



**UNIVERSITY COLLEGE**

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THE UNIVERSITY OF TOLEDO

Prior Learning Assessment  
Sample Portfolio

**PLA Office Contact Information:**

The University of Toledo  
University Credit Assessment Center  
MS 343  
Toledo, OH 43606

419.530.3142

[PLA@utoledo.edu](mailto:PLA@utoledo.edu)

## ***Instructions for Credit by Portfolio***

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1. Student works with PLA Specialist to identify course(s) matched to experience to pursue credit by portfolio. Student is provided syllabus to identify learning outcomes.
2. Final portfolio addressing all learning outcomes of the course is submitted to PLA Office and forwarded to faculty for grading. Portfolios can take up to 60 days to review.
3. The Faculty Assessor contacts the PLA Office with a final letter grade and credit recommendation.
3. Provided a passing grade is achieved, the Prior Learning Assessment Office then presents the petition form and recorded grade to the Registrar's Office for transcription processing.
4. Upon completion of the assessment process, the assessment fee is added to the student's bill. Immediate payment is required via the myUT portal.

For more information, contact [pla@utoledo.edu](mailto:pla@utoledo.edu) or 419.530.3142

### **Portfolio Table of Contents**

- I.** Credit by PLA Petition Form
- II.** Academic Honesty Statement (notarized)
- III.** Portfolio Release Form (notarized)
- IV.** Course Specific Information OR Syllabus  
Must include:
  - a. Course Number and Name
  - b. Course Description
  - c. Course Learning Objective
- V.** Current Resume
- VI.** Course Specific Prior Learning Narrative
- VII.** Course Specific Work Samples  
(Demonstrate Learning of Course Objectives)
  - a. Sample #1
  - b. Sample #2
  - c. Sample #3
  - d. Sample #4, etc.

*It is recommended that you do not begin any portfolio without verifying your eligibility with the PLA Office. Not every course is available for PLA. Some courses for PLA employ Credit by Exam rather than Portfolio. Allowable PLA method is determined at faculty discretion.*

# Portfolio for BIOL 1040 Environmental Science

## Table of Contents

<b>I.</b>	Credit by PLA Petition Form	p. 4
<b>II.</b>	Academic Honesty Statement (notarized)	p. 5
<b>III.</b>	Portfolio Release Form (notarized)	p. 6
<b>IV.</b>	Course Specific Information: Syllabus	p. 7
<b>V.</b>	Current Resume	p. 9
<b>VI.</b>	Letters of Recommendation	p. 12
<b>VII.</b>	Prior Learning Narrative: BIOL 1040	p. 14
<b>VIII.</b>	Course Specific Work Samples	
	a. Skills Inventory	p. 20
	b. Sea Turtle brochure	p. 30
	c. U.S. EPA CARE newsletter	p. 32
	d. South Florida Regional Planning Council project list	p. 34
	e. South Florida Ecosystem Restoration Task Force info brief	p. 37

# CREDIT BY ASSESSMENT

## Petition for Credit through Prior Learning Assessment



UNIVERSITY COLLEGE  
THE UNIVERSITY OF TOLEDO

**IMPORTANT: Please read reverse side before completing.**

Rev 062716

**University Credit  
Assessment Center**  
Rocket Hall, Room 1300  
Mail Stop #343  
Toledo, OH 43606-3390  
Phone: 419.530.3142  
Fax: 419.530.3198  
PLA@utoledo.edu

### STEP 1. Student must complete the following information:

Last Name	First	Middle Initial	Student Rocket Number
Street Address			College Enrolled
City	State	ZIP	Major
Phone Number			

Please indicate below the course you are petitioning for credit through prior learning assessment:

Subject/Alpha	Course No.	Course Name	Cr Hrs

Write a brief narrative to support your request (required field):

By signing, I agree to the terms and conditions of the Credit for Prior Learning Policy, number 3364-71-17, at The University of Toledo. I understand that a petition for prior learning assessment for this course will result in a \$100 assessment fee being added to my bill, regardless of credit outcome, payable by me through the myUT portal, due upon receipt.

Student's Signature	Date
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### STEP 2. Faculty Assessor records letter grade earned by student after completing assessment.

Subject/Alpha	Course No.	Course Name	Cr Hrs	Grade Earned

Assessment method (choose one):       Credit by Exam       Portfolio

Printed Name of Faculty Assessor (Instructor or Department Chair)	Title/Dept.
Instructor or Department Chair Signature	Date

### STEP 3. Faculty Assessor must submit form to the PLA Office located in Rocket Hall 1300, MS 343, for processing. Forms may be submitted by campus mail, fax, email attachment or student drop-off.

PLA Office Designee Signature	Date
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### STEP 4. Prior Learning Assessment Office will submit completed form to the Registrar's Office for grade and credit transcription and student is billed for the assessment fee.

Post in Term	Approved By



## Academic Honesty Statement

I, hereby, give notice that the material contained in this portfolio honestly and accurately reflects my life, learning, and work experience.

I understand that the penalty for falsifying any information or documentation is a grade of “F” in the Portfolio Development course, withdrawal of the portfolio from assessment, a letter of reprimand in my permanent University of Toledo file, and may result in dismissal from The University of Toledo.

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Print Name

Rocket Number

---

Student Signature

Date

For Notary Public:

State of: \_\_\_\_\_

County of: \_\_\_\_\_

The individual whose signature appears above, \_\_\_\_\_  
appeared before me on this date, being duly sworn (or affirming), upon his/her oath says that the  
statement above is true to the best of his/her knowledge and belief.

Sworn (or affirmed) and subscribed to in my presence this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

(Seal)

---

Notary Public

Prior Learning Assessment

Portfolio Release Form



UNIVERSITY COLLEGE  
THE UNIVERSITY OF TOLEDO

INITIAL ONE OPTION:

I, HEREBY, GIVE NOTICE THAT THE MATERIAL CONTAINED IN THIS PORTFOLIO:

\_\_\_\_\_ May be used by The University of Toledo for any legitimate academic purpose, including but not limited to, research, or review, by students of Portfolio Development as an example or publication, while maintaining student confidentiality.

\_\_\_\_\_ May be used by The University of Toledo only to petition for assessment of credit through prior learning and then kept and its confidentiality protected.

I understand that: This Portfolio and its content become the property of The University of Toledo subject to the condition stipulated above per my initials.

_____	_____
Print Name	Rocket Number
_____	_____
Student Signature	Date

For Notary Public:

State of: \_\_\_\_\_

County of: \_\_\_\_\_

The individual whose signature appears above, \_\_\_\_\_ appeared before me on this date, being duly sworn (or affirming), upon his/her oath says that the statement above is true to the best of his/her knowledge and belief.

Sworn (or affirmed) and subscribed to in my presence this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

(Seal) \_\_\_\_\_ Notary Public

# **I. Course Specific Information**

**University of Toledo  
College of Natural Science and Mathematics**

## **I. COURSE NUMBER AND TITLE:**

BIOL 1040 – Environmental Studies

## **II. INSTRUCTOR:**

Professor Pomona Sprout

## **III. COURSE DESCRIPTION:**

This class is designed to acquaint the student with fundamental aspects of the earth's ecosystems and environments, and the ways that they have been impacted by humans. Ecosystems responses to natural disturbances will be juxtaposed and anthropogenic stresses. Biological, social, economic, technical, and political issues will be discussed relative to environmental concerns.

Emphasis will be placed on the ecosystems such as wetlands, coastal environments, swamps, coral reefs, and upland areas including the pinelands and hardwood hammocks. The student will learn basic ecological principles, the sources and impacts of pollution, and the role of politics in environmental decision-making. The role and responses of the individual in environmental policy will be emphasized. Your role and responses of the individual in contemporary society will be scrutinized from short and long-term perspectives. In particular, energy water and solid waste issues will be examined.

## **IV. COURSE OBJECTIVES:**

The goal of this course is to improve the student's ability to understand and critically examine ecological issues from a local, regional, and global perspective. Each student will learn the fundamental concepts of ecology and their application to life on our planet. You will be encouraged to scrutinize personal and societal involvement in their environmental change

## **V. REQUIRED MATERIALS:**

Environmental Science, Daniel D. Chiras, 4th edition. Additional material (e g , photocopies) will be provided as necessary

## **IV. CALENDAR OF READING AND WRITTEN ASSIGNMENTS:**

### **SESSION TOPIC ASSIGNMENT**

1. Sustainability, Critical Thinking Chapter 1

2. Ecology and Ecosystems Chapters 2-4

3. Populations & Resources 1 Chapters 5-7

### **QUIZ 1**

4 Resources 2 Chapters 8-10

### **Outline Due**

5 Resources 3 Chapters 11-13

### **QUIZ 2**

6 Pollution 1 Chapters 14-17

### **QUIZ 3**

7 Pollution 2 & Environmental and Society 1 Chapters 18-20

### **Paper Due**

8 Environment & Society 2 Chapters 21-23

### **QUIZ 4**

**Oral Presentation:**

- will be scheduled by instructor.

**VII. DESCRIPTION OF CLASS ASSIGNMENTS:****QUIZZES –**

(10% each) most questions can be answered with a few sentences of clear concise writing. Quizzes will include one essay question, and may have multiple choice and/or, true/false questions.

**RESEARCH PAPER –**

Each student will write a research paper on a topic of personal interest related to environmental science (10-12 pp , double-spaced, 12 cpi, 1" margins). Be sure to clear the topic with me before you begin the research. Make sure that you correctly cite references in the body of the paper (generally, at least once per paragraph) and provide a reference list at the end of the paper, including URLs for Web sites.

**RESEARCH PAPER OUTLINE –**

The paper outline includes a title, the thesis statement, the outline itself, and at least 3 references (more are strongly recommended), due by the 4th class meeting. Two of the references must be from a scientific journal or book, and the others may be from periodical articles or WWW sites.

**ORAL PRESENTATION –**

Each student will prepare a 5-minute presentation on a newspaper article. The goal of this exercise is to keep the student apprised of local environmental issues and develop presentational skills. The student will be graded on presentation clarity, use of visual aids, and mastery of background information.

**VIII. CLASS POLICIES & GRADING CRITERIA:**

Grading Scale

**The Natural Science and Mathematics College has a Writing Across the Curriculum Policy which means that you can expect to write at least 8-20 pages for each course. At least 35% of your grade will be determined by written assignments.**

Quizzes 40%

Oral Presentation 20%

Research Paper Outline 10%

Research Paper 30%

Grades will be distributed along a standard scale:

90% to 100% A range

80% to 89% B range

70% to 79% C range

60% to 69% D range

Below 60% F

Pluses and minuses may be used at the discretion of the instructor.



