

Dept. of Ocean Engineering and Marine Sciences

**Rich Aronson
Head of Department**



Our Undergraduate Majors

- **Aquaculture and Fisheries**
- **Environmental Science**
- **General Biology**
- **Marine Biology**
- **Marine Conservation**
- **Meteorology**
- **Ocean Engineering**
- **Oceanography**
- **Sustainability Studies**

Who We Are 2020

- **102 Incoming Undergraduate Majors**
 - **36 Marine Biology (35%)**
 - **24 Ocean Engineering (24%)**
 - **12 Meteorology (12%)**
 - **8 Environmental Science (8%)**
 - **8 Oceanography (8%)**
 - **7 General Biology (7%)**
 - **7 Sustainability, Marine Cons., Fish/Aqua (7%)**

All-years total: 332 majors, 46 minors
- **~71 Graduate Students**

Advising

- **Freshmen and Transfers with fewer than 30 credits: work with advisor from First-Year Experience.**
 - Registration
 - Add–Drop
 - Prerequisite Waivers, etc.
- **Transfers with 30 or more credits: work with Student Coordinators in the Olin Engineering Building.**
- **In addition, you have been assigned a faculty advisor in the Department. Your advisor will contact you to set up a Zoom meeting.**

You and Your Academic Advisor

- 1. Sometime during the semester, talk to your academic advisor about your interests and your program.**
- 2. Your faculty advisor is here to give you a different type of advice: about your subject-areas of interest, career, paths you might want to take professionally—that sort of thing.**
- 3. Every advisor will have office hours posted, along with a signup sheet.**
- 4. Best to wait at least two weeks, until the current semester's programmatic issues are settled.**

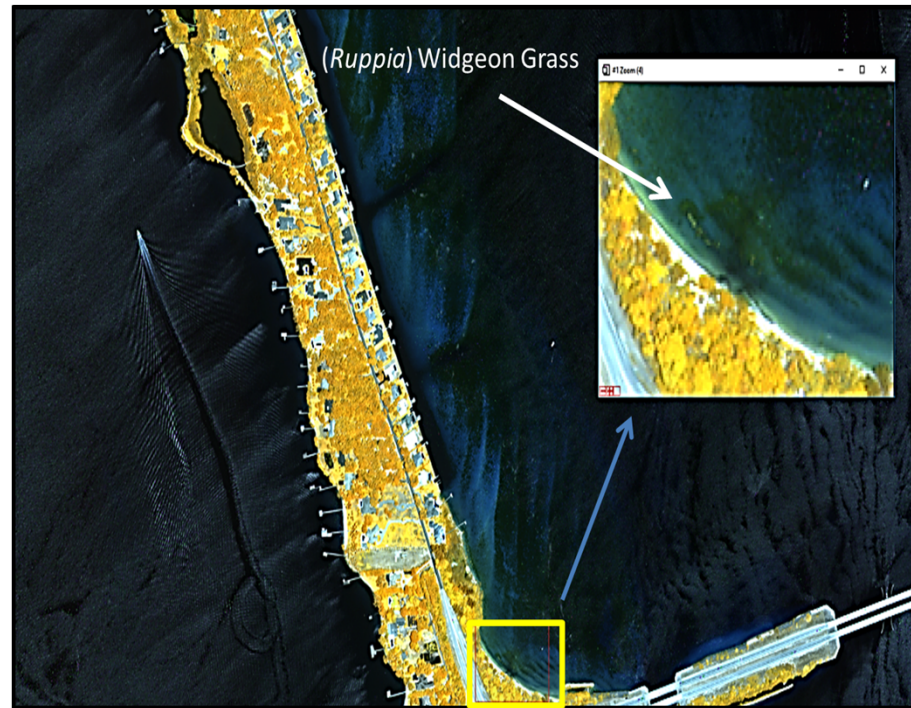


Charles R. Bostater, Jr. Associate Professor



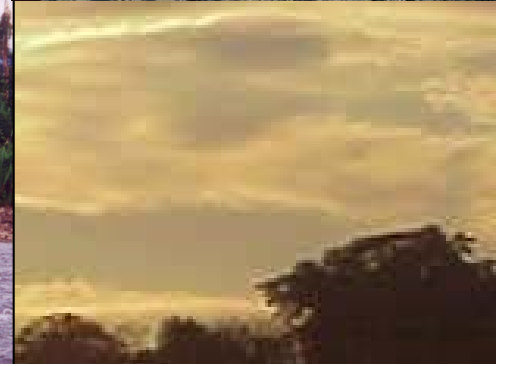
Teaching: Physical Oceanography & Environmental Sciences, Earth Remote Sensing

Research: Satellite & Airborne Remote Sensing, Marine & Environmental Optics, In-Situ Sensing Systems, Boundary Layer Research (surface water gravity waves, water-sediment interfaces, Synthetic Hyperspectral Simulation



