Fellowship is given in memory of John B. Lake, publisher of the *St. Petersburg Times,* who was instrumental in the advancement of Marine Science at USF. The Garrels Fellowship is awarded in memory of Robert Garrels of our faculty, a world-renown geochemist and member of the US National Academy of Sciences. The College also awards Gulf Oceanographic Fellowships, The Coastal Science Fellowship, and The Sanibel Captiva Shell Club Fellowship. Von Rosenstiel Fellowships are reserved for first-time Marine Science graduate students. There are also the Murtagh Fellowship and the Parrot-Head Fellowship. Two new fellowships this year were the Riggs Fellowship, named to honor the late Carl Riggs, a past USF Vice-President for Academic Affairs and a champion of Marine Science at USF, and the Wachovia Bank Fellowship, which, like the Getting Fellowship, is reserved for an outstanding first-year student.

At the opposite end of the PhD program is the endowed Sackett Prize, named in honor of William Sackett who was a past chair of Marine Science when we were department in the USF College of Arts and Sciences. This prize is given to PhD's just finishing up or to PhD's who have graduated in recognition of outstanding research achievement.

A major step forward was achieved when the USGS decided to establish its national Coastal Geology division in collaboration with the Department in 1988. The reason was that the Department entered a competition with some of the major ocean research institutions in the US, (e.g., Lamont, URI, etc.) and won! This USGS collaboration has been promoted by the Survey as a national model for cooperation between a Federal agency and a university, and our graduate students have profited enormously by the research support and interactions with the USGS. In 1991, another collaboration with an outside agency (FMRI, a state environmental agency) allowed us nearly to double our laboratory space in a new jointly occupied laboratory building. This building permitted considerable growth in faculty and student research, and led, among other things, to our advancement to a leading position in US satellite oceanography. Also in 1991, we founded the Oceanography Camp for Girls, a summer program to interest high-school age girls in math and science. This ongoing science outreach project has been very successful, with hundred of girls experiencing the thrill of research in a supportive environment. It has led to a much larger outreach effort involving telecasts to middle

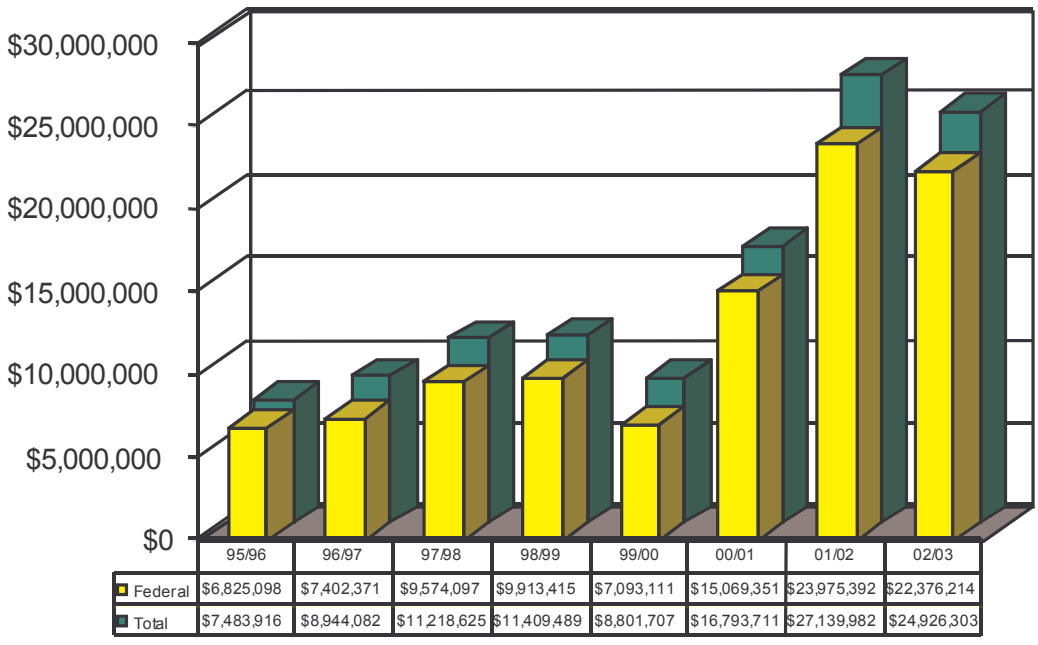
schools around the world (Project Oceanography) and COSEE (Center for Ocean Science Excellence in Education), an NSF program to establish seven centers of excellence in the advancement of science learning in schools by studying the ocean. We are one of the seven.

In 1993, the Department set up PORTS (Physical Oceanography Real Time System), a system of moorings and instrumented locations around Tampa Bay to provide critical data on currents, winds, tides, and other parameters to all marine interests. This is very valuable to the shipping industry as well as the science of ocean monitoring and has led to another program on the West Florida Shelf (COMPS – Coastal Ocean Monitoring & Prediction System) and our participation in SEA-COOS (Southeast Atlantic Coastal Ocean Observing System) and other national efforts to instrument US continental shelves and share monitoring data in near real-time. One year later, in 1994, the Florida legislature gave us engineering positions for the Center for Ocean Technology (COT). This Center has grown almost explosively and became a premier site for the development of ocean sensors for use in moorings and underwater vehicles. Its expansion has included the establishment of a national center for Microelectromechanical Systems (MEMS) technology and, now, the development of ocean sensors for Homeland Security.

Finally, in 2000, the Florida Legislature elevated the Department to a College within USF, permitting us much greater decision-making ability over our own program, additional fiscal support in terms of returned overhead funds, and greater prestige. Peter Betzer was appointed permanent Dean in 2001.

Research funding in Marine Science has increased enormously in recent years. After growing slowly to $7 million/yr in 1995/6, it increased to $ 9-11 million/yr in 1999/2000, nearly doubled in 2000/1 and now is ~$25 million/yr (Fig. 1). Interestingly, a recent

Fig. 1 Research funding record in Marine Science in the last eight academic years



	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03
Federal	$6,825,098	$7,402,371	$9,574,097	$9,913,415	$7,093,111	$15,069,351	$23,975,392	$22,376,214
Total	$7,483,916	$8,944,082	$11,218,625	$11,409,489	$8,801,707	$16,793,711	$27,139,982	$24,926,303

internal study within USF has shown that the College of Marine Science receives a significantly larger fraction (>85%) of its research funding from Federal sources than any of the other research-oriented programs within USF (Arts & Sciences, Engineering, Medicine, etc.). Overall, the University receives 48% of its external funding from Federal sources.

A more complete listing of the major milestones in the evolution of USF's College of Marine Science and its associated research complex in St. Petersburg is presented below:

- **1967** – Three faculty appointed to staff USF's Marine Science Institute.
- **1970** – The first set of midwater micronekton and zooplankton are taken from a standard station in the open Gulf of Mexico by Tom Hopkins. This food web has been studied for over 30 years making it one of the most intensely studied food webs in the ocean.
- **1970** – First National Science Foundation grant awarded to the department.
- **1972** – First contract from The Office of Naval Research is awarded to the department.
- **1978** – Florida Board of Regents designates the department as a "Center of Excellence".
- **1979** – Florida legislature allocates eight new faculty positions to the department.
- **1980** – Robert M. Garrels (geochemist and member of The National Academy of Sciences) joins faculty.
- **1982** – Florida Board of Regents approves "stand alone" Ph.D. program in marine science at USF.
- **1982** – St. Petersburg Progress endows a faculty chair in marine science.
- **1982** – First fellowship for a marine science graduate student established by Poynter fund in honor of John B. Lake, publisher of the St. Petersburg Times.
- **1985** – Knight family provides department with its first endowed fellowship for a marine science graduate student. Subsequently, Knight family endows six more fellowships for graduate students.
- **1986** – Gulf Oceanographic Charitable Trust endows two fellowships for marine science graduate students and USF receives the first matching funds ($100,000) from Florida's new major gifts program.
- **1988** – The United States Geological Survey (USGS) selects USF as the home for its new National Center for Coastal Geology and establishes a cooperative with USF.
- **1988** – City of St. Petersburg provides land and a new research facility for USGS (substantial laboratory renovations are financed by St. Petersburg's business community).
- **1988** – Florida's legislature provides six new marine science faculty positions.
- **1988** – St. Petersburg Times endows Eminent Scholars Lecture Series.

- **1991** – Ground-breaking for new joint research facility (140,000 ft^2) to serve Florida's Department of Environmental Protection (DEP) and Department of Marine Science (USF).
- **1991** – The department sponsors the first Oceanography Camp for Girls.
- **1993** – In conjunction with Pinellas County, the Physical Oceanographic Real-Time System (PORTS) is funded and begins serving ocean science, commerce, and the public with physical data on Tampa Bay every six minutes round the clock.
- **1994** – Florida legislature provides five engineering positions to establish the Center for Ocean Technology (COT) within the Department of Marine Science.
- **1996** – First live satellite television broadcasts for Project Oceanography are transmitted to middle schools throughout the United States.
- **1997** – The Florida Legislature initiating funding for COMPS (Coastal Ocean Monitoring and Prediction System), an ongoing program that, in combination with NOAA, monitors and models important physical processes on the West Florida Shelf for both scientific purposes and to provide guidance for commercial activities and for the management of ocean hazards by various state and local governmental agencies.
- **1997** – USGS dedicates a second research facility (Getting building) to accommodate their expanding coastal programs.
- **1997** – Multi-agency (ONR, NOAA, NASA, EPA), multi-investigator study (ECOHAB) of Florida's western coastal ocean begins.
- **1999** – USF establishes a Science Journalism Center consisting of a partnership between the Department of Marine Science and the College of Mass Communications.
- **2000** – College of Marine Science created (July 1) / Peter R. Betzer named Acting Dean (July 14).
- **2000** – Florida Legislature provides eight permanent positions for engineers involved in Microelectromechanical Systems (MEMS) research initiative within COT.
- **2001** – Peter R. Betzer named permanent Dean
- **2002** – Marine Science Receives a three-year GK-12 Fellowship Award from NSF to foster the interaction between ocean scientists and public schools through fellowships to support Marine Science graduate students working and teaching in the schools (8 students in year 1).
- **2002** – Marine Science receives a COSEE (Center for Ocean Science Education Excellence) grant from NSF.
- **2003** – Faculty reaches 30, including two African-Americans
- **2003** – College becomes a member of CORE (Consortium for Oceanographic Research and Eduation) and JOI (Joint Oceanographic Institutions)

<u>Program of the College of Marine Science</u>

Students entering the graduate programs of the College normally are required to have a bachelor's degree in a traditional science. In addition, it is recommended for them to have studied electives in the other sciences that provide background for our core courses (below) and for the sub-disciplines of oceanography. Applicants are selected on the basis of grade averages, GRE scores, recommendations from undergraduate professors, and the numbers of openings for new students in the research programs of the College faculty.

All degree-seeking marine science students (both M.S. and Ph.D.) are required to complete a core-course curriculum in physical, chemical, biological, and geological oceanography with a grade of B or better.

Beyond the core courses, the academic program for each Ph.D. student is individually structured by his/her Ph.D. committee based primarily on the student's background and research interests. Normally a Ph.D. committee consists of the student's major professor, three other College faculty, and a professional oceanographer or scientist from outside the College. The outside member may come from institutions outside the University. Students generally expect to participate in ocean research cruises during the course of their enrollment, and many have utilized long-range deep-sea expeditions as the principal source of their dissertation data.

The marine science doctoral (Ph.D.) program requires a total of 90 semester hours (including core courses) beyond the baccalaureate degree. Doctoral candidates must successfully pass a written and oral comprehensive examination and defend a written dissertation on original research that is expected to constitute a publishable contribution to science. The examinations and the dissertation defense are conducted by the student's Ph.D. committee. An M.S. degree is not required for participation in the Ph.D. program although students frequently obtain a M.S. before entering the Ph.D. program.

Professional Histories of Marine Science Ph.D. Graduates

Since the program began in 1982, 92 Ph.D. degrees have been awarded (Table 1): 40 (or 43%) in biological oceanography, 23 (or 25%) in geological oceanography, 17 (or 18%) in chemical oceanography, and 12 (or 13%) in physical oceanography. The number for geological oceanography may be slightly high because some of those students' research also had relevance to either geological or chemical oceanography. Likewise a Ph.D. in satellite oceanography, which was included with biological oceanography, is also linked to the other sub-disciplines.

Table 1 indicates many interesting facts about the professional pathways followed by USF's Marine Science Ph.D.'s. Overall, the information about them is quite complete. Of the 92 graduates, professional information was obtained on 87 (or 95%). One is deceased, and four are currently unreachable. Thirty-three (or 36%) have become faculty members or researchers at universities. The institutions where they work are quite diverse: Penn State, Cal Tech, University of Mississippi, Eckerd College, St. Petersburg College, Univ. of Calif. @ Irvine, University of Georgia, University of West Florida,

Skidaway Institute, Florida Gulfcoast University, East Carolina University, University of Maine, University of Maryland, Univ. of North Carolina (Wilmington), SUNY, etc. Four of these universities are in foreign countries (3 in Korea and 1 in Brazil). Eleven of the more recent graduates have post-doctoral positions (5 at USF, and 6 external). Seven graduates are research associates (6 at USF, 1 external). Three work at private research institutions. Twenty (or 22%) work in research-oriented agencies such as NOAA, EPA, USGS, and FMRI (state marine environmental agency); 15 of the 20 work in Federal agencies, and 5 in state agencies (in Florida and elsewhere). Eleven graduates work in private businesses, most of which are oriented toward environmental research. Two have gone on to become licensed in and practice other professions. Forty (or 43%) reside in Florida; thus the majority moved out of state to achieve their professional goals. In summary, it is clear that the vast majority of Marine Science Ph.D. graduates are indeed professionally applying their education. They continue to make original contributions to knowledge as well as transmit their knowledge to students and colleagues. A respectable fraction of them appear to be involved with practical applications of ocean science as well.

Marine Science Master's Degree Students

As an important ancillary point, a major part of the educational activity of the College of Marine Science continues to be the training of MS students. We have graduated approximately 250 MS students, many of whom have gone onto outstanding careers in the private sector, government, and academia. Some of our former MS students have founded highly successful and high profile high-tech businesses. Others have gone elsewhere to continue their academic studies at the PhD level and now reside as tenure-track faculty at outstanding universities. Additionally, as might be expected, some of our best MS students have expanded their MS research into PhD-level dissertations here in our own College. The presence of outstanding MS students provides a healthy atmosphere of competition as well as highly capable assistance to our PhD students, who benefit enormously from having outstanding MS students surrounding them.

TABLE 1: Ph.D. Graduates of the USF College (Department) of Marine Science (Total = 92 as of September 1, 2003)

green highlight = no data available

red=foreign college/university

Major Professor (s)	Year/Sem	Last Name	First Name	#	Current Affiliation	Position/Program	E-mail	Phone	Coll Univ	Fed Agen	State Agen	Busin	Res Instit	PstDc USF	PstDc Ext	ResAss USF	ResAss Ext	Lic. Prof	Florid Resid
Blake	198408	Barber	Bruce	1.0	University of Maine, Orono, ME	Faculty, Marine Biology	bjbarber@maine.edu	(207) 581-2783	1										
	198408	Cuba	Thomas	1.0	Delta-Seven Inc., St. Petersburg, FL	President	tom.cuba@delta-seven.com	(727) 823-2443					1						1
	199001	Erdman	Robert	1.0	Elmira College, Elmira, NY	Faculty, Biology	rerdman@elmira.edu	(607) 735-1826	1										
	199608	Arnold	William	1.0	Florida Marine Research Institute, St. Pete, FL	Fisheries Scientist	bill.arnold@fwc.state.fl.us	(727) 896-8626			1								1
	199701	Moyer	Michael	1.0	Concordia University, Austin, TX	Dean, Arts & Sciences	moyerm@concordia.edu	(512) 486-1240	1										
	199801	Lu	Yan-Tian	1.0															
Briggs	198701	Mangini	Maurizio	1.0	Maurizio Mangini Law Offices, Oceanside, CA	Lawyer		(760) 722-7567										1	
	198705	Parsons	Glenn	1.0	University of Mississippi, Oxford, MS	Faculty, Biology	bygrp@olemiss.edu	(662) 915-7479	1										
	198708	Azzarello	Marie	1.0	For the Love of Chablis Cat Hospital, Largo, FL	Veterinarian		(727) 392-0774										1	1
	199301	Brightman	Ross	1.0	St. Petersburg College, St. Petersburg, FL	Faculty, Natural Sciences	brightmanr@spjc.edu	(727)341-4690	1										1
	199401	Tolley	S. Gregory	1.0	Florida Gulfcoast University, Ft. Myers, FL	Faculty, Marine Science	gtolley@fgcu.edu	(239) 590-7206	1										1
	199605	Peebles	Ernst	1.0	USF College of Marine Science, St. Pete, FL	Research Associate	epeebles@marine.usf.edu	(727) 553-3983								1			1
Byrne	198801	Acker	James	1.0	NASA Goddard Space Flight Center, Greenbelt, MD	Senior Scientist	acker@daac.gsfc.nasa.gov			1									
	199201	Robert-Baldo	Gillian	1.0	U.S. Food And Drug Administration, College Park, MD	Senior Scientist	Gillian.Robert.Baldo@cfsan.fda.gov	(301) 436-1450		1									
	199201	Kim	Ki-Hyun	1.0	Sejong University, Seoul, Korea	Faculty, Earth & Env. Sci.	khkim@sejong.ac.kr		1										
Byrne/Fanning	199201	Breland	Jabe	0.5	St. Petersburg College, St. Petersburg, FL	Faculty, Natural Sciences	brelandj@spcollege.edu	(727) 341-4374	0.5										0.5
	199308	Lee	Jonghyeon	1.0	Korea Institute of Science & Technol.,				1										
	199708	Liu	Xuewu	1.0	USF Marine Science, St. Petersburg, FL	Research Associate	liu@marine.usf.edu	(727) 553-3922								1			1
	200008	Bernstein	Renate	1.0	USF Marine Science, St. Petersburg, FL	Research Associate	renate@marine.usf.edu	(727) 553-1280								1			1
Carder	199408	Lee	Zhongping	1.0	Naval Research Lab, Stennis Space Center, Mississippi	Post-Doctoral Res.	zplee@nrlssc.navy.mil			1									
	199705	Hou	Weilin	1.0	USF Marine Science, St. Petersburg, FL	Research Associate	whou@marine.usf.edu	(727) 553-3952								1			1
	200201	Cattrall	Christopher	1.0	University of Arizona, Tucson, AZ	Post-Doctoral Res.	chris.cattrall@opt-sci.arizona.edu	(520) 621-4242							1				
Coble	199801	DelCastillo	Carlos	1.0	NASA Stennis Space Center, Mississippi	Oceanographer	carlos.delcastillo@ssc.nasa.gov	(228) 688-2746		1									
	200005	Boehme	Jennifer	1.0	University of Maine, Walpole, ME	Post-Doctoral Res.	jboehme@maine.edu	(207) 563-3146							1				
Compton	199501	Mallinson	David	1.0	East Carolina University, Greenville, NC		malinsond@mail.ecu.edu	(252) 328-1344	1										
Doyle	198601	Brooks	Gregg	1.0	Eckerd College, St. Petersburg, FL	Faculty, Marine Science	brooksgr@eckerd.edu	(727) 864-8992	1										1
	199608	Lee	Eun-Il	1.0	Chungnam National University, Taejon, Korea	Faculty, Oceanography	elee@cnu.ac.kr	011-82-42-8217577	1										
Fanning/Vargo	199101	Durako	Michael	0.5	UNC Wilmington, Wilmington, NC	Faculty, Biological Sciences	durakom@uncwil.edu	(910) 962-2373	0.5										
Fanning/Byrne	199201	Breland	Jabe	0.5	St. Petersburg College, St. Petersburg, FL	Faculty, Natural Sciences	brelandj@spcollege.edu	(727) 341-4374	0.5										0.5
Garrels	198605	Kump	Lee	1.0	Penn State University, State College, PA		lkump@psu.edu	(814) 865 6711	1										
	198805	Woods	Terri	1.0	East Carolina University, Greenville, NC		woodst@ecu.edu	(252) 328-6014	1										
Hallock-Muller	199605	Peebles	Mark	1.0	St. Petersburg College, Palm Harbor, FL	Faculty, Natural Science	peeblesm@spjc.edu	(727) 712-5722	1										1
	200101	Dix	Thomas	1.0	Florida Marine Research Institute, St. Pete, FL	Senior Scientist	kdix@tampabay.rr.com	(727) 896-8626			1								1
	200105	Dotherow-McFi	Melanie	1.0	World Wildlife Fund, Belize	Reef Scientist	mcfield@wwfca.org	(501) 223-7680					1						1
	200201	Williams	Dana E.	1.0	University of Miami / NOAA, Miami, Florida	Post-Doctoral Res.									1				1
	200201	Talge	Helen	1.0	Deceased														
	200208	Toler	Strawn	1.0	USF Center for Ocean Technology, St. Pete. FL	Post-Doctoral Res.	stoler@marine.usf.edu	(727) 553-3913								1			1
Hine	198905	Evans	Mark	1.0	Center for Disease Control, Atlanta, GA	Senior Geologist	mxe7@cdc.gov	(404) 498-0363		1									
	199105	Gibeaut	James	1.0	University of Texas, Austin, TX	Reseach Associate, Geosci.	jim.gibeaut@beg.utexas.edu	(512) 471-0344									1		
	199308	Koch	EvaMaria	1.0	University of Maryland, Horn Point, MD	Faculty, Environmental Sci.	koch@hpl.umces.edu	(410) 221-8418	1										
	199401	Leonard	Lynn	1.0	University of North Carolina, Wilmington, NC	Faculty, Earth Sciences	lynnl@uncwil.edu	(910) 962-2338	1										
	199405	Snyder	Stephen	1.0	Snyder Consulting Services, Cary, NC	Consultant		(919) 469-9411				1							
	199508	Wright	Eric	1.0	Coastal Carolina University, Conway, SC	Faculty, Marine Science	ewright@coastal.edu	(843) 349-2477	1										
	199601	Toscano	Marguerite	1.0	NOAA Satellite Data Center, Silver Springs, MD	Senior Scientist	Marguerite.Toscano@noaa.gov	(301)713-9386		1									
	199705	Duncan	David	1.0	Eckerd College, St. Petersburg, FL	Lecturer, Marine Science	dsduncan@tampabay.rr.com		1										1
Hine/Naar	200101	Hafen	Mark	0.5	University of South Florida, Tampa, FL	Lecturer, Environ. Sci.&Pol.	mhafen@chuma1.cas.usf.edu	(813) 974-1508	0.5										0.5
	200301	Jarrett	Bret	1.0	USF Marine Science, St. Petersburg, FL	Post-Doctoral Res.	bjarrett@marine.usf.edu	(727) 553-1183						1					1
Hopkins	199001	Gartner	John V.	1.0	St. Petersburg College, St. Petersburg, FL	Faculty, Natural Sciences	gartnerj@spcollege.edu	(727) 341-4396	1										1
	199305	Conley	Walter	1.0	SUNY Pottsdam, Pottsdam, NY	Faculty, Biology	conleywj@potsdam.edu	(315) 267-3764	1										
	200108	Sutton	Tracey	1.0	Harbor Branch Oceanogr. Inst., Ft. Pierce, FL	Research Scientist	tsutton@hboi.edu	(772) 465-2400					1						1

Table 1 (continued)

green highlight = no data available

red=foreign college/university

Major Professor (s)	Year/Sem	Last Name	First Name	#	Current Affiliation	Position/Program	E-mail	Phone	Coll Univ	Fed Agen	State Agen	Busin	Res Instit	PstDc USF	PstDc Ext	ResAss USF	ResAss Ext	Lic. Prof	Florid Resid
Luther	199708	Ji	Zaihua	1.0	TSC Inc., Palm Harbor, FL	Database Manager		727-785-0583				1							1
	200101	Burwell	David	1.0	NOAA Pacific Tsunami Warning Center, Ewa Beach, HI	Senior Scientist	david.burwell@noaa.gov	(808) 689-6175		1									
	200105	Schmidt	Nancy	1.0	University of Arizona, Tucson, AZ	Post-Doctoral Res.	nschmidt@email.arizona.edu	(520) 622-8974							1				
Mitchum	200301	Holland	Christina	1.0	USF Marine Science, St. Petersburg, FL	Post-Doctoral Res.	cholland@marine.usf.edu	(727) 553-3982						1					1
Muller-Karger	199608	Gilbes	Fernando	1.0	University of Puerto Rico, Mayaguez, PR	Faculty, Geology	gilbes@cacique.uprm.edu	(787) 832-4040	1										
Naar	199608	Liu	Zhengrong	1.0	TCPA-Sony Corp., Silicon Valley, CA	Systems Programmer	zjl@cs.stanford.edu					1							
Naar/Hine	200101	Hafen	Mark	0.5	University of South Florida, Tampa, FL	Lecturer, Environ. Sci.&Pol.	mhafen@chuma1.cas.usf.edu	(813) 974-1508	0.5										0.5
Paul	198708	DeFlaun	Mary	1.0	GeoSyntec Consultants, Princeton, NJ	Microbiologist	mdeflaun@geosyntec.com	(609) 937-6796				1							
	198901	Jeffrey	Wade	1.0	University of West Florida, Pensacola, FL	Faculty, Biology	wjeffrey@uwf.edu	(850) 474-3362	1										1
	199401	Frischer	Mark	1.0	Skidaway Inst. Oceanography, Savannah, GA	Faculty, Biology	frischer@skio.peachnet.edu	(912) 598-2308	1										
	199505	Rast	Jonathan	1.0	California Inst. Technology, Pasadena, CA	Senior Researcher, Biology	jrast@caltech.edu	(626) 395-4940	1										
	199608	Jiang	Chenyang	1.0	Univesity of California at Irvine, Irvine, CA	Faculty, Ecology & Toxicolc	sjiang@uci.edu	(949) 824-5527	1										
	199805	Kellogg	Christina	1.0	U.S. Geological Survey, St. Petersburg, FL	Microbiologist	ckellogg@usgs.gov	(727) 803-8747		1									1
Rose	199905	Griffin	Dale	1.0	U.S. Geological Survey, St. Petersburg, FL	Microbiologist	dgriffin@usgs.gov	(727) 803-8747		1									1
	199905	Lipp	Erin	1.0	University of Georgia, Athens, GA	Faculty, Environ. Health Sc	elipp@uga.edu	(706) 583-8138	1										
	200101	Slifko	Theresa	1.0	Orange County Utilities, Orlando, FL	Senior Scientist	terri.slifko@ocfl.net	(407) 836-6950			1								1
	200108	Callahan	Michael R.	1.0	USF Marine Science, St. Petersburg, FL	Post-Doctoral Res.	callahan@marine.usf.edu	(727) 553-3929						1					1
	200301	Quintero-Betac	Walter	1.0	Texas A&M Univ., El Paso, TX	Post-Doctoral Res.	wquintero@ag.tamu.edu	(915) 859-9111							1				
	200305	Shehane	Stephane	1.0	Univesrsity of South Florida, Tampa, FL	Post-Doctoral Res.	sshehane@cas.usf.edu	(813)974-3250						1					1
Sackett	198508	Burke	Roger	1.0	Environmental Protection Agency, Athens, GA	Senior Scientist	burke.roger@epa.gov	(706) 355-8134		1									
	198901	Conkright	Margarita	1.0	NOAA National Ocean Data Ctr, Silver Spring, MD	Senior Scientist	mconkright@nodc.noaa.gov	(301)713-3290		1									
	199208	**Barber**	**Timothy**	1.0															
	199305	Louda	J. William	1.0	Florida Atlantic University, Boca Raton, FL	Faculty, Chemistry	blouda@fau.edu	(561) 297-3309	1										1
	199505	Netratanawong	Toedsit	1.0	16/3 Mu 10, Soi Watkampang, Pibulsongkram Rd. Nonthaburi 11000, Thailand		bayboro85@yahoo.com												
Tebbens	200108	Burroughs	Stephen M.	1.0	University of Tampa, Tampa, FL	Faculty, Physics	sburroughs@ut.edu	(813) 253-3362	1										1
Torres	199708	Bishop-Pierce	Renee	1.0	Penn. State Univ., Worthington-Scranton, PA	Faculty, Biology	reb20@psu.edu	(570) 963-2585	1										
	199805	Kawall	Helena	1.0	Uniandrade, Rio Joao Negro, Brazil	Director, Biological Studies	hkawall@osite.com.br	011 55 41 361-1689	1										
	199808	Foley	Allen M.	1.0	Florida Marine Research Institute, St. Pete., FL	Biological Scientist	allen.foley@fwc.state.fl.us	(727) 896-8626			1								1
	199901	Geiger	Stephen	1.0	Florida Marine Research Institute, St. Pete., FL	Biological Scientist	steve.geiger@fwc.state.fl.us	(727) 896-8626			1								1
Van Vleet	200005	Wetzel	Dana	1.0	Mote Marine Laboratory, Sarasota, FL	Aquatic Toxicologist	dana@mote.org	(941) 388-4441					1						1
	200101	Sutton	Pamela L.	1.0	US Geological Survey, St. Petersburg, FL	Chemical Oceanographer	psutton@usgs.gov	(727) 803-8747		1									1
	200208	Ames	Audra	1.0	Marine Desalination Systems, St. Pete, FL	Senior Scientist	aames@mdswater.com	(727) 821-3993				1							1
Vargo/Fanning	199101	Durako	Michael	0.5	UNC Wilmington, Wilmington, NC	Faculty, Biological Sciences	durakom@uncwil.edu	(910) 962-2373	0.5										
Walsh	199001	Shuert	Paul	1.0	Shuert Industries, Sterling Heights, MI	Vice President	www.shuert.com	(586) 254-4590				1							
	199101	Gregg	Watson	1.0	NASA Goddard Space Flight Center, Greenbelt, MD	Senior Scientist	watson.gregg@nasa.gov	(301) 614-5517		1									
	199301	Meyers	Mark	1.0	Quantitative Environmental Analysis, Montvale, NJ	Senior Scientist	www.qeallc.com	(201) 930-9890				1							
	199408	Pribble	John Ray.	1.0	Janicki Environmental, Inc., St. Petersburg, FL	Consultant	JanickiEnv@aol.com	(727)895-5289				1							1
	199701	Bissett	Paul	1.0	Florida Environmental Research Inst, Tampa, FL	Senior Consultant	pbissett@flenvironmental.org	(813) 837-3374				1							1
	200101	Penta	Bradley	1.0	Naval Research Lab, Stennis Space Center, MS	Oceanographer	penta@nrlssc.navy.mil	(228) 688-4736		1									
Weisberg	199505	Wang	Chunzai	1.0	AOML-NOAA Lab, Miami, FL	Research Scientist	wang@aoml.noaa.gov			1									1
	199601	**Qiao**	**Lin**	1.0															
	199801	Li	Zhenjiang	1.0	Emperical Research Partners, NY, NY	Market Risk Analyst	li@hotmail.com					1							
	200205	He	Ruoying	1.0	USF Marine Science / Woods Hole Ocean Inst.	Post-Doctoral Res.	ruoying@marine.usf.edu	(727) 553-1627							1				
	200301	Helber	Robert	1.0	USF Marine Science, St. Petersburg, FL	Post-Doctoral Res.	rhelber@marine.usf.edu	(727) 553-1627						1					1
Wilson (Paul)	200108	Donaldson	Kimberly	1.0	Univ. of South Florida, Biology, St. Petersburg, FL	Research Associate, Biolog	Kim_Donaldson@marine.usf.edu	(813) 974-5175									1		1
			Total	92				Totals	33	15	5	11	3	5	6	6	1	2	40

Students

Characteristics of Ph.D. Applicants to the College of Marine Science – last three years

Ph.D. applicants to the College come from a considerably varied set of undergraduate institutions. In the last three academic years, there have been 15 successful applicants for our Ph.D. from the US, and they have come from the University of the Virgin Islands, the University of Miami, Northern Arizona University, the University of North Carolina, the University of South Florida, Albion College, the University of Dayton, Linfield College, Boston University, North Carolina State University, Texas A&M University, and the University of West Florida. During the same time period there have been 10 successful foreign applicants for our Ph.D., and they have come from universities in China, Venezuela, Guatemala, Russia, Thailand, and Argentina. A total of 98 individuals unsuccessfully applied to our Ph.D. program in the last three academic years, making a three-year average success rate of 20.3% for Ph.D. applicants.

A summary of the Grade Point Averages and Graduate Record Examination (GRE) scores in Verbal, Quantitative, and Total categories indicates no strong upward or downward trends in the last three academic years (Table 2). Averages of the GPA were generally in the "B+" to "A-" range (A= 4.0), with neither the Accepted group nor the Denied group demonstrating consistently higher averages than the other. Standard deviations on these averages were not calculated because we frequently have difficulty "translating" the grades of foreign applicants to our system, thereby reducing the sample population. There was a suggestion of an slight upward trend in the average Quantitative GRE scores of the Accepted group from the 2000-1 to the 2002-3 academic year; however the relatively high standard deviations calculated for those averages imply that they are not statistically different from year to year. Likewise the "apparent" indication that Average Verbal, Average Quantitative, and Total Average GRE scores for the Accepted groups were consistently lower than GRE scores for the corresponding Denied groups is probably not-to-be-believed because of the relatively high standard deviations of the various average GRE scores

Table 2. Data on Marine Science Ph.D. applicants in the last three academic years

Academic	GPA		Average Verbal		Average Quantitative		Average Total		Total #'s	
Year	Accepted	Denied	Accepted	Denied	Accepted	Denied	Accepted	Denied	Accepted	Denied
2000-2001	3.79	3.58	463	550	658	699	1120	1249	8	29
St.Dev			90	85	91	91	135	138		
2001-2002	3.59	3.53	548	575	659	715	1206	1290	8	33
St.Dev			133	94	118	84	177	149		
2002-2003	3.42	3.58	511	535	685	717	1196	1248	9	37
St.Dev			96	110	100	91	110	163		

Student Outcomes and Achievements While Enrolled

As part of the University-wide self-study required for SACS (Southern Association of Colleges and Schools) re-accreditation, a program of assessment of student outcomes was instigated by the College. Assessment criteria and the application of the outcomes' assessment protocol for our Ph.D. students in 2001-2 is shown as an example (Table 3). This is an ongoing program for a three-year period.

Table 3. College of Marine Science Institutional Effectiveness for PhD Students in academic year 2001-2002.

Expanded Statement of Institutional Purpose	Objectives	Outcome Assessment Criteria & Procedures	Assessment Results	Use of Results for Program Improvement
To assure that graduates in the PhD program in the College of Marine Science are adequately equipped to work in the field	1. Students in the PhD program will have knowledge of the 4 core courses that will enable them to be successful in the field	As determined by yearly survey, 95 % of PhD students met this goal	In the academic year 2001-2002, 100% of the PhD students met this goal	Standard met. Continue monitoring.
	2. Pass oral and written comprehensive exams on first attempt	As determined by yearly survey, 75% of PhD students will meet this goal	In the academic year 2001-2002, 100% of the PhD students met this goal	Standard met. Continue monitoring.
	3. Complete dissertation and defense within 12 academic semesters	As determined by yearly survey, 25 % of PhD students will meet this goal	In the academic year 2001-2002, 44% of PhD students met this goal	Standard met. Continue monitoring.
	4. Present a paper or poster at a national or international meeting and/or submit at least two refereed papers for publication prior to graduation	As determined by yearly survey, 50% of PhD students will meet this goal	In the academic year 2001-2002, 89% of PhD students met this goal	Standard met. Continue monitoring.

Student research productivity may be assessed by considering peer-reviewed publications authored or co-authored by students. Faculty CV's are a required part of the faculty's annual evaluation packets each year. Mini-CV's derived from these packets show publications that were in print or in press during the past five years and are provided in Appendix 1. The principal student authors or co-authors who participated in producing those publications are indicated as follows: Ph.D. students still in residence (boldface), MS students still in residence (underline), and students graduated from the program (italics). Nearly 50 refereed publications in the past five years have had Marine Science

Ph.D. students as authors or co-authors. The Mini-CV's also indicate student participation in presentations at scientific meetings, technical reports, etc.

A broader indicator of Ph.D. student productivity is graduation rate since each Ph.D. thesis is supposed to represent the highest level of original research produced by the student during his/her career in the College. Fig. 2 shows the record of Ph.D. graduations in the College of Marine since the inception of its Ph.D. program in 1982. After a two-year lag period, the number per academic year increased more-or-less steadily from 2 to 7-to-9 in the 1996-7 period. Then, after dropping back to ≤4 per year for four years, the graduation rate achieved its maximum value of 11 in 2001. Additional details on the last five academic years are provided by Fig. 3, which shows the total population of Ph.D. students in the College along with the graduations per academic year. It suggests that the number of graduations per academic year has improved considerably in relation to the total number of Ph.D. students, which has remained fairly uniform. Interestingly, the number of Ph.D. students in the last five academic years (53-57) has remained a more-or-less steady proportion of the total graduate student population in the College (110-130).

A survey of Marine Science Ph.D. graduates since 2000 indicates that the average Time-to-Degree was 6.7 years with a standard deviation of 2.2 years.

Student Support

The College attempts, with considerable difficulty, to maintain enough Education and General funds from the University to provide each first year Ph.D. student an annual stipend in a research or teaching assistantship of $18,000. This is a target we have not yet achieved (see below). By the time of the student's second year, he or she is expected to have joined the research program of one of our faculty who will, in most cases, provide the majority of the student's financial support for the rest of his/her career in the College. Our faculty are encouraged, but not required, to provide annual stipends of at least $18,000 for Ph.D. students. In addition, the student's tuition should be covered out of his/her major professor's research grants whenever possible. We do offer teaching assistantships to a few Ph.D. students after the second year. If a student completes an MS degree with the College, he or she is already part of a professor's research program, and that program will usually provide the necessary financial support. In addition, the College, as mentioned, has 13 endowed fellowships. Many of these are won by Ph.D. students in the annual competition which is held in the spring of each year. Graduate students in this competition complete applications that demonstrate their achievements, outline their career objectives, and include letters of support or evaluation by the faculty (usually) and from outside the College (occasionally). The values of these fellowships range from a few thousand dollars to over $18,000 (the Knight fellowships); thus they normally provide only partial support, although the Knight fellowships are designed to provide full support to Ph.D. students for their entire career in the College.

Fig. 2. USF Marine Science Ph.D.'s Graduated Each Academic Year Since the Program's Inception

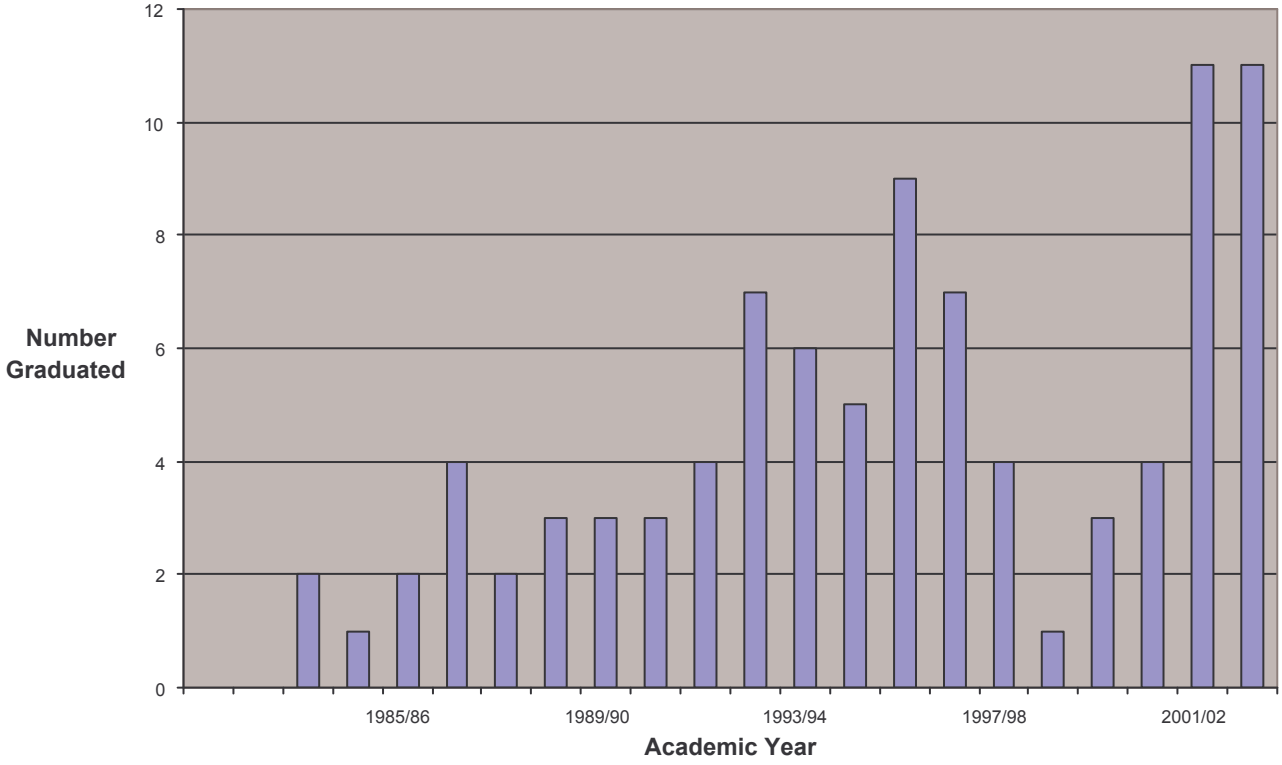
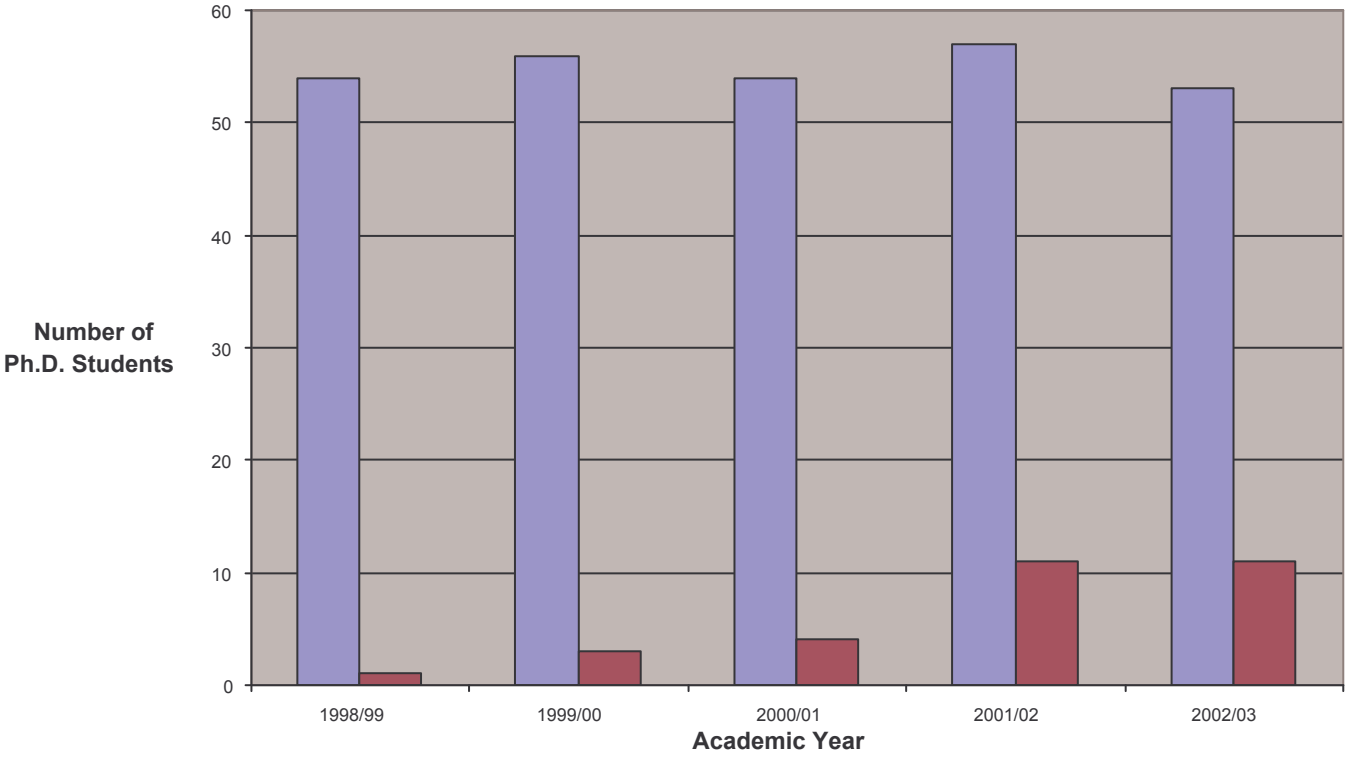


Fig. 3 Marine Science Ph.D. Enrollments (blue) and Graduations (red) in the last 5 years



Faculty

Research Productivity

The research contributions of the faculty of the College of Marine Science are partly presented in a composite form by Fig. 1 (above), which shows that annual research funding has increased five-fold since 1995-6 from slightly over $5 million per year in 1995-6 to $25 million per year in 2002-3. Details of the faculty research productivity over the last five years are indicated by the mini-CV's that are presented in Appendix 1 below. As mentioned, the vast majority of our research funding is Federal and comes from the leading agencies that fund ocean research in the US: NSF, NOAA, NASA, ONR, etc. Also as mentioned, the mini-CV's outline the more recent level of publication of research results by the faculty. Finally, most recent professional service by the faculty in such forms as editorships, participation in review boards and committees, etc. is also indicated in the mini-CV's.

Teaching

Table 4 shows the Marine Science courses offered during the 2002-2003 academic year.

Graduate instruction in oceanography, for both MS and PhD students in the College of Marine Science, esssentially follows the Scripps model (Knauss, J.A. 2003. *The Oceans* as Educational Philosophy. Oceanography, **16**, 29-31) in that all students are required to demonstrate their understanding of the fundamentals of marine science in four core courses. These courses cover the four main subdivisions of oceanography (physical, chemical, biological, and geological) and are offered once a year in two groups (fall and spring) – see the heading "Graduate Structured, Core Courses" in Table 4. Aside from the core-course requirement, there are no formal course requirements beyond those of the University of South Florida that all PhD students must meet. Faculty offer advanced courses as needed to support the education of their own students and/or to provide courses that many students need or are interested in taking. Thus, under the heading of "Graduate Structured, Advanced Courses," many courses are listed with the same prefix number, OCE 6934. This prefix number is a common one used for our advanced courses since the teaching of those courses varies from academic year to academic year. New ones are started; old ones are deleted; and others are not taught on a regular basis. Finally, all of our PhD students must sign up for credit for the research they do, as independent study, directed research, and as dissertation research. These research courses are offered as sections, supervised by all of our faculty. The research sections are shown in Table 4 under the heading of "Graduate Unstructured, Research Courses."

Our only undergraduate course, Introduction to Oceanography, is taught both on the St. Petersburg campus of USF, where the College is located, and on the Tampa campus of USF (vis Distance Learning).

Table 4: Courses Offered, College of Marine Science, University of South Florida, Academic Year 2002-3											
Fall Semester											
College	**Prefix #**	**Section**	**Ref #**	**Type**	**Professor**	**CAP**	**Hours**	**Title**	**Room No.**	**Days**	**Time**
					GRADUATE STRUCTURED, CORE COURSES						
MSC	OCB 6050	624	82064	C	Vargo	25	3	Biological Oceanography	DAV 240	T, R	1-2:30
MSC	OCP 6050	612	88203	C	Luther	30	3	Physical Oceanography	DAC 240	M,W	10-11:30
MSC					**GRADUATE STRUCTURED, ADVANCED COURSES**						
MSC	OCE 6934	602	88316	C	Blake	10	3	Reproduct Ecol of Mar Invertabrates	TBA	TBA	
MSC	OCE 6934	603	86130	C	Byrne	10	3	Seawater Physical Chem	DAV 239	T, R	10-11:30
MSC	OCE 6934	604	82069	C	Carder (L. Young)	20	3	Hydrological Optics	TBA		
MSC	OCE 6934	605	88440	C	Coble/Greely	20	3	Scientist in the Classroom	KRC 2116	M, W	1-2:30
MSC	OCE 6934	606	82070	C	Quinn,Hollan,Flow	20	3	Stable Isotopes	COQ 232A	M, W	1:30-3
MSC	OCE 6934	607	82071	C	Doyle	10	3	Geology of Florida	DAV 240	T, R	9-11
MSC	OCE 6934	609	86247	C	Galperin	10	3	Turbulence and Planet Bound Layers	COQ 233A	W	10:30-12
MSC	OCE 6934	610	87673	C	Hine		3	Principles of Sequence Stratigraphy	COQ 218	F	10-12
MSC	OCE 6934	613	86068	C	Mitchum	20	3	Ocean Waves I	COQ 232A	T, TH	10-11:50
MSC	OCE 6934	614	82072	C	Hallock Muller	10	1	Topics in Reef Research	KRC 2116	W	5-6
MSC	OCE 6934	617	82073	C	John Paul	20	1	Molecular Microbiology	KRC 2116	F	12-1:00
MSC	OCE 6934	618	87000	C	Rose	20	3	Water Pollution Microbiology	KRC 2116	M	6 - 9
MSC	OCE 6934	620	88932	C	Tebbens	12	3	Nonlinear Dynamics in Mar Science	KRC 3120	M,W	1-2:30
MSC	OCE 6934	624	82076	C	Vargo % Walsh	15	3	Global Ecology Concepts	TBA	F	9-12
MSC	OCE 6934	626	89008	C	Weisberg	20	3	Selected Readings in Physical Ocean	TBA	T,R	4-5:15
MSC	OCE 6934	628	CANCELLED	C	Daly	20	3	Phys-Biolog Interactions in Mar Syst	KRC 3120	F	10:11:30
MSC	OCE 6934	629	82078	C	Mann	10	3	Marine Sensory Ecology	KRC 3120	T, R	10-12
MSC	OCE 6934	629	86271	C	Mann	10	1	Marine Sensory Ecology Lab	******	T,R	9-9:50
MSC	OCE 6934	630	86083	C	Greco	8	3	Trans Electron Microscopy	COQ 218	T, R	9:30-11:00
MSC	OCE 6934	631	86085	C	Greco	8	1	Trans Electron Microscopy Lab	KRC 2125	T, R	9:30-11:00
					GRADUATE UNSTRUCTURED, RESEARCH COURSES						
MSC	OCE6908	601-629	85870-85915	Z	29 individual faculty sect.			Independent Study			
MSC	OCE6971	601-629	85916-85946	T	29 individual faculty sect.			Master's Thesis			
MSC	OCE6972	601-629	85951-85983	Z	29 individual faculty sect.			Directed Research - Masters Level			
MSC	OCE7910	601-629	85993-86023	Z	29 individual faculty sect.			Direct Research- PhD Level			
MSC	OCE7980	601-629	86024-86052	G	29 individual faculty sect.			Dissertation			
					UNDERGRADUATE						
MSC	OCE 2001	608(SP)	86060	C	Fanning/Blake	30	3	Introduction to Oceanography	POY 234	T, R	3:30-5:20
MSC	OCE 2001	002(TPA)	87675	C	Fanning/Blake	70		Introduction to Oceanography	HMS 324	T, R	3:30-5:20

							Table 4 (continued)					
Spring Semester												
College	**Prefix**	**No**	**Sec Type**	**Sec No**	**Ref #**	**Hrs**	**Title**	**Week Day**	**Time**	**Cap**	**Instructor**	**Room #**
							GRADUATE STRUCTURED CORE COURSES					
MSC	OCC	6050	C	623	17556	3	Chemical Oceanography	T/R	10-11:40	25	Van Vleet	POY 217
MSC	OCG	6051	C	616	14986	3	Geological Oceanography	T/R	1-2:45	30	Naar	DAV105
							GRADUATE STRUCTURED ADVANCED COURSES					
MSC	OCC	6111C	C	623	17558	3	App. Gas Chrom - Mass Spec.	TBA		6	Van Vleet	TBA
MSC	OCE	6934	C	601	18416	3	Continental Shelf Dynamics	T/R	10-11:30	15	Mitchum	TBA
MSC	OCE	6934	C	603	15361	3	Chemical Field Studies	T/R	3-4:30	6	Byrne	KRC 2116
MSC	OCE	6934	C	606	18529	2	Climat Variab: Clues fr the Past	F	12-2	10	Quinn	MSL 134
MSC	OCE	6934	C	607	14405	3	Geology of Florida	T/R	9:30-11	10	Doyle	COQ 218
MSC	OCE	6934	C	609	15195	3	Fluid Dynamics	M/W	10:30-12	15	Galperin	DAV 239
MSC	OCE	6934	C	612	17563	3	Numerical Ocean Modeling	TBA		10	Luther	TBA
MSC	OCE	6934	C	613	14408	3	Ocean Waves II	M/W	1-2:30	15	Mitchum	TBA
MSC	OCE	6934	C	615	14427	3	Ocean Policy	T/R	9-11	12	Muller-Karger	KRC 3120
MSC	OCE	6934	C	617	14417	1	Molecular Marine Microbiology	F	12-1	10	John Paul	COQ 232
MSC	OCE	6934	C	626	14415	1	Readings, Ocean Circulation	T/R	4-5:15	12	Weisberg	TBA
MSC	OCE	6934	C	628	15066	3	Zooplankton Ecology	TBA		10	Daly	KRC 2116
MSC	OCE	6934	C	629	17562	3	Ichthyology	M/W	10-11:30	8	Mann/Torres	KRC 3120
MSC	OCE	6934	C	632	18494	3	Scientist in the Classroom	M/W	1-3	10	Greely/Leard	KRC 3120
MSC	OCE	6934	C	633	28552	1	Practical IDL Programming	R	2-3	20	Hu, Chuanamin	KRC 3120
MSC	OCG	6051	C	606	18539	3	Paleoceanography	MW	9:30-11	15	Flower	MSL 143
MSC	OCG	6551C	C	629	14410	4	Scanning Electron Microscopy	T/R	10/11:20	10	Greco	FCT 110
MSC	OCG	6668	C	614	14428	3	Evolution & Ecology of Reefs	T	6-9	15	Hallock Muller	KRC 2116
							GRADUATE UNSTRUCTURED, RESEARCH COURSES					
MSC	OCE	6908	Z	601-629	14433-15903	1-19	Independent Study	TBA		10	29 Faculty Sect	
MSC	OCE	6971	T	601-629	14506-15919	1-19	Master's Thesis	TBA		10	29 Faculty Sect	
MSC	OCE	6972	Z	601-629	14576-15942	1-19	Directed Research Master's Level	TBA		10	29 Faculty Sect	
MSC	OCE	7910	Z	601-629	14646-15979	1-19	Directed Research PhD Level	TBA		10	29 Faculty Sect	
MSC	OCE	7980	Z	601-629	14698-15999	1-19	Dissertation	TBA		10	29 Faculty Sect	

Dean's Comments (Summary, Challenges, Opportunities, & Barriers)

Summary

The Ph.D. program in Marine Science at the University of South Florida was established in 1982 by the Board of Regents of the State of Florida. Our first degree was awarded in 1984 to a biological oceanographer, Bruce Barber, who has made a career in academia; most recently at the University of Maine where he built a major aquaculture facility (http://www.ume.maine.edu/~nfa/bbarber/welcome.htm). In the 21 years of operation, our college has awarded 92 Ph.D.s, an average of more than four per year.