**JANE DOE**  
123 American Way  
Anywhere, USA 12345  
(123) 456-7890

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## **CAREER SUMMARY**

Extensive experience in government administration, journalistic and public relations work relevant to environmental legislation, education and outreach. Specific expertise in:

Project development and supervision	Technical report writing
Budget forecasting	Copywriting
Grant administration	General graphic design
Mass media content and placement	Copy editing
Government and legislative communications	Public speaking

DEPARTMENT OF NATURAL RESOURCE PROTECTION, Broward County, Florida –  
1989-Present: Resource management and environmental regulation for Broward County; second largest local environmental regulator in the state, serving a population of 1.5 million.

### **Assistant to the Director**

Responsible for performing research and special study assignments, implementing administrative policies, and exercising administrative control over assigned operations and functions.

- Make recommendations to the Director on new or revised administrative policies
- Assist the Director in implementing program goals and objectives
- Budget development and oversight
- Coordinate and direct large volume of high profile environmental activities
- Lobby for legislation and funding on both the state and federal level
- Address requests and complaints from the public
- Represent the Director at community meetings and various public functions
- Supervise professional staff

### **Environmental Projects Coordinator**

Responsible for all oversight and development of comprehensive educational programs and preparation of amendments to legislation. Directs departmental participation in several long-range planning development activities and in environmental restoration and preservation projects.

- Instituted an award-winning outreach project resulting in a direct reduction of contaminants and debris entering local waterways.
- Organized and promoted country-wide cleanup events involving more than 10,000 volunteers and removing 250 tons of litter and debris.

- Reviewed legislation for economical and environment implications to the County, increasing state funding, retaining local water standards, and receiving additional delegated authority.
- Produced and hosted twenty-four half-hour programs for public television.
- Supervised development of fifteen publications receiving nationwide recognition from the National Association of Counties.

#### **Public Education Coordinator**

Established environmental education programs for a wide range of audiences including school-age children, homeowner associations, and specific industries.

- Supervised and promoted environmental education initiatives in low-income, minority neighborhoods that strengthened community stewardship and launched additional restoration and preservation activities.

#### **Programmer/Analyst**

Responsible for development, maintenance, and upgrades to computer systems and applications software.

- Created increase in laboratory staff efficiency by computerizing the laboratory information system used for samples analysis results and test methods.
- Streamlined permitting, licensing, tracking, and enforcement activities through the development of new applications software.

#### **Other Professional Activities**

- Executive Director, Broward Beautiful, an affiliate system of Keep America Beautiful, Inc.
- Active in South Florida Association of Environmental Professionals (SFAEP)
- Active in Florida Local Environmental Resource Agencies (FLERA)
- Council Member of Broward Urban River Trails (BURT)
- Member of National Association Female Executives (NAFE)

ACT/MICROTEL, Boca Raton, Florida

1987-1989

*Multimillion-dollar long distance provider for the southeastern United States; acquired by EDS in 1989.*

#### **Systems Analyst**

Responsible for all systems analysis, design, and development of IBM series 3081 mainframe.

- Directed design teams, which converted newly-acquired customer database and billing software.
- Member of a prototype design team that developed alternative billing packages, rate schedules, and mileage indices.
- Introduced general and detail designs for programming staff.

SUNCOAST COMMUNICATIONS, INC., Sarasota, Florida 1985-1987  
*Multimillion-dollar long distance company providing service throughout Florida; acquired by ACT/Microtel in 1987.*

**Senior Systems Analyst/Programmer**

Responsible for all systems upgrades and maintenance of billing software.

- Tailored all systems and applications software, billing more than 50,000 customers monthly.
- Instituted documentation library, cataloging and recording fifty application programs.

PROFESSIONAL DATA SERVICES (PDS), Johnson City, Tennessee 1983-1985  
*Software developer and long distance provider for East Tennessee; \$1 million in revenues.*

**Programmer/Analyst**

Responsible for development and maintenance of long distance billing software for five long distance providers.

- Maintained and upgraded software used to serve 500,000 customers in the Southeastern United States.
- Installed computer systems and billing software for long distance providers.
- Provided service and support for billing systems and telephone switching systems.

**EDUCATION**

Florida Atlantic University, Ft. Lauderdale, Florida  
Communications/Government and Political Reporting  
Northeast State University, Blountville, Tennessee  
Computer Science  
East Tennessee State University, Johnson City, Tennessee  
Biology Major, Education Minor

May 22, 1998

To Whom It May Concern:

I am writing to you today on behalf of Jane Doe, Assistant Director for the Broward County Department of Natural Resource Protection. Ms. Doe has been employed by the agency for nearly nine years. During that time, she has been actively involved in many environmental projects ranging from community-based volunteer cleanups, to environmental justice and equity projects, to developing appropriations requests for the state legislature.

Ms. Doe oversees the department's environmental education and public outreach program that teaches different audiences about local, regional, and global environmental concerns we are facing. Our outreach and educational programs are varied and cover topics such as sustainability, disturbances to ecosystems, impacts of pollution, and the role of the individual in effecting change. Ms. Doe is also the department's legislative liaison and responsible for educating Broward County's legislative delegation and others about bills and rules affecting both Broward and the state's natural resources. Most recently, Ms. Doe had been working with me, the County Administrator, and the County Commission to develop Broward's environmental agenda as we head into the new millennium.

Ms. Doe has a wide and varied knowledge base related to environmental issues. She understands the interrelationships and stresses that biological, socioeconomic, and political issues have on natural resource. Her job functions have given her an appreciation of wise management and protection of the global environment for achieving sustainable economic development.

Upon review of the class syllabus for BIOL 1040 – Environmental Studies, I believe Ms. Doe's training and current job activities, not only meet, but also exceed the learning experiences contained in the curriculum.

Should you have any questions regarding this letter or Ms. Doe's duties with the DNRP, please do not hesitate to contact me at (123) 456-7890.

Sincerely,

May 18, 1998

To Whom It May Concern:

Ms. Jane Doe has asked that I write a letter of recommendation based on our professional association. Ms. Doe has been a technical environmental resource for my environmental studies classes at Nova Southeastern University for more than four years. She has considerable knowledge of ecosystems and natural resource management, land use issues. Florida endangered species, urban sprawl impacts and sustainability, coastal and marine resources, wetlands, uplands, hazardous material handling, and pollution prevention.

Ms. Doe has tirelessly provided information and direction for my student's projects related to non-point source pollution, sea turtle protection, Everglades' restoration, habitat destruction, noise pollution, landfills, 'critter control,' and others. She has been most helpful in my efforts to teach students about the intricacies between environmental protection and regulation, public policy and private sector interests and has, on occasion, lectured in my class.

In light of Ms. Doe's extensive environmental knowledge base, she has filled the requirements of Biology 1040 Environmental Studies. Should you have any questions or concerns related to this letter, please do not hesitate to contact me.

Sincerely,

Jane Doe  
Autobiographical Document

After graduating from high school (Sullivan Central, Blountville, Tennessee) in 1976, I enrolled at East Tennessee State University (ETSU) as a full-time student, majoring in Biology and minoring in Education. To help pay for my tuition, I worked during the summer months for Tennessee Eastman Kodak. I remained at ETSU for two years, before marrying in 1978, when I left school and moved to Colorado with my husband. While in Colorado, I worked for the state in a Denver public assistance office. When we moved to Fort Myers, Florida one year later, I worked for two years as a data entry clerk. When I divorced in 1981, I moved back to Tennessee and started school full-time at Northeast State University (NESU) where I received an Associates Degree in Computer Science.

Three months before graduation from NESU, Professional Data Services (PDS) hired me as a programmer/analyst. I was responsible for writing and maintaining billing software for ten long distance companies, serving more than 500,000 customers in the Southeastern United States. I also managed PDS's telephone switching system and installed computer systems and software at facilities in Tennessee, Alabama, and Florida. The position I held at PDS required significant knowledge about telephony, micro-computing, technical report writing, and user documentation. The job I held at PDS helped me to acquire excellent project management and interpersonal skills.

I had been employed by PDS for two years when one of my clients, Suncoast Communications, Inc. (SCI), offered me employment in their Sarasota, Florida office. I accepted the position because it offered new and challenging responsibilities. SCI was a long distance reseller, with a staff that grew from ten when they hired me, to more than forty when

ATC/Microtel bought the company out just two years later. The skill set required in my new position included all of those necessary in my previous position, and expanded to add supervision of other professional staff. This experience improved my interpersonal skills, taught me how to motivate others and express myself more confidently.

When I joined SCI, there were approximately fifteen hundred customers using their long distance service. During my tenure with the corporation, we grew the database to more than 30,000 customers. My most significant accomplishment at SCI was single-handedly converting our customer phone lines and billing information over to a new system owned and operated by ATC/Microtel. The conversion was a result of acquisition of SCI. As a result, ATC/Microtel offered me a position as a systems analyst. Given less than four weeks to find new employment in Sarasota or move to ACT's corporate office in Boca Raton, I accepted ATC/Microtel's job offer.

ACT was a multimillion-dollar long distance reseller and in 1989, was one of only a handful of long distance companies that had not yet been acquired by or merged with one of the larger carriers such as Sprint or AT&T. Again, my responsibilities were expanded. At ATC, I maintained the newly acquired SCI database and helped other ATC employees modify their databases to accommodate the assimilation of SCI's customers. I assisted the sales team in developing new billing options for both business and residential customers. ATC used the team approach to manage its business solutions and I learned how to build consensus, resolve conflicts between members, and share responsibility.

Since I was hired by PDS in 1983, I had witnessed a litany of mergers, sellouts, buyouts, and closing of tens of long distance resellers. While at ATC, we purchased three companies and merged with another. The industry was quite volatile and companies frequently laid off

employees. As a single parent, this concerned me and I decided to find a more stable work environment. The Broward County Department of Natural Resource Protection (DNRP) hired me in 1989 as a programmer/analyst. At that time, the department developed its own customized software to track the facilities it regulated. I wrote the department's laboratory information management system (LIMS) and the tracking system for environmental violations. I was also responsible for maintaining and modifying the hazardous materials management systems. Because effective and user-friendly software requires an intimate knowledge about the business process, before writing the programs to track and report on components our laboratory found in water, soil, and air samples, I worked closely with the laboratory manager to gain an understanding of their operations and needs. I learned how field staff collects samples, the types of methods used to analyze samples, and how samples are used in prosecuting environmental crimes.