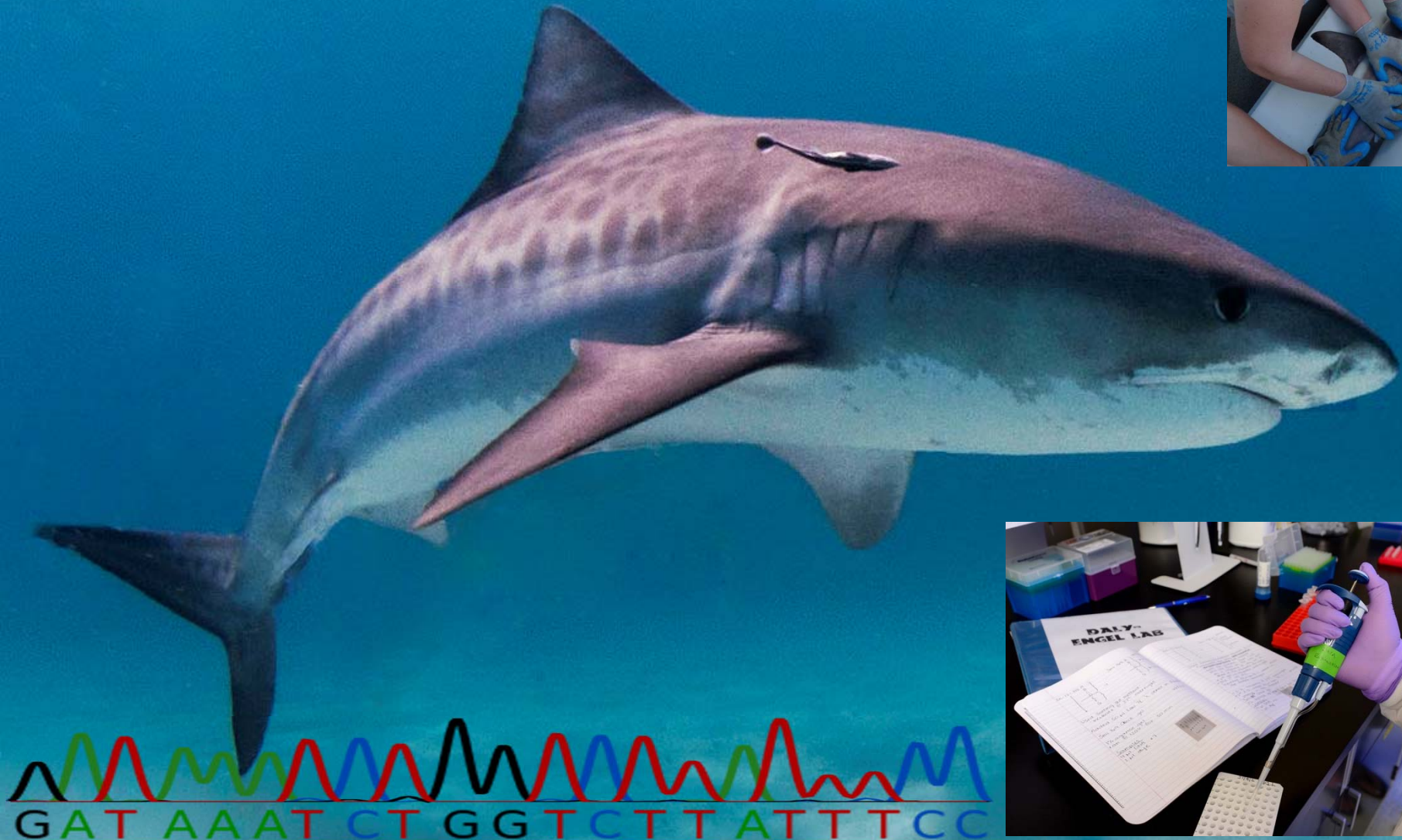
MARK BUSH

Community Ecology
and Paleoecology



TOBY DALY-ENGEL

REPRODUCTIVE EVOLUTION, MOLECULAR ECOLOGY,
AND CONSERVATION OF SHARKS AND OTHER FISHES





Austin Fox



Eutrophication: Nutrient sources, cycling and sinks
Inorganic Contaminants

Kelli Hunsucker, Assistant Professor of Oceanography

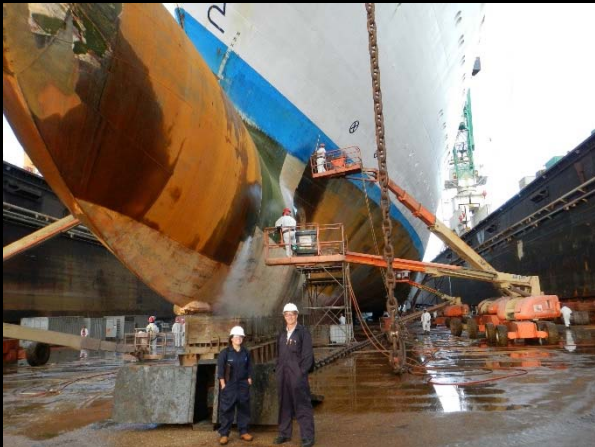


Courses

Introduction to Oceanography
Biological Oceanography
Ocean Biology for Engineers

Research Interests

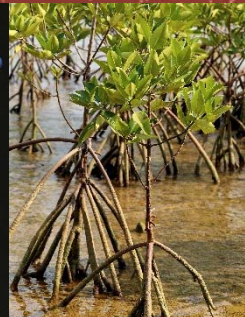
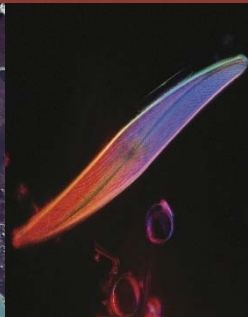
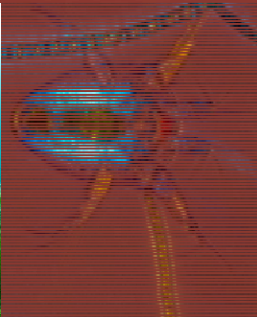
Biofouling
Dynamics of marine biofilms
Benthic ecology
Coastal water quality
Eco-engineering
Marine materials
Manmade impacts on ecosystems
Marine outreach & education



Kevin B. Johnson

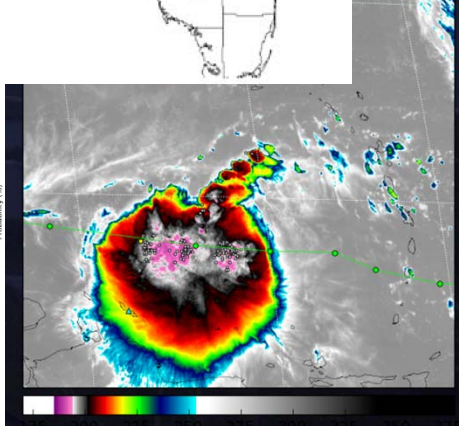
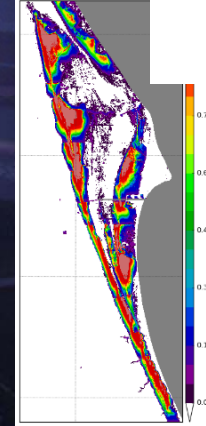
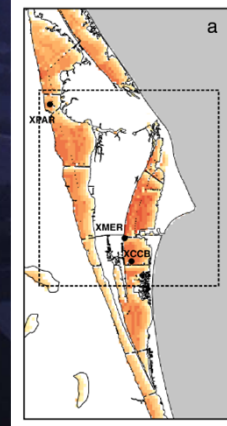
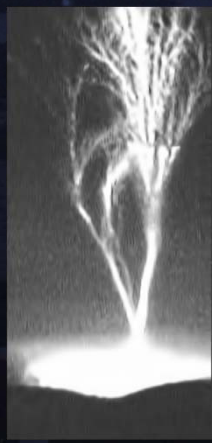
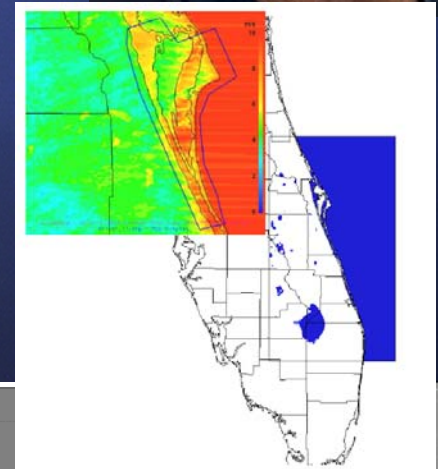
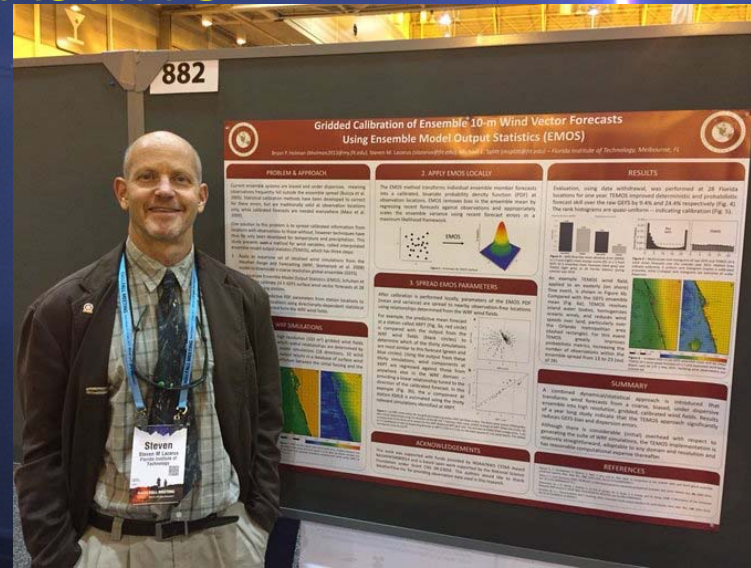
Biological Oceanography and Environmental Science

Plankton Ecology
Harmful Algal Blooms
Invasive Species
Benthic Restoration
Seagrass Ecology
Larval Recruitment



Steven Lazarus

GIGANTIC JETS, WIND AND WATER,
COASTAL/TROPICAL & SEVERE WEATHER,
ENSEMBLE FORECASTING



Ken Lindeman

Coastal Climate Adaptation

Campus & Region Sustainability

Fishery Connectivity & Conservation



City of Satellite Beach
Sustainability Action
Plan 2017



Proposed Spawning Special Management Zones



Implementing "Adaptation Action Area" Policies in Florida

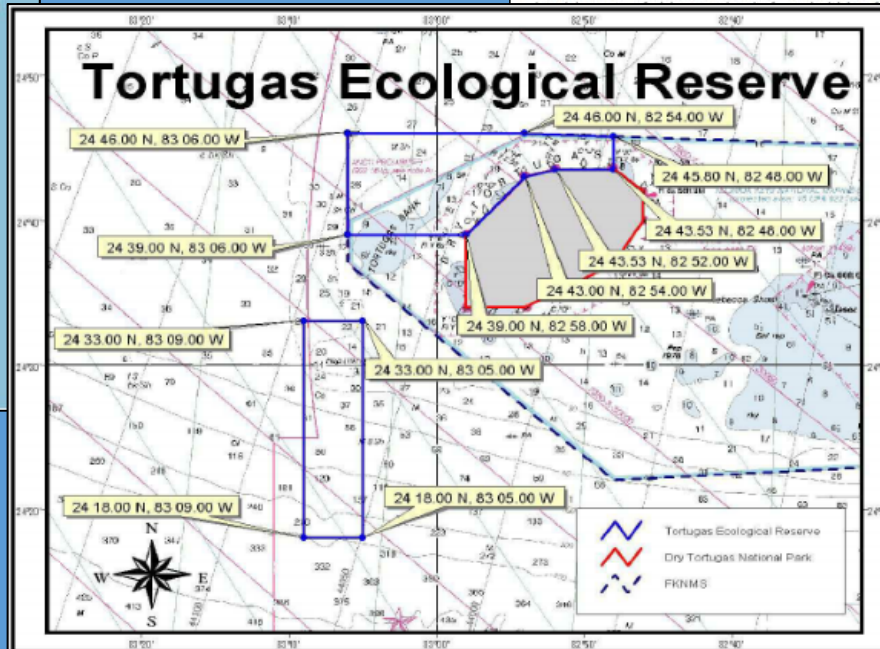
A Supplemental Project of Special Merit to the Statewide Community Resiliency Initiative