We are particularly proud of two individuals who have distinguished themselves scientifically and become leaders in their respective disciplines. Dr. Lee Kump graduated in 1986 and was awarded a tenure track position at Pennsylvania State University. He has become a leading geochemist and a full professor in the Department of Geosciences (http://www.geosc.psu.edu/People/Faculty/FacultyPages/Kump/index.html). The second graduate who has rapidly elevated his scientific profile is Dr. Mark Frischer, a 1994 graduate who joined the Skidaway Institute of Oceanography as an assistant professor in 1995. Dr. Frischer so impressed the previous director of Skidaway, Dr. Herbert Windom, that he said to me "if you have any other students as talented as Frischer we will gladly take them at Skidaway". It is clear from Frischer's scientific record that he is most productive and an excellent advertisement for our program (http://www.skio.peachnet.edu/people/frischer/)

This is not to say that the other thirty-two graduates who are faculty members are not productive people because they are. For example, Gregory Tolley graduated in 1994, received a faculty appointment at Florida Gulf Coast University in 1997, and was promoted to associate professor in 1999 **after only two years**. In addition, he is an important part of a group that convinced a private donor to offer $5,000,000 as a match for state dollars that will support a new, 25,000 square-foot marine research facility called the Coastal Watershed Institute. This institute will be associated with the state research facility in Rookery Bay, Florida in much the same way as our College is associated with The Florida Marine Research Institute, a branch of FWC, a state agency . It is also important to note that several recent graduates have been awarded tenure track positions at universities where there were extensive (>100) candidate pools. Specifically, Drs. Suny Jiang (PhD, 1996) (http://www.seweb.uci.edu/faculty/jiang/) and Erin Lipp (PhD, 2001) (http://www.uga.edu/ehs/people/lipp.html) were appointed, respectively, as assistant professors at the University of California Irvine (1998) and the University of Georgia (2002). Suffice it to say that a significant fraction of our graduates (35%) are successful in being appointed as faculty members in a university or college.

CHALLENGES

A serious challenge facing our program is something that plagues Florida's educational system at all levels - adequate state funding. Our college has not had an increase in funding for our graduate students since 1996 and the largest single addition to the current $260,000 budget for graduate students, $150,000, came in 1988 when our group received a special legislative allocation related to winning the national competition for a new U. S.

Geological Survey Laboratory. In fact, for each of the past three years our group, indeed our university, has had its state budget reduced by the legislature. While our researchers have been successful at attracting federal resources, the first year a graduate student is in our program she/he is focused on completing course work and is not able to direct much effort to research. **Thus during this important period the College should be provided adequate state resources to both attract and subsequently support its entering students.**

To put this in perspective, our graduate program coordinator, Edward S. Van Vleet, estimates that graduate stipends and tuition required for our entering students total about $680,000. With a total budget of $260,000 we need an additional $420,000 to cover our new students. Our research has indicated that institutions like Scripps offer assistantships >$20,000 per year to incoming students that they really want. There is no question that, without an injection of additional funds, we increasingly lose our top candidates because we cannot offer competitive stipends. In short, our group is in dire need.

Any emerging program in marine science/oceanography that is working to attract outstanding undergraduate scientists is challenged because the established names in the field – e.g., Oregon State University, the University of Rhode Island, the University of Delaware, Texas A & M University, Woods Hole Oceanographic Institution, Scripps Institution of Oceanography, the University of Washington, and the University of Miami These institutions have a much more extensive history as well as more significant profiles. A primary factor in student decisions about graduate schools is student fellowships. With a grand total of only $220,000 in state funding that can be dedicated to first year students, the college's ability to compete for the most talented undergraduate students is limited indeed. Despite having endowed student fellowships that are awarded each year, we are still woefully short of having the resources necessary to attract the best graduate students. At our last Fellowship Award Ceremony in August, 15 students received a total of $151,000, or an average of roughly $10,000 per year each (two of our 13 fellowships are given to two students per year). Eleven of the awards were for our older fellowships (e.g., the Knight Fellowship) and averaged $13,000, and thus the average support from our four newer fellowships was only $2,000 per year. Almost none of these amounts is adequate to support a graduate student for an entire year, and thus all of our awardees, with the possible exception of the Knight Fellows, must receive supplemental income. If we are to compete for top-notch students with the most established ocean-science institutions, our group must have a significantly greater investment in graduate student support. With the University of South Florida actively pushing to increase its research profile, this investment would almost certainly yield immediate results.

A second and equally serious challenge for our Ph.D. program concerns the shortage of faculty in Physical Oceanography. Our Physical faculty has only five members and is the smallest of all the subdisciplines (seven chemical oceanographers, nine geological oceanographers, and 10 biological oceanographers). With only five, we cannot offer an adequate physical curriculum, and there are some important multi-year federal funding initiatives for which we cannot compete. Coupled ocean-atmosphere modeling and sea-

going ocean experimentation are excellent examples of specialties that we are unable to provide. Our physical oceanography program is focused more on the coastal ocean, but, since the vast majority of the ocean is open-sea, or "blue-water," and the scales and nature of physical processes differ in open-sea regimes from those in coastal waters, huge multiyear, multidisciplinary, and multi-investigator research projects (such as CLIVAR, http://www.clivar.org/) are unavailable to us because of the shortage of appropriate faculty. Moreover, if Ph.D. students want to pursue open-ocean research in physical oceanography, we cannot easily accommodate them**. In fact, the College cannot be truly competitive in global physical oceanography without faculty who have expertise in and a focus on specialties such as the two listed above.** The long-term strategic plan that was developed by the College of Marine Science and approved by the University called for 10 faculty in each of the four major disciplinary realms. For the past three years, we have submitted a recruiting plan to the administration that included faculty positions for two new physical oceanographers. Since no new physical oceanographer positions were made available, we have been unable to address this major shortcoming in our Ph.D. program and the College's grant portfolio.

OPPORTUNITIES

The College of Marine Science has, for many years, captured the interest and support of St. Petersburg's business community as well as a significant number of private donors. Indeed, the College's 13 endowed fellowships, with an aggregate worth of about $5 million, have all been raised by the chair, and now dean, of the department, and now College. One of these, the Getting Fellowship, was created in 1994 with more than 350 donors participating. **Such a substantial effort is noteworthy because it was accomplished without the assistance of a fund raising officer from USF's Foundation.** In fact, our college has never had a fund raising officer. Although I cannot be certain, my guess is that we are the only college at the University of South Florida that does not have a fund raising officer from the USF Foundation working in our behalf. This is not meant to be critical but to point out the obvious benefit that could be derived if our program had a full time person who was assigned to assist our group with cultivating both private and corporate donors. Given the sharp downturn in our recent legislative allocations this seems like an obvious way to continue building our graduate program. *The appointment of a fund-raising officer for Marine Science would, in view of our remarkable success without one, lead to a sharp increase in the amount of fellowships available to attract the best students.*

In 1988 the University of South Florida became the home for a new United States Geological Survey Laboratory. The key to this designation was the active participation of our state legislature, the chancellor of Florida's State University System, our business community, the mayor and city council of St. Petersburg, private donors and the new President of USF, Francis Borkowski. In fact, the unanimous vote of the USGS's ten member scientific review team that the laboratory be established at USF rather than at Columbia, or the University of Rhode Island or within the "triumvirate" of North Carolina Institutions (Duke, North Carolina, North Carolina State) would never have happened without such extensive and significant outside support. This included the donation of a two-story building and associated property by the City of St. Petersburg.

Our Federal USGS colleagues – 2 scientists and 4 staff – started in temporary quarters and then moved to newly renovated space, 24,000 square feet, on the University of South Florida's St. Petersburg Campus. The group has expanded and now consists of over 100 people and occupies two research facilities; the second of which was built with funding from the state of Florida. In fact, this is now the largest USGS facility in the state and is poised to begin construction of their third research facility. More important than the greatly expanded physical facilities are the important contributions this group makes to our university, to our city, and to our graduate program in Marine Science. Through a cooperative agreement between USF and the USGS, support is provided for: 1) three graduate students each year; 2) a joint seminar series; 3) maintenance contracts for critical pieces of analytical instrumentation (SEM/TEM, x-ray diffraction system, and our satellite remote sensing system); and library books. Moreover, a series of research grants awarded annually to our faculty provide an opportunity for joint research efforts with USGS scientists. The USGS also regularly provides space for our students who are involved in joint research projects and the agency is currently creating a conference center that will allow us to host meetings on a regular basis without having to absorb the costs associated with renting public facilities.

A fundamental point is that the USGS Coastal Research Division is a critical part of a greatly expanded marine science complex that has the ability to attract other state/federal agencies. One such case is the National Marine Fisheries Service, a 90-member group that is interested in relocating from office space in northeast St. Petersburg to USF's campus in St. Petersburg. This federal contingent would also contribute to our graduate program and to the undergraduate environmental science program as well as helping USF attract regional and national meetings. Further, by adding another federal agency (NOAA) the marine science complex in St. Petersburg will be in a better position to attract other federal groups - EPA, DOE, ONR and the U.S. Coast Guard – that are involved in marine research. Our university needs to be more active in this important arena where partnerships can enhance university programs and accelerate progress. *We intend to be a nationally recognized leader in Federal-university scientific partnerships!*

Essential to any first-rate PhD program in the marine sciences is a first-rate computing infrastructure accessible to all PhD students. Within the College of Marine Science, selected individual faculty research programs have embedded within themselves excellent computer hardware, software, and the technical expertise to generate the data products required for the dissertations and publications unique to that laboratory. However, these capabilities do not exist College-wide. We need to make them available to all graduate students not just to those fortunate enough to reside in computer-intensive programs. To properly prepare graduate students, particularly PhD students, to participate at a high professional level, the College of Marine Science must insure that its students are at the cutting edge of electronic data acquisition, processing, and product generation. We are not meeting this standard and require additional resources to insure that we graduate the best trained minds and best prepared scientists to meet the challenges in the marine sciences in the coming years.

We need to offer College-wide, computer-based training in generic topics such as graphics, statistics, image analysis, management of large data sets, web-site design, etc. *All PhD students, regardless of background become more formidable researchers armed with such generic computer expertise. We would like to add such training to our curriculum, but do not have the resources to do so.*

Finally, essential to successful PhD programs is a highly effective web site, not only to promote the program and attract the best PhD talent available nationally, but also to become a platform to present and share new discoveries made by graduate students. *We readily admit that our web site is inadequate and require the resources to generate and maintain such a learning and information platform.*

BARRIERS

There is no question that our graduate program in marine science is severely limited by the lack of Physical Oceanographers. This is a **major** barrier and is discussed above.

As an emerging graduate program we have the unenviable task of competing with institutions that have much more extensive histories. It is clear from the quality of our applicants that our reputation is beginning to have an effect. Nonetheless, we are woefully short of having enough money to support the ~20 new graduate students that join our program each year. This is a **second major** barrier and is also discussed above.

APPENDIX 1

FACULTY CURRICULUM VITAE

COLLEGE OF MARINE SCIENCE
UNIVERSITY OF SOUTH FLORIDA

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Peter R. Betzer
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor and Dean

EDUCATION

Institution	Field of Study	Degree	Date
Lawrence University	Geology	B.A.	1964
University of Rhode Island	Oceanography	Ph.D.	1971

EMPLOYMENT HISTORY

University of Rhode Island: Laboratory Instructor (1970 – 1971)
University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1971 – 1975), Associate Professor and tenured (1975 – 1979), Professor (1979 – 1983), Chairperson and Professor (1983 – 2000), Acting Dean, (2000 – 2001), Dean (2001 – present)

AREAS OF SPECIALIZATION

Particle dynamics and dissolution kinetics
Submarine springs
Physical-chemical processes at river mouths and their effect on seawater chemistry
Non-conservative properties as tracers of deep ocean water mass and pollutant movement in ocean systems
Analytical chemistry of seawater, trace metal analysis
Sediment-water interactions
Atmospheric input and transfer to ocean systems

GRANTS

Pacific-Sierra Research Corporation (with Robert Jolley), Operation and Evaluation of the Caribbean Radiation Early Warning System. July 1998 - June 1999. $24,000.
National Science Foundation (with Teresa Greely), Geosciences and Society – A Multi-media Approach by Teachers and Scientists. September 1998 – Aug., 2000. $49,718.
Office of Naval Research (with Frank Muller-Karger, Mark Luther and Robert Weisberg), FL PORTALES: A Program for Real-Time Environmental Data Support Across Caribbean Sea Shipping Lanes. Pilot Project: Yucatan Strait. September 1998 – December 1999. $149,998.
United States Geological Survey, Digital Cartography. October 1998 – May 2000. $40,260.

United States Geological Survey, Partial Support of Research at the USF/USGS Cooperative Research Center for Coastal Geology, Year 1 of a new 5 year Cooperative October 1998 – May 2000. $775,783.

United States Geological Survey, Atmospheric Dust: Inputs and Interactions with Coral Reef Systems. October 1998 – May 2000. $25,000.

Pacific-Sierra Research Corporation (with Robert Jolley), Operation and Evaluation of the Caribbean Radiation Early Warning System. April 1999 – October 2000. $36,294.

United States Geological Survey, Digital Cartography. October 1999 – December 2001. $50,000.

United States Geological Survey, Partial Support of Research at the USF/USGS Cooperative Research Center for Coastal Geology, Year 2 of a 5 year Cooperative. October 1999 – December 2001. $778,244

United States Geological Survey, Information Management Support for Cooperative Research. October 1999 – December 2001. $50,000.

Interdisciplinary Center for Science Journalism, Pilot Interdisciplinary Development Grant between the Department of Marine Science and Department of Mass Communications. July 1999 – June 2000. $40,000.

United States Geological Survey, Digital Cartography. October 2000 – March 2002. $25,000.

Interdisciplinary Center for Science Journalism, Pilot Interdisciplinary Development Grant between the College of Marine Science and Department of Mass Communications. July 2000 – June 2001. $40,000.

United States Geological Survey, Partial Support of Research at the USF/USGS Cooperative Research Center for Coastal Geology, Year 3 of a 5 Year Cooperative. October 2000 – March 2002. $779,700.

USF Foundation, St. Petersburg Progress Postdoctoral Fellowship. November 2001 – December 2003. $43,260.

United States Geological Survey, Partial Support of Research at the USF/USGS Cooperative Research Center for Coastal Geology, Year 4 of a 5 Year Cooperative. October 2001 – October 2002. $797,298.

United States Geological Survey, Analysis and Interpretation of Trace Metal Data Utilizing ICP-AES. November 2001 – January 2002. $9,999.

Office of Naval Research, Autonomous Underwater Vehicle for Homeland Defense. June 2002 – September 2003. $467,511

Office of Naval Research, Autonomous Ship Detection System. January 2002 – September 2003. $333,220

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Shinn, E.A., G.W. Smith, J.M. Prospero, P.R. Betzer, M.L. Hayes, V. Garrison and R.T. Barber. 2000. African Dust and the Demise of Caribbean Coral Reefs. Geophysical Research Letters **27**(19): 3029-3032.

Middleton, N.J., P.R. Betzer and P.A. Bull. 2001. Long-range transport of 'giant' Aeolian quartz grains: linkage with discrete sedimentary sources and implications for protective particle transfer. Marine Geology 177, 411-417.

Abstracts, Oral, and Poster Presentations

Betzer, P.R., M.J. Normile and A. Barnes, "Partnerships and Scientific Research – Enhancing the Present/Insuring the Future", The American Society of Limnology and Oceanography: Navigating into the Next Century, February 1-5, 1999, Santa Fe, New Mexico.

Merman, E.A., P.R. Betzer and E.A. Shinn, "Coral and Atmospheric Dust: A New Perspective for Krakatau", American Geophysical Union, 1999 Fall Meeting, December 13-17, 1999, San Francisco, California.

Merman, E.A., P.R. Betzer and E.A. Shinn, "Ash Analysis of Coral Skeletons: Historic Records for the Sources of Atmospheric Debris," American Geophysical Union, 2000 Fall Meeting, December 15-19, 2000, San Francisco, California.

Holmes, C., *M. Marot*, G. Shipman, P. Betzer, and *C. Cattrall*, "Atmospheric $^{7}BE/^{210}PB$ as a Tool for Determining the Origin of Detrital Material in Ombrogeneous Sediment of South Florida", American Nuclear Society International Topical Conference, Fifth International Conference on Methods and Applications of Radioanalytical Chemistry, MarcV, April 9-14, 2000, Kailua-Kona, Hawaii.

Betzer, P., Enhancing Oceanographic Science – Developing the Interface Between Science and Society, U.S. Commission on Ocean Policy meeting, February 22, 2002, St. Petersburg, Florida.

Invited speaker Chamber of Commerce Committee Leaders, St. Petersburg, Florida, March 13, 2000.

Invited speaker Soft Network User's Group, Inc. (SNUG), Clearwater, Florida, May 1, 2000.

Invited speaker Florida Marine Science Education Association, Sustaining Our Seas in the 21st Century, Florida Marine Research Institute, St. Petersburg, Florida, May 5, 2000.

Invited speaker 20th Annual Symposium American Academy of Underwater Sciences, Diving for Science in the 21st Century, St. Petersburg, Florida, October 13, 2000.

Invited speaker Kiwanias Club of St. Petersburg on February 6, 2001.

Invited speaker USF St. Petersburg's Town and Gown annual luncheon meeting, April 20, 2001.

Invited speaker Rotary Club of St. Petersburg, October 21, 2001.

Invited speaker at the VIP luncheon to honor Congressman C.W. Young and former County Commissioner Chuck Rainey by renaming the Pinellas START Center in their honor, December 14, 2001.

Invited speaker Retirement Symposium Honoring Professor Michael E.Q. Pilson, University of Rhode Island, Narragansett Bay Campus, Narragansett, Rhode Island, September 5, 2000.

Invited speaker a Tribute to Robert A. Good, Ph. D., M.D., February 10, 2001.

Invited speaker 2001 Water Forum as part of President Genshaft's Inauguration, Feb. 17, 2001.

Invited speaker at the **National Science Foundation Board Meeting** held in the College of Marine Science, January 28, 2002

Invited speaker (Enhancing Oceanographic Science – Developing the Interface Between Science and Society) to the **U.S. Commission on Ocean Policy**, February 22, 2002

PBS-TV interview with Dave Kovalak, December 5, 2002

Awards

2000 – **Community Service Award** from Leadership St. Pete Alumni Association

Professional Society

American Association for the Advancement of Science; American Chemical Society; Amer. Geophysical Union; American Institute of Chemists; The Oceanography Society

Professional Service

Multiple reviews for federal funding agencies
Recommendations for science colleagues
Reviewer of papers in journals and NSF proposals in my field
External Review Committee Mar. Sci. Res. Center, State Univ. New York, Stony Brook
External Review Committee Louisiana Universities Marine Consortium (LUMCON), Cocodrie, LA,
Florida Institute of Oceanography Advisory Board
Honorary Steering Committee, 16th Biennial Conference, Estuarine Research Federation
National Science Foundation: Advisory Committee for Ocean Science; Office of Polar Programs, Arctic Natural Sciences panel; Committee of Visitors (COV) for Division of Ocean Science (OCE); Experimental Program to Stimulate Competitive Research (EPSCoR) Grant Merit Review Panel; Faculty Early Career (CAREER) Program Special Emphasis Panel; Professional Opportunities for Women in Science (POWRE) Special Emphasis Panel; 2000 Integrative Graduate Education and Research Training (IGERT) Program Panel
Natural Environmental Research Council (NERC) Autosub Science Missions Scientific Steering Committee, project in Great Britain (*one of eight* invited panel members - only U.S. representative)
Program Selection Committee, Oceanology International 2001 Americas, 2000/01.
Research Consortium of St. Petersburg
UNOLS Council, Vice-Chairman and Fleet Improvement Committee

Community Service

Bayfront Medical Center, Board of Directors and Budget Committee, appointed 1997
City of St. Petersburg – Airport and Port Commission
Great Explorations Science Museum, Board of Directors
Honorary Board Member - Community Leader of the Year Dedication (CLYAD) Lifetime Achievement Award to Dr. Robert A. Good & Honoring Congressman & Mrs. Bill Young, November 3, 2000.
Mercantile Bank - Community Advisory Board
Ocean Optic, Board of Directors
Pier Aquarium, Board of Directors
Pinellas County Environmental Foundation Committee
St. Petersburg Chamber of Commerce, Board of Directors
St. Petersburg Downtown Partnership, Inc., Executive Committee and Board of Directors

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 1 MS theses
Served on 1 MS committees

Ph.D.

Served on 2 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Norman J. Blake
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Florida Presbyterian College	Biology	B.S.	1966
University of Rhode Island	Biological Oceanography	M.S.	1969
University of Rhode Island	Biological Oceanography	Ph.D.	1972

EMPLOYMENT HISTORY

University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1972-1977), Associate Professor (1977-1983), Professor (1983-present)

AREAS OF SPECIALIZATION

Marine ecology, pollution ecology of commercially important shellfish, reproduction of marine bivalve shellfish, bivalve aquaculture, handling and safety of marine shellfish

GRANTS

Hatchery production development for the Bay scallop, Argopecten Irradians for Restoration in Florida Estuaries. Florida Department of Environmental Protection; 11/4/97 to 6-30-00; $179,734.

Enhancement of the bay scallop population in Sarasota Bay, Florida. City of Sarasota, FL; September 1998 to January 2000; $20,000.

Restoration in the Bay Scallop in Florida: An Integrated Approach to Stock Enhancement and Evaluation of Benefit. Florida Fish & Wildlife Conservation Commission; 09/29/99 to 06/03/00; $93,152.

Aquaculture of the Florida Bay Scallop in Crystal River, Florida. Florida Sea Grant; 01/10/00 to 07/31/01; $23,743.

Hatchery production of the bay scallop, *Argopectein Irradians*, for development of stock enhancement technology. Mote Marine Labs; 09/01/00 to 07/31/01; $37,000.

Hatchery production development of the bay scallop, *Argopecten irradians* for restoration in Florida estuaries; Florida Fish and Wildlife Conservation Commission; 09/17/02 to 08/31/03; $90,905.

Monitoring of the structure and function of a newly established oyster reef; National Oceanic and Atmospheric Administration; 10/01/02 to 04/30/04; $38,663

14th International Pectinid Workshop; Pinellas County Environmental Foundation; 11/1/02 to 10/31/03; $5,000

The 14th International Pectinid Workshop Conference Support Grant; USF Research Council, Conference Support Program; 1/2/01 to 12/31/01; $8,000.

The Evaluation of an Oyster Reef with Respect to Two Different Substrate, Pinellas County Environmental Foundation; 1/1/03 to 4/30/04; $42,764.

Bay Scallop (*Argopecten irradians*) Population Restoration on the West Coast of Florida, Subcontract to USF, $93,866. Submitted by Florida Marine Research Institute. Awarded

Enhancement of Bay Scallop (*Argopecten irradians*) Stocks Along Florida's Nature Coast Through Increased Recruitment Potential, $280,000. Submitted to National Sea Grant, National Marine Aquaculture Initiative. Pending

Bay Scallop Restoration in Tampa Bay, Florida, subcontract to USF, $75,000. Submitted by Florida Marine Research Institute. Awarded

PUB LICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Lu, Y., N.J. Blake and J.J. Torres. 1999. Oxygen consumption and ammonia excretion of larvae and juveniles of the bay scallop Argopecten irradians concentricus (Say). Journal of Shellfish Research, 18(2):419-424.

Lu, Y., N.J. Blake and J.J. Torres. 1999. Biochemical and energy changes during embryogenesis and metamorphosis in the bay scallop Argopecten irradians concentricus (Say). Journal of Shellfish Research, 18(2):420-425.

Frischer, M.E., J.M. Danforth, L.C. Tyner, **J.R. Leverone**, D.C. Marelli, *W.S. Arnold*, and N.J. Blake. 2000. Development of an Argopecten-specific 18S rRNA targeted genetic probe. Mar. Biotechnol., 2:11-20.

Tomasko, D.A., N.J. Blake, C.W. Dye, and M.A. Hammond. 2000. Effects of reverse osmosis desalination discharges on a seagrass meadow (*Thalassia Testudinum*) offshore of Antigua, West Indies. In: Seagrasses: Monitoring, Ecology, Physiology, and Management. S.A. Bortone (ed.). CRC Press, Boca Raton. pp. 99-124.

Barber, B.J., N.J. Blake. Reproductive Physiology of Scallops. In: Developments in Aquaculture and Fisheries Science, Volume 21, Scallops: Biology, Ecology and Aquaculture, S.E. Shumway and Jay Parsons (ed.). CRC Press, Boca Raton, In Press.

Blake, N.J. and S.E. Shumway. The bay scallop and calico scallop fisheries of the east coast of North America. In: Developments in Aquaculture and Fisheries Science, Volume 21, Scallops: Biology, Ecology and Aquaculture, S.E. Shumway and Jay Parsons (eds.) CRC Press, Boca Raton, In Press.

Adams, C, D. Sweat, N. Blake, R. Degner and L. Sturmer. 2001. The economic feasibility of small-scale, commercial culture of the southern bay scallop (*Argopecten irradians concentricus).* Aquaculture Economics and Management, Volume 5, Numbers 1&2, pp. 81-98.

Dukeman, A., N.J. Blake and *W. Arnold*. The reproductive cycle of the flame scallop, *Lima Scabra,* from the Florida Keys. Submitted to Journal of Shellfish Research.

Technical Reports

N. Blake and A.F. Blumberg. 2000. Environmental impact assessment for a seawater desalination facility proposed for co-location with the Tampa Electric Company Big Bend Power Generation Facility located on Tampa Bay, Florida. Report to the Board of County Commissioners, Hillsborough County, Florida.

N. Blake, C. Adams, R. Degner and D. Sweat. 2000. Aquaculture and marketing of the Florida bay scallop in Crystal River, Florida. Report submitted to Florida Sea Grant.

A.F. Blumberg and N. Blake. 2001. Environmental impact assessment for the proposed Tampa Bay, Florida water withdrawal projects. Board of County Commissioners, Hillsborough County, Florida. DRAFT. May 3.

High water mark with a top national ranking, the Florida Sea Grant College Program is poised for future expansion. Article in IMPACT – The University of Florida Institute of Food and Agricultural Sciences, Winter 2001.

Blake, N.J. 2002. Aquaculture and Enhancement. In: Molluscan Shellfish Research and Management. Proceedings of Workshop sponsored by the U.S. Department of Commerce, January 2000 in Charleston, SC pp 25-40.

Abstracts, Oral, and Poster Presentations

Adams, C, D. Sweat, N. Blake and R. Degner. "The economic feasibility of small-scale bay scallop, *Argopecten irradians concentricus*, culture in Florida." Aquaculture America 2000. New Orleans, Louisiana, February 2-5, 2000.

Presentation – Existing reverse osmosis desalination plants and an analysis of the near-field oceanic ecology – at the "Technical Exchange of Information on Seawater Desalination" sponsored by the Water Resource Associates, Inc., USF Tampa, April 20, 2000.

Adams, C, D. Sweat, N. Blake and R. Degner. "The economic feasibility of small-scale bay scallop, *Argopecten irradians concentricus*, culture in Florida." 13th International Pectinid Workshop, La Serena, Chile, April 18-24, 2001.

Leverone, J.R., N.J. Blake and S.E. Shumway, Effects of the Toxic Dinoflagellate, *Karenia Brevis*, on Larval Mortality and Juvenile Feeding in the Bay Scallop, *Argopecten irradians*, from Florida, 94th Annual Meeting of the National Shellfisheries Association, Mystic, Connecticut, April 14-18, 2002.

Leverone, J.R., N.J. Blake and S.E. Shumway, Effects of the Toxic Dinoflagellate, *Karenia Brevis*, on Larval Mortality and Juvenile Feeding in the Bay Scallop, *Argopecten irradians*, from Florida, Xth International Conference on Harmful Algae, St. Petersburg, Florida, October 21-25, 2002.

Blake, N.J., Aquaculture of the Florida Bay Scallop, *Argopecten irradians concentricus*, In Tampa Bay Florida, An Urban Estuary, Northeast Aquaculture Conference & Expo 2002 "Growing Together" Warwick, Rhode Island, November 15-16, 2002.

OTHER ACHIEVEMENTS

Professional Society

National Shellfish Association

World Aquaculture Society

Professional Service

Member, Department of Environmental Regulation Review Committee on the Ecology of the St. Johns River. 1986-present.

Advisory Committee, Pinellas Marine Extension Service, 1995 - present

Board of Directors, St. Petersburg Pier Aquarium, 1988 - present

Board of Directors, Friends of the Nature Coast Marine and Environmental Science Center, 1996 - present

Advisory committee to Tampa Bay Water on Tampa Bay Monitoring Program 1999.

Consultant to Hillsborough County, Florida on Desalination Issues in Tampa Bay. 2000-present.

Co-Chair of the 14th International Pectinid workshop to be held at the St. Petersburg Hilton, April 23-29, 2003.

Community Service

St. Petersburg Pier Aquarium, Board of Directors

Friends of the Nature Coast Marine and Environmental Science Center, Board of Directors
Consultant to Hillsborough County, Florida on Desalination issues in Tampa Bay
Pinellas Marine Extension Service, Advisory Committee
Citrus County Restoration Program

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 3 MS theses
Major advisor of 2 MS student

Ph.D.

Director or co-director of 1 Ph.D. dissertation
Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Robert Byrne
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Distinguished Research Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of Chicago	Physics	B.S.	1964
DePaul University	Physics	M.S.	1967
Boston University	Chemistry	M.A.	1971
University Rhode Island	Oceanography	Ph.D.	1974

EMPLOYMENT HISTORY

University of Rhode Island: Graduate School of Oceanography, Research Associate (1974-1977)

University of South Florida: Department of Marine Science / College of Marine Science, Research Associate (1977-1979), Assistant Professor (1979-1982), Associate Professor, tenured (1982-1986), Professor (1986-1995), Distinguished Research Professor (1995-Present)

AREAS OF SPECIALIZATION

Chemical oceanography, physical chemistry, chemical interactions of dissolved seawater constituents, oxidation-reduction kinetics, dissolution kinetics, trace metal chemistry, carbonate system chemistry, *in-situ* instrumental analysis.

GRANTS

NSF, The Influence of Pressure and Ionic Strength on Rare Earth Element Solution Chemistry, Surface Chemistry and Coprecipitation Behavior in Seawater. 9/1/1996 – 8/31/2000. $432,754.

ONR, Oceanographic Systems for Chemical, Optical and Physical Experiments. 7/13/1998 to 1/31/2001. $241,174.

NSF-Woods Hole, Development of a Spectrophotometric Sensor for Autonomous Measurement of Dissolved Iron in Rainwater. 9/1/1999 to 2/28/2002. $113,007.

Concurrent Technologies Corporation, Eric Steimle, co PI. Corrosion Feasibility Study. 4/1/2001 to 3/30/2002. Funding: $120,904.

ONR, Enhanced *In-Situ* Spectroscopic Analysis of Trace Seawater Solutes. 1/1/1996 – 12/31/1998. $953,296. 9/3/98 title changed to Autonomous *In-Situ* Analysis of the Upper Ocean: Construction of Compact, Long Pathlength Absorbance Spectrometer. Extended to 7/31/2003. Total Funding: $3,258,665.

ONR, Construction of an *In-Situ* Mass Spectrometer. 11/1/1997 to 12/31/1998. $199,735. 8/6/98 title changed to Phase II Construction of an *In-Situ* Mass Spectrometer, extended to 6/30/2003. Total Funding $2,004,671. R.T. Short (P.I.), R.H. Byrne (co-P.I.).

ONR, Bottom Stationed Ocean Profiler, 1/1/2000 to 7/31/2003. Funding: R. Weisberg, P.I. $733,277 with RHB portion $111,109.

University of New Hampshire, Byrne, R.H. (P.I.), Callahan, M., Steimle, E.T. (Co-P.I.s). *In-situ* Monitoring of a Reactive Metal in Riverine and Estuarine Mixing Zones. 9/1/2001 to 8/31/2003. $125,855.

ONR, Short, R.T. (P.I.), Byrne, R.H. and Kilbelka, G. (co-P.I.s). Development of an *In-situ* Mass Spectrometer for Stable Isotopes. 1/31/2002 to 9/30/2003. $384,989.

NSF, Byrne, R.H. (P.I.), Schijf, Johan (Co-P.I.), Investigations of the Influence of Solution Chemistry on YREE Interactions with Particle Surfaces. 3/15/2002 to 2/28/2005. $450,000.

ONR, The Role of Nutrients in the Formation, Maintenance and Transformation of Phytoplankton Thin Layers. 7/1/2002 to 6/30/2004. $249,985.

ONR, Short, R.T. (P.I.) Byrne, R.H., Fries, David (co-P.I.'s). Development and Deployment of In-Situ Mass Spectrometers. 3/1/2003 to 2/28/2004. $499,179.

ONR, Byrne, R.H., P.I., Kaltenbacher, Eric, (co-P.I.), Construction and Intensive Field Testing of SEAS-II Sensors for Trace Element, Nutrient and CO_2 System Analyses. 51/2003 to 9/30/2004. $250,000.

Benthos, Inc. (Dale Green), Byrne, R.H., P.I., Kaltenbacher, Eric, (co-P.I.), Collaborative Observations of Subsurface Biogeochemical Phenomena at Marine Hydrothermal Springs. 2/25/2003 to 8/24/2003. $19,270.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Byrne, R.H. 2002. Speciation in Seawater. In: Chemical Speciation in the Environment, Chapter 12, 2nd edition. (A.M. Ure and C.M. Davidson, eds.). Blackie Academic, pages 322-357.

Articles

Schijf, J., and R.H. Byrne. 1999. Determination of stability constants for the mono- and difluoro-complexes of Y and the REE, using a cation-exchange resin and ICP-MS. *Polyhedon* 8:2839-2844.

Short, R.T., D.P. Fries, *S.K. Toler*, C.E. Lembke, and R.H. Byrne. 1999. Development of an underwater mass-spectrometry system for *in-situ* chemical analysis. *Meas. Sci. Technol. 10*:1195-1201.

Yao, W. and R.H. Byrne. 1999. Determination of trace chromium (VI) and molybdenum (VI) in natural and bottled mineral waters using long pathlength absorbance spectroscopy (LPAS). *Talanta* 48:277-282.

Byrne, R.H., S. McElligott, R.A. Feely and F.J. Millero. 1999. The Role of pH_T Measurements in Marine CO_2-System Investigations. *Deep-Sea Research* I, 46:1985-1997.

Byrne, R.H. and S.H. Laurie. 1999. Influence of Pressure on Chemical Equilibria in Aqueous Systems - With Particular Reference to Seawater. *Pure Appl. Chemistry 71*:871-890.

Lee, K., F.J. Millero, R.H. Byrne, R.A. Feely and R. Wanninkhof. 2000. The recommended dissociation constants for carbonic acid in seawater. *Geophysical Res. Lett. 27*:229-232.

Byrne, R.H., W. Yao, E. Kaltenbacher and R.D. Waterbury. 2000. Construction of a compact spectrofluorometer/spectrophotometer system using a flexible liquid core waveguide. *Talanta 50*:1307-1312.

Klungness, G.D. and R.H. Byrne. 2000. Comparative hydrolysis behavior of the rare earths and yttrium: the influence of temperature and ionic strength. *Polyhedron 19*:99-107.

Hopkins, A.E., K.S. Sell, A.L. Soli and R.H. Byrne. 2000. In-situ spectrophotometric pH measurements: the effect of pressure on thymol blue protonation and absorbance characteristics. *Mar. Chem. 71*:103-109.

Byrne, R.H., Y.R. Luo and *R.W. Young*. 2000. Iron hydrolysis and solubility revisited: observations and comments on hydrolysis characteristics. *Mar. Chem. 70*:23-35.

Byrne, R.H. and Y.R. Luo. 2000. Direct observations of nonintegral hydrous ferric oxide solubility products: $K_{SO} = [Fe^{3+}][H^{+}]^{-2.86}$. *Geochemica et Cosmochimica Acta 64*:1873-1877.

Luo, Y.R. and R.H. Byrne. 2000. The Ionic Strength Dependence of Rare Earth and Yttrium Fluoride Complexation at 25°C. *J. Sol. Chem. 29*:1089-1099.

Byrne, R.H. and W. Yao. 2000. Formation of palladium (II) hydroxychloride complexes and precipitates in sodium chloride solutions and seawater. *Geochimica et Cosmochim. Acta 64*:4153-4156.

Schijf, J. and R.H. Byrne. 2001. Stability constants for mono- and dioxalato-complexes of Y and the REE, potentially important species in groundwaters and surface freshwaters. *Geochimica et Cosmochim. Acta 65*:1037-1046.

Yao, W. and R.H. Byrne. 2001. Spectrophotometric Determination of Freshwater pH Using Bromocresol Purple and Phenol Red. *Environmental Science and Technology 35*:1197-1201.

Byrne, R.H. and E. Kaltenbacher. 2001. Use of liquid core waveguide for long pathlength absorbance spectroscopy: Principles and practice. *Limnology and Oceanography 46*:740-742.

Short, R.T., D.P. Fries, M.L. Kerr, C.E. Lembke, *S.K. Toler*, *P.G. Wenner* and R.H. Byrne. 2001. Underwater mass spectrometers for *in-situ* chemical analysis of the hydrosphere. *Journal of the American Society for Mass Spectrometry 12*:676-682.

Lenes, J.M., **B.P. Darrow**, *C. Cattrall*, *C.A. Heil*, M. Callahan, G.A. Vargo, R.H. Byrne, J.M. Prospero, D.E. Bates, K.A. Fanning and J.J. Walsh. 2001. Iron fertilization and the Trichodesmium response on the west Florida Shelf. *Limnology and Oceanography* 46(6):1261-1277.

Luo, Y-R. and R.H. Byrne. 2001. Yttrium and Rare Earth Element Complexation by Chloride Ions at 25°C. *Journal of Solution Chemistry* 30(9):837-845.

Kaltenbacher, E.A., R.H. Byrne and *E.T. Steimle*. 2001. Design and Application of a Chemical Sensor Compatible with Autonomous Ocean-Sampling Networks. *IEEE Journal of Oceanic Engineering* 26(4):667-670.

Lamb, M.F., R.H. Byrne, et. al 2002. Consistency and synthesis of Pacific Ocean CO_2 data. *Deep-Sea Research 49*:21-58.

Byrne, R.H., *X. Liu*, E.A. Kaltenbacher and K. Sell. 2002. Spectrophotometric measurement of total inorganic carbon in aqueous solutions using a liquid core waveguide. Analytica Chimica Acta *451*:221-229.

Steimle, E.T., E.A. Kaltenbacher and R.H. Byrne. 2002. *In situ* nitrite measurements using a compact spectrophotometric analysis system. *Marine Chemistry* 77:255-262.

Byrne, R.H., 2002. Inorganic speciation of dissolved elements in seawater: The influence of pH on concentration ratios. *Geochemical Transactions,* 3(2):11-16.

Soli, A.L., and R.H. Byrne. 2002. CO_2 system hydration and dehydration kinetics and the equilibrium CO_2/H_2CO_3 ratio in aqueous NaCl solution. *Marine Chemistry*, 78:65-73.

Callahan, M.R., J.B. Rose and R.H. Byrne. 2002. Long pathlength absorbance spectroscopy: trace copper analysis using a 4.4 meter liquid core waveguide. *Talanta* 58:891-898.

Cosden, J., J. Schijf, and R.H. Byrne. 2003. Fractionation of platinum group elements in aqueous systems: comparative kinetics of palladium and platinum removal from seawater by *Ulva lactuca* L. *Environ. Sci. Technol.* 37:555-560.

Cosden, J.M. and R.H. Byrne. 2003. Comparative Geochemistries of Pd^{II} and Pt^{II}: Formation of mixed hydroxychloro and chlorocarbonato-complexes in seawater. *Geochem. Cosmochim Acta* 67:1331-1338.

Byrne, R.H. 2003. Comment on "Solubility of platinum in aqueous solutions at 25°C and pHs 4 to 10 under oxidizing condition" by Mohamed Azaroual, Bruno Romand, Philippe Freyssinet and Jean-Robert Disnar. *Geochem. Cosmochim Acta* 67:2509.

Technical Reports

Byrne, R.H., E. Kaltenbacker, R. Waterbury. 1999. Autonomous *In-Situ* Analysis of the Upper Ocean. *Sea Technology,* 4 pp.

Kaltenbacher, E., *E.T. Steimle* and R.H. Byrne. 2000. A compact, In-situ, Spectrophotometric Sensor for Aqueous Environments: Design and Applications. *Proceedings of Underwater Technology*, pp. 41-45, May 23-26, Tokyo, Japan.

Johnson, K. and R.H. Byrne. 2000. Modern Autonomous Observing Systems Working Group Summary. Ocean Carbon Transport Exchange and Transformations, Proceedings of a workshop (March 7-10, 2000). Airlie House, Warrenton, VA (http://msrc.sunysb.edu/octet/)

Dickey, T., N. Bates, R. Byrne, F. Chavez, R. Feely, C. Moore, R. Wanninkhof. A Review of the NOPP Ocean-Systems for Chemical, Optical, and Physical Experiments (O-Scope) Project. Fifth Symposium on Integrated Observing Systems, January 2001, Albuquerque, NM

Abstracts, Oral, and Poster Presentations

International Symposium on Environmental Earth Science. Novel Instrumental Strategies for Environmental Analysis. Hokkaido University, Japporo, Japan. March 1999.

Thermodynamics and Kinetics of Natural Waters. Honoring Frank Millero. 217th American Chemical Society National Meeting & Exposition Program. Iron Hydrolysis Revisited. Anaheim, CA. March, 1999.

22nd Rare Earth Research Conference (NERC). *Rare Earth Complexation by Inorganic Environmental Ligands.* Argonne National Laboratory. July, 1999.

Kaltenbacher, E., *E.T. Steimle* and R.H. Byrne. A Compact, *In-Situ*, Spectrophotometric Sensor for Aqueous Environments: Design and Applications. Proceedings of the 2000 International Symposium on Underwater Technology. May 23-26, 2000. Toyko, Japan.

"Field chemical analysis using real-time in-water mass spectrometry", R.T. Short, D.P. Fries, G.P.G. Kibelka, M.L. Kerr, S.K. Toler, P.G. Wenner and R.H. Byrne, *Proceedings of Oceans 2001 MTS/IEEE*, Honolulu, HI, (2001).

International Workshop on Autonomous Measurements of Biogeochemical Parameters in the Ocean. Pacific Beach Hotel. Honolulu, Hawaii. Design of Autonomous *In-Situ* Spectrophotometric Systems for measurement of nutrients and CO_2 system parameters. February 20-21, 2001.

221st ACS National Meeting. Geochemistry Division Medal Symposium in Honor of Dr. Frank J. Millero: The Importance of Metal-Ligand Interactions in Natural Waters. San Diego, CA. Inorganic Speciation in Natural Waters. April 1-5, 2001.

"Membrane introduction mass spectrometry on unmanned underwater vehicles:, G.P.G. Kibelka, R.T. Short, D.P. Fries and R.H. Byrne, *Proceedings of the 28th Annual Federation of Analytical Chemistry and Spectroscopy Societies Meeting*, Detroit, MI (2001).

ONR Joint Review of Technology Applicable to Mine Counter Measures and Associated Missions. Coastal Systems Station, Panama Beach, FL. Spectrophotometric Elemental Analysis System. April 2-4, 2002.

PATENT (US)

U.S. Patent #5,925,572 awarded 7/20/99. "Apparatus and Method for *In-situ* pH Measurement of Aqueous Medium. Awarded to Robert. H. Byrne, R.D. Waterbury, John J. Kelly, Bram Leader, Randy Russell, Charles W. Jones, Joseph Kolesar and Sean McElligott.

OTHER ACHIEVEMENTS

Editorships

Associate Editor: Geochimica et Cosmochimica Acta (1993-present)
Associate Editor: Chemical Speciation and Bioavailability (1993-1999)

Professional Society

The American Geophysical Union, American Chemical Society, Sigma Xi, American Association for the Advancement of Science

Professional Service

Member, IUPAC Working Committee on Heavy Metal Speciation (2000-present)
Chairman (2000-2003) Geochemistry Division Medal Committee, American Chemical Society
Secretary (1998-2000); IUPAC Commission on Equilibrium Data (V.6)
Chairman (2000-2002) IUPAC Commission on Equilibrium Data (V.6)
Member (2000-2001), Division Committee, IUPAC Analytical Chemistry Division American Association for the Advancement of Science

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 6 MS theses
Served on 1 MS committees
Major advisor of 1 MS student

Ph.D.

Director or co-director of 5 Ph.D. dissertations
Served on 5 Ph.D. committees
Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Kendall L. Carder
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Fresno State College	Physics	B.S.	1964
Oregon State University	Oceanography	M.S.	1967
Oregon State University	Oceanography	Ph.D.	1970

EMPLOYMENT HISTORY

Oregon State University: Physics Department, Teaching Assistant (1964-1965), School of Oceanography, Research Assistant (1965-1969)

NASA Headquarters, Washington, D.C.: Ocean Productivity Program Manager and Acting Polar Program Manager (1980-1982)

University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1969-1974), Associate Professor (1974-1979), Professor (1979-present)

GRANTS

Carder, K.L. "Optical Sensor Augmentation of the Coastal Ocean Monitoring and Prediction System." DOD/ONR; $299,374. 3/31/1999 to 9/30/2000.

Carder, K.L., "High Spectral Resolution MODIS Algorithms for Ocean Chlorophyll in Case II Waters." NASA/GSFC; 10-year contract commenced 01/15/92 with incremental funding. Cumulative Amount $6,318,168 to June 2003.

Carder K.L. and D.K. Costello: Optical Variability and Bottom Classification in Turbid Waters. DOD/ONR. $498,870 FY96, $498,844 FY97, $495,009 FY98, $499,914 FY99, $499,759 FY00, $499,838 FY01, $499,952 FY02, $499,947 FY03.

Muller-Karger, F.E. and Carder, K.L., "Bottom Assessment and Water Constituent Algorithms for the ETM in the Coastal Zone." NASA/GSFC; 8/1/1996 to 12/31/2001; $712,764.

Carder K.L. and D.K. Costello: Coastal Benthic Optical Properties of Coral Environments: ROV/AUV Optical Classification. DOD/ONR. $146,251 FY97, $154,889 FY98, $155,091 FY99, $168,882 FY00, $79,881 FY01.

Carder, K.L. "Stray Light & Atmospheric Adjacency Effects for Large-FOV, Ocean Viewing Space Sensors." NASA/GSFC; $520,841. 9/23/1997 to 3/22/2001.

Kaltenbacker, E., J. Patten, D.K. Costello and K.L. Carder: High-speed, Real-time Ocean Bottom Optical Topographer. DOD/ONR, $469,946 FY01, $495,184 FY02, $485,591 FY03.

Carder K.L. and D.K. Costello: Data Mining the CoBOP Database to Separate Bottom Albedo from Bottom Roughness and Illumination Effects. DOD/ONR $49,922 FY02; $49,985 FY03.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Bissett, W.P., J.J. Walsh, D.A. Dieterle, K.L. Carder. 1999. Carbon cycling in the upper waters of the Sargasso Sea: I. Numerical simulation of differential carbon and nitrogen fluxes, *Deep- Sea Res*. (46)2: 205-269.

Bissett, W.P., K.L Carder, J.J. Walsh, D.A. Dieterle. 1999. Carbon cycling in the upper waters of the Sargasso Sea: II. Numerical simulation of apparent and inherent optical properties, *Deep-Sea Res.* (46)2: 271-317.

Carder, K.L., F.R. Chen, *Z.P. Lee*, *S.K. Hawes*, D. Kamykowski. 1999. Semianalytic Moderate Resolution Imaging Spectrometer algorithms for chlorophyll a and absorption with bio-optical domains based on nitrate-depletion temperatures. *J. Geophys. Res*. 104(C3): 5403-5421.

Lee, Z.P., K.L. Carder, C.D. Mobley, *R.G. Steward*, and J.S. Patch. 1999. Hyperspectral remote sensing for shallow waters: 2. Deriving bottom depths and water properties by optimization. *Appl. Opt. 38(18)*, 3831-3843.

Zhang, M., K.L. Carder, F.E. Muller-Karger, *Z.P. Lee*, and D.B. Goldgof. 1999. Noise reduction and atmospheric correction for coastal applications of LANDSAT Thematic Mapper Imagery, *Remote Sens. Environ.* 70: 167-180.

Hu, C., K.L. Carder, and F. Muller-Karger. 2000 Atmospheric correction of SeaWiFS imagery over turbid coastal waters: a practical method, *Remote Sensing Environ.* 74: 195-206.

Hu, C., K.L. Carder, and F. Muller-Karger. 2000 Atmospheric correction of SeaWiFS imagery: assessment of alternative bands, *Appl. Opt*. 39(21): 3573-3581.

Ming-Xia, H., *Z.Liu*, K.Du, L. Li, R. Chen, K.L. Carder, and *Z. Lee*. 2000. Retrieval of chlorophyll from remote sensing reflectance in the China seas. *Appl. Opt.* 39(15): 2467-2474.

Lee, Z. and K.L. Carder. 2000. Band-ratio or spectral curvature algorithms for satellite remote sensing? *Appl. Opt*. 39(24): 4377:4380.

Andrefouet, S., F.E. Muller-Karger, E.J. Hochberg, C. Hu, K.L. Carder. 2001. Change detection in shallow coral reef environments using Landsat 7 ETM+ data, *Remote Sensing of the Environment 78*:150-162.

Lee, Z.P., K.L. Carder, R.F. Chen and *T.G. Peacock*. 2001. Properties of the water column and bottom derived from AVIRIS data, *J. Geophys. Res.* 106(C-6):11,639-11,651.

Carder, K.L., D.K. Costello, L.C. Langebrake, *W. Hou*, **J.T. Patten**, and E.A. Kaltenbacher, 2001. Real-time AUV data for command, control, and model inputs. *IEEE Jour. of Ocean Eng. 26(4)*: 742-751.

Hu, C., K.L. Carder, F.E. Muller-Karger. 2001. How precise are SeaWiFS ocean color estimates? Implication of digitization-noise errors. *Remote Sensing of the Environment 76*:0034-457.

Hu, C., F.E. Muller-Karger, S. Andrefouet, K.L. Carder. 2001. Atmospheric Correction and Cross-Calibration of Landsat-7/ETM+ Imagery Over Aquatic Environments: A multiplatform approach using SeaWiFS/MODIS. 2001. *Remote Sensing of the Environment* 78:99-107.

D'Sa, E.J., C. Hu, F.E. Muller-Karger and K.L. Carder, 2002. Estimation of colored dissolved organic matter and salinity fields in Case 2 waters using SeaWiFS: Examples from Florida Bay and Florida Shelf, *Proc. Indian Acad. Sci. (Earth Planet. Sci.) 111(3)*: 197-207.

Hu, C. and K.L. Carder, 2002. Atmospheric correction for aircraft sensors: Comment on a scheme used for CASI, *Remote Sens. Environ. 79*: 134-137.

Hu, C., F. Muller-Karger, *Z. Lee*, K. Carder, et al., 2002. Satellite images track "black water" event off Florida coast, *EOS Trans. Amer. Geophys. Un. 83(26): 281, 285.*

Lee, Z. P., K. L. Carder and R. Arnone. 2002. Deriving Inherent Optical Water Properties From Water Color: A Multi-Band Quasi-Analytical Approach. *Applied Optics* (41) 27, 5755-5772.

Lee, Z. P. and K. L. Carder. 2002. Effect of Spectral Band Numbers on the Retrieval of Water Column and Bottom Properties from Ocean Color Data. *Applied Optics* (41) 12, 2191-2201.

Liu, C. C., K. L. Carder, R. L. Miller and **J. E. Ivey**, 2002, Fast and accurate model of underwater scalar irradiance**.** *Applied Optics* (41) 24, 4962-4974.

Cattrall, C., K.L. Carder, K. Thome, and H. Gordon, 2002. Solar-reflectance-based calibration of spectral radiometers, *Geophys. Res. Lett. 29(20)*, 1029-1033.

Carder, Liu, Costello, **Patten**, *Hou*, Davis, accepted. 2003. Illumination and turbidity effects on observing facetted bottom elements with uniform Lambertian albedos, *Limnol. Oceanogr. 48(1)*, 355-363.

Carder, K.L., F.R. Chen, J.P. Cannizzaro, J.W. Campbell, and B.G. Mitchell. (2003). Performance of MODIS semi-analytic ocean color algorithm for chlorophyll-a. *Advances in Space Research*, in press.

Cattrall, C., K.L. Carder, H. Gordon, and K. Thome, accepted. Columnar aerosol single-scattering albedo and phase function retrieved over the ocean by sky radiance: Measurements of Saharan dust, *J. Geophys. Res.108 (D9)*: 4287, AAC10-1 – AAC10-11.

Hou, W., K.L. Carder, *D.K. Costello*, K. Du and C.C. Liu, in press. Using unmanned underwater vehicles as research platforms in coastal ocean studies, *Science in China (Series D)*.

Hu,C. F.E. Muller-Karger, D.L. Biggs, K.L. Carder, **B. Nababan**, D. Nadeau, and J. Vanderbloemen, 2003. Comparison of ship and satellite bio-optical and physical properties in the Northeastern Gulf of Mexico, *Int. J.Remote Sensing 24(13)*: 2597-2612.