The enforcement system I wrote consisted of a database that allowed our inspectors to record pertinent violator information, automatically print warning notices and notices of violation when certain criteria were present, track incoming complaints from the public, and maintain a historic record of offenses. Before writing this system, I spent several weeks with enforcement staff, learning even more about sampling, environmental violations, applicable laws, and becoming familiar with the procedure and forms of the enforcement section. The enforcement section is a service organization to the rest of the department so I also learned about hazardous materials facilities, dredge and fill operations, Wetlands, beach renourishment, air and water quality and environmental licensing. Both the LIMS and Enforcement Tracking systems increased the department's efficiency, streamlining our tracking, permitting, licensing, and enforcement procedures.



The knowledge about the environment that I gained through managing these information systems caused me to want to become more involved in the daily activities of the department. I discussed this desired career change with the department's director who explained that she would provide me with opportunities to work on special projects as they presented themselves. Within three months of making this commitment to me, the director promoted me to Public Education Coordinator. This position involved professional, consultative and promotional work encompassing development and implementation of countywide public education programs. I was responsible for producing and coordinating comprehensive environmental education programs and activities. I coordinated educational programs for county employees and the public including participation in countywide community cleanup events like the annual Waterway Cleanup, Reef Sweep, and Coastal Cleanup. I also helped the County Commission create Broward Beautiful, a fourteen-member Commission-appointed board that advises and directs community beautification projects.

Accomplishing these tasks required considerable knowledge of the local, regional, and global environment. I learned the principles and methods of planning public education projects and program administration. I gained ability to present classroom instruction and facilitate discussion sessions. I became skillful at planning, coordinating, and evaluating programs and events. In this position, I received my introduction to developing mass media campaigns, conducting environmental educational conferences and workshops, and serving as a liaison between government officials. The position also provided me with my first opportunities to establish relationships throughout the community, working closely with elected and appointed officials, service and civic organizations, homeowner groups and educators.

Three years later, the director promoted me to Environmental Projects Coordinator. As such, I continued to manage the department's environmental education and public outreach initiatives. I also assumed the responsibility of coordinating the department's legislative activities. This new task taught me to effectively discuss environmental legislation with members of the State Legislature and the U.S. Congress. I also learned how to prepare position papers for legislators and develop talk sheets for lobbyists and staff. It was during this time that I also became involved in several long-range, County Initiative, and Everglades Restoration. As Environmental Projects Coordinator, I served as a principal professional and technical resource person for environmental projects. I supervised the implementation of environmental programs and provided assistance to other agencies, interest groups, developers, and the public. I broadened my depth of knowledge related to environmental planning, policy analysis, and research methods and techniques. This progressive experience cultivated me for my next promotion in 1997 – Assistant to the Department Director.

In my current position with the DNRP, I assist the department director in a wide range of administrative tasks. I remain closely involved with education and outreach, supervising a professional staff that develops and implements environmental awareness campaigns for both the regulated community and the public at large. I lead the department's legislative affairs function and continue to act as Executive Director for Broward Beautiful. The new responsibilities I acquire with this last promotion include ensuring operational and administrative continuity and coordination between the department's six divisions, assisting the director in developing the annual budget, recommending organizational and administrative changes, and representing the director as needed. Since becoming Assistant to the Director, I have developed the department's Equal Opportunity Action Plan, successfully lobbied for \$500,000 for our North Fork

Restoration initiatives, leveraged \$500,000 for county-wide beautification efforts, overseen development of Best Management Practices for regulated industries, initiated development of a program to recognize 'green' business, planned and coordinated two statewide conferences for local pollution control programs, initiated a program to plant five thousand trees on public property annually, developed a quarterly newsletter to the regulated community, and produced a survey for analyzing environmental awareness in Broward County.

Most of my managerial knowledge comes from practical experience. I believe continuing my education will compliment and hone the skills I now possess and will broaden my future capabilities. My academic goal is to receive a bachelor's degree in Professional Management and my professional goal is to remain in management positions within the public sector. I believe that by completing this four-year degree program, my career options will vastly increase and make me a more valuable asset to my employer.

## Skill Inventory

Enclosed is the course outline for Environmental Studies, BIOL 1040, which is taught at University of Toledo. Below I have summarized my learning experiences in various environmental regulation, resource management, sustainability, and ecosystem protection and restoration areas as they relate to this course. In the two decades since Gaylord Nelson founded Earth Day, the public's attention has become more focused on green issues and the concept of 'sustainable development.' As defined in the Burtland Report during the 1980 World Conservation Strategy, sustainable is the idea of "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The paradox of sustainability that rapid economic growth can harm the environment and if mismanaged, the environment can limit economic growth. Throughout the world and even here in Florida, decisions are being made, perhaps being delayed, that will define the future for generations to come. My personal experiences with local and regional attempts to build a more sustainable environment and economy include Everglades Restoration, the *Eastwood Ho!* Initiative and the state's brown field program. As Assistant Director at the Broward County Department of Natural Resource Protection (DNRP), I am involved with the county's tree protection program, the wetlands program, the artificial reef, sea turtle conservation, and beach renourishment projects, the pollution prevention initiative, the electric vehicle initiative, and the New River Restoration program. I am intimately familiar in Broward Beautiful's solid waste and litter control programs and several state and national sustainability initiative. Below, is a synopsis of my knowledge and participation in these areas.

### **Everglades Restoration**

Most of my participation in this process has been participation with the South Florida Ecosystem Working Group Task Force ranking of critical projects targeted for restoration. The Task Force comprises national, state, regional and local government, private, and nonprofit interests. Members include the U.S. EPA and the Army Corp. of Engineer's, the Florida Department of Environmental Protection, the South Florida Water Management District, the Governor's Office, Broward, Dade, and Palm Beach County Governments, private landowners, and several environmental organizations. I develop position papers for the County Commission, present Broward County projects to the task force, and coordinate tours of Broward County critical projects when appropriate. I am currently working with the Broward County Office of Public and External Affairs, attempting to halt proposed state legislation that is currently on the Governor's desk. The two bills at issue will increase the cost of the state's share for Everglades Restoration due to procedures related to eminent domain and property taking. This latest effort has given me additional opportunities to deal with Florida's U.S. Congressional offices – the primary funding source for Everglades Restoration.

### **Eastward Ho!**

*Eastward Ho!* Was born out of the Governor's Commission for a Sustainable South Florida and is coordinated by the South Florida Regional Planning Council. It is an initiative to encourage urban infill and redevelopment east of I-95 in hopes of further protecting the Everglades, the

natural environment in general, and promoting compact and efficient development in the urban core of Dade, Broward, and Palm Beach counties. My participation includes: 1) production of half hour television program to market the idea in Dade and Broward Counties, 2) participation in developing legislation to maximize redevelopment opportunities in the urban core and 3) developing state-funded appropriation proposals to supplement *Eastward Ho!* Initiatives. State Representative Josephus Eggleston has relied heavily on me to provide him with pertinent environmental information and needs assessments for initiatives related to *Eastward Ho!* Including brownfields dredge and fill projects, water quality monitoring, solid waste removal, extraction of contaminated soils and sediments, flow modeling, shoreline stabilization and renegotiation.

### **Brown fields**

Although the definition of what constitutes a brown field is not clear, most environmental regulators agree they are abandoned properties in urban centers; are either contaminated or perceived to be contaminated; and avoided for the purpose of redevelopment. In Broward County alone, there are a hundred or so sites that meet these criteria, most of them lying in the urban or *Eastward Ho!* corridor. My involvement with brown fields is primarily related to helping develop legislation and funding for redevelopment projects. I also have worked to include environmental justice and equity component sheets and informational packets, lobbied for and received \$200,000 in state appropriations to develop a brown field pilot in Broward, targeting the poorest neighborhoods in the county.

### **Department of Natural Resource Protection Initiatives**

**Tree Protection Program** – The Broward County Department of Natural Resource Protection's (DNRP) tree protection program is designed to supplement the county's tree canopy. My participation has been to: 1) initiate development of a Right Tree/Right Place program, 2) maximize public benefit and resources by combining Tree Trust Funds with Broward Beautiful's Community Grants Program, and 3) assist in the rewrite of the county's Tree Protection and Abuse Ordinance.

**Wetlands Program** – The DNRP has delegated authority from the Florida Department of Environmental Protection to protect and mitigate loss of the county's remaining wetlands. I have: 1) overseen development of the Department's informational wetland brochure 2) developed a hands-on program to show school-age children how wetlands function and 3) provided comment on legislation affecting wetlands, especially as it relates to melaleuca control and eradication.

**Artificial Reef Program** – The DNRP operates an aggressive artificial reef program. Since 1982, we have created more than 75 artificial reefs offshore of Broward County to create new stable substrates. To promote this program and our partnership with Nova Southeastern University, I produced and hosted a half-hour television show to discuss fish recruitment, types and materials used to create artificial reefs, dive opportunities, and environmental benefits. I have also overseen development of a booklet, a brochure, and a laminated dive guide to educate divers and the community about this beneficial program and was the speaker at the state's dedication of Broward County's first underwater archaeological preserve, the Copenhagen.

**Sea Turtle Conservation Program** – Sea turtles have existed since their giant land turtle ancestors returned to the sea some time during the age of dinosaurs. The DNRP administers the state's sea turtle conservation program for Broward County. I have produced and hosted a half-hour video on sea turtles and overseen the publication of two informational sea turtle brochures.

**Beach Renourishment Projects** – Beaches are Florida's number one tourist attraction. Annually, 22.6 million out-of-state tourists visit Florida beaches and indirectly contribute more than \$15 billion to the state's gross state product. Not only are beaches the economic engines for coastal communities, they are the first line of protection against storm waves and provide flood protection and habitat. The activities related to beach restoration where I have been involved include helping secure a primary funding source for restoration from the state and federal governments, developing publicity for the need for permanent funding through videos, information packages, and articles written for homeowner associations and local Chambers of Commerce.

**Pollution Prevention (PS) Initiatives** – Five years ago, the DNRP engaged in a campaign to prevent pollution at its source. The program components include developing Best Management Practices (BPM) for certain high-risk business, developing a Green Business Award for 'good actors,' and creating a waste reduction program for Broward County government facilities. My staff, the Non-Regulatory Support Staff (NRSU) is responsible for development and implementation of the County's pollution prevention initiative. Through our Marina BPM initiatives, we have seen significantly decreased levels of heavy metals in the waters adjacent to these businesses. Additionally, last year, the EPA recognized metal finishers who were successfully implementing pollution prevention at their facilities. The only winners of the award in Florida were those participating in my staff's BPM/P2 program.

**Electric Vehicle Initiative** – Broward County had the largest government fleet of alternative fuel vehicles in the state. We have launched an aggressive campaign called EV Ready, to publicize the use and benefits of electric vehicles. My involvement in the program is to oversee and supervise the department's outreach and education initiatives.

