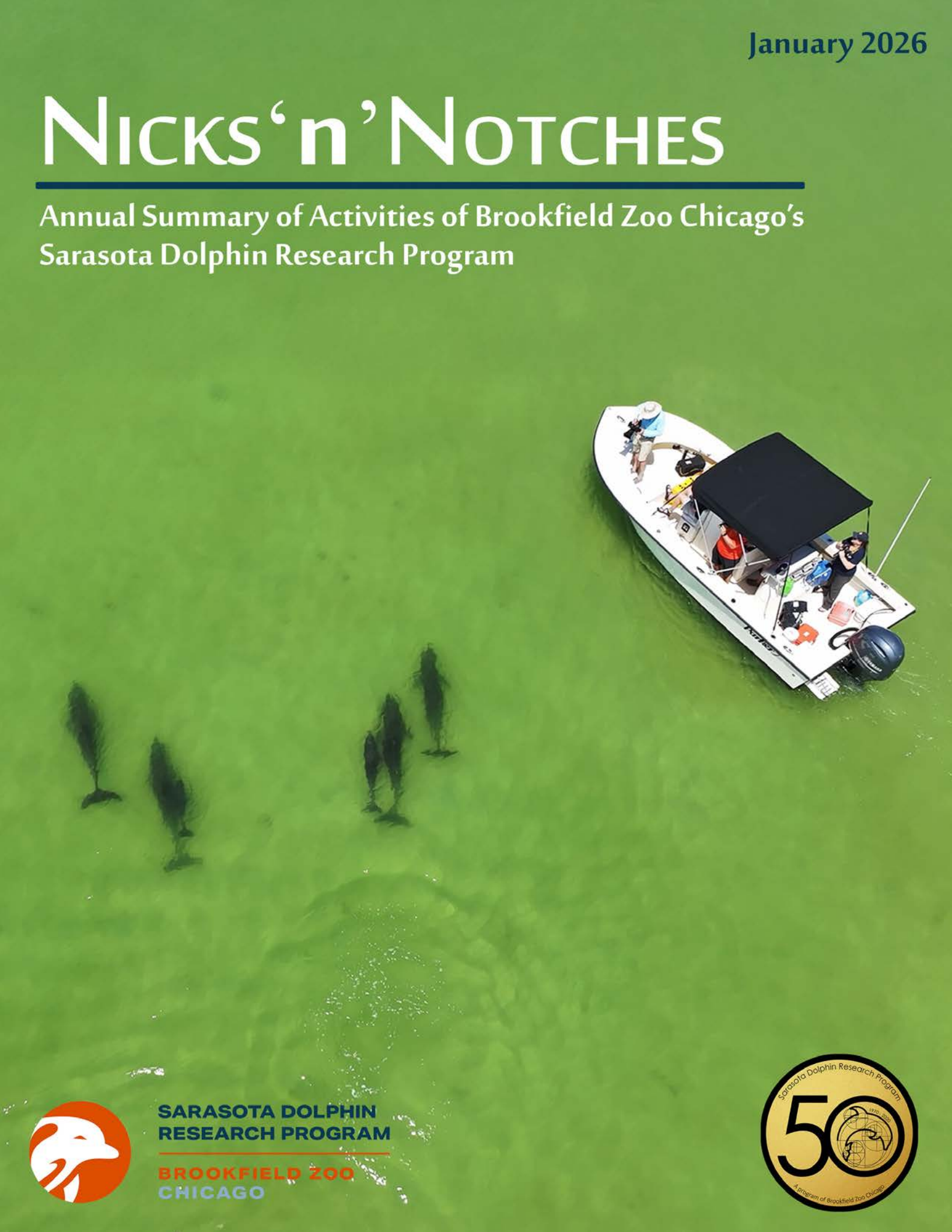
January 2026

# Nicks‘n’Notches

## Annual Summary of Activities of Brookfield Zoo Chicago’s Sarasota Dolphin Research Program



SARASOTA DOLPHIN RESEARCH PROGRAM

BROOKFIELD ZOO CHICAGO

Sarasota Dolphin Research Program 50 1970 2020 A program of Brookfield Zoo Chicago

## Some of the giants of the field who inspired the program's founders:

Blair Irvine and Sam Ridgway perform a medical check-up on a dolphin in 1967.

Bill Perrin and Michael Scott surveying the waters of the Beagle Channel between Argentina and Chile in 1987. Both were teaching a U.N.-sponsored course on marine mammals for Latin American students in Ushuaia, Argentina.

Ken Norris and Randy Wells in Sarasota, Florida, preparing for the return of dolphins Misha and Echo to Tampa Bay in 1990.

## Our continuing work is made possible by the support of these partners:

DOLPHIN QUEST

CHARLES & MARGERY BARANCIK FOUNDATION

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

FIU FLORIDA INTERNATIONAL UNIVERSITY

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NATIONAL MARINE MAMMAL FOUNDATION

MOTE MARINE LABORATORY

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New College THE HONORS COLLEGE of Florida

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CLEARWATER MARINE AQUARIUM

STATE OF FLORIDA INSTITUTE OF OCEANOGRAPHY FIO

COLLEGE of CHARLESTON

FLORIDA WILD 1 Protect Wild Dolphins

THE BATCHELOR FOUNDATION, INC.

University of St Andrews

Mote Scientific Foundation

Cover photo – 2271, F277, 2772, F125, 1258, and F286 swim alongside our survey boat *R/V Martha Jane* on New Pass Bar in August 2025.
This and all other dolphin photos from Sarasota in this issue were taken under National Marine Fisheries Service Scientific Research Permit No. 26622.