The 2011 Florida Legislature passed the *Community Planning Act (CPA)* making significant changes to the state's growth management laws, including the addition of optional adaptation planning for coastal hazards and the potential impacts of sea level rise. The Adaptation Action Area, as defined in the CPA, is an optional comprehensive plan designation for areas that experience coastal flooding and that are vulnerable to the



ing for infrastructure and adaptation planning. Local government should consider policies within the coastal management element that address potential flooding. Criteria for the adaptation action area may include: areas which have a hydrological connection to coastal flooding; areas which have a hydrological connection to coastal flooding (§163.3164(1) and §163.3177(6)(g)(10), F.S.)

and the National Oceanic & Atmospheric Administration (NOAA) approved the Florida Coastal Management Plan's (FCMP) Section 309 Strategy, including an initiative by the Florida Department of Economic Opportunity (DEO) titled "Florida's Adaptation Action Area for Sea Level Rise." This five-year initiative will examine the impacts of sea level rise and determine how to best integrate sea level rise adaptation into coastal management plans as well as how to coordinate sea level rise adaptation



GLENN MILLER

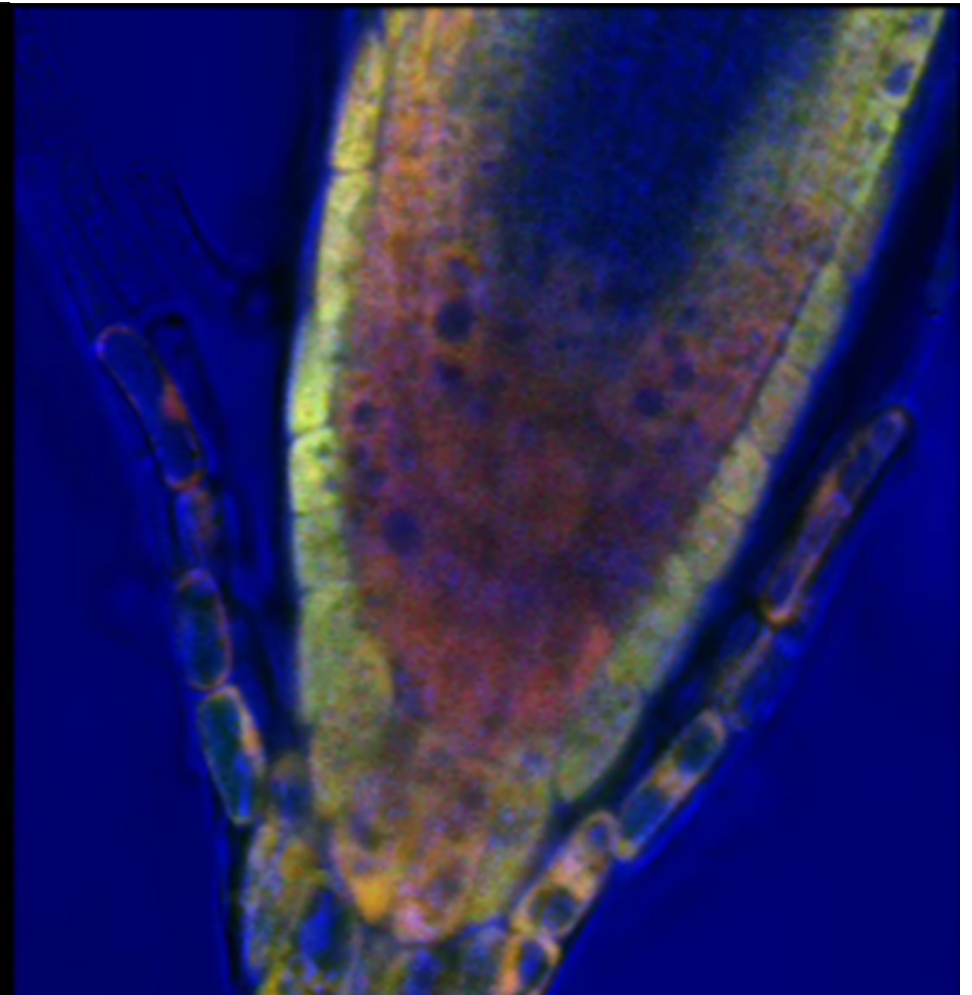
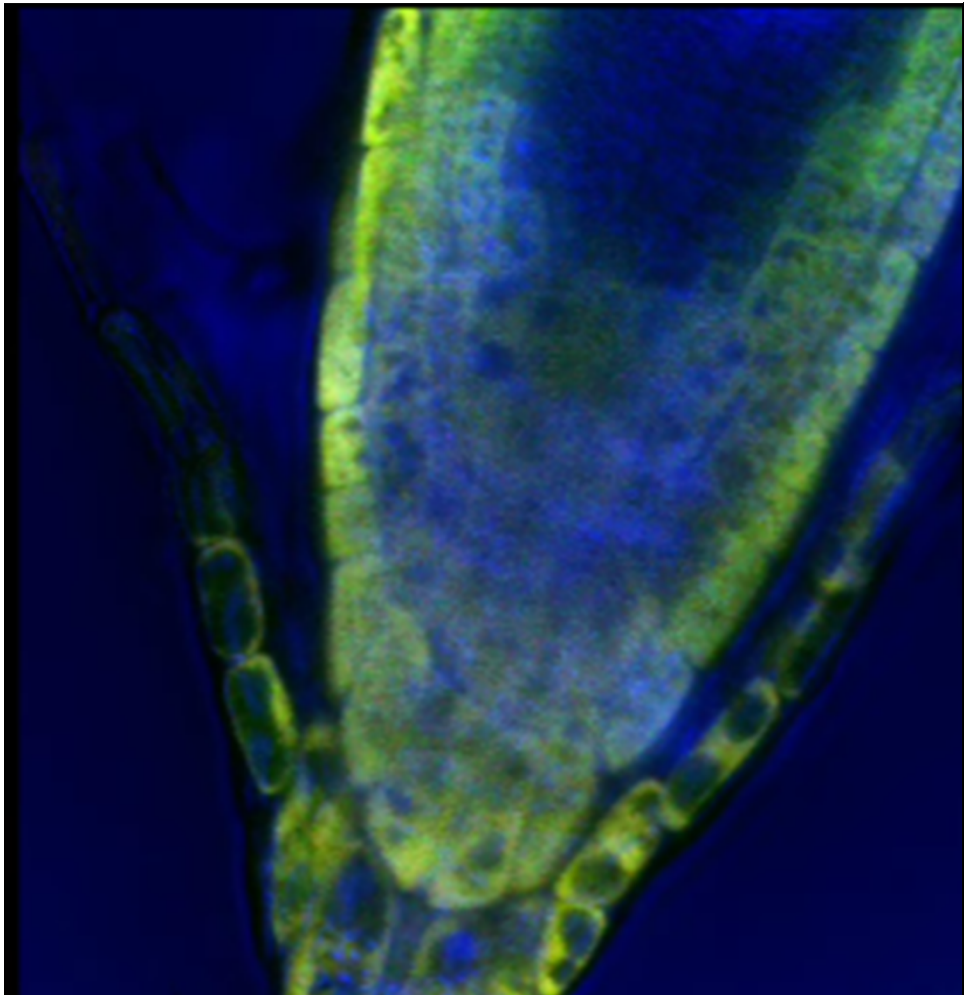
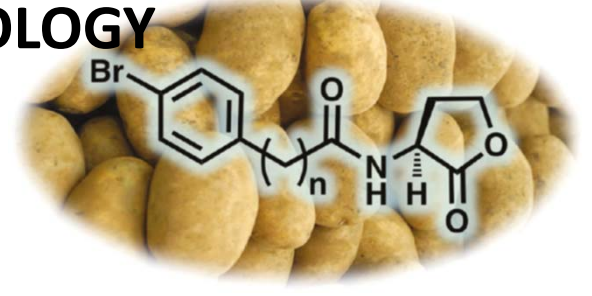
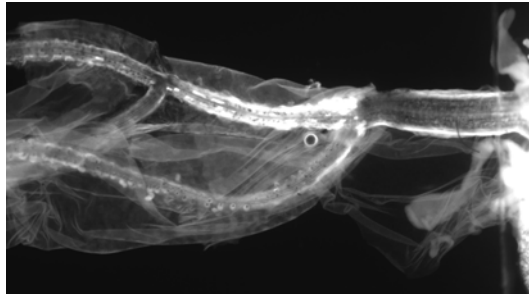
Instructor