**New River Restoration** – Since 1991, the DNRP has worked tirelessly to clean, enhance and protect the New River. This once crystalline waterway has deteriorated under the strains of immense growth. Debris, sedimentation, storm weather runoff, and other pollutants have adversely affected water quality. Inappropriate land uses near the water have also contributed to the decline of the river and its tributaries. My involvement with the New River Restoration Plan is focused on the North Fork and consists of community education, helping secure state funding for restoration and enhancement, environmental justice and equity programming, volunteer-staffed litter and debris removal, development of collateral outreach materials including brochures, pamphlets, talk sheets for legislators, and video production.

**Broward Beautiful** – As Executive Director of Broward Beautiful, a 14-member advisory board to the County Commission, I am responsible for development and implementation of several sustainability programs. These include development, with community participation, of a model beautification plan for Broward County, an adopt-a-spot program, participation in the County's

annual Buy Recycles Expo, a landscape awards program, an a Community Grant Program to help not-for-profits enhance public lands.

**Miscellaneous Programs** – The following represents a list of community education programs I have administered to promote sustainability and share information about assessing today’s needs with tomorrows:

1. Growing Together – annually provide all the materials necessary to help five thousand 5<sup>th</sup>-grade students plant trees on school property.
2. DNRP Update – quarterly publication to the regulated community to explain ordinance updates, new programs, and provide general information of interest.
3. EarthKeepers – a community policing program similar to CrimeStoppers, using community volunteers to report environmental crimes.
4. New River/Intracoastal Activity Book – targets elementary students and explains the history, economic and environmental benefits, and contamination issues of these waterbodies.
5. Made-for-cable television shows, entitled *Environmental Dimensions* – worked with WLRN annually to produce twelve, half-hour videos related to topical environmental issues for Broward and Dade County cable television stations.
6. Coordinate, manage, and develop the annual FLERA (Florida Local Environmental Resource Agencies) conference.
7. Coordinate neighbor storm drain stenciling programs to advise residents not to use storm drains as disposals for hazardous materials and debris.
8. Advise Broward Urban River Trails (BURT) blueway/greenway program on environmental concerns.
9. Coordinate the County’s participation in annual cleanup events including Waterway Cleanup, Reef Sweep, and the Great Florida Cleanup.

## PUBLIC EDUCATION COORDINATOR

### NATURE OF WORK

This is professional, consultative and promotional work involving the development and implementation of countywide public educational programs.

Work involves responsibility for the development and coordination of comprehensive educational programs and activities. Work requires the preparation of media education campaigns and the delivery of public information and educational programs. Position incumbent, conducts on-going training for employees and the general public. Work is reviewed by an administrative superior through conferences, written reports and evaluation of program achievements.

### ILLUSTRATIVE TASKS

Develops and implements public information and educational programs.

Develops mass media campaigns for the dissemination of information.

Develops comprehensive training programs and course outlines to ensure dissemination of accurate information.

Plans and conducts educational conferences and workshops with public and private groups.

Provides training to professional and non-professional employees.

Serves as liaison between governmental officials to ensure coordination of educational programs.

Maintains training records, instructional and educational materials.

Prepares comprehensive and statistical training reports.

Evaluates effectiveness of training courses and programs.

Attends meetings and community functions and assists in various planning initiatives.

Performs related work as required.

### KNOWLEDGE, ABILITIES AND SKILLS

Considerable knowledge of the principles and methods of planning public education projects and program administration.

Considerable knowledge of the principles and practices of public communication and education.

### PUBLIC EDUCATION COORDINATOR

Knowledge of research techniques and sources of available published information useful in the development of training programs.

Knowledge of English usage and the requirements of press and media broadcast.

Ability to present classroom instruction and discussion sessions.

Ability to develop, analyze and evaluate training courses and educational programs.

Ability to plan, implement and coordinate educational and promotional programs.

Ability to work independently with minimal supervision.

Ability to express ideas effectively, both orally and written.



Ability to serve the public and fellow employees with honesty and integrity in full accord with the letter and spirit of Broward County's Ethics and Conflict of Interest policies.

Ability to establish and maintain effective working relationships with the general public, co-workers, elected and appointed officials and members of diverse cultural and linguistic backgrounds regardless of race, religion, age, sex, disability or political affiliation.

Skill in the use of photographic and video equipment.

#### DESIRABLE EXPERIENCE AND TRAINING

Graduation from an accredited four-year college or university with major course work in education or field related to assignment; considerable experience in the development and provision of public education programs, including experience as an instructor, or any equivalent combination of training experience.

#### GENERAL INFORMATION

Bargaining Unit:	Unrepresented
FLSA Status:	Exempt
Code of Ethics	
Certification:	No
Work Location:	DNRP, Public Works, Human Services
Class Spec. Estab. /	
Revised:	E5/94 R10/94

## ENVIRONMENTAL PROJECT COORDINATOR

### NATURE OF WORK

This is advanced professional administrative work coordinating and supervising environmental programs or projects.

Work involved assisting senior level management with program and policy development. Work requires the responsibility for the execution, development and implementation of environmental programs, projects and studies. Employees in this class may provide supervision, training and initiative under the direction of an administrative superior. Work is reviewed through conferences, reports and program achievements.

### ILLUSTRATIVE TASKS

Serves as a principle professional and technical resource for activities and operations involving environmental projects or programs.

Coordinates the review of development proposals pertaining to environmental programs or projects, and prepares status reports.

Supervises the implementation and execution of environmental programs.

Provides environmental information and resource management assistance to other agencies, interest groups, developers, and to the public.

Assists in the research and preparation of annual work programs and budgets.

Consults, coordinates and advises other departments, units and sections.

Coordinates and makes presentations at public meetings.

Performs related work as required.

### KNOWLEDGE, ABILITIES AND SKILLS

Considerable knowledge of environmental planning principles and practices.

Considerable knowledge of sources of information, current literature, and recent developments regarding environmental planning issues.

### ENVIRONMENTAL PROJECT COORDINATOR

Knowledge of research methods and techniques.

Ability to initiate and develop programs and policies.

Ability to analyze policy and technical issues and to exercise sound judgment in decision-making.

Ability to effectively manage and supervise assigned staff.

Ability to communicate effectively both orally and in writing.

Ability to serve the public and fellow employees with honesty and integrity in full accord with the letter and spirit of Broward County's Ethics and Conflict of Interest policies.

Ability to establish and maintain effective working relationships with the general public, co-workers, race, religion, age, sex, disability, or political affiliation.

### DESIRABLE EXPERIENCE AND TRAINING

Graduation from an accredited four-year college or university with major course work in environmental planning, environmental science or related field; considerable experience in environmental/natural resource programs, including experience in the supervisory aspects of the work; or any equivalent combination of training and experience.

### GENERAL INFORMATION

Bargaining Unit:	Unrepresented
FLSA Status:	Exempt
Code of Ethics	
Certification:	No
Work Locations:	Natural Resource Protection, Parks & Recreation
Class Spec. Estab/ Revised:	E5/94

## ASSISTANT TO THE DEPARTMENT DIRECTOR

### NATURE OF WORK

This is responsible professional and administrative work assisting in the operations of a county department. Worked involved assisting the department director in a wide range of administrative assignments. Position incumbent assists the department director to ensure operational and administrative continuity and coordination among the divisions within the department. Assignments are received from the department director in the form of broad instructions or general program objectives. Work is performed with considerable independent judgment based on experience in developing courses of action and recommendations. Work is reviewed by the department director through conferences, reports, and observation of results obtained.

### ILLUSTRATIVE TASKS

Assists the department director in developing and implementing departmental policies, procedures and programs; makes policy recommendations; develop program goals and objectives.

Assists in the coordination of departmental budgets, and other finance related activities; makes budgetary recommendations and assists in the preparation of the departmental budget.

Plans, directs, and supervises the activities of professional and administrative staff.

Represents and assists the department director at community meetings and various activities.

Conducts studies and research to determine needs, and supports department objectives.

Coordinates programs and projects for improvement and enhancement of services and staff.

Reviews existing organizational and administrative changes.

Attends conferences and public and professional meetings; confers with local, state, and federal officials, contractors, vendors, civic leaders, and the general public regarding departmental operations; address public groups.

Perform related work as required.

### KNOWLEDGE ABILITIES AND SKILLS

Considerable knowledge of public administration with particular reference to county or municipal administration and management.

Considerable knowledge of county laws, ordinances, and regulations.

Considerable knowledge of the principles and practices of accounting, auditing, budget, and management.

Considerable knowledge of research techniques, sources, and availability of information.

Ability to implement administrative procedures and to evaluate their effectiveness.

Ability to exercise judgment and discretion in establishing, applying, and interpreting departmental policies and procedures.

Ability to plan, direct and supervise departmental operations, activities, and a staff.

Ability to analyze a variety of administrative, operational, and fiscal problems and to make sound recommendations for solutions.

Ability to carry out complex oral and written instructions.

Ability to express ideas effectively, both orally and in writing.

Ability to serve the public and fellow employees with honesty and integrity in full accord with the letter and spirit of Broward County's Ethics and Conflict of Interest policies.

Ability to establish and maintain effective working relationships with the general public, co-workers, race, religion, age, sex, disability, or political affiliation.

#### DESIRABLE EXPERIENCE AND TRAINING

Graduation from an accredited four year college or university with major course work in public or business administration or related field; considerable progressively responsible experience in government management work, including supervisory in the experience aspects of the work; or any equivalent combination of training and experience.

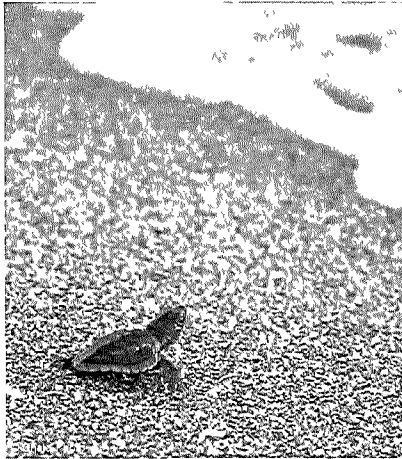
## Our Mission

MOTE MARINE LABORATORY is an independent, nonprofit organization dedicated to research and education in marine and environmental sciences. Our emphasis is on preserving, conserving and enhancing our natural resources.

The Sea Turtle Conservation & Research Program (STCRP) monitors sea turtle activity to learn more about their biology and behavior to help reduce the impacts of human activity. In addition, STCRP personnel protect nests from predators and other threats and document nest success. The data collected contributes to a statewide cooperative effort to monitor the status of sea turtles in Florida. 2011 marked the 30th year of STCRP conservation efforts, which included monitoring 52,000 turtle activities, protecting 1.5 million hatchlings and tagging 4,000 nesting females.