Cannizaro, J.P., K.L. Carder, F.R. Chen, *C.A. Heil*, and G.A. Vargo, 2003. A novel technique for detection of the toxic dinoflagellate, *Karenia brevis*, in the Gulf of Mexico from remotely sensed ocean color data, submitted to *Cont. Shelf Res.*

Abstracts, Oral and Poster Presentations

S. Hawes, K. Carder, F.R. Chen and Robert Evans. 2000. "MODIS CDOM and Chlorophyll: A First Look Using SeaWiFS and AVHRR Data", *Proc. SPIE 4135: 403-410.*

Lee, Z.P., **J.E. Ivey**, K.L. Carder and *R.G. Steward*. 2000. Pure water coefficient around 400nm: lab measured versus field observed. In *Ocean Optics XV*, S. Ackleson and J. Marra (eds.), Office of Naval Research CDROM, Arlington, VA, 6p.

Carder, K.L., *Z. Lee*, F.R. Chen. 2000. Satellite Pigment Retrievals for Optically Shallow Waters. In *Ocean Optics XV*, S. Ackleson and J. Marra (eds.), Office of Naval Research CDROM, Arlington, VA, 6p.

Lee, Z., **J.E. Ivey**, K.L. Carder, *R.G. Steward*, J.S. Patch. 2000. Pure water absorption coefficient around 400 nm: Lab measured versus field observed. In *Ocean Optics XV*,

S. Ackleson and J. Marra (eds.), Office of Naval Research CDROM, Arlington, VA, 6p.

Mueller, J.L., C. Pieras, J.B. Hooker, D.K. Clark, A. Morel, R. Frouin, B.G. Mitchell, R.R. Bidigare, C. Trees, J. Werdell, G.S. Fargion, R. Arnone, R.W. Austin, S. Bailey, W. Broenkow, S.W. Brow, K. Carder, C. Davis, J. Dore, M. Fienholz, S. Flora, *Z.P. Lee*, B. Holben, B.C. Johnson, M. Kahru, D.M. Karl, Y.S. Kim, K.D. Knobelspiesse, C.R. McClain, S. MCClain, M. Miller, C.D. Mobley, J. Porter, *R.G. Steward*, M Stramska, L. Van Heukelem, K. Voss, J. Wieland, M.A. Yarbrough, and M. Yuen. 2002. Ocean Optics Protocols for Satellite Ocean Color Sensor Validation, Revision 3, Volume 1 & 2, J.L. Mueller and G.S. Fargion (eds.) NASA/TM-2002-210004/Rev3-Vol(1 &2).

Costello, D. K., K.L. Carder, **J. Ivey**, D. English, and *W. Hou*. 2002. Measurement and Interpretation of Diffuse Attenuation and Reflectance in Clear, Deep-Water Environments: the Effects of Trans-spectral Phenomena, In *Ocean Optics XVI*, S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Cannizzaro, J. P., K. L. Carder, F. R. Chen, and *C. A. Heil*, 2002, Remote Detection Of Red Tide Blooms On The West Florida Shelf: A Novel Classification Technique. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Costello, D. K., K. L. Carder, **J. E. Ivey**, D. C. English, *T. G. Peacock* and *W. Hou*, 2002, Measurement And Interpretation Of Diffuse Attenuation And Reflectance In Clear, Deep-Water Environments: The Effects Of Trans-Spectral Phenomena. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

English, D, C., K. L. Carder, *W. Hou*, and *D. K. Costello*, 2002, Use Of Unmanned Underwater Vehicles To Determine The Spatial Distribution Of Reflectance And Optical Properties. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Filippi, A. M., R. L. Miller, J. R. Jensen, R. A. Leathers, C. O. Davis, K. L. Carder, T. V.Downes, 2002, Cybernetic Statistical Learning For Hyperspectral Remote Sensing Inverse Modeling In The Coastal Ocean. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Hou, W., K. L. Carder, *D. K. Costello*, D. C. English, 2002, Coastal Bottom Feature Classification Using 2-D And 3-D Moment Invariants. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Otis, D. B., K. L. Carder, D. C. English, **J. E. Ivey** , J. Patch, F. R. Chen, and **H. Warrior**, *2002,* Using Seawifs Imagery And Optical Property Measurements To Investigate The Bahama Banks As A Source Of Gelbstoff To The Surrounding Deep Ocean. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Reinersman, P. N. and K. L. Carder, 2002, A modular, hybrid method for solving the radiative transfer equation with arbitrary geometry in 1, 2, or 3 dimensions. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Steward, R. G. and K. L. Carder, 2002, Compression Of Autonomous Hyperspectral Data. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res.

CDROM, Arlington, VA, 6 p.

Warrior, H., K. L. Carder, *Z.P.Lee*, **D. Otis** and R. Chen. 2002. An improved optical model for heat and salt budget estimation for general ocean circulation models. In *Ocean Optics XVI,* S. Ackleson and C. Trees (eds.), Office of Naval Res. CDROM, Arlington, VA, 6 p.

Patent(US)

A hybrid numerical method for solution of the radiative transfer equation in one, two, or three dimensions and method of using, Philip N. Reinersman and Kendall L. Carder. (pending)

OTHER ACHIEVEMENTS

Awards

Recipient of the NASA GSFC Group Achievement Award for Outstanding Teamwork for the Earth Observing System (EOS) Aqua Mission Team

Professional Society

American Geophysical Union, Optical Society of America, Sigma Xi, American Society of Photogrammetry and Remote Sensing

Professional Service

Member, NASA's Ocean Color Science Working Group.
Member, NASA/EOS Terra Moderate Resolution Imaging Spectrometer Facility Team
Member, NASA/EOS Aqua Moderate Resolution Imaging Spectrometer Facility Team
Member, ONR's Coastal Benthic Optical Properties (COBOP) Steering Committee
Member, Instrument Team for Japan's Global Imager (GLI)
Member, NASA's EOS Terra Mission Team
Member, NASA's EOS Aqua Mission Team
Member, U.S./Japan Ocean-Color Advisory Group on Space Remote Sensing, 1992-2000
Member, NASA's Landsat Enhanced Thematic Mapper Science Team, 1996-2001
Member of ONR's Coastal Benthic Optical Properties (COBOP) Steering, 1996-1999
External Review Panel for Naval Research Laboratory 6.1 Basic Research Program in Oceanography (Stennis Flight Center, MS), 1999
External Review Panel for Naval Research Laboratory 6.1 Basic Research Program in Remote Sensing (NRL, Washington, DC), 2003

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 12 MS theses
Served on 4 MS committees
Major advisor of 4 MS students

Ph.D.

Director or co-director of 4 Ph.D. dissertation
Served on 5 Ph.D. committee
Major advisor of 3 Ph.D. students

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Paula G. Coble
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
Mount Holyoke College	Biology-Geology	B.S.	1973
University of Delaware	Biological Marine Studies	M.S.	1977
Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution	Oceanography	Ph.D.	1990

EMPLOYMENT HISTORY

Bigelow Laboratory for Ocean Sciences: Research Associate (1976-1983)
Woods Hole Oceanographic Institution: Graduate Research Assistant (1983-1989)
University of Washington: School of Oceanography, Postdoctoral Research Associate (1989-1991), Research Associate (1991-1992)
University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1992-1998), Associate Professor (1998-present),

AREAS OF SPECIALIZATION

Carbon cycling, fluorescence of dissolved organics in seawater, laser fluorescence sensor development, marine organic geochemistry, ocean color, chemistry and biology of subsurface particle layers in low oxygen waters, biogeochemistry of the ocean, marine denitrification.
Ocean Science Education

GRANTS

"Sustainable Seas Expedition and Project Oceanography," (no funds), National Geographic Society and NOAA, 01/01/99 – 12/31/04.
"Project Oceanography - Enhancing K-12 Science Education via Satellite Televised Interactive Technologies". 08/15/97 to 09/30/03 $697,482 National Ocean Partnership Program.
"Laser Sensor Development for Fluorescence Detection of Natural and Artificial Dissolved Organic Compounds in Seawater" (with D. Killinger, USF Tampa) 01/01/96 - 12/31/00 $1,171,669 ONR
"Hyperspectral Characterization of Gelbstoff for Application to Remote Sensing of Carbon Cycling in Coastal Regions" 08/15/97 - 08/14/00 $335,010 NASA
"Enhancing K-12 Science Education via Satellite-Televised Interactive Technologies" 05/01/00 – 09/12/04 $ 698,880 ONR
"Characterization of CDOM Riverine Contribution and Distribution Through Remote Sensing Satellite Imagery" 09/01/00 – 08/31/03 $68,000 NASA
"Distribution and Cycling of Dissolved Organic Carbon and Colored Dissolved Organic Carbon on West Florida Shelf" 10/1/00-02/28/05 $407,067 ONR
"Ocean Science for Cleveland Schools" 10/26/00-05/25/01 $20,000 Martha Holden Jennings Foundation
"Dissolved Organic Carbon in the Mississippi River Plume: Assessing Carbon Fluxes Using Satellite Color Data" 02/1/01-01/31/04 $111,201 NASA
Raymond John Wean Foundation. $10,000 (Awarded) 05/08/00

"GK-12 OCEANS: Ocean Scientist Educator Partnerships Enhancing Science" 01/01/03 – 12/31/03 $559,293 NSF

"Florida Center for Ocean Science Education Excellence" 09/15/02 – 08/31/05 $99,999 NSF

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Del Castillo, C.E., Coble, P.G., J.M. Morell, J.M. Lopez, and J.E. Corredor. 1999, Analysis of the optical properties of the Orinoco River Plume by absorption and fluorescence spectroscopy. *Mar. Chem*. 66: 35-51.

Wood, A.M., P.G. Coble, M. Lipsen. 1999. Fluorescence-based characterization of Synechococcous community structure in the Arabian Sea during the Southwest Monsoon and Fall intermonsoon period. *Deep Sea Res.* 46: 1769-1790

Guay, C.K., G.P. Klinkhammer, K.K. Falkner, R. Benner, P.G. Coble**,** T.E. Whitledge, B. Black, F.J. Bussell, and T.A. Wagner. 1999. High-resolution measurements of dissolved organic carbon in the Arctic Ocean by in situ fiber-optic spectrometry. *Geophys. Res. Lett*. 26(8): 1007

Boehme, J.E., and P.G. Coble. 2000. High-energy laser fragmentation of dissolved organic matter: A new approach for studying chemical characteristics of DOM. Environ. Sci. Tech. 34: 3283-3290.

Del Castillo, C.E., and P.G Coble. 2000. Seasonal variability on the colored dissolved organic matter during the 1994-95 NE and SW monsoons in the Arabian Sea. Deep-Sea Res. 47: 1563-1579.

Del Castillo, C.E., *Gilbes, F.,* Coble, P.G., and Muller-Karger, F.E. 2000. On dispersal of riverine colored dissolved organic matter over the West Florida Shelf. Limnol. Oceanogr. 45: 1425-1432.

Del Castillo, C.E., P.G. Coble, *R.N. Conmy*, F.E. Muller-Karger, **L. Vanderbloomen**, and G.A. Vargo. 2001. Multispectral *In-situ* Measurements of Organic Matter and Chlorophyll Fluorescence in Seawater: Documenting the Intrusion of the Mississippi River Plume in the West Florida Shelf. *Limnol. Oceanogr.* 46: 1836-43.

Coble, P.G*., R.N. Conmy*, and A. Stovall-Leonard. 2002. Gelbstoff in the Gulf of Mexico: Preliminary Results from 1998-2002. Ocean Optics XVI, Santa Fe, NM. Nov. 2002. Extended Abstract.

Conmy, R.N., P.G. Coble and C. E. Del Castillo. 2002. Calibration and Performance of a New *in situ* multi-channel Fluorometer for measurement of colored dissolved organic matter in the ocean. Submitted, *Cont. Shelf Res.*

Technical Reports

Coble, P.G**.** and J.A. Rasure. 1999. Project Oceanography: bringing Oceanography from the ocean, the laboratory, and space to students in the Middle School classroom. Oceans '99 MTS/IEEE Conference Proceedings p. 1267-1269.

Abstracts, Oral, and Poster Presentations

Walker, S. H., P.G. Coble, and F.L. Larkin. 2000. Ocean Sciences Education for the 21st Century. *Oceanography* 13: 32-39.

Coble, P.G., C.E. Del Castillo, *R.N. Conmy* and F.E. Muller-Karger. Distribution and Cycling of CDOM in the Eastern Gulf of Mexico Using Multispectral In-situ Fluorometry. Ocean Optics XV, Oct. 16-20, 2000. Monte Carlo, Monaco.

Del Castillo, C.E., P.G. Coble, and *R.N. Conmy*. 2000. Variability of the Optical Properties of Colored Dissolved Organic Matter in Surface Waters of the Florida-ECOHAB Control Volume. AGU/ASLO Ocean Sciences Meeting, Jan. 24-28, 2000. San Antonio, TX.

Coble, P.G., C. E. Del Castillo, *J. Boehme*, and *R. Conmy*. 2000. Alteration of CDOM optical properties by photo-oxidation: Polychromatic results from field observations versus monochromatic laboratory results. AGU/ASLO Ocean Sciences Meeting, Jan. 24-28, 2000. San Antonio, TX.

Del Castillo, C.E., P.G. Coble, *R. Conmy*, G. Vargo, and F.E. Muller-Karger. 2000. Simultaneous in-situ measurements of dissolved organic matter and chlorophyll fluorescence in the West Florida Shelf. AGU/ASLO Ocean Sciences Meeting, Jan. 24-28, 2000. San Antonio, TX.

Coble, P.G., Effects of photo-oxidation, mixing, and biological activity on the optical properties of CDOM. Oceans from Space 2000, Oct. 9-13, 2000. Venice, Italy.

Coble, P.G., **T.Greely**, T.Christner, and R.Cooper. Project Oceanography: Underwater Science in the service of education. AAUS Meeting, St. Pete Beach, FL. Oct. 11-15, 2000.

Coble, P.G., **T. Greely**, and M. Hewitt. 2001. Project Oceanography: Enhancing K-12 Science Education Via Satellite-televised Interactive Technologies. The Oceanography Society Meeting, Apr. 2-5, 2001. Miami Beach, FL.

Coble, P.G., *J. Boehme*, C.E. Del Castillo, *R.N. Conmy*, and A. Stovall-Leonard. 2001. Using Physical and Optical Properties to Understand Cycling of Colored Dissolved Organic Matter Applied in a River-Dominated Margin: I. River Endmembers in the Gulf of Mexico. ASLO Winter Meeting, Feb. 12-16, 2001. Albuquerque, NM.

Stovall-Leonard, A., P.G. Coble, C.E. Del Castillo, *R. Conmy*. 2001. Using Physical and Optical Properties to Understand the Cycling of Colored Dissolved Organic Matter (CDOM) in a River Dominated Margin: II. Gulf of Mexico. ASLO Winter Meeting, Feb. 12-16, 2001. Albuquerque, NM.

Boehme, J. R., and P. G. Coble. 2001. Seasonal- and Source-related Variability in Fluorescence of Colored Dissolved Organic Matter the Tampa Bay Estuary System. ASLO Winter Meeting, Feb. 12-16, 2001. Albuquerque, NM.

Coble, P.G., *J. Boehme*, C.E. Del Castillo, *R.N. Conmy*, and A. Stovall-Leonard. 2001. Optical Properties of Colored Dissolved Organic Matter in the Gulf of Mexico: Results from Recent Cruises on the R/V Pelican and R/V Walton Smith. ONR Workshop on CDOM, Feb. 10-11, 2001. Albuquerque, NM.

Coble, P.G., C.E. Del Castillo, *R.N. Conmy*, A. Stovall-Leonard**,** and *J. Boehme*. 2001. Optical Properties of Colored Dissolved Organic Matter on the West Florida Shelf: Results from Recent Cruises during FSLE 3 & 4 Experiments. ONR HYCODE Workshop, Jan. 8-10, 2001. St. Petersburg Beach, FL.

Neely, M.B., E. Bartels, J. Cannizzaro, K.L. Carder, P.G. Coble, D. English, *C. Heil*, C. Hu, J. Hunt, *J. Ivey*, G. McRae, E. Mueller, *E. Peebles*, and K. Steidinger. Florida's Black Water Event. Xth Annual International Conference on Harmful Algae, 2002

Coble, P.G. and **T. Greely**. 2002 Ocean Scientists – the next generation: meeting the changing needs of graduate students. AGU Fall Meeting, Dec. 2002, San Francisco.

Coble, P.G., *R.N. Conmy*, and A. Stovall-Leonard. 2002. Gelbstoff in the Gulf of Mexico: preliminary results from 1998-2002. Ocean Optics XVI, Santa Fe, NM. Nov. 2002.

Jolliff, J. K., J. J. Walsh, *R. He*, R. Weisberg, A. Stovall-Leonard, *R. Conmy*, P.G. Coble, *B.Nababan*, F. Muller-Karger. 2002. A Three-dimensional simulation of the dispersal and photolysis of CDOM over the West Florida continental shelf. Ocean Sciences 2002 Meeting, Feb. 11-15, 2002. Honolulu, HI.

Jolliff, J.K., J. J. Walsh, *R. He*, R. Weisberg, A. Stovall-Leonard, *R. Conmy*, P. G. Coble, *B. Nababan*, F. Muller-Karger, J. Patch, and K. Carder. 2002. On the Dispersal of Terrestrial Organic Matter over the West Florida Shelf: A simulation of river discharge and photolysis of colored dissolved organic matter. Xth Annual International Conference on Harmful Algae

Conmy, R.N., and P.G. Coble. 2002. Changes in the Optical Properties of CDOM in Coastal Regions of the Gulf of Mexico (Mississippi River to Florida Bay). Ocean Sciences 2002 Meeting, Feb. 11-15, 2002. Honolulu, HI.

Boehme, J., P. G. Coble, *R.N. Conmy* and A. Stovall-Leonard. 2002. Examining CDOM Fluorescence Variability Using Principal Component Analysis: Seasonal and Regional Modeling of Three-Dimensional Fluorescence in the Gulf of Mexico. Ocean Sciences 2002 Meeting, Feb. 11-15, 2002. Honolulu, HI.

Stovall-Leonard, A., and P.G. Coble. 2002. Optical Characterization of Coastal Waters In The Gulf Of Mexico As A Function of Multiple River Inputs. Ocean Sciences 2002 Meeting, Feb. 11-15, 2002. Honolulu, HI.

Coble, P.G., **T. Greely**, and M. Hewitt. 2002. Project Oceanography: Enhancing Middles School Science Education Nationwide Via Instructional Television. American Meterological Society, Jan. 2002, Orlando, FL.

OTHER ACHIEVEMENTS

Awards

Town and Gown Award (Project Oceanography), 2002

Editorships

Associate Editor: Marine Chemistry (1997-present)

Professional Society

ACS, AGU, ASLO, TOS

Professional Service

Advisory Board Member, National Ocean Science Bowl, 1997 - 1999
Member SeaWiFS Science Team, 1997 - 2001
Chair, Membership Committee, The Oceanography Society, 1999 - 2002
Secretary, AGU Ocean Sciences Section, Marine Geochemistry, 2000-present
Program Committee, AGU 2000 - 2002 Fall Meeting, San Francisco
Ocean Sciences Meeting, Honolulu, HI – Co-convener for two special sessions, 2002
NOSB Advisory Panel
NOPP Education Advisory Ad Hoc Committee

Reviewer For: National Science Foundation; Limnology and Oceanography; Deep-Sea Research; Journal of Geophysical Research, Estuarine, Coastal and Shelf Science; Marine Chemistry; Geochimica et Cosmochimica Acta, NASA, NSF, NOAA, Continental Shelf Research

Community Service

Science Fair Judge - 3/22/00 Bay Point Elementary Magnet School
Friends of Weedon Island Board of Directors, Member 1998-present
Sustainable Seas Expedition Education Advisory Committee, Member, 1999 - 2001
National Ocean Science Bowl, Technical Advisory Panel, 1999 - 2000
AAUW "Girls + Math + Science = Success", Apr. 17, 1999
Advisory Committee - Pinellas County Educational Distance Learning Project, 1999 - 2001

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 2 MS theses
Served on 1 MS committees

Ph.D.

Director or co-director of 1 Ph.D. dissertation
Served on 7 Ph.D. committees
Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: **Kendra Lee Daly**

Employer: University of South Florida (USF), College of Marine Science

Present Rank: Assistant Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of Washington	Biological Oceanography	B.S.	1973
University of Washington	Fisheries	M.S.	1990
University of Tennessee	Ecology	Ph.D.	1995

EMPLOYMENT HISTORY

University of Washington: Department of Oceanography, Assistant, Associate, Senior Oceanographer (1973 – 1991)

University of Tennessee: Department of Ecology and Evolutionary Biology, Research Assistant (1991 – 1995), Research Associate (1995 – 01)

Oak Ridge National Laboratory/DOE: Hollaender Distinguished Postdoctoral Fellow (1995 – 1997)

National Science Foundation, Associate Program Director, Biological Oceanography Program (1997 – 2001)

University of South Florida: College of Marine Science, Assistant Professor (2000 – present)

AREAS OF SPECIALIZATION

Zooplankton ecology, physical-biological interactions, biogeochemical cycling, high-latitude ecosystems

GRANTS

NSF: Antarctic Pack Ice Seals (APIS): Ecological Interactions with Prey and the Environment, $77,417 (my portion), 1 Mar 1999 – 28 Feb 2003, (w/ 8 other funded PIs)

NSF: Southern Ocean GLOBEC, $300,000 (my portion), 1 Oct 2000 – 31 August 2003, (w/ 17 other funded PIs).

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Daly, K.L., D.W.R. Wallace, W.O. Smith, Jr., A. Skoog, R. Lara, M. Gosselin, E. Falck, and P. Yager. 1999. Non-Redfield carbon and nitrogen cycling in the Arctic: Effects of ecosystem structure and function. Journal of Geophysical Research 104, No. C2: 3185-3199.

Daly, K.L., W.O. Smith, Jr., G.C. Johnson, G.R. DiTullio, D.R. Jones, C.W. Mordy, R.A. Feely, D.A. Hansell, and J.-Z. Zhang. 2001. Hydrography, nutrients, and carbon pools in the Pacific sector of the Southern Ocean: Implications for carbon flux. Journal of Geophysical Research 106, No. C4: 7107-7124. This is U.S. JGOFS Contribution Number 708.

Bathmann, U., M.H. Bundy, M.E. Clarke, T.J. Cowles, K. Daly, H.G. Dam, MM. Dekshenicks, P.L. Donaghay, D.M. Gibson, D.J. Gifford, B.W. Hansen, D.K. Hartline, E.J.H. Head, E.E. Hofmann, R.R. Hopcroft, R.A. Jahnke, S.H. Jonasdottir, T. Kiorboe, G.S. Kleppel, J.M. Klinck, P.M. Kramer, M.R. Landry, R.F. Lee, P.H.

Lenz, L.P. Madin, D.T. Manahan, M.G. Mazzocchi, D.J. McGillicuddy, C.B. Miller, J.R. Nelson, T.R. Osborn, G.A. Paffenhofer, R.E. Pieper, I. Prusova, M.R. Roman, S. Schiel, H.E. Seim, S.L. Smith, J.J. Torres, P.G. Verity, S.G. Wakeham, and K.F. Wishner. 2001. Future marine zooplankton research - a perspective. Marine Ecology Progress Series 222: 297-308.

Hofmann, E.E., D.P. Costa, K.L. Daly, J.M. Klinck, W.R. Fraser, and J.J. Torres. 2002. U.S. Southern Ocean Global Ocean Ecosystem Dynamics Program. Oceanography 15 (2): 64-74.

Daly, K.L. 2000. Sensor technology for remote, interactive aquatic experiments. EOS 81: 580.

DiTullio, G.R., M.E. Geesey, D.R. Jones, K.L. Daly, L. Campbell, and W.O. Smith, Jr. 2003. Phytoplankton assemblage structure and primary productivity along 170ºW in the South Pacific Ocean. Marine Ecology Progress Series 255: 55-80.

Ackley, S.F., J.L. Bengtson, P. Boveng, M. Castellini, K.L. Daly, S. Jacobs, G.L. Kooyman, J. Laake, L. Quetin, R. Ross, D.B. Siniff, B.S. Stewart, I. Stirling, J. Torres, and P.K. Yochem. 2003. Ecological importance of summer pack ice to predators and prey in the Eastern Ross Sea, Antarctica. Polar Record 39: 219-230.

Schneider, J.J., L.B. Quetin, R.M. Ross, and K.L. Daly. A method to identify the species composition of acoustically-detected euphausiid aggregations. Marine Ecology Progress Series, submitted.

Daly, K.L. Antarctic Larval Krill Growth and Recruitment Overwinter: An Interannual Comparison Under Varying Environmental Conditions. Deep-Sea Research, submitted.

Technical Reports

Daly, K., H.L. Clark, G. Griffiths, and J. Delaney. Sensor Technology for Remote, Interactive, Aquatic Experiments. Report for ASLO Workshop, Copenhagen, June 2000.

Jahnke, R., L. Atkinson, J. Barth, F. Chavez, K. Daly, J. Edson, P. Franks, J. O'Donnell, O. Schofield. Coastal Ocean Processes and Observatories: Advancing Coastal Research, Report CoOP Observatory Science Workshop, May 7-9, 2002, Savannah, Georgia, CoOP Report 8, TR-02-01.

Abstracts, Oral, and Poster Presentations

Daly, K.L. Water-Column Biological Carbon Processes in the Southern Ocean, Gordon Research Conference on *Polar Marine Science*, March 1999, Ventura, CA. Organizers: L. Legendre and B. Prezelin (Invited Plenary Speaker).

Daly, K.L., E.E. Hofmann, W.R. Fraser, C.A. Ribic, D.G. Ainley, T.L. Hopkins, and J.J. Torres. Direct and indirect effects of predator-prey interactions: Coupling field observation and a spatially-dependent model. Invited talk; ASLO Aquatic Sciences Meeting, 1-5 Feb. 1999, Santa Fe, New Mexico.

Large-scale Variability in the Southern Ocean – Patterns, Mechanisms and Impacts, August, British Antarctic Survey, Cambridge, UK. *Marine Zooplankton Symposium II*, February 1999, Savannah, GA. 1999

Outreach activity on Antarctic cruise with students in an adult education class at Linn-Benton Community College in Albany, Oregon. *Marine Zooplankton Symposium II*, February 1999, Savannah, GA. 1999

Daly, K.L., .S. Samson, T. Hopkins, A. Remsen, *T. Sutton*, and L. Langebrake. Sensor Technology for Zooplankton Assessment. International Workshop on Autonomous Measurements of Biogeochemical Parameters in the Ocean, 20-22 February, 2001, Honolulu, HI. Co-conveners: K. Harada and T. Dickey.

Schneider, J., L.B. Quetin, R.M. Ross, K.L. Daly. Use of aggregation characteristics to identify dominant Antarctic euphausiids. ASLO Aquatic Sciences Meeting, January, 2001, Albuquerque, New Mexico.

Daly. K.L. Overwintering strategies of Antarctic Krill, Ocean Sciences Meeting, 2002, Honoloulu.

Gallager, S., K. Daly, K. Fisher, G.L. Lawson, C.S. Davis, C.J. Ashjian, and P.H. Wiebe. Seasonal changes in the association of larval krill with its potential microplankton food resources along the Western Antarctic Peninsula, Ocean Sciences Meeting, 2002, Honolulu.

Scolardi, K., K.L. Daly, and S.M. Gallager. Ctenophore predation on larval *Euphausia superba* during winter along the Western Antarctic Peninsula, Ocean Sciences Meeting, 2002, Honolulu.

Donnelly, J., J.J. Torres, K.L. Daly. SO GLOBEC meets APIS: The character of the midwater fish faunas of the eastern Ross Sea and the western Antarctic Peninsula Shelf, Ocean Sciences Meeting, 2002, Honoloulu.

Daly, K.L. Southern Ocean Larval Krill Growth and Recruitment: An Interannual Comparison Under Varying Environmental Conditions. International GLOBEC Open Science Meeting, Qingdao, China, 15-18 October 2002.

Gallager, S.M., K. Daly, G. Thompson, and P. Alatalo. Microplankton as a food resource for larval krill along the Western Antarctic Peninsula. Zooplankton Production Symposium, 20-23 May 2003, Gijon, Spain.

Daly, K.L. and D.W.R. Wallace. Carbon Dioxide Production and Respiratory Quotients for an Arctic Marine Copepod, *Calanus hyperboreus*. Zooplankton Production Symposium, 20-23 May, 2003, Gijon, Spain.

OTHER ACHIEVEMENTS

Professional Society

American Society of Limnology and Oceanography, The Oceanography Society, The American

Geophysical Union, American Association for the Advancement of Science

Professional Service

Member, U.S. National GLOBEC Science Steering Committee (2002 – present)

Member, Dynamics of Earth and Oceans Systems (DEOS) Committee; National advisory committee to the NSF on planning a Major Research Equipment and Facilities Construction (MREFC) termed the Ocean Observatory Initiative (OOI) (2002 – present)

Member, Ocean Research Interactive Observatory Networks (ORION) Steering Committee (2003-present)

Reviewed research proposals and participated on review panels: NSF, NOAA, NASA

Reviewed research articles for Deep-Sea Research, Limnology and Oceanography, Journal of Geophysical Research (Oceans), Polar Biology, Antarctic Science, Antarctic Research Series, Aquatic Microbial Ecology, Marine Ecology Progress Series, and Science (Wash.).

Science Judge, National Ocean Sciences Bowl, final competition, April 2000, Washington, D.C.

Convener of Workshop and Special Session: *Sensor Technology for Remote Interactive Experiments in Aquatic Environments*, ASLO meeting, June 2000, Copenhagen.

Invited Moderator for Sensor Technology Panel *RIDGE Theoretical Institute: The Subsurface Biosphere at Mid-Ocean Ridges*, August 2000, Big Sky, Montana.

Invited Discussion Leader, Gordon Research Conference on Field Analyses and Numerical Modeling of Coupled Physical, Chemical and Biological Systems, 11-16 March 2001, Ventura, CA

Co-convenor: *Physics and Biology of Antarctic Continental Shelf Waters III*, ASLO/AGU meeting, Feb. 2002, Honolulu.

Organizing Committee for "Coastal Ocean Processes and Observatories: Developing a New Vision for Coastal Research", May 2002, Coastal Ocean Processes Program (CoOP) workshop.

Advisory panel for the Replacement of the RVIB *N.B. Palmer*, June 2002 (Office Polar Programs, NSF).

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 4 MS theses

Major advisor of 4 MS students

Ph.D.

Director or co-director of 1 Ph.D. dissertation

Served on 2 Ph.D. committees

Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Larry J. Doyle
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Duke University	Geology	B.A.	1965
Duke University	Geology	M.A.	1967
University of Southern California	Marine Geology	Ph.D.	1973

EMPLOYMENT HISTORY

University of South Florida: Department of Marine Science/College of Marine Science, Assistant Professor (1972 – 1976), Associate Professor (1976 – 1980), Assistant Chairman (1981-1983), Professor (1980 – Present)

Director, Center for Nearshore Marine Science, 1987-present

AREAS OF SPECIALIZATION

Clastic and carbonate sedimentary geology, stratigraphy, and environmental geology.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Doyle, L.J., 1999, Invited articles of the various specialties in current state and future of Marine Geology/Geophysics, Geotimes, Feb.

Doyle, L.J., 2000, Invited article of the various specialties in current state and future of Marine Geology/Geophysics, Geotimes, Feb.

Locker, S.D., Doyle, L.J., and Logue, T.C, 2000, Surface Sediments of the NW Florida Inner Continental Shelf : A review of previous results, assessment and recommendations. In W.W. Schroeder and C.F. Wood, (eds.)

Physical/Biological Oceanographic Integration Workshop for the DeSoto Canyon and Adjacent Shelf, October 19-21, 1999. OCS Study MMS 2000-074. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, p. 49-69

Brooks G.R., Doyle, L.J., Davis, R.A., DeWitt, N.T., and Suthard, B.C., in press, Patterns and controls of surface sediment distribution: west-central Florida inner shelf. Special issue of Marine Geology

Brooks G.R., Doyle, L.J., Suthard, B.C., Locker, S.D., and Hine, A.C, in press, Facies architecture of the west-central Florida inner continental shelf: implications for Holocene barrier development. . Special issue of Marine Geology

Duncan, D.S., Locker, S.D., Brooks, G.R., Hine, A.C., and Doyle, L.J., in press Mixed carbonate-siliciclastic infilling of a Neogene carbonate shelf-valley system: Tampa Bay, west-central Florida. Special issue of Marine Geology

Hine, A.C., Brooks, G.R., Davis, R.A., Doyle, L.J., Duncan, D.S., Edgar, N.T., Gelfenbaum, G., Locker, S.D., Twichell, D.C., and Weisberg, R., in press, The west-central Florida Inner shelf and coastal system: A geologic conceptual overview. .Special issue of Marine Geology

Technical Reports

Doyle, L.J. Marine Geology/Geophysics. Invited for Geotimes. Brooks, Gregg R, Doyle, Larry J., Suthard, B.C., and DeWitt, N.T., 1999, Inner West-Central Florida

Continental Shelf: Sedimentary Facies and Facies Associations: USGS Open File Report 98-796, 124 p.

Abstracts, Oral, and Poster Presentations

Doyle, L.J. Marine Geology/Geophysics. Invited for Geotimes. Brooks, Gregg R, Doyle, Larry J., Suthard, B.C., and DeWitt, N.T., 1999, Inner West-Central Florida Continental Shelf: Sedimentary Facies and Facies Associations: USGS Open File Report 98-796, 124 p.

OTHER ACHIEVEMENTS

Awards

Who's Who in Science and Engineering
American Men and Women of Science
Angier B. Duke Scholarship
Outstanding Young Men of America
Society of Sigma Xi
Who's Who in the Southeast
Who's Who in Frontiers of Science
Research and Creative Activities

Professional Society

American Geological Institute
American Association of Petroleum Geologists
Society of Economic Paleontologists and Mineralogists
Geological Society of America
International Association of Sedimentologists
Journal of Coastal Education & Research Foundation
Society of Sigma Xi.

Professional Service

Registered Professional Geologist #596 State of Florida
Geological Society of America (Campus Representative)
GSA Geology and Public Policy Committee
Society of Economic Paleontologists and Mineralogists (Campus Representative)
American Association of Petroleum Geologists (Campus Representative)
Marine Geology Committee, AAPG
Technical Program Committee, AAPG/OTC, July 1, 1979 to present

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 1 MS theses
Served on 1 MS committees
Major advisor of 1 MS student

Ph.D.

Served on 1 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Kent A. Fanning
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor and Associate Dean (2000- present)

EDUCATION

Institution	Field of Study	Degree	Date
Colorado School of Mines	Chemistry	B.S.	1964
Harvard University	Biochemistry	none	1963-64
University of Rhode Island	Oceanography	Ph.D.	1973

EMPLOYMENT HISTORY

University of South Florida: Department of Marine Science / College of Marine Science
Assistant Professor (1973); Associate Professor, tenure (1977); Assistant Chair, (1979-1980); Professor (1984-present); Assistant Chair, (1994-2000); Associate Dean, (2000-present).

AREAS OF SPECIALIZATION

Chemical oceanography
Nutrients in seawater
Interstitial chemistry of sediments
Transport processes across the sediment-water interface
Geochemical processes in river plumes
Submarine geothermal springs
Radioisotope geochemistry

GRANTS

Office of Naval Research, An AUV-based Investigation of the Role of Nutrient Variability in the Predictive Modeling of Physical Processes in the Littoral Ocean, (co-PI: J. Walsh, USF Marine Science) Contract # N00014-96-1-5024, 8/1/98 - 12/31/99, $399,087

Ocean Farming, Inc. Phase I Experiments: solubility and chemical reactions of Iron Ke-Min and use by phytoplankton, (co-PI's: G. Vargo and R. Byrne), 9/1/96-indefinite, $25,000

Office of Naval Research, An AUV-Based Investigation of the Role of nutrient Variability in the Predictive Modeling of Physical Processes in the Littoral Ocean, (co-PI: J. Walsh, USF Marine Science), Contract #N00014-96-1-5024, 12/21/99 to 12/31/00, $321,739.

National Science Foundation (Office of Polar Programs), WinDSSOck: WINter Distribution and Success of Southern Ocean Krill (GLOBEC), (Co-PI's, Eileen Hoffmann, G.Flierl, R.Smith, R.Beardsley, R.Muench, T.Powell, M.Vernet, C.Fritsen, R.Ross, J. Torres, and many others), 9/15/00-8/31/03, $139,906

Office of Naval Research, An AUV-Based Investigation of the Role of Nutrient Variability in the Predictive Modeling of Physical Processes in the Littoral Ocean, (co-PI: J. Walsh, USF Marine Science) Second-year Renewal to Contract #N00014-96-1-5024, 12/1/00 to 12/30/01, $350,041

Office of Naval Research, An AUU Based Investigation of the Role of Nutrient Variability in the Productive Modeling of Physical Processes in the Littoral Oceans,

(Co-PI: J. Walsh, College of Marine Science, USF), Contract # N00014-02-1-0240, 12/1/01-12/31/03, $857,602

PUBLICATIONS

Key: *previous students*; current Master students; current **Ph.D. students**

Articles

Walsh, J.J., D.A. Dierterle, F.E. Muller-Karger, R. Bohrer, *W. P. Bissett*, R. Aparicio, R. J. Varela, *H.T. Hochman*, C. Schiller, **R. Diaz,** R. Thunell, G. T. Taylor, M.I. Scranton, K.A. Fanning, and E.T. Peltzer. 2000. Simulation of carbon/nitrogen cycling during spring upwelling in the Cariaco Basin. Jour. Geophys. Res., **104**, 7807-7825.

Masserini, R.T., Jr. and K.A.Fanning. 2000. A Sensor Package for the Simultaneous Determination of Nanomolar Concentrations of Nitrite, Nitrate, and Ammonia in Seawater by Fluorescence Detection. Marine Chemistry, **68**, 323-333.

Lenes, J.M., **B.P. Darrow,** *C. Cattrall*, *C. Heil*, G.A. Vargo, M. Callahan, R.H. Byrne, J.M. Prospero, D.E. Bates, K.A. Fanning, and J.J. Walsh. 2001. Iron fertilization and the Trichodesmium response on the West Florida shelf. Limnol. Oceanogr. **46**, 1261-1277.

G.A. Vargo, *C.A. Heil*, D. Spence, **M.B. Neely**, *R. Merkt*, K. Lester, R.H. Weisberg, J.J. Walsh, and K. Fanning. 2002. The hydrographic regime, nutrient requirements, and transport of a Gymnodinium breve DAVIS red tide on the West Florida shelf. Proc. 9th Intern. Symp. Harmful Algal Blooms, Hobart, Tasmania, ed. Hallegraeff, Blackburn, Bolch, & Lewis, pp. 157-60,.

Y.M. Serebrennikova and K.A. Fanning, Spatial, Seasonal, and Interannual Variation in Nutrients in the Southern Ocean GLOBEC Region: Water Circulation and Nutrient Cycling. 2003. Deep-Sea Res., *submitted.*

Abstracts, Oral, and Poster Presentations

Serebrennikova, Y.M. & K.A. Fanning. 2002. Study on Ammonia in the Antarctic Ocean. OS41C-28, Amer. Geophys. Union Meeting, February 2002, Hawaii.

PATENT (US)

Method for measuring nitrite and nitrate in aqueous medium (US Patent Number 5,858,792). Inventors: Fanning, Kent (St. Petersburg, FL); **Masserini, Jr., Robert** (Gulfport, FL). Assignee: USF (Tampa, FL). Issued: January 12, 1999

OTHER ACHIEVEMENTS

Awards

Phi Kappa Phi Honorary Society
American Men and Women of Science
Sigma Xi

Editorships

Editor, Journal of Geophysical Research (Oceans), 1992-1999.

Professional Memberships

American Society of Limnology and Oceanography
The Geochemical Society
The American Geophysical Union
The Oceanography Society

Professional Service

Editor, Journal of Geophysical Research (Oceans), 1992-1999.

Invited Member, National Science Foundation Review Panel on Western Arctic Shelf-Basin Interactions, Office of Polar Programs, Aug. 8-10, 2001.

STUDENT COMMITTEES (last 5 years)

Masters

Director or co-director of 3 MS theses
Served on 2 MS committees
Major advisor of 1 MS student

Ph.D.

Director or co-director of 2 PhD dissertation
Served on 4 PhD committees
Major advisor of 1 PhD student

CURRICULUM VITAE

GENERAL DATA

Name: Benjamin Pickard Flower
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Assistant Professor

EDUCATION

Institution	Field of Study	Degree	Date
Brown University	Geology-Biology	Sc.B.	1985
University of California, Santa Barbara	Geology	Ph.D.	1993

EMPLOYMENT HISTORY

University of California, Santa Cruz: Earth Sciences Department, Post-doctoral Researcher and Lecturer (1994-1996), Institute of Marine Sciences, Assistant Research Scientist (1995 - 1997)

California State University: Lecturer, Moss Landing Marine Laboratories (1996)

University of South Florida: Department of Marine Science / College of Marine Science, Visiting Assistant Professor (1997 – 1998), Assistant Professor (1998 - present)

AREAS OF SPECIALIZATION

Paleoceanography, Marine Stratigraphy, Stable Isotope Geochemistry, Marine Geochemistry

Micropaleontology, Global Change

GRANTS

Collaborative Research: Towards a Milankovitch-scale Stable Isotope Stratigraphy for the Late Oligocene to Early Miocene (with J.C. Zachos of UCSC; EAR97-25311); 1/1/98-12/31/00; Agency: NSF (Geology & Paleontology/Marine Geology & Geophysics); Award: $ 205,361

Subpolar Ocean/Climate Variability off Southeast Greenland during Past Glacial-Interglacial Cycles; 1/1/99-12/31/99; Agency: USF Research and Creative Scholarship Program; Award: $ 7,500

Acquisition of a Stable Isotope Ratio Mass Spectrometer for Global Change Research at USF (with T.M. Quinn of USF; EAR-9816650); 2/1/99-1/31/01; Agency: NSF (Instrumentation and Facilities/Earth Sciences); Award: $ 137,000

Testing Hypotheses for Organic Carbon Burial During the "Monterey Carbon Isotope Excursion" (ACS-PRF #38056-AC2); 9/1/02-8/31/04*;* Agency: American Chemical Society (Petroleum Research Fund); Award: $ 79,660

Temperature, Salinity, and Nutrient History of Tampa Bay Based on Stable Isotopes in Ostracodes and Benthic Foraminifera (with Terry Edgar of the US Geological Survey); 9/13/2002-9/14/2003; Agency: US Geological Survey; Award: $ 14,800

Renewal: 10/1/2002-9/30/2003; Agency: US Geological Survey; Award: $ 25,810

Late Oligocene Deep-Water Paleoceanography of the Southeast Pacific; 6/1/2002-3/28/2005; Agency: Joint Oceanographic Institutions: US Science Support Program; Award: $ 15,582

Sub-centennial-scale Gulf of Mexico sea-surface temperature variability during the Holocene epoch (with T.M. Quinn of USF); 7/15/03-7/14/06; Agency: NSF (OCE-Marine Geology and Geophysics (ESH); Award: $ 292,675

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Flower, B.P., 1999, Warming without high CO_2?, News and Views, *Nature*, 399, 313-314.

Flower, B.P., 1999, Cenozoic Deep-sea Temperatures and Polar Glaciation: The Oxygen Isotope Record, *Geological Records of Global and Planetary Changes*, P.J. Barrett and G. Orombelli, eds., *Terra Antartica Reports,* 3, 27-42.

Martin, E.E., Shackleton, N.J., Zachos, J.C., and Flower, B.P., 1999, Orbitally-Tuned Sr Isotope Chemostratigraphy for the Late Middle to Late Miocene, *Paleoceanography*, 14, 74-83.

Paul, H., Zachos, J.C., Flower, B.P., and Tripati, A., 2000, Orbitally Induced Climate and Geochemical Variability Across the Oligocene / Miocene Boundary, *Paleocean.,* 15, 471-485.

Flower, B.P., Oppo, D.W., McManus, J.F., Venz, K.A., Hodell, D.A., and Cullen, J., 2000, North Atlantic Intermediate to Deep Water Circulation and Chemical Stratification During the Past 1 Myr, *Paleoceanography*, 15, 388-403.

Zachos, J.C., Shackleton, N.J., Revenaugh, J., Palike, H., and Flower, B.P., 2001, Climate Response to Orbital Forcing Across the Oligocene-Miocene Boundary, *Science,* 292, 274-278.

Koc, N., L. Labeyrie, S. Manthe, B.P. Flower, D.A. Hodell, and A. Aksu, 2001, The Last Occurrence of *Proboscia curvirostris* in the North Atlantic in Marine Isotope Stages 9-8, *Marine Micropaleontology*, 41, 9-23.

Wright, A.K., and Flower, B.P., 2002, Surface and Deep Ocean Circulation in the Subpolar North Atlantic During the Mid-Pleistocene Revolution, *Paleoceanography*, 17, 1068.

Mallinson, D.J., Flower, B.P., Hine, A.C., Brooks, G., Garza, R.M., Paleoclimate implications of High Latitude Precession-Scale Mineralogic Fluctuations During Early Oligocene Antarctic Glaciation: The Great Australian Bight record, *Global and Planetary Change* (in press).

Technical Reports

Flower, B.P., 1999, Data Report: Planktonic Foraminifers from the Subpolar North Atlantic and Nordic Seas: Sites 980-987, 907, *In* Jansen, E., Raymo, M.E., Herbert, T., and Blum, P., (Eds.), *Proceedings of the Ocean Drilling Program, Scientific Results*, 162: College Station, TX (Ocean Drilling Program), 19-34.

Mallinson, D.J., Flower, B.P., Hine, A.C., Brooks, G.R., Molina Garza, R., Drexler, T., and the Leg 182 Scientific Party, Data Report: Mineralogy and Geochemistry of ODP Site 1128, Great Australian Bight, In Hine, A.C., Feary, D.A., and Malone, M., *Proceedings of the Ocean Drilling Program, Scientific Results*, Volume 182, Accepted September 2002, Published February 2003

Flower, B.P., Zachos, J.C., and Paul, H., Orbital-scale Climate Variability Recorded Near the Oligocene-Miocene Boundary, *Ocean Drilling Program's Greatest Hits* (www address: joi-odp.org/USSSP/Pubs/GreatHits/PDFs/Events/FlowerEtAl.pdf)

Flower, B.P., Ice Sheet Grounding on the Yermak Plateau (Arctic Ocean) prior to ca. 660 ka?, *Ocean Drilling Program's Greatest Hits* (www address: joi-odp.org/USSSP/Pubs/GreatHits/ PDFs/Events/Flower.pdf)

Abstracts, Oral, and Poster Presentations

Flower, B.P., McManus, J.F., *Wright, A.K.*, Curtis, J., and Hodell, D.A., 1999, A 900,000 year record of millennial-scale climate variability in the subpolar North Atlantic, *AGU Fall Meeting Abstracts*, *EOS* 80 (46): F15.

Zachos, J.C., Flower, B.P., Harvey, M., Revenaugh, J., and Tripati, A., 1999, Oceanographic and Climatic Response to Orbital Forcing During the Late Oligocene-Early Miocene (20-26 Ma): Inferences from High Resolution Records, *AGU Fall Meeting Abstracts, EOS* 80 (46): F504.

Channell, J.E.T., Hodell, D.A., Kleiven, H., and Flower, B.P., 1999, Early Brunhes and late Matuyama Relative Geomagnetic Paleointensity at ODP Sites 983 and 984: Correlation of the Matuyama-Brunhes Boundary to Oxygen Isotope Stratigraphy, *AGU Spring Meeting Abstracts*.

"Global Change Research at USF: Laurentide Ice Sheet History and Gulf of Mexico Paleoceanography" Eckerd College, Marine Science Department, November 2000.

"Deep Ocean Circulation and Atmospheric CO_2 During the Past 400 k.y." University of Massachusetts, Amherst, Geology Department, September 2000.

"Deep Ocean Circulation and Atmospheric CO_2 During the Past 400 k.y." Smith College, Geology Department, September 2000.

"Ocean Circulation History and Atmospheric CO_2" University of South Florida, St. Petersburg, Marine Science Department, April 2000.

Flower, B.P., and Zachos, J.C., 2001, Deep Ocean Ventilation and Chemical Stratification as a Driver of Orbital-Scale Climate Variability: Insights From the Pleistocene and Miocene of the Atlantic Ocean, *AGU Fall Meeting Abstracts*, *EOS*.

Wright, A.K., and Flower, B.P., 2001, Surface and Deep Ocean Circulation in the Subpolar North Atlantic During the Mid-Pleistocene Revolution, *AGU Fall Meeting Abstracts*, *EOS*.

Flower, B.P., and Zachos, J.C., 2001, Chemical Stratification of the Deep Ocean as a Driver of Orbital-Scale Climate Change: Insights from the Pleistocene and Miocene of the Atlantic Ocean, *7th International Conference on Paleoceanography, Program and Abstracts*, p. 103.

Wright, A.K., and Flower, B.P., 2001, Millennial-scale Surface and Deep Ocean Circulation in the Subpolar North Atlantic During the Mid-Pleistocene Revolution, *7th International Conference on Paleoceanography, Program and Abstracts*, p. 205.

Nathan, S.A., Leckie, R.M., DeConto, R.M., and Flower, B.P., 2001, Development of the Western Pacific Warm Pool During the Late Miocene: Linkages Between Tectonic Gateway Closure and Sea Level, *Geological Society of American Annual Meeting Abstracts*, p. A219.

St. John, K., Flower, B.P., and Rowe, C., 2001, Quantitative results of IRD, microfossil, and isotopic analyses of Pleistocene sediments from Hole 919A in the western Irminger Basin, East Greenland margin, *Geological Society of American Annual Meeting Abstracts*, p. A20.

Nathan, S.A., Leckie, R.M., DeConto, R.M., and Flower, B.P., 2001, Development of the Western Pacific Warm Pool During the Late Miocene: Linkages Between Tectonic Gateway Closure and Sea Level, AGU Spring Meeting Abstracts*,* EOS.

Flower, B.P., Hastings, D.W., **Hill, H.W.**, LoDico, J. and Quinn, T.M., 2002, Deglacial Warming in the Gulf of Mexico Preceded Laurentide Ice Sheet Meltwater Input: Implications for Tropical Climate Forcing, EOS Transactions, AGU, 83 (47), Fall Meeting Supplement, PP71A-0372.

Hill, H.W., Flower, B.P., Hastings, D.W., and Quinn, T.M., 2002, Gulf of Mexico Sea-Surface Temperatures and Laurentide Meltwater Input During MIS 3: Implications

for High/Low Latitude Linkages, EOS Transactions, AGU, 83 (47), Fall Meeting Supplement, PP62A-0333.

"Surface and Deep Water Circulation in the Subpolar North Atlantic During the Mid-Pleistocene Revolution" University of Florida, Gainesville, March 2002.

LoDico, J., Hastings, D.W., Flower, B.P., and Quinn, T.M., 2002, A Multi-proxy Approach to Distinguish Between Changes in SST and Meltwater Input in the Gulf of Mexico Back to MIS 3, EOS Transactions, AGU, 83 (47), Fall Meeting Supplement, PP62A-0331.

St. John, K., Kendrick, T., Zellers, S., and Flower, B.P., 2003, Diversity and abundance trends of planktonic and benthic foraminifers since 620 ka from the Irminger Basin (Site 919), northern North Atlantic, Geological Society of America Meeting, Southeastern Section, March 2003.

St. John, K., and Flower, B.P., Irminger Basin (Site 919) Tephra Stratigraphy Since 620 ka Supports Link Between Deglaciations and Explosive Icelandic Volcanism, Submitted December 2002 to EGS-AGU-EUG Joint Assembly, North Atlantic Climate Variability session, April 2003

Singh, Raj Kumar, Anil K. Gupta, Benjamin P. Flower, Paleoceanographic changes at ODP Site 757B, eastern Indian Ocean during the Plio-Pleistocene, Submitted 1 November 2002 to: International Conference on Climate, held in Pondicherry, India, February 2003.

Edgar, N.T., Swarzenski, P.W., Greenwood, W.J., Willard, D.A, Cronin, T.D., Brooks, G.R., Hastings, D.W., Larson, R., Hine, A.C., Flower, B.P., Hollander, D.J., Suthard, B.C., and Locker, S.D., "Holocene and Pleistocene marine and non-marine sediment from Tampa Bay, Florida," EOS Transactions, AGU, 83 (47), Fall Meeting Supplement, PP71A-0371.

Flower, B.P., Hastings, D.W., Hollander, D.J., **Hill, H.W.**, LoDico, J. and Quinn, T.M., 2003, Phase Relations Between Gulf of Mexico SST and High-Latitude Climate During the Last Glacial Cycle: Implications for Tropical Climate Forcing, EOS Transactions, AGU, Spring Meeting Supplement.

OTHER ACHIEVEMENTS

Professional Society

American Geophysical Union

Geological Society of America

Society of Economic Paleontologists and Mineralogists (North America Micropaleontology Section)

Professional Service

Reviewer for: *Nature*; *Paleoceanography; Geology*; *Marine Geology; Palaeogeography, Palaeoclimatology, Palaeoecology; GSA Bulletin*; *American Geophysical Union*; *Proceedings of the Ocean Drilling Program; Scientific Results;* NSF (Marine Geology and Geophysics, Earth Sciences, Arctic Polar Programs, Earth Sciences Instrumentation and Facilities, Earth System History); Joint Oceanographic Institutions / US Science Support Program (JOI / USSSP)

Member of Joint Oceanographic Institutions (JOI) Standing Committee for Arctic Geosciences (Nansen Arctic Drilling Program)

AGU Fall 2001 Session Chair (PP12A)

Invited Participant, Ocean Drilling Program Conference on Multiple Platform Exploration, May 1999
Invited Participant, Conference on U.S. Participation in IODP, June 2002
US National Representative to IMAGES (International Marine Past Global Changes Study), appointed February 2003.
Panelist, Science Steering and Evaluation Panel - Environment (ESSEP), Integrated Ocean Drilling Program (IODP); selected August 2003

Community Service

Convener, inaugural "Florida Conference on Ocean History" November 1999
Convener, inaugural "Eminent Scholar Panel" January 2003

STUDENT COMMITTEES (last 5 years)

Masters

Director or co-director of 2 MS theses
Served on 9 MS committees

Ph.D.

