2023 ANNUAL REPORT
UF Aquatic Animal Health Program's 2023 Annual Report presents accomplishments for the 2023 fiscal year, from July 1, 2022-June 30, 2023
As we reflect on the accomplishments and endeavors of the past year, the Aquatic Animal Health Program is proud to present the Annual Report for 2023. This report highlights our dedicated team's achievements in research, education, outreach, and fieldwork within the field of aquatic animal health. We continue to make significant contributions to marine mammals, as well as advancing our understanding of aquatic animals and their environments. In 2023, our program's faculty, students, and staff have displayed unwavering dedication to excellence in the field.

Our research efforts have yielded groundbreaking discoveries and scientific contributions, showcasing the depth of our commitment to aquatic animal health. Notably, we have identified the first case of highly pathogenic avian influenza virus (HPAIV) in an American dolphin, which has significant implications for cetacean health and public safety. Additionally, our research has played a critical role in unraveling the mystery behind the long-spined sea urchin die-off, an issue of great ecological concern.

In the realm of education, we have continued to provide comprehensive training for future aquatic veterinarians and researchers. Our programs and initiatives have reached a broad spectrum of students, from undergraduates and graduate to intern and resident veterinarians. Furthermore, our outreach efforts have touched thousands of individuals through various community events and education programs, reinforcing the importance of conserving our aquatic ecosystems.

We are immensely proud of our students, who have not only excelled in their research endeavors but have also received numerous accolades and awards for their contributions to the field of aquatic animal health. Their passion and dedication are a testament to the high standards we uphold in our program.

In conclusion, this annual report encapsulates our commitment to advancing aquatic animal health, ensuring the well-being and promoting a greater understanding of the aquatic world. The coming year holds great promise for furthering our research and education efforts, and we are excited to continue our mission in collaboration with partners, students, and supporters.

Iskande Larkin, PhD
Senior Lecturer & Education Coordinator
Director of Aquatic Animal Health Program
Department of Large Animal Clinical Sciences
College of Veterinary Medicine
University of Florida
CORE PROGRAM PERSONNEL

DR. ISKE LARKIN
Aquatic Animal Health Program Director
Senior Lecturer & Education Coordinator
Department of Large Animal Clinical Sciences

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Clinical Associate Professor-Aquatic Animal Health
Department of Comparative, Diagnostic, & Population Medicine

DR. NICOLE STACY
Clinical Associate Professor-Aquatic Pathology
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BRITTANY BARBEAU
Biological Scientist II
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KATHERINE FRISCH
Grant Specialist
Department of Large Animal Clinical Sciences
EMILY GRIFFIN

**Manatee Contaminants**
This year, Emily completed her PhD with the Aquatic Animal Health Program in the department of Physiological Sciences, with a concentration in Toxicology. Her PhD research utilized high-resolution mass spectrometry (HRMS) to examine contaminants, such as per- and polyfluoroalkyl substances (PFAS), in Florida manatees. Her work also expanded the current lipid and metabolite databases to include many marine mammal-derived compounds.

DR. MEGAN HOROWITZ, DVM

**Dolphin Squamous Cell Carcinoma**
This year, Megan completed her M.Sc. under the departments Comparative, Diagnostic, & Population Medicine through the Aquatic Animal Health Program. Megan's research is focused on the etiological and molecular basis of papillomatosis and squamous cell carcinoma in bottlenose dolphins (*Tursiops truncatus*). This research will further our understanding of this emerging disease, with the goal of guiding future diagnostic and treatment protocols.

GRADUATE STUDENTS

DR. SARAH WAHLTINEZ, DVM

**Sea Star Physiology and Anthropogenic Stressors**
This year, completed her PhD in the Aquatic Animal Health Program under the Comparative, Diagnostic, and Population Department. Her research included understanding normal sea star physiology as well as understanding how anthropogenic stressors cause changes to sea star health. This research was critical in helping us determine how sea stars cope with the inevitable changes to their environment, and allows us to make better informed conservation decisions.