### STCRP MISSION

- Provide high-quality data to enhance understanding of the biology, requirements and habitats of these endangered species
- Inform wise conservation and management decisions,
- Demonstrate professional leadership among scientific peers and students,
- Disseminate information to scientists, conservationists and the general public

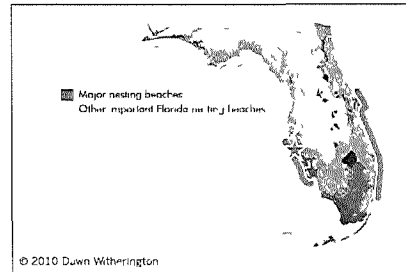


## Sea Turtles in Sarasota County

THE OFFICIAL SEASON FOR SEA TURTLES on the Gulf Coast of Florida is May 1 through October 31. With sea turtle populations declining worldwide due to beach development, commercial fishing and other human-related causes, protecting sea turtles and their habitat is crucial to their survival. Out of the seven species of sea turtles, five inhabit the Gulf of Mexico:

- Loggerhead,
- Green,
- Kemp's ridley,
- Leatherback,
- Hawksbill

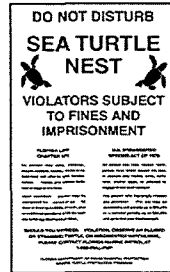
Sarasota County hosts the highest density of nesting loggerheads on the Gulf Coast of Florida. Green and Kemp's ridley turtles also nest here occasionally. On average, there are 2,500 to 3,000 nests laid in Sarasota County each year.



© 2010 Dawn Witherington

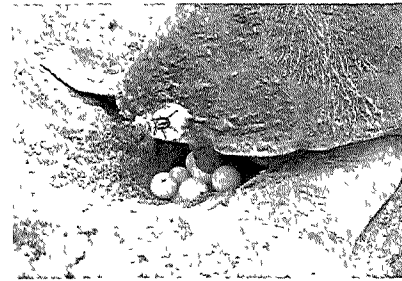
## Federal Protection

SEA TURTLES are protected under the U.S. Endangered Species Act (ESA) of 1973 and under Florida statutes. Violations are punishable by stiff fines or imprisonment. Violations include harassing nesting females or hatchlings, disturbing nests, and possession of any live or dead turtles, eggs or turtle parts by persons who do not hold the proper legal permits to do so.



## Nesting Season

LOGGERHEAD SEA TURTLES mature at 25-30 years of age when they weigh about 250 lbs. They mate during migration to the region where they were born. Once there, females lay four to seven nests at two-week intervals. Nesting takes place at night from May through September. When nesting, a female crawls ashore and uses her rear flippers to dig an egg chamber into which she deposits ~120 ping-pong-ball-sized leathery eggs. After covering her nest with sand, she returns to the ocean and her nest is left to incubate on its own. At the end of the season, females return to feeding grounds where they spend the next two-to-four years.



## Turtle Patrol

DURING NESTING SEASON, the STCRP monitors 35 miles of nesting beaches on Longboat Key, Lido Key, Siesta Key, Casey Key, and Venice. Trained volunteers walk the beach every morning at dawn from May to October looking for new crawls, checking all existing nests, and watching for signs of hatching. Once hatched, nests are inventoried to determine the number of eggs laid and the number of hatchlings that successfully emerged.

## Hatching Season

SEA TURTLE NESTS HATCH between June and October, approximately two months after being laid. As in other reptile species, temperature determines the sex of sea turtle hatchlings. Cooler incubation temperatures produce males, and warmer temperatures produce females. After emerging from their eggs and absorbing the last of their yolk sacs, the hatchlings collectively work their way to the surface and emerge from their nest at night. On the beach, hatchlings instinctively orient toward the brightest horizon. In a pristine setting, the brightest horizon is over the ocean. Once in the water, the hatchlings start a three-to-six day journey in which they use the energy provided by their yolk sacs to swim to an offshore seaweed line. (This period is called a 'swim frenzy'.) The seaweed provides hatchlings with food and shelter as they travel with the ocean currents.



## Frequently Asked Questions

### *Who is able to work with sea turtles?*

Persons authorized to work with sea turtles and their nests have been trained and permitted to do so by both state and federal agencies. Authorized personnel carry a permit issued by the Florida Fish and Wildlife Conservation Commission (FWC) and wear identifiable clothing.

### *How do you know a sea turtle has nested?*

Sea turtles crawl from the water onto the beach, leaving tracks that resemble those of tractor tires. If they lay a nest, they will leave behind a body pit and a mound of "fluffy" sand disguising the location of their eggs. Occasionally a turtle will return to the water without laying a nest, this is known as a false crawl.

### *How are turtle nests marked?*

Upon finding turtle tracks, volunteers mark the activity with flags. Permitted personnel locate the eggs and mark the nest with yellow stakes and flagging tape to keep it secure. A false crawl is marked with a large "X" through the tracks to indicate the crawl has been documented.

### *Are eggs ever relocated?*

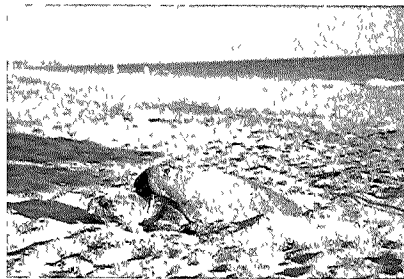
The STCRP only moves eggs if the nest is in imminent danger or washing out. Interference in the natural incubation and hatching process is kept to a minimum.

### *How do you know that a nest has hatched?*

A circular depression in the staked off area and/or tiny hatchling tracks indicate a nest has hatched.

### *Why are there differences in incubation times?*

Temperature influences incubation time. Temperature is dependent upon the sand color and grain size, rainfall and tidal activity. For example, a nest on a beach with dark, coarse sand and little rainfall will hatch sooner than a nest on a beach with light-colored, fine sand that has been inundated by water.



## Frequently Asked Questions

### *What's the difference between a land turtle and a sea turtle?*

Gopher tortoises and terrapins are also found on beaches and may be mistaken for sea turtles. One easy identifier is that sea turtles have flippers and land turtles have feet with nails. Land turtles can also pull their heads and limbs into their shells and sea turtles cannot. Even though they reside on the beach, land turtles do not go into the ocean.

### *What if I see a sea turtle nesting at night?*

Watch in the dark, your eyes will adjust. Remain quiet and still and stay behind the turtle. Do not touch the turtle or encourage her to move. Do not use flashlights or take flash photographs. The flash could confuse the turtle and stop her from laying her eggs. Nesting turtles are still during most of the process and may take up to an hour to complete nesting. The STCRP will document the activity at dawn.

### *What if I see a sea turtle nesting in the daytime?*

If you are certain it is a sea turtle, take photographs if possible (no flash please!) and call the STCRP immediately. Rare Kemp's ridley sea turtles are known to nest during the day.

### *What if I see a nest being inundated with water?*

Nests can tolerate some water inundation and still hatch successfully. If there are no eggs exposed, there is no reason to take action. If eggs are exposed, call the STCRP for instructions.

### *What if I see hatchlings in danger?*

If you find hatchlings that are not on the beach or are headed away from the ocean, call the STCRP for instructions. Put rescued hatchlings into a bucket with a layer of damp sand and cover the bucket with a towel. Do not put hatchlings in water or take them into air conditioning. Hatchlings heading towards the ocean should be left alone.

### *What if I see suspicious activity around a turtle or nest?*

If you suspect that someone is tampering with a nest, harassing a turtle or has possession of a turtle or any of its parts, please call the FWC or the Sarasota County Sheriff's Office. Information can also be found on the signs posted on nests.

### *What if I find an injured or stranded sea turtle?*

Call the Mote Strandings Investigations Program at (941) 988-0212.

## EMERGENCY PHONE NUMBERS

FWC LAW ENFORCEMENT  
1 (888) 404-3922

SARASOTA COUNTY SHERIFF'S OFFICE  
(941) 316-1201

MOTE STRANDINGS INVESTIGATIONS PROGRAM  
(941) 988-0212

STCRP (941) 388-4331

## Human-Induced Threats

BIOLOGISTS ESTIMATE that only one out of every 1,000 hatchlings survives to maturity. Combined with natural mortality, the following threats have caused a decline in the populations of all sea turtle species.

- Poaching by humans,
- Entanglement and drowning in fishing nets, longlines and discarded monofilament fishing line,
- Ingestion of harmful debris such as small plastic pieces, plastic bags, balloons, Styrofoam, tar and chemical pollutants
- Injury from boat collisions,
- Barriers to nesting such as beach furniture and sea walls,
- Artificial lighting from condominiums, houses, commercial establishments, streetlights and sky glow can disorient hatchlings. Disoriented hatchlings exhaust energy reserves, are vulnerable to predators and may never reach the water.

## You Can Help Sea Turtles!

### DURING NESTING SEASON (May-October)

- Shield or turn off outdoor lights that are visible from the beach,
- Close drapes after dark,
- Remove furniture from the beach at night,
- Fill in holes and knock down sand castles that may entrap or block hatchlings,
- Place trash in its proper place,
- Do not use flashlights, fireworks, fishing lights or campfires on the beach.

### ANYTIME

- Contribute to marine conservation organizations like the STCRP at [www.mote.org/seaturtles](http://www.mote.org/seaturtles)
- Purchase a sea turtle license plate at [www.helpingseaturtles.org](http://www.helpingseaturtles.org)



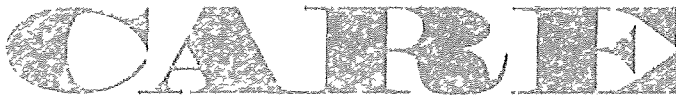
- Learn about sea turtles at [www.seaturtle.org](http://www.seaturtle.org)



[seaturtle.org](http://seaturtle.org)

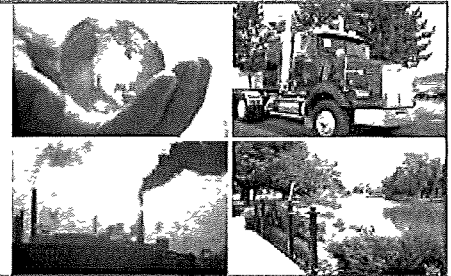
## Sea Turtle Conservation & Research Program

**Mote Marine Laboratory**  
1600 Ken Thompson Parkway  
Sarasota, FL 34236  
(941) 388-4331  
[turtles@mote.org](mailto:turtles@mote.org)  
[www.mote.org/seaturtles](http://www.mote.org/seaturtles)



LOCAL PARTNERSHIPS. HEALTHY COMMUNITIES.