Modeling and Quantitative Biology
Coastal Ecology



Andrew Palmer

CHEMICAL ECOLOGY AND PLANT BIOLOGY



Pallav Ray: Meteorology

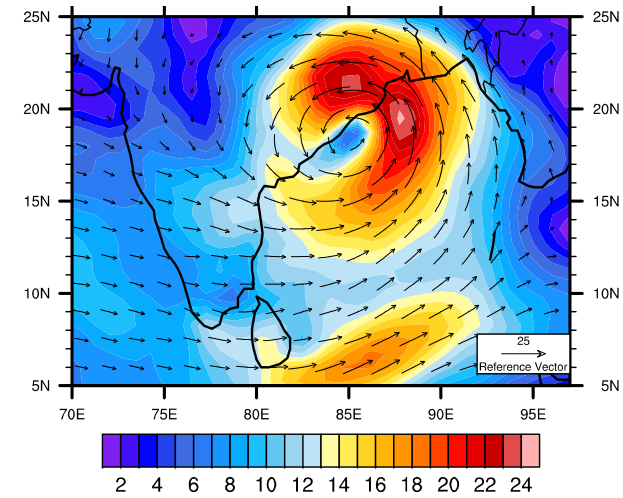
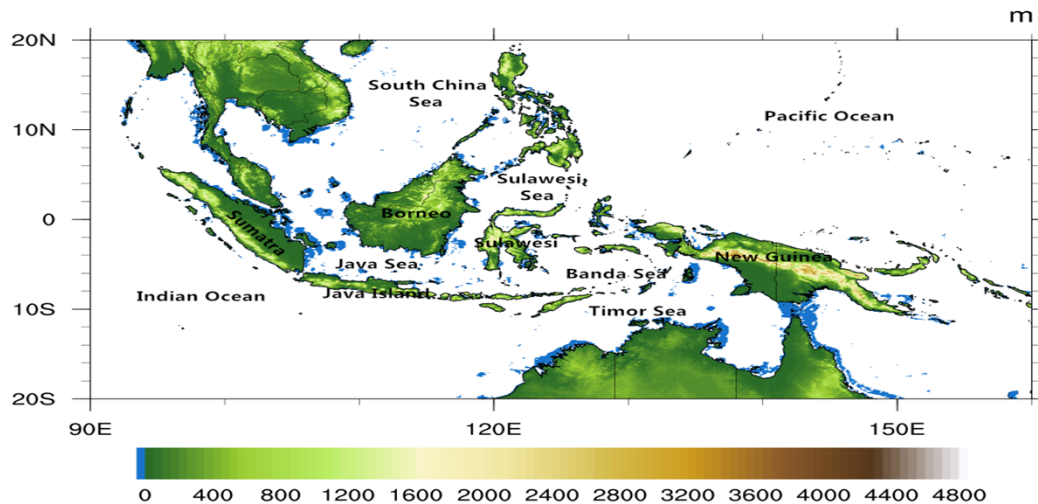
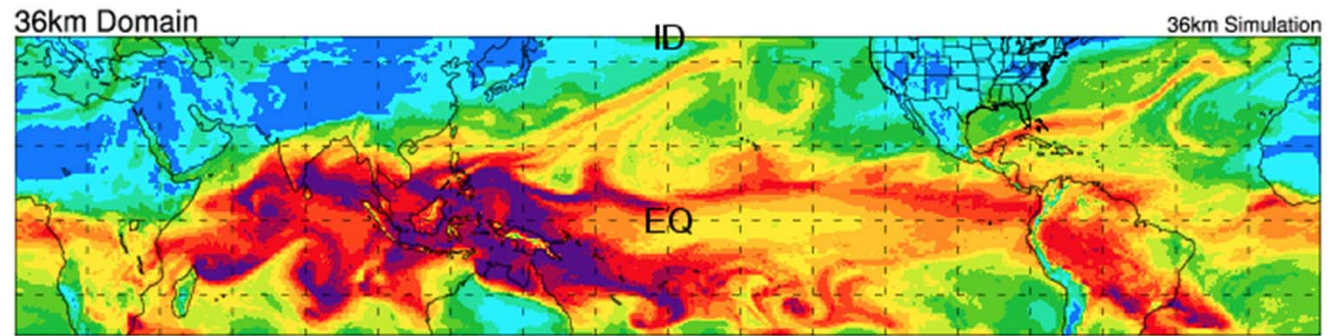
Tropical Climate Dynamics

Intraseasonal Oscillation

Regional Climate Modeling

Surface Energy Budgets

Urban Climate



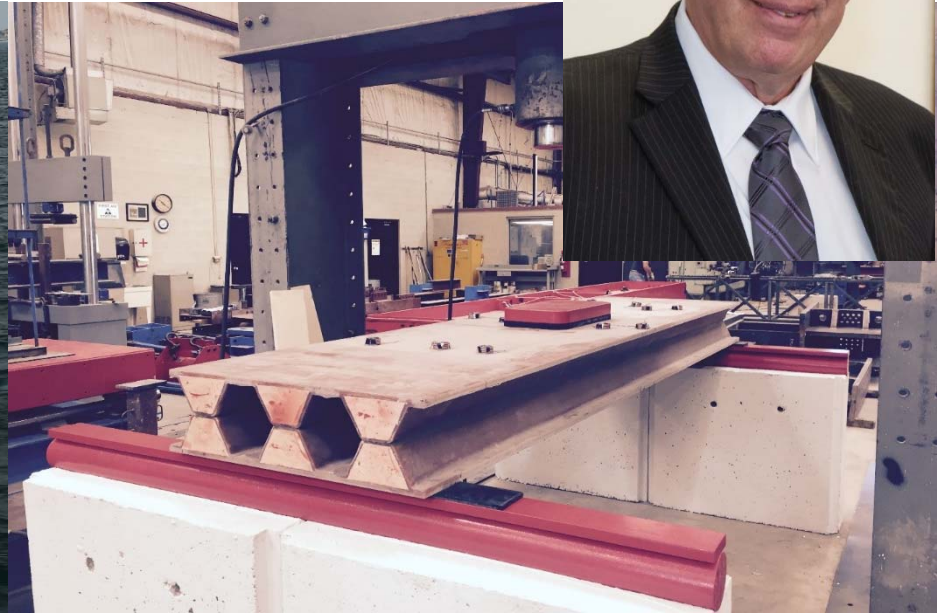
Emily Ralston

Biological invasions, invertebrate settlement and recruitment, biomimicry, field testing, ecology and biology of fouling communities



Ronnal Reichard

Composite Materials and Structures



Prasanta K. Sahoo

Associate Professor

Naval Architecture

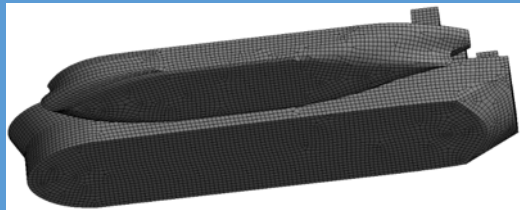
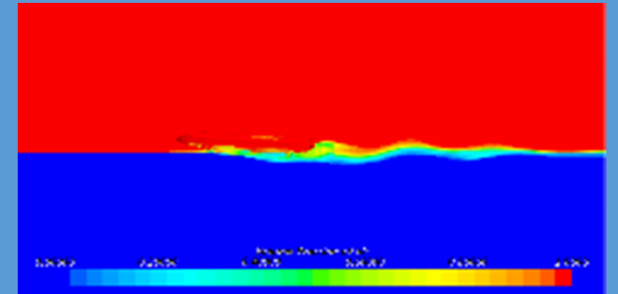
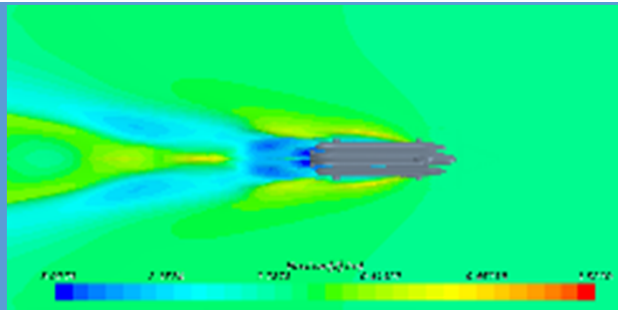
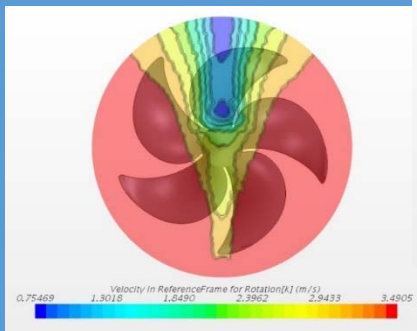
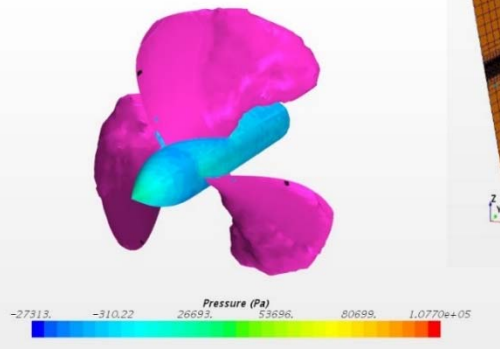