Director or co-director of 1 Ph.D. dissertation
Served on 1 Ph.D. committees
Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Boris Galperin
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
Latvian State University	Physics & Mathematics	M.A.	1975
Israel Institute of Technology	Atmospheric boundary Layers	Ph.D.	1982

EMPLOYMENT HISTORY

State Office for Design and Development of Automated Management Systems: Kiev, Ukraine, Engineer-Mathematician (1975-1976)

Central Office of Mechanizatioand Automatizationn, Riga, Latvia, Engineer, (1976-1977)

Princeton University: Program in Applied and Computational Research Mathematics, Staff Member (1987-1989), Program in Atmospheric and Oceanic Sciences, Research Staff Member (1982-1987)

University of South Florida: Department of Marine Science / College of Marine Science, Associate Professor (1989 to present)

AREAS OF SPECIALIZATION

Geophysical fluid dynamics; physical oceanography; turbulence theory; spectral theories of turbulence and their applications to geophysical fluid dynamics; large scale oceanic and atmospheric turbulence; two-dimensional and geostrophic turbulence; planetary circulations; planetary, atmospheric, marine and oceanic boundary layers; turbulent diffusion; numerical modeling; coastal and estuarine circulation; continental shelf processes; air - sea interaction

GRANTS

Improved Parameterisation of Stably Stratified Boundary Laryer Turbulence in Atmospheric Models, DADD, 10/1/2001 to 9/30/04, $404,498

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Galperin, B., and S. Sukoriansky. "Subgrid- and supergrid-scale parameterization of turbulence in quasi-two-dimensional barotropic flows and the phenomenon of negative viscosity". *Marine Turbulence - Theories, Observations and Models. Results of the CARTUM Project* . Cambridge - New York: Cambridge University Press.

Galperin, B., and S. Sukoriansky. "Energy spectra and zonal flows on beta-plane, rotating sphere, and giant planets". *Marine Turbulence - Theories, Observations and Models. Results of the CARTUM Project* . Cambridge - New York: Cambridge University Press.

Galperin, B., and S. Sukoriansky. "A spectral closure model for turbulent flows with stable stratification". *Marine Turbulence - Theories, Observations and Models. Results of the CARTUM Project* . Cambridge - New York: Cambridge University Press.

Articles

Galperin, B., and S. Hassid. "A comment on the Cheng, Canuto and Howard "An Improved Model for the Turbulent PBL". *Journal of the Atmospheric Sciences*

Galperin, B., S. Sukoriansky, and I. Staroselsky. "Cross-term and epsilon-expansion in RNG theory of turbulence." *Fluid Dynamics Research*

Galperin, B., S. Sukoriansky, and I. Staroselsky. "A Renormalized Perturbation Theory of Turbulent Flows with Stable Stratification." *Physics of Fluids*

Galperin, B., S. Sukoriansky, and N. Dikovskaya. "Universal spectrum of two-dimensional turbulence on rotating sphere and some basic features of atmospheric circulations on giant planets." *Physical Review Letters* (2002)

Galperin, B., S. Sukoriansky, and H. Huang. "Universal n^{-5} spectrum of zonal flows on giant planets." *Physics of Fluids* (2001): 1545-1548

Galperin, B., H. Huang, and S. Sukoriansky. "Anisotropic spectra in two-dimensional turbulence on the surface of a rotating sphere." *Physics of Fluids* (2001): 225-240

Galperin, B., R. Livingston, III, F.G. Lewis, G. Woodsum, X.-F. Niu, W. Huang, J. Christensen, M. Monaco, T.A. Battista, J. Klein, IV, R.L. Howell, and G.L. Ray. "Modelling oyster population response to variation in freshwater input." *Estuarine, Coastal & Shelf Science* (2000): 655-672

Galperin, B., S. Sukoriansky, and A. Chekhlov. "Large scale drag representation in simulations of two-dimensional turbulence." *Physics of Fluids* (1999): 3043-3053

Technical Reports

Galperin, B., *D. Burwell*, *M. Vincent*, and M. Luther. "Modeling residence times: Eulerian vs Lagrangian". *Estuarine and Coastal Modeling. Proceedings of the 6th International Conference* . New Orleans, La: ASCE, 2000. 995-1009

Galperin, B., H. Huang, and S. Sukoriansky. "Anisotropic spectra in two-dimensional turbulence on a rotating sphere." *12th Conference on Atmospheric and Oceanic Fluid Dynamics* (1999)

Abstracts, Oral, and Poster Presentations

Sukoriansky, S., B. Galperin, and V. Perov. *A spectral closure model for turbulent flows with stable stratification - theory and a test case of atmospheric SBL* . Technion - Haifa, Israel: Faculty of Mechanical Engineering, Technion, Israel, 2003, http://www.technion.ac.il/~kenesme.

Sukoriansky, S., B. Galperin, and V. Perov. *Application of a new spectral theory of turbulence to a stably stratified atmospheric boundary layer* . Nice, France: EGS-AGU-EUG Assembly, 2003, http://www.copernicus.org/EGS/egsga/nice03/programme/overview.htm.

Galperin, B. *Anisotropic Turbulence and Zonal Jets on Beta-Plane, Rotating Sphere and Giant Planets* . Cambridge, England: Department of Applied Mathematics and Theoretical Physics, Cambridge University, 2002.

Galperin, B. *Anisotropic Turbulence and Zonal Jets on Beta-Plane, Rotating Sphere and Giant Planets* . London, England: Department of Mechanical Engineering, University College London ,2002.

Galperin, B. Anisotropic Turbulence and Zonal Jets on Beta-Plane, Rotating Sphere and Giant Planets. Reading, England: University of Reading, 2002.

Galperin, B. *Anisotropic Turbulence and Zonal Jets on Beta-Plane, Rotating Sphere and Giant Planets*. Oxford, England: Atmospheric, Oceanic & Planetary Physics, Clarendon Laboratory, Oxford University, 2002.

Galperin, B. Universal Spectrum of Two-Dimensional Turbulence on Rotating Sphere and Basic Features of Atmospheric Circulations on Giant Planets. Nice, France: the 27th General Assembly of the European Geophysical Society, 2002.

Galperin, B. RPT Analysis of Turbulent Flows with Stable Stratification. Nice, France: the 27th General Assembly of the European Geophysical Society, 2002.

Galperin, B. *Zonal Flows on Beta-Plane, Rotating Sphere, and Giant Planets*. Baltimore, Maryland: Department of Earth and Planetary Sciences, The Johns Hopkins University, 2002.

Galperin, B. A Closer Look at Wave-Turbulence Interactions in Stably Stratified Flows. Brussels, Belgium: 7th CARTUM Meeting, 2001.

Galperin, B. *Spectral Characteristics of Zonal Flows on Giant Planets*. Brussels, Belgium: 7th CARTUM Meeting, 2001.

Galperin, B. *Spectral Characteristics of Zonal Flows on Giant Planets*. New Orleans, Louisiana: 33rd Annual Meeting, Division for Planetary Sciences, American Astronomical Society, 2001.

Galperin, B. Initial comparison of RG-based theory of stably stratified turbulent flows with observational data. Gregynog Hall, Wales, UK: CARTUM 3rd Summer School, 2001.

Galperin, B. Universal n^{-5} $ spectrum of zonal flows on giant planets. University College London, London, England: Department of Space and Climate Physics and Department of Mathematics, 2001.

Galperin, B. *Universal n^{-5}spectrum of zonal flows on giant planets*. Budapest, Hungary: CARTUM Workshop III , 2001.

Galperin, B. *Applications of the Boltzmann Lattice Method*. Budapest, Hungary: CARTUM Workshop III , 2001.

Galperin, B. *Universal n^{-5} spectrum of zonal flows on giant planets*. Washington, Dc: the 53rd Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, 2000.

Galperin, B. New results on stably stratified flows with shear. Bidston, United Kingdom: CARTUM Summer School, 2000.

Galperin, B. Coupled hydrodynamic-biological simulations of the oyster beds in Apalachicola Bay, Florida, in response to changes in reshwater runoff. Marseille, France: 2nd CARTUM Workshop, 2000.

Galperin, B, *M. Vincent*, *D. Burwell*, and M. Luther. A numerical modeling investigation of a proposed desalination facility at Big Bend, Tampa Bay, Florida, Phase I and II. St. Petersburg, Florida: S & W Water LLC ,2000.

Galperin, B. 2-D turbulence and flow two-dimensionalization, Parts I and II. Ispra, Italy: CARTUM Autumn School, 1999.

Galperin, B. *Anisotropic spectra in two-dimensional turbulence on a rotating sphere*. New York: 12th Conference on Atmospheric and Oceanic Fluid Dynamics, Columbia University, 1999.

Galperin, B. Negative viscosity, large scale drag, zonal jets and anisotropic spectra in simulations of 2D and rotating sphere turbulence. Princeton, Nj: GFDL/NOAA, Princeton University, 1999.

Galperin, B. Negative viscosity, large scale drag, zonal jets and anisotropic spectra in DNS of 2D turbulence. Hamburg, Germany: CARTUM Kick-Off Workshop, 1999.

OTHER ACHIEVEMENTS

Awards

Who's Who in the South and Southeast

Dictionary of International Biography

Strathmore's Who is Who American Men and Women of Science

Editorships

Editing Section 7 in a book "Marine Turbulence - Theories, Observations and Models. Results of the CARTUM Project," to be published by Cambridge University Press, Editor, Editorial Service for Book (1999-2003)

Professional Society

The American Astronomical Society (AAS), The American Meteorological Society (AMS), The American Physical Society (APS), American Geophysical Union (AGU), European Geophysical Society (EGS), American Institute of Aeronautics and Astronautics (AIAA), The Oceanography Society (TOS)

Professional Service

Reviewer for: Physical Review Letters, Physics of Fluids, Journal of Fluid Mechanics, Physical Review E, Cambridger Underisty Press, Theoretical and Computational Fluid Dynamics, Geophysical and Astrophysical Fluid Dynamics, Journal of Physical Oceanography, Ocean Modeling, Monthly Weather Review, Journal of Geophysical Research, Journal of Atmospheric and Oceanic Technology, Experimental Thermal and Fluid Science, ASME Journal of Fluid Engineering, ASCE Journal of Hydraulic Engineering, National Science Foundation, National Research Council, The Israel Science Foundation, Dutch Foundation for Fundamental Research on Matter, FOM, Natural Environment Research Council, UK

Chairing the Theoretical Committee of CARTUM – Comparative Analysis and Rationalization of Second-Moment Turbulence Models, 1999-2001

Chairing a session at EGS XXVII General Assembly, Nice, France, 2002

STUDENT COMMITTEES (past 5 years)

Ph.D.

Served on 4 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Luis Humberto García-Rubio
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
National University of México	Chemical Engineering	B.S.	1972.
McMaster University	Chemical Engineering	M.S.	1976.
McMaster University	Chemical Engineering	Ph.D.	1981

EMPLOYMENT HISTORY

Química Hoechst de México (1970-1971); Petroleos Mexicanos (PEMEX) (1972-1974); Xerox Research Centre of Canada (1980-1983); Principal and Co-Founder of Ocean Optics Inc. (1989-Present); R&D Ocean Optics Inc. (2000 – 2001)

University of South Florida: Chemical Engineering and Chemistry, Associate Professor (1984-1989); Tenured (1988); Professor (1990-2002); Chairperson, (1997–2000); College of Marine Science, (2002 – Present)

AREAS OF SPECIALIZATION

Sensor development; Synthesis and kinetic analysis of free radical polymers and copolymers; Polymer and copolymer characterization techniques; Mathematical modeling, optimization and simulation of polymerization reactors;

GRANTS

Cargill Inc., “Applications of USF’s Particle Characterization Technology To Cargill Processes”. With I-4 Matching (1998-1999) $105,000

Eastman Kodak “Support for the Development of the Multiangle-Multiwavelength Spectrometer” (1998-1999) $23,200

Constellation Technologies. Feasibility of the Characterization of Pathogens Using a Combined FFFF/Uv-vis Optical Waveguide Detection System (1998-1999). $26,000

Coulter-Beckman, “Sampling and Characterization of Sub-micron Particle Dispersions With I-4 Matching (1998-2000) $87,499

ICI Strategic Research Fund, “Sampling and Characterization of Concentrated Particle Dispersions SRF # 9709 (1997-2000) $180,499

Xerox Research Centre of Canada “Studies in Aggregation” (1998-2000) $25,000

Maverick Technologies. Characterization of Biomask: a Collagen Ablatable Mask (1999-2000) $22,759

NSF ERC for Particle Science and Engineering. U. of Florida 12 years (1994-2005) $494,723

Lucent Technologies. *Analysis and Modeling of the Effect of the SlurryLoop Variables on the Performance of the CMP Process* (1999-2001). $416,000

Los Alamos National Labs. *Feasibility Study on the Spectroscopy of Microorganisms*. (2000-2002), yearly budget $ 118,000.

Private Corporation. Study *on the use of Spectroscopy for Disease Identification* (2001-2003) $600,000

Los Alamos National Labs. *Spectroscopy Characterization of the Growth Behavior of Microorganisms*. (2003-2004), $161,336

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

M. T. Celis de Arce and L.H. García-Rubio, "Continuous Spectroscopy Characterization of Emulsions", Journal of Dispersion *Science and Technology*, 23 (1-3), 293-299, 2002.

Narayanan, L. Galloway, G. F. Leparc, L. H. García-Rubio, and R. L. Potter, "UV-Visible Spectrophotometric Approach to Blood Typing II: Phenotyping of Subtype A2 and Weak D and Whole Blood Analysis", *Transfusion*, 42, 619-626, May 2002.

P. A. Phsathas, M. L. Janowiak, L.H. García-Rubio, and K. P. Johnston, "Formation of Miniemulsions in CO_2 Using the Phase Inversion Temperature Method", *Langmuir*, 18, 3039-3046, 2002

M. L. Janowiak, H. Huang, S. Chang, and L.H. García-Rubio, "Development of a pH sensor for On-line Control". *ACS Symposium Series No 795 Optical Polymers/Fibers and Waveguides*, Eds. J. P Harmon and G. K. Noren, Chapter 14, 2001.

S. N. Thennadil and L.H. García-Rubio, "Approximations for Calculating van del Waals Interaction Energy Between Spherical Particles: A comparison", *Journal of Colloid and Interface Science Science*, 243, 136-142, 2001.

Y. Mattley, G. Leparc, R. Potter, and L.H. García-Rubio, "Light Scattering and Absorption Model for the Quantitative Interpretation of Human Platelet Spectral Data", *Photochemistry and Photobiology*, 2000, 71(5).

M. E. Orazem, P. T. Wojcik, M. Durbha, I. Frateur, and L. H. García-Rubio, "Application of Measurement Models for Interpretation of Impedance Spectra for Corrosion," *Materials Science Forum,* C. Deslouis, T. EL, 2000.

S. L. Carson, M. E. Orazem, O. D. Crisalle, L. H. García-Rubio, "Influence of Instrumentation on the Error Structure of Impedance Measurement," in *Electrochemical Approach to Selected Corrosion and Corrosion Control Studies* (The First Joint EFC/ISE Symposium, 1999), P. L. Bonora and F. Deflorian, editors. Publication number 28 in European Federation of Corrosion Series. Published by The Institute of Materials, London**,** 2000, 344-360.

Ioanna Koumarioti, L. Davis, S. Chang, and L.H. García-Rubio, "Spectroscopy Analysis of Particle Suspensions", *Development of Non-Renewable Resources: Challenges and Solutions".* Eds, H. El-Shall, A. Ismail and B. Moudgil. United Engineeering Foundation, Inc. New York, pages 83-93, 1999.

S. Narayanan, S. Orton, G. Leparc, L.H. García-Rubio and R. Potter, "UV-Visible Spectrophotometric Approach to Blood Typing: Objective Analysis by Agglutination Index". *Transfusion,* volume 39, 1051-1059, 1999.

S. L. Carson, O. Crisalle,.M. E. Orazem, and L. H. García-Rubio, "Error Analysis for Spectroscopy Applications of the Kramers-Kronig Transforms", Accepted for Publication in *Journal of the Electrochemical Society* in **1999.**

Technical Reports

L. H. García-Rubio, "Multiwavelength.Spectroscopy for Particle Characterization: Comparison with Coulters LS-230 Instrumentation". 1st Annual Progress Report, Beckman-Coulter, June 22nd**,** 1999.

L. H. García-Rubio, "Sampling and Characterization of Concentrated Dispersions". 2nd Annual Progress Report, ICI-Glidden, March 5th, 1999.

C. E. Alupoaei, J. A. Olivares, and L. H. García-Rubio, "An Interpretation Model for the Uv-vis Spectra of Microorganisms: Applications to the Analysis of Bacterium Vegetative Cells and Spores", Report No: LA-UR015529, Los Alamos National Laboratory, Los Alamos, MN, March 2001.

L. H. García-Rubio, "Fibre Optic-Based Spectrometers Advance Particle Analysis", EUROPHOTONICS, December-January 2001, 32-33.

C. E. Alupoaei, J. A. Olivares, and L. H. García-Rubio, "Growth Behavior of Microorganisms using Uv-vis Spectroscopy: *E. Coli* and *P. Agglomerans*", Report No: LA-UR026721, Los Alamos National Laboratory, Los Alamos, MN, October 2002.

C. E. Alupoaei, J. A. Olivares, and L. H. García-Rubio, "Quantitative Analysis of Prokaryotic Cells: Vegetative Cells and Spores", Report No: LA-UR026586, Los Alamos National Lab, Los Alamos, MN, May 2002.

Abstracts, Oral, and Poster Presentations

S. Carson, M. Orazem, O. D. Crisalle and L.H. García-Rubio, "Influence of Instrumentation on the Error Structure of Impedance Measurements", 50th Annual Meeting of the International Society of Electrochemistry, Pavia, Italy, September 5-10, 1999.

L. H. García-Rubio. "Technology Integration for Sensor Development". ACS National Meeting, New Orleans, August 22-26, 1999.

E. Steimle, L. H. García-Rubio, J. L. F. Porteiro "Study of the Waves in the Belusov-Zhabotinski reaction using Uv-vis spectroscopy". ACS National Meeting, New Orleans, August 22-26, 1999.

M. L. Janowiack, H. Huang, S. Chang, and L.H. García-Rubio, "Development of a pH sensor for On-line Control". ACS National Meeting, New Orleans, August 22-26, 1999.

S. Narayanan, S. Orton, G. Leparc, L.H. García-Rubio and R. Potter, UV-Visible Spectrophotometric Approach to Blood Typing: Objective Analysis by Agglutination Index". ACS National Meeting, San Francisco, California, May 23-27 1999.

L. Hockley, M. Callahan, L.H. García-Rubio and J. Rose, "Use of UV-Visible Spectroscopy to Differentiate Viable and Nonviable *E. coli*.", AWWA Symposium on Particle Measurement and Characterization in Drinking Water Treatment, Nashville, Tennessee, March 28-30 1999.

C. P. Bacon, and L. H. García-Rubio, "Multiangle-Multiwavelength Detection for Particle Characterization", IFPAC'99, San Antonio, Texas, January 24-27, 1999.

Y. Mattley and L.H. Garcia-Rubio, "Multiwavelength Spectroscopy to Detect, Identify and Quantify Cells", SPIE National Meeting East Boston, Massachusetts, 5-8 November 2000.

Xiaojuan Fu and L. H. Garcia-Rubio, "Feasibility of Identification and Classification of Microorganisms using a Combined FFFF-Spectroscopy System", SPIE National Meeting East, Boston, Massachusetts, 5-8 Nov 2000.

L. H. Garcia-Rubio, "A New Approach for the Characterization of the Joint Particle Property Distribution of Micron and Submicron Particulate Systems: Biological and Synthetic Particles", 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August 2000.

L. H. García-Rubio and Andres M. Cardenas Valencia, "Reflectance Spectroscopy

Probes for Continuos Process Monitoring of Particle Size, Concentration and Chemical Composition", 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August 2000.

M. Janowiak, H. Huang, S. Chang, and L. H. Garcia-Rubio "Fiber Optic pH Sensor Development", 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August 2000.

M. Lisa Bruder, Alicia Garcia-Lopez and L. H. Garcia-Rubio, "Systematic Study of the Sensitivity of Multiwavelength Spectroscopy for Particle Characterization", 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August 2000.

Alicia Garcia-Lopez, Andres M. Cardenas-Valencia and L H. Garcia-Rubio, "Liquid Core Waveguide for the Study of Colloidal Systems", 14th International Congress of Chemical and Process Engineering, Praha, Czech Republic, 27-31 August 2000.

Maria Celis and L. H. García-Rubio. "A Study on the Stability of Liquid-Liquid Emulsions", 13th International Symposium on Surfactants in Solution, Gainesville FL, June 11-16, 2000.

L. H. García-Rubio. "A Mathematical Model for Aggregation in Colloidal Systems", 13th International Symposium on Surfactants in Solution, Gainesville FL, June 11-16, 2000.

L. H. García-Rubio. "Detection of Small Concentration of Aggregates", 13th International Symposium on Surfactants in Solution, Gainesville FL, June 11-16, 2000.

M. E. Orazem, S. L. Carson, O. Crisalle, and L. H. García-Rubio, "Electrochemical Impedance for the Analysis of Chemical and Electrochemical Processess and Mechanisms", Paper Z1-1282, presented at 197 Meting of the Electrochemical Society, Toronto, Canada, May 14-18 2000.

L. H. García-Rubio. "Continuous Monitoring of Critical Parameters in Emulsion Polymerization Reactors", Plenary Lecture, Polymer Reaction Engineering IV Engineering Foundation Conference, Harborside, Palm Coast FL, March 19-24, 2000.

Andres Cardenas-Valencia, V. Shastry, N. Claggett and L.H. García-Rubio, "Transmission and Reflectance Spectroscopy for Continuous Process Monitoring of Particle Size, Concentration and Composition", presented at the United Engineering Foundation Conference on Reaction Engineering, Barga, Italy, June 24-29, 2001.

M. L. Janowiak, S. Chang and L.H. García-Rubio, "Reaction Engineering Model for the Interpretation of pH Optrodes", ", presented at the United Engineering Foundation Conference on Reaction Engineering, Barga, Italy, June 24-29, 2001.

Andres Cardenas-Valencia, **V. Shastry**, and L.H. García-Rubio "Spectroscopy Techniques for Continuous Monitoring of Emulsion Polymerization Reactors", presented at the ACS National Meeting, April 14-18, San Diego California, 2001**.**

L.H. Garcia-Rubio, "A Strategy for the Implementation of the Regularized Solution for Particle Size Estimation from Transmission Spectroscopy", *Particles 2001*, Orlando, Florida, February 25-27, 2001.

L.H. Garcia-Rubio, "Characterization of the Joint Particle Property Distribution of Micron and Submicron Particulate Systems II: Applications to Biological and Synthetic Particles", *Particles 2001*, Orlando, Florida, February 25-27, 2001.

Catalina E. Alupoaei and L.H. García-Rubio, "Characterization of Bioparticles", presented at Particles 2002 Conference, Orlando, Florida, April 20-23, 2002.

PATENT (US)

USF Disclosure No 99A004: Platform for In-Situ Detection and Remote Analysis for Telemedicine and Environmental Monitoring. Jointly with Dr. Stephan Athan, March 1999**.**

US Patent No 5,907,108: Continuos Sampling and Dilution System and Method, Patent issued on May 25th, 1999.

USF Disclosure No 00A031: Method for the Identification and Diagnosis of Blood and Infectious Diseases. With Dr. G. Leparc, June 2000.

US Patent No 60/217,742: Method for the Identification and Diagnosis of Blood and Infectious Diseases, September 9, 2000.

US Patent No 6,330,058 B1: Spectrophotometric Method and Apparatus for Blood Typing, Patent issued on December 11, 2001**.**

USF Disclosure No 01B083: An Interpretation Model for the Uv-vis spectra of Microorganisms. With Catalina E. Alupoaei, October 2001**.**

USF Disclosure No 03A017: Probabilistic Model for Identification of Particles in a Suspension. With Catalina E. Alupoaei, March 2003.

OTHER ACHIEVEMENTS

Editorships

Editorial Advisory Board, Polymer Reaction Engineering, 1995-2001

Professional Society

American Chemical Society, American Institute of Chemical Engineers, American Statistical Association, Mc Master Institute for Polymer Production Technology, Sigma Xi, Research Society, Phi Kappa Phi Honor Society

Professional Service

MacNair Scholar Program Advisor, 1995-2001

Reviewed Papers for: AIChE Journal, Macromolecules, Technometrics, Chemical Engineering Communications, Journal of Applied Polymer Science, Journal of Polymers Science, Journal of Photochemistry and Photobiology, Journal of Colloids and Interface Science, Latin American Applied Research, and Polymer Reaction Engineering.

Smith & Nephew Andover, MA. Member of the Science Advisory Board, (2002-2005)

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 12 MS theses

Served on 3 MS committees

Ph.D.

Director or co-director of 14 Ph.D. dissertations

Served on 20 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Albert C. Hine III
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor and Associate Dean of Research

EDUCATION

Institution	Field of Study	Degree	Date
Dartmouth College	Geology	B.A.	1967
University of Massachusetts	Geology	M.S.	1973
University of South Carolina	Geology	Ph.D.	1975

EMPLOYMENT HISTORY

Military Service, 1st Lt. USAF, (1969-1972)

Duke University, Durham, North Carolina: Department of Geology, Adjunct Assistant Professor (1978-1980)

University of North Carolina at Chapel Hill: Institute of Marine Sciences, Visiting Research Associate (1975-1977); Research Assistant Professor (1977-1979); Department of Geology, Adjunct Assistant Professor (1978-1979)

University of South Florida: Department of Marine science / College of Marine Science, Assistant Professor (1979-1982); Associate Professor (1982-1987); Professor (1987-Present); Associate Dean of Research (2002- Present)

AREAS OF SPECIALIZATION

Geologic processes and products of shallow marine sedimentary environments, Development, history, stratigraphy, sedimentation of carbonate platforms, Coastal geology, coastal wetlands, Sequence stratigraphy, Interpretation of seismic reflection data, Seafloor mapping/interpretation

GRANTS (Since 2000)

South Florida Water Management District/USGS: "Seismic Reflection Data Acquisition, Processing, and Interpretation: Caloosahatchee River, FL": South Florida Water Management District, A.C. Hine and S.D. Locker co-PI's., 1999-2000, $44,286.

US Department of Education/Pinellas County Schools, "Project Tampa Bay" : A.C. Hine, PI, $96,000 (1999-2001).

NSF/ODP/TAMU: "Contrasts Between Early and Late Quaternary Cycle Architecture—Great Australian Bight Upper Slope; ODP Site 1130 and 1132, A.C. Hine, PI, $26,991, (Nov 1999-Oct 2001).

NSF/ODP/TAMU: "Cenozoic Cool-Water Carbonates of the Great Australian Bight: reading the record of Southern Ocean evolution, sea level, paleoclimate, and biogenic production": A.C. Hine, PI (co-chief scientist on *D/V JOIDES Resolution*); $103,000 (1999-2001)

ONR: "Calibration of Optical Remote Sensing Data in the Shallow Marine Environment: Defining the Bathymetric, Geologic, and Suspended Sediment Variables"; P. A. Howd, D. Naar, D. Mallinson, A.C. Hine, Co-PI's, $499,989 Oct 1999 to Dec 2000.

ONR: "Sediment Dynamics on the West Florida Inner Continental Shelf: P. A. Howd, A.C. Hine, D. Naar, D. Mallinson, and S.D. Locker, Co-PI's; $1,321,672 Nov 2000 to Dec 2004.

USGS: “Pulley Ridge; A Deep Biostromal Coral reef on the Florida Platform”; A.C. Hine, B. Jarrett, S.D. Locker, and D.F. Naar Co-PI’s, $317,000, Oct 1, 2000--Sep 30, 2004.

USGS: “Seismic Reflection Survey of Tampa Bay; Implications for Groundwater Seepage and Origin of Tampa Bay”; S.D. Locker, and A.C. Hine, Co-PI’s, $40,000, Oct 1, 2001-Sep 31, 2004.

NSF/ODP/TAMU; “Facies Architecture of Sediment Drifts, NE Australian Margin”; A.C. Hine, March 5, 2001-Jan 1, 2004; $23,273

NSF/ODP/TAMU; “Cruise: Leg 194—Marion Plateau”, A.C. Hine, April 9, 2002-9/30/2004; $50,074

PUBLICATIONS

Key – *previous students*, current *Master students*, current **Ph.D. students**

Book Reviews

Published book review of Advances in Carbonate Sequence stratigraphy: Application to Reservoirs, Outcrops, and Models, EOS, Jan 19, 2001 issue.

Articles

Duncan, D.S., Hine, A.C., Droxler, A.W., 1999, Tectonic controls on carbonate sequence formation in an active strike-slip setting: Serranilla Basin, northern Nicaraguan Rise, western Caribbean Sea: Marine Geology, v. 160, p. 355-382.

Hine, A.C., Feary, D.A., and Malone, M. J., 1999, Research in Great Australian Bight Yields Exciting Early Results: EOS, v. 80, p. 521, 525-526.

James, N.P., Feary, D.A., Surlyk, F., Simo, J.A., Betzler, C., Holbourn, A.E., Ki, Q., Matsuda, H., Machiyama, H., *Brooks, G.R.*, Andres, M., Hine, A.C., and Malone, M.J., and the ODP Leg 182 Scientific Party, 2000, Quaternary bryozoan reef-mounds in cool-water, upper slope environments; Great Australian Bight: Geology, v. 28, p. 647-650

Swart, P.K., Wortmann, U.G., Mitterer, R.M., Malone, M.J., Smart, P.L., Feary, D., Hine, A.C., and the ODP Leg 182 Scientific Party, 2000, Hydrogen sulphide-rich hydrates and saline fluids in the continental margin of south Australia: Geology, v. 28, p. 1039-1042.

Feary, D.A. Hine, A.C., Malone, M., and the Leg 182 Scientific Party, 2000, Cool-water “reefs”, possible hydrogen sulfide/methane clathrates, and brine circulation—preliminary results of Leg 182 drilling in the Great Australian Bight: JOIDES Journal, v. 25, p. 4-7.

Hine, A.C., *Brooks, G.R.*, Davis, R.A., Jr., Doyle, L.J., Gelfenbaum, G., Locker, S.D., Twichell, D.C., and Weisberg, R., 2001, A summary of findings of the west-central Florida coastal studies project: USGS Open File Report 01-103.

Acker, J.G., Brown, C.W., Hine, A.C., Armstrong, E.A., and Kuring, N.,2002, Satellite remote sensing observations and aerial photography of storm-induced neritic carbonate transport from shallow carbonate platforms: Int. Journal of Remote Sensing, v. 23, no. 14, p. 2853-2868.

Cunningham, K.J., Locker, S.D., Hine, A.C., Bukry, D., Barron, J.A., and Guertin, L.A., 2003, Interplay of Late Cenozoic siliciclastic supply and carbonate response on the southwest Florida Platform: Journal of Sedimentary Research, v. 73, p. 31-46

Mallinson, D., Hine, A.C., Hallock, P., Locker, S.D., Shinn, E.A., Naar, D.F., *Donahue, B.,* and Weaver, D., 2003, Development of small carbonate banks on the south

Florida platform margin: response to sea level and climate change: Marine Geology, v. 199, p. 45-63.

Wood, N.J., and Hine, A.C., 2003, Sediment accumulation in a sediment-starved open marine marsh system: Wacasassa Bay, Florida: Journal of Coastal Research. V. 19, p. 574-583.

Brooks, G., Doyle, L.J., Suthard, B.C., Locker, S.D., and Hine, A.C., in press. Facies architecture of the mixed carbonate/siliciclastic inner continental shelf of west-central Florida: Implications for Holocene barrier development. Marine Geology Special Publication.

Duncan, D. S., Locker, S.D., *Brooks, G.R*., Hine, A.C., and Doyle, L.J., in press. Mixed carbonate-siliciclastic infilling of a Neogene carbonate shelf valley system: Tampa Bay, west-central Florida. Marine Geology Special Publication.

Edwards, J.H., Harrison, S.E., Locker, S.D., Hine, A.C., and Twichell, D.C., in press. Stratigraphic framework of sediment-starved sand ridges on a mixed siliciclastic/carbonate inner shelf off west-central Florida. Marine Geology Special Publication.

Harrison, S.E, Locker, S.D, Hine, A.C., *Edwards, J. H.,* Naar, D.F., Twichell, D.C., and *Mallinson, D.J.,* in press. Seafloor characteristics and process-response relationships of sediment starved sand ridges on a mixed carbonate/siliciclastic inner shelf off west-central Florida. Marine Geology Special Publication.

Hine, A.C., *Brooks, G.R*., Davis, R.A., *Duncan, D.S*., Locker, S.D., Twichell, D.C., and Gelfenbaum, G., in press. The west-central Florida inner shelf and coastal system: a geologic conceptual overview and introduction to the special issue: Marine Geology Special Publication.

Locker, S.D., Hine, A.C., and *Brooks, G. R*., in press. Regional stratigraphic framework linking continental shelf and coastal sedimentary deposits of west-central Florida. Marine Geology Special Publication.

Berman, G.A., Naar, D.F., Hine, A.C., *Brooks, G.R*., Tebbens, S.F., *Donahue, B.T.,* and Wilson, R., accepted, Geologic structure and hydrodynamics of Egmont Channel: an anomalous inlet at the mouth of Tampa Bay, Florida: Journal of Coastal Research.

Mallinson, D.J., Flower, B., Hine, A.C., Brooks, G., Garza, R.M., in press, Paleoclimate implications of high latitude precession-scale mineralogic fluctuations during early Oligocene Antarctic glaciation: the Great Australian Bight record: Global and Planetary Change.

OTHER ACHIEVEMENTS

Professional Society

International Association of Sedimentologists (IAS), Society of Economic Paleontologists and Mineralogists (SEPM), American Association of Petroleum Geologists (AAPG), Geological Society of America (GSA), American Geophysical Union (AGU), Publication Committee (SEPM), Nomination Committee (SEPM), Audio/Visual Committee (SEPM), Founding Member of Continental Margins Integrated Studies of Sediment Transport (CMISST), American Geophysical Union (AGU)

Professional Service

UNOLS Subcommittee on Cape Class Vessels

Member, National Science Foundation, Coastal Oceanography Program (Co-OP) Proposal Review Panel

Member, USGS National Center for Coastal Geology Proposal Review Panel.

JOI/ODP Activities: Member, JOIDES Site Survey Panel, 3 yr appointment, 1998-2000; Member, ODP Site Survey Panel 1997-1999; JOIDES-ODP Conference on Multiple Platform Exploration (COMPLEX) invited participant; Vancouver, May 25-28, 1999 Shipboard party member (sedimentologist), Leg 194, Marion Plateau, Jan-Mar 2001; JOI-USSAC Member, member of USSAC Executive Committee; 2001-2003, JOI-Alternate Board of Governers

Community Service

Presented numerous public lectures on coastal geology, environmental geology, and geological oceanography

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 8 MS theses

Served on 6MS committees

Ph.D.

Director or co-director of 2Ph.D. dissertation

Served on 1 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: David Jon Hollander
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of California/San Diego	Chemistry	B.S.	1982
University of California/Santa Cruz	Chemistry	M.S.	1984
Swiss Federal Institute of Technology	Naturwissenschaft (Natural Sciences)	Ph.D.	1989

EMPLOYMENT HISTORY

Northwestern University: Department of Geological Sciences, Assistant Professor (1992-2000); Department of Civil Engineering, Joint Faculty Appointment (1997-2000)
University of South Florida: College of Marine Sciences, Associate Professor (2000-Present)

AREAS OF SPECIALIZATION

Biogeochemistry, Organic Geochemistry, Stable-Isotope Geochemistry, Paleoceanography & Paleolimnology, Chemical Sedimentology, Global Geochemical Cycles & Earth Systems Science

GRANTS

Hollander, D.J. & Peebles, E., Tracing Nutrient Sources, Assessing Trophic Hierarchy & Determining Migration Routes for Economically Important Fish Populations in Natural, Oligotrophic & Eutrophic Tidal River Estuaries: A Stable Isotopic Perspective, South West Florida Water Management District, $40,000, 6/03-5/04.

Heil, C., Hollander, D.J., & Gilbert, P., From Source to Sink: Assessment & Monitoring of Dissolved Nitrogen Cycling Within Florida Bay. NOAA-Coastal Oceans Program, $200,000, 5/02-4/04.

Short, R., Kibelka, G., Byrne, R., & Hollander, D., Development of an *In-Situ* Mass Spectrometer for Stable Isotope Analyses, ONR, $400,000, 2/02-1/04.

Hollander, D., J. & E. Van Vleet, Evaluating the Long Term Influence that Anthropogenic Inputs have on the Biogeohemical Cycling of Carbon & Nitrogen & on the Planktic & Benthic Bioassemblages in Tampa Bay, FL, USGS, $80,000, 2/01-10/03.

PUBLICATIONS

Key – *previous Ph.D. students*, current Master students, current **Ph.D. students**

Articles

Smith M.A. & Hollander, D.J., 1999, Changes in the pattern of atmospheric circulation over Central North America during the past 100 years: Evidence from the oxygen-isotope record of recent carbonate sediments from Lake Mendota, Wisconsin, *Geology*, v. 27, 589-592.

Gong, C. & Hollander, D.J., 1999, Evidence for differential degradation of alkenones under contrasting bottom-water conditions: Implication for ocean paleotemperature reconstructions using U^{k}_{37}, *Geochim. Cosmochim. Acta*, v. 63, p. 405-411.

Rich, J., Hollander, D.J., & Birchfield, E.G., 1999, The role of regional oceanic bioproductivity in atmospheric pCO_2 changes, *Global Biogeochemical Cycles*, In Press. v. 13/2, p. 531-553.

Schwartz, M. & Hollander, D., Annealing, distilling, reheating & recycling: Bitumen processing in the ancient Near East, *Paleorient*, 26, 83-91.

Werne, J.P., Hollander, D.J., Lyons, T.W., & Peterson, L.C., 2000, Climate-induced variations in productivity & planktonic ecosystem structure from the Younger Dryas to Holocene in the Cariaco Basin, Venezuela *Paleoceanography*, v. 15, no. 1, pp. 19-29.

Murphy, A.E., Sageman, B.B., Hollander, D.J., 2000, Eutrophication by decoupling of the marine biogeochemical cycles of C, N, & P: A mechanism for the Late Devonian mass extinction, *Geology*, v. 28, p. 427-430.

Murphy, A.E., Sageman, B.B., Hollander, D.J., Lyons, T.W., & Brett, C.E., 2000, Black shale deposition in the Devonian Appalachian basin: Silicilastic starvation, episodic water-column mixing, & efficient recycling of biolimiting nutrients, *Paleoceanography*, v. 15, p. 280-291.

Werne, J.P., D.J. Hollander, A. Behrens, P. Schaeffer, P. Albrecht, J.S. Sinninghe Damsté, 2000, Timing of early diagenetic sulfurization of organic matter: A precursor-product relationship in Holocene sediments of the anoxic Cariaco Basin, Venezuela, *Geochimica et Cosmochimica Acta*, v. 64, no. 10, pp. 1741-1751

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Hollander, D.J. &. *Smith, M.A*., 2001, Microbially-mediated carbon cycling as a control on the $\delta^{13}C$ of sedimentary carbon in eutrophic Lake Mendota (USA): New models for interpreting isotopic excursions in the sedimentary record, *Geochim. Cosmochim. Acta.*, V. 65/23, 4321-4337.

Van Mooy, B., B. MacGregor, D. Hollander, K. Nealson & D. Stahl, 2001, Evidence for tight coupling between active bacteria & particulate organic carbon during seasonal stratification of Lake Michigan, *Limnology & Oceanography*, 46/5, 1202-1208.

MacGregor, B., *B. Van Mooy,* B. Baker, M Mellon, P. Moisander, H. Paerl, J. Zehr, D. Hollander, & D. Stahl, 2001, Microbiological, molecular biological, & stable isotopic evidence for nitrogen fixation in the open waters of Lake Michigan*, Environmental Microbiology*, 3(3), 205-219.

Werne, J., Sageman, B., Lyons, T., & Hollander, D., 2002, Integrated assessment of a "Type Euxinic" deposit: Evidence for multiple controls on black shale deposition in the Middle Devonian Oatka Creek Formation, *American Journal of Science*, V. 302, 110-143

Werne, J.P., D.J. Hollander, T.W. Lyons, J.S., Formolo, M. J., & Sinninghe Damsté, J., 2003, Reduced sulfur in euxinic sediments of the Cariaco Basin: Sulfur isotope constraints on organic sulfur formation, *Chemical Geology* v. 195, p. 159-179.

Sageman, B.B., *A.E. Murphy, J.P. Werne, C.A.* Ver Straeten, D.J., Hollander, & T.W. Lyons, 2003, A tale of shales: the relative roles of production, decomposition, & dilution in the accumulation of organic-rich strata, Middle-Upper Devonian, Appalachian basin. *Chemical Geology*, v. 195, p. 229-273. .

Lyons, T.W., *J.P. Werne,* & D.J. Hollander, Constraining sulfuur geocheistry & Fe/Al & Mo/Al ratios across the last oxic-to-anoxic transition in the Cariaco Basin, Venezuela, In: Isotopic Records of Microbially Mediated Processes*, Chemical Geology*, v. 195, p. 131-157.

Werne, J.P., D.J. Hollander T.W., Lyons, J.S. Sinninghe Damsté, Organic sulfur biogeochemistry: Recent advances & future directions for organic sulfur research. *In: GSA Special Paper: "Sulfur Biogeochemistry & Microbiology*, In Press**.**

Haven, J.A., *Heil, C.A*., Hollander, D.J., Vargo, G., Ault, D., Murasko, S., & Walsh, J.J., Investigation of nutrient sources supporting a *Karenia brevis* bloom in the West Florida shelf using □ ^{15}N & □^{13}C stable isotopic analyses, Submitted to *10th Annual International Conference on Harmful Algal* Blooms, 1/03.

Abstracts, Oral, & Poster Presentations

Geological Society of America, Denver, CO, October 1999

Werne, J., Hollander, D.J., Lyons, T., & Sinnighne-Damsté, J., Timing & pathways of diagenetic sulfurization of organic matter: Implications for the linkages between the biogeochemical cycles of carbon & sulfur.

Schwartz, M, Hollander, D.J., & Stein, G., Reconstructing Mesopitamian exchange networks in the 4th millenium B.C.: Geochemical andarcheological analysis of bitumen artifacts from Hacinebi Tepe, Turkey.

Murphy, A.E, Sageman, B.B. & Hollander, D.J., Eutrophication-anoxia feedback & the Late Devonian Mass extinction in the Appalachian Basin.

European Association of Organic Geochemists, 19th Inter. Meeting, Istambul, Turkey, September 1999

Hollander, D.J. & *Smith, M.*A., The importance of anaerobic processes in controlling seasonal & long-term carbon-isotope cycling in the severely eutrophic Lake Mendota, Wisconsin, USA.

Werne, J.P., Hollander, D.J., Lyons, T.W., & Sinninghe Damsté, J.S., Organic & inorganic carbon/sulfur interactions in the anoxic Cariaco Basin: Implications for diagenetic formation of organic sulfur compounds.

American Society of Limnologists & Oceanographers National Meeting, Santa Fe, NM, February 1999

Hollander D.J. & *Werne, J.W.,* Unpredicted carbon & nitrogen isotopic cycling in the Cariaco Basin from the Younger Dryas to present: Implications for interpretation of isotopic variability in upwelling systems.

Werne, J.W & Hollander D.J., Compound-specific isotopic records of plankton ecosystem variability in the Cariaco Basin, Younger Dryas to present.

Smith, M.A. & Hollander, D.J., Anaerobic processes as a potential control on the carbon isotope cycling of severely eutrophic lakes: A case study of Lake Mendota (Wisconsin).

Invited Lecture, Gordon Research Conference on Organic Geochemistry, Holderness, NH, August 2000

Werne, J.P., Hollander, D.J. & Sinnignhe-Damste, J., Bulk & molecular sulfur isotope constraints on the timing & pathways of early diagenetic sulfurization of organic matter.

Sageman, B., Hollander, D.J., *Murphy, A., Meyers,* S. & Lyons, T., Novel approach to interpreting the origin of ancient organic-rich sediment.

Hollander, D.J., The interplay between microbial recycling processes & primary productivity as a control on carbon isotope cycling in eutrophic environments: New insights into the origin of isotopic shifts in organic-carbon-rich sediments, Keynote Lecture in Organic Geochemistry, 31st International Geological Congress, Rio De Janeiro, Brazil, August, 2000.

Werne, J.P. & D.J. Hollander, Anomalous carbon isotope biogeochemistry in the Cariaco upwelling system: Balancing the effects of biological & oceanographic processes. Goldschmidt Conference, Oxford, U.K., September 2000.

Schwartz, M., Hollander, D.J., & Stein, G., Changing Patterns of Inter-Regional Exchange: An Analysis of Mesopotamian Influence on a Local Anatolian Exchange Economy in the 4th Millennium BC" 99th Annual Meeting: American Anthropological Association, San Francisco, November 2000.

Sutton, P. Hollander, D.J., & Van Vleet, E., Organic geochemical evidence for changes in carbon cycling planktic bioassemblages & terrestrial & wetland plant inputs associated with varying anthropogenic inputs in Tampa Bay, FL, Estuarine Research Federation Conference, Invited Presentation, St. Petersburg, FL. November 2001.

Werne, J. Hollander, D.J. Lyons, T.W., & Sinninghe-Damste, J., Compound-specific sulfur isotope constraints on the pathway(s) of diagenetic sulfurization of organic matter, GSA National Meeting, Boston, MA, November 2001.

Hollander, D.J., & *Gong, C.,* Toward an understanding of ocean-atmosphere CO_2 flux in the coastal oceans & its role in global climate change: Evidence from the Santa Monica Basin, Offshore California, 20th International Meeting of Organic Geochemists, EAOG, Nancy France, September 2001.

Sutton, P., Hollander, D.J., & Van Vleet, E., Evaluating the long term influence that anthropogenic changes have had Tampa Bay, Fl: A molecular organic geochemical approach, USGS sponsored conference at MOSI highlighting results from the "Integrated Science Tampa Bay Project", Tampa, FL, August 2001.

AGU National Meeting, San Francisco, CA, December 2002

Edgar, T., Swarzenski, P. Greenwood, J., Willard, D. Cronin, T., Brooks, G., Hastings, D., Larson, R., Hine, A., Flower, B., Hollander, D., Suthard, B. & Locker, S., Holocene & Pleistocene marine & non-marine sediment from Tampa Bay, FL.

Flower, B.P., Hastings, D.W., **Hill, H.W**., Hollander, D.J., LoDico, J, & Quinn, T.M., Deglacial warming in the Gulf of Mexico preceded Laurentide Ice Sheet meltwater input: Implications for early tropical/subtropical climate forcing.

Werne, J.P., Hollander, D.J., Lyons, T.W., & Sinninghe Damste, J.S., The role of organic sulfur in global sulfur cycling: Links to inorganic sulfur & microbial processes, GSA Annual Conference, Denver, CO, October 2002.

Haven, J.A., *Heil, C.A.,* Hollander, D.J., Vargo, G., Ault, D., Murasko, S., & Walsh, J.J., Investigation of nutrient sources supporting a *Karenia brevis* bloom in the West Florida shelf using $\delta^{15}N$ & $\delta^{13}C$ stable isotopic analyses, 10th Annual International Conference on Harmful Algal Blooms, St. Petersburg, FL., October 2002.

Bowker, R., **Hoare, A**., Cross, E. Hollander, D. & Van Vleet, E., Evaluating the role that regional differences in anthrogogenic change have on controlling temporal variations in carbon & nitrogen cycling in Tampa Bay, FL: A comparative study of Lake

Maggiore & Safety Harbor, USGS- 2nd Annual Tampa Bay Demonstration Conference, St. Petersburg, FL., Sept. 2002.

AGU-Ocean Science Meeting, Honolulu, HI, February 2002

Hollander, D.J. & *Gong, C.,* Evaluating ocean-atmosphere CO2 flux in the coastal oceans & its role in global climate change: Evidence from the Santa Monica Basin, Offshore California.

Werne, J.W., Lyons, T.W., Hollander, D.J., & Sinninghe-Damsté, J., Reduced sulfur in euxinic sediments if the Cariaco Basin: Sulfur isotope constraints on organic sulfur formation.

Meyers, S.R., Sageman, B.B., & Hollander, D.J., Orbital time scales, anoxic events, & controls on the accumulation of organic carbon in the Cretaceous Western Interior Seaway, GSA Meeting April 2002.

Joint Conference on the Science & Restoration of the Greater Everglades & Florida Bay Ecosystem *"From Kissimmee to the Keys",* Palm Harbor, FL, April 2003.

Hoare, A.M., D.J. Hollander, *C.A. Heil*, S. Murasko, P.M. Glibert, M. Revilla, & J. Alexander, Isotopic fingerprinting of nutrient sources & biological sinks in Florida Bay: A geochemical tool for evaluating ecosystem response to changing nutrient inputs.

Heil, C.A., P. M. Glibert, M. Revilla, J. Alexander, S. Murasko, D. Hollander, & **A. Hoare**, Phytoplankton & bacterial response to inorganic & organic nutrient enrichment & alteration in Florida Bay: Results from bioassay enrichment experiments.

Glibert, P.M., C.A. Heil, J. Alexander, M. Revilla, S. Murasko, D. Hollander, & **A. Hoare**, Stoichiometry of the dissolved & particulate nutrient pools, & phytoplankton uptake rates & their relationship with phytoplankton community composition in Florida Bay.

3rd International Limnogeology Congress, Tucson, AZ, February 2003

Cross, E., D. J. Hollander, & Y. Huang , Determining the role of biologic, hydrologic & climatic factors in controlling the D/H composition of algae & terrestrial organic matter from the waters & sediments of Lake Tulane, FL: A Calibration study.

Werne, J.P., Hollander, D.J., Lyons, T.W., & Sinninghe Damsté, J.S. , Compound specific sulfur isotope analysis: Constraints on organic matter sulfurization & sedimentary sulfur cycling.

GSA Annual Meeting, Seattle, WA., November 2003

Hoare, A.M., D.J. Hollander, *C.A. Heil*, S. Murasko, P.M. Glibert, M. Revilla, & J. Alexander, From Source to Sink: Linking Dissolved Organic & Inorganic Nutrient Sources from the Everglades to Biological Processes in FL Bay.

Cross, E., D. J. Hollander, Y. Huang, & E. Van Vleet, Compound Specific D/H Analysis of Late Holocene Lacustrine Sediments in Sub-Tropical North America: Implications for Reconstructing Atmospheric Circulation Patterns & Hydrologic Conditions.

OTHER ACHIEVEMENTS

Editorships

Chemical Geology, Elsevier Science, 1999-2001.

Professional Society

American Geophysical Union, Geochemical Society, American Society of Limnologists & Oceanographers, Geological Society of America, European Association of Organic Geochemists

Professional Service

Research Proposals Review: NSF, DOE, Sea Grant, American Chemical Society-Petroleum Research Fund, National Environmental Research Council, Swiss National Science Foundation, Army Corp of Engineers.

Manuscript Review for Journals: Nature, Geochimica et Cosmochimica Acta, Global Biogeochemical Cycles, Organic Geochemistry, Geology, Chemical Geology, American Association of Petroleum Geologists Bulletin, Paleoceanography, Paleogeography, Paleoclimatology & Paleoecology, Limnology & Oceanography.

Community Service

Member, Pinellas Point, Community Association, 2000-Present:

Member of City of Highland Park's (Illinois) Lakefront Commission: 1993-2000

STUDENT COMMITTEES (past 5 years)

Masters

Director of 4 MS theses

Served on 8 MS committees

Ph.D.

Director of 4 Ph.D. dissertations

Served on 10 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Peter A. Howd
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Assistant Professor

EDUCATION

Institution	Field of Study	Degree	Date
Williams College	Geology And Economics	B.A	1979
Oregon State University	Oceanography	M.S.	1984
Oregon State University	Oceanography	Ph.D.	1991

EMPLOYMENT HISTORY

U.S. Geological Survey: Physical Science Technician (1979 to 1980), Oceanographer (1991 to 1992)
Oregon State University: Graduate Research Assistant (1980 to 1984)
U.S. Army Corps of Engineers, Field Research Facility, Duck, NC: Research Oceanographer (1984 to 1987)
Oregon State University: Graduate Research Assistant (1987 to 1991)
Duke University, Nicholas School of the Environment: Assistant Professor of Ocean Science and Geology (1992 to 1997), Adjunct Assistant Professor (1997 to 2000)
University of South Florida: Department / College of Marine Science, Assistant Professor (1997 to 2002), Research Assistant Professor (2002 to present)

GRANTS

Office of Naval Research, PI: Howd, Co-PIs: Naar, Hine, and Locker. Sediment Dynamics on the West Florida Inner-continental Shelf, $229,978. January 1, 2003 – December 31, 2003
Office of Naval Research, PI: Howd, Co-PIs: Naar, Hine, and Locker. Sediment Dynamics on the West Florida Inner-continental Shelf, $683,486. November 1, 2001 – December 31, 2002.
U. S. Geological Survey, Center for Coastal Geology, Quantification of Beach Change and Coastal Erosion Hazards, $125,000. October 1, 12000 – March 31, 2002.
U. S. Geological Survey, Center for Coastal Geology, Wave Shoaling on the SW Washington Coast, $16,080. October 1, 2000 – March 31, 2002.
Department of Defense, Defense University Research Instrumentation Program (Office of Naval Research), PI: Howd, Co-PI: Merz. Sediment Dynamics on the West Florida Inner-continental Shelf, $150,000. April 1, 2001 – August 30, 2002.
Office of Naval Research, PI: Howd, Co-PIs: Naar, Hine, Mallinson and Locker. Sediment Dynamics on the West Florida Inner-continental Shelf, $638,186. December 1, 2000 – December 31, 2001.
U. S. Geological Survey, Center for Coastal Geology, Wave Shoaling and Mean Flows in Kailua Bay, Hawaii, $20,000. October 1, 1999 – June 15, 2001.
U. S. Geological Survey, Center for Coastal Geology, Assessment and Quantification of Beach Profile Susceptibility to Storm Erosion, $132,538. October 1, 1999 - June 15, 2001.
U. S. Geological Survey, Center for Coastal Geology, Validation of Numerical Models for Wave Shoaling on the SW Washington Coast, $28,513. October 1, 1999 - June 15, 2001.