ELIZABETH BRAMMER-ROBINS

**Manatee Reproductive Health**
Elizabeth is a PhD student with the Aquatic Animal Health Program in the department of Physiological Sciences, with a focus on red tide harmful algal bloom immune impacts in the Florida manatee. Her long-term goal is to investigate reproductive challenges faced by threatened or endangered species. Elizabeth hopes to be able to use her research findings to contribute to the conservation of these species.

EMILY GRIFFIN

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DR. TATIANA WEISBROD, DVM, MS

Aquatic Animal Medicine Resident
Dr. Tatiana Weisbrod completed her 3-year residency in Aquatic Animal Medicine with the University of Florida's Aquatic Animal Health Program this year. Prior to her residency, Dr. Weisbrod completed both the Aquatic Animal Health Program's specialty internship as well as a master's focused on diagnostic strategies and management of parasitic enteritis in the Florida manatee.

DR. ALLISON MURAWSKI, DVM

Aquatic Animal Health Intern
Dr. Allison Murawski completed her 1-year internship in Aquatic Animal Health with the University of Florida's Aquatic Animal Health Program this year. Her research included the first case report of Highly Pathogenic Avian Influenza in a cetacean, which she presented at the International Association for Aquatic Animal Medicine.

DR. JONATHAN COWART

Post-Doctoral Researcher
Jonathan completed his post-doctoral training with the Aquatic Animal Health Program this year. His research focused on reproductive physiology of male Florida manatees. His research encompasses multiple aspects including reproductive histology, basic semen analysis, and structural sperm analysis, all of which helps further our understanding of the biology of the Florida manatee.
First Case of Highly Pathogenic Avian Influenza Virus Detected in an American Dolphin

In August of 2022, University of Florida (UF) College of Veterinary Medicine researchers and state and federal laboratories identified the first cetacean to be found infected with the highly pathogenic avian influenza virus (HPAIV) in America, and the second known case in the world. The virus recovered from this dolphin belonged to clade 2.3.4.4b of the Eurasian H5 viral lineage, which has been widespread in North American and European birds this year.

The bottlenose dolphin (Tursiops truncatus) stranded in Horseshoe Beach, FL in March of 2022. A necropsy, or animal autopsy, was conducted by UF Aquatic Animal Health Program (UF AAH) and UF Marine Animal Rescue Program (UF MAR) personnel the following day. Gross findings showed that the animal had not been eating for some time, as well as inflammation of the brain and surrounding brain tissue. After standard tests came back negative, the UF AAH Program and UF MAR Program consulted UF assistant professor of veterinary virology—Dr. Andrew Allison, for consultation regarding the tissue inflammation seen on histopathology. Following Dr. Allison’s recommendations to complete additional screening for HPAI due to the bird die-off occurring across the country, HPAIV was confirmed in this specemin by the World Health Organization Collaborating Center at St. Jude’s Children’s Research Hospital.

Cetaceans are known to carry zoonotic diseases (diseases that can be passed between people and animals), however identification of HPAIV in a dolphin has raised concerns for rescuers and researchers who regularly handle or encounter cetacean (dolphin or whale). Caution should always be made when encountering a cetacean. A publication of this finding is in progress.
The cause of the recent long-spined sea urchin die-off is confirmed

Following numerous mass mortality events since the early 80s of the long-spined sea urchin (*Diadema antillarum*) in the Caribbean Sea, a multi-agency, interdisciplinary team of experts were assembled to address the its fate. Long-spined sea urchins play a critical role in coral reef health, meaning that repeat mortality events can have exponential implications on reef stability.

In the most recent mass mortality event of long-spined sea urchin, it has been determined that a microscopic marine organism (a scuticociliate named *Philaster apodigitiformis*) is associated with this population decline. Signs of affected urchins include detachment from substrate, a decline in movement control, and changing locomotive behaviors. Symptoms progress rapidly, and often lead to epidermal tissue loss and predation.

During experiments a scuticociliate, similar to that of *Philaster apodigitiformis*, was consistently observed with abnormal urchins at affected sites as well as recovered from treated specimens postmortem. When exposed to previously naive sea urchins, this scuticociliate elicited symptoms consistent with those from the wild. This condition now known as *D. antillarum* scuticociliatosis.
Future Aquatic Veterinarians and Researchers

- **9** Distance Learning Courses for undergraduate, graduate, veterinary students, and continuing education opportunities.
- **17** 2023 graduates from our certificate and graduate programs.
- **49** 2022-2023 Program Publications and Presentations
- **6,580** Members of the public reached during program outreach events.
- **~$1,238,380.00** In grants, contracts and non-grant funding awarded to the Aquatic Animal Health Program faculty, staff, and students.
The Aquatic Animal Health Program provides hands-on opportunities for veterinary students to learn about the marine mammals they may treat in their future careers.

