

Proceedings of the 7th Tampa Bay Area Scientific and Information Symposium

Table of Contents

Introduction to the Proceedings of the 7th Tampa Bay Area Scientific and Information Symposium (pages 29-31)

Marcus W. Beck

Session 1: Community-based science

Abstracts (pages 32-34)

Living local: an agricultural education project for students and the community

Liz Wist and Chandler Joiner

Waif gopher tortoise in habitat restoration

Erica Moulton and Evelyn Medina

Using localized Twitter activity for red tide impact assessment

Andrey Skripnikov

It can be done! Increasing the quality, usability and distribution of community science data

Jill Carr

Session 2: The unseemly unseen: tracking contaminants in our bays and estuaries

Assessing the benthic impacts of the Piney Point discharge (pages 35-49)

Rebekka Larson, Patrick Schwing, Cassandra Guzman, Dan Rivera, Daisy Wischmeyer, Jodi Murray, Rafael Quiambao, Steven Murawski, and Gregg Brooks

Quantifying the benefits of Barataria-Terrebonne National Estuary Program watershed restoration Using a home sewage assistance program (pages 50-59)

Andrew Barron and Siva Nunna

Abstracts (pages 60-61)

Indian River Lagoon National Estuary Program: Developing a framework and cultivating new partners to identify and advance innovative technology in the clean water industry sector.

Duane E. De Freese

Microbial source tracking in the Lower Passaic River Basin, New Jersey

Elizabeth Balladares and Pam Reilly

Are PFAS compounds a significant threat to Tampa Bay?

Erin Pulster

Session 3: Harmful algal blooms

***Pyrodinium bahamense* bloom dynamics in Old Tampa Bay, FL, with a focus on Feather Sound (pages 62-71)**

Cary B. Lopez, Sugandha Shankar, Sara G. Kaminski, and Katherine A. Hubbard

Toxicity of *Pyrodinium bahamense* cells and resting cysts in Tampa Bay, Florida (pages 72-81)

Sugandha Shankar, Cary B. Lopez, Sara G. Kaminski, Katherine A. Hubbard, and Leanne J. Flewelling

Abstracts (pages 82-84)

Investigations in *Karenia brevis* bloom-benthos coupling in the coastal west Florida shelf region

Patrick Thomas Schwing, Matt Garrett, Bryan O'Malley, Rebekka Larson, Gregg Brooks, Daisy Wischmeyer, Rafael Quiambao, and Daniel Rivera

Using Geocollaborate® to integrate and communicate data on harmful algal blooms for enhanced communication, coordination, and collaboration

Charles Jacoby, Dennis Hanisak, David Jones, Ellen Prager, Duane De Freese, Kathy Hill, Daniel Kolodny, and Kirstin Ayres

Tampa Bay coastal ocean model applications

Robert Weisberg

Dynamics of nanophytoplankton and other HABs in the Indian River Lagoon

Eric Muhlbach, Cary Lopez, Josée N. Bouchard, Charles L. Tilney, Maria Célia Villac, Karen Henschen, Laura Markley, Stephanie Keller Abbe, Matthew Garrett1, Sugandha Shankar, Leanne Flewelling, Susan Badylak, Edward Philips, Lauren Hall, Margaret Lasi, Richard Paperno, Doug Adams, Karen Vaughan, Dwayne Edwards, Jacob Schneider, Kyle Wald, Autumn Biddle, Shawna Landers, Colin Shea, and Katherine A. Hubbard

Session 4: Debris monitoring

Extended Abstracts (pages 85-103)

Implementing trash free waters in Tampa Bay

Joseph Whalen

Microplastic sampling in Delaware Bay: observations and models

Julia Fontana, R. Alan Mason, Tobias Kukulka, and Jonathan Cohen

Monitoring microplastics in Tampa Bay

Nicole Vandale, Shannon Gowans, and Amy N.S. Siuda

Reduction in residence - an analysis of single-use plastic reduction methodologies on a coastal college campus

Trisha F. Schranck, Angelina Kossoff, Evan Bollier, Shannon Gowans, and Amy N.S. Siuda

Challenging single-use plastic behavior: a pilot study

Hollie Minichiello, Juliette Hill, Heather Truelove-Barnes, Erin Largo-Wight, Jesse Sherry, Kelly Debure, Shannon Gowans, and Amy N.S. Siuda

Abstracts (pages 104-106)

Using data to drive litter abatement programs

Don Bates

Using geospatial analyses of landscape, land uses, hydrology, and demographics to guide Dog River Watershed (AL) trash abatement efforts