# *On Their Shoulders*

*"If I have seen further it is by standing on the shoulders of giants." Isaac Newton, 1675*

Conversations with our interns and the recent occasion of the 55th anniversary of the Sarasota Dolphin Research Program prompted thoughts about how we got to where we are, who made it possible for us to get here, and the basic principles that guide us. Early on, we had the benefit of working with some of the founding fathers of the fields of marine mammal science and conservation, and we applied their lessons and added a few tweaks of our own to create and maintain what has become the world's longest-running dolphin conservation research program. Our mentors overcame many obstacles in a time when studying creatures in a marine environment was intimidating and technology and precedent were lacking. We remain appreciative of how these giants shaped the field, providing us with the opportunity to establish, on their shoulders, the Sarasota Dolphin Research Program.

During our intern training sessions, it has become apparent that we could do a better job of instilling in the next generation of marine mammal scientists knowledge of the history of the field they are exploring. When we ask the students about some of the field's greats, it is rare that they are familiar with the names, the accomplishments, or the roles of those who came before. In a time when revisionist history is a concern, and objective truth and science are of reduced value in some societal circles, it is incumbent upon us to make sure that the lessons of those who came before us continue to be recognized, appreciated, and respected.

While our earliest mentors are no longer with us, their memories and guidance remain strong within us. Ken Norris stands out as one of the most important influences for all three of the SDRP founders. We all, at different times, were his students and/or members of his research teams. As a consummate natural historian, Ken was one of the first to bring dolphins into focus for studies of behavioral ecology and acoustics. His amazing insight, observational skills, perceptive mind, and engaging writing style opened up the world of dolphin behavior for many of us. His influence went well beyond research and teaching, as he was one of the authors of the landmark Marine Mammal Protection Act of 1972, and a founder and first President of the Society for Marine Mammalogy.

William Perrin, one of the fathers of life history research on dolphins, provided exceptional guidance, inspiration, and rigor to our research efforts in Sarasota and elsewhere. His documentation of the deaths of hundreds of thousands of dolphins in the tuna purse-seine fisheries in the eastern tropical Pacific Ocean was one of the primary motivations for creation of the Marine Mammal Protection Act.

Bill Evans provided inspiration for tagging from his pioneering radiotracking work in the Pacific. Sam Ridgway, the original "Dolphin Doctor," gave SDRP founder Blair Irvine one of his first jobs in the field, and laid the groundwork for the dolphin health studies that have been a major component of the program for decades. David and Melba Caldwell, among the earliest bottlenose dolphin researchers, introduced SDRP founder Michael Scott to dolphin biology, behavior, and communication. Killer whale researcher Ken Balcomb inspired SDRP founder Randy Wells with his stories of being able to study his long-term resident cetaceans year-round in his own backyard. In 1989, George Rabb, director of the Chicago Zoological Society (now Brookfield Zoo Chicago) and a major force within the IUCN, took the SDRP under his institutional wing and gave us the freedom and encouragement to focus our program on conservation research.

Add to these folks those who are still around who have influenced our work in major ways, and you begin to get a sense of what has gone into shaping the SDRP into what it is today. Bernd and Melany Würsig stimulated development of the systematic photo-ID surveys that have been the basis of much of the SDRP's efforts over the decades. Since 1984, one of Sam Ridgway's mentees, Jay Sweeney, has carried on in a leadership role with our health studies, Peter Tyack has been at the forefront of our acoustic studies, Aleta Hohn has guided our life history research, and Debbie Duffield has led our genetic studies. All of these influences are evident in the many papers that arise from SDRP staff, students, and colleagues.

These people are among the many who made the SDRP what it is today. If you are not familiar with them or their work, we encourage you to learn about them. Read their books and papers – they are eye-opening (see below). Try to appreciate the animals and the issues from their perspectives. You will come away with a better understanding of science and its evolution as well. Ken Norris made sure that we understood the critical role of intellectual honesty and integrity in the pursuit of scientific knowledge. The world today would benefit from greater recognition of this lesson, one of the most basic principles behind the ongoing work of the Sarasota Dolphin Research Program.

Porpoisefully,
Randy Wells, Michael Scott, and Blair Irvine
Founders, Sarasota Dolphin Research Program

Some suggestions for where to start to become more familiar with some of the early influences shaping the SDRP:

Kenneth S. Norris. 1991. Dolphin Days: The Life and Times of the Spinner Dolphin. W.W. Norton & Co. Inc. ISBN 9780380719655.

William F. Perrin. 2009. Historical Perspectives – Early Days of the Tuna/Dolphin Problem. Aquatic Mammals, 35(2), 292-305. https://www.aquaticmammalsjournal.org/wp-content/uploads/2013/08/35_2_perrin_historical_perspectives.pdf

Sam H. Ridgway. 2008. History of Veterinary Medicine and Marine Mammals: A Personal Perspective. Aquatic Mammals, 34(3), 471-513. https://www.aquaticmammalsjournal.org/wp-content/uploads/2010/10/Ridgway.pdf

# In This Issue



# Our Approach Toward Helping Dolphins

Our desire with each research or conservation project in Florida or elsewhere is to contribute to a better understanding of the structure and dynamics of populations of small cetaceans (dolphins, whales, and porpoises), as well as the natural and anthropogenic factors (of human origin) that impact them. We use an interdisciplinary and collaborative approach in conducting studies of bottlenose dolphins within a unique long-term natural laboratory. The primary goals of our program include:

(1) collecting biological, behavioral, ecological, and health data of importance to the conservation of small cetaceans, especially bottlenose dolphins,
(2) providing requisite information for bottlenose dolphin conservation to wildlife management agencies,
(3) disseminating the information generated by our program to scientific and general audiences in order to aid dolphin conservation efforts,
(4) using our model program to develop and refine hypotheses regarding bottlenose dolphins in other parts of the species' range as well as other species of small cetaceans,
(5) using the established natural laboratory to develop and test new research tools and methodologies of potential benefit to conservation efforts,
(6) training cetacean conservation workers and students from around the world in the use of these techniques,
(7) applying our unique expertise to dolphin rescue operations and post-release follow-up monitoring, and
(8) applying the information we gather from free-ranging dolphins to improve the quality of care for dolphins in zoological park settings.