Fig.2. Coupled model of the FPSO and shuttle tanker

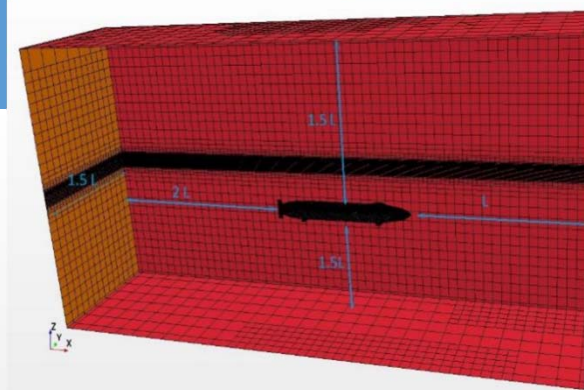
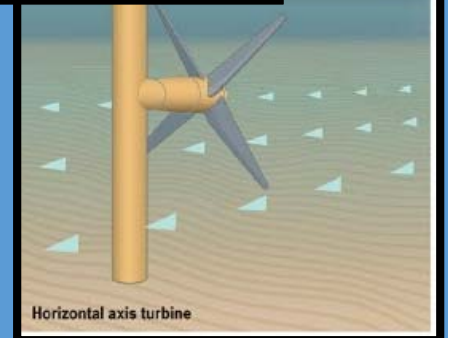
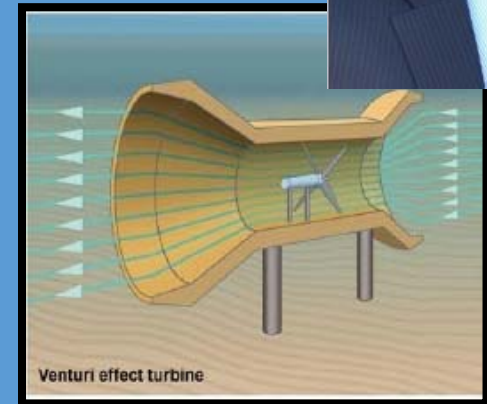
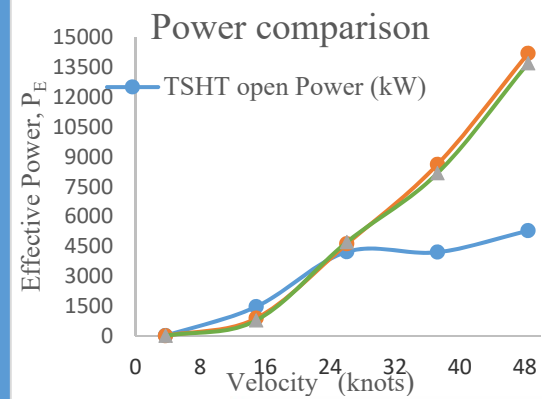
Hydrodynamics of side-by-side Offloading Operation



Wake field behind a highly skewed propeller



Propeller Cavitation through CFD





Geoff Swain

Ocean Engineering

Materials, Corrosion, Biofouling

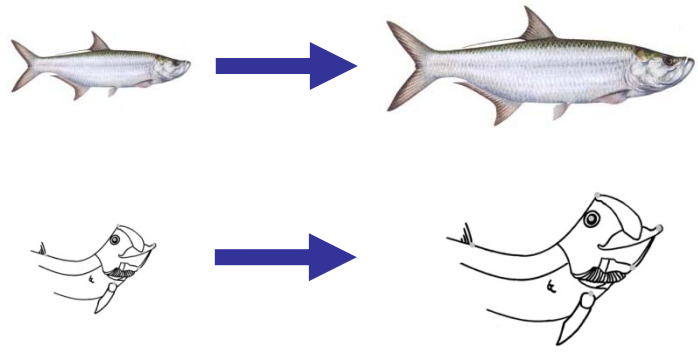
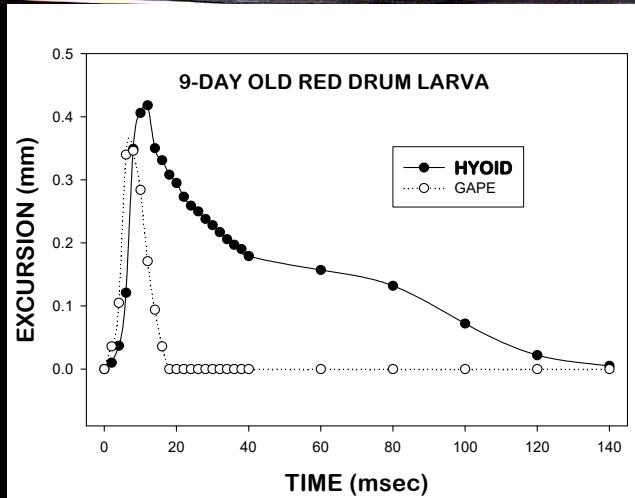
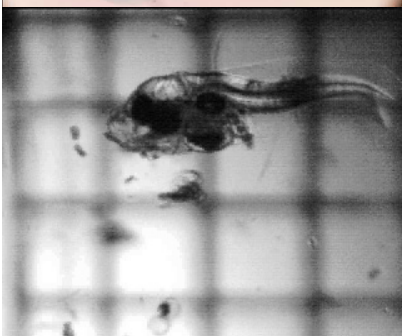
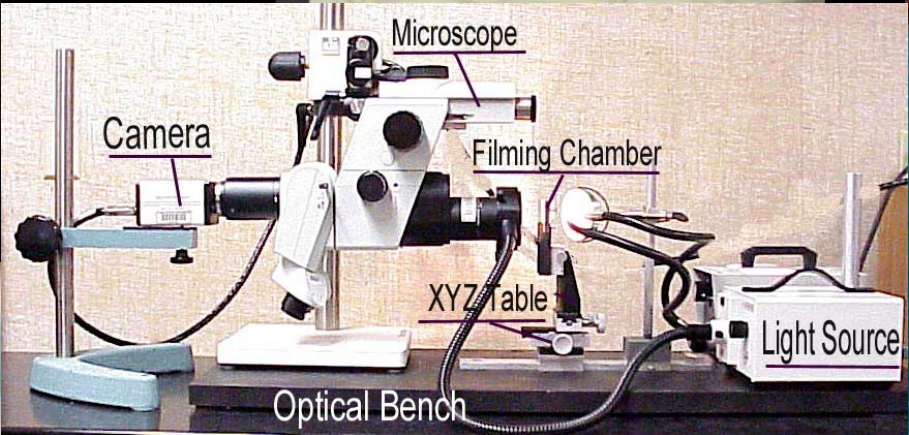
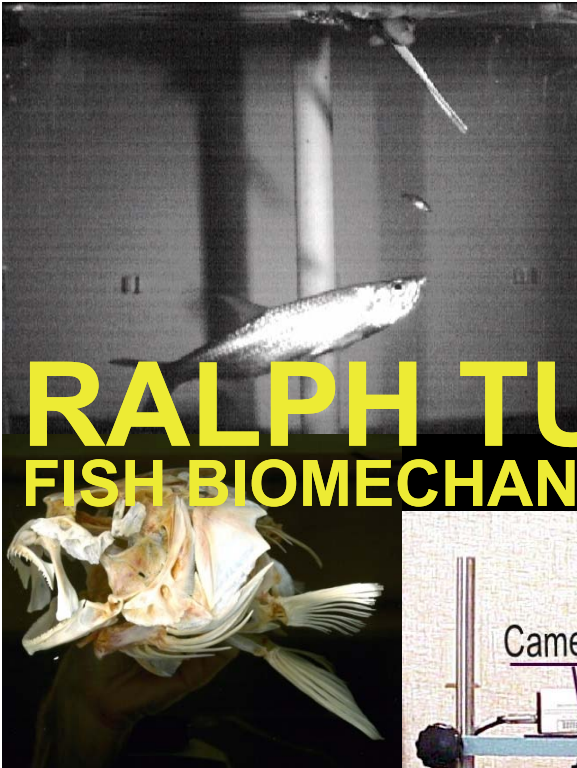
Ships, Boats, Oil and Gas, Renewables, Subsea,
Ports and Harbors, Aquaculture