Tom Herder, Roberta Swann, Kelley Barfoot, and Jason Kudulis

Collecting, analyzing, and reporting microplastics in environmental media:

Lessons learned from comprehensive monitoring of San Francisco Bay

Ezra Miller, Meg Sedlak, Diana Lin, Carolyn Box, Christopher Holleman, Chelsea M. Rochman, and Rebecca Sutton

Effects of urban runoff and hydrological seasonality on plastic transport in the Hillsborough River

Mauricio E. Arias, Charlotte J. Haberstroh, Zhewen Yin, and Michael Cai Wang

Ditch the disposables campaign takes first steps in eliminating single-use items from restaurant waste streams

Madison Blanchard

Session 5: Fish conservation, monitoring, and management

Sport fish abundance trends in changing estuaries: the importance of spatiotemporal size refuges (pages 107-119)

Meagan N. Schrandt, Jonathan A. Peake, and Timothy C. MacDonald

Nekton communities associated with natural and artificial hard bottom habitats in a subtropical estuary on the Florida Gulf of Mexico coast (pages 120-140)

Kerry E. Flaherty-Walia, B. Jamie Williams, Brittany Bottom, Sean F. Keenan, Brent L. Winner, Philip W. Stevens, Timothy C. MacDonald, and Theodore S. Switzer

Using multiple approaches to study the historical and current population of smalltooth sawfish in the Tampa Bay region of Florida (pages 141-158)

Tonya R. Wiley, Adam B. Brame, and Andrea M. Kroetz

Abstracts (pages 159-161)

Habitat preference for juvenile common snook and red drum in Tampa Bay rivers

Kara R. Radabaugh, C. Scott Adams, Savanna Hearne, Christine Russo, Sam Roussopoulos, Ryan P. Moyer, and Deborah L. Leffler

An innovative way to provide fish passage while retaining an old mill pond

Roman Jesien and Katherine Phillips

When competing conservation priorities stymie conservation progress: pike-minnow and steelhead in the Morro Bay Watershed

Carolyn Geraghty

Session 6: Shellfish

Lessons learned on clam restoration in Sarasota Bay (pages 162-167)

Ernesto Lasso de la Vega

Effect of short-term exposure of toxic *Pyrodinium bahamense* on the clearance rate of eastern oysters (pages 168-176)

Sara Garcia Kaminski, Cary B. Lopez, Sugandha Shankar, and Stephen P. Geiger

Abstracts (pages 177-179)

Bay scallop restoration in Tampa Bay: evaluating larval release as an effective strategy

Shelby Thomas

Oyster density on varying artificial reef substrates and elevations in Tampa Bay, Florida

Savanna Hearne, C. Scott Adams, Kara R. Radabaugh, Emily Ritz, Christine Russo, Eric Plage, Serra Herndon, Gary E. Raulerson, and Ryan P. Moyer

Following watershed management plan recommendations to eradicate the island apple snail from the Langan Park Lakes in Mobile, Alabama

Tom Herder

Session 7: Planning for climate change

Nature-based shoreline treatments - how resilient are these approaches? (pages 180-189)

Thomas Ries, Bryan Flynn, Serra Herndon, and Eric Plage

A simple machine learning approach to modeling sanitary sewer overflows in southern Pinellas County, FL (pages 190-198)

Steven Meyers, Mark Luther, Shawn Landry, and Marcus W. Beck

Relevance of ongoing mitigation efforts to reduce Indian River Lagoon water quality impairment and restore ecosystem function under conditions of a changing climate (pages 199-210)

Randall W. Parkinson

Abstracts (pages 211-213)

Virtualization technologies for interpreting anthropogenic risks to natural and cultural resources at Egmont Key

Brooke Hansen, Laura Harrison, Samantha Vorce, Sophia Annis, and Richard Sanchez

Blue carbon stocks in southwest Florida mangroves and salt marshes

Kara R. Radabaugh, Ryan P. Moyer, David Lagomasino, Brad E. Rosenheim, Lisa G. Chambers, Amanda R. Chappel, Emma E. Dontis, Joshua L. Breithaupt, and Joseph M. Smoak

Blue carbon dynamics in stressed and restored mangrove habitats in Tampa Bay

Kara R. Radabaugh, Emma E. Dontis, Amanda R. Chappel, Christine R. Russo, and Ryan P. Moyer

Session 8: Coastal acidification

Coastal acidification trends and controls in a subtropical estuary, Tampa Bay, Florida, USA (pages 214-228)