The collaborative work done toward achieving these goals is conducted under the umbrella of the "Sarasota Dolphin Research Program." This name links the efforts of several organizations and individuals that work together to ensure the continuity of the long-term dolphin research in Sarasota Bay. The SDRP has been operated by Brookfield Zoo Chicago (BZC) since 1989. Dolphin Biology Research Institute, a Sarasota-based 501{c}3 non-profit corporation established in 1982, provides logistical support with its fleet of small research vessels, vehicles, computers, cameras, field equipment, etc. Since 1992, the program has been physically based at Mote Marine Laboratory, with office, lab, storage and dock space within the resident Sarasota Bay dolphins' home range. The SDRP encourages and supports academic development by providing graduate student and undergraduate internship opportunities through a variety of colleges and universities, including New College of Florida, University of California, Santa Cruz, and others.

All of our dolphin research in the United States is conducted under NOAA Fisheries Service Scientific Research Permit No. 26622 and Institutional Animal Care and Use Committee approvals through the appropriate institutions.


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*Atlantic spotted dolphin "Denise" 50 miles off of North Captiva Island, Florida, prior to her health assessment and tagging (see page 19).*

# *The Year in Review*

## Some of our accomplishments, over the decades and by the numbers

*Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The "natural laboratory" situation of Sarasota Bay facilitates cutting-edge work done by a diverse group of specialists who complement the expertise and interests of the SDRP. Over the past 55+ years, staff, students, and collaborators have produced more than 380 peer-reviewed publications (many available at: https://sarasotadolphin.org/publications/), 4 books, and more than 150 technical reports, and we have made more than 1,010 presentations to scientific audiences, students, stakeholder groups, and the general public. Perhaps the most meaningful component of our legacy, though, involves training the next generation of conservation leaders. To date, 55 master's and 60 doctoral students have benefited from SDRP data collection opportunities, data, samples, or guidance, including assessments. In addition, 525 interns have received multi-month training by the SDRP. Foreign participants in our training programs have come from more than 53 countries, and include 82 of the interns, 48 post-graduate scientists, and 145 health assessment project participants. A number of the alumni from our training programs have moved into key positions in wildlife management, at NOAA and the Marine Mammal Commission, or engaged in conservation activities elsewhere around the world. We have participated in or led 37 bottlenose dolphin rescues, and participated in responses to 12 mass strandings of: short-finned pilot whales, false killer whales, pygmy killer whales, Fraser's dolphins, clymene dolphins, and spinner dolphins. The accomplishments of the program over the decades reflect the efforts of many: staff, students, volunteers, and collaborators, and the long-term support of several key individuals and organizations.

*SKE1 socializing with another dolphin in Sarasota Bay in August 2025.*

## Sarasota Dolphin Research Program project summary

*Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

Staff were involved in conducting or developing 48 funded projects over the past year, covering a wide variety of research, education, or conservation topics, as can be seen in the list below. In addition, working with our many co-authors, we have submitted 31 different scientific manuscripts in 2025, including 10 already published.

The following list provides information on some of the funded projects in which we have been engaged over the past year, or will begin soon. The projects listed below are either being led by Brookfield Zoo Chicago (BZC) researchers, or in some cases, these are subawards to the BZC's Sarasota Dolphin Research Program. The researchers responsible for overseeing the SDRP portions of the projects are listed as Principal Investigators. More details about some of these projects are presented in the pages that follow.

| | PROJECT: Dates, Funder, Title (ordered by size of award) | SDRP PIs |
|---|---|---|
| 1 | 2022-25 - Charles and Margery Barancik Foundation - Bottlenose dolphins as sentinels of coastal ecosystem health | Wells |
| 2 | 2025-28 - Charles and Margery Barancik Foundation - Dolphins as sentinels: Protecting Sarasota Bay | Wells |
| 3 | 2020-24 - SERDP - Towards an Understanding of the Cumulative Effects of Multiple Stressors on Marine Mammals - an Interdisciplinary Working Group with Case Studies | McHugh, Wells |
| 4 | 2024-25 - Anonymous Sarasota Foundation - Sarasota Bay Listening Network: Wiring the Bay for Sound | Holmes, McHugh, Wells |
| 5 | 2025-26 - Anonymous Sarasota Foundation - Sarasota Bay Listening Network: Wiring the Bay for Sound Phase 2 | Holmes, McHugh, Wells |
| 6 | 2025-26 - Anonymous Sarasota Foundation - Kim Bassos-Hull Research | Bassos-Hull |
| 7 | 2024-25 - Anonymous Sarasota Foundation - Kim Bassos-Hull Research | Bassos-Hull |
| 8 | 2024-25 - NOAA Prescott - Small cetacean intervention and post-release monitoring services | Wells |
| 9 | 2024 - Dolphin Quest - Bottlenose dolphin health assessments in Sarasota Bay: May 2024 | Wells |
| 10 | 2025 - Dolphin Quest - Bottlenose dolphin health assessments in Sarasota Bay: May 2025 | Wells |
| 11 | 2024-25 - New College of Florida - Florida Institute of Marine Mammal Science | Wells, McHugh |
| 12 | 2026 - Mote Scientific Foundation - Fins across the Water: Enhancing Sarasota-Galapagos Marine Conservation Collaborations | Wilkinson, Wells |
| 13 | 2021-25 - NOAA RESTORE Act - Assessment of movement patterns and critical habitat for coastal and continental shelf small cetaceans in the Gulf of Mexico using newly developed remote satellite tagging techniques | Wells, Barleycorn |
| 14 | 2020-25 - Mote Scientific Foundation - 2021 Health assessment or biopsy darting | Wells |
| 15 | 2022-25 - Disney Conservation Fund - Sarasota Bay Dolphin Listening Network | McHugh |