Office of Naval Research, PI: Howd, Co-PIs: Naar, Mallinson, and Hine. Calibration of Optical Remote Sensing Data in the Shallow Marine Environment: Defining the Geologic, Bathymetric, and Suspended Sediment Variables, $366,425. December 1, 1999 – December 31, 2000.

U. S. Geological Survey, Center for Coastal Geology, Supplemental Measurements of Mean Flow in Kailua Bay, Oahu, Hawaii, $14,700. October 1, 1998 – September 30, 1999.

U. S. Geological Survey, Center for Coastal Geology, Assesment and Quantification of Beach Profile Susceptibility to Storm Erosion, $27,825. October 1, 1998 – September 30, 1999.

U. S. Geological Survey, Center for Coastal Geology, Shoreface Processes in Southwest Washington, $62,514. October 1, 1998 – September 30, 1999.

U. S. Geological Survey, Center for Coastal Geology, Vertical Structure of Mean Currents across the Surf Zone – Inner Shelf Transition, $30,000. October 1, 1998 – September 30, 1999.

Office of Naval Research, PI: Hine, Co-PIs: Naar, Howd, Mallinson and Wilson. A Multidisciplinary Investigation of the Nature and Predictability of Sediment Resuspension in Shallow Water: Its Effects on Water Column and Bottom Optical Properties, $499,952. August 1, 1998 – Dec. 31, 1999.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Keen, T.R., *R.L. Beavers*, P.A. Howd and K. Hathaway, 2003, Shoreface Sedimentation During a Northeaster at Duck, NC, USA, *J. Coastal Res., Vol. 19, p. 24-40*.

Johnson, Z. and P.A. Howd, 2000, Marine Photosynthetic Performance Forcing and Periodicity for the Bermuda Atlantic Time Series, 1989-1995, *Deep Sea Research Part I, Vol. 47, p. 1485-1512*.

Welch, J, R. Forward and P. A. Howd, 1999, Behavioral Responses of Blue Crab (*Callinectes sapidus*) Postlarvae to Turbulence: Implications for Selective Tidal Stream Transport, *Marine Ecology Progress Series, Vol.179, p. 135-143.*

Technical Reports

Sallenger, A.H., Howd, P., Stockdon, H., K. Guy, and K. Morgan, 2003, On predicting storm-induced coastal change, *Proceedings, Coastal Sediments '03*.

Stockdon, H., A. Sallenger, P. Howd and R. Holman, 2003, Longshore variability of the coastal response to Hurricanes Bonnie and Floyd, *Proceedings, Coastal Sediments '03*.

Wetzell, L., P. Howd and A. Sallenger, 2003, Simple models for predicting dune erosion hazards along the Outer Banks of North Carolina, *Proceedings, Coastal Sediments '03*.

Palmsten, M., A. Sallenger and P. Howd, 2003, Longshore currents and shoreline change: Outer Banks of North Carolina, *Proceedings, Coastal Sediments '03*.

C. R. Sherwood, C. R., G. Gelfenbaum, P. A. Howd, and *M. L. Palmsten*, 2001, Sediment transport on a high-energy ebb-tidal delta. Coastal Dynamics '01, Proceedings of the 4th Conference on Coastal Dynamics, June 11-15, 2001, Lund, Sweden. pp. 473-482.

Sallenger, A.H., R. Morton, C. Fletcher, E.R. Thieler and P.A. Howd, 2000, Comment: Sea level rise shown to drive coastal erosion*, EOS, Trans. AGU, V 81*, No. 38, p 436.

Beavers, R.L., P.A. Howd, W.A. Birkemeier and K. Hathaway, 1999, Seaward Limit of Significant Net Sediment Transport Evaluated by Sonar Altimetry, *The CERCular, Vol. CERC-99-2, p. 9-12*.

Beavers, R.L., P.A. Howd, W.A. Birkemeier and K. Hathaway, 1999, Evaluating Profile Data and Depth of Closure with Sonar Altimetry, *Proceedings, Coastal Sediments '99, V1 p 479-490*.

Sallenger, A., P.A. Howd, J. Brock, W. Krabill, R. Swift, S. Manizade and M. Duffy, 1999, Scaling Winter Storm Impacts on Assateague Island, MD, VA. *Proceedings, Coastal Sediments* '99, *V3 p 1814-1825*.

Haines, J., P.A. Howd and K. Hanson, 1999, Cross-shore Transport and Profile Evolution at Duck, North Carolina. *Proceedings, Coastal Sediments '99, V2 p 1050-1064*.

Abstracts, Oral, and Poster Presentations

Howd, P.A**.** and J. Brodersen, 2002, Climatology of a bottom boundary layer and acoustic proxies for sediment suspension. (presented at 2002 AGU Fall Meeting, San Francisco, CA, Dec.2002).

Howd, P.A., 2001, Statistical description of a current-dominated bottom boundary layer, *Eos Trans. AGU, 82(47) Fall Meet. Suppl*., Abstract OS21C-06. (Presented at 2001 Fall AGU Meeting, San Francisco, CA, Dec. 2001)

Howd, P.A., 2001, Coastal geology and physical oceanography – Exploring the links, GSA Annual Meeting Abstracts. (Presented at GSA Annual meeting, Boston, MA, Nov. 2001).

Howd, P.A., A.H. Sallenger and M. Merrifield, 2000, Wave setup and cross-shore flows on a fringing reef, (presented at 2000 Fall AGU Meeting, San Francisco, Dec 15-19, 2000).

Howd, P.A**.**, K. Hanson, A. Sallenger and M. Merrifield, 1999, Wave energy fluxes during shoaling on a fringing reef (presented at 1999 Fall AGU Meeting, San Francisco, Dec 13-17, 1999).

Howd, P.A**.**, 1999, Currents on the SW Washington shoreface – A first look (presented at the SW WA Coastal Erosion Study Annual PI Meeting, Olympia Washington, Nov. 17-19, 1999).

McIntyre, M., D. Naar, K. Carder, P. Howd, J. Lewis, *B. Donahue*, Chen, F., Comparison of bathymetry and bottom characteristics from hyperspectral remote sensing data and shipborne acoustic measurements. (presented at 2002 AGU Fall Meeting, San Francisco, CA, Dec.2002).

Palmsten, M., A. Sallenger and P. Howd, Wave and alongshore current modeling on the North Carolina continental shelf. (presented at 2002 AGU Fall Meeting, San Francisco, CA, Dec.2002).

Wetzell, L., P. Howd and A. Sallenger, Hindcasting storm-induced erosional hazards for the Outer Banks, NC. (presented at 2002 AGU Fall Meeting, San Francisco, CA, Dec.2002).

M. L. McIntyre, D.F. Naar, K.L. Carder, P.A. Howd, 2002, Hyperspectral remote sensing of nearshore bathymetry offshore of Sarasota, Florida: Comparisons with high-resolution multibeam bathymetry, (presented at 2002 AGU Ocean Sciences Meeting, Honolulu Hawaii, Feb., 2002).

Richmond, B., D. Cacchione, P. Howd and M. D'Iorio, 2002, Sand transport within a reef channel off Kailua, Oahu, Hawaii, (presented at 2002 AGU Ocean Sciences Meeting, Honolulu Hawaii, Feb., 2002).

Keen, T.R., *R.L. Beavers*, P.A. Howd and K. Hathaway, 2001, Sediment transport by mean near-bottom currents during the SandyDuck storm, *Eos Trans. AGU, 82(47) Fall Meet. Suppl*., Abstract OS21A-0409. (Presented at 2001 Fall AGU Meeting, San Francisco, CA, Dec. 2001).

Sallenger, A.H., H. Stockdon, *M. Palmsten*, P. A. Howd, K. Morgan, W. Krabill, J. Brock, R. Swift, 2001, Large scale coastal behaviour on the Outer Banks, NC during Hurricane Dennis, *Eos Trans. AGU, 82(47) Fall Meet. Suppl*., Abstract OS31B-0417. (Presented at 2001 Fall AGU Meeting, San Francisco, CA, Dec. 2001)

Wetzell, L., P.A. Howd and A. Sallenger, 2001, Forecasting maximum wave heights generated by hurricanes along the southeastern Atlantic and Gulf coasts, GSA Annual Meeting Abstracts. (Presented at GSA Annual meeting, Boston, MA, Nov. 2001).

Palmsten, M., P.A. Howd, C. Sherwood and G. Gelfenbaum 2000, SWAN model calibration and validation on the SW Washington inner continental shelf (presented by Palmsten at 2000 Fall AGU Meeting, San Francisco, Dec 15-19, 1999).

Beavers, R.L., P.A. Howd and K.K. Hathaway, 2000, Temporal Scales of Nearshore Storm Dynamics and Accretion of the Stratigraphic Record, AGU Ocean Sciences Meeting, 2000.

Beavers, R.L., E.R. Thieler and P.A. Howd, 2000, Storm sedimentation and inner shelf geology along the northern Outer Banks near Duck, North Carolina, Presented at SE regional meeting GSA.

Palmsten, M., K. Hanson and P.A. Howd, 1999, SWAN wave model sensitivity to variation in model formulation on the SW Washington inner continental shelf (presented by Palmsten at 1999 Fall AGU Meeting, San Francisco, Dec 13-17, 1999).

OTHER ACHIEVEMENTS

Professional Society

American Geophysical Union
Geological Society of America
Coastal Education and Research Foundation

Professional Service

Organizing Comm and Chair, Tech Prog, Coastal Sediments 2003, Clearwater Beach, FL.

Panelist (Oceanography), National Defense Science and Engineering Graduate Fellowship Program, February 13-14, 1999.

Peer Reviewer: Journal of Geophysical Research; Journal of Physical Oceanography; ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering; Marine Geology; Journal of Coastal Research; Physics of Fluids; International Journal of Great Lakes Research; National Science Foundation; various State Sea Grant Programs.

STUDENT COMMITTEES

Masters

Director or co-director of 4 MS theses
Served on 4 MS committees

Ph.D.

Director or co-director of 4 Ph.D. dissertation
Served on 3 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Michael W. Howell
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
Cornell University, Ithaca	Aquatic Science	B.S.	1981
University of Michigan	Oceanic Science	M.S.	1982
University of South Carolina	Marine Science	Ph.D.	1988

EMPLOYMENT HISTORY

National Museum of Natural History, Smithsonian Institution: Visiting Graduate Student (1981)
University of South Carolina: Marine Science Program, Graduate Assistant (1984-1988)
Mobil Oil Exploration and Producing: Exploration Assistant (1987)
Mobil Oil Research and Development Corporation: Senior Staff Geologist (1988-1992)
Ocean Drilling Program Leg 160: eastern Mediterranean Sea, Shipboard Paleontologist (1995)
Ocean Drilling Program Leg 194: Marion Plateau (S. Pacific) Shipboard Paleontologist (2001)
University of South Carolina: College of Science and Mathematics, Project Manager, South Carolina Alliance for Minority Participation (NSF) (1993-1994), Project Director (1994-1997), Marine Science, Research Associate Professor (1993-1997), Department of Geological Sciences and the Marine Science Program, Assistant Professor and Director, Laboratory for Cenozoic Studies (1997-2002)
Institut für Osteeforschung, Warnemünde, GERMANY: Visiting Senior Scientist (2001)
University of South Florida: College of Marine Science, Associate Professor (2003-Present)

GRANTS

USSAC/JOI – *Stable isotope chronology of ODP Sites 963 &964*, $33,000, 1995-1999.
NSF (OCE) – *Hydrographic variations in the Mediterranean during the late Neogene and Quaternary: The link between surface water change and sapropel formation,* $140,272, 1999-2001.
Univ. of South Carolina, Provost's Research and Productive Scholarship Fund – *Fossil otoliths: A tool for assessing paleoenvironmental changes in the Mediterranean,* $10,000, 1998-1999.
NSF (OCE) – Research Experience for Undergraduates Supplemental Award, $14,500. 1999-2000.
USSAC/JOI – *Late Neogene paleoceanography of the Marion Plateau, NE Australia. Results of stable isotope and geochemical studies*, $25,000, 2001-Present.
NSF (HRD) – *South Carolina AMP: Phase II*, $3.5 million, 1997-2002. – (**NOTE:** I developed and wrote this successfully-funded proposal. Engineering Dean Craig Rogers was later delegated as PI as I prepared to assume duties as Asst. Professor of Geological and Marine Sciences).
NSF (MRI-OCE) – (M. Goñi – PI), *Acquisition of Irm-GC-MS instrumentation for global biogeochemical research,* $318,255, 1999.

PUBLICATIONS

Key – *previous students*, current Masters students, current **Ph.D. students**

Articles

M.E. Böttcher, M. Howell, J. Rinna, B. Warning, R. Wehausen, , B. Schnetger, R. Stein, H.-J. Brumsack, and J. Rullkötter., Geochemistry of sediments from the junction between the western and eastern Mediterranean (Strait of Sicily; ODP Site 963). *Paleogeogr., Paleoclimatol., Paleoecol (in press).*

K. Emeis, M. H.M. Schulz, U. Struck, Rossignol-Strick, H. Erlenkeuser, M. Howell, D. Kroon, A. Mackensen, S. Ishizuka, T. Oba, T. Sakamoto, and I. Koizumi. Eastern Mediterranean surface water and $\delta^{18}O$ composition during deposition of sapropels in the late Quaternary. *Paleoceanography* 18(1), 2003.

M. Howell, How we saved Evolution in South Carolina, *Geotimes*, September 2000, p. 5.

Technical Reports

J. Armentrout, S. Gabay, J. Damuth, P. Weimer, H. Olson, M. Link and M. Howell Methodology for seismic sequence analysis. Mobil R&D Corporation Dallas Research Lab Technical Report (1991).

Abstracts, Oral, and Poster Presentations

M. Howell, R. Sprovieri and *C. Lewis*, Foraminiferal and isotopic evidence for bottom water variations in the Strait of Sicily: Implications for sapropel formation. *EOS* (Trans. Amer. Geophys. Union), 80: 456, (1999).

M. Howell, M.S. Poli, R. Sprovieri, Enrico Di Stefano, S. Becquey and *C. Lewis*. Pleistocene Hydrographic Variations in the Strait of Sicily: Implications for Sapropel Formation. *Evolution and Oscillation of Post-Miocene Mediterranean Climate*, Hanse Wissenschaft, Delmenhorst, Germany (2000).

M. Howell. Sapropel Formation in the Strait of Sicily, Eastern Mediterranean Sea. *2000 Annual Meeting*, Nat. Assoc. of Black Geol. and Geophys., Houston, TX, (2000).

M. Howell, *J. Miller*, M. S. Poli, C. Lewis, R. Sprovieri, and S. Becquey, Sapropel Formation in the Strait of Sicily: Isotopic and Geochemical Results From ODP Site 963. *EOS* (Trans. Amer. Geophys. Union), (2000).

M. Howell, *J. Miller*, K. Billups and D. P. Schrag. Surface water variations during late Pleistocene sapropel formation in the Mediterranean Sea: Results of isotope and geochemical analyses. *EOS* (Trans. Amer. Geophys. Union), 82:789, (2001).

Evolution and Oscillation of Post-Miocene Mediterranean Climate, Delmenhorst, Germany, (2000)

National Science Foundation - Minorities in Geoscience Task Force, Washington, D.C., (2000)

National Conference on Teaching Evolution, University of California at Berkeley, Berkeley, CA, (2000)

Keynote Speaker, University of Texas System AMP Annual Meeting, San Antonio, TX, (2000)

Leader, University of South Carolina Instructional Development Workshop, (2001)

Seminar Speaker, Institut für Osteeforschung, Warnemünde, GERMANY, (2001)

Seminar Speaker, University of South Florida, St. Petersburg, FL, (2002)

OTHER ACHIEVEMENTS

Awards

Visiting Senior Scientist, Institut für Osteeforschung, Warnemünde, GERMANY, 2001

Professional Society

American Geophysical Union
American Guild of Organists
National Association of Black Geologists and Geophysicists

Professional Service

American Geological Institute Minority Participation Program Advisory Committee, 1995-Present.
External Evaluator – Minority Undergraduate Marine Research Program, SC Dept. of Natural Resources, Charleston, SC. 2001
External Review Panelist and Consultant - State of Louisiana Board of Regents, Baton Rouge, LA, Louisiana Alliance for Minority Participation. 1997-Present
Geosciences Program, 2001
Governing Board, South Carolina Alliance for Minority Participation, 1997-Present
Member, State of South Carolina Governor's Mathematics and Science Advisory Board, 1994-Present
Member, American Geophysical Union Subcommittee on Diversity, 2001-Present
NSF – Directorate for Geosciences, Opportunities for enhancing diversity in the geosciences.
NSF – Directorate for Education and Human Resources, Course, Curriculum and Laboratory Instrumentation Program, 2002
NSF – Directorate for Education and Human Resources, Science Talent Expansion Program, 2003
NSF – Directorate for Geosciences, Board of Visitors, NSF Geodiversity Programs, 2003
IODP- Industrial Liaison Panel Member, 2003-2006

STUDENT COMMITTEES (past 5 years)

University of South Florida

Masters

Served on 2 MS committees
Major advisor of 1 MS student

University of South Carolina

Masters

Director or co-director of 2 MS theses
Served on 10 MS committees (
Major advisor of 2 MS students

Ph.D.

Director or co-director of 1 Ph.D. dissertation
Served on 2 Ph.D. committees
Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Mark E. Luther
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of North Carolina at Chapel Hill	Mathematics and Physics	A.B.	1976
University of North Carolina at Chapel Hill	Physical Oceanography	M.S.	1980
University of North Carolina at Chapel Hill	Physical Oceanography	Ph.D.	1982

EMPLOYMENT HISTORY

University of North Carolina at Chapel Hill: Graduate Research Assistant (1976-1982)

North Carolina State University: Department of Marine Science and Engineering, Research Technician, (1977 summer)

The Florida State University: Mesoscale Air-Sea Interaction Group, Postdoctoral Research Associate (1982-1984); Postdoctoral Fellow, (1984-1986); Research Associate (1986-1990); Associate in the Geophysical Fluid Dynamics Institute (1987-Present); Associate in the Supercomputer Computations Research Institute (1985-Present)

University of South Florida: Department of Marine Science / College of Marine Science, Associate Professor (1990-Present)

AREAS OF SPECIALIZATION

Numerical modeling of ocean dynamics; dynamics of western boundary currents; coastal and estuarine dynamics; equatorial dynamics; climate variability; real-time oceanographic observing-modeling systems.

GRANTS

"Tampa Bay PORTS Cooperative Agreement," M. E. Luther, PI. Greater Tampa Bay Marine Advisory Council-PORTS, Inc.; $211,033 (as of 5/31/03); 3/7/1994 to 3/6/2004.

"The Northeastern Gulf of Mexico Circulation Modeling Study," Y. Hsueh (FSU), PI, R. Weisberg, USF Co-Principal Investigator, M. Luther, Co-Investigator; MMS; $753,156 total USF sub-contract; 10/1/1995 to 3/31/2000.

"Development of an Integrated End-to-End Marine Contaminant Management System," M. E. Luther, PI, B. Galperin, E. VanVleet, N. Schmidt, M. Vincent, and C. Friel, Co-Investigators; EPA; $588,777; 10/1/1996 to 3/31/2000.

"Observations and Modeling of the West Florida Shelf Circulation," R. H. Weisberg, PI, M. E. Luther, Co-PI; ONR; $2,971,084; 10/1/1997 to 7/31/2003.

"Characterization of Changes in Salinity and Tidal Residual Circulation in Tampa Bay due to Desalination Concentrate Discharge," M. E. Luther, PI; S & W Water, LLC; $110,000; 10/29/1999 to 12/31/2000.

"A Real-Time Oceanographic Data System for Florida." Funded $300,000 for 5.3 positions for Coastal Ocean Modeling and Prediction Systems (COMPS). P. R. Betzer, M. E. Luther, and R. H. Weisberg, Co-PIs. (Annually recurring E&G funds).

"I-4 Corridor funding for the Coastal Ocean Modeling and Prediction System (COMPS)." Funded $ 69,276.00 for engineer position and $ 78,520.50 for expenses. P. R. Betzer, M. E. Luther, and R. H. Weisberg, Co-PIs. (Annually recurring E&G funds).

"Real-time monitoring in Brooker Creek Preserve," M. Luther, PI; Pinellas County; $39,450; 4/1/2000 to 9/30/2000.

"Salinity and Residence Time in McKay Bay in the USF College of Marine Science 3-Dimensional Hydrodynamic Circulation Model of Tampa Bay." M. E. Luther, PI; SFWMD; $69,943; 06/01/01 to 06/30/02.

"Coupling of a Wave Model and Water Quality Model with the USF 3-Dimensional Hydrodynamic Circulation Model for Tampa Bay." M. E. Luther, PI; USGS; $40,000; 06/01/01 to 06/30/03.

"Air-water turbulent flux measurements in Tampa Bay." M. E. Luther, PI; Florida DEP; $113,699; 1/1/2002 to 6/30/2003.

"The Alliance For Coastal Technologies (ACT): Partnership Activities at the USF." M. E. Luther, PI; NOAA through subcontract with the Univ. of Maryland; $650,000; 51/2002 to 4/30/2004.

"An autonomous genosensor for environmental water quality." J. Paul, PI; M. Luther, Co-PI (with others); NSF; $1.29M; 10/01/02 to 9/30/06.

"A regional node for the National Virtual Ocean Data System (NVODS)." M. Luther, PI; Texas A&M Research Foundation; $19,834; 10/1/02 to 3/31/03.

"The Southeast Atlantic Coastal Ocean Observing System (SEA-COOS)." H. Seim, PI, M. Luther, Co-PI (with others); ONR; $3.7M; 10/1/02 to 9/30/03.

"To Establish a Regional Node for the National Virtual Ocean Data System (NVODS) at the USF College of Marine Science;" Texas A&M Research Foundation; PI-Mark Luther; 10/01/2002 to 03/31/2003; $19,834

"Coordinated Regional Benefit Studies of Coastal Ocean Observing Systems;" ONR subcontract through Woods Hole Oceanographic Institution; PI - K. Weiand, COBA, Co-PI - M. Luther, D. Colie; 9/15/02-7/31/04; $49,939.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Tate, P., M. Begum, C. Mizak, N. Poor, B. Hartsell, E. Edgerton, M. Luther, V. Subramanian, *S. Gilbert*. J. Batten, C. Merchant, W. McClenny, K. Kronmiller, V. Bhethanabothla, C. King, 2003. A Comparison of Continuous and Integrated HNO_3 Ambient Air Concentrations and Atmospheric Deposition Rates. In Proceedings of the Air and Waste Management Association 96th Annual Conference (to appear).

Articles

Luther, M. E., 1999. Interannual variability in the Somali Current, 1954–1976. *Nonlinear Analysis: Real World Applications*, *35*, 59-83.

Haines, M. A., R.A. Fine, M. E. Luther, and *Z. Ji*, 1999. Particle trajectories in an Indian Ocean model and sensitivity to seasonal forcing. *J. Phys. Oceanogr., 29*, 584-598.

Bartolacci, D. M., and M. E. Luther, 1999. Patterns of co-variability between physical and biological parameters in the Arabian Sea. *Deep-Sea Res., 46,* 1933-1964.

Burwell, D., Vincent, M., Luther, M., Galperin, B., 2000. Modeling Residence Times: Eulerian vs Lagrangian. In: Estuarine and Coastal Modeling, M. L. Spaulding and H. L. Butler, eds., ASCE, Reston, VA, pp 995-1009.

Vincent, M., D. Burwell, and M. Luther, 2000. The Tampa Bay Nowcast-Forecast System. In: Estuarine and Coastal Modeling, M. L. Spaulding and H. L. Butler, eds., ASCE, Reston, VA, pp 765-780.

Shay, L. K., T. M. Cook, B. K. Haus, J. Martinez, H. Peters, A. J. Mariano, J. VanLeer, P. E. An, S. Smith, A. Soloviev, R. Weisberg, and M. Luther, 2000. VHF radar

detects oceanic submesoscale vortex along Florida coast. *EOS, Transactions, American Geophysical Union, 81*:19, 209-213.

Schmidt, N., E. K. Lipp, M. E. Luther, and J. B. Rose, 2001. ENSO influences on seasonal rainfall and river discharge in Florida. *Journal of Climate, 14*, 615-628.

Wilson-Diaz, D., A. J. Mariano, R. H. Evans, and M. E. Luther, 2001. A principal component analysis of sea surface temperature in the Arabian Sea. *Deep-Sea Res., 48,* 1097-1114.

Lipp, E. K., N. Schmidt, M. E. Luther, and J. B. Rose, 2001. Determining the effects of El Niño-Southern Oscillation events on coastal water quality. *Estuaries*, *24*, 491-497.

DiMarco, S., P. Chapman, W. D. Nowlin, P. Hacker, K. Donohue, M. E. Luther, G. C. Johnson, and J. Toole, 2002. Volume transport and property distributions of the Mozambique Channel. *Deep-Sea Res.* II, 49(7–8), 1481–1511.

Schmidt, N., and M. E. Luther, 2002. El Niño/Southern Oscillation impacts on salinity in Tampa Bay, Florida. *Estuaries, 25,* 976-984.

Soloviev, A. V., M. E. Luther, and R. H. Weisberg, 2003. Energetic baroclinic super-tidal oscillations on the shelf off southeast Florida. *Geophys. Res. Lett.* Vol. 30, No. 9, 10.1029/2002GL016603.

Shay, L. K., T. M. Cook, H. Peters, A. J. Mariano, R. Weisberg, P. E. An, A. Soloviev, and M. E. Luther, 2003. Very high frequency radar mapping of surface currents. *Journal of Oceanic Technology* (in press).

Technical Reports

Ji, Zaihua, and Mark E. Luther, 1999. Circulation and heat budget of the Indian Ocean in a numerical model. OMPL Rpt. No. 99-06-1, USF, 142 pp.

Vincent, M., Luther, *M., Burwell*, *D*. and Galperin, B., 2000a. A numerical modeling investigation of a proposed desalination facility at Big Bend, Tampa Bay, FL, Phases I and II: Model Calibration and Individual Effects. USF, 597 pp.

Vincent, M., Luther, M., *Burwell, D*. and Galperin, B., 2000b. A numerical modeling investigation of a proposed desalination facility at Big Bend, Tampa Bay, FL, Phase III: Cumulative Effects. USF, 388 pp.

Hammond, M. A., N. J. Blake, C. W. Dye, P. Hallock-Muller, M. E. Luther, D. A. Tomasko, and G. Vargo, 2000. Effects of disposal of seawater desalination discharges on nearshore benthic communities. Southwest Florida Water Management District Report 6-1-2000, 180 pp plus 5 appendices.

Luther, M. E., and S. D. Meyers, 2002. Simulation of altered fresh water flow through the Tampa Bypass Canal and impact on salinity. A report to the Southwest Florida Water Management District, September 2002. USF, 125 pp plus 7 appendices.

Luther, M. E., and S. D. Meyers, 2002. Simulation of discharge into Tampa Bay at selected locations. A report to the FL Department of Environmental Protection, April 2003. USF, 70 pp plus appendices & supplement.

Abstracts, Oral, and Poster Presentations

Luther, M. E., 1999. The West Florida Coastal Ocean Monitoring and Prediction System (COMPS). presented at the 13th Annual Governor's Hurricane Conference, June 7-11, 1999, Tampa, Florida.

Luther, M. E., *D. Burwell*, M. Haines, *N. Schmidt*, *M. Vincent*, R. Weisberg and H. Yang. The coastal ocean monitoring and prediction system for west Florida. presented at the International Union of Geodessey and Geophysics XXII General Assembly, Birmingham, UK, 19-30 July 1999.

Luther, M. E., *D. Burwell*, M. Haines, *N. Schmidt*, *M. Vincent*, R. Weisberg and H. Yang. Real-Time Physcial Oceangoraphic Monitoring in Tampa Bay and the West Florida Coastal Ocean, ERF '99, 9/25-30, 1999, New Orleans, LA.

Vincent, M., *D. Burwell*, M. Luther, and B. Galperin, 1999. The Tampa Bay nowcast-forecast system. Presented at the 6th International Conference on Estuarine and Coastal Modeling, New Orleans, LA, 11/3-5, 1999.

Burwell, D., M. Vincent, M. Luther, and B. Galperin, 1999. Modeling of estuarine residence times. presented at the 6th International Conference on Estuarine and Coastal Modeling, New Orleans, LA, 11/3-5, 1999

Luther, M. E., R. H. Weisberg, and **C. R. Merz**, 2000. The coastal ocean monitoring and prediction system for west Florida. presented at the AMS Annual Conference, Long Beach, CA, 9-14 January, 2000.

Zhang, H., M.E. Luther, D.M. Legler, S.D. Meyers and *R. He*. High frequency wind forcing from NSCAT in a model of the Indian Ocean circulation. Presented at the 2000 Ocean Sciences Meeting, ASLO, AGU, San Antonio, Texas, January 24-28, 2000.

Soloviev, A., M. E. Luther, and R. H. Weisberg, 2000. Response of the Coastal Ocean to Hurricanes Floyd & Irene at the South Florida Ocean Measurement Center. Presented at the AMS Conference, May 31, 2000.

Schmidt, N, *E.K. Lipp*, M.E. Luther and J.B. Rose. Exploring the combined impacts of NAO and ENSO on Florida's climate and coastal water quality. Presented at the Chapman Conference, The North Atlantic oscillation, University of Vigo (Ourense Campus) Ourense, Galicia, Spain, 11/28 – 12/1, 2000.

Luther, M. E., R. H. Weisberg, and A. V. Soloviev, 2001. Energetic supertidal oscillations with ~10-hr period off southeast Florida. Presented at TOS Conference, Miami, Apr. 2, 2001.

Luther, M. E., M. *S. Vincent*, *D. C. Burwell*, and B. Galperin, 2001. Numerical modeling of proposed fresh water withdrawals and desalination concentrate discharges in Tampa Bay, Florida. Presented at the 16th Biennial Conference of the ERF, St. Pete Beach, FL, Nov. 8, 2001.

Schmidt, N., and M. E. Luther, 2001. ENSO impacts on salinity in Tampa Bay, Florida. Presented at the 16th Biennial Conference of the ERF, St. Pete Beach, FL, Nov. 7, 2001.

Luther, M. E., 2002. Impacts of fresh water diversions and concentrate discharge from a seawater desalination facility on water quality in Tampa Bay, Florida. Presented at the AMS Third Symposium on Environmental Applications, Orlando, FL, Jan. 15, 2002.

Schmidt, N., and M. E. Luther, 2002. ENSO Impacts on Fresh Water Input and Salinity in Tampa Bay, Florida. Presented at the 2002 Ocean Sciences Meeting, Honolulu, HI, Feb. 14, 2002.

Luther, M. E., R. H. Weisberg, and A. Soloviev, 2002. Internal Tides on the Shelf off Southeast Florida. Presented at the 2002 Ocean Sciences Meeting, Honolulu, HI, Feb. 13, 2002.

Peebles, E. B., and M. E. Luther, 2002. Spawning and Habitat Responses of the Bay Anchovy *Anchoa mitchilli* to ENSO-related Variation in Inflows to Florida Estuaries. Presented at the 2002 Ocean Sciences Meeting, Honolulu, HI, Feb. 14, 2002.

Meyers, S. D., and M. E. Luther; Simulations of Altered Freshwater Flow Into Tampa Bay and Impact on Salinity; Presented at the AGU Fall Meeting, San Francisco, CA, Dec. 2002

Gilbert, S. A., S. Meyers, and M. Luther; Wind-Driven Waves in Tampa Bay, Florida. Presented at the AGU Fall Meeting, San Francisco, CA, Dec. 2002

Luther, M. E., S. D. Meyers, *S. A. Gilbert*, V. Subramanian, and M. E. Hansen, 2003. An Integrated Observing and Modeling System for Tampa Bay, Florida. Presented at the EPA Conference on Emerging Technologies, Tools, and Techniques To Manage Our Coasts in the 21st Century, January 27-31, 2003.

Luther, M. E., S. D. Meyers, *S. A. Gilbert,* V. Subramanian, *L. M. Wetzell*, *M. S. Vincent*, and *D. C. Burwell*, 2003. An Integrated Observing and Modeling System for Tampa Bay, Florida. Presented at TOS Conference, New Orleans, LA, June 2003.

Luther, M. E., S. D. Meyers, *S. A. Gilbert,* V. Subramanian, *L. M. Wetzell*, *M. S. Vincent*, and *D. C. Burwell*, 2003. An Integrated Observing and Modeling System for Tampa

Bay, Florida. Presented at the International Union of Geodesey and Geophysics, Sapporo, Japan, July 2003.

OTHER ACHIEVEMENTS

Editorships

Managing Editor, *HydroWire, An On-Line Newsletter for the Aquatic Sciences*, 1996-2000

Professional Society

American Association for the Advancement of Science, American Geophysical Union, American Meteorological Society, The Oceanography Society, The Estuarine Research Federation

Professional Service

U.S. Global Ocean Observing System (GOOS): Steering Committee, Member, 2002-2003; Vice Chair, 2003-present; Planning Workshop Steering Committee, Member, 2001-present.

US National Delegate to the International Association for the Physical Sciences of the Ocean, General Assembly, 1999, 2003.

American Geophysical Union: Ocean Sciences Section Executive Committee, Public Information Officer, 1996-2000; Information Technology Committee, 1998-2000.

Estuarine Research Federation: 2001 Conference Steering Committee, Chairman, 1997-2001; Initiative in Biocomplexity and Climate Change Steering Committee, Member, 2001-present.

National Research Council US National Committee for the International Union of Geodesy and Geophysics, Member, 1996-2004.

Greater Tampa Bay Marine Advisory Council, Member, 1993-present.

Tampa Bay Physical Oceanographic Real-Time System (GTBMAC-PORTS, Inc.) Chief Operating Officer, 1995-present.

Tampa Bay Regional Planning Council Agency on Bay Management, Member, 1996-present.

Tampa Bay National Estuary Program Technical Advisory Committee, Member, 1991-present.

Tampa Bay Harbor Safety Committee Technical Subcommittee, Member, 1997-present.

Reviewer for articles and proposals

Community Service

The Pier Aquarium Board of Directors, Member, 2001-present.

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 2 MS theses

Served on 2 MS committees

Major advisor of 3 MS students

Ph.D.

Director or co-director of 3 Ph.D. dissertations

Served on 10 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: David A. Mann
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Assistant Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of Maryland	Postdoctoral Researcher		1995-1997
MIT/Woods Hole Oceanographic Institution	Biological Oceanography	Ph.D.	1995
B.S. Cornell University	Neurobiology and Behavior	B.S.	1988

EMPLOYMENT HISTORY

Repligen Corporation: Technician (1988)
MIT Whitehead Research Institute: Technician (1989)
Tucker-Davis Technologies: Vice President (1997-2001)
Mote Marine Laboratory: Adjunct Scientist (1997-present)
University of South Florida: Assistant Professor (2001-present)

AREAS OF SPECIALIZATION

Bioacoustics, ichthyology, animal behavior, sensory ecology, hearing in marine mammals.

GRANTS

Multichannel Datalogger for Chronic Neural Recording, 2R44MH61646-02, Principal Investigator: David Mann; Transferred to Timothy Tucker upon leaving TDT; will act as a consultant., 4/1/2000-7/31/2003, Type: SBIR Phase I and II. $850,000

Mechanisms of Ultrasound Detection, Principal Investigaotr: Arthur Popper, U. of MD; David Mann PI on subcontract to Mote Marine Laboratory., 1/1/1999-12/31/2004, Type: RO1, $180,000

Charlotte Harbor Acoustic Survey, Mote Scientific Foundation, 11/1/01-10/31/03, $74,000

Manatee Avoidance Technology, Florida Fish and Wildlife Conservation Commission, 1/1/01-11/1/02, $40,000

Sensory Evoked Potential Studies in Manatees, University of Florida, 8/26/2002-8/25/2003, $24,064

Measurements of hearing sensitivity of wild bottlenose dolphins in Sarasota Bay. Harbor Branch Oceanographic Institution. 8/4/03-8/3/05, $99,930.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Zelick, R., D.A. Mann, and A.N. Popper. 1999. Acoustic communication in fishes and frogs. In: Comparative Hearing: Fish and Amphibians. Springer, New York. pp. 363-411.

Mann, D.A. in prep. Propagation of fish communication sounds. In: Fish Communication. Ladich ed.

Hueter, R., Mann, D., Sisneros, J., Maruska, K., Demski, L. in prep Sensory biology of elasmobranches. In: The Biology of Sharks and their Relatives. Carrier, Musick, Heithaus eds. CRC Press.

Hawkins, A., Mann, D., Jech, M. Active and Passive Use of Sound for Locating Fish. In: Fish Bioacoustics. Popper, Fay and Webb eds. Springer-Verlag.

Mann, D.A, and Higgs, D.M. in prep. Hearing and mechanoreception in fishes. In: The Physiology of Fishes. 3rd ed. Evans, D., and Claiborne, J.B. eds. CRC Press.

Articles

Mann, D.A., D.M. Higgs, W.N. Tavolga, M.J. Souza, and A.N. Popper. 2001. Ultrasound detection by clupeiform fishes. J. Acoust. Soc. Am. 109: 3048-3054.

Mann, D. A., Higgs, D. M., Tavolga, W. N., and Popper, A. N. 2002. Ultrasound detection by clupeiforme fishes. Bioacoustics, 12:188-191.

Nowacek, D.P. **Casper, B.M.,** Wells, R.S., Nowacek, S.M., and Mann, D.A. 2003. Intraspecific and geographic variability of manatee vocalizations. J. Acoust. Soc. Am. 114: 66-69.

Lindemann, M., and Mann, D.A. (in prep). Hearing in the mudskipper, Periopthalamus barbarus. J. Comp. Physiol. A.

Technical Reports

Mann, D.A., Nowacek, D.P., and Reynolds, J. (2002). Passive Acoustic Detection of Manatee Sounds to Alert Boaters. Final Report to Florida Marine Research Institute. 27 pp.

Abstracts, Oral, and Poster Presentations

Mann, D.A. 2002 "New Technologies for Passive Acoustic Detection of Fish Sounds". International Workshop on the Application of Passive Acoustics in Fisheries. Boston, MA.

Mann, D.A., Nowacek, D.P., and Tavolga, W.N. 2002 "Charlotte Harbor Acoustic Survey". Mote Marine Laboratory Charlotte Harbor Annual Conference.

Mann, D.A. 2002 "Toward a Fisheries Bioacoustics." Annual Meeting of the Acoustical Society of America conference. Cancun, Mexico. December 2002.

Mann, D.A, Ma, D., and Lobel, P.S. 2002 "Sound production by the toadfish, *Sanopus astrifer*." Annual Meeting of the Acoustical Society of America conference. Cancun, Mexico. December 2002.

Mann, D.A. 2003 "Development of Fisheries Bioacoustics as a Tool to Monitor Essential Fish Habitat", January 2003. EPA Emerging Technologies, Tools, and Techniques to Manage Our Coasts in the 21st Century, Cocoa Beach, FL.

Mann, D.A., Luczkovich, J., and Rountree, R. 2003 "Passive Acoustics and Fisheries—Past, Present, and Future". AFS Symposium on Passive Acoustics, Quebec City, Canada.

Mann, D.A. 2003 "Passive Acoustic Detection of Sciaenid Sound Production". AFS Symposium on Passive Acoustics, Quebec City, Canada.

OTHER ACHIEVEMENTS

Professional Society

AAAS
American Fisheries Society
Acoustical Society of America
American Society of Ichthyologists and Herpetologists
Marine Mammal Society

Professional Service

Reviewer for: Journal of the Acoustical Society of America; Journal of Experimental Biology; Bioacoustics; Copeia; Environmental Biology of Fishes

Grant Reviewer: NIH-NIDCD, National Geographic Society Committee for Research and Exploration

Member, Acoustical Society of America Technical Committee on Animal Bioacoustics.

Organized special session on Fish Audition and Sound Production. ASA Winter Meeting 2001, Ft. Lauderdale, FL.

International Workshop on the Application of Passive Acoustics in Fisheries. Boston, MA. Workshop facilitator for Technology Issues.

Representative for Animal Bioacoustics for Technical Program Organizing Meeting for the Acoustical Society of America conference in Cancun, Mexico. July 2002.

Organized special session on Coral Reef Bioacoustics. Annual Meeting of the Acoustical Society of America conference. Cancun, Mexico. December 2002.

Organized Symposium on "Passive Acoustics as a Tool in Fisheries". American Fisheries. Society Annual Meeting, Quebec City, Quebec, Canada. Mann, Luczkovich, Rountree. August 2003.

Community Service

Presentation. Feb 2002. "What is a Scientist". Temple Emanu-El Preschool, Sarasota, FL.

Host advisor to High School IB student (Sarah Fuchs) summer research. Project: Cytochrome-B sequencing of Gulf Menhaden. Summer 2002.

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 3 MS theses

Served on 2 MS committees

Major advisor of 1 MS student

Ph.D.

Director or co-director of 3 Ph.D. dissertation

Served on 3 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Gary T. Mitchum
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Florida State University	Physics	B.S.	1980
Florida State University	Physical Oceanography	Ph.D.	1984

EMPLOYMENT HISTORY

University of Hawaii Manoa: Department of Oceanography, Postdoctoral Researcher (1985 – 1987); Assistant Researcher (1987 – 1992); Associate Researcher (1992 – 1996); Affiliate faculty (1996 – 2000)

University of South Florida: Department of Marine Science / College of Marine Science, Associate Professor (1996 – 2002), Professor (2002-present)

AREAS OF SPECIALIZATION

Physical Oceanography

GRANTS

NASA: PI, El Nino/Southern Oscillation in the Antarctic Circumpolar Current, $66K, 9/1/1998 to 8/31/2001. NASA Fellowship for C. Holland's dissertation research.

NOAA/PFRP: PI, Evaluation of remote sensing technologies for the identification of oceanographic features critical to pelagic fish distributions around the Hawaiian Archipelago, $179K, 4/1/1996 to 9/30/2000.

NASA/TPEM: PI, Studies of tropical Pacific variability, $146K, 10/1/96 to 12/31/1999.

NOAA/NOPP: PI, "Establishing a NOAA Operational Data Center for Surface Currents Derived from Satellite Altimeters and Scatterometers: Pilot Study for the Tropical Pacific Including the Hawaiian and US Territorial Island", $241K, 10/2001 to 9/2004.

JPL/NASA: PI, "Using global terrestrial GPS measurements to unravel the emerging altimetric record of global sea-level change", $75K, 1/2001 to 12/2003.

NASA/JASON: PI, Studies of tropical variability, $267K, 4/1/1998 to 12/31/2003.

NASA/JASON: PI, "An investigation of very low frequency sea level change using altimeter data" $178K, 6/1/1997 to 12/31/2003.

NASA/JASON: PI, "A study of sigma naught bloom effects on radar altimeters" $110K, 4/1/1998 to 6/30/2003.

NOAA/CLIVAR: PI, Prospects for sea level data archaeology in the Atlantic, $40K, 9/2000 to 8/2001.

PFRP/NOAA: PI, Extension of PFRP investigation of swordfish catch in North Pacific, $48K, 9/2001 to 6/2002.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Nerem, R., D. Chambers, E. Leuliette, and B. Giese, 1999, Variations in global mean sea level associated with the 1997-98 ENSO event. *Geophys. Res. Letters*, **26**, 3005-3009.

Lagerloef, G., G.T. Mitchum, R. Lukas and P. Niiler, 1999, Tropical Pacific Near Surface Currents Estimated From Altimeter, Wind and Drifter Data. *J. Geophys. Res.*, **104**, 23313-23326.

Mitchum, G.T., and S. Chiswell, 2000, Coherence of internal tide variations along the Hawaiian Ridge. *J. Geophys. Res.*, **105**, 28653-28662.

Mitchum, G.T., 2000, An improved calibration of satellite altimetric heights using tide gauge sea levels with adjustment for land motion. *Marine Geodesy*, **23**, 145-166.

Mitchum, G.T., R. Cheney, L.-L. Fu, C. Le Provost, Y. Menard and P. Woodworth, 2001, The future of sea surface height observations. In *Observing the Ocean for Climate in the 21st Century*, Bureau of Meteorology, Australia.

Nerem, R., and G.T. Mitchum, 2001, Sea Level Change, in *Satellite Altimetry and Earth Sciences*, L. Fu and A. Cazenave (eds.), Academic Press.

Gilbert, S., and G.T. Mitchum, 2001, Equatorial inertia gravity wave observations from TOPEX/Poseidon sea surface heights. *Geophys. Res. Lttrs.*, **28**, 2465-2468.

Holland, C., and G.T. Mitchum, 2001, Propagation of Big Island eddies. *J. Geophys. Res.,* **106**, 935-944.

Nerem, R., and G.T. Mitchum, 2001Observations of sea level change from satellite altimetry, in *Sea Level Rise: History and Consequences*, B. Douglas, M. Kearney and S. Leatherman (eds.), Academic Press.

Mitchum, G.T., D.W. Hancock, III, G. Hayne and D. Vandemark, 2002, σ^0 blooms in the TOPEX radar altimeter data. Submitted to *J. Oceanic and Atmos. Tech.*, December 2002.

Nerem, R., and G.T. Mitchum, 2002, Estimates of vertical crustal motion derived from differences of TOPEX/POSEIDON and tide gauge measurements. *Geophys. Res. Lttrs.*, **29** (19), 1934, doi: 10.1029/2002GL015037.

Seki, M., J. Polovina, D. Kobayashi, R. Bidigare and G.T. Mitchum , 2002, An oceanographic characterization of swordfish (*Xiphias gladius*) longline fishing grounds in the springtime subtropical North Pacific. *Fisheries Oceanogr.*, **11**, 251-266

Woodworth, P., C. Le Provost, L. Rickards, G.T. Mitchum and M. Merrifield, 2002, A review of sea-level research from tide gauges during the World Ocean Circulation Experiment. *Oceanography and Marine Biology*, **40**, 1-35.

Lagerloef, G., P. Cummins, G.T. Mitchum, and J. Polovina, 2003, decadal paper. *Geophys. Res. Lttrs.*, Plan to submit in March 2003.

Mitchum, G.T., and C. Vonesch, 2003, Storminess changes in the southeastern United States during the 20th century. *Geophys. Res. Lttrs.*, Submitted March 2003.

Holland, C., and G.T. Mitchum, 2003, Interannual Volume Variability in the Tropical Pacific. *J. Geophys. Res. Oceans*, Submitted February 2003.

Lagerloef, G., R. Lukas, F. Bonjean, J. Gunn, G.T. Mitchum, M. Bourassa, and A. Busalacchi, 2003, El Nino Tropical Pacific Ocean surface current and temperature evolution in 2002 and outlook for early 2003. *Geophys. Res. Lttrs.*, Submitted February 2003, Accepted March 2003.

Mitchum, G.T., and R. Nerem, 2003, Sea Level Rise, Chapter for inclusion in book (non-refereed) by NASA/Cambridge, Submitted January 2003, Accepted February 2003.

Technical Reports

Mitchum, G.T., R, Cheney, L.-L. Fu, C. Le Provost, Y. Menard, and P. Woodworth, Sea surface height observations from altimeters and tide gauges, CLIVAR Exchanges, **4** (3), 11-15.

Mehta, V., E. Lindstrom, A. Busalacchi, T. Delworth, C. Deser, L.-L. Fu, J. Hansen, G. Lagerloef, W. Lau, S. Levitus, J. Meehl, G.T. Mitchum, W. White, Summary of the Proceedings of the NASA Workshop on Decadal Climate Variability. *Bull. Am. Met. Soc.*, **81**, 2983-2985, 2000

Nerem, S., R. Eanes, J. Ries and G.T. Mitchum, The use of a precise reference frame in sea level change studies, in Towards an Integrated Global Geodetic Observing System (IGGOS), R. Rummel, H. Drewes, W. Bosch, and H. Hornik (eds.), Springer-Verlag, Munichm 2000.

Abstracts, Oral, and Poster Presentations

G.T. Mitchum, Tide Gauge Comparison Potential for Alt-B Calibration, TOPEX Alt-B Cal/Val Meeting #1, Goddard Space Flight Center, April, 1999

Mitchum, G.T. (ed.), Proceedings of an international workshop entitled *Ocean Circulation Science Derived from the Atlantic, Indian and Arctic Sea Level Networks*, held in Toulouse, France, 10-11 May 1999. Intergovernmental Oceanographic Commission, UNESCO, 157 pp.

G.T. Mitchum, An overview of the Atlantic Sea Level Observing System, Climate Observing System for the Tropical Atlantic (COSTA), Planning Workshop, Miami, May, 1999

OCEANOBS 99, The Observing System for Climate, St. Raphael, France, Oct, 1999

Mitchum, G.T., R, Cheney, L.-L. Fu, C. Le Provost, Y. Menard, and P. Woodworth (invited), The future of sea surface height observations

Garzoli, S., D. Enfield, G. Reverdin, G.T. Mitchum, R. Weisberg, P. Chang, and J. Carton (invited), COSTA: A climate observing system for the tropical Atlantic

G. Lagerloef, G.T. Mitchum, R. Lukas, P. Niiler, and A. Busalacchi, Tropical Pacific near surface currents estimated from altimeter, wind and drifter data

G. Lagerloef, G.T. Mitchum, A. Busalacchi, and F. Bonjean, Near-real-time satellite-derived tropical surface current variability as an aid to ENSO monitoring and prediction

Mitchum, G.T., R, Cheney, L.-L. Fu, C. Le Provost, Y. Menard, and P. Woodworth, The future of sea surface height observations

Garzoli, S., D. Enfield, G. Reverdin, G.T. Mitchum, R. Weisberg, P. Chang, and J. Carton, COSTA: A climate observing system for the tropical Atlantic

TPEM/JASON-1 Science Working Team meeting, St. Raphael, France, October 1999

G.T. Mitchum and S. Nerem, Improved tide gauge calibration, TOPEX Side A to Side B offset, and the present status of the global sea level change estimate

C. Holland and G.T. Mitchum, Propagation of Big Island eddies

C. Holland & G.T. Mitchum, Decadal & ENSO variability & mass pathways in the Pacif

G.T. Mitchum, A System for Measuring Long-term Regional to Global Sea Level Change, presented by *C. Holland*, AMS Annual meeting, Dallas, January 1999
Ocean Sciences 2000, San Antonio, Texas, January 2000

Mitchum, G.T., Combining data from satellite altimetry and tide gauges for studies of low frequency sea surface height variations

G. Lagerloef, G.T. Mitchum, and P. Niiler, Altimeter-derived surface geostrophic currents apparently underestimated relative to surface drifters

J. Gunn, G. Lagerloef, G.T. Mitchum, and A. Busalacchi, Towards a real-time tropical surface current analysis

TOPEX/Poseidon/JASON-1 Science Working Team meeting, Miami, Florida, November 2000

Mitchum, G.T., (invited) An update on monitoring the stability of satellite altimeters with tide gauge data

Mitchum, G.T., D. Hancock, G. Hayne, and D. Vandemark, (invited) Description of sigma-naught blooms in TOPEX altimeter data

Mitchum, G.T., A. Busalacchi, and G. Lagerloef, Studies of tropical variability

Mitchum, G.T., and R. Scharroo, Intercomparison of TOPEX and ERS and tide gauge sea levels

Lagerloef, G., G.T. Mitchum, A. Busalacchi, and J. Gunn, Tropical surface currents estimated from satellite altimeter sea levels and winds

Gilbert, S., and G.T. Mitchum, Can TOPEX/Poseidon observe equatorial inertia-gravity waves?

Nerem, S., and G.T. Mitchum, Studies of vertical crustal motion and sea level using TOPEX/Poseidon

Nerem, S., E. Leuliette, D. Chambers, and G.T. Mitchum (invited), Observations of sea level change using satellites, Fall AGU meeting, San Francisco, California, December 2000

Lagerloef, G., R. Cheney, G.T. Mitchum, Establishing an Operational Data System for Surface Currents Derived from Satellite Altimeters and Scatterometers: Pilot Study for the Tropical Pacific. Fall AGU meeting, San Francisco, California, December 2001

Nerem, R.S., E. Leuliette, G.T. Mitchum, D. Chambers, Comparison of Long-term Sea Level Change Estimates from Satellite Altimetry and Tide Gauges. EGS 2002, Nice, France, April 2002

Mitchum, G.T., and C. Vonesch, Low frequency modulations in winter storm frequency from tide gauge measurements of sea level. NASA Workshop on Decadal Variability, Madison, Wisconsin, October 2002

TOPEX/Poseidon/JASON-1 Science Working Team meeting, New Orleans, Louisiana, October 2002

Holland, C., and G.T. Mitchum, Lagrangian Analyses of Interannual Volume Changes in the Tropical Pacific

Lagerloef, G., G.T. Mitchum, R. Cheney, L. Miller, M. Bourassa, F. Bonjean, J. Gunn, E. Johnson, N. Soreide, W. Zhu, R. Legeckis, V. Kousky, Y. Zue, J. Polovina, and G. Jacobs, OSCAR (Ocean Surface Current Analysis Real time): A Processing System and Web-server using JASON IGDR Data to Provide Timely Surface Velocity Fields in the Tropical Pacific.

Lagerloef, G., R. Lukas, F. Bonjean, and G.T. Mitchum, The El Nino Onset of 2001 – Or Not: Analysis of Tropical Pacific Surface Current and SST Variations during the Past Year. Ocean Sciences meeting, Honolulu, Hawaii, February 2002

Fall AGU meeting, San Francisco, California, December 2002

Mitchum, G.T., and C. Vonesch, Low frequency Modulations in the Response of Coastal Sea Level to Winter Storms.

Holland, C., and G.T. Mitchum, Interannual Volume Changes and Heat Transport Pathways in the Tropical Pacific.

Lagerloef, G., G.T. Mitchum, F. Bonjean, and R. Cheney, OSCAR (Ocean Surface Currents Analysis - Real time): An Operational Resource for Various Maritime Applications and El Nino Monitoring Using JASON-1 Data.

Leuliette, E., R.S. Nerem, J. Parker, G.T. Mitchum, and D. Chambers, Results of TOPEX/Poseidon-JASON Calibration to Construct a Continuous Record of Global Mean Sea Level.

IUGG 2003, Sapporo, Japan, July 2003

Lagerloef, G., P. Cummins, J. Polovina, and G.T. Mitchum, Oceanic and Atmospheric Evidence for a Pacific Decadal Oscillation Phase Shift After 1998.