Kimberly K. Yates, Christopher S. Moore, Mitchell K. Lemon, Ryan P. Moyer, David Tomasko, Rob Masserini, and Edward Sherwood

Abstracts (pages 229-232)

Coastal acidification monitoring in the U.S. EPA National Estuary Program

Nicholas Rosenau and Holly Galavotti

A survey of spatial and temporal carbonate system variations in four major rivers of Tampa Bay

Christopher S. Moore

Monitoring coastal acidification in the Indian River Lagoon, Florida

M. Dennis Hanisak

The effects of reduced pH on the reproductive success of the Florida stone crab

Philip Gravinese and Morgan Jarrett

Do pH variable habitats provide refuge for stone crabs from ocean acidification?

Morgan Jarrett and Philip Gravinese

Session 9: Development, growth, and land use change

Tampa Bay topobathymetric lidar: lidar and shoreline mapping updates (pages 233-240)

Alvan Karlin and Emily S. Klipp

Comparative geospatial analyses of riparian vegetation changes in the Alafia River and Little Manatee River (pages 241-254)

Doug Robison, Robert McConnell, Robert Woithe, Brett Solomon, and Suzanne Goldstein

A look back at long-term trends in nitrogen loading to Tampa Bay (pages 255-263)

Anthony J. Janicki, J. Raymond Pribble, Hans Zarbock, and David Wade

Applicability of fluorescence transect data in the assessment of flow-phytoplankton relationships in the Lower Alafia River (pages 264-275)

Kristin Maki Jenkins, Mike R. Wessel, Robert Woithe, Emily Keenan, and Robert McConnell

Extended abstracts (pages 276-279)

The community playbook for healthy waterways: Strategic planning for holistic community action

Jennifer Shafer

Abstracts (page 280)

Watershed planning: setting the stage for restoration in coastal Alabama

Christian Miller

Session 10: Episodic and catastrophic events

Ship wakes in Tampa Bay and their potential shoreline impacts (pages 281-287)

Mark Luther, Steven Meyers, Stephanie Ringuet, Ed Sherwood, Katie Conrad, and Gianfranco Basili

Coordinated monitoring of the Piney Point wastewater discharge into Tampa Bay: Data synthesis and reporting (pages 288-300)

Marcus W. Beck, Maya C. Burke, Gary E. Raulerson, Sheila Scolaro, Edward T. Sherwood, and Joe Whalen

Ecological impacts to Sarasota Bay from Piney Point discharges - examining the evidence (pages 301-313)

David Tomasko

Separating catastrophe from the norm: detecting extremes and resilience thresholds (pages 314-323)

Mark S. Fonseca

Extended abstracts (pages 324-329)

Florida red tide impact and response for Tampa Bay and Sarasota Bay

Jennifer Shafer

Abstracts (page 330)

The hangover effect: Seagrass loss and macroalgal growth in Charlotte Harbor following the 2017-2018 red tide event

Chris J. Anastasiou

Session 11: Managing and mapping marine macrophytes

Seagrass areal cover in Tampa Bay over the last 30 years (1990-2021) observed by satellites (pages 331-338)

Luis Lizcano-Sandoval, Dan Otis, Enrique Montes, and Frank Muller-Karger

Piney Point, seagrass, and macroalgae: impact assessment and a case for enhanced macroalgae monitoring (pages 339-345)

Sheila Scolaro, Marcus W. Beck, Maya C. Burke, Gary E. Raulerson, and Edward T. Sherwood

Sediment tube implementation for restoration and extensively proppellar scarred *Thalassia* meadows (pages 346-359)

Renee Price, David Loy, Don Deis, Scott Zengel, and Jonathan Brucker

Abstracts (pages 360-361)

Macroalgae in Florida's estuaries: current status and future directions of macroalgae research, monitoring, and management in four national estuaries

Darcy Young

Combating eelgrass restoration uncertainty with data, iteration, and partnership: in the field in Morro Bay, California

Carolyn Geraghty

New approaches in seagrass mapping: engaging community scientists and assessing remote sensing accuracy

Jill Carr

Session 12: Ecosystem services

Establishing a community of practice for tidal creek research using conceptual models and open science (pages 362-369)

Mike R. Wessel, Marcus W. Beck, Edward T. Sherwood, Ernst B. Peebles, and Emily Hall

Abstracts (pages 370-372)