| | PROJECT: Dates, Funder, Title (ordered by size of award) | SDRP PIs |
|---|---|---|
| **16** | 2024-25 - Mote Scientific Foundation - Ray Guardians: Empowering Conservation of Marine Ray Species in the Galapagos Islands through Capacity Training, Telemetry Science, and Bio-Sampling | Wilkinson, Bassos-Hull |
| **17** | 2025 - Florida International University/Fahlo - Health and movements of dolphins over the West Florida Shelf | Wells |
| **18** | 2024-25 - Mote Scientific Foundation - Health and movements of dolphins over the West Florida Shelf | Wells |
| **19** | 2025-26 - Dolphin Quest - Bycatch of franciscana dolphins and sea turtles in artisanal bottom gillnets: Are LED lights an adequate mitigation measure to be applied in Argentina? | Wells |
| **20** | 2025 - Mote Scientific Foundation - Analysis of Marine Predator Diets and Microbiomes While Advancing Student Research Opportunities | Wilkinson |
| **21** | 2025 - Mote Scientific Foundation - Bridging Oceans: Collaborative Research and Capacity Building for Ray and Cetacean Conservation in the Galapagos | Wilkinson |
| **22** | 2025 - Mote Scientific Foundation - Devils in our ocean backyard? Conservation research on the Atlantic Pygmy Devil Ray. 2025 Tagging Fieldwork | Bassos-Hull |
| **23** | 2022-24 - Mote Scientific Foundation - A preliminary assessment of movement patterns of dolphin prey fish | McCabe, Wells |
| **24** | 2021-25 - Mote Scientific Foundation - Human-animal conflict Stage 2: Shark behavior near commercial fishing activity | Wilkinson |
| **25** | 2022-2024 - NIEHS - Investigating Trophic Exposure to Marine Microplastics and Plasticizers in a Sentinel Species and the Implications for Seafood Safety | Wells |
| **26** | 2025 - Anonymous Sarasota Foundation - Gear replacement due to hurricane loss for the Sarasota Coast Acoustic Network (SCAN) | Bassos-Hull, Wilkinson |
| **27** | 2025 - Mote Scientific Foundation - Sarasota Bay Listening Network | McHugh, Wells |
| **28** | 2024-26 - Mote Scientific Foundation - Movement patterns of dolphin prey fish - mullet tagging project | Berens McCabe, Wilkinson |
| **29** | 2025 - Dolphin Quest - Investigating the Effects of Human Impacts on the Critically Endangered Bottlenose Dolphin Subpopulation of the Gulf of Ambracia, Greece | Wells,Barleycorn |
| **30** | 2023-25 - Mote Scientific Foundation - Pole-mounted Tag Attachment Device (TADpole): Further Development and Application | Wells |
| **31** | 2024-25 - Wells Fargo Community Giving for Sustainability Program - Sustainability for local dolphin research in Sarasota Bay | McHugh, Wilkinson, Holmes, Hull |
| **32** | 2025 - Batchelor Foundation - Sarasota Dolphin Research Program operations | Wells |
| **33** | 2024-25 - NOAA (ProTech Fisheries/Abt) - Monitoring Approaches for Bottlenose Dolphin Restoration Services | Wells |
| **34** | 2025 - Save Our Seas Foundation - Keystone grant ($24,300) for continuing study of the endangered pygmy devil ray in the Gulf of Mexico, Caribbean and Atlantic | Bassos-Hull |
| **35** | 2024-25 - Dolphin Quest - Using TADpole-deployed satellite tags to study diel movements of spinner dolphins in Hawaiian waters (only travel support for SDRP) | Wells, Barleycorn |
| **36** | 2024-25 - HBOI/FAU- Impacts of disturbance, disease and environmental degradation on estuarine and oceanic wild Florida dolphins | Wells |
| **37** | 2025 - Dolphin Quest - Bermuda bottlenose dolphin photo-identification and tracking manuscript preparation | Allen, R. |
| **38** | 2022-25 - ONR - VESOP II: Developing broadly applicable models to predict vital rates from remotely sampled health measures including epigenetics | Wells |
| **39** | 2025 - BZC Women's Board - Hurricane recovery for the Sarasota PALS Network | Holmes, Wilkinson |
| **40** | 2024-25 - BZC Women's Board - Dolphin adolescence and the importance of juvenile social connectivity | McHugh, Holmes |
| **41** | 2025 - Dolphin Quest - Mekong River Irrawaddy Dolphin photo-analysis database project | Allen, J. |
| **43** | 2025 - National Marine Mammal Foundation - Health Assessment project support | Wells |
| **44** | 2024-2029 - NSF - PACSP TOOLS: EPICS: Explainable AI Driven Individual Photo-Identification and Tracking for High-throughput Conservation Study | Wilkinson |
| **45** | 2024-25 South Carolina Sea Grant Consortium ($75,000 total project) Climate factor influences, spatiotemporal variability, and bottlenose dolphin health related to phthalate exposure measured over 30 years in Sarasota Bay, Florida (1993-2023) | Wilkinson |
| **46** | 2024-25 - CBOT Endangered Species Fund - Wiring the Bay: Empowering marine wildlife conservation through underwater sound monitoring in Sarasota Bay | McHugh, Holmes, Wilkinson |
| **47** | 2025 - Cross College Alliance Environmental Discovery Awards Program - Summer 2025 Intern Support | McHugh |
| **48** | 2022-25 - CZS Women's Board - Sarasota Bay bottlenose dolphin abundance estimate for NOAA management | Wells, Wilkinson, Allen |