Radiance of the Seas
Victoria Shipyard, BC

RALPH TURINGAN

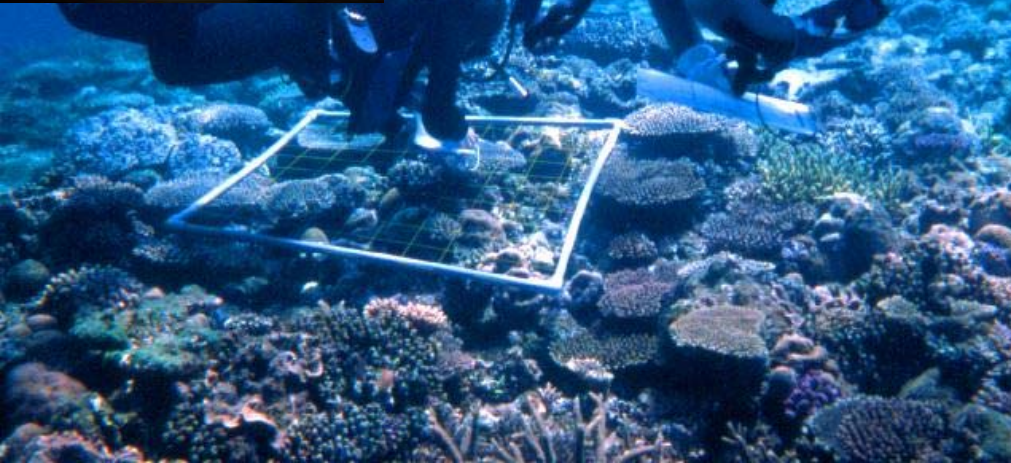
FISH BIOMECHANICS AND EVOLUTION



ROBERT VAN WOESIK

CORAL REEF ECOLOGY

DIRECTOR, INSTITUTE FOR RESEARCH
ON GLOBAL CLIMATE CHANGE

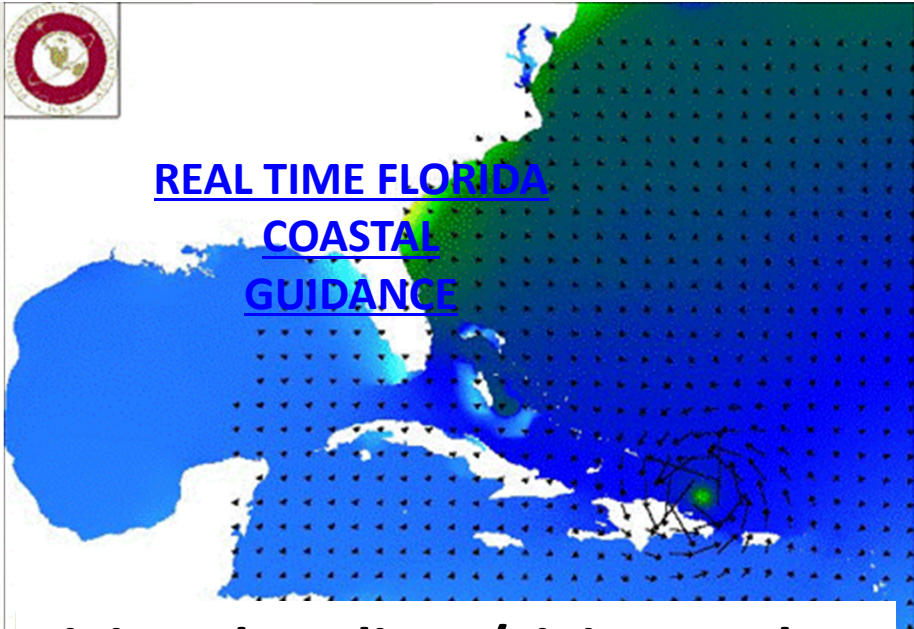


Robert J. Weaver

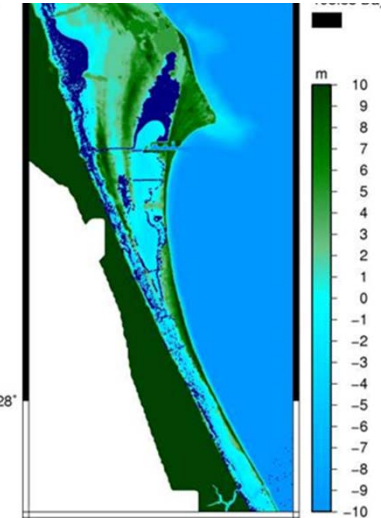
Associate Professor of Ocean Engineering



Real-Time Forecasting of Waves & Storm Surge



Modeling IRL Flushing:



Living Shorelines/Living Docks:



Outreach & Education:



Muck removal:

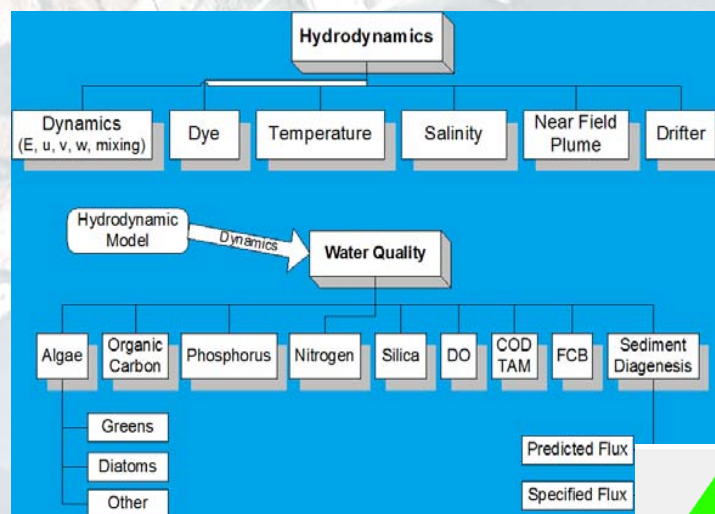


Stephen Wood – Professional Engineer Professor of Ocean Engineering

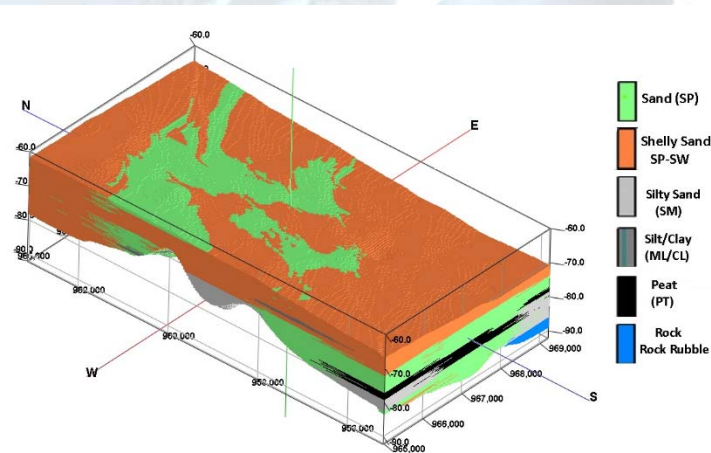
- Autonomous Underwater Vehicles
- Remotely Operated Vehicles
- Ocean Energy
- Underwater Technologies