Lagerloef, G., R. Lukas, F. Bonjean, J. Gunn, G.T. Mitchum, and M. Bourassa, El Nino Tropical Pacific Ocean Surface Current and Temperature Evolution in 2002 and Outlook for La Nina in early 2003.

Mitchum, G.T., and R.S. Nerem, (Invited) Global Mean Sea Level Change from Altimetry. IGARS '03, Toulouse, France, July 2003

OTHER ACHIEVEMENTS

Awards

Honorary societies: Phi Beta Kappa, Phi Kappa Phi, Sigma Pi Sigma

Editorships

Associate Editor, Journal of Physical Oceanography, 2000 - present

Professional Society

American Geophysical Union, American Meteorological Society, The Oceanogr. Society

Professional Service

Review panel member for the NASA Oceanography Program, 2000
Steering committee member, Pilot Project,TIGA under the IGS Governing Board, 2001
CLIVAR Ocean Observations Panel (ex officio member representing GLOSS), 2000-pres
IERS Working Group on ITRF Datum, ITRF2000 Sub-group, 2000 - present
Chair of the GLOSS Science Sub-group for Climate Studies, 1999 - present
JASON Science Working Team, 1998 - present
IGS/PSMSL Technical Committee on Tide Gauge Positioning, 1997 - present
Permanent Service for Mean Sea Level (PSMSL) Advisory Group, 1996 - present
IUGG/IAPSO Commission on Mean Sea Level and Tides, 1987 - present
Global Sea Level Observing System (GLOSS) Group of Experts, 1987 - present
TOPEX/Poseidon Science Working Team, 1988 - 2000
Reviewer for articles or proposals

GPS workshop, Toulouse, France, September 2002, Invited as an expert in altimetry and GPS and to serve as a session chair.

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 3 MS theses
Served on 8 MS committees

Ph.D.

Director or co-director of 1 Ph.D. dissertation
Served on 6 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Pamela Hallock Muller
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of Montana, Missoula	Zoology	B.A.	1969
University of Hawaii, Honolulu	Oceanography	M.S.	1972
University of Hawaii, Honolulu	Oceanography	Ph.D.	1977

EMPLOYMENT HISTORY

University of Texas of the Permian Basin: Faculty of Earth Sciences, Visiting Assistant Professor (1978-1979): Assistant Professor (1979-1983)

University of South Florida: Department of Marine Science / College of Marine Science, Associate Professor (1983-1988); Professor (1988-present)

AREAS OF SPECIALIZATION

Coral reef ecology and carbonate sedimentology; role of algal symbiosis in carbonate production, benthic community structure, and evolution; larger foraminiferal distributions and population dynamics applied to environmental assessment, paleoenvironmental interpretation, carbonate sedimentology, and global change.

GRANTS

Foraminifera as Ecosystem Indicators: Phase 1. A Marine Benthic Perturbation Index; Phase 2. Bioassay Protocols. PI. U.S. EPA 10/97 – 09/02. $295,043 plus $49,502 supplement.

Foraminifera in lagoon sediments of Glovers Reef Atoll: Have assemblages changed since 1970?" Wildlife Conservation Society, 10/98-4/00; $6,000.

Bleaching in Reef-Dwelling Foraminifera: Can Stress Symptoms be Induced in Field Experiments? PI NOAA/National Undersea Research Center. 1/1-12-31/99, $20,000.

ROV observations and acoustic/sedimentologic characteristics of outlier reef, slope bedforms, and lowstand ridge deposits; southwest Florida continental margin. A.C. Hine, P. Hallock Muller and *B. Jarrett*, co-PI's. NOAA - National Undersea Research Center/University of North Carolina at Wilmington; $20,000 plus field support; 1/99-06/00.

Environmental Marine Biotechnology: Assessing the Health of Coral Reef Ecosystems in the Florida Keys Using an Integrated Molecular Biomarker System. South Carolina Sea Grant Program. PI: C. Woodley and E. Lacy, Medical USC. PH-M is Co-PI with J. Halas, J. Fauth, and C. Downs. Total project $250,000; subcontract to USF $41,648; 09/00-08/03.

Foraminiferal Assemblages of Biscayne Bay Sediments. Pilot Study of the Biogeochemical History of Ecosystems in Biscayne Bay. With USGS PI's: Barbara Lidz and Eugene Shinn. USGS 10/00-09/01. $22,000.

Participation in Ocean Drilling Program Cruise Leg 194 – Marion Plateau. 01/06/01-12/31/02. $51,609.

Larger benthic foraminifers of Miocene carbonate platforms of the Marion Plateau (ODP Leg 194: Sites 1193-99): Biostratigraphy and paleoenvironmental interpretation. U.S.

Science Support Program/Ocean Drilling Program, Texas A&M University. 06/01-07/04. $22,990.

Chemical Pollutants and Toxic Effects on Benthic Foraminifera, Biscayne Bay, Florida, PI B. Lidz. Component – USGS $53,490 to USF;10/01-09/03.

Ecosystem Response to Elevated Arsenic Levels. National Science Foundation - Biocomplexity Initiative. PI: T. Pichler, Co-PI's: J. Garey, G. Huxel and P. Hallock Muller. $1.49 million; 10/02 - 09/06.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Hallock, P. 1999. Chapter 8. Symbiont-bearing Foraminifera. In Sen Gupta, B. (ed) *Modern Foraminifera*, Kluwer Press, Amsterdam, p. 123-139.

Hallock, P. 2000. Larger Foraminifers as Indicators of Coral-Reef Vitality. In Martin, R. (ed.), *Environmental Micropaleontology*, Kluwer Press, p. 121-150.

Hallock, P. 2001.Coral Reefs, Carbonate Sedimentation, Nutrients, and Global Change. In Stanley, G. D. (ed) *The History and Sedimentology of Ancient Reef Ecosystems*. Kluwer Press, pp. 387-427.

Hallock, P. 2002. Section 1.1.8.4. Evolution and function of coral reefs. In Theme 1.1. Earth's Systems: History and Natural Variability, edited by V. Cilek, *Encyclopedia of Life Support Systems*, Developed under the auspices of the UNESCO, EOLSS Publishers, Oxford, UK [http://www.eolss.net].

Articles

Fujita, K. and P. Hallock. 1999. A comparison of phytal substrate preferences of *Archaias angulatus* and *Sorites orbiculus* in mixed macroalgal-seagrass beds in Florida Bay. Journal of Foraminiferal Research 29:143-151.

Harney, J.N., P. Hallock, C.H. Fletcher III, B.M. Richmond. 1999. Standing crop and sediment production of reef-dwelling foraminifera on Oahu, Hawaii. Pacific Science 53:61-73.

James, N.P., L.B. Collins, Y. Bone and P. Hallock. 1999. Rottnest Shelf to Ningaloo Reef: Cool-Water to Warm-Water Carbonate Transition on the Continental Shelf of Western Australia. Journal of Sedimentary Research 69:1297-1321.

Hallock, P. 2000. Symbiont-bearing foraminifera: harbingers of global change. Micropaleontology 46(Suppl. 1): 95-104.

Lidz, B.H. and P. Hallock. 2000. Sedimentary petrology of a declining reef ecosystem, Florida Reef Tract (U.S.A.). Journal of Coastal Research 16:675-697.

Holzmann, M., J. Hohenegger, P. Hallock, W.E. Piller, and J. Pawlowski. 2001. Molecular phylogeny of larger miliolid foraminifera (Soritacea Ehrenberg 1839). Marine Micropaleontology 43:57-74.

McField, M.D., P. Hallock, W. Jaap. 2001. Multivariate analysis of reef community structure in the Belize Barrier Reef complex. Bulletin of Marine Science. 69(2):745-758.

Pawlowski, J., M. Holzmann, J.F. Fahrni, and P. Hallock. 2001. Molecular identification of algal endosymbionts in large miliolid foraminifera: 1. Chlorophytes. Journal of Eukaryotic Microbiology 48:362-367.

Toler, S.K., P. Hallock, and J. Schijf. 2001. Mg/Ca Ratios in Stressed *Amphistegina gibbosa* from the Florida Keys. Marine Micropaleontology. 43:199-206.

Hallock, P., Lidz, B.H., *Cockey-Burkhard, E.M.*, and *Donnelly, K.B.* 2003. Foraminifera as bioindicators in coral reef assessment and monitoring: The FORAM Index. Environmental Monitoring and Assessment 81(1-3): 221-238.

Hallock, P. 2000. 1999 Cushman Award Winner: John J. Lee. Journal of Foraminiferal Research, 3: 1-2.

Mallinson, D., Hine, A.C., Hallock, P., Locker, S., and Shinn, E. Development of small carbonate banks on the south Florida platform margin: Response to sea level and climate change. Geology (R)

Palandro, D., Andréfouët, S., Muller-Karger, F.E., Dustan, P., Hu, C., and Hallock, P. Detection of Changes in Coral Cover Using Landsat 5/TM and Landsat 7/ETM+ Data. Canadian Journal of Remote Sensing, 29(2):201-209. (R)

Talge, H.K. and P. Hallock. 2003. Ultrastructural responses to bleaching in *Amphistegina gibbosa* (Foraminifera). Journal of Eucaryotic Microbiology, 50(5): 324-333. (R)

Fitzsimmons-Sosa, K., P. Hallock, J. Wheaton, *K. E. Hackett*, & M.K. Callahan. Cycles of gonadal development of six common gorgonians from Biscayne national Park, Florida. Caribbean Journal of Science (in press).

Mutti, M. and P. Hallock. Carbonate systems along nutrient and temperature gradients: some sedimentological and geochemical constraints. International Journal of Earth Sciences (in press).

Hallock, P., **Barnes, K**., and **Fisher, E.M**., From satellites to molecules: a multi-scale approach to environmental monitoring and risk assessment of coral reefs: Journal of Environmental Microbiology, Micropaleontology and Meiobiology (in review).

Williams, D.E. and P. Hallock. Light requirements and bleaching in *Amphistegina gibbosa*: Observations from Laboratory Experiments. Marine Biology (in review).

Technical Reports

Hammond, M.A., N.J. Blake, C.W. Dye, P. Hallock-Muller, M.E. Luther, D.A. Tomasko, and G. Vargo. 2000. Effects of Disposal of Seawater Desalination Discharges on Nearshore Benthic Communities. Southwest Florida Water Management District, 180 pp, Appendices A-E. (R)

Hallock, P. 2000. Diving in graduate education: The past and the future. Proceedings: "Diving for Science in the 21st Century, 20th Annual Meeting of the American Academy for Underwater Sciences, p. 47-48.

Jacukiewicz, J. and P. Hallock. 2000. Foraminifera in lagoon sediments of Glover's Reef Atoll: Have Assemblages changed since 1970? Proceedings: "Diving for Science in the 21st Century, 20th Annual Meeting of the American Academy for Underwater Sciences, p. 23-24.

Shipboard Scientific Party, 2001. Leg 194 Preliminary Report. ODP Prelim. Rpt., 94 [Online]. Available from World Wide Web: <http://wwwodp.tamu.edu/publications/prelim/194_prel/194PREL.PDF>.

Crevison, H.L. and P. Hallock. 2002. Foraminifers as Bioindicators: Key Subtropical and Western Atlantic Taxa. On Compact Disc and website: (http://www.marine.usf.edu/reefslab/foram/html_files/titlepage.htm)

Hallock, P. 2002. Foraminifera as Ecosystem Indicators. U.S. EPA-NCERQA Star Grant – Final Report, Grant # R82-5869. (http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/275/report/F).

Abstracts, Oral, and Poster Presentations

Hallock, P., 2001, Coral reefs in the 21st century: Is the past the key to the future? In, Greenstein B. J. and Carney, C. K., eds., *Proceedings of the 10th Symposium on the Geology of the Bahamas and other Carbonate Regions*, pp. viii-xxiii. Gerace Research Center, San Salvador, Bahamas. (R)

Hallock, P. 2001. Larger foraminifers as contributors to carbonate beach sands. Carbonate Beaches 2000, Proceedings, COPRI/American Society of Civil Engineers, p. 97-98.

Lidz, B.H., and P. Hallock. 2001. Testing a multi-tiered stress-gradient model for risk assessment using sediment constituents from coral reef environments. Carbonate Beaches 2000, Proceedings, COPRI/American Society of Civil Engineers, 202-203.

Hallock, P., Lidz, B.H., *Cockey-Burkhard, E.M.*, and *Donnelly, K.B.* 2003. Foraminifera as bioindicators in coral reef assessment and monitoring: The FORAM Index. In Melzian, Coastal Monitoring Through Partnerships, Proceedings of the Fifth Symposium on the EMAP, Kluwer Academic Publishers, Dordrecht/Boston/London, p. 221-238. (R)

Hallock, P. CO_2 and carbonates: Back to the Eocene in the 21st Century? (invited) To. Southeast Section of the GSA.

Hallock, P., and *Crevison, H.* 1999. Foraminifera as indicators of coral-reef vitality. To: Scientific Aspects of Coral Assessment, Monitoring, and Restoration, National Coral Reef Institute.

Williams, D.W., P. Hallock, and *H.K. Talge*. 1999. Response of a reef-dwelling foraminifer, *Amphistegina gibbosa*, to ultravioltet radiation: Possible implications for host-symbiont interactions. Scientific Aspects of Coral Assessment, Monitoring, and Restoration, National Coral Reef Institute,.

Hallock, P., *H.K. Talge*, *D.E. Williams*, and C. Borowski. 1999. Taphonomic evidence for stress in reef-dwelling foraminifera. GSA Annual Meeting,. GAAPBC 31:a356.

Hallock, P., W. Jaap., J. Wheaton, and *D. Mallinson*. Tortugas Bank, South Florida Shelf: Exploring biogeological resources using a Deepworker submersible. American Academy for Underwater Sciences Annual Meeting,.

Mallinson, D.,A. Hine, P. Hallock. 1999. Structure and Origin of Relict Reefs on the West Florida Margin. AGU

Crevison, H. and P. Hallock. 2000. Assessing the Florida Reef Tract Sediments Using Key Benthic Foraminiferal Taxa. GSA Annual Meeting,.

Hallock, P., *H. Crevison*, *T. Dix*, *H. Talge*, and *D. Williams*, 2000. Foraminifera as Ecosystem Indicators: Phase 1. A Marine Benthic Perturbation Index; Phase 2. Bioassay Protocols. Proceedings: 2000 STAR Ecosystem Indicators Progress Review Workshop, p. 46-47.

Hallock, P. 2000. Coral Reefs in the 21st Century: Is the past the Key to the Future? 10th Symposium on the Geology of the Bahamas.

Hallock, P. 2000. Foraminifers as Bioindicators in Coral Reef Ecosystems: The FoRAM Protocol. Second International Conference in AMMEP'2000, Program and Abstracts, p. 50-52.

Hallock, P. 2000. Diving in graduate education: The past and the future. "Diving for Science in the 21st Century, 20th Annual Meeting of the American Academy for Underwater Sciences.

Hallock, P. 2000. The coral-reef cake: An activity for K-12 Earth Science or Biology. GSA Annual Meeting.

Hallock, P. 2000. Larger foraminifers as contributors to carbonate beach sands. Carbonate Beaches 2000.

Jaap, W.C., *D.J. Mallinson*, A. Hine, P. Hallock, J.L. Wheaton, *B. Jarrett*. 2000. Geological and Biological Characteristics of the Dry Tortugas, Pulley Ridge, and the Florida Middle Grounds. Gulf of Mexico Symposium.

Jacukiewicz, J. & P. Hallock. 2000. Foraminifera in lagoon sediments of Glover's Reef Atoll: Have Assemblages changed since 1970? Diving for Science in the 21st Century, 20th Annual Meeting American Academy for Underwater Sciences.

Kimmel, M.E., and P. Hallock. 2000. Legal action to confront sexism in the Ivory Tower. VIII Bienneial Conference of the International Society of Justice Research (ISJR).

Lidz, B.H., and P. Hallock. 2000. Testing a multi-tiered stress-gradient model for risk assessment using sediment constituents from coral reef environments. Carbonate Beaches 2000.

Hallock P. and *H. Crevison*. 2001. Foraminifers as bioindicators in coral reef ecosystems: the FoRAM protocol. EMAP Symposium.

Hallock, P., *D.E. Williams*, and *H.Crevison*. 2001. Larger foraminifers as bioindicators in coral reef environments. North American Paleontological Convention.

Stewart, D. R. M., M.W. Howell, W. Wei, P. Hallock & Leg 194 Shipboard Scientific Party, 2001. Palaeoceanography and climate change: preliminary results from ODP Leg 194. Palaeoceanography and climate change: The William Smith Meeting of the Geological Society.

Williams, D.E., P. Hallock, and G. McRae. 2001. Photic stress and bleaching in the foraminifer Amphistegina gibbosa. Second Symposium on Marine Conservation Biology.

Talge, H.K. and P. Hallock. 2001. Physiological and cytological examination of normal and stressed *Amphistegina gibbosa*. XI International Congress of Protozoology, Abstracts, p. 20.

Crevison, H. and P. Hallock. 2001. Foraminifera as bioindicators in coral reef assessment and monitoring: A CD-based user's manual. GSA Annual Meeting, Abstracts with Programs, 33(6):A194.

Eberli, G., Anselmetti, F.S., Isern, A.R., Hine, A.C., Hallock Muller, P. 2001. The remarkable similarity in the architecture of isolated tropical and cool subtropical carbonate platforms. GSA Abstracts with Programs, 33(6):A408.

Hallock, P., *D.E. Williams*, and *H.K. Talge*. 2001. Ecologic effects of ozone depletion: A case study using the symbiont-bearing foraminifer *Amphistegina gibbosa*. GSA Abstracts with Programs, 33(6):A161.

Hallock Muller, P. 2002. Foraminifers as Bioindicators in Coral Reef Ecosystems. EPA Science Forum, p. 25-26.

Hoare, A.M., P. Hallock, B.H. Lidz, C.D. Reich, and E.A. Shinn, 2002. Analysis of Biscayne Bay sediments: do benthic foraminifera of the bay reflect trace metal contamination? Program and Abstracts 2002 Benthic Ecology Meetings.

Williams, DE, P. Hallock, G. McRae, **D. Otis**, 2002. Bleaching Stress and Photosensitivity in *Amphistegina gibbosa*, a reef-dwelling foraminifer. Program and Abstracts 2002 Benthic Ecology Meetings

Hallock, P., and **K. Barnes**, 2002. Micro- and Meiobiota in Environmental Monitoring and Risk Assessment of Coral Reefs: Developing Tools for the Toolbox. EMMM'2002, The Third International Congress EMMM Program and Abstracts, pp. 94-96.

Hallock, P., *Crevison, H.L.* 2002. Foraminifera as Bioindicators in Coral Reef Assessment and Monitoring: The Foram Index. EMMM'2002, The Third International Congress " Environmental Micropaleontology, Microbiology and Meiobenthology", Program and Abstracts, pp. 96-97.

Hallock, P. 2002. Foraminifers as Bioindicators in Coral Reef Ecosystems. GSA Abstracts with Programs, 34(6):384-385.

Hallock, P., F.S. Anselmetti, A.R. Isern, P. Blum, and Leg 194 Shipboard Party. 2002. Environmental Sensitivity of Biotic Assemblages in Subtropical Carbonate Buildups: Miocene Examples from the Marion Plateau, Australia (ODP Leg 194). GSA Abstracts with Programs, 34(6):167.

Hoare, A.M., Hallock, P., B. H. Lidz, C. Reich, E.A. Shinn, 2002. Do Benthic Foraminiferal Assemblages Reflect Heavy Metal Contamination in Sediments of Biscayne Bay, Florida, USA? GSA Abstracts with Programs, 34(6):384.

Hallock, P., *D.E. Williams*, *S.K. Toler*, and *H.K. Talge*. 2003. Bleaching and Ozone Depletion: A case study using the symbiont-bearing foraminifer Amphistegina gibbosa. Symbiosis 2003.

Barnes, K. and P. Hallock . 2003. Spatial and Temporal Distribution of Diatom Endosymbionts in *Amphistegina gibbosa* (Foraminifera): Preliminary Findings. Symbiosis 2003.

OTHER ACHIEVEMENTS

Awards

1995-2002 Listed in Who's Who in America

1999 Association for Women Geoscientists Outstanding Educator Award

2000 Keynote Speaker, 10th Symposium on the Geology of the Bahamas

2000 Distinguished Speaker List, Association for Women in Science

Editorships

Associate Editor - Journal of Foraminiferal Research (1985 - present)

Editorial Board - Marine Micropaleontology (1990 - present)

Editorial Board - Geology (1996-1998)

Professional Societies

Board of Directors, Cushman Foundation for Foraminiferal Research; Geological Society of America (Fellow); Association for Women Geoscientists; Association for Women in Science; American Academy of Underwater Sciences; International Society for Micropaleontology, Microbiology and Meiobenthology; SEPM (Society for Sedimentary Geology)

Paleontological Society

Professional Service

American Academy of Underwater Sciences: Technical Chair -- "Diving for Science in the 21st Century", the 20th Annual AAUS Symposium, 2000

SEPM-Society for Sedimentary Geology including North American Micropaleontological Section: Executive Council - Paleontology Councilor 1997-99;

Moore Medal Selection Committee Chair 1997-99; AGI Representative 1998-99; Nominations Committee 2002.

Gulf of Mexico Fishery Management Council: Special Coral Scientific and Statistical Committee (Appointed Member -- 1999-02)

Invited Panelist: Gender Equity Workshop, Geological Society of America Committee on Minorities and Women in the Geosciences, National Association of Black Geologists and Geophysicists, and Mills College Women's Leadership Institute; Geological Society of America Meeting, Reno, NV, 11/12/00.

Community Service

Judge, Pinellas County Science Fair (1989, 1991, 1994, 1995, 1999, 2003)

Participant, Save Our Shores Coastal Cleanup (1993-2003)

American Association of University Women Legal Advocacy Fund Speaker (1999-2000)

Organized teams for Oasis Bowl-a-thon, USF, St. Petersburg (2000, 2002)

STUDENT COMMITTEES (past 5 years)

Masters

Director of 12 MS theses

Served on 9 MS committees

Major advisor of 5 MS students

Ph.D.

Director of 7 Ph.D. dissertations

Served on 15 Ph.D. committees

Major advisor of 1 Ph.D. student

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Frank E. Muller-Karger
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Florida Institute of Technology	Biological Oceanography	B.S	1979
University of Alaska	Biological Oceanography	MS	1984
University of Maryland	Marine and Estuarine Sciences	Ph.D.	1988
University of South Florida	Management	MS	2001

EMPLOYMENT HISTORY

University of Alaska: Research Assistant (1979-1984)
University of Maryland: Teaching Assistant (1984-1987), Research Assistant (1984-1988)
Skidaway Institute of Oceanography: Consultant (1985-1987)
NASA: GSFC: Consultant (1985-1987), SeaWiFS Program Scientist (1992-1994), Ocean Biogeochemistry Program Scientist (1992-1994)
University of South Florida: Department of Marine Science / College of Marine Science, Research Associate (1988-1989), Assistant Professor (1989-1994), Associate Professor and tenure (1994-2002), Professor (2002-present)
U.S. Presidential Commission on Ocean Policy: Commissioner (2001-present)

AREAS OF SPECIALIZATION

Satellite oceanography and remote sensing, Oceanography; coastal and estuarine science, Science education and strategic planning.

GRANTS

Grants from NSF, NASA, ONR, USGS, and the Minerals Management Service (MMS).
Contracts from NASA and the Center for Marine Conservation (CMC)

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Tang, D. L., I-H. Ni, F. E. Müller-Karger, and Z. J. Liu. 1999.Analysis of annual and spatial patterns of the CZCS-derived pigment concentration on the continental shelf of china. In: Assessment & Monitoring of Marine System. S. Lokman et al. (Editors). University Putra Malaysia Terengganu, Kuala Terengganu, Malaysia. P. 18-42.

Tang, D.L., I-H. Ni, F. E. Muller-Karger and Z.J. Liu. 1999. Analysis of annual Annual and spatial patterns of CZCS-derived pigment concentration on the continental shelf of China. In S. Lokman, N.A.M. Shazili, M.S. Nasir & M.A. Borowwtizka (ed.) Assessment & Monitoring of Marine Science. Chapter 1.3:18-42. Universiti Putra Malaysia Terengganu, Kuala Terengganu, Malaysia (ISBN 983-402990-X).

Articles

Walsh, J.J., D.A. Dieterle, F.E. Muller-Karger, R. Bohrer, *W.P. Bissett*, R.J. Varela, R. Aparicio, **R. Diaz,** R. Thunell, G.T. Taylor, M.I. Scranton, K.A. Fanning, and E.T. Peltzer. 1999. Simulation of carbon/nitrogen cycling during spring upwelling in the Cariaco Basin. JGR. Vol 104. No. C4, 7,807-7,825.

Thunell, R. E. Tappa., R. Varela, M. Llano, Y. Astor, F. Muller-Karger, and R. Bohrer. 1999. Increased marine sediment suspension and fluxes following an earthquake. Nature 398, 233-236.

Tang, D. L., I-H. Ni, D. R. Kester, and F. E. Müller-Karger. 1999. Remote sensing observations of winter phytoplankton blooms southwest of the Luzon Strait in the South China Sea. Marine Ecology Progress Series. 191:43-51.

Santamaría-del-Angel E., S. Alvarez-Borrego, R. Millan-Nuñez y F.E. Muller-Karger (1999). On the weak effect of summer upwelling on the phytoplankton biomass of the Gulf of California. Rev.Soc.Mex.Hist.Nat. 49:207-212.

Perez, R., F. E. Muller-Karger, M. Merino, I. Victoria, N. Melo, *S. Cerdeira*. 1999. Cuban, Mexican, US Researchers Probing Mysteries of Yucatan Current. Earth In Space. Vol. 12, No. 1. p. 10-14. September 1999.

Perez, R., F. E. Muller-Karger, I. Victoria, N. Melo, *S. Cerdeira.* 1999. Cuban, Mexican, US Researchers Probing Mysteries of Yucatan Current. EOS. AGU Transactions. Volume 80, No. 14, p. 153.

Del Castillo, C., *F. Gilbes*, P. Coble, and F. E. Muller-Karger. 2000. On the dispersal of riverine colored dissolved organic matter over the West Florida Shelf. Limnology and Oceanography. Vol. 45, No. 6. 1425-1432.

Hu, C., K. L. Carder, and F. E. Muller-Karger. 2000. Atmospheric correction of SeaWiFS imagery: assessment of the use of alternative bands. Applied Optics. 2000. 39(21):3573-3581.

Hu, C., K. L. Carder, and F. E. Muller-Karger. 2000. Atmospheric correction of SeaWIFS imagery over turbid coastal waters; a practical method. Remote Sensing of Environment. 74(2):195-206

Melo Gonzalez, N.; Müller-Karger, F.E.; *Cerdeira E.***,** *S.*; Pérez de los Reyes, R.; Victoria del Rio, I.; Cárdenas Perez, P.; Mitrani Arenal, I. 2000: Near-surface phytoplankton distribution in the western Intra-Americas Sea: The influence of El Niño and weather events. JGR. Vol. 105. No. C6. 14029-14043.

Muller-Karger, F., R. Varela, R. Thunell, M. Scranton, R. Bohrer, G. Taylor, J. Capelo, Y. Astor, E. Tappa, T.-Y. Ho, M. Iabichella, J. J. Walsh, and **J. R. Diaz**. 2000. The CARIACO Project: Understanding the Link between the Ocean Surface and the Sinking Flux of Particulate Carbon in the Cariaco Basin. EOS. AGU Transactions. Vol. 81. No. 45. pages 529, 534, 535.

Müller-Karger, F. E., and C. Fuentes-Yaco. 2000. Characteristics of Wind-Generated Rings in the eastern tropical Pacific Ocean. JGR. Vol 105. C1. 1271-1284.

Thunell, R., R. Varela, M. Llano, J. Collister, F. Muller-Karger, and R. Bohrer. 2000. Organic carbon flux in an anoxic water column: sediment trap results from the Cariaco Basin. Limnology and Oceanography. 45. 300-308.

Zhang M., L. Hall, D. Goldgof, and F. E. Muller-Karger. 2000. Knowledge-guided Classification of Coastal Zone Color Images of the West Florida Shelf. International Journal of Pattern Recognition and Artificial Intelligence. Vol. 14. No. 8. Pages 987-1007.

Andréfouët, S., F.E. Muller-Karger, E.J. Hochberg, C. Hu and K.L. Carder. 2001. Change detection in shallow coral reef environments using Landsat 7 ETM+ data, Remote Sensing of Environment, Volume 78, Issues 1-2, October 2001, Pages 150-162

Gilbes, F.**,** Armstrong, R.A., Webb, R.M., Muller-Karger, F.E. 2001. SeaWiFS helps assess huricane impact on phytoplankton in Caribbean Sea. EOS AGU, Vol. 82, Num. 45, 529 and 533.

Del Castillo, C., P. Coble, **R. Conmy**, F. E. Muller-Karger, **L. Vanderbloemen**, and G. Vargo. 2001. Multispectral in-situ measurements of organic matter and chlorophyll fluorescence in seawater: Documenting the intrusion of the Mississippi River Plume in the West Florida Shelf. Limnology and Oceanography. 46(7). 1836-1843.

Hu, C., F.E. Muller-Karger, S. Andrefouet and K.L. Carder. 2001. Atmospheric correction and cross-calibration of LANDSAT-7/ETM+ imagery over aquatic environments: A multiplatform approach using SeaWiFS/MODIS, Remote Sensing of Environment, Volume 78, Issues 1-2, October 2001, Pages 99-107.

Hu, C., K. L. Carder, and F. E. Muller-Karger. 2001. How precise are SeaWiFS ocean color estimates? Implications of digitization-noise errors. Remote Sensing of Environment. 76:2. 239-249.

Hu, C., K. L. Carder, and F. E. Muller-Karger. 2001. Erratum to "Atmospheric Correction of SeaWiFS Imagery over Turbid Coastal Waters: A Practical Method" [Remote Sens. Environ. 74(2):195-206], Remote Sensing of Environment, Volume 75, Issue 3, March 2001, Page 447.

Muller-Karger, F. E., R. Varela, R. Thunell, M. Scranton, R. Bohrer, G. Taylor, J. Capelo, Y. Astor, E. Tappa, T. Y. Ho, and J. J. Walsh. 2001. Annual Cycle of Primary Production in the Cariaco Basin: Response to upwelling and implications for vertical export. JGR. 106:C3. 4527-4542.

Weisberg, R. H., Z. Li, and F. Muller-Karger. 2001. West Florida shelf response to local wind forcing: April 1998. 2001. JGR. Vol. 106, C12, 31,239-31,262.

Scranton, M.I., Y. Astor, R. Bohrer, T.Y. Ho and F. Muller-Karger. 2001. Controls on temporal variability of the geochemistry of the deep Cariaco Basin, Deep Sea Research Part I: Oceanographic Research Papers, Volume 48, Issue 7, July 2001, Pages 1605-1625

Phinney, J. T., F. Muller-Karger, P. Dustan, and J. Sobel. 2001. Using remote sensing to reassess the *Diadema antillarum* mass mortality of 1983-1984. Conservation Biology. Volume 15, Issue 4, Page 885-891.

Taylor, G., Scranton, M., Iabichella, M., Ho, T., Thunell, R., Varela, R., and Muller-Karger, F. E. 2001 Chemoautotrophy in the redox transition zone of the Cariaco Basin: A significant source of mid-water organic carbon production. Limnology and Oceanography. Vol. 46, no. 1. 148-163.

Andréfouët S. Kramer, P., Torres-Pulliza, D., Joyce, K. E., Hochberg, E. J., Garza-Perez, R., Mumby, P. J., Riegl, B., Yamano, H., White, W. H., Zubia, M., Brock, J. C., Phinn, S. R., & Muller-Karger, F. E. (2002. In press.) Multi-sites evaluation of IKONOS data for classification of tropical coral reef environments. Remote Sensing of Environment. Special Ikonos issue.

Andréfouët S., E. J. Hochberg, C. Payri, M.J. Atkinson, F.E. Muller-Karger, H. Ripley. 2002 (In press). Multi-scale remote sensing of microbial mats in atolls environment International Journal of Remote Sensing (Special issue: Remote Sensing of the Coastal Marine Environment).

Andréfouët S., Robinson, J., Hu, C., Feldman, G., Salvat, B., Payri, C., FE Muller-Karger. 2002 (In press). Influence of the spatial resolution of SeaWiFS, Landsat 7, SPOT and

International Space Station data on determination of landscape parameters of Pacific Ocean atolls. Canadian Journal of remote sensing. Special issue on "Synergistic Utilisation of Landsat 7".

Andréfouet, S., P. J. Mumby, *M. McField*, C. Hu, F. E. Muller-Karger. 2002. Revisiting coral reef connectivity. Coral Reefs. 21:43-48.

Andréfouët S., R. Berkelmans, L. Odriozola, T. J. Done, J. K. Oliver, F. E. Muller-Karger. 2002. Choosing the appropriate spatial resolution for monitoring coral bleaching events using remote sensing. Coral Reefs. 21:147-154.

Muller-Karger, F. E. 2002. U.S. Commission on Ocean Policy: An Update. EOS AGU. Vol 83. No. 3. p. 22.

Walsh, J.J. *K.D. Haddad*, D.A. Dieterle, R.H. Weisberg, *Z. Li*, H. Yang, F.E. Muller-Karger, *C.A. Heil*, and *W.P. Bissett*. 2002. A numerical analysis of landfall of the 1979 red tide of Karenia brevis along the west coast of Florida, Continental Shelf Research, Volume 22, Issue 1, January 2002, Pages 15-38.

Toner, M, A. D. Kirwan, A.C. Poje, L. H. Kantha, F. E. Muller-Karger, and C. K. R. T. Jones. (2002. In press.) Chlorophyll dispersal by eddy-eddy interactions in the Gulf of Mexico. JGR – Oceans.

D'Sa, E. J., C. Hu, F. E. Muller-Karger, and K. L. Carder. 2002. Estimation of colored dissolved organic matter and salinity fields in case 2 waters using SeaWiFS: Examples from Florida Bay and Florida Shelf. Proc. Indian Acad. Sci. (Earth Planet. Sci.), 111, No. 3, September 2002, pp. 197-207.

Ho, T-Y., M.I. Scranton, G.T. Taylor, R. Varela, R. Thunell, and F. E. Muller-Karger. 2002. Acetate cycling in the water column of the Cariaco Basin: Seasonal and vertical variability, and implication for carbon cycling. Limnology and Oceanography. 47: 1119-1128.

Hu, C., et al. 2002. Satellite images track 'black water' event off Florida coast. EOS AGU. 83(26):281,285. 25 June 2002.

Hu, C., F. E. Muller-Karger, and R. G. Zepp. 2002. Absorbance, absorption coefficient, and quantum yield of photoproduction: Comment on common ambiguity in the use of these optical concepts. Limnology and Oceanography. Vol. 47, No. 4. 1261-1267.

Astor, Y., F. Muller-Karger, and M. I. Scranton. 2003. Seasonal and Interannual Variation in the Hydrography of the Cariaco Basin: Implications for Basin Ventilation. Continental Shelf Research. Vol. 23. No. 1. 125-144.

Hu, C., D. Biggs, F. E. Muller-Karger, **B. Nababan**, **J. Vanderbloemen**, D. Nadeau, K. L. Carder. 2003 (In press). Comparison of ship and satellite bio-optical measurements on the continental margin of the NE Gulf of Mexico. International Journal of Remote Sensing.

Hu, C., Muller-Karger, F. E., Biggs, D. C., Carder, K. L., **Nababan, B**., Nadeau, D., and Vanderbloemen, J. 2003 (In press). Comparison of ship and satellite bio-optical measurements on the continental margin of the NE Gulf of Mexico, Inter. J. Remote Sens.

Jolliff, J. K., J. J. Walsh, R. He, R. Weisberg, A. Stovall-Leonard**,** P. G. Coble, **R. Conmy**, *C. Heil*, **B. Nababan,** *H. Zhang*, C. Hu, and F. E. Muller-Karger. 2003 (In press). Dispersal of the Suwannee River plume over the West Florida shelf: Simulation and observation of the optical and biochemical consequences of a flushing event. Geophysical Research Letters.

Muller-Karger, F. E., R. Varela, R. Thunell, Y. Astor, *H. Zhang*, and C. Hu. (In press, 2003). Processes of Coastal Upwelling and Carbon Flux in the Cariaco Basin. Deep-Sea Research II.

Palandro D, S. Andréfouët, P. Dustan, FE Muller-Karger. (In press, 2003). Change detection in coral reef communities using the Ikonos sensor and historic aerial photographs. Int. J. Remote Sensing.

Palandro D., S. Andréfouët, FE Muller-Karger, P Dustan, C. Hu, P. Hallock (In press, 2003). Detection of changes in coral communities using Landsat 5/TM and Landsat 7/ETM+ data. Canadian Journal of Remote Sensing. Special issue on "Synergistic Utilisation of Landsat 7".

Walsh, J.J., R.H. Weisberg, D.A. Dieterle, *R. He*, **B.P. Darrow**, **J.K. Jolliff**, K.M. Lester, G. Vargo, G.. Kirkpatrick, K.A. Fanning, *T.T. Sutton*, A.E. Jochens, D.C. Biggs, **B. Nababan**, C. Hu, and F.E. Muller-Karger. (In press, 2002). The phytoplankton response to intrusions of slope water on the West Florida shelf: models and observations.JGR.

Technical Reports

Arvidson, T., J. Gash, S. Goward, S. Andrefouet, C. Hu, and F. Muller-Karger. 1999. Long-Term Acquisition Plan of Landsat-7. Earth System Monitor. NOAA. US. Department of Commerce. Vol 10, No. 2. p. 6-7.

Zhang, M., K. Carder, *Z. Lee*, F. E. Muller-Karger, and D. B. Goldgof. 1999. Noise Reduction and Atmospheric Correction for Coastal Applications of Landsat Thematic mapper Imagery. Remote Sensing of the Environment. 70:167-180.

Cerdeira, S., N. Melo, F. E. Muller-Karger, and *R. Pérez*. 2000: Estudio comparativo de la Temperatura Superficial del Mar detectada vía satélite y por mediciones in situ al Norte de Cuba y NE de la Península de Yucatán. MAPPING: Revista de Cartográfica, Sistemas de Información Geográfica, Teledetección y Medio Ambiente, España. No. 60.

Gasch, J.; Arvidson, T.; Goward, S.N.; Andrefouet, S.; Chunmin Hu; Muller-Karger, F.E. 2000. An assessment of Landsat 7/ETM+ coverage of coral reefs worldwide, IGARSS 2000. IEEE 2000 International Geoscience and Remote Sensing Symposium. Taking the Pulse of the Planet: The Role of Remote Sensing in Managing the Environment. Proceedings (Cat. No.00CH37120), 2000, Page 2687-2689 Volume 6.

Vukovich, F.M.; Muller-Karger, F. 2000. Sea-surface flow in the northeast Gulf of Mexico using surface drifter, TOPEX/ERS altimetry, and NOAA/AVHRR data, IGARSS 2000. IEEE 2000 International Geoscience and Remote Sensing Symposium. Taking the Pulse of the Planet: The Role of Remote Sensing in Managing the Environment. Proceedings (Cat. No.00CH37120), 2000, Page 1866-1868 Volume 5.

Santamaría-del-Ángel E., R. Millan-Núñez, A.G Gonzalez-Silvera and F.E. Muller-Karger (2002). The color signature of the Ensenada Front: its seasonal and interannual variability. (CalCoFi Rep.43, October 2002).

Feature Newspaper Articles on Science

Muller-Karger, F. E. 2002. Protecting our oceans, the next frontier. Colloquium Views. USF Forum Mag. 3/18-4/14, Pg 6.

Muller-Karger, F. E. 2002. Participation needed to manage marine resources. Op-Ed. St. Petersburg Times. 2/19.

Abstracts, Oral, and Poster Presentations

Muller-Karger, F. E. 2002. Climate effects on the Gulf of Mexico ecosystem. In: A Sustainable Gulf of Mexico: Research, Technology, and Observations 1950 to 2050. Sustainable Coastal Margins Program. Texas A&M University. Conference Proceedings. M. Kennicutt II, Chair. College Station, TX. February 19-21, 2002.

Yao W., L.O. Hall, D.B. Goldgof, and F. Muller-Karger. 2000. Finding Green River in SeaWiFS Satellite Images. Proceedings of the International Conference on Pattern Recognition (ICPR'2000). Sept. 3-8, 2000, Barcelona, Spain.

OTHER ACHIEVEMENTS

Awards

U.S. Commision on Ocean Policy, nominated and appointed by President G. W. Bush, 2001.

Editorships

Associate Editor, Memoria, Fundacion La Salle de Ciencias Naturales de Venezuela.

Professional Society

American Geophysical Union (AGU), American Soc. of Limnol. and Oceanogr. (ASLO), COSPAR, PORSEC (Steering Committee), Association of Island Marine Labs of the Caribbean (AIMLC), American Association for Remote Sensing (SELPER), The Alliance for Remote Sensing

Professional Service

NASA's: Organizer, Small Satellite Technology Initiative, Remotely-Piloted Vehicle workshop; Program Scientist: Ocean Biogeochemistry; NASA SeaWiFS; NASA MODIS; Co-chair/organizer Colloquium: Studying Land Use Effects in Coastal Zones with Remote Sensing and GIS, 13-16 August 2003, Kemer/Antalya, Turkey.

Organizer, Pan-Ocean remote Sensing Congress (PORSEC) international meeting: Quingdao, China, July 1998; Goa, India, 2000.

Member, Steering Committee of DIVERSITAS (Component concerning "Coral Reefs").

Member, SeaWiFS Science Team and SeaWiFS Science Team

Member (Federal Exec. Rep.), JGOFS (Joint Global Ocean Flux Study) Steering Committee

Member (Federal Exec. Rep.), National Academy of Sciences, Ocean Studies Board: Committee on Coastal Oceans and Committee on Ocean Carbon

U. S. State Department IOC Agency principals advisory committee (PIPICO)

Member (Federal Exec. Rep.), NOAA U.S. Coastal Ocean Planning Committee

Reviewer of scientific manuscripts for Journals and scientific proposals

Community Service

Provided non-paid consulting services to the Intergovernmental Oceanographic Commission on applications of satellites to ocean observing systems

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 5 MS theses

Served on 4 MS committees

Advisor of external 3 MS student

Ph.D.

Director or co-director of 5 Ph.D. dissertations

Major advisor of 1 external Ph.D. student

Served on 10 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: David F. Naar
Employer: University of South Florida, College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of California at Santa Barbara	Geology/Geophysics	B.A.	1982
Scripps Institution of Oceanography	Earth Sciences	Ph.D.	1990

EMPLOYMENT HISTORY

University of California: Santa Barbara, California, Department of Geological Sciences, Computer Lab Assistant (12/79-6/82), San Diego, California: Scripps Institution of Oceanography, Teaching Assistant (9/83-12/83), Research Assistant (7/82-10/86)

University of Hawaii, Honolulu, Hawaii: Hawaii Institute of Geophysics, Visiting Professional Colleague in Marine Geology and Geophysics (10/86-12/89)

University of Rhode Island, Narragansett, Rhode Island: Graduate School of Oceanography, Adjunct Professor (10/92-5/96)

University of South Florida, Department of Marine Science / College of Marine Science: Assistant Professor (1/90-5/96), Associate Professor and tenure (5/96-Present), Co-Director of the Center of Coastal Ocean Mapping (2/00-Present)

GRANTS

NSF, GLORIA Investigation of the Fastest Spreading Segment of the Global Seafloor Spreading System, 10/1/92 to 9/30/94, $492,308 (R.N. Hey, P.I., D.F. Naar, co-P.I.).

NSF, GLORIA and Geochemical Investigation of the Easter Seamount Chain, 10/1/92 to 9/30/94, $462,782 (D.F. Naar, Lead P.I.).

NSF, Assessing Hotspot Fixity in the Pacific Basin, 1/1/01 – 12/31/02, $528,836

NSF, Structure and composition of fast-spread EPR (East Pacific Rise) Oceanic Crust Exposed at Pito Deep, 1/1/05 – 12/31/07, funding postponed due to DSRV *Alvin* Availability, $834,221

DOD-ONR, A Multi-Disciplinary Investigation of the Nature and Predictability of Sediment Resuspension in Shallow Water: Effect on Water Column and Bottom Optical Properties, 8/1/98 – 12/31/99, $451,381.

DOD-ONR, Calibration of Optical Remote Sensing Data in the Shallow Marine Environment: Defining the Bathymetric, Geologic, and Suspended Sediment Variables, 1/1/00 – 12/31/00, $366,425

DOD-ONR, Sediment Dynamics on the West Florida Inner Continental Shelf, 1/1/02 - 12/31/02, $698,000

DOD-ONR (DURIP), High-Resolution Multibeam System to Map Nearshore Bathymetry in Support of ONR Projects, 3/31/99 – 3/30/00, $162,233.

DOD-ONR (DURIP), Upgrade of Seafloor Mapping Capabilities for ONR Mine Burial and Scour Studies, 4/1/02– 3/31/03, $200,000

DOI-USGS, Multibeam Mapping of Pulley Ridge and Miller's Ledge and Riley's Hump south of the Dry Tortugas, 10/1/01 – 9/30/02, $117,000

DOI-USGS, Support for Center of Coastal Ocean Mapping, 10/1/00 – 9/30/01, $38,000

DOI-USGS, Characterization of the Western Extent of the South Florida Reef Tract, 10/1/00 – 9/30/01, $127,000

DOI-USGS, Support for Multibeam Mapping Program, 10/1/99 – 9/30/00, $15,000

NOAA, Multibeam Mapping of Marine Sanctuaries in American Samoa, 4/7/01 – 4/17/01, $30,000

NOAA, Multibeam Mapping of Marine Sanctuaries in American Samoa in March and November of 2002, 3/2/02 – 3/1/03, $45,500NFWF, Multibeam Mapping of the Florida Middle Grounds, 7/1/00 – 6/30/01, $50,000

NOAA, CRCG 2000 Completion of multibeam mapping in the Madison-Swanson MPA, 7/8/02 – 9/30/03, $99,500

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Naar, D.F., and R.N. Hey, Fast rift propagation along the East Pacific Rise near Easter Island, *J. Geophys. Res. 91*, 3425-3438, 1986.

Naar, D.F., and R.N. Hey, Speed limit for oceanic transform faults, *Geology 17*, 420-422, 1989.

Naar, D.F., and R.N. Hey, Recent Pacific-Easter-Nazca plate motions: in Evolution of Mid Ocean Ridges, IUGG Symposium 8*, AGU Geophysical Monograph 57*, 9-30, 1989.

Naar, D.F., and R.N. Hey, Tectonic evolution of the Easter microplate*, J. Geophys. Res. 96*, 7961-7993, 1991.

Naar, D.F., F. Martinez, R.N. Hey, T.B. Reed, and S. Stein, Pito Rift: How a large-offset rift propagates*, Mar. Geophys. Res. 13*, 287-309, 1991.

Naar, D.F., Microplates, an invited refereed article for the *Encyclopedia of Earth System Science 3*, 231-237, W. Nierenberg, Editor, Academic Press, San Diego, 1992.

Searle, R.C., *R.T. Bird***,** R.I. Rusby, and D.F. Naar, The development of two oceanic microplates: Easter and Juan Fernandez microplates, East Pacific Rise, *J. of Geol. Soc. London 150*, 965-976, 1993.

Bird, R.T., and D.F. Naar, Intratransform origins of mid-ocean ridge microplates, *Geology 22*, 987-990, 1994.

Hey, R.N., P.D. Johnson, F. Martinez, J. Korenaga, M.L. Somers, Q.J. Huggett, T.P. LeBas, R.I. Rusby, and D.F. Naar, Plate boundary reorganization at a large-offset rapidly propagating rift, *Nature 378*, 167-170, 1995.

Hagen, R.A., H. Vergara, and D.F. Naar, Morphology of San Antonio submarine canyon on the central Chile forearc, *Marine Geology 129 (3-4),* 197-205, 1996.

Hekinian, R., J. Francheteau, R. Armijo, J.P. Cogne, M. Constantin, J. Girardeau, R. Hey, D.F. Naar, and R. Searle, Petrology of the Easter microplate region in the South Pacific, *J. of Volcanology and Geothermal Research 72,* 259-289, 1996.

Mallinson, D., S. Locker, *M. Hafen*, D.F. Naar, A. Hine, D. Lavoie, and S. Schock, a high resolution geological and geophysical investigation of the Dry Tortugas carbonate depositional environment, *Geo-Marine Letters, Vol. 17,* 237-245, 1997.

Rappaport, Y., D.F. Naar, *Z.J. Liu*, C. Barton, and R.N. Hey, Two types of seamounts surrounding Easter Island: Their statistics and distribution, *J. Geophys. Res. 102*, 24713-24728, 1997.

Kruse, S.E., *Z.J. Liu*, and D.F. Naar, Effective elastic thickness of the lithosphere along the Easter Seamount Chain, *J. Geophys. Res. 102*, 27305-27317, 1997.

Canales, J.P., J.J. Danobeitia, R.S. Detrick, E.E.E. Hooft, R. Bartolome, and D. Naar, Variations in axial morphology along the Galapagos spreading center and the influence of the Galapagos hotspot, *J. Geophys. Res. 102*, 27341-27354, 1997.

Liu, Z.J. and D.F. Naar, Swath bathymetry processing of GLORI-B and SeaBeam 2000, *Mar. Geophys. Res. 19,* 397-409, 1997.

Liu, Z.J. and D.F. Naar, Side-scan processing of GLORI-B and SeaBeam 2000, *Mar. Geophys Res. 19,* 411-419, 1997.

Bird, R.T., D.F. Naar, R.L. Larson, R.C. Searle and C.R. Scotese, New models for the origin and tectonic development of the Juan Fernandez Microplate, *J. Geophys. Res. 103*, 7049-7067, 1998.

Bird, R.T., S.F. Tebbens, M.C. Kleinrock and D.F. Naar, Episodic triple junction migration by rift propagation and microplates, *Geology 27*, 911-914, 1999.

Kruse, S.E., S.F. Tebbens, D.F. Naar, Q. Lou, and *R.T. Bird*, Comparisons of gravity anomalies at pseudofaults, fracture zones, and nontransform discontinuities from fast to slow spreading areas, *J. Geophys. Res. 105*, 28399-28410, 2000.

Tebbens, S.F., *S.M. Burroughs,* C.C. Barton, and D.F. Naar, Statistical self-similarity of hotspot seamount volumes modeled as self-similar criticality, *Geophys. Res. Lett. 28(24)*, 2711-2714, 2001.

Baker, E.T., R. N. Hey, J.E. Lupton, J.A. Resing, R.A. Feely, J.J. Gharib, G.J. Massoth, F.J. Sansone, M. Kleinrock, F. Martinez, D.F. Naar, C. Rodrigo, D. Bohnenstiehl, and D. Pardee, Hydrothermal venting along Earth's fastest spreading center: East Pacific Rise, $27.5^{o} - 32.3^{o}$S, *J. Geophys. Res. 107(B7)*, EPM2-1 - 14, 2002.

Wright, D.J., *B.T. Donahue*, and D.F. Naar, Seafloor mapping and GIS coordination in America's Remotest national Marine Sanctuary (American Samoa), in Wright, D.J. (ed.), Undersea with GIS, ESRI Press, Redlands, California, p. 33-64, 2002.

Hey, R.N., F. Martinez, S. Diniega, D.F. Naar, J. Francheteau, and the Pito93 Scientific Team (R. Armijo, M. Constantin, J.P. Cogne, J. Girardeau, R. Hekinian, and R. Searle), Preliminary attempt to characterize the rotation of seafloor in the Pito Deep area of the Easter microplate using a submersible magnetometer, *Mar. Geophys. Res*. *23(1)*, 1-12, 2002.

Blais, A., P. Gente, M. Maia, and D.F. Naar, A history of the Selkirk paleomicroplate, *Tectonophysics 359(1-2)*, 157-169, 2002.

Harrison, S.E., A.C. Hine, D.C. Twitchell, and D.F. Naar, Morphology and evolution of a Holocene carbonate/siliclastic sand ridge field on the west shelf of Florida, *Marine Geology,* in press, 2003.

Berman, G., D.F. Naar, A.C. Hine, G. Brooks, S.F. Tebbens, *B.T. Donahue*, and R. Wilson, Geologic structure and hydrodynamics of Egmont Channel: An anomalous inlet at the mouth of Tampa Bay, Florida, *Journal of Coastal Research.*, in press, 2003.

McIntyre, M., D.F. Naar, and K. Carder, Comparison of bathymetry and backscatter estimated from airborne optical remote sensing data with shipborne high resolution multibeam data, in preparation for *J. Geophys. Res.,* 2003.

Naar, D.F., R. Hekinian, M. Segonzac, J. Francheteau and the Pito Dive Team, Hydrothermal venting at Pito Seamount near Easter Island, submitted to AGU monograph on Hydrothermal Systems, 2003.

Technical Reports

Mallinson, D., D.F. Naar, A.C. Hine, D. Wilder, S. Smith, and S. Schock, Seafloor Mapping and Target Identification Using Autonomous Underwater Vehicles: Applied AUV Experiments in Nearshore Settings of Florida, Proceedings of the Eleventh International Symposium on Unmanned Untethered Submersible Technology, Lee, New Hamphsire, Document Number 99-8-01, pages 257-269, August 1999.

Naar, D.F., K. Johnson, D. Pyle, P. Wessel, R.A. Duncan, J. Mahoney, Cruise Report for Leg 6 of the Drift Expedition aboard the *R/V Revelle* operated by Scripps Institution of Oceanography for the NSF project: Assessing Hotspot Fixity in the Pacific Basin, National Science Foundation, Washington D.C., 2001 – Paper document, CD-ROM, and http://www.soest.hawaii.edu/wessel/drft06rr/.

Abstracts, Oral, and Poster Presentations

Over 100 oral and poster presentations, primarily published by the American Geophysical Union including a large percentage of Ph.D. and Master students.

OTHER ACHIEVEMENTS

Awards

Editor's Citation for Excellence in Refereeing for the Journal of Geophysical Research (Solid Earth) in 2000

Editorships

Associate Editor for Journal of Geophysical Research and Marine Geophysical Researches

Professional Society

American Academy of Underwater Sciences, American Geophysical Union, Geological Society of America, Oceanography Society (Charter Life Member)

Professional Service

Member, U.S. Scientific Advisory Committee (USSAC), NSF Ocean Drilling Program, 1997 - 2000

Interim Site Survey Panel for the International Integrated Ocean Drilling Program (IODP), Lamont-Doherty Earth Observatory, New York, July 2001/02/03 and Beijing, China, February 2002, and Bologna Italy, Feb 2003, Served on numerous NSF and NASA sponsored workshops related to Plate Tectonics.