## Sarasota Bay dolphin community status

*Jason Allen and Kylee DiMaggio, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

We keep track of the Sarasota Bay dolphin community through photographic identification (photo-ID) surveys conducted during 10 days on the water each month. One of the primary goals of our monitoring is to track additions, losses, and condition of the resident Sarasota Bay dolphin community members, and to detect issues such as fishing line entanglements as early as possible. We are happy to report that we observed 19 new calves in 2025, 15 of whom appear to be doing well as of this writing.

This year, FB19's lineage birthed the most calves; aptly named "Granny" she added three calves to her legacy. Two of Granny's great-grandcalves were born to 23-year-old F179 and 9-year-old C115, the second and fifth calves of 41-year-old Merrily (FB11). Granny's lineage also welcomed a sixth-generation calf! The fourth calf of 15-year-old F233 was observed for the first time in October. Additionally, this year the "mom club" grew by seven members as many new moms welcomed their first calves.

We have also lost community members since our last update, sadly two of which we suspect died due to vessel strikes. 18-year-old Yogurt and 6-year-old C33A were males recovered by Mote Marine Laboratory's Stranding Investigations Program. Yogurt presented with large, deep lacerations consistent with a vessel strike, while C33A's wounds were consistent with blunt force trauma. Since our last update, we also lost 1316, a 14-year-old mom of 1361 and three calves born in 2024 are missing and presumed dead.

Our long-term, monthly photo-ID surveys are one of the core efforts of our program, supporting all other projects. More than 60,800 dolphin group sightings since 1970 have yielded more than 187,000 identifications of more than 6,000 individually distinctive dolphins along the central west coast of Florida. In support of these identifications, more than 1.1 million dolphin photographs and videos are currently archived by the Sarasota Dolphin Research Program. Data from monthly monitoring surveys and all of our photo-ID efforts are archived in a relational Access database (FinBase) designed specifically for bottlenose dolphin photo-ID data and images. Work has begun to integrate this database with our behavioral database, which contains fine-scale data collected during 2,921 longer, systematic behavioral observations of specific individuals termed focal follows. This database now also includes current and historic opportunistic respiration data collected from potentially compromised individuals. Many thanks to NOAA's Jeff Adams for his continued support as our database guru!

*27-year-old Annie (F125) and her eighth calf, born in May of 2025.*

We have been able to continue our year-round, monthly monitoring of the Sarasota bottlenose dolphin community thanks to support from the Charles and Margery Barancik Foundation, as well as the continued dedication of our core local volunteers and undergraduate interns. Thanks to these efforts, this community remains one of the most thoroughly studied free-ranging dolphin populations in the world.

*2531, the first calf of 12-year-old F253. At less than a week old, the fetal folds remain very prominent.*

*F233, a 15-year-old female, and her new calf, who is part of a documented 6-generation lineage.*

# Conservation Research and Action

## Human impacts on dolphins

*Katie McHugh, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

2025 was a relatively quiet year for Sarasota dolphins relative to human impacts, with few human-related injuries or deaths and similar human interaction rates compared to the recent past. However, we did recently lose three community members following boat strikes, which is somewhat unusual and concerning. The first was 8-year-old male F312 (reported on in the last issue) who suffered from a boat strike around the 4th of July holiday in 2024, which disfigured his dorsal fin. While he was observed several times over the next few weeks, and initially appeared to be both healing well and behaving normally, he has now been missing for more than a year and is presumed dead. The second individual lost was longtime Sarasota Bay resident F266 (nicknamed "Yogurt") – an 18-year-old male whose carcass was recovered in February 2025 with extensive deep propeller wounds. Necropsy (animal autopsy) findings indicated that he was otherwise healthy prior to injury, and the vessel strike is the suspected cause of death. F266 had previously lost two younger siblings from human-related injuries as well, and is part of a lineage well-known to engage in fishery interactions which may contribute to being in harm's way. The last individual was C33A, whose wounds were consistent with blunt force trauma from a suspected vessel strike.

Because of the ongoing nature of these interactions, we have continued expanding our community engagement and outreach activities, delivering over 130 presentations to public and educational audiences since 2023. These efforts engage audiences in what we've learned about the lives and needs of dolphins through our long-term research and focus on ways people can support dolphin conservation. We encourage them to use best practices for safely interacting with dolphins when fishing, boating, or viewing, preventing injuries from entanglement and ingestion via proper disposal of trash and fishing line, and reporting injured and sick animals to stranding network partners for potential early intervention. Outreach to new Florida residents and visitors, K-12 students, boaters and anglers, boat rental companies, and ecotours remains a high priority, and we would like to focus additional outreach efforts on these audiences to promote responsible viewing practices to reduce harassment and injuries. Please let us know if your group would like to learn more about dolphins and how to support their conservation along the Gulf coast.