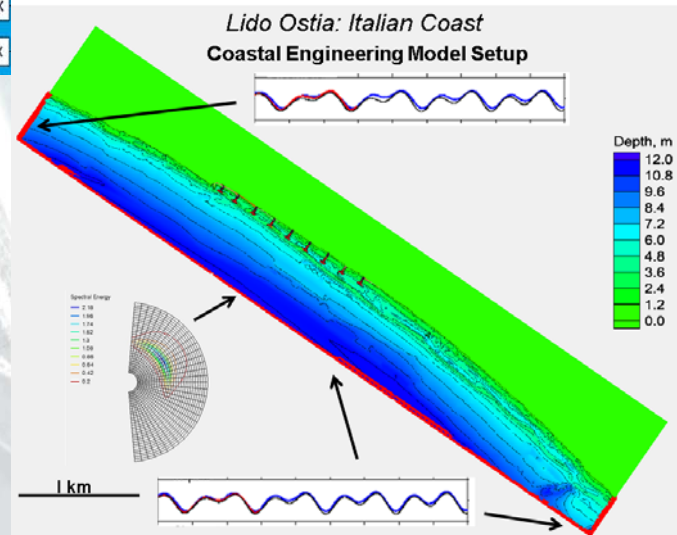
Gary A. Zarillo, Ph.D., PG
Professor of Oceanography
 Coastal and Estuarine Processes
 Coastal Sedimentary Environments
 Coastal Zone Management
Estuarine Dynamics and
Water Quality Models



Shallow Marine
Sediment Resources



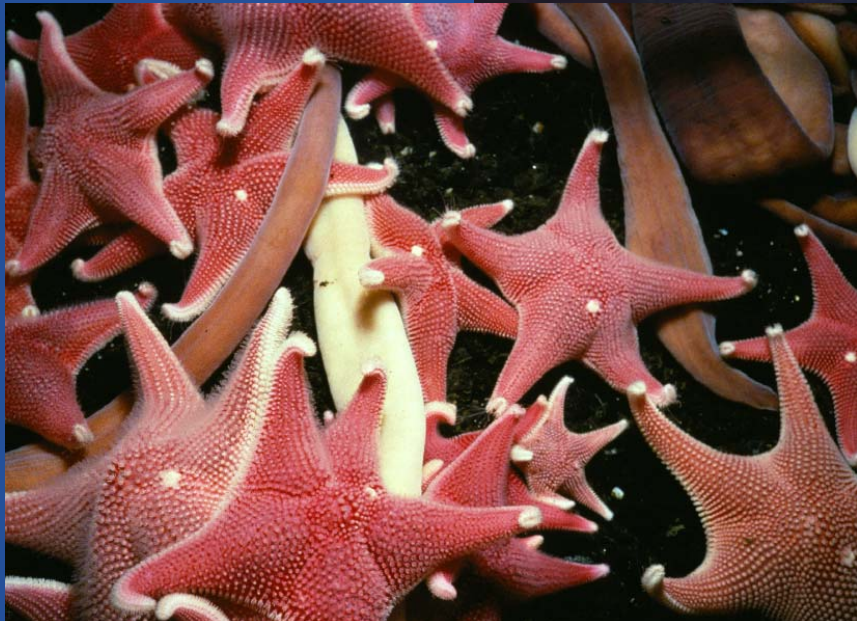
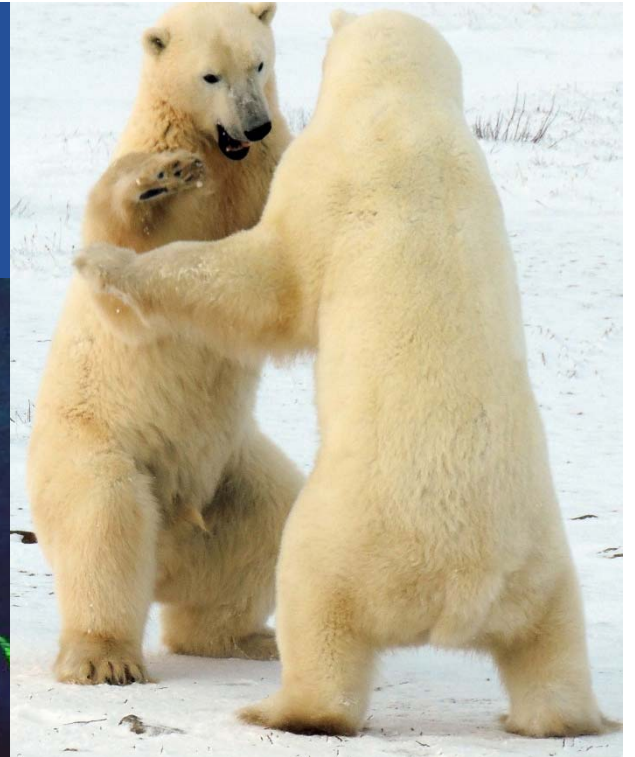
Coastal Engineering
Modeling





RICH ARONSON

Department Head



Climate Change
Coral Reefs
Polar Ecology

What You Get

- **Highest-quality education.**
 - World-class ocean science and engineering.
 - Excellent grounding in chemistry.
 - Excellent grounding in mathematics.
- **Small class sizes.**
- **Individualized attention from senior faculty.**
- **Advice and help from faculty on life after college, be it landing a job or finding the right graduate program.**
- **Opportunity and encouragement to get involved in cutting-edge research and design.**

Undergraduate Research

- **Courses in UG research**
- **Marine Field Projects and summer field courses**
- **Federal Work-Study program**
- **Some College Roll opportunities**
- **Opportunities for volunteer work**
- **Approach faculty who share your interests.**

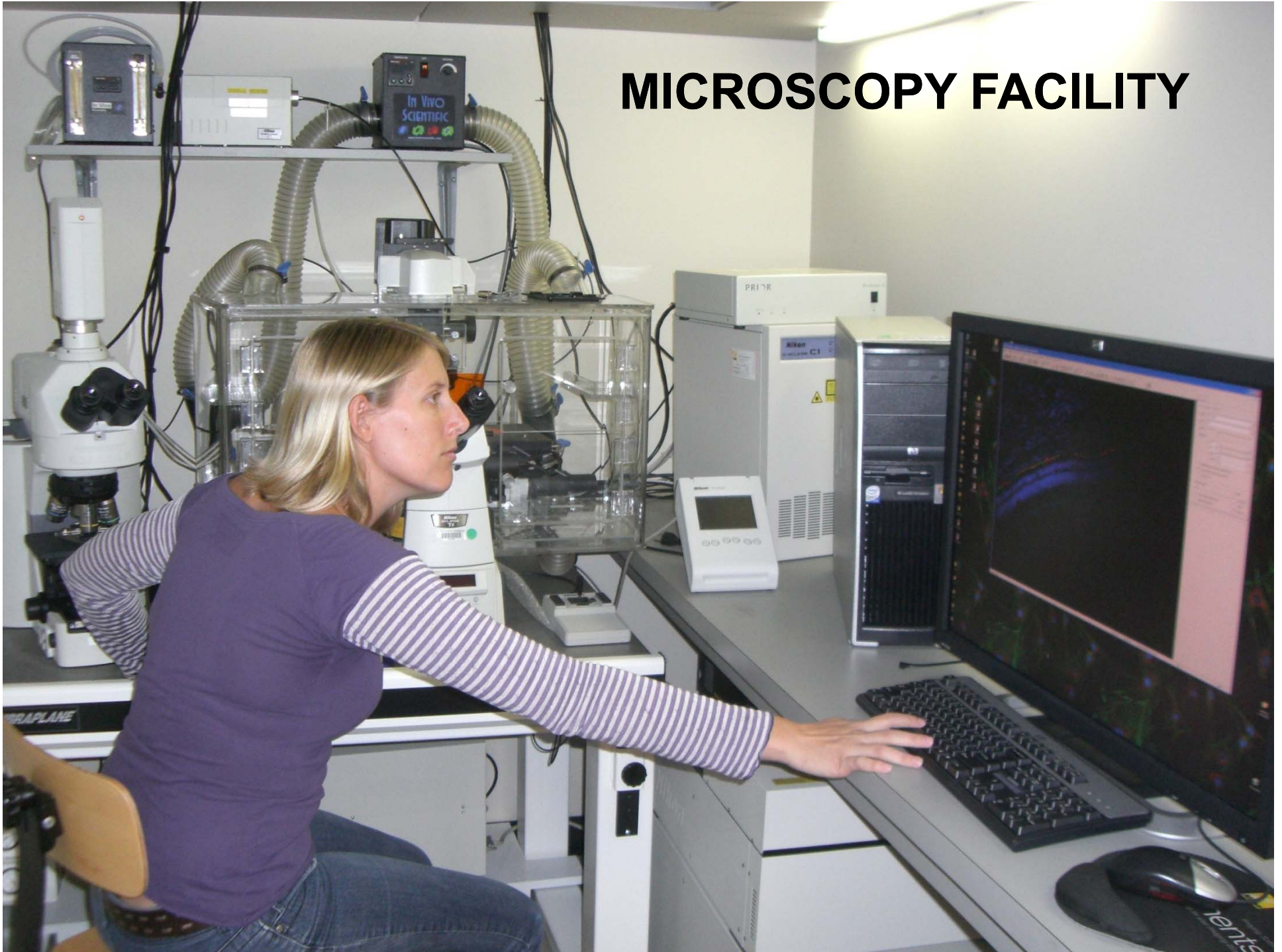
Evinrude Marine Operations Center



Florida Tech Aqualab



MICROSCOPY FACILITY



Peru



SUMMER FIELD COURSES



Puerto Rico



Galapagos



Oregon Coast



Friday Harbor, WA



Florida

Marine Field Projects

**Ocean Engineering, Oceanography
Environmental Science**

- **Research and design projects as you move into and through your senior year.**
- **Ocean Engineering: summer session; option during academic year too.**
- **Environmental Science, Oceanography: academic year; option during summer.**
- **Oceanographic cruise in the summer for all students.**
- **Field projects and the field courses are highlights of a Florida Tech education!**