These opportunities include mock rescues, health assessments, as well as postmortem examinations.

By providing hands-on opportunities to work through a rescue and health assessment prior to responding to a live animal, students are prepared to provide top-quality care to their patients.

The Aquatic Animal Health Program provides opportunities for undergraduate students to become acquainted with the field of aquatic animal medicine.

These students come from a variety of programs, including Wildlife Ecology and Conservation to Biochemistry and French, as well as early career veterinary professionals.

Our volunteers aid our program in community outreach initiatives, education, and research. In turn, we work to provide hands-on experiences that prepare them for careers in the field.
As part of our education program, the Aquatic Animal Health Program provides educational outreach at north central schools and conservation events. Here are a few of the events we participated in this past year.

2023 UF COLLEGE OF VETERINARY MEDICINE OPEN HOUSE

2023 FLORIDA MUSEUM OF NATURAL HISTORY WOMEN IN SCIENCE
Our students, trainees, and faculty have been hard at work conducting and presenting research around the country, with many receiving accolades for their efforts.

**DR. EMILY GRIFFIN**
- Excellence in Basic Research Award, University of Florida Phi Zeta Day, College of Veterinary Medicine, 2023

**TASHA DESIDERIO**
- Top Dog Award, University of Florida Phi Zeta Day, College of Veterinary Medicine, 2023

**HANNAH QUAIL**
- Top Dog Award, University of Florida Phi Zeta Day, College of Veterinary Medicine, 2023

**DR. SARAH WAHLTINEZ**
- Excellence in Doctoral Studies Award, University of Florida, College of Veterinary Medicine, 2023
- Second Place, Best in Show Competition, University of Florida, College of Veterinary Medicine, 2023
- First Place, Best in Show Competition, Department of Comparative, Diagnostic, and Population Medicine, 2023
- First Place Student Presentation, Wildlife Disease Association Australasia Section Conference, 2022

**DR. TATIANA WEISBROD**
- Student Travel Award (Oral presentation), International Association for Aquatic Animal Medicine, February 2023

**DR. ISKE LARKIN**
- University of Florida Teaching Excellence Fellow 2022-2023

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"DEKE" BEUSSE AQUATIC ANIMAL HEALTH AWARD
This award was established in honor of Dr. Diedrich O. Beusse, first director of the Aquatic Animal Health Program, who served as a contract veterinarian for over 30 years at SeaWorld Orlando, Universal Studios, Disney, Tiger's Eye Productions, and Paw Print Productions. He passed in 2008, leaving behind a legacy in the field of aquatic animal medicine.

This award is in honor of the influence Dr. Beusse had inspiring students to pursue their passion for learning about Aquatic Animal Health and caring for the many species he felt so strongly about.

These three recipients have shown exceptional effort and interest in pursuing a career in aquatic animal medicine. We congratulate Dr. Kaitlyn Dantoni, Dr. Monica Calderon, and Dr. Kimberly McFarlane on receiving this prestigious award.
FIELDWORK

Our program is part of the Southeast Stranding Network, responding to sick, injured, or deceased marine mammals and sea turtles. These efforts contribute to population and health data of these species in their expansive geographical range.

In addition, our personnel participate in yearly dolphin and manatee health assessments, providing veterinary support for these events. Health assessments provide baseline parameter, as well as opportunities for research, on wild populations.


Wahltinez, S.J., Stacy, N.I. **Blood Gas Analysis of Common Sea Star (Asterias rubens) Coelomic Fluid After Short-Term Exposure to Environmental Stressors Anticipated with Climate Change.** Wildlife Disease Association Australasian Section Conference 2022; Kingslake, Victoria, Australia, November 27-December 2, 2022. Oral Presentation. *This presentation was awarded best student presentation 12/1/22*