*Yogurt (F266) patrolling next to an active fishing boat in Longboat Pass.*

## Understanding the cumulative effects of multiple stressors on marine mammals

*Peter Tyack, Catriona Harris, Enrico Pirotta, University of St Andrews; Cynthia Smith, National Marine Mammal Foundation; Lori Schwacke, Marine Mammal Commission; Katie McHugh and Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

2025 saw the completion of a long-term collaborative project funded by the Strategic Environmental Research and Development Program (SERDP) aimed at advancing understanding of the cumulative effects of multiple stressors on marine mammals. This project's primary objectives were to develop quantitative methods to predict the population consequences of exposure to two or more stressors and apply the framework in case studies involving multiple long-lived marine mammal species. As part of this larger project, SDRP helped to support a case study focused on dolphins from Barataria Bay, LA whose health was affected by much earlier exposure to toxic petrochemicals resulting from the *Deepwater Horizon* oil spill. The goal of the study was to test whether this impaired health interfered with the dolphins' abilities to avoid vessels using three related research efforts:

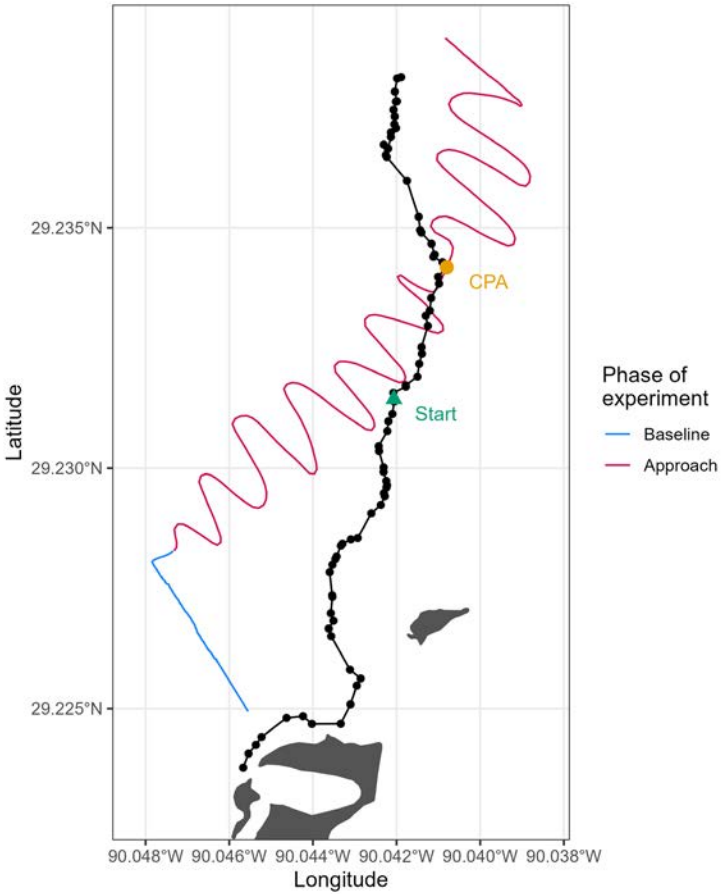
1. *Health assessments*: Barataria Bay dolphin assessments conducted in 2023 as part of this study highlighted the persistence of sublethal health effects in a long-lived cetacean population more than a decade after a major environmental disaster. Tests on the effects of vessel approach were conducted primarily on dolphins assessed in 2023, 2018 and 2017, but given the persistence of the health effects, we also included health data from one dolphin assessed in 2011, one in 2014, two in 2016. Fifteen individuals were determined to have moderate or severe lung disease, against twenty that did not and six where this information was not acquired. Thirteen individuals showed evidence of an impaired stress response, while 28 showed a normal response during handling. Five individuals showed evidence of both lung disease and an impaired stress response. These results underscored the importance of long-term monitoring of animal health in impacted areas and of reference populations used for comparisons.

*Cynthia Smith collecting a blowhole sample from a bottlenose dolphin during the 2023 health assessment in Barataria Bay, Louisiana (MMPA Permit No. 24359).*