Industrial Internships

**Ocean Engineering, Oceanography
Environmental Science**

- **Faculty have excellent contacts with local industry.**
- **Chat with your advisor.**
- **You may be able to receive credit through Florida Tech's Pro-Trak program.**

Industrial Internships

**Ocean Engineering, Oceanography
Environmental Science**

Many students have internships and part-time jobs at local tech companies:

- **Northrup Grumman (ME, AE, EE, OE)**
- **Harris Corp (ME, AE, EE, OE)**
- **Rockwell Collins (ME, AE, EE, OE)**
- **Larsen Motorsports (ME, OE)**
- **Structural Composites (OE)**
 - **President is OE Alum**
- **Matrix Composites (ME, OE)**
 - **President is OE Alum**



**Diving at Florida Tech:
SCUBA Club
AAUS**

AAUS Program

Requires Advanced Scuba Cert.

Contacts:

Tim Fletcher, DSO

Dr. Jon Shenker, this Department

YOUR RIGHTS

- **A world-class education in a nurturing environment.**
- **Fair, unbiased treatment.**
- **Access to advisors:**
 - **Your First- / Second-Year Advisor OR**
 - **Your Student Coordinator AND**
 - **Your Academic Advisor**
- **Instruction and facilities to complete your degree in a timely fashion.**
- **Career advice from your Academic Advisor and others.**

YOUR RESPONSIBILITIES

- **Academic excellence.**
- **Managing your schedule and generally taking charge of your life.**
- **Accessing your faculty advisor.**
- **Timely and satisfactory completion of your assignments.**



YOUR RESPONSIBILITIES

- **Academic excellence.**
- **Managing your schedule and generally taking charge of your life.**
- **Accessing your faculty advisor.**
- **Timely and satisfactory completion of your assignments.**
- **Academic honesty and personal integrity.**

PLAGIARISM

Copying the work of others and presenting it as one's own. Plagiarism includes *but is not limited to:*

- Copying text verbatim from other publications without quotation marks or attribution.
- Copying text from other publications and changing a few words without attribution.
- Copying images without attribution.
- Repeating another person's concepts or ideas in a paper without attribution.
- Submitting papers purchased from websites or other sources.
- Copying anything from fellow students in written exams or papers (i.e., cheating).

More information is available on the Florida Tech website:
www.fit.edu/current/documents/plagiarism.pdf

The penalties for plagiarism are severe!

When in doubt, consult your instructor!

SOME ADVICE

- Work hard and manage your time wisely.
- Be proactive about your education.
- You will learn as much outside the classroom as inside.
- Sign up for the OEMS student listserve (see next slide).
- Check your Florida Tech email account every day. We will not send email to another account.
- Your classes cost **\$1.71 per minute**. Don't waste your education and your money sitting in class playing with your phone!

Departmental Listservs

- **Everyone should subscribe to the main listserv: oems@lists.fit.edu**
- **Subscribe to more specific listservs as appropriate.**

Departmental Listservs

oes@lists.fit.edu

ALL OEMS programs (the list for department wide posts, e.g. picnic). **To subscribe send email:**

to: sympa@lists.fit.edu

subject: subscribe oems firstname lastname

marsci@lists.fit.edu

Marine and Conservation Bio, Ecology, Aquaculture. **To subscribe send email to:**

to: sympa@lists.fit.edu

subject: subscribe marsci firstname lastname

oes@lists.fit.edu

Meteorology, Oceanography, Enviro Sci, Ocean Engineering. **To subscribe send email (no subject):**

to: oes-subscribe@lists.fit.edu

fitscams@lists.fit.edu

Meteorology only. **To subscribe send email (no subject):**

to: fitscams-subscribe@lists.fit.edu

Lists owner: Dr. Lazarus

Social Media

<https://www.facebook.com/pg/FLTechOEMS/about/>

https://www.instagram.com/oems_floridatech/?hl=en

https://twitter.com/ocean_florida

FLORIDA INSTITUTE OF TECHNOLOGY
MARINE BIOLOGICAL SOCIETY
Working for a Marine Biology that is Stimulating, Engaging and Meaningful
 Department of Biological Sciences, Florida Institute of Technology, 150 West University Boulevard, Melbourne, FL 32901

MISSION

- (1) to establish a Big-Brother-Big-Sister program among marine biology majors;
- (2) to conduct workshops on how to get an internship, an undergraduate-research grant, a professional job, admitted to graduate school, etc;
- (3) to encourage marine biology majors to get engaged in research (field- and laboratory-based), marine-sciences education (INCLUDING field trips), conference presentation and scientific publication early;
- (4) to showcase undergraduate-marine biology projects and activities prospective students who visit our campus, etc.

Marine Biological Society

Dr. Ralph Turingan, Advisor





Beta Beta Beta

the national biological honor society



- Open to all students with an interest in biology and reasonable grades
- Exciting activities: camping, deep-sea fishing, snorkeling local reefs, cookouts, behind-the-scenes zoo & research center tours
- Grants (\$\$\$) to fund your research
- Quarterly journal (you can publish your research!)
- Regional and National conferences (with awards!)
- Honor cords and medallions for graduation
- Contact Dr. Glenn Miller (millerg@fit.edu)



Society of Ocean Engineers

- ▶ Open to all students with a passion for the ocean
- ▶ Discounts on memberships in SNAME (Society of Naval Architects and Marine Engineers) and MTS (Marine Technology Society)
- ▶ Attend national conferences
- ▶ Scholarships awarded, Internships, and career opportunities
- ▶ We host a round table every April with industry professionals attending
- ▶ Email Eric Thomas at ethomas2016@my.fit.edu for more information
- ▶ Follow us on Instagram at [soe_florida_tech](#) and on Facebook at [Society of Ocean Engineers_Florida Tech](#)



Other Organizations

- **American Meteorological Society**
 - Dr. Steven Lazarus, advisor
- **Florida Academy of Sciences**
 - Dr. Richard Turner, advisor
- **Sero Society (Plant Biology)**
 - Dr. Andrew Palmer, advisor
- **Sailing Club**
 - Dr. Ingrid Bradly, advisor
- **Surfing Club**
 - Dr. Robert Weaver, advisor
- **Student Organization for Sustainability Action**
 - Dr. Kenyon Lindeman, advisor

Information We May Release to Parents

- **Restricted because of Federal privacy laws.**
- **Does not matter who is paying the bills.**
- **Waiver forms available right here. Turn in form to us or the Registrar.**

Seminar Series

- **Wednesdays throughout the academic year.**
- **4:00 PM – 5:00 PM.**
- **Topics tuned to undergraduate, graduate, and faculty levels.**
- **Announced through the list-serve.**
- **Find out what's going on in research inside your Department and all over the world!**

B.S. Marine Biology multi-year average

- **58% employed.**
 - **33% of these graduates started at \$40,000 or higher.**
- **35% continued on to graduate school (M.S. or Ph.D.).**
- **7% doing other things (traveling, raising family, etc.)**

B.S. Ocean Engineering multi-year average

- **~80% employed.**
 - **Starting salaries generally \$60–100K, depending on location.**
 - **Most students in Ocean Engineering have jobs by the end of fall semester of the senior year.**
- **~20% continued on to graduate school.**

Fast-Track Program

- **A fifth-year master's program.**
- **Minimum GPA requirement of 3.4.**
- **Take some graduate courses in senior year.**
- **Most are non-thesis (professional) M.S.**
- **Plan with your advisor in your junior year.**

Welcome to the Family!

Rich Aronson
Head of Department