Level II



## Earth Keepers Initiative Marquette, Michigan

Marquette, the largest city in the Upper Peninsula of Michigan, is faced with a variety of environmental challenges that threaten water quality and quality of life including the improper disposal of pharmaceuticals, household hazardous waste and electronic waste (e-waste). In addition, the City of Marquette has critically elevated levels of mercury documented in the effluent of the Marquette Area Wastewater Treatment Facility, which enters Lake Superior via the Carp River Area of Concern. The primary source of mercury to the wastewater treatment facility has been attributed to over 30 dentist offices in the community. Lastly, there is a high incidence of burn barrel use for trash disposal in the project area (a problem source of dioxins). Although these problems pose serious environmental and health risks they also present great opportunities to involve the public in addressing them.

### Joining Together

In 2004, the Superior Watershed Partnership helped establish the Earth Keepers. The Earth Keepers initiative is a coalition of faith communities in Michigan's Upper Peninsula taking action to protect the environment. Participating faiths included Catholic, Lutheran, Methodist, Episcopal, Jewish, Presbyterian, Buddhist, Unitarian, and Baha'i. Other Earth Keepers partners include, but are not limited to, the Keweenaw Bay Indian Community and Northern Michigan University. The Earth Keepers have proven to be one of the most diverse and effective stakeholder groups in the country. Religious leaders (including an unprecedented four bishops as signatories) from nine faiths signed the Earth Keepers Agreement which commits them to working with the Superior Watershed Partnership and other partners to prevent pollution and protect the natural environment

### Identifying Problems and Solutions

Through a collaborative process, project partners identified ways to inform and involve the residents of the Upper Peninsula of Michigan on ways they could help solve some of the environmental issues facing their communities.

### For Further Information

**John Perrecone**, EPA Project Leader  
US EPA, Region 5  
(312) 353-1149  
perrecone.john@epa.gov

**Carl Lindquist**, CARE Project Leader  
Superior Watershed Partnership  
(906) 228-6095  
carl@superiorwatersheds.org

### CARE Earth Keepers Partners

140 congregations representing 9 faiths across the Upper Peninsula of Michigan

25 regional pharmacies

19 local and state police departments

Northern Michigan University student Earth Keepers

Superior Watershed Partnership

Cedar Tree Institute

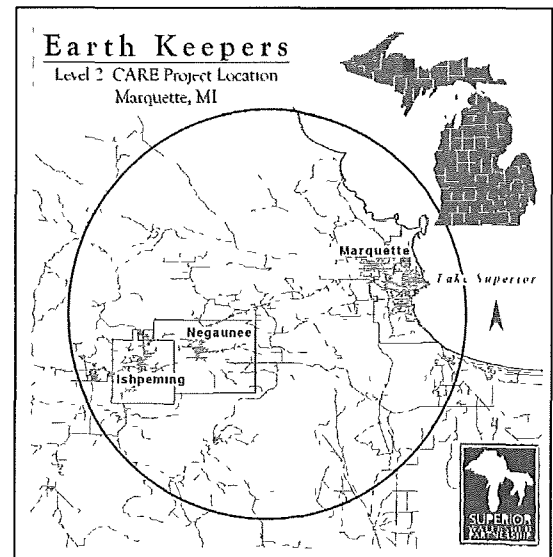
Keweenaw Bay Indian Community

The Nature Conservancy

Michigan Senator Carl Levin's Office

EPA Great Lakes National Program Office

Thrivent Financial







**CARE**  
LOCAL PARTNERSHIP & HEALTHY COMMUNITIES



## Implementing Solutions/Reducing Risks

- Coordinated and held a one day (Earth Day) multi-site pharmaceutical collection to prevent unused medications from entering local waterways.
  - Within three hours, community residents turned in more than one ton of unwanted pills, powders, and liquid medicines, including an estimated \$500,000 worth of narcotics.
  - About 2,000 people dropped off drugs at nineteen churches in Marquette and the Upper Peninsula during the three hour event.
  - The pharmaceutical collection received local, national, and international media coverage and has received numerous requests for replication from communities across the country.
  - Fact sheets were developed and distributed to event participants - outlining proper disposal of medications when there is no collection or disposal location available.
- Coordinated and provided technical support to over 30 dentist offices in Marquette and Alger Counties resulting in voluntary installation of amalgam separators. Mercury amalgam separators prevent mercury from entering local waterways and provide enormous benefits to local water quality.
- Currently working to provide 140 churches and over 300 businesses across the Upper Peninsula with energy and water conservation information.
- Working with local units of governments to provide citizens with information and alternatives to burn barrel use.



The Earth Keepers 2007 pharmaceutical collection event was the third Upper Peninsula-wide clean sweep event, in past years they held record breaking events for discarded electronics and household hazardous waste.

## Becoming Self Sustaining

The Earth Keeper project has a high likelihood for long term sustainability based on the high level of financial, technical and volunteer support from the many committed project partners. These stakeholders represent over 70% of the local community. Other partners of the Earth Keepers including representatives from the environmental sector, industry, government, human health, business, recreation, and academia further expand the ability of the Earth Keepers to involve the community, build support and sustain the project. In addition, the project has been used as model for other Great Lakes communities by the Great Lakes Mayors Initiative.



## More About CARE

U.S. EPA's Community Action for a Renewed Environment (CARE) is a community-based, community-driven program to reduce risks from toxic pollutants in air, land and water. Under CARE, EPA issues grants to communities to 1) build a broad-based partnership; 2) identify a range of environmental problems and solutions; 3) take action to reduce risks; and 4) become self-sustaining. Level I projects (up to \$100,000) work on steps 1 and 2, while Level II projects (up to \$300,000) work on steps 3 & 4. West Oakland is a Level II project.

## South Florida Regional Planning Council

### Sample Eastward Ho! Projects

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Old School Square

Mizner Park

Harrison Street

Sheppard Street

Regal Trace

Arts and Science District

Miami Residential Development

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#### **Old School Square in Delray Beach: ADAPTIVE REUSE (PRIVATE)**

When the Palm Beach County school board abandoned the Delray Beach school complex in the 1980s, a group of concerned citizens banded together to save the historic buildings from being torn down. The Old School Square Inc., a private non-profit corporation, was formed to raise the funds needed to preserve and renovate the three school buildings on the four acre site. The total cost of the project was \$7 million.

Today the Old School Square serves as an active arts and culture hub. The original school house, built in 1913, houses the Cornell Museum of Art and History. The auditorium, built in 1925, was reborn as the 322-seat Crest Theater which brings in traveling shows throughout the year. And the gymnasium, built in 1926, is now a function hall used for everything from trade shows to weddings and Bar Mitzvahs.

#### **Mizner Park in Boca Raton: MIXED USE (PUBLIC/PRIVATE)**

Planned as a traditional downtown where people work, shop, live and play, Mizner Park is one of the nation's most successful urban renewal efforts. Developed by Crocker & Company, this 30-acre "village-within-the-city" is a modern version of Main Street America utilizing the architecture style made famous in the region by Addison Mizner.

To strengthen the village ambiance, this mixed-use project is oriented "inward" with two retail/office buildings facing two retail/residential buildings across a central "village" green. Mizner Park includes 125,000 square feet of specialty retail shops and restaurants, 100,000 square feet of professional offices, 136 over-the-store luxury apartments and an additional 136 stand-alone townhomes and rental apartments, and an eight-screen AMC Theaters cinema. The 56,000 square foot International Museum of Cartoon Art opened this year and construction has begun on an 80,000 square foot Jacobson's department store.

Two-thirds of the 30-acre Mizner Park site is devoted to public areas, including a 2,000-seat performing arts amphitheater, broad arcade walkways, park areas and the heavily landscaped village green, dotted with gazebos, benches and fountains.

### **Harrison Street in Hollywood: COMMERCIAL RENOVATION (PUBLIC)**

In an effort to bring life and business back to downtown Hollywood, the Community Redevelopment Agency initiated a \$2.4 million restoration of Harrison Street. With its sidewalk cafes and art galleries, the city hopes Harrison Street will become the next Las Olas or South Beach.

In less than eight months, the stretch of Harrison Street between U.S. 1 and Dixie Highway received a complete facelift from Burkhardt contracting. It is now pedestrian-friendly with wide sidewalks and brick layers, decorative lighting and new landscaping. The street was also repaved and new drainage added. As a result of the city's rejuvenation of this area, Harrison Street has seen \$2.5 million in private sector renovations and 15 new businesses have relocated to downtown Hollywood.

### **Sheppard Estate in Fort Lauderdale: HISTORIC PRESERVATION (PRIVATE)**

Built in 1926 on 1.3 acres of land along Las Olas Boulevard, this Mediterranean Revival Style estate changed hands several times over the years. In the 1940's it was bought by the Sheppard family, who owned Hanover Shoes and Hanover Racing Farm (thoroughbred horses). The family kept it as a winter home until Mrs. Sheppard died in the late 1980's. The house had deteriorated over the years and many thought it would be destroyed. In an attempt to preserve the estate, the City Commission declared the estate an historic landmark, a status that protected the Sheppard House from the bulldozer.

In 1992, architect Michael Shiff purchased the property for \$650,000 with the idea of selling the main house to Jim Prettyman and building nine townhouses, four on one side and five on the other side of the main house. The Historic Preservation Board approved the construction plan because it was the only way to preserve the integrity of the estate. Nine townhouses were built and sold for more than \$300,000 each.

Prettyman paid \$650,000 for the house and invested another \$500,000 in renovations and furnishings. It has been restored in keeping with the spirit of the original estate. The Sheppard Estate is now a showplace of the community and Mr. Prettyman often opens his home to the community for various philanthropic affairs.

### **Regal Trace in Fort Lauderdale: URBAN RENEWAL (Private/Public)**

In the early 1980's, the City of Fort Lauderdale approved a Redevelopment Plan for a 35-block area in Northwest Fort Lauderdale and invested \$15 million in the project. In November 1991, the City selected Milton Jones, owner of Jones Development Corporation, for the development of 408 affordable rental apartments, recreational facilities, and day care center. The City contributed the land (valued at \$2 million) and installed the necessary infrastructure (valued at \$1.6 million). The Developer, Mr. Jones, secured \$25 million in financing for the project, including bank financing from a consortium of lenders, a Florida Housing Finance Agency low interest second mortgage and Low Income Housing Tax Credits.

Last fall, Mr. Jones' dream to provide upscale, moderately-priced rental housing in urban Fort Lauderdale was realized with the opening of his development, Regal Trace.

The \$30 million luxury garden apartment complex is located at Sistrunk Boulevard and Northwest Fourth Avenue. Regal Trace offers 408 fully-equipped apartments located within a gated community, with swimming pools, tennis courts, basketball courts and clubhouses with work-out rooms.