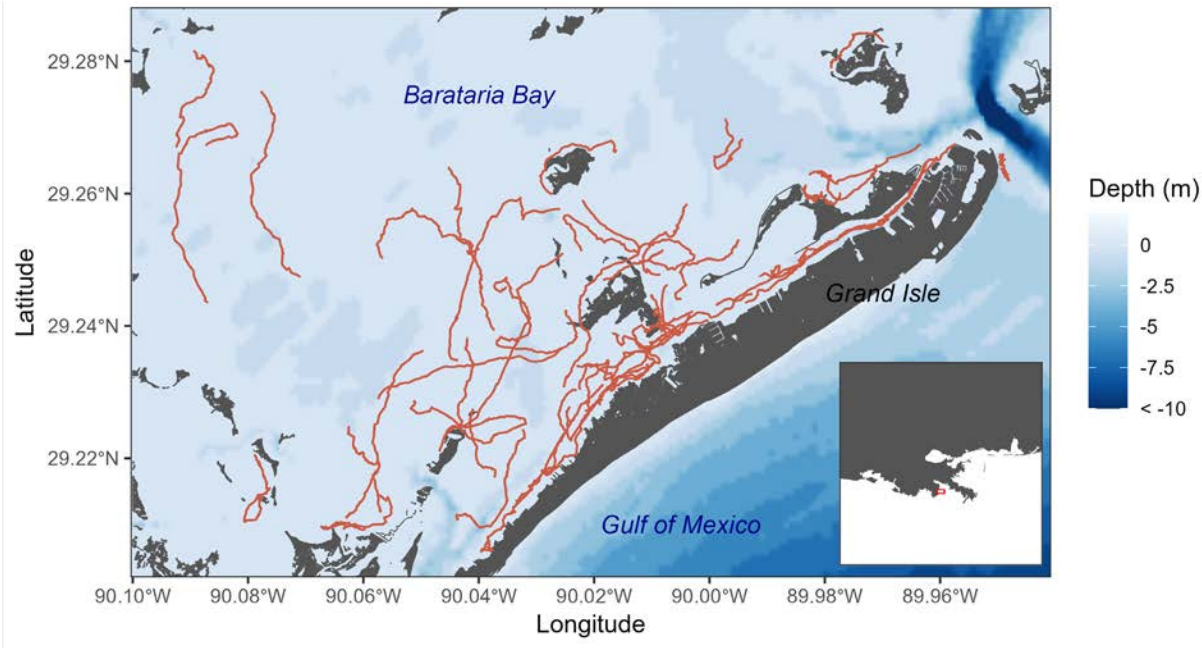
2. *Controlled vessel approaches*: Controlled exposure experiments were conducted involving a personal watercraft (PWC) approaching dolphins under observation. The behavior of the dolphins in response to erratic approaches by the PWC were documented by observers in the tower of the observation vessel as well as from a drone. Protocols were developed in Sarasota Bay, where previous research had shown that the strongest responses to boat approaches by dolphins involved PWCs, moving erratically, as is common. SDRP provided personnel and the observation and approach vessels used in this study. The project team transferred the protocols to Barataria Bay and carried out a total of 46 experimental vessel approaches on 41 different dolphins that had had their health assessed as part of this project or prior to this project.

The influence of specific health conditions on responses to the controlled vessel approaches was evaluated. Even though results aligned with *a priori* hypotheses for some combinations of behavioral and health metrics, the analysis of dolphin behavior during controlled vessel approaches did not highlight a strong effect of health status on the probability of response under the given experimental conditions. However, there was a trend for dolphins with lung disease to have a delayed change in dive duration and for dolphins with impaired stress response to show a delayed movement away from the oncoming personal watercraft.

*Right: Peter Tyack tracking one of the radio tagged dolphins during Barataria Bay health assessments in 2023.*




*An example of a controlled exposure experiment carried out in April 2022. The continuous line represents tthe personal watercraft, colored by phase of the experiment, while the black dots and line indicate the track of the focal dolphin. The green triangle marks the start of the approach on the dolphin track, while the orange dot marks the Closest Point of Approach (CPA).*

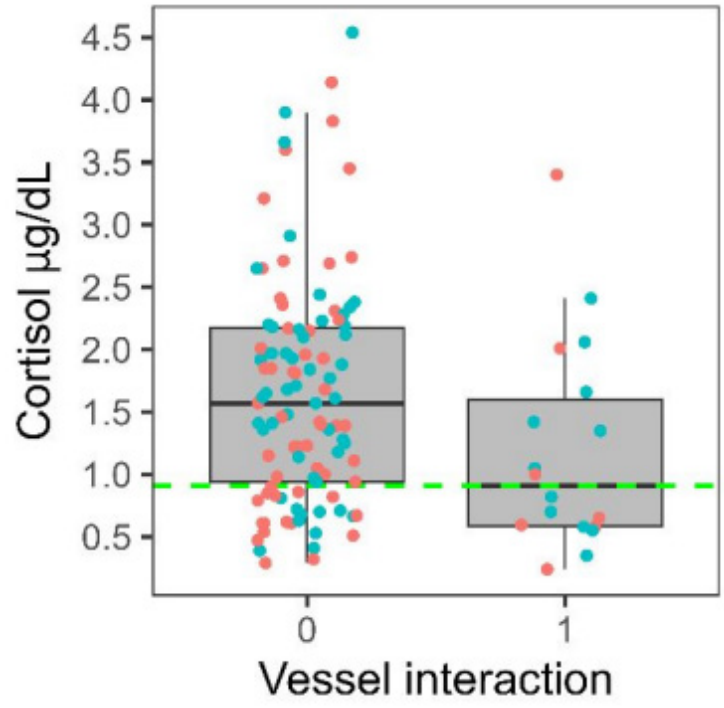



*A map of the study area in Barataria Bay (Louisiana, USA) with focal dolphin tracks across the 46 experiments in red.*

3. *Does poor health increase rates of scarring from vessel collision*: A cross-sectional analysis examined whether impaired responses possibly associated with poor health may be associated with increased odds for traumatic (but not fatal) injury. Using image data from historical and the 2023 health assessments conducted in Barataria Bay see image below, the prevalence of wounds or scarring associated with human interaction were assessed. A significant relationship was found between vessel interaction scarring and dysfunction in the stress response, whereby animals showing evidence of stress response dysfunction were more likely to have a scar from vessel interactions see graph below.

Findings across the bottlenose dolphin case study were synthesized into a model to investigate the effects of multiple stressors on the population of dolphins in Barataria Bay, Louisiana, exposed to oil in 2010, which allowed researchers to simulate how management actions to reduce or remove additional stressors might aid in population recovery. The results have been submitted for publication.