Long-term trends in the benthic macroinvertebrate community of Tampa Bay

David Karlen

The economic importance of estuaries in the US

Hilary Stevens

The importance of branding in communicating identity, activities and complex science: Indian River Lagoon National Estuary Program case study

Kathy Hill and Bob Allen

A framework for setting long-term environmental targets for MassBays

Prassede Vella

Session 13: Novel restoration techniques

The role of project design in environmental resource permitting for the new St. Petersburg pier (pages 373-381)

Brandon Johnson

Abstracts (pages 382-385)

Evaluating natural 'capital' as an economic driver

Nicole Iadevaia

Assessing the recovery and restoration effectiveness within two southeast Florida mangrove forests

Megan Osgood, Ryan P. Moyer, Erin McDevitt, Lorae T. Simpson, Kara R. Radabaugh, C. Scott Adams, Savanna Hearne, and Marbelys Garriga

Lessons learned and improvements in methodology utilizing hydroblasting to create mangrove and saltern habitat without impacts associated with heavy equipment

Beau Williams and Kiel Johnson

Watershed management plan implementation in the D'Olive Watershed in Baldwin County, Alabama

Jason Kudulis

The Manatee County Coastal Watershed Program

Greg Blanchard

Poster session

Remote sensing of harmful algal blooms in the Indian River Lagoon and connected waterways in Brevard County (pages 386-399)

Andrew Kameronosky, Claudia Listopad, and Virginia Barker

Long-term water quality trends in Tampa Bay (1974-2020) (pages 400-408)

David J. Karlen, Kevin Campbell, Tom Ash, Barbara Goetting, Chris Pratt, Ethan Mathiak, and Michael Schuman

Created mangrove forest succession, pioneer species, and chronosequence assessment in Tampa Bay, Florida (pages 409-420)

Sofia McNally, Jeannine Lessmann, Ashley McDonald, and Chelsea Duca

Importance of residence time considerations in effects of nutrient loadings to Tampa Bay (pages 421-428)

J. Raymond Pribble and Anthony J. Janicki

Abstracts (pages 429-437)

How will seawater pH affect stone crabs? A guided inquiry lesson for high school

Abigail L. Smith

Titusville causeway multi-trophic shoreline restoration and resilience action project

Chad Allen Rischar and Jim Anderson

Robinson Preserve: creating sport fish nursery habitat at the edge of urbanization

Courtney Saari

***Enterococcus faecalis* and *Staphylococcus aureus* quantities during high and low precipitation events in Tampa Bay**

Ella Hampson

Oyster reef mapping and ground truthing in Tampa Bay and the Big Bend of Florida

Ryan P. Moyer, Emily A. Ritz, Kara R. Radabaugh, C. Scott Adams, and Savanna N. Hearne

Clam restoration in Sarasota Bay

John Ryan, Ernesto Lasso de la Vega, and Ronda Ryan

A rapid assessment of tidal wetlands in the Maryland coastal bays' watershed

Katherine Phillips

Occurrence of *Vibrio* spp. as a source of marine contamination and the relationship between *Vibrio* spp. and zooplankton

Margaret Baker

Long-term avian monitoring of west-central Florida coastal islands

Mark Rachal

Uniting partners and resources to protect central and southwest Florida's future water, wildlife, and habitat

Nicole Iadevaia

Understanding the seaward expansion of red mangroves (*Rhizophora mangle*) on eastern oysters (*Crassostrea virginica*) in a subtropical estuary

Noreen Mathews, Susan Bell, and Stephen Hesterberg

Floating platform provides nesting habitat for common terns in Maryland's coastal bays

Roman Jesien

Climate drives 'cascading' regime shifts across estuarine ecosystems: historic oyster reef to mangrove transition in Tampa Bay

Stephen G. Hesterberg, Kendal Jackson, and Susan S. Bell

The National Estuary Program is playing a major role in tackling nutrient pollution

Cass Nieman

Soil bulk density and total organic matter change with increasing age of created mangrove forests in Tampa Bay, Florida

Jeannine M. Lessmann, Shannon Walsh, Rachel Biton, and Celina Ceballos

Florida species and habitat monitoring programs catalog (Terra-CAT)

Amanda Christiansen and Jamie Richardson

Tampa Bay restoration and *Pyrodinium bahamense* bloom dynamics: filling knowledge gaps to enhance estuary recovery

Marcus Beck, Maya Burke, Anthony Janicki, Sara Kaminski, Cary Lopez, Ray Pribble, Gary Raulerson, Sugandha Shankar, and Ed Sherwood