Regal Trace marked the beginning of the revival of Northwest Fort Lauderdale. Mr. Jones has won approval by the City to build a commercial center including a drugstore and shops, just a few blocks from Regal Trace. City View, a complex of 70 townhomes, is nearing completion. And the City is underwriting the construction of single-family homes for first-time homeowners.

### **Arts and Science District in Fort Lauderdale: DOWNTOWN DEVELOPMENT (Public)**

In 1986, the City of Fort Lauderdale adopted a plan to create a "Riverwalk" along the New River in the heart of downtown. This linear park along the northern riverbank would link three distinct areas, the Arts & Science District, Entertainment District and Office and Retail District. The Riverwalk development was funded by a \$44.7 million revitalization package funded by a voter-approved bond issue. Substantial arts grants and private funding also helped make the Arts & Science District a reality.

The cornerstone of the Arts & Science District is the \$55 million, two theater Broward Center for the Performing Arts which sits along the banks of the New River. Across the street sits the \$30 million hands-on Museum of Discovery and Science and Blockbuster IMAX Theater. Esplanade Park runs along the river. The \$3 million project consists of an amphitheater, a larger-than-life sundial and various hand-on exhibits.

The newest addition to the Arts & Science District is the New World Aquarium, which is now in the development stage.

### **Edison Gardens, Fern Isle Gardens, Rio Gardens, St. Hugh Oaks Village in Miami: RESIDENTIAL DEVELOPMENT (PUBLIC/PRIVATE PARTNERSHIPS)**

These rental, townhomes for ownership and single-family detached condominiums are being funded through a mix of City of Miami Community Development Block Grants (CDBG), HOME, Housing Bonds, and/or State Housing Initiative Plan (SHIP) dollars for seeding private development either through Community Development Corporations or private development companies. Edison Gardens at NW 58th and 59th Streets and 7th Avenue has 100 rental apartments, Fern Isle Gardens at 1300 NW 24th Avenue has 52 townhomes for ownership and Rio Gardens at SW 2nd and 3rd Streets and SW 4th and 5th Avenue has 22 townhomes for ownership.

St. Hugh Oaks Village is a rehabilitation project designed by Andres Duany and Elizabeth Plater-Zyberk and is located at 3601 SW 37th Avenue. Financing for Its 23 single-family detached condominiums is available to moderate income households.

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## New Science: Advancing Understanding of the South Florida Ecosystem

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The Comprehensive Everglades Restoration Plan (CERP) was approved by Congress in the Water Resources Development Act of 2000. CERP is a framework for restoration, preservation, and protection of the Everglades ecosystem that also provides for other water-related needs of the region, including water supply and flood protection. CERP is the centerpiece of a broader restoration effort in south Florida. A key premise of Everglades restoration is that the best available scientific information will guide our decisions. Since 2000, considerable learning has taken place through applied research and monitoring, including the refinement of models and sampling methodology. Important new information now informs our understanding of how water flows through the system and how depths and durations of flooding influence Everglades ecology, fine-tuning knowledge of the functional characteristics of the Everglades and the restoration needs of different parts of the landscape.

### **Understanding of the Natural System Evolves; Without Ecosystem-wide Restoration, Degradation Continues**

Our fundamental understanding of the natural, pre-drainage Everglades ecosystem has evolved since the year 2000. There are now several lines of evidence that indicate that some Everglades marshes were wetter and the southern estuaries were fisher in the past than was understood previously. And, additional focus on flow and the rate of change of water levels has led to increased understanding of the role dynamic water movement plays in shaping landforms and ecology on virtually all scales, from the formation and maintenance of tree islands and ridge-and-slough topography across the broad landscape to the survival and growth of apple snails in the Water Conservation Areas (WCAs). The Everglades is not in balance, and ecosystem-wide restoration is urgently needed to prevent further degradation. Ongoing monitoring, research, and recent opportunities to assess response to both drought and flood events have documented further declines in ecosystem health.

*Fresher and Wetter* Recent paleoecological studies conducted in Florida Bay and Biscayne Bay show that estuarine animal communities that existed around the beginning of the 20th century were typical of a lower, more stable salinity pattern than

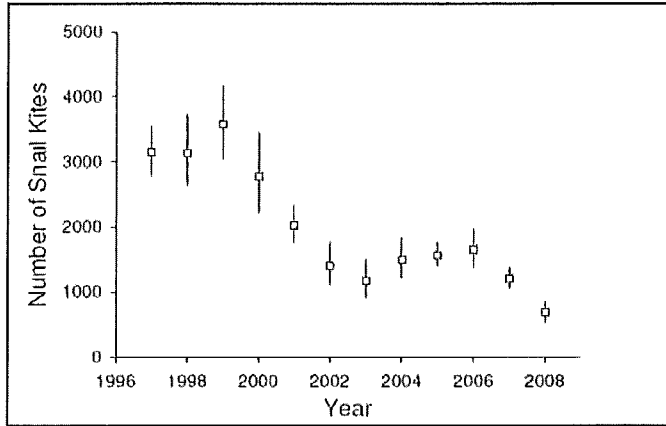
is associated with the managed system today. The differences in salinity patterns are not fully explained by rising sea level (Wingard 2007). A recent assessment of the relationship between water levels in Everglades National Park (ENP) and salinity in Florida Bay indicates that the volume of freshwater required to achieve the historical salinities is larger than the pre-drainage hydrologic simulation models have predicted (Marshall et al. 2009). Paleoecological studies of pollen and seeds from sampling sites in Shark River Slough provide evidence for greater extent of water lily sloughs prior to the implementation of water management practices of the 20th century (Bernhardt and Willard 2009, SFWMD 2008, Willard et al. 2001). Water lily is associated with open water slough characterized by greater water depths or longer periods of inundation than that found in the present-day sawgrass prairies.

*Flow and Velocity* It is the flow of water that connects the upstream and downstream components of the ecosystem, links habitats, and supports biological functions that maintain diversity. In Everglades marshes, flowing water is required to transport fine sediment and organic matter and thereby shape the land into the linear ridge-and-slough systems and flow-sculpted tree islands that defined the pre-drainage system. Flow velocities in impounded areas of today's system are not sufficient to support these physical and biological processes and maintain the characteristic landforms of the historic Everglades (Larsen et al. In review).

*Rise and Fall of Water Critical*. Extreme high and low water levels can damage aquatic vegetation and wildlife that depend upon it. In addition, the timing and rate of change of water levels (recession or ascension) are critical to ecological functions in Lake Okeechobee and the Everglades marshes. Gradual changes in water depth are necessary to support foraging and reproduction of birds, alligators, and other species. For example, in marshes and lakes, reproduction of apple snails, the principal prey of the imperiled Everglade snail kite, is dependent on the timing and rate that water recedes. Rapid or extreme increases in water level can inundate and destroy snail egg masses. However, if water recedes too quickly young snails will hatch into conditions that are too dry, and they will perish or their growth will be impaired (Darby et al. 2008). The estimated population of the snail kite has

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decreased dramatically over the last decade, reduced by half and half again (Cattau et al 2008). Shifting water management regimes and natural climate patterns may affect quality of marsh habitats or apple snail abundance, and these factors may have contributed to the decline of the kite. Cape Sable seaside sparrow populations also are highly sensitive to water levels, remain imperiled and have not regained numbers documented in past decades.



Modeled Snail Kite population size (Cattau et al 2008).

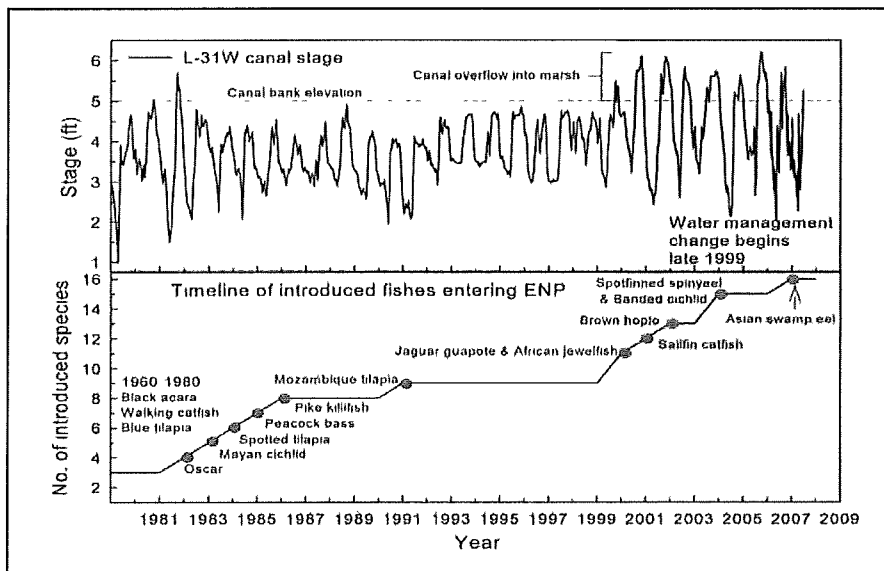
**Loss of Landscape Features:** Tree islands are critical features in the Everglades landscape, producing biodiversity “hotspots” of native plants and animals, and serving as refuge for terrestrial species during periods of high water (NRC 2008). Within the impounded WCAs, upstream marshes tend to be over-drained, while downstream marshes experience prolonged flooding. Studies have documented a multi-decadal decline in the number (54% decrease) and areal extent (67% decrease) of tree island habitat, due to the influence of both high and low water levels, and to increased fire frequency (Sklar 2007). If restoration is

further delayed and altered water management regimes continue, tree islands will remain more vulnerable to fires in drier areas and flooding in downstream areas, and their resilience to natural hydrologic variability may decline, potentially leading to flooding stress when historic water depths are ultimately restored (NRC 2008).

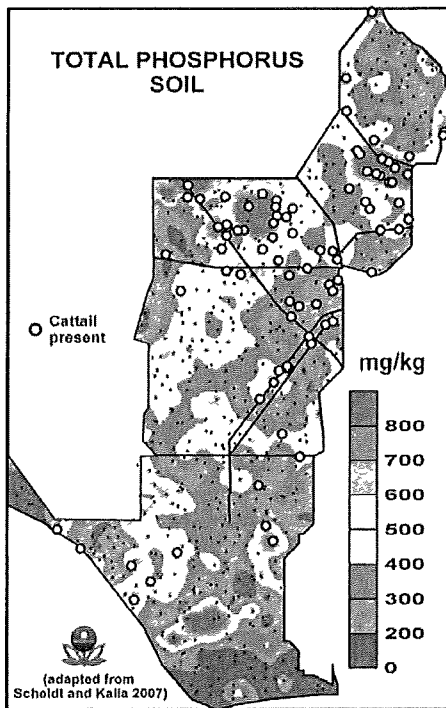
**Invasive Plants and Animals:**

Invasive exotic species are a serious and growing threat to the south Florida ecosystem. More than 30 invasive exotic plant and 150 invasive exotic animal species are known to occur in the region, and the numbers are increasing (NRC 2008). Several of these pests were recognized in 2000 and remain a persistent challenge, while new species, including Burmese pythons and Old World climbing fern (*Lygodium*), have emerged as major threats to the achievement of restoration goals. The spread of many invasives, such as exotic fish, is clearly linked to canals and other human-altered landscape features.