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 5 MS theses
Served on 7 MS committees
Major advisor of 3 MS students

Ph.D.

Director or co-director of 3 Ph.D. dissertations
Served on 3 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: John H. Paul
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Distinguished University Professor (2003- present)

EDUCATION

Institution	Field of Study	Degree	Date
Colgate University	Biology	BA	1976
University of Miami Rosenstiel School of Marine Science and Atmospheric Science	Marine Science	PhD	1980

EMPLOYMENT HISTORY

Naval Research Laboratory, Washington DC: National Research Council Postdoctoral Fellow (1980-1982)

University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1982-1987), Associate Professor and tenure (1987-1991), Professor (1991-2003), Distinguished University Professor (2003-present)

AREAS OF SPECIALIZATION

Marine Microbiology

GRANTS

DOE: Molecular regulation of photosynthetic carbon fixation in coastal microorganisms. $210,000. 9/1/97-8/31/00

Florida Sea Grant: Development of a marine prophage induction assay for detection of mutagens in environmental samples. $113,685. 2/1/98-2/1/00

Innovative Biotechnologies: Exploratory Development of NASBA with Combined Methodology for the Detection of *Cryptosporidium* in Drinking Water. 3/1/98-2/28/99 $25,000

NSF: The Paradox of the Viroplankton: High Viral Abundance and Resistance to Infection. 1/99-12/02. $300,000

NOAA-ECOHAB: Exploring Lytic and Temperate Viruses of *Gymnodinium breve* as a Mechanism of Controlling Red Tide Blooms. 9/98-8/01. $215,000

Florida Sea Grant: Molecular Detection of Enteroviruses in Florida's Coastal Waters. 11/99-6/01. $150,000. USF Equipment Match: $95,000

Great Spring Waters, Inc.: Enteroviral Analysis of Crystal Springs for Perrier. 7/1/99-6/30/00. $59,242

Great Spring Waters, Inc.: Enteroviral Analysis of Crystal Springs for Perrier. 7/2/00-6/30/01. $59,242

DOE: Regulation of Carbon Fixation by Nitrogen in Coastal Plume Environments. 10/1/00-9/30/03. $315,572.

NOAA ECOHAB: Quantitative Detection of Transcriptionally active Carbon Fixation Genes in the Florida Red Tide Organism, G. breve. 9/01/01-8/31/04. $439,271

ONR: An Autonomous Microbial Genosensor. 1/15/02-12/31/03. $927,300 Co-PI with David Fries, COT

NSF-Biocomplexity: An Autonomous Microbial Genosensor for Environmental Water Quality Monitoring. 10/1/02-9/30/06. $1,290,000

NSF-Biocomplexity: Marine Viromics: The interaction of Viral Genomes and the Environment. 10/01/02-9/30/06. $1,990,000

ONR-Pathogenic Microbial Sensors for Coastal Safety. 5/1/03-4/30/04. $250,000

DOE-Nitrogen-dependent Carbon Fixation by Picoplankton in Culture and in the Mississippi River Plume. 9/1/03-12/31/04. $104,000

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Books

Paul, J.H. 2001. Marine Microbiology. Methods in Microbiology Series, vol. 30. Academic Press, 666 p.

Articles

Paul, J.H., *S.L. Pichard*, *J.B. Kang*, G.M.F. Watson, and F.R. Tabita. 1999 Evidence for a clade-specific temporal and spatial separation in ribulose bisphosphate carboxylase gene expression in phytoplankton populations off Cape Hatteras and Bermuda. Limnology and Oceanography 44:12-23.

Paul, J.H. 1999. Microbial gene transfer: An ecological perspective. J. Mol. Microbiol. Biotechnol. 1:45-50.

Griffin, D.W., C.J. Gibson, *E.K. Lipp*, K. Riley, J.H. Paul III, and J.B. Rose. 1999. Detection of viral pathogens by reverse transcriptase PCR and of microbial indicators by standard methods in the canals of the Florida Keys. Appl. Environ. Microbiol. 65:4118-4125.

Paul, J.H. and *C.A. Kellogg*. 2000. The ecology of bacteriophages in nature. In: C. Hurst. Viral Ecology. Academic Press.

Paul, J.H., *M.R McLaughlin, D. Griffin, E.K. Lipp*, *R. Stokes*, and J.B. Rose 2000. Rapid movement of wastewater from onsite disposal systems into surface waters in the lower Florida Keys. Estuaries 23:662-668

Paul, J.H., *P.K. Cochran*, and *S.C. Jiang*. 2000. Lysogeny and transduction in the marine environment. In C.R. Bell, M. Brylinsky, and P. Johnson-Green. Microbial Biosystems: New Frontiers. Proceedings of the 8th International Symposium on Microbial Ecology, Halifax, Canada

Griffin, D.W., R. Stokes, J.B. Rose, and J. H. Paul III. 2000. Bacterial indicator occurrence and the use of an F+ specific RNA coliphage assay to identifiy fecal sources in Homosassa Springs, Florida. Microbial Ecology 39:56-64

Siefert, J. L., M. Larios-Sanz, L. K Nakamura, R.A. Slepecky, J.H. Paul, E.R.B. Moore, G.E. Fox, and P. Jurtshuk, Jr. 2000. Phylogeny of Marine *Bacillus* isolates from the Gulf of Mexico. Current Microbiology 41:84-88

Paul, J.H., A. Alfreider, *J.B. Kang*, *R.A. Stokes*, *D. Griffin,* L. Campbell, and E. Ornolfsdottir. 2000. Form IA *rbcL* transcripts associated with a low salinity/high chlorophyll plume (□Green River□) in the Eastern Gulf of Mexico. Mar. Ecol. Prog. Ser 198:1-8

Paul, J.H., A. Alfreider, and **B. Wawrik**. 2000. Micro and macrodiversity in *rbcL* sequences in ambient phytoplankton populations from the Southeastern Gulf of Mexico. Mar. Ecol. Prog. Ser 198:9-17 .

Paul, J.H., *J.B. Kang*, and F.R. Tabita. 2000 Diel patterns of regulation of *rbcL* transcription in a cyanobacterium and a prymnesiophyte. Marine Biotechnology 2:429-436.

Kellogg, C.A. and J.H. Paul. 2002. Degree of ultraviolet radiation damage and repair capabilities are related to G+C content in marine phages. Aquatic Microbial Ecology 27:13-20

Williamson, S., *M. R. McLaughlin,* and J.H. Paul. 2001. Interaction of a marine virus with its host: Lysogeny or pseudolysogeny? Appl. Environ. Microbiol. 67:1682-1688

McDaniel, L, *Griffin, D.W.,* J. Crespo-Gomez, ***M.R. McLaughlin*** and J.H. Paul. 2001 Development of a marine prophage induction assay. Marine Biotech. 3: 528-535

Paul, J.H. 2001. Gene expression by mRNA analysis. In: J.H. Paul, ed. Marine Microbiology. Methods in Microbiology vol 30. 395-408

Paul, J.H. and *S. Jiang*. 2001. Lysogeny and transduction. In: J.H. Paul, ed. Marine Microbiology. Methods in Microbiology vol 30. 106-125

Kellogg, C.A., P.K. Cochran, and J.H. Paul. A population of marine vibriophages. I. Distribution, seasonal abundance, and ecological correlations. Submitted for publication.

Kellogg, C. A. and J.H. Paul. A population of marine vibriophages II. Temporal and spatial genetic diversity. Submitted for publication

Wawrik, B., J.H. Paul, L. Campbell, *D. Griffin*, L. Houchin, A. Fuentes-Ortega, and F. Muller-Karger. 2003. Vertical Structure of the Phytoplankton Community associated with a Coastal Plume in the Gulf of Mexico. Mar. Ecol. Progr. Ser. 251:87-101

Wawrik, B. and J.H. Paul. 2002. Real Time PCR Quantification of *rbcL* (Ribulose bisphosphate carboxylase/oxygenase) mRNA in diatoms and pelagophytes . Applied and Environmental Microbiology 68:3771-3779.

Donaldson, K.A., D.W. Griffin, and J.H. Paul. 2002. Detection, quantitation, and identification of enteroviruses from surface waters and sponge tissue from the Florida Keys using Real Time RT-PCR. Water Res. 36:2505-2514

L. McDaniel, L. Houchin, **S. Williamson** and J.H. Paul. 2002. Lysogeny in Natural Populations of Marine *Synechococcus.* Nature 415:496

Paul, J.H., H. Houchin, *D. Griffin, T. Slifko*, M. Guo, B. Richardson, and K. Steidinger. 2002. A filterable lytic agent obtained from a red tide bloom that caused lysis of *Karenia brevis (Gymnodinium breve)* cultures. Aquatic Microbial Ecology 27:21-27

Williamson, S., **L. McDaniel**, L. Houchin, and J.H. Paul. 2002. Seasonal variation in lysogeny as depicted by prophage induction in Tampa Bay, Florida. Appleid and Environmental Microbiology. 68:4307-4314

Paul, J.H., M.B. Sullivan, A.M. Segall, and F. Rohwer. 2002. Marine phage genomics. Comp. Biochem. Physiol. Part B. 133:463-476

Griffin, D.W., K.A. Donaldson, J.H. Paul, and J.B. Rose. 2003. Pathogenic human viruses in coastal waters. Clin. Micrbiol. Rev. 16:129-143

Wawrik, B. and J.H. Paul. Phytoplankton community structure and productivity along the axis of the Mississippi River Plume

Gray, M., **B. Wawrik**, and J.H. Paul. 2003. Molecular detection and quantitation of the red tide dinoflagellate *Karenia brevis* in the marine environment. Appl. Environ. Microbiol.

Abstracts, Oral, and Poster Presentations

Alfrieder, A., Paul, J.H., Genetic Diversity of Ribulose-1.5 Bisphosphate Carboxylase/Oxygenase in Marine Phytoplankton Investigated by Denaturing

Gradient Gel Electrophoresis of PCR-Amplified Gene Fragments. ASLO Meeting, Sante Fe, NM. 2/1-5, 1999

Paul, J.H., Ewert, M., **Wawrik, B.,** *Stokes, R.* Novel RNA Technology for Microbial Detection in Aquatic Environments. ASLO Meeting, Sante Fe, NM. 2/1-5, 1999

Paul, J.H., *D.W. Griffin*, J. Crespo-Gomez, **L. McDaniel**, and *M.R. McLaughlin*. 2000. Evaluation of marine bacterial lysogens for use in a mutagen detection (Prophage induction) assay. 100th General meeting of the American Society for Microbiology, Los Angeles, CA. Abs. N-58.

S.J. Williamson-Smith, *M.R. McLaughlin*, J.H. Paul. 2000. Interaction of a mraine virus with its host: Lysogeny or pseudolysogeny? 100th General meeting of the American Society for Microbiology, Los Angeles, CA. Abs. N-59.

B. Wawrik, J.H. Paul, L. Houchin, *D. Griffin*, and A. Fuentes-Ortega. 2000. rbcL Expression in a low-salinity plume feature in the Gulf of Mexico. 100th General meeting of the American Society for Microbiology, Los Angeles, CA. Abs. N-73.

L. Houchin, *D. Griffin*, and J. Paul. 2000. Exploring lytic and temperate viruses of *Gymnodinium breve* as a mechanism of controlling red tide blooms. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Copenhagen, DK, abs. Cs16-13.

S. Williamson-Smith, L. Houchin, **L. McDaniel**, and H.H. Paul. 2000. Ability to detect seasonal prophage induction thorough viral reduction of Tampa Bay, Florida marine samples. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Copenhagen, DK, abs. CS25-19

J. Paul, *D. Griffin.* 2000. Molecular detection of enteroviruses in coastal and ground waters. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Copenhagen, DK, abs. CS 02-05

B. Wawrik and J. Paul. 2000. rbcL gene expression and molecular diversity of phytoplankton communities in coastal high chlorophyll plumes in the Gulf of Mexico. American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Copenhagen, DK, abs. SS08-23P

S.J. Williamson, L. Houchin, L. McCaniel, and J.H. Paul. 2001 Seasonal variation in lysogeny as depicted by prophage induction in Tampa Bay , FL. 101st General Meeting of the American Society for Microbiology, Orlando, FL May 20-24. Abs N-25

B. Wawrik and J.H. Paul. 2001. Diatom rbcL (ribulose bisphosphate carboxylase large subunit) gene expression by real time PCR. 101st General Meeting of the American Society for Microbiology, Orlando, FL May 20-24. Abs Q147

K. Donaldsen, D. Griffin, and J.H. Paul. 2001. Detection, quantitation, and identification of human enteroviruses in Florida surface waters by Real Time PCR. 101st General Meeting of the American Society for Microbiology, Orlando, FL May 20-24. Abs Q296.

M.A. Gray, J.H. Paul. 2001. Rapid characterization of enteroviruses using denaturing gradient gel electrophoresis (DGGE). 101st General Meeting of the American Society for Microbiology, Orlando, FL May 20-24. Abs R-7.

Wawrik, B., J.H. Paul, and L. Campbell. 2001. Sequence analysis of transcriptionally-active carbon fixation genes indicates near-surface and sub-surface clades of

Phrochlorococcus in the Gulf of Mexico. ASLO 2001 Meeting, Albuquerque, New Mexico, Feb. 12-16. Aquatic Sciences

Paul, J.H., L. Houchin, *D. Griffin*, and William Richardson. 2002. Filterable lytic agents that cause lysis of *Karenia brevis* are commonly found in red tide blooms in the Gulf of Mexico. Xth International Conference on Harmful Algae, 21-25 October, St. Pete Beach, FL

Gray, M.A., J.H. Paul, L.A. Houchin, and **B. Wawrik**. 2002. Development of detection strategies for *Karenia brevis* based upon amplification of the ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene.. Xth International Conference on Harmful Algae, 21-25 October, St. Pete Beach, FL

L.D. McDaniel, **B.Wawrick**, and J.H. Paul. 2002. Effect of nutrient stimulation on prophage induction in marine *Synechococcus*. 102nd General Meeting of the American Society for Microbiology, Salt Lake City, UT, May 20-23.

S.J. Williamson, R.A. Slepecky, and J.H. Paul. 2002. The occurrence of spore-forming lysogenic bacteria in the marine environment. 102nd General Meeting of the American Society for Microbiology, Salt Lake City, UT, May 20-23.

Matthew C. Smith, John H. Paul, David P. Fries & Andrew Farmer. 2002. Development of an Autonomous Microbial Genosensor (AMG). Marine Biotech Summit, Ft. Pierce, October 8.

L. D. McDaniel and J.H. Paul. 2002. Development and field testing of the marine prophage induction assay. Marine Biotech Summit, Ft. Pierce, October 8

Gray, M.A., J.H. Paul, L.A. Houchin, and **B. Wawrik**. 2002. Development of detection strategies for *Karenia brevis* based upon amplification of the ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) gene. Marine Biotech Summit, Ft. Pierce, October 8

PATENT (US)

56333137 Method for Measuring Specific Gene Expression: Transcriptional Activity/Gene Dose: 27 May 1997

5273902 Genetically Modified Vibrio 28 Dec 1993

5610028 Genetically Modified Vibrio 11 March 1997

Pending: Detection of Florida Red Tide Organism by Nucleic Acid Amplification

Pending: An Autonomous Microbial Genosensor

OTHER ACHIEVEMENTS

Awards

Career: American Academy of Microbiology Fellow, 1995-present

P.R. Edwards Award Recipient, SE Branch, American Society for Microbiology, 2002

USF President's Award for Faculty Excellence, 2003

Editorships

Editorial Board, Applied and Environmental Microbiology, 1995-present

Professional Society

American Society for Microbiology, American Society for Limnology and Oceanography, American Association for the Advancement of Science

Professional Service

DOE-Biotechnological Investigations, Ocean Margins Program, St. Petersburg, FL, Dec. 5-7, 2001

DOE Microbial Genome Panel Review Member, February 2001.

DOE Microbial Genome Panel Review Member, February 2001.

Community Service

Chapter Member, St. Peter's Episcopal Cathedral, 1/98-2001, Outreach Ministry Chairman, St. Peter's Episcopal Cathedral, 5/98-present, Vestry member, St. Bede's Episcopal Church, 1/87 - 1/90, Stewardship Chairman, St. Bede's Episcopal Church, 1/88 - 1/90

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 5 Master thesis
Served on 5 Masters committees

Ph.D.

Director or co-director of 9 PhD dissertations
Served on 6 PhD committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Ashanti Johnson Pyrtle
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Assistant Professor

EDUCATION

Institution	Field of Study	Degree	Date
Texas A&M University-Galveston (TAMUG)	Marine Science	B.S.	1993
Texas A&M University (TAMU)	Chemical Oceanography	Ph.D.	1999

EMPLOYMENT HISTORY

Texas Instruments, Inc.: Intern Polymer Chemist (1990 – 1994)
Texas A&M University: Department of Oceanography, Graduate Teaching Assistant (1997)
Exxon Production Research Co.: Geochemist (1997 – 1998)
University of Michigan: US NASA SHARP, Assistant Coordinator (1999)
Savannah State University (SSU): Marine Science Research Center, Postdoctoral Research Associate (2000 – 2001), Marine, Environmental Science & Biotechnology, Assistant Research Professor (2001)
Georgia Institute of Technology (GaTech): Office of the President, FACES Program Coordinator (2001 – 2003), Earth and Atmospheric Sciences, Postdoctoral Fellow (1999 – 2001), Research Scientist II (2001 – 2002), Adjunct Research Scientist (2002 – 2003)
USF: College of Marine Science, Assistant Professor (2003 – present)

AREAS OF SPECIALIZATION

radiogeochemistry, aquatic geochemistry

GRANTS

NASA Education Program Office of Earth Science "Minority Student Program for A Sea of Change: JGOFS Accomplishments and the Future of Ocean Biogeochemistry Conference" 07/02, (PI) **$112,400**
NOAA National Marine Fisheries Service Northeast Fisheries Science Center "Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science" 05/03-12/03, (PI) **$5,000**
NSF Geosciences "Southeastern Center for Ocean Science Education Excellence-Minority Mentoring Initiative" Sub-award 10/02-09/05, *pending,* ~ **$60,000**
NSF OCE-0098010 Sub-award "Minority Aquatic Scientists Profiles" 04/02-04/03, (PI) **$15,000**
NSF OCE-0133160 Minority Research Planning Grant "A Preliminary Investigation of Radionuclide Distribution, Transport and Behavior in the Savannah (Georgia) Estuary" 03/02-02/03, (PI) **$18,000**
US Department of Education Title III SSU Teaching and Learning Grant "College of Science Student Professional Development Workshops and Computing Facility" 01/01-06/02, (PI) **$39,607**
SSU Teaching and Learning Grant "Minority Mentorship in Science Seminar Series" 01/01-06/02, (PI) **$5,000**
Ford Foundation Postdoctoral Fellowship "Savannah Aquatic Geochemistry" 01/01-09/01, (PI) **$35,000**

American Association of University Women Postdoctoral Research Leave Fellowship "Savannah Area Radiogeochemistry" 07/00-08/01, (PI) **$32,000**

US Environmental Protection Agency Science to Achieve Results (STAR) Grant #U915134 "Fate of Artificially Produced Radionuclides in the Arctic Ocean Laptev Sea" 09/97-05/99, (PI) **$62,000**

American Geological Institute Graduate Scholarship "Distribution of Radiocesium in the Lena River-Laptev Sea System" 09/96-05/99, (PI) **$2,800**

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments Of Books

Johnson-Pyrtle A. (2003) Marginal Seas. In *Water: Science and Issues*, ed. E. Julius Dasch. New York: Macmillan Reference USA, p.54-57 (Invited Contribution).

Johnson-Pyrtle A. (2003) Polar Oceans. In *Water: Science and Issues*, ed. E. Julius Dasch. New York: Macmillan Reference USA, 2003, p. 167-171 (Invited Contribution).

Book Reviews

Book Chapter Reviewer for the "New Problems, New Challenges" chapter of the *Pollution of Lakes and Rivers: A Paleoenvironmental Perspective* by J. Smol, Oxford University Press, 2002

Articles

Wilborn U.S., Pyrtle A.J., Ingall E.D., Grantham M.C., Smith J., and Elliott W. C. (2003) Cs-137 Distribution and Geochemistry in Savannah (Georgia) Riverine, Estuarine and Marsh Environments, *MTS/IEEE OCEANS 2003 Proceedings DVD*. In press.

Johnson-Pyrtle A., and Scott M. (2003) Lena Estuary-Laptev Sea System (Siberia) Sediment Cs-137, Pb-$210_{(excess)}$ Distribution, Transport and Geochemistry. *The Science of the Total Environment. submitted*

Johnson-Pyrtle A., Gist G., Bishop A., Pevear D., Ylagan R. and Longo J. (2002) Dehydration of Cation Exchanged Smectites and Shales: A Thermogravimetric Study. *Clays and Clay Minerals. In preparation*

Johnson-Pyrtle A., and Scott M. (2001) Distribution of Cs-137 in the Lena River Estuary-Laptev Sea System. *Marine Pollution Bulletin*, **42**(10), p. 912-926

Johnson-Pyrtle A., Scott M., Laing T. and Smol J. (2000) Cs-137 Distribution and Geochemistry of Lena River (Siberia) Drainage Basin Lake Sediments. *The Science of the Total Environment,* **255**(1-3), p. 145-159

Weiler C., Beaulieu S., and other DIALOG III participants (including A. Johnson-Pyrtle) (2000) Perspectives on Graduate Education Experiences in Aquatic Science. *American Society of Limnology and Oceanography Bulletin*, **9(1)**

Technical Reports

Gist G., Johnson-Pyrtle A., Bishop A., Pevear D., Ylagan R. and Longo J. (1999) Smectite Clay Characterization by Thermogravimetric Analysis. *Exxon Production Research Co. Research Reports*, EPR.6EX.99(January)

Abstracts, Oral, and Poster Presentations

OCEANS 2003 Marine Technology and Ocean Science Conference, San Diego, CA 09/03

Digital Library for Earth System Education Annual Meeting, Boulder, CO, 08/03

Florida A&M University, Science Engineering Research Policy Institute, Orlando, FL, 03/03
American Society of Limnology and Oceanography (ASLO), Salt Lake City, UT, 02/03
Exxon Upstream Production Research Center, Reservoir Characterization Division, Houston, TX, 01/03
Governmental Agency Collaborations to Improve Diversity in Earth System Science, NSF, Arlington, VA, 01/03
University of South Florida, College of Marine Science, Saint Petersburg, FL, 11/02
University of South Carolina Department of Geological Sciences, Columbia, SC, 10/02
Georgia State University, Geology Department, Atlanta, GA, 10/02
ASLO, Victoria, BC, 06/02
Georgia Institute of Technology Department of Nuclear Engineering, Atlanta, GA, 05/02
NSF Advisory Committee on Environmental Research and Education Meeting, Arlington, VA, 04/02
ASLO, Alburquerque, NM, 02/01
ASLO, Copenhagen, Denmark, 06/00
Dissertations Initiative for the Advancement of Limnology and Oceanography (III), Bermuda, 10/99
US EPA National Center for Environmental Research and Quality Assurance Science To Achieve Results (NCERQA STAR) Conference, Arlington, VA, 07/98, 07/99
Dissertation Symposium for Chemical Oceanographers (XV), Honolulu, HI, 05/99
NOAA Expanding Opportunities in Oceanic and Atmospheric Fields Conference, Princess Anne, MD, 03/99
ASLO, Santa Fe, NM, 02/97, 02/99

OTHER ACHIEVEMENTS

Awards

Georgia Tech Teaching Fellow
Ford Foundation Post-doctoral Fellow
American Association of University Women Post-doctoral Research Leave Fellow
US EPA NCERQA STAR Fellow
American Geological Institute Minority Graduate Scholar
Alpha Kappa Alpha Educational Foundation Eva Evans Mathematics and Science Fellow
Ford Foundation Pre-doctoral Fellow
Profiled on the Black Entertainment Television's inaugural *Careers* web site
Profiled on the *Remarkable Careers in Oceanography-Women Exploring the Ocean* web site
Profiled on the ASLO *Minorities in Aquatic Science* Minority Aquatic Scientists web site

Editorships

Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science web site Editor, 2002-present
ASLO *Minorities in Aquatic Science* web site Minority Aquatic Scientists Profiles Editor, 2001-present

Professional Society

Sigma Xi, American Association for the Advancement of Science, American Geophysical Union, ASLO, Geological Society of America

Professional Service

ASLO Education Subcommittee Member, 2003
ASLO Minorities Program Mentor, 1997-present
Digital Library for Earth System Education (DLESE) Annual Planning Committee Member, 2002-present
Minorities Striving and Pursuing Higher Degrees of Success Program Director, 2002-present
SouthEast Center for Ocean Science Education Excellence Advisory Board Member, 2003-present
American Association of University Women Proposal Review Panelist, 2001-2003
Sea Grant Proposal Reviewer, 2003
USGS Proposal Reviewer, 2003
NSF Hydrology Program Proposal Reviewer, 2003
DLESE Ambassadors' Program Strand Leader, 2003
NSF Geoscience Education Program Proposal Review Panelist, 2002, 2003
NSF Computer Science, Engineering and Mathematics Scholarships (CSEMS) Program Proposal Review Panel Chair, 2002, 2003
NSF CSEMS Program Proposal Review Panelist, 2000-2003
NSF Graduate Teaching Fellows in K-12 Education Program Proposal Review Panelist, 2002
Marine Chemistry Reviewer, 2002
Science Expert Team Member for NASA-funded "Signals of Spring", a teacher training and 6th-12th grade student outreach program, 2002
National Society of Black Engineers Conference Technical Paper Competition Judge, 2002
NSF Opportunities for Enhancing Diversity in the Geosciences Program Proposal Review Panelist, 2001
Developed a "Minority Mentors in the Sciences" program and "Professional and Technical Development Workshops" for SSU, 2000-2001

Community Service

Agape Christian Center (Bryan, TX) Advisory Council Member, 1999-present
Marriage Ministry Facilitator and Scholarship Ministry Member at New Birth Missionary Baptist Church (Lithonia, GA), 2000-2003
Nova Scotia Youth Outreach Missionary, 2002
Agape Christian Center (Bryan, TX) Trustee and Youth Director, 1996-1999

STUDENT COMMITTEES (past 5 years)

Masters

Major advisor of 1 MS student

Ph.D.

Major advisor of 2 Ph.D. students

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Terrence M. Quinn
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
SUNY-Oneonta	Earth Sciences	B.S.	1982
Wichita State University	Geology	M.S.	1984
Brown University	Geological Sciences	Ph.D	1989

EMPLOYMENT HISTORY

University of Michigan: Department of Geological Sciences, Postdoctoral Fellow (Collaborators: Kyger Lohmann, Bruce Wilkinson and Alex Halliday) (1989 – 1991)

University of South Florida: Department of Geology, Assistant Professor (1991 – 1996), Associate Professor (1996 – 1999), College of Marine Science, Associate Professor (1999 – present), Director, Global Change Research Center (2002 – present)

University of California –Santa Cruz: Department of Earth & Marine Science, Visiting Research Professor (1998 - spring)

AREAS OF SPECIALIZATION

Paleoclimatology, paleoceanography, geochemistry

GRANTS

History of the Core of the Western Pacific Warm Pool: A Coral Perspective, NSF - Earth System History, (Co-PI's: Tom Crowley and Fred Taylor), 6/97-8/00.

Calibration of Western South Pacific Coral Isotope Records, NOAA, Office of Global Programs, (Co-PI's: Tom Crowley and Fred Taylor), 1/97-6/00

Acquisition of a Stable Isotope Ratio Mass Spectrometer in Support of Global Change Research at USF, NSF, Earth Sciences-Equipment, (Co-PI: Ben Flower) 1/99 to 12/99.

Holocene and Late Pleistocene Climate Variability in the Gulf of Mexico (GOM): A Cooperative Investigation by the USGS and USF, 10/1/99 to 9/30/00.

Holocene and Late Pleistocene Climate Variability in the Gulf of Mexico (GOM): A Cooperative Investigation by the USGS and USF, 10/1/00 to 9/30/01.

An International Workshop on Submerged Coral Drilling, NSF-ATM, Paleoclimate Program (co-funded with JOI/U.S. Science Support Program), 6/00-5/01.

Holocene and Late Pleistocene Climate Variability in the Gulf of Mexico (GOM): A Cooperative Investigation by the USGS and USF, 10/1/01 to 9/30/03.

A Coral Perspective on Holocene Climate Variability in the Tropical Western Atlantic, NSF – Marine Geology & Geophysics, 8/02-7/04.

Calibration of Proxy Records from Coral Skeletons to C-MAN Data from the Florida Keys, USA, NOAA, Office of Global Programs (Co-PI's: Richard Dodge, Robert Halley and Peter Swart), 8/02 to 7/03

Sub-centennial-scale Gulf of Mexico Sea-Surface Temperature Variability during the Holocene Epoch, NSF- Earth System History (Co-PI B, Flower), 8/03 to 7/06

A Coral-based Reconstruction and Analysis of Subdecadal- to Multidecadal-scale Climate Variability in the Cuban Sector of the Tropical North Atlantic/Caribbean Sea,

NSF- Marine Geology and Geophysics (Co-PIs T. Guilderson and Robert Webb), 8/03 to 7/06

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Zachos, J.C., Opdyke, B.N., Quinn, T.M., Jones, C.E., and Halliday, A.N., 1999. Early Cenozoic Glaciation, Antarctic Weathering, And Seawater $^{87}Sr/^{86}Sr$: Is There A Link?, Chemical Geology, 161, 165-180.

Crowley, T.J., Quinn, T.M., & Hyde, W.T., 1999, Validation of coral temperature calibrations, Paleocean. 14, 605-615.

Quinn, T. M., and Mountain, G. S., 2000, Shallow-Water Science & Ocean Drilling: Challenges for the New Millennium, Eos, Transactions, American Geophysical Union, 81, 35, 397, 404.

Getty, S.R., Asmeron, Y., Quinn, T.M. and Budd, A.F., 2001, Uranium-Lead Dating of Pleistocene Corals, and Coral Extinction Rates in the Caribbean Basin. Geology, 29, 639-642.

Correge, T., Quinn, T.M.**,** Delcroix, T., LeCornec, F., Recy, J., and Cabioch, G., 2001. Little Ice Age sea-surface temperature variability in the southwest tropical Pacific. Geophysical Research Letters, 28, 18, 3477-3480.

Quinn, T. M.**,** and D.S. Sampson, 2002, A Multi-Proxy Approach to Reconstructing Sea-Surface Conditions using Coral Skeleton Geochemistry. Paleoceanography, 17, 4, 1062, doi:10.1029/2000PA000528,

Poore, R.Z., Dowsett, H.J., Verardo, S. and Quinn, T.M., 2003. Millennial- to Century-scale variability in Gulf of Mexico Holocene Climate Records, Paleoceanography, 18, 2, 1048, doi: 10.1029/2002PA000868.

Asami, R., Yamada, T., Iryu, Y., Meyer, C.P., Quinn, T.M., and Paulay, G., A Guam coral as a potential recorder of ENSO events, Paleoceanography, in review, 2003.

Flower, B P, Hastings, D W, **Hill, H W**, Quinn, T M., Phasing of deglacial warming and Laurentide ice sheet meltwater in the Gulf of Mexico, Geology, in review, 2003.

Kilbourne, K.H., Quinn, T.M., and Taylor, F.W., A Coral Perspective on Climate in the Western Tropical Pacific During MIS 10, Paleoceanography, in review, 2003.

Technical Reports

Quinn, T. M., and Tudhope, A.W., 2002, *The Science and Technology of Submerged Coral Drilling: A Workshop Report*, JOI/U.S. Science Support Program.

Abstracts, Oral, and Poster Presentations

Invited speaker, COMPLEX workshop on the future of Ocean Scientific Drilling, Vancouver, Canada, May, 1999

Invited speaker, International Symposium on Paleoecology of Reefs and Carbonate Platforms: Miocene to Modern, International Association of Sedimentologists, Aix-en-Provence, September, 1999

Invited speaker, Climate of the Last Millennium (CLIVAR-PAGES Workshop), Venice, November, 1999

Quinn, T M*,* Crowley, T J, Taylor, F W., 1999. Fidelity of Stable Isotope Records in Coral Skeletons: An Assessment of Multiple Records From a Single Site. Eos, Transactions, American Geophysical Union,

Correge, T, Delcroix, T, Quinn, T M, Le Cornec, F, Cabioch, G, Recy, J, Taylor, F W., 1999. Coral-Based Western Pacific SST During the Little Ice Age: Implications for ENSO in pre-Industrial Times. Eos, Transactions, American Geophysical Union

Invited speaker, Workshop on Alternate Platforms: Europe as the Third Leg of IODP, Brussels, Belgium, January. (ESF and JEODI), 2001

Invited speaker and Session Chair, Conference on Alternate Platforms as part of the Integrated Ocean Drilling Program, Lisbon, Portugal, May. (ESF and JEODI), 2001

Invited speaker, first ARTS (Annual Records of Tropical Systems) Open Science Meeting, Noumea, New Caledonia, November. (PAGES-CLIVAR), 2001

Kilbourne, K H*,* Quinn, T M*,* Taylor, F W*,* Gallup, C, Edwards, R.L., 2001. A Coral Perspective on Modern and Late Pleistocene Climate Variability in the South Pacific Eos, Transactions, American Geophysical Union, 82(47), PP31A-0496.

Quinn, T M, Taylor, F W, Crowley, T J, Stephans, C. A Coral-based Climate Record from the Western Pacific Warm Pool. *Eos Trans. AGU, 83*(47), Fall Meet. Suppl., Abstract PP61A-0293, 2002

LoDico, J M, Hastings, D W, Flower, B P, Quinn, T M. A Multi-proxy Approach to Distinguish Between Changes in SST and Meltwater Input in the Gulf of Mexico Back to MIS 3. *Eos Trans. AGU, 83*(47), Fall Meet. Suppl., Abstract PP62A-0331, 2002

Hill, H W, Flower, B P, Hastings, D W, Hollander, D J, LoDico, J, Quinn, T M**.** Gulf of Mexico Sea-Surface Temperatures and Laurentide Meltwater Input During MIS 3: Implications for High/Low Latitude Linkages. *Eos Trans. AGU, 83*(47), Fall Meet. Suppl., Abstract PP62A-0333, 2002

Flower, B P, Hastings, D W, **Hill, H W**, Hollander, D J, LoDico, J, Quinn, T M. Deglacial Warming in the Gulf of Mexico Preceded Laurentide Ice Sheet Meltwater Input: Implications for Tropical Climate Forcing *Eos Trans. AGU, 83*(47), Fall Meet. Suppl., Abstract PP71A-0372, 2002

Invited speaker, NSF Workshop, Guidelines for Best Practices in the Development of Scientific Drilling Projects*,* Minneapolis, Minnesota*, 2003*

OTHER ACHIEVEMENTS

Editorships

Associate Editor, Coral Reefs (2003-2006)

Professional Societies

American Geophysical Union

Professional Service

Co-Chair, JOIDES PPG Scientific Drilling of Shallow Water Systems, 1997 – 2000

Co-Organizer, International Workshop on "Submerged Coral Drilling", St. Petersburg, Florida, September, 2000

Member, Steering Committee, MESH (Marine aspects of Earth System History), advisory panel to NSF-OCE, 2001 – 2004

NSF Review Panel, Ocean Sciences, Marine Geosciences, Spring and Fall, 2002

Member, Steering Committee, CUSP (Conference on US Participation in IODP), JOI/USSSP Workshop, Washington, DC, June, 2002

Member, Science Planning Committee, IODP (International Ocean Drilling Program). 2003-2006.

STUDENT COMMITTEES (past 5 years)

Masters
Director or co-director of 2 MS these
Served on 3 MS committees
Major advisor of 1 MS student
Ph.D.
Director of co-director of 1 Ph.D. dissertation
Served on 2 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Sarah F. Tebbens, Ph.D.
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
Vassar College	Geology	B.A.	1987
Columbia University	Marine Geology and Geophysics	M.A.	1989
Columbia University	Marine Geology and Geophysics	M.Phil.	1992
Columbia University	Marine Geology and Geophysics	Ph.D	1994

EMPLOYMENT HISTORY

Lamont-Doherty Geological Observatory: Summer Intern - Physical Oceanography (Summer 1986)
Vassar College: Senior Geology Intern (1986-1987)
Columbia University: Teaching Assistant - Paleomagnetism (1987-1988)
Lamont-Doherty Earth Observatory: Graduate Research Assistant (1987-1993)
University of South Florida: Department of Marine Science / College of Marine Science, Visiting Assistant Professor (1994-1995), Assistant Professor (1996-2003), Associate Professor (2003-present)

AREAS OF SPECIALIZATION

Nonlinear analysis and modeling of geophysical processes including coastal change, submarine volcanism, seismology, and geologic hazards.
Study of the history and evolution of seafloor tectonics at the ocean basin scale with emphasis on mid-ocean ridge and mid-ocean triple junction processes.
Teaching of marine science through innovative media from middle school to graduate level.

GRANTS

Co-Principal Investigator. "Enhancing K-12 education via satellite-televised interactive technologies," Department of the Navy, National Ocean Partnership Program, 4/1/97-3/31/99, $472,482. Co-PIs: P.G. Coble (PI), A.J. Barrett, T. Greely, and M. Hewitt.
Co-Principal Investigator. "Geosciences and Society - A multimedia approach by teachers and scientists," National Science Foundation, Awards to Facilitate Geoscience Education, 7/1/98 - 6/30/99, $49,718. Co-PIs: T. Greely (PI), P. Betzer, R.H. Byrne, A. Hine, P.H. Muller, F. Muller-Karger, J.J. Torres, and R.H. Weisberg.
Principal Investigator. "POWRE: A LIDAR study of Hatteras and Ocracoke Islands," National Science Foundation, 5/1/99 - 12/30/01, $75,000.
Co-Principal Investigator. "Completion of multibeam mapping in Madison-Swanson MPA," National Oceanic and Atmospheric Administration, 7/8/02-9/30/03, $99,000 Co-PI: D.F. Naar.
Principal Investigator. University of South Florida, Research Council, International Travel Grant, $1,300. (*To attend April 2003 AGU/EGS/EUG joint meeting in Nice, France.)*
Principal Investigator. "Understanding Earthquakes using an Upper-truncated Power Law, " University of South Florida, Research Council and Division of Sponsored

Research, Research and Creative Scholarship Grant Program, 1/1/01 – 12/31/01, $7,500.

Principal Investigator, "Quantification and Probabilistic Forecasting of Coastal Change Using Weekly to Multi-Year High-Resolution LIDAR Surveys," National Aeronautics and Space Administration, 8/1/03-7/31/06, $240,000.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Bird, R., S.F. Tebbens, D.F. Naar, and M.C. Kleinrock, 1999, Evidence for and implications of stepwise triple junction migration, *Geology,* 27, 911-914.

Kruse, S.E., S.F. Tebbens, D.F. Naar, and Q. Lou, 2000, Comparisons of gravity anomalies at pseudofaults fracture zones, and nontransfrom discontinuities from fast to slow spreading areas, *J. Geophys. Res.,* 105, 28,399-28,410.

Burroughs, S.M. and S.F. Tebbens, 2001, Upper-truncated power law distributions, *Fractals,* 9, 209-222.

Burroughs, S.M. and S.F. Tebbens, 2001, Upper-Truncated Power Laws in Natural Systems, *Pure and Applied Geophysics,* 158, 741-757.

Tebbens, S.F. and *S.M. Burroughs,* C.C. Barton, and D.F. Naar, 2001, Statistical self-similarity of hotspot seamount volumes modeled as self-similar criticality, *Geophys. Res. Lett.,* 28, 2711-2714.

Tebbens, S.F., *S.M. Burroughs,* and *E.E. Nelson*, 2002, Wavelet Analysis of Shoreline Change on the Outer Banks of North Carolina: An Example of Complexity in the Marine Sciences*, Proceedings of the National Academy of Sciences (PNAS),* 99(1), 2554-2560.

Anderson, J., D. Belknap, B. Douglas, D. FitzGerald, C. Fletcher, R. Holman, R. Land, S. Leatherman, B. Richmond, S. Riggs, A. Rodriguez, S. Tebbens, T. Tornqvist, and O. van de Plassche, 2002, CoForce: Coastal forecasting in rapidly changing environments, *GSA Today,* 12 (2), 46.

Burroughs, S.M. and S.F. Tebbens, 2002, The upper-truncated power law applied to earthquake cumulative frequency-magnitude distributions*, Bulletin of the Seismological Society of America (BSSA)*, 92 (8).

Tebbens, S.F., and *S.M. Burroughs***,** Self-Similar Criticality, submitted to *Fractals*, submitted 6/10/02, accepted 10/25/02.

Technical Reports

Donahue, B.T., Hine, A.C.; Tebbens, S.F.; Locker, S.D.; Twichell, D.C.; *Hafen, M.,* 1999, Mouth of Tampa Bay side-scan sonar mosaic map, Open-File Report - U. S. Geological Survey, Report: OF 99-0445, 1 disc.

Feature Newspaper Articles on Science

Quoted regarding wax tectonics research in *The Washington Post,* Science section, April 26, 1999

Quoted regarding wax tectonics research in *The Economist*, Science and Technology section, August 8, 1998

Abstracts, Oral, and Poster Presentations

Burroughs, S.M. and S.F. Tebbens, Identifying Power Laws in Upper-Truncated Cumulative Number-Size distributions With Applications to Earthquakes and Tsunamis, *EOS Trans. AGU*, 80, F934, 1999.

Tebbens, S.F., E. Bodenschatz, N. Gemelke, J. Carr, and R. Ragnarsson, Wax Tectonics: Parallels with and insights into earth processes, *EOS Trans. AGU,* 80, S380, 1999.

Burroughs, S.M., S.F. Tebbens, C.C. Barton, and D.F. Naar, Hotspot seamount formation as an example of self-organized criticality, *EOS Trans. AGU*, 81, F559, 2000.

Tebbens, S. and *S.M. Burroughs*, A cellular-automata model with a fractal distribution of trigger cells (INVITED), *EOS Trans. AGU*, 81, F566, 2000.

Tebbens, S. and *E. Nelson***,** Wavelet analysis of shoreline change at Cape Hatteras National Seashore, 1997-1998, *EOS Trans. AGU*, 81, F562, 2000.

Tebbens, S. and *E. Nelson*, Volumetric Coastal Change of Cape Hatteras National Seashore, 1997-98, Geophysical Research Abstracts, European Geophysical Society, 2, 2000.

Tebbens, S. and *S. Burroughs*, Identifying Power Laws in Upper-Truncated Cumulative Number-Size Distributions with Applications to Earthquakes and Tsunamis, Geophysical Research Abstracts, European Geophysical Society, 2, 2000.

Burroughs, S.M., S.F. Tebbens, D.F. Naar, and C.C. Barton, Do Seamount Heights in the Pacific Basin Follow an Upper-truncated Power Law Distribution?, *EOS Trans. AGU*, 81, S410, 2000.

Tebbens, S.F., *S.M. Burroughs***,** and *E.E. Nelson*, Wavelet analysis of shoreline change on the Outer Banks of North Carolina (INVITED), *EOS Trans. AGU*, 82, F581, 2001.

Tebbens, S. and *S.M. Burroughs*, Self-similar criticality: A link between cumulative power law distributions and fractal geometry, *EOS Trans. AGU*, 82, F570, 2001.

Burroughs, S.M. and S.F. Tebbens, Upper-truncated power laws and limits to scale invariance in natural systems, *EOS Trans. AGU*, 82, F568, 2001.

Burroughs, S.M., S.F. Tebbens, C.C. Barton, and D.F. Naar, Hotspot seamount formation as an example of self-organized criticality, Geophysical Research Abstracts, European Geophysical Society, CD-ROM vol. 3, 2001.

Tebbens, S. and *S.M. Burroughs,* A model of self-similar criticality, Geophysical Research Abstracts, European Geophysical Society, CD-ROM vol. 3, 2001.

Burroughs, S.M. and S.F. Tebbens, Apparent temporal change in *b*-value explained by upper-truncation of the Gutenberg-Richter power law, *EOS Trans. AGU*, 82, S19, 2001.

Tebbens, S.F., *S.M. Burroughs,* and ***E.E. Nelson,*** Horizontal shoreline change at Cape Hatteras National Seashore is a self-affine time series: mean change is meaningless, *EOS Trans. AGU*, 82, S20, 2001.

Burroughs, S.M. and S.F. Tebbens, Self-Similar Criticality: A model for forest fire burn areas, *submitted to American Geophysical Union Fall 2002 meeting.*

Tebbens, S.F. and *S.M. Burroughs*, An explanation for the change in *b*-value preceding large earthquakes, *submitted to American Geophysical Union Fall 2002 meeting.*

OTHER ACHIEVEMENTS

Awards

USF award for excellence in teaching and mentorship at the doctoral level as major Professor for Stephen Burroughs, a USF 2002 Outstanding Dissertation Prize recipient

White House fellowship, 2001, selected as sole *USF* candidate, advanced to Regional Finalist

Editorships

Geophysical Theory (Menke and Abbot, Columbia Univ. Press, NY, 1990, 458 pp.)
IDL Programming Techniques (Fanning, Fanning Software Consulting, CO, September 1999 printing, 336 pp.)
Investigating Water as a Resource, American Geological Institute curriculum module (AGI, It's About Time Publishers, 2000.)

Professional Society

American Geophysical Union, American Association for the Advancement of Science (AAAS), Sigma Xi, The Society of Woman Geographers, The New York Academy of Sciences.

Professional Service

Reviewer for the following:
Agencies: American Chemical Society, Department of Energy, National Aeronautic and Space Administration, National Science Foundation, Oregon Sea Grant, U.S. Department of State (Science Center programs).
Journals: *Earth and Planetary Science Letters, Journal of Geophysical Research, Journal of South American Earth Sciences, Marine Geophysical Research, Geophysical Research Letters,* and *Geology*.
European Geophysical Society XXV General Assembly, France: Session co-convenor, 2000
European Geophysical Society XXVI General Assembly, France: Session co-convenor, 2001
European Geophysical Society XXVIII General Assembly, France: Session co-convenor, 2003
American Geophysical Union (AGU) Fall meeting: Head Judge, Outstanding student paper awards, Nonlinear Geophysics Group, 2001; Program committee representative for Nonlinear Geophysics focus group, 2002-2003; Session convenor, 2002-2003
National Science Foundation: Panelist, POWRE proposals, 2000
Consortium for Oceanographic Research and Education (CORE): Technical Advisory Panel Member, National Ocean Science Bowl (NOSB), 1997-02

Community Service

2002, Volunteer, Coastal Cleanup organized by Marine Science Activities Councel (MSAC), Tierra Verde FL
1994-03, Speak about marine science research to community groups such as Vassar Club of Tampa Bay, Yale Club of Tampa Bay, and local public and private schools
1994-03, Respond to high school and college students requests to learn more about how to become a marine scientist and other career-related questions. Work with students who need to interview a professional for school projects.
1999, Pinellas County Millennium Celebration, Environmental Committee
1998-99, St. Petersburg Cultural Plan Arts Education Taskforce
1994-99, Volunteer, Superstars (corporate sponsored event to benefit Marine Science Students)

STUDENT COMMITTEES

Masters

Director or co-director of 4 MS theses
Served on 3 MS committees
Major advisor of 4 MS students

Ph.D.
Director or co-director of 2 Ph.D. dissertation
Served on 1 Ph.D. committees
Major advisor of 2 Ph.D. students

Curriculum Vitae

GENERAL DATA

Name: Joseph J. Torres
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
College of William and Mary	Biology	B.S.	1972
University of California	Biology	M.A.	1976
University of California	Biology	Ph.D	1980

EMPLOYMENT HISTORY

Commissioned 2nd Lt. USAR (1972), honorably discharged; Cpt., USAR (1980) (1972 – 1980)

University of California, Santa Barbara: Department of Biological Sciences, Teaching Assistant (1972 – 1974); Research Assistant (1974 – 1980)

University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1980 – 1985); Associate Professor (1985 – 1990), Professor (1990-present)

AREAS OF SPECIALIZATION

Physiology and ecology of pelagic, benthic, and intertidal animals; Comparative physiology; Biochemical physiology; Animal locomotion; Deep-sea biology; Polar biology

GRANTS

NSF - A diet of snow: energetics and nutrition of leptocephalus larvae. $300,000. 8/97-7/2000. Torres only, no other PI's or institutions involved.

NSF - Antarctic Pack Ice Seals (APIS): Ecological interactions with prey and the environment. $ 296,808. 5/99-5/02. The amount shown is for Torres only. This is a multi-investigator program.

Florida Fish and Wildlife Conservation Commission - Harmful Algal Blooms: Stress Response in Fish. $125,000. 12/99-12/00. Torres only.

NSF - Winter Distribution and Success of Southern Ocean Krill (WinDSSOcK) (Southern Ocean GLOBEC). With Dr. Kent Fanning of USF. $634,898 total; 494,992 for Torres only. 9/2000-9/2003. This is a multi-investigator program.

Florida Fish and Wildlife Conservation Commission - Harmful Algal Blooms: Stress Response in Fish. $75,000. 12/00-12/01. Torres only

Florida Fish and Wildlife Conservation Commission - Seamap Archiving Center Services. 13 August 2001 to 15 November 2001. $70, 477.

Florida Fish and Wildlife Conservation Commission - SEAMAP Ichthyoplankton Program. 14 February 2002-31 January 2006. $422, 813.

Southwest Florida Water Management District, award - Alafia and Little Manatee Rivers Organic Fraction Analysis, $18,648, 13 Sept 02-1 Nov 02.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments of Books

Ikeda T, Torres,JJ, Fernandez-Leon J, *Geiger, SP*. 2000. Chapter 10, Metabolism, pps. 455-532, In: Zooplankton Methodology Manual, RP Harris, PH Wiebe, J Lenz, HR Skjoldal, and M Huntley, Eds., Academic Press, London.

Articles

Greely, TM, JV Gartner, and JJ Torres. 1999. Age and growth of Electrona antarctica (Pisces: Myctophidae) the dominant mesopelagic fish of the Southern Ocean. Marine Biology 133: 145-158.

Bishop, RE, Torres, JJ. 1999. Leptocephalus energetics: metabolism and excretion. Journal of Experimental Biology 202: 2485-2493.

Burghart SE, Hopkins, TL, Vargo, GA, Torres, JJ. 1999. Effects of a rapidly receding ice edge on the abundance, age structure, and feeding of three dominant calanoid copepods in the Weddell Sea, Antarctica. Polar Biology 22: 279-288.

Lu Y.T., Blake, N.J., Torres, J.J. 1999. Oxygen consumption and ammonia excretion of larvae and juveniles of the bay scallop, Argopecten irradians concentricus (Say). Journal of Shellfish Research 18: 419-423.

Lu Y.T., Blake, N.J., Torres, J.J. 1999. Biochemical utilization during embryogenesis and metamorphosis in the bay scallop Argopecten irradians concentricus (Say). Journal of Shellfish Research 18: 425-429.

Bishop, R.E., Torres J.J., Crabtree R.E. 2000. Leptocephalus energetics: chemical composition and growth indices. Marine Biology 137: 205-214.

Geiger, S.P., J.J. Torres and R.E. Crabtree. 2000. Air breathing and gill ventilation frequencies in juvenile tarpon, Megalops atlanticus: responses to changes in dissolved oxygen, temperature, hydrogen sulfide, and pH. Environmental Biology of Fishes 59: 181-190.

Geiger, SP, Torres JJ, Donnelly, J. 2000. The effect of the receding ice edge on the condition of midwater fishes in the Northwestern Weddell Sea: results from biochemical assays with notes on diet. Marine Biology 137: 1091-1104.

Bishop, R.E., Torres J.J. 2001. Leptocephalus energetics: Assembly of the energetics equation. Marine Biology 138: 1093-1098

Geiger, SP, Torres JJ, *Kawall HG.* 2001. The effect of the receding ice edge on the condition of copepods in the northwestern Weddell Sea. Hydrobiologia 453/454: 79-90.

Marine Zooplankton Colloquium. 2001. Future marine zooplankton research - a perspective. Marine Ecology Progress Series: 222: 297-308.

Kawall, HG, Geiger, SP, Torres, JJ. 2001. The effects of the ice edge bloom and season on the metabolism of copepods in the Weddell Sea. Hydrobiologia 453/454: 67-77.

Kawall, HG, Torres, JJ, Sidell, BD, Somero, GN. 2002. Metabolic cold adaptation in Antarctic fishes: evidence from enzymatic activities of brain. Marine Biology 140: 279-286.

Tolley SG, Torres, JJ. 2002. Energetics of swimming in juvenile common snook (*Centropomus undecimalis*). Environmental Biology of Fishes 63: 427-433.

Hofmann, EE, Klinck, JM, Costa, DP, Daly, KL, Torres, JJ, Fraser, WR. 2002. US Southern Ocean Global Ocean Ecosystems Dynamics Program. Oceanography 15: 64-74.

Lancraft TM, Hopkins TL, Robison, BH, Reisenbichler K, Torres JJ. A krill dominated micronekton and macrozooplankton community off Croker Passage, Antarctic, with an estimate of fish predation. Deep-Sea Research.

Kawall HG, Donnelly J, Torres JJ. Metabolism of Antarctic micronektonic Crustacea during the summer. Deep-Sea Research.

Sutton TT, Hopkins TL, Vargo GA, Zooplankton community structure relative to an ice-edge phytoplankton bloom in the Southern Ocean. Marine Ecology Progress Series

Technical Reports

Dagg, MJ, Ortner, P, Torres, JJ. 2000. GLOBEC in the Gulf of Mexico: large rivers and marine populations. U.S. Global Ecosystems Dynamics (GLOBEC) Report No. 19.

Torres JJ, Burns J, Daly K, Fraser W, Marschall S, Stewart F, Zhou M. 2001. Report of the R/V Laurence M. Gould Cruise LMG 01-04 to the Western Antarctic Peninsula. 18 March - 13 April 2001. United States Southern Ocean Globec Report No. 1. Torres JJ, Burns J, Daly K,

Denker C, Ju, S-J, Friedlander A, Zhou M. 2002. Report of the R/V Laurence M. Gould Cruise LMG 02-03 to the Western Antarctic Peninsula. 7 April - 21 May 2002. United States Southern Ocean Globec Report No. 5.