**Water Quality.** Source control programs and stormwater treatment areas (STAs) in the Everglades Agricultural Area have removed over 3,200 metric tons of total phosphorus. However, soil phosphorus levels still exceeded restoration targets in a greater proportion of the Everglades marsh in 2005 than in 1996 (49% versus 34%), indicating that degradation has spread (Scheidt and Kalla 2007). Mercury concentration in prey fish has dropped compared to the late 1990s, but still exceeds concentrations considered to be protective of birds and mammals in 67% of the Everglades marsh area. Sulfate, a factor exacerbating the biological effects of mercury, exceeded target levels in more than half of the Everglades marsh (Scheidt and Kalla 2007). Recent studies also point to copper in water and soil as a contaminant of concern in south Florida (Schuler et al, 2008).



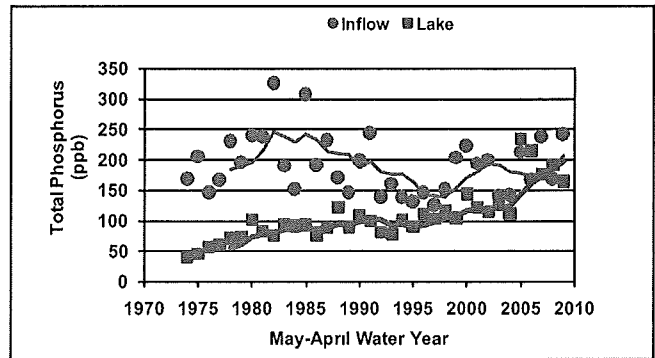
Note the overflow of the canal bank and the corresponding increase in the number of exotic fishes in Everglades National Park (Kline et al. 2008)



Soil phosphorus in the Everglades Restoration target is 400 mg/kg (Scheidt and Kalla)

Water quality continues to decline in Lake Okeechobee, with total phosphorus concentrations in the water increasing. Phosphorus concentrations and loading rates to the Lake vary, but exceed restoration goals, particularly in wet years. Phosphorus that has accumulated in the Lake sediments and in soils in the watershed can be released to the water at levels sufficient to maintain elevated total phosphorus levels for many years.

*Estuaries*· Estuaries, the highly productive coastal margins of the system, serve as aquatic nurseries for fish, avian, and invertebrate species and yield large economic benefits. They are stressed by

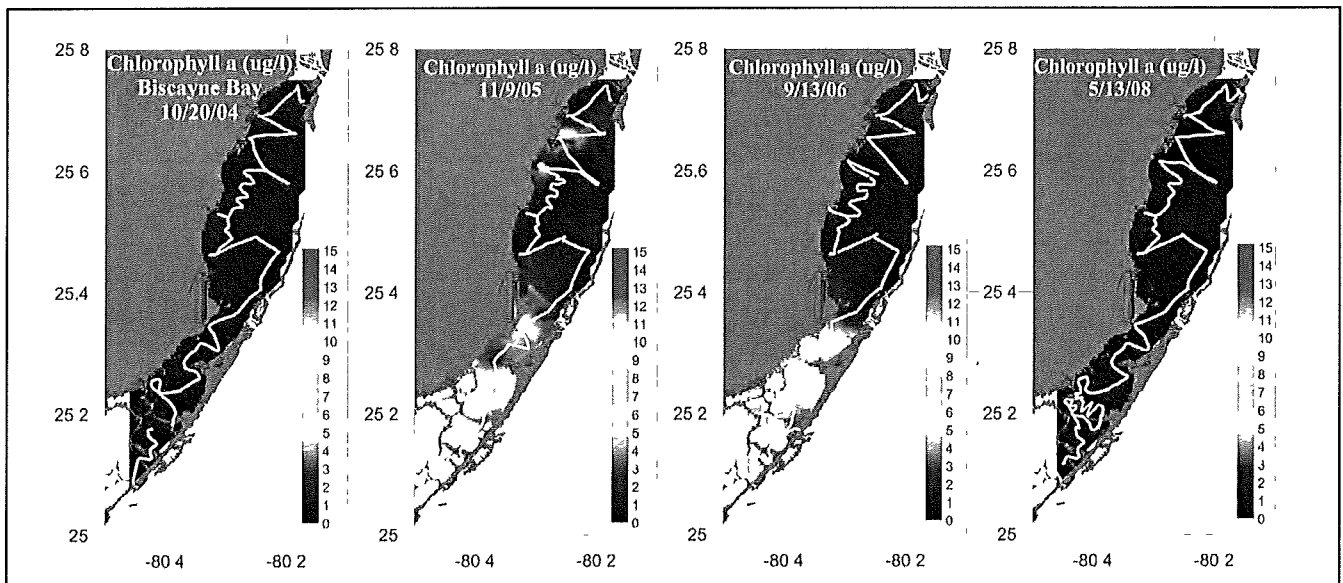


Total phosphorus concentrations in Lake Okeechobee (SFWMD)

unnatural water deliveries and nutrient releases, which impair their resilience. Damaging freshwater releases and extreme salinity variation in the northern estuaries, Indian River Lagoon and Caloosahatchee, have caused fisheries impacts and loss of aquatic vegetation. Oyster populations in the St. Lucie estuary have fluctuated widely and recovery is hindered by recurring incidents of excessive discharge and extreme low salinity

In Florida Bay and the lower Biscayne Bay systems, low freshwater flow, salt intrusion, and rising sea level contribute to high salinity and a loss of diverse estuarine habitats that support wading birds and fisheries resources. The normally low-nutrient southern estuaries are highly sensitive to phosphorus and nitrogen releases, even from sources within the basin. Nutrients released from natural and human-related events have recently contributed to algal blooms of previously unknown scale and duration, and associated loss of seagrass and invertebrates were factors in sustaining the bloom and nutrient levels.

*Climate Change*. Knowledge of how the Earth's climate is changing has advanced rapidly since 2000, and understanding the implications of climate change for south Florida is critical to restoration efforts. Changing precipitation and temperature



Nutrient releases caused a multi-year algal bloom within Biscayne Bay and northeast Florida Bay (NOAA/AOML)

patterns, ocean acidification, sea level rise, and the possibility of storms of greater frequency and intensity will potentially have effects on all aspects of the system, including the coastal transition zone, invasive species, plant and animal physiology, and drought/flood/fire cycles. Future restoration science must proceed with the acknowledgement of climate change as an explicit aspect of our studies and management decision-making

### Advances in Scientific Tools & Methods

There have been numerous advances in scientific tools and methods since 2000. Through collaboration and scientific peer review, conceptual ecological models have been refined and system-wide ecological indicators have been developed. Both provide a framework for reducing uncertainty and developing restoration targets.

Improved models have enhanced understanding of linkages between hydrology and ecology, as well as our ability to predict responses to system changes. The Natural Systems Model (NSM) has been improved by incorporating additional historical topographic, hydrologic, and ecological information. New hydrologic and mathematical models couple upland landscape to southern estuaries, better defining how flow volumes determine salinity patterns. Other models link surface and groundwater flow and help address smaller scale management issues such as aquifer recharge, salt intrusion, and seepage.

Broad scale, robust monitoring programs have been in place since 2000 (e.g., EMAP and the CERP Monitoring and Assessment Plan) and are providing vital feedback on ecosystem health, contaminants, and management strategies. Integration of new geostatistics, water level recorders, and Google Earth capabilities now produces accurate spatial renderings of Everglades performance and restoration. Monitoring of STAs, in combination with the use of near-real-time data, has allowed for improved decision-making for the optimization of STA operations to balance water flows and phosphorus load reduction. As CERP restoration efforts progress, monitoring and assessment will continue to document environmental conditions and the effectiveness of restoration efforts into the twenty-first century (Doren et al. 2008, RECOVER 2007).

### Conclusions

Because the greater Everglades system and species that depend upon it continue to decline, the synthesis of information across scientific disciplines and the implementation of timely ecosystem restoration are vital. While the success of south Florida restoration efforts will ultimately be judged by the ecological responses they produce, the independent review panel on Everglades restoration progress emphasized that "Natural system restoration will best be served by moving the system as quickly as

possible toward physical, chemical, and biological conditions that molded and maintained the historical Everglades" (NRC 2007). In addition to refined estimates of the volume of water needed to establish more natural salinity patterns and hydrology in the southern estuaries and marshes, the critical role of sheetflow and flow velocity in the evolution and maintenance of the ridge and slough landscape is understood far better than when the CERP was formulated. Yet, increased flows should be achieved without harmful water levels or impacts to water quality and will be evaluated by policy-makers.

Avian species in the Everglades are highly dependent on natural water level transitions. The Cape Sable seaside sparrow and Everglade snail kite remain highly imperiled, making ecosystem restoration both more urgent and more challenging. Independent expert review has concluded that although careful management will be needed through the transition to a restored system, there are no true conflicts between the needs of these species in the Everglades and that completion of ecosystem-wide restoration will benefit both sparrows and kites (Sustainable Ecosystems Institute 2007).

Monitoring has demonstrated that the State's water quality program has made progress in removing phosphorus, particularly as additional STAs have come on line in recent years, however, additional water quality improvement is needed for water entering Lake Okeechobee and the Everglades Protection Area. The issue of phosphorus in the watershed of Lake Okeechobee will require additional load reduction strategies to reduce the mobility of the phosphorus (SFWMD 2009).

Proactive management of invasive species is crucial, with an emphasis on prevention of new introductions. We must put national-level policies and regulations in place, based on strong risk analysis and screening tools that can scientifically evaluate the threat a species poses for invasion.

Sea level rise, and other consequences of climate change, must be considered in Everglades restoration planning and implementation. It is important to note that climate change only heightens the need to increase the flow of water through the Everglades and into the southern estuarine system in order to maintain the freshwater differential needed to mitigate effects of sea level rise and salt intrusion. Preparing now for a future with climate change will permit adaptation efforts that can reduce risks and increase sustainability for and resilience of both the natural ecosystem and the built environment of south Florida (see Climate Change in South Florida information brief).

Complete information on the references cited in this document can be found at the following location:

[http://www.sfrestore.org/new\\_science.html](http://www.sfrestore.org/new_science.html)