Feature Newspaper Articles on Science

St. Petersburg Times, Neighborhood Times:

From the end of the earth. Part 1. All set for an Antarctic adventure, p6, 1/5/2000.

From the end of the earth. Part 2. Iceberg greets team for holidays, p8, 1/9/2000.

From the end of the earth. Part 3. Emperor penguins have unusual visitors, p6, 1/12/2000.

From the end of the earth. Part 4. Antifreeze fish go under the microscope, p12, 1/23/2000.

From the end of the earth. Part 5. Of ice and men (and women and krill), p6, 1/26/2000.

From the end of the earth. Part 6. Studying seals is slippery work, p6, 2/2/2000.

From the end of the earth. Part 7. Of friendship, furry carnivores, p6, 2/9/2000.

From the end of the earth. Part 8. A grand trip is sealed, p6, 2/16/2000.

Krill seekers begin new frigid jaunt, p7, 5/9/2001.

Antarctic crew faces stiff winds, short days, p13, 5/16/2001.

Team lingers in warmest coastal water, p7, 5/23/2001.

Uncharted (frozen) waters, p6, 6/6/2001.

Trekkers discover a season of alterations, p11, 6/13/2001.

Tiny shrimp, big cause, p12, 8/22/2001.

The call of the wild. pp 19-23 in: USF magazine vol 42, number 4, Fall 2000 issue.

Abstracts, Oral, and Poster Presentations

Greely, T.M., J.V.Gartner, and J. J. Torres. 1999. Age and growth of Electrona antarctica (Pisces: Myctophidae) the dominant mesopelagic fish of the Southern Ocean. Poster at the 1999 Gordon Research Conference in Polar Marine Science, 8-12 March 1999, Ventura, CA.

Bishop,RE, Torres, JJ. 1999. Metabolism of troglobitic crustaceans. The Crustacean Society annual meeting, 26-30 May 1999.

Kawall, HG, Geiger, SP, Torres, JJ. 1999. The effects of the ice-edge bloom and season on the metabolism of copepods in the Weddell Sea. Seventh International Conference on Copepoda, Curitiba, Brazil, 25-31 July 1999.

Geiger, SP, Torres, JJ, *Kawall, HG* .1999. The effect of the receding ice edge on the condition of copepods in the northwestern Weddell Sea. Seventh International Conference on Copepoda, Curitiba, Brazil, 25-31 July 1999.

J Donnelly, JJ Torres, K Daly, *TT Sutton,* **C Simoniello**, M Grigsby, **J Bellucci**, **S Burghart**, and T Bailey. 2002. GLOBEC meets APIS: the character of the pelagic fish fauna in waters of the western Antarctic Peninsula Shelf and the eastern Ross Sea. Eos. Trans. AGU, 83(4), Ocean Sciences Meet. Suppl., Abstract OS 41C-40

JJ Torres, J Donnelly, and **J Bellucci**. SO GLOBEC: Metabolism of winter krill. Eos. Trans. AGU, 83(4), Ocean Sciences Meet. Suppl., Abstract OS 51A-04.

Torres JJ " Life in the Dark: the Antarctic in Winter", Invited seminar, Eckerd College ASPEC group

J Donnelly, JJ Torres, K Daly, *TT Sutton*, **C Simoniello**, M Grigsby, **J Bellucci, S Burghart**, and T Bailey. 2002. GLOBEC meets APIS: the character of the pelagic fish fauna in waters of the western Antarctic Peninsula Shelf and the eastern Ross Sea. AGU/ASLO winter meeting, 11-15 Feb 2002.

JJ Torres, J Donnelly, and **J Bellucci** SO GLOBEC: Metabolism of winter krill. AGU/ASLO winter meeting, 11-15 Feb 2002.

Torres, JJ, Antarctic Ecology, Invited talks at MOSI, Tampa February 6 2002

Torres, JJ, Life in the dark: The Antarctic in winter. Florida State University Oceanography Department, 28 February 2003.

OTHER ACHIEVEMENTS

Awards

President's Award for Faculty Excellence. USF. January 2003.

Member: Southern Ocean GLOBEC scientific steering committee. March 2000 – present.

Professorial excellence program award, University of South Florida, 1998-1999.

Fellow of the American Association for the Advancement of Science, October, 1997.

Professional Society

American Association for the Advancement of Science
American Society of Limnology and Oceanography
American Society of Ichthyologists and Herpetologists
American Geophysical Union
Crustacean Society
Oceanography Society
Society for Integrative and Comparative Biology
Society of Sigma Xi

Professional Service

Member: Southern Ocean GLOBEC scientific steering committee. March 2000 - present

Reviewer for: NSF Biological Oceanography, NSF Polar Biology and Medicine, NSF Ocean Technology.

Referee for: Biological Bulletin, Limnology and Oceanography, Marine Biology, Marine Ecology Progress Series, Deep-Sea Research, Journal of Experimental Biology.

Community Service

Interview with "University Beat" July, 2002, aired 14, 16, 18, 20 July

Torres JJ, Antarctic Ecology, three talks at MOSI, February 6, 2002

Multiple lectures at Brighton Preparatory School, 1999-2002.

Guest speaker for the following public service organizations: East Clearwater Rotary Club, Friends of Boyd Hill Nature Trail, Clearwater Parents Without Partners, St. Petersburg Exchange Club, Friends of Natural Sciences, West Gate High 12, Coterie Women's Club, Maximo Elementary School
Guest speaker: Clearwater High School Career Day
Interviews: WTVT 13, "College Kaleidoscope"; KCOY TV 6 O'Clock News

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 5 MS theses
Served on 5 MS committees

Ph.D.

Director or co-director of 6 Ph.D. dissertations
Served on 9 Ph.D. committees

C U R R I C U L U M V I T A E

GENERAL DATA

Name: Dr. Edward Sutton Van Vleet
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor and Director of Academic Programs and Student Affairs (2001- present)

EDUCATION

Institution	Field of Study	Degree	Date
University of Washington	Chemistry	B.A.	1971
University of Washington	Oceanography	B.S.	1971
Old Dominion University	Oceanography	M.S.	1974
University of Rhode Island	Oceanography	Ph.D.	1978

EMPLOYMENT HISTORY

Scripps Institution of Oceanography, La Jolla, California: Post-graduate Marine Chemist, Institute of Marine Resources, (1978 – 1979)

University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1979 – 1983); Associate Professor, tenure (1983 – 1987); Professor (1987 – Present), Director of Academic Programs and Student Affairs (2001 – Present)

AREAS OF SPECIALIZATION

Chemical Oceanography
Marine Organic Biogeochemistry
Hydrocarbon Pollution
Biochemical Tracers

GRANTS

Toxicological Effects and Metabolic Breakdown of Bunker C Fuel Oil by Subtropical Marine Organisms - Part II. American Petroleum Institute. ($67,500/3 yr). 1996-1999.

Toxicological Effects and Metabolic Breakdown of Bunker C Fuel Oil by Subtropical Marine Organisms - Part II. Florida Department of Environmental Protection. ($70,000/ 3 yr). 1996-1999.

Development of an Integrated End-to-End Marine Contaminant Management System. Environmental Protection Agency. (with M.J. Luther and B. Galperin. Total budget = $588,777/3 yr). ($35,326 = my portion). 1996-1999.

Application of New Sampling Technologies to the Long-Term Studies of Organic Pollutants in the Canals and Lagoon of Venice, Italy. ($4000). 1998-1999.

Mass Balance Fluxes between the Northern Adriatic Sea and the Lagoon of Venice: Use of Molecular Organic Biomarkers to Investigate Mass Fluxes. Funded by the Consiglio Nazionale della Ricerche (Venice, Italy) – ERCAVA Program (Exchange Rate Controlling Activity in Venice Area). February 1, 2001 – June 1, 2004. $119,203 (3 years)

Investigation of the Presence of Toxic Components of Petroleum Hydrocarbons in Guanabara Bay, Brazil. Funded by Office of Naval Research (subcontract through the Center for Disaster Management and Humanitarian Assistance). November 30, 2001 - September 30, 2002. $92,567

Evaluating the Long-Term Influence that Anthropogenic Inputs Have on the Biogeochemical Cycling of Carbon and on the Planktic and Benthic Bioassemblages in Tampa Bay, FL. U.S. Geological Survey (with David Hollander). March 1, 2002 - February 28, 2003. $50,000

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Van Vleet, E.S. 2001. The fate of spilled oil in marine and freshwater environments. Proceedings of the 1st Latin American Conference on Contaminated Soil and Water.

Wetzel, D.L. and E.S. Van Vleet. 2001. The fate of Bunker C fuel oil following a spill in a subtropical marine environment. Proceedings of the 1st Latin American Conference on Contaminated Soil and Water.

Hagen, W., G. Kattner, A. Terbruggen and E.S. Van Vleet. 2001. Lipid metabolism of the Antarctic krill *Euphausia superba* and its ecological implications. Marine Biology. 139:95-104.

Wetzel, D.L. and E.S. Van Vleet. 2001. Comparative studies on the toxicity of dispersants and dispersed oil to marine organisms - a three-year Florida study. 2001 International Oil Spill Conference Proceedings. March 26-29, 2001. Tampa, Florida.

Ames, A.L., E.S. Van Vleet and J.E. Reynolds. 2002. Comparison of lipids in selected tissues of the Florida manatee (Order Sirenia) and bottlenose dolphin (Order cetacea; Suborder Odontoceti). Comparative Biochemistry and Physiology. 132:625-634.

Wetzel, D.L. and E.S. Van Vleet. 2003. Persistence of petroleum hydrocarbon contamination in sediments of Venice, Italy: 1995 and 1998. Marine Pollution Bulletin. 46:1015-1023.

Wetzel, D.L. and E.S. Van Vleet. 2003. Accumulation and Distribution of Petroleum Hydrocarbons Found in Mussels (*Mytilus galloprovincialis*) in the Canals of Venice, Italy Submitted to Marine Pollution Bulletin.

Wetzel, D.L. and E.S. Van Vleet. 2003. The use of fecal sterols to examine the source and fate of pollutants in mussels and sediments from the canals and lagoon of Venice, Italy. In preparation for submission to Marine Pollution Bulletin.

Wetzel, D.L. and E.S. Van Vleet. 2003. The use of semipermeable membrane devices (SPMDs) as a proxy for the accumulation of organic pollutants in mussels. In preparation for submission to Environmental Science and Technology.

Wetzel, D.L., E.S. Van Vleet, G. Campesan and D Casein. 2003. Trends in petroleum hydrocarbon and sterol contamination in the canals of Venice, Italy: a 13-year overview. In Preparation for submission to Estuarine and Coastal Shelf Science.

Sutton, P.L. and E.S. Van Vleet. 2003. Determination of polycyclic aromatic hydrocarbons in seawater using solid phase extraction cartridges. In preparation for submission to Chemosphere.

Sutton, P.L. and E.S. Van Vleet. 2003. Fluorescence quenching of polycyclic aromatic hydrocarbons by dissolved organic matter. In preparation for submission to Bulletin of Environmental Contamination and Toxicology.

Sutton, P.L. and E.S. Van Vleet. 2003. Enhanced desorption of PAHs from quartz and calcite sediments by water soluble carbon. In preparation for submission to Archives of Contamination and Toxicology.

Ames, A.L. and E.S. Van Vleet. 2003. Lipids of seagrasses and freshwater plants from Southwest Florida. In preparation for submission to Phytochemistry.

Ames, A.L. and E.S. Van Vleet. 2003. Changes in manatee lipids during exposure to subtropical environmental conditions. In preparation for submission to Comparative Biochemistry and Physiology.

Ames, A.L. and E.S. Van Vleet. 2003. Lipids of the Florida manatee, *Trichechus manatus latirostris*. In preparation for submission to Journal of Mammalogy.

Abstracts, Oral, and Poster Presentations

"Lipid Chemistry of the Florida Manatee, *Trichechus manatus latirostris.*" Presented at the 13th Biennial Conference of the Society of Marine Mammalogists. Wailea, Hawaii. November, 1999.

"Comparative studies on the toxicity of dispersants and dispersed oil to marine organisms - a three-year Florida study." Presented at the 2001 International Oil Spill Conference. Tampa, FL. March, 2001.

OTHER ACHIEVEMENTS

Awards

1998-present, Visiting Research Scientist Award, Istituto Biologia del Mare, Venice, Italy.

Professional Society

American Assoc. Advancement Science
American Chemical Society
European Assoc. Organic Geochemists
Sigma X

Professional Service

Interdisciplinary Committee of the World Cultural Council (Mexico). Committee to choose the Albert Einstein World Award of Science.

Numerous presentations and talks for civic groups, public schools, and radio broadcasts

Reviewer of Proposals: National Science Foundation, Environmental Protection Agency, Sea Grant, Louisiana Universities Marine Consortium, CICEET.

Reviewer of Journals: Geochimica et Cosmochimica Acta, Marine Chemistry, Organic Geochemistry, Limnology and Oceanography, Environmental Science and Technology, Polar Biology, Canadian Journal of Fisheries and Aquatic Sciences, Geophysical Research Letters, Marine Geology, Environmental Geology, Bulletin of Environmental Contamination and Toxicology, Australian Journal of Marine and Freshwater Research, Journal of Coastal Research, Journal of Marine Research, Journal of Geophysical Research, Chemosphere.

STUDENT COMMITTEES (past 5 years)

Masters

Director or co-director of 3 MS theses
Served on 4 MS committees
Major advisor of 3 MS student

Ph.D.

Director or co-director of 3 PhD dissertation
Served on 8 PhD committees
Major advisor of 30 PhD students

CURRICULUM VITAE

GENERAL DATA

Name: Gabriel A. Vargo
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Associate Professor

EDUCATION

Institution	Field of Study	Degree	Date
University of Miami	Botany	B.S.	1964
University of Miami	Botany	M.S.	1967
University of Rhode Island	Biological Oceanography	Ph.D.	1976

EMPLOYMENT HISTORY

Fairchild Tropical Gardens: Technical Assistant (1962-1965)
University of Miami, Rosenstiel Institute of Marine and Atmospheric Sciences: Graduate Assistant and Research Assistant (1965-1967)
Environmental Protection Agency: Biologist (1970, Summer)
University of Rhode Island: Graduate Assistant (1967-1975); Assistant Manager and Research Associate, Marine Ecosystems Research Laboratory (1975-1979)
University of South Florida: Department of Marine Science / College of Marine Science, Assistant Professor (1979-1986), Associate Professor (1986-Present)

AREAS OF SPECIALIZATION

Phytoplankton ecology and physiology, Nutrient-phytoplankton interactions, Dynamics of dinoflagellate blooms, Benthic microalgal dynamics, Growth rates of diatoms, Phytoplankton-zooplankton interrelationships

GRANTS

Experiments with Iron KE-MIN: Solubility in seawater and utilization by selected phytoplankton species. G. Vargo, P.I., with K. Fanning and R. Byrne; 9/1/96 - 11/30/96. Ocean Farming, Inc.; $25,000; Addendum to above extension to 11/30/99; total funds to date: $35,730.

Circulation, Nutrient Flux, and Phytoplankton growth in Florida Bay; Co-PI with G. Hitchcock (U.M./RSMAS); (Subcontract) University of Miami; 9/30/97 - 9/29/98; $7,197

As above USDOC/NOAA; 7/1/98 - 6/30/99; $41,000

As above USDOC/NOAA; 7/1/99 - 6/30/00; $41,000

ECOHAB: Florida; Co-PI with J. Walsh, R. Weisberg; USDOC/NOAA; 9/1/97 - 3/31/02; $200,000 ($50K/yr is G. Vargo's budget)

ECOHAB: Florida Supplement for ship time; USDOC/NOAA; $115,500

ECOHAB: Florida Co-PI with K. Steidinger and others; USEPA; 6/1/98 - 5/31/01; $360,000 ($120K/yr is G. Vargo's budget)

SFERPM 2000: Role of Phytoplankton In Benthic Pelagic coupling. Co-PI with G. Hitchcock, U.M./RSMAS.; USDOC/NOAA; 7/1/00 - 6/30/02; $89,534 ($44,767/yr is G. Vargo's budget)

ECOHAB: Florida. Year four, data reduction; USEPA via FMRI; $100,000

An investigation of relationships between phytoplankton populations and freshwater inflows in three tidal rivers in West Central Florida; SWFWMD; 9/1/01 to 6/30/03; $19,520

Effects of channel construction on benthic microalgae and sea grasses at Ft. DeSoto Pinellas County; PCDEM; 9/29/01 to 5/31/02; $3,700

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

1999 **Burghart, S.E**., T.L. Hopkins, G.A. Vargo, and J.J. Torres. Effects of a rapidly receding ice edge on the abundance, age structure and feeding of three dominant calanoid copepods in the Weddell Sea, Antarctica. Polar Biol. 22: 279-288.

1999 *Kusek, K.*, G.Vargo, and K. Steidinger. Gymnodinium breve - A scientific and Journalistic analysis. Contributions in Mar. Sci. 34:1-299. [Journal volume is 1999 but finally appeared in 2000]

1999 Vargo, G.A. Coastal Phytoplankton blooms: What are they telling us? ASB Bulletin: 46 (4): 286-309.

2000 Hitchcock, G.L., G.A. Vargo, and M.L. Dickson. Phytoplankton growth and production in relation to dissolved inorganic carbon on the West Florida Shelf, April, 1996. Journ.Geophysical Res. 105: 6579-6589

2001 *Del Castillo, C., P*.G. Coble, **R.N. Conmy**, F.E. Muller-Karger, **L. Vanderbloomen**, and G.A. Vargo. Multispectral in situ measurements of organic matter and chlorophyll fluorescence in seawater: documenting the intrusion of the Mississippi River Plume in the West Florida Shelf. Limnol. and Oceanogr. 46(7): 1836-1843.

2001 Lenes, J.M., **B.P. Darrow**, *C. Cattrall*, *C.A. Heil*, M. Callahan, G.A. Vargo, R.H. Byrne, J. M. Prospero, D.E. Bates, K.A. Fanning, and J.J. Walsh. Iron fertilization and the *Trichodesmium* response on the West Florida Shelf. Limnol. Oceanogr. 46(6): 1261-1277.

2002 *Heil, C.A*., G.A. Vargo, D. Spence, **M.B. Neely**, *R. Merkt*, K. Lester, and J. Walsh. Nutrient Stochiometry of a Gymnodinium breve bloom: What limits blooms in oligotrophic environments? IN: Proceedings of the IX International Conference on Harmful Algal Blooms, Feb 7-11, 2000. Hobart, Australia. G.M. Hallegraeff, S. I. Blackburn, C.J. Bolch, and R.J. Lewis (eds.), pp. 165-168.

2002 Vargo, G.A., *C.A. Heil*, D. Spence, **M.B. Neely**, *R. Merkt*, K. Lester, R.H. Weisberg, J.J. Walsh and K. Fanning. The Hydrographic regime, nutrient requirements, and transport of a *Gymnodinium breve* Davis red tide on the West Florida shelf. Proceeding of the IXth International Conference on Harmful Algal Blooms, Feb 7-11, 2000. Hobart, Australia. G.M. Hallegraeff, S. I. Blackburn, C.J. Bolch, and R.J. Lewis (eds.), pp. 157-160.

2002 Lester, K., *R. Merkt*, *C. A. Heil*, G. Vargo, **M. B. Neely**, D. Spence & L. Melahn. Evolution of a Gymnodinium breve (Gymnodiniales, Dinophyceae) red tide bloom on the west Florida shelf: Relation-ship with organic nitrogen and phosphorus. IN: Proceedings of the Ixth International Conference on Harmful Algal Blooms, Feb 7-11, 2000, Hobart, Australia, G.M. Hallegraeff, S. I. Blackburn, C.J. Bolch, and R.J. Lewis (eds.), pp. 1161-164

Abstracts, Oral, and Poster Presentations

1999 Vargo, G.A. Coastal Phytoplankton Blooms: What are they telling us? Invited presentation to the Association of Southeastern Biologists, Coastal Ecology

Symposium. Published in: Proceedings of the ASB Coastal Ecology Symposium, ASB Bulletin Vol. 46 (4): 246-330.

1999 Vargo, G.A., D. Spence, *C. Heil, R. Merkt*, **M.B. Neely,** K. Lester, L. Melahn, R. Weisberg, J. Walsh. Evolution of a *Gymnodinium breve* red tide bloom on the West Florida Shelf: Relationships with physical factors. Poster Presentation at the 1999 Estuarine Research Federation Meeting, Sept. 23 - 30, 1999, New Orleans, LA

1999 *Heil, C.A*., G.A. Vargo, D.N. Spence, *R. Merkt*, **M.B. Neely,** K. Lester, L. Melahn, and J. Walsh. Evolution of a *Gymnodinium breve* bloom on the West Florida Shelf: Nutrient Stoichiometry. Poster Presentation at the 1999 Estuarine Research Federation Meeting, Sept. 23 - 30, 1999, New Orleans, LA

1999 Vargo, G.A., G.L. Hitchcock, **M.B. Neely**, J. L Jurado, L. Melahn, and D. Mir. Estimates of phytoplankton growth, production, and nutrient requirements based on a drifter tracked water parcel in western Florida Bay, Poster presentation at the 1999 ASLO meeting, February 1-5, 1999 AND Oral presentation at the 1999 Florida Bay and adjacent marine systems Science Conference, November 1-5, 1999, Key Largo, FL.

2000 . Vargo, G.A. Red Tides. Presented at the December, 2000 Healthy Beaches: An Agenda for the Future of Florida Conference. USF, St. Petersburg, FL.

2000. Vargo, G.A. Symposium on Harmful Algae in the US, Woods Hole Oceanographic Institute Woods Hole, Massachusetts; December 5 -9, 2000: Presented paper entitled: Hydrography and nutrient characteristics within the Ecohab: Florida control volume on the West Florida Shelf co-authored with *C.A. Heil*, J.J. Walsh, K.Fanning, K.A. Steidinger, **M.B. Neely,** K. Lester, *R. Merkt*, and B. Weisberg.

2001 G.A. Vargo and **M.B. Neely**. Flux of inorganic phosphate from the sediment and contribution to biomass and primary productivity by benthic microalgal communities in western Florida Bay. Florida Bay Science Conference; April 23-26, 2001, Key Largo, Florida

2001 G.A. Vargo, **M.B. Neely**, G.L. Hitchcock, and *J. Jurado*. A summary of results from drifter and fixed location houseboat based studies: Growth rates, production, proximate composition, and nutrient requirements of phytoplankton populations during blooms in Northwestern and south-central Florida Bay. Florida Bay Science Conference; April 23-26, 2001, Key Largo, Florida

2001 G.A. Vargo, **M.B. Neely,** K. Lester, G.L. Hitchcock, and *J. Jurado*. Spatial and temporal changes in phytoplankton biomass, proximate composition, and total dissolved nitrogen and phosphorus on bimonthly cruises throughout Western Florida Bay. Florida Bay Science Conference; April 23-26, 2001, Key Largo, Florida

2001 Lenes, J., **B.P. Darrow**, *C. Cattrall, C.A. Heil***,** M. Callahan, G.A. Vargo, R.H. Byrne, J.M. Prospero, D.E. Bates, and J.J. Walsh. Iron fertilization and the Trichodesmium response on the West Florida shelf. Poster presentation at ASLO, 2001 Aquatic Sciences meeting, Feb. 12-16, 2001, Albuquerque, N.M.

2001 *Penta, B.*, J.J. Walsh, C.R. Tomas, and G.A. Vargo. Competition among multiple functional groups of phytoplankton: A numerical recipe for harmful algal blooms on the West Florida shelf. Poster presentation at ASLO, 2001 Aquatic Sciences meeting, Feb. 12-16, 2001, Albuquerque, N.M.

2001 *Heil, C.A.*, G.A. Vargo, K. Lester, S. Murasko, **M.B. Neely**, D. Spence, K. Fanning, and J.J. Walsh. Role of estuarine nutrients in supporting blooms of Karenia brevis in oligotrophic West Florida shelf waters. Oral presentation by C. Heil at ERF 2001: An Estuarine Odyssey, Nov. 4-8, 2001, St. Pete Beach, Florida.

2001 **Neely, M.B.** and G.A. Vargo. Flux of inorganic phosphate from the sediment and contribution to biomass and primary productivity by benthic microalgal communities in western Florida Bay. Poster presentation at ERF 2001: An Estuarine Odyssey, Nov. 4-8, 2001, St. Pete Beach, Florida.

2001 Lester, K.M., D. Ault, *C. Heil*, S. Mehlan, **M.B. Neely**, and G.A. Vargo. Shift in zooplankton species composition within a Karenia brevis bloom. Poster presentation at ERF 2001: An Estuarine Odyssey, Nov. 4-8, 2001, St. Pete Beach, Florida.

2002 Vargo, G.A. Four *Karenia brevis* blooms: A comparative analysis. Oral presentation at the Xth International Conference on Harmful Algae, St. Pete Beach, Oct.21 - 25, 2002.

Professional Society

ASLO, Phycological Society of America, Sigma Xi , Estuarine Research Federation, Florida Academy of Science

Professional Service

Member: Technical Advisory Committee: Tampa Bay National Estuary Program, 1992-present

Member: Review Committee: Tampa Bay Water Quality Modeling Project for SWFWMD/SWIM, 1993-present

Member: Local Organizing Committee for the September, 2002 Xth International conference on Harmful Algal Blooms, 2001

External reviewer: Florida Atlantic University, promotion and tenure applicant Invited presentation: Gulf of Mexico States Accord (GoMSA) meeting, St. Petersburg, FL, 2002

Reviewer for proposals from 10 federal, state, and local agencies and more than 12 journals.

Community Service

Member, City of St. Petersburg Planning Commission: 3-year appointment

Red Tides: Fact and Fiction. Friends of Boyd Hill Park Natural History Lecture Series

Birds of Prey Program for the Pier Aquarium Summer Camp, Aug. 1998, 1999, 2000, 2001

Environmental education programs, Birds of Prey, at numerous area Elementary and Middle schools (Great American Teach In for the last four years), local civic organizations, nursing homes and monthly programs at the St. Petersburg Ronald McDonald house.

STUDENT COMMITTEES (past 5 years)

Masters

Served on 7 MS committees

Major advisor of 9 MS students

Ph.D.

Director or co-director of 5 PhD dissertations

Served on 20 PhD committees

Major advisor of 6 PhD students

Curriculum Vitae

GENERAL DATA

Name: John J. Walsh
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Graduate Research Professor

EDUCATION

Institution	Field of Study	Degree	Date
Harvard College	Biology	A.B.	1964
University of Tennessee	Systems Ecology		1967-68
University of Miami	Marine Science	M.S.	1968
University of Georgia	Zoology		1968
University of Miami	Marine Science	Ph.D.	1969

EMPLOYMENT HISTORY

Oak Ridge National Laboratory: Pre-doctoral fellow (1967-1968)
University of Washington: Post-doctoral fellow (1969-1970), Research Assistant Professor, Department of Oceanography (1970-1975)
Brookhaven National Laboratory: Oceanographic Sciences Division, Head (1975-1984), tenure (1976-1981), Senior Oceanographer (1981-1984)
S.U.N.Y. at Stony Brook, Marine Sciences Research Center: Adjunct Associate Professor, (1975-1979), Adjunct Professor (1979-1984)
Woods Hole Oceanographic Institution: Guest Investigator (1980-1983)
Skidaway Institute of Oceanography: Visiting Scientist (1982-1983)
University of South Florida: Department of Marine Science / College of Marine Science, Visiting Scientist (1982-1983), Graduate Research Professor, tenured (1984-1991), Distinguished Research Professor (1991-present)
Harvard University: Visiting Scientist (1995)

AREAS OF SPECIALIZATION

Biological oceanographer
Systems analyses of continental shelves
Studies of coastal upwelling off Peru, Northwest Africa, Baja California, and Venezuela
Ecological components of global carbon and nitrogen budgets
Satellite images to constrain coupled numerical models of biophysical processes effecting species succession of plankton within the food webs of the Southern Ocean, the Bering/Chukchi Seas, the Mid-Atlantic/South Atlantic Bights, the Sargasso/Carribean Seas, and the Gulf of Mexico.

GRANTS

"Carbon retention in a colored ocean (CARIACO)". National Science Foundation; $243,000; June 1, 1995 to May 31, 1999.
"A numerical analysis of the seasonal food resources of krill in relation to their larval survival around the Antarctic Peninsula". National Science Foundation; $306,674; June 1, 1996 to May 31, 2000.
"ECOHAB:Florida". National Oceanic and Atmospheric Administration; $500,000; September 1, 1997 to March 31, 2002.
"A numerical analysis of new nitrogen sources of NO3 and N2 effecting carbon cycling in the southern Caribbean Sea: a key to CDOC contamination of satellite color

signals". National Aeronautics and Space Administration; $582,965: October 15, 1997 to October 14, 2001.

"An AUV-based investigation of the role of nutrient variability in the predictive modeling of physical process in the littoral ocean". Office of Naval Research; $537,796; October 1, 1997 to December 31, 2003.

"A simulation analysis of the time-dependent roles of phytoplankton and CDOM in effecting the 3- dimensional structure of inherent optical properties on the West Florida shelf". Office of Naval Research; $628,757; January 1, 1999 to December 31, 2003.

"Collaborative research: carbon cycling in the Chukchi and Beaufort Seas - field and modeling studies". National Science Foundation; $569,932; January 1, 2002 to December 31, 2006.

"Data analysis and buoy maintenance for prediction of red tides". Florida Marine Research Institute, Florida Fish and Wildlife Conservation Commission; $100,000; January 1, 2002 to June 20, 2002.

"MERHAB 2002: Eastern GOMx Sentinel Program". NOAA; $252,789; September 1, 2002 to August 31, 2007.

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Chapters Or Segments of Books

Sakshaug, E. and J.J. Walsh. 2000. Marine biology: Biomass, productivity distributions and their variability in the Barents and Bering Seas. In "The Arctic: Environment, people, policy", eds. M. Nuttall and T.V. Callaghan, Harwood Acad. Pub., Amsterdam, pp 163-196.

Walsh, J.J. 2001. Regional and shelf sea models. In "Encyclopedia of Ocean Sciences", eds. J.H. Steele, S. Thorpe, and K.A. Turekian, Academic Press, London, pp 2399-2408.

Heil, C.A., G.A. Vargo, D.N. Spence, **M.B. Neely**, *R. Merkt*, K.M. Lester, and J.J. Walsh. 2002. Nutrient stoichiometry of a Gymnodinium breve bloom: what limits blooms in oligotrophic environments? Proc. 9th Intern. Symp. Harmful Algal Blooms, Hobart, Tasmania, ed. G.M. Hallegraeff (in press).

Vargo, G.A., *C.A. Heil*, D.N. Spence, **M.B. Neely**, *R. Merkt*, K.M. Lester, R.H. Weisberg, J.J. Walsh, and K.A. Fanning. 2002. The hydrographic regime, nutrient requirements, and transport of a Gymnodinium breve DAVIS red tide on the West Florida shelf. Proc. 9th Intern. Symp. Harmful Algal Blooms, Hobart, Tasmania, ed. G.M. Hallegraeff (in press).

Lester, K.M., *R. Merkt***,** *C.A. Heil*, G.A. Vargo, **M.B. Neely**, D.N. Spence, L. Melahan, and J.J. Walsh. 2002. Evolution of a Gymnodinium breve (Gymnodiniales, Dinophyceae) red tide bloom on the West Florida shelf: relationship with organic nitrogen and phosphorus. Proc. 9th Intern. Symp. Harmful Algal Blooms, Hobart, Tasmania, ed. G.M. Hallegraeff (in press).

Articles

Bissett, W.P., J.J. Walsh, D.A. Dieterle, and K.L. Carder. 1999. Carbon cycling in the upper waters of the Sargasso Sea. I. Numerical simulation of differential carbon and nitrogen fluxes. Deep- Sea Res. 46:205-269.

Bissett, W.P., K.L. Carder, J.J. Walsh, and D.A. Dieterle. 1999. Carbon cycling in the upper waters of the Sargasso Sea. II. Numerical simulation of apparent and inherent optical properties. Deep-Sea Res. 46:273-320.

Walsh, J.J., D.A. Dieterle, F.E. Muller-Karger, R. Bohrer, *W.P. Bissett*, R. Aparicio, R. J. Varela, H.T. Hochman, C. Schiller, **R. Diaz**, R. Thunell, G.T. Taylor, M.I. Scranton, K.A. Fanning, and E.T. Peltzer. 1999. A numerical simulation of carbon/nitrogen cycling during spring upwelling in the Cariaco Basin. J. Geophys. Res. 104:7807-7825.

Muller-Karger, F.E., R. J. Varela, R. Thunell, M.I. Scranton, R. Bohrer, G.T. Taylor, J. Capelo, Y. Astor, E. Tappa, T-Y Ho, M. Iabichella, J.J. Walsh, and **J. R. Diaz**. 2000. Sediment record linked to surface processes in the Cariaco Basin. EOS 81:529, 534-535.

Walsh, J.J., D.A. Dieterle, and J.M. Lenes. 2001. A numerical analysis of carbon dynamics of the Southern Ocean phytoplankton community: the roles of light and grazing in effecting both sequestration of atmospheric CO2 and food availability to larval krill. Deep-Sea Res. 48:1- 48.

Muller-Karger, F.E., R. J. Varela, R. Thunell, M.I. Scranton, R. Bohrer, G.T. Taylor, J. Capelo, Y. Astor, E. Tappa, T-Y Ho, and J.J. Walsh. 2001. Annual cycle of primary production in the Cariaco Basin: response to upwelling and implications for vertical export. J. Geophys. Res. 106:4527-4542.

Walsh, J.J. and K.A. Steidinger. 2001. Saharan dust and Florida red tides: the cyanophyte connection. J. Geophys. Res. 106:11597-11612.

Walsh, J.J., *B. Penta*, D.A. Dieterle, and *W. P. Bissett.* 2001. Predictive ecological modeling of harmful algal blooms. Hum. Ecol. Risk Assess. 7:1369-1383.

Lenes, J.M., **B.P. Darrow**, *C. Cattrall*, *C. Heil*, G.A. Vargo, M. Callahan, R.H. Byrne, J.M. Prospero, D.E. Bates, K.A. Fanning, and J.J. Walsh. 2001. Iron fertilization and the Trichodesmium response on the West Florida shelf. Limnol. Oceanogr. 46:1261-1277.

Walsh, J. J., *K.D. Haddad*, D.A. Dieterle, R.H. Weisberg, Z. Li, H. Yang, F.E. Muller-Karger, *C.A. Heil*, and *W.P. Bissett*. 2002. A numerical analysis of landfall of the 1979 red tide of Karenia brevis along the west coast of Florida. Cont. Shelf Res. 22:15-38.

Hu, C., F. E. Muller-Karger, *Z.-P. Lee,* K. L. Carder, B. Roberts, J. J. Walsh, *C.A. Heil*, P. G. Coble, K. Steidinger, R. H. Weisberg, *R. He*, E. Johns, T. Lee, N. Kuring, J. Cannizzaro, **J. Ivey**, G. A. Vargo, R. G. Zepp, G. McRae, J. Boyer, R. Jones, G.J. Kirkpatrick, E. Mueller, R. Pierce, J. Culter, B. Keller, and J. Hunt. 2002. The 2002 "black water" event off SW Florida as detected by satellites. EOS 83:281, 285.

Walsh, J.J., R.H. Weisberg, D.A. Dieterle, *R. He*, **B.P. Darrow**, **J.K. Jolliff**, K.M. Lester, G.A. Vargo, G.J. Kirkpatrick, K.A. Fanning, *T.T. Sutton*, A. E. Jochens, D.C. Biggs, **B. Nababan**, C. Hu, and F. E. Muller-Karger. 2002. The phytoplankton response to intrusions of slope water on the West Florida shelf: models and observations. J. Geophys. Res. (In press).

Penta, B., J.J. Walsh, C. Tomas, and G.A. Vargo. 2002. Competition among multiple groups of phytoplankton: A numerical recipe for harmful algal blooms on the West Florida shelf. J. Mar. Res. (In revision).

Darrow, B.P., J.J. Walsh, G.A. Vargo, **R.T. Masserini**, K.A. Fanning, and J.Z. Zhang. 2002. A simulation study of the growth of benthic microalgae following the decline of a surface phytoplankton bloom. Cont. Shelf Res. (submitted).

Lenes, J.M., J.J. Walsh, **D.B. Otis**, and K.L. Carder. 2002. Iron fertilization of Trichodesmium off the west coast of Barbados: A one-dimensional numerical model. Deep Sea Res. (submitted).

Fanning, K.A., **R.T. Masserini**, R.H. Wanninkhof, and J.J. Walsh. 2003. Ammonia in oligotrophic waters. Nature (in prep.).

Kirkpatrick, G.J. and J.J. Walsh. 2003. ECOHAB/HyCODE studies of the West Florida shelf . Cont. Shelf Res. (special volume - in prep.).

Carder, K.L., J. Cannizzaro, J.J. Walsh, R. Chen, Z. Lee, *C.A. Heil*, and T. Villareal. 2003. Nowcasting red tides in the Gulf of Mexico: an optical view. J. Geophys. Res. (in prep.).

Walsh, J.J., D.A. Dieterle, W. Maslowski, and T.E. Whitledge. 2003. Decadal shifts in biophysical forcing of marine food webs in the Arctic: numerical consequences. J. Geophys. Res. (in prep.).

OTHER ACHIEVEMENTS

Professional Service

Steering Committee for the "Biological Initiative in the Arctic: Shelf-Basin Interactions" Program (1995-2002)

Steering Committee for the "Ecology and Oceanography of Harmful Algal Blooms: Florida" Program (1997-2002)

Steering Committee for the "Hyperspectral Coastal Ocean Dynamics Experiment" Program (1998-2002)

Local Organizing Committee for the 10th International Conference on Harmful Algae (2000- 2002)

STUDENT COMMITTEES (past 5 years)

Masters

Served on 5 MS committees

Ph.D.

Director or co-director of 6 PhD dissertations

Served on 12 PhD committees

CURRICULUM VITAE

GENERAL DATA

Name: Robert H. Weisberg
Employer: University of South Florida (USF), College of Marine Science
Present Rank: Professor

EDUCATION

Institution	Field of Study	Degree	Date
Cornell University:	Material Science & Engineering	B.S.	1969
University of Rhode Island.	Physical Oceanography	M.S	1972
University of Rhode Island	Physical Oceanography	Ph.D.	1975

EMPLOYMENT HISTORY

University of Rhode Island: Research Assistant, Graduate School of Oceanography (9/69-5/74), Research Associate (5/74-8/76), Adjunct Professor (11/76-8/82)

St. Georges School, Newport, RI: Instructor (6/71-8/71)

U.S. Army Reserve (8/69-08/77) Rank 03

North Carolina State University: Assistant Professor, Department of Marine Science & Engineering (8/76-8/81), Associate Professor, Department of Marine, Earth & Atmospheric Sciences (8/81-12/86), Adjunct Professor (12/86-5/90)

University of South Florida: Department of Marine Science / College of Marine Science Associate Professor (8/84-08/85), Associate Professor, tenure (12/86-8/88), Professor, (8/88-present)

AREAS OF SPECIALIZATION

Physical Oceanography

ACTIVE GRANTS

State of Florida: A real-time oceanographic data system for Florida, P.R. Betzer, A.C. Hine, M. Luther and R.H. Weisberg, PI's, continuing award $300,000 for annually occurring E&G funds supporting 5.3 positions beginning 7/1/97.

State of Florida: I-4 Corridor funding for the Coastal Ocean Modeling and Prediction System (COMPS), P.R. Betzer, M.E. Luther, and R.H. Weisberg, Co-PIs, continuing award $69,276.00 per year for an engineer position and $78,520.50 for expenses beginning 7/1/98.

ONR Grant # N0014-98-1-0158, Observations and modeling of the West Florida continental shelf circulation, R.H. Weisberg and M. Luther, P.I.s, 2,971,084 for the period 11/1/97-7/31/03.

ONR Grant # N0014-00-1-0253, Bottom stationed ocean profiler, R.H. Weisberg, R.H. Byrne, and C. Lembke co-P.I.s, 1,725,478 for the period 12/1/99-7/31/03.

NOAA Grant # NA16GP1571: Diagnostic studies of the equatorial Atlantic cold tongue, R.H. Weisberg, G. Mitchum, and G. Lagerloef (ERS) co-P.I.s, 358,300 for the 3 year period beginning 9/1/01.

NSF Grant # OCE-0118566, Collaborative research: Particulate organic carbon fluxes and sediment accumulation in the Cariaco Basin, co-investigator with F. Muller-Karger, R.H. Weisberg portion = 232,816 for the period 10/1/01-9/30/03.

NOAA, MERHAB grant approved and pending, J.J. Walsh, R.H. Weisberg, C. Lembke, and D. Fries, co-P.I.s, 1,150,000 for 5 years. R.H. Weisberg portion is 478,618.

ONR Task Order #:3-12110-10 (administered by Univ. of North Carolina), Southeast Atlantic Coastal Ocean Observing System (SEA-COOS), R.H. Weisberg and M. Luther, co-P.I.s,

550,000 for the period 9/1/02-8/31/03 (renewal in the amount of 838,000 approved and pending).

PUBLICATIONS

Key – *previous students*, current Master students, current **Ph.D. students**

Articles

Wang, C., R.H. Weisberg & **J. Virmani** (1999). Western Pacific interannual variability associated with ENSO, J. Geophys. Res., 104, 5131-5149.

Yang, H & R.H. Weisberg (1999). Response of the West Florida continental shelf circulation to climatological wind forcing, J. Geophys. Res., 104, 5301-5320.

Wang, C., R.H. Weisberg, & H. Yang (1999). Effects of the wind speed-evaporation SST feedback on the El Nino-Southern Oscillation, J. Atmos. Sci., 56, 1391-1403.

Li, Z. & R.H. Weisberg (1999). West Florida Shelf response to upwelling favorable wind forcing: Kinematics, J. Geophys. Res., 104, 13507-13527.

Yang, H., R.H. Weisberg, P.P. Niiler, W. Sturges, & W. Johnson (1999). Lagrangian circulation & forbidden zone on the West Florida Shelf, Cont. Shelf. Res., 19, 1221-1245.

Li, Z. and R.H. Weisberg (1999). West Florida continental shelf response to upwelling favorable wind forcing, 2: Dynamics, 104, 23427-23442.

Wang, C. & R.H. Weisberg (2000). The 1997-98 El-Nino Evolution relative to previous El Nino events, J. Climate, 13, 488-501.

Weisberg, R.H., & *L. Qiao* (2000). Equatorial upwelling in the central Pacific estimated from moored velocity profilers, J. Phys. Oceanogr., 30, 105-124.

Weisberg, R.H., *B. Black, Z. Li* (2000). An upwelling case study on Florida's west coast, J. Geophys. Res., 105, 11459-11469

Cronin, M.F., M.J. McPhaden & R.H. Weisberg (2000). Wind forced reversing jets in the western equatorial Pacific, J. Phys. Oceanogr., 30, 657-676.

Shay, L.K, T.M. Cook, B.K. Haus, J. Martinez, H. Peters, A.J. Mariano, J. Van Leer, P.E. An, S. Smith, A. Soloviev, R. Weisberg, and M. Luther (2000). VHF radar detects oceanic submesoscale vortex along Florida coast. EOS, Trans. Am. Geophys. Un. 81, pp209&213.

Harrison D.E., G.A. Vecchi, & R.H. Weisberg (2000). Eastward surface jets in the central equatorial Pacific. Jour Mar. Res., 58, 735-754.

Helber, R.W. & R.H. Weisberg (2001). Equatorial upwelling in the western Pacific warm pool, J. Geophys. Res., 106, 8989-9004.

Meyers, S.D., *E.M. Siegel*, & R.H. Weisberg (2001). Observations of currents on the west Florida shelf break. Geophys. Res. Lett., 28, 2037-2040.

Weisberg, R.H. (2001). An observers view of the equatorial ocean currents. Oceanography, 14, 27-33.

Wang, C. & R.H. Weisberg (2001). Ocean circulation influences on sea surface temperature in the equatorial central Pacific. J. Geophys. Res., 106, 19515-19526.

Weisberg, R.H., *Z. Li,* & F.E. Muller-Karger (2001). West Florida shelf response to local wind forcing: April 1998. J. Geophys. Res., 106, 31239-31262.

Walsh, J.J. *K.D. Haddad*, D.A. Dieterle, R.H. Weisberg, *Z. Li*, H. Yang, F.E. Muller-Karger, *C.A. Heil*, & *W.P. Bissett* (2002). A numerical analysis of the landfall of 1979 red tide of *Karenia brevis* along the west coast of Florida. Cont. Shelf Res*.,* 22, 15-38.

Shay, L.K, T.M. Cook, H. Peters, A.J. Mariano, R. Weisberg, P.E. An, A. Soloviev, and M. Luther (2002). High frequency radar mapping of surface currents. *IEEE Jour. Oceanic Engr.*, 27, 155-169.

He, R & R.H. Weisberg (2002). West Florida shelf circulation & temperature budget for the 1999 spring transition. Cont. Shelf Res., 22, 719-748.

He, R & R.H. Weisberg (2002). Tides on the West Florida Shelf. J. Phys. Oceanogr.,32, 3455-3473

C. Hu et al. (2002). Satellite images track "black water" event off Florida coast. EOS, Trans. Am. Geophys. Un., 83, pp281,285.

Virmani, J.I. & R.H. Weisberg (2003). Features of the Observed Annual Ocean-Atmosphere Flux Variability on the West Florida Shelf. J. Climate, 16, 734-745.

He, R. & R.H. Weisberg (2003). A Loop Current intrusion case study on the West Florida Shelf. J. Phys. Oceanogr., 33, 465-477.

He, R. & R.H. Weisberg (2003). West Florida shelf circulation & temperature budget for the 1998 fall transition. Cont. Shelf Res. 23, 777-800.

Weisberg, R.H. & *R. He* (2003). Local & deep-ocean forcing contributions to anomalous water properties on the West Florida Shelf. J. Geophys. Res., 108, C6, 15, DOI10.1029/2002JC001407.

Walsh, J.J., R.H. Weisberg, D.A. Dieterle, *R. He*, **B.P. Darrow**, **J.K. Jolliff**, K.M. Lester, G.A. Vargo, G.J. Kirkpatrick, K.A. Fanning, *T.T. Sutton*, A.E. Jochens, D.C. Briggs, **B. Nababan**, C. Hu, & F. Muller-Karger (2003). The phytoplankton response to intrusions of slope water on the West Florida Shelf: models & observations. J. Geophys. Res., 108, C6, 21, DOI10.1029/2002JC001406.

Soloviev, A.V., R.H. Weisberg and M.E. Luther (2003). Energetic Baroclinic Super-Tidal Oscillations on the Shelf off Southeast Florida. Geophys. Res. Letts., 30, 9, 10.1029/2002GL016603.

Jolliff, J.K., J.J. Walsh, *R. He*, R.H. Weisberg, A. Stovall-Leonard, P.G. Coble, R. Comny, *C. Heil*, B. Nababan, H. Zhang, C. Hu, & F. Muller-Karger (2003).Dispersal of the Suwannee River plume over the West Florida shelf: Simulation & observation of the optical & biochemical consequences of a flushing event. J. Geophys. Res., in press

Halliwell, G.R., R.H. Weisberg, and D. Mayer (2003). A synthetic float analysis of upper-limb meridional overturning circulation interior ocean pathways in the tropical/subtropical and Interhemisphere water exchange of the Atl. Ocean, G. Goni and P. Malanotte-Rizzoli, eds., in press.

He, R., R.H. Weisberg, H. Zhang, F. Muller-Karger, and *R.W. Helber* (2003). A cloud-free, satellite-derived, sea surface temperature analysis for the West Florida Shelf, Manuscript submitted to Geophys. Res. Letts., in press.

Weisberg, R.H. and L. Zheng (2003). How estuaries work: a Charlotte Harbor example, J. Mar. Res, in press.

Cole, R., R.H. Weisberg, J. Donovan, **C. Merz**, R. Russell, V. Subramanian, & M. Luther (2003). The evolution of a coastal mooring system. Sea Technology, 44, 24-31.

Weisberg, R.H., *R. He*, M. Luther, J. Walsh, R. Cole, J. Donovan, **C. Merz** and V. Subramanian (2002). A coastal ocean observing system and modeling program for the west Florida shelf. IEEE Proceedings, Oceans2002 meeting, Oct. 2002.

F.J. Kelly, J.S. Bonner, J.C. Perez, J.S. Adams, D. Prouty, D. Trujillo, R.H. Weisberg, M.E. Luther, *R.He*, R. Cole, J. Donovan, and **C.R. Merz** (2002). An HF-radar test Deployment amidst an ADCP array on the west Florida shelf. IEEE Proceedings, Oceans2002 meeting, Oct. 2002..

H. Seim, F. Werner, M. Fletcher, J. Nelson, R. Jahnke, C. Mooers, L. Shay, R. Weisberg, M. Luther (2002). SEA-COOS: Southeast Atlantic Coastal Ocean Observing System. IEEE Proceedings, Oceans2002 meeting, Oct. 2002.

L.C. Langebrake, C.E. Lembke, R.H. Weisberg, R.H. Byrne, D. Randy Russell, G. Tilbury, and R. Carr (2002). Design and initial results of a bottom stationing ocean profiler. IEEE Proceedings, Oceans2002 meeting, Oct. 2002.

Abstracts, Oral, & Poster Presentations

2002 Ocean Sciences Meeting, February 2002, Honolulu, Hawaii

Luther, M.E., R.H. Weisberg, & A.V. Soloviev: Internal Tides on the Shelf off Southeast Florida.

*He, R***.** & R.H. Weisberg: Material property distributions on the West Florida Shelf.

Xth International Conference on Harmful Algae, St. Pete Be., FL., October 2002

Weisberg, R.H. & *R. He*. Local & deep-ocean forcing contributions to WFS water properties.

*He, R***.** & R.H. Weisberg. WFS circulation & temperature budget for the fall transition of 1998.

Vargo, G.A., *C.A. Heil*, D.N. Ault, **M.B. Neely**, S. Murasko, J. Havens, K.M. Lester, **K. Dixon**, *R. Merkt*, J.J. Walsh, R.H. Weisberg, & K.A. Steidinger. Four K. brevis blooms: A comparison.

Milroy, S.P., G.J. Kirkpatrick, G.A. Vargo, R.H. Weisberg, & J.J. Walsh. Serendipity & synergy: A look at potential biophysical controls on the K. Brevis blooms near Sarasota Fl (Sept/Oct 1999).

Jolliff, J., J.J. Walsh, *R. He*, R.H. Weisberg, A.Stoval-Leonard, **R. Comny**, P.G. Coble, **B. Nababan**, F. Muller-Karger, J. Patch, & K. Carder. On the dispersal of terrestrial organic matter over the WFS: A simulation of river discharge & photolysis of colored dissolved organic matter.

Walsh, J.J., **S.P. Milroy**, **J.K. Jolliff**, **B.P. Darrow**, J.M. Lenes, R.H. Weisberg, & *R. He*. Three-dimensional biophysical models of Florida red tides.

MTS/IEEE, Oceans 2002 Conference, Biloxi MS., October 2002

Weisberg, R.H., *R. He*, M. Luther, J. Walsh, R. Cole, J. Donovan, **C. Merz** & V. Subramanian. A coastal ocean observing system & modeling program for the west Florida shelf.

F.J. Kelly, J.S. Bonner, J.C. Perez, J.S. Adams, D. Prouty, D. Trujillo, R.H. Weisberg, M.E. Luther, *R.He*, R. Cole, J. Donovan, & **C.R. Merz**. An HF-radar test Deployment amidst an ADCP array on the west Florida shelf.

H. Seim, F. Werner, M. Fletcher, J. Nelson, R. Jahnke, C. Mooers, L. Shay, R.Weisberg, M. Luther. SEA-COOS: Southeast Atlantic Coastal Ocean Observing System.

L.C. Langebrake, C.E. Lembke, R.H. Weisberg, R.H. Byrne, D. Randy Russell, G. Tilbury, & R. Carr. Design & initial results of a bottom stationing ocean profiler.

American Geophysical Union, San Francisco CA, December 2002

He, R. & R.H. Weisberg, A loop current intrusion case study on the West Florida Shelf.

Halliwell, G.R. & R.H. Weisberg, Dynamical & thermodynamical processes governing fluid pathways for the upper limb of the Atlantic overturning circulation.

Weisberg, R.H. & *R. He*. Material property distribution insights from a coordinated observing & modeling system for the west Florida continental shelf.

American Meteorological Society 83rd annual meeting Long Beach CA, February 2003.

Weisberg, R.H. & M. Luther. West Florida Shelf coastal ocean monitoring & prediction system.

Virmani, J. & R.H. Weisberg, Air-sea interactions on the West Florida Shelf.

OTHER ACHIEVEMENTS

Awards

Editor's citation for excellence in refereeing, Geophysical Research Letters, 5/95.

Professorial Excellence Award, USF, 1998. President's Award for Excellence, USF, 2003.

Editorships

Associate editor, Terrestrial, Atmosphere & Ocean Sciences, Chinese Geoscience Union, Taipei, Taiwan

Professional Memberships

Oceanography Society, American Geophysical Union, American Meteorological Society, Sigma Xi

Professional Service

REFEREE: National Science Foundation, NOAA-Sea Grant. NOAA-ERL. NOAA-OGP, Journal of Physical Oceanography, Geophysical Research Letters, Journal of Marine Research, Deep-Sea Research, Science, Nature, Journal of Geophysical Research, Oceanologia Acta, Progress in Oceanography, Journal of Climate, Hudson River Foundation, Georgia Sea Grant

Science advisor to National Taiwan University Coastal Oceanography Program 1991-Present.

SURA SCOOP Leadership Group 2001-2003; USF representative 2003-present.

SEA-COOS observational working group chairman and executive committee member, 2002-present

AMS, STACS Coastal Environments Committee, 2002-present.

Community Service

Lectures on oceanography at John Hopkins Middle School, 11/00, 11/01, 11/02.

Board of Trustees, Menorah Manor Foundation, elderly care through nursing home & assisted living.

STUDENT COMMITTEES

Masters

Director of 7 MS theses

Currently Major advisor of 1 MS student

PhD

Director of 9 PhD dissertations

Currently Major advisor of 3 PhD students