*An example of non-fatal injuries from boat propellers, characterized by parallel, evenly spaced cuts.*




*Differences in stress hormone (cortisol) response to temporary captures for health assessments for dolphins with no boat collision scars (0) vs. those with boat collision scars (1).*

## Fibers, fragments, and foams oh my! – Studies of microplastic pollution in Sarasota Bay

*Leslie Hart, Miranda Dziobak, Estella Martin, Savannah Case, Millie Knowles, Eric Conger, Tita Curtin, Mackenzie Eccles, Ayushi Gaur, College of Charleston*

Hundreds of trillions of tiny pieces of plastic are floating in our oceans and estuaries, making plastic pollution a major threat to marine life. Unfortunately, this includes the dolphins and fish living in Sarasota Bay. Since 2016, we have been studying exposure to microplastics and chemicals added to plastics (phthalates). With support from the National Institute of Environmental Health Sciences (NIEHS) and the National Science Foundation (NSF), we are beginning to better understand how dolphins and their prey are exposed. Like people, dolphins can be exposed to microplastics by ingestion and inhalation. Using common laboratory methods, analyses of gastric and fecal samples collected from dolphins during catch-and-release health assessments revealed microplastics, including fibers, fragments, and foams, in nearly every dolphin sample we tested. Because these samples reflect ingestion, we also screened tissues from two of their most common prey species, pinfish (*Lagodon rhomboides*) and Gulf toadfish (*Opsanus beta*). Samples from both fish were abundant with microplastics, especially fibers, just like the dolphins. Raman spectroscopy, which tells us what the plastics are made of, showed overlap in polymer type, and we also observed similarities in particle colors and size, suggesting that dolphins may be exposed through the fish that they eat. We are now expanding this work to include 10 additional prey species to better understand food web contamination in Sarasota Bay.

In people, we know that ingestion and inhalation are the main routes of exposure to microplastics. These tiny plastic particles are floating in the air all around us,

*Leslie Hart, Millie Knowles, and Savannah Case using Raman spectroscopy to analyze microplastics.*

and the oceans and estuaries can release particles into the air through breaking waves or bubbles. Through our partnerships with SDRP and the National Marine Mammal Foundation, we now know that dolphins breathe in microplastics too. In 2023, we collected breath samples from dolphins living in Sarasota Bay and Barataria Bay, LA, to measure microplastic inhalation. The types of particles varied by location. Sarasota dolphins mostly had fibers, while Barataria dolphins had a mix of films and fibers. In both places, the particles were mainly made of polyethylene terephthalate (PET) and polyester, the same types often found in human exposure studies. We have continued this work in 2024 and 2025, collecting 38 more samples by holding petri dishes above the dolphins' blowholes and rinsing the spirometer used to measure lung function. Analysis of these samples will help us refine the best way to collect and study breath samples for microplastics. Because dolphins have very large lung capacities and take powerful breaths at the surface, we think they may be especially vulnerable to inhaling microplastics. Our future studies will keep tracking this exposure and explore how it may impact dolphin respiratory health.

*Miranda Dziobak and Tita Curtin dissecting a Gulf toadfish to collect samples for microplastic analysis.*

*Breath collection via petri dish (left) and spirometry (right).*

## Ecological influences on exposure to chemical plasticizers (phthalates)

*Leslie Hart, Miranda Dziobak, Tita Curtin, Kylie Warden, Maggie Knight, College of Charleston*

Since 2016, the College of Charleston's HOPE Research Lab has studied how bottlenose dolphins in Sarasota Bay are exposed to phthalates, chemicals commonly added to plastics and personal care products. By analyzing urine and blubber samples, we have found that approximately 75% of Sarasota dolphins show exposure to one or more phthalates. Early studies conducted in 2021 suggested that exposure may vary over time and could be influenced by where dolphins spend their time. With support from the National Institutes of Health (NIH) and South Carolina Sea Grant, we have been working to understand these differences. From a geographic perspective, dolphins in urban Sarasota Bay showed a greater frequency and diversity of phthalate exposure than dolphins in rural Barataria Bay, Louisiana. Even within Sarasota Bay, dolphins living in the southern part of the bay had higher concentrations than those in the northern reaches. We also have preliminary evidence that rainfall and major storm events may influence contamination levels. Because dolphins are selective feeders, we suspect that their phthalate exposure comes from their prey. To explore this, we analyzed tissues from nearly 300 fish across 11 species. Early results show that two of their most common prey, pinfish and Gulf toadfish, had phthalate exposure in more than 90% of samples, providing strong evidence of food web contamination. Looking ahead, we are combining these findings with long-term dolphin health data to examine potential links between phthalate exposure and key health indicators including blood chemistry, hormones, body condition, bone density, and developmental outcomes.

*Brittany Barbeau training Kylie Warden with sample processing during a health assessment.*

# International Conservation Activities

## Mekong River Irrawaddy dolphin update

*Jason Allen, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

In March, Lab Manager Jason Allen had the opportunity to travel to Cambodia to take part in The Dolphin Swim, a fundraising and awareness-building swim down the 75 miles of the Mekong River used by the fewer than 100 remaining Irrawaddy dolphins. During the swim, our team — which included Khmer and international conservationists and scientists — swam from Stung Treng to Kratie with only a boat and kayaks for support.

The four-day swim event was a great success, safely covering the planned route on schedule thanks to the local knowledge and expertise of the WWF-Cambodia captains who regularly work on the river. They had the privilege of seeing Irrawaddy dolphins on three of the days, including several calves. Sadly, they also found and marked several fishing nets that were then removed by local river guards. These illegal nets remain the leading cause of premature death for Irrawaddy dolphins. The best thing about participating was being able to spend so much time taking in the nature and beauty of the upper Mekong River. Check out a video about The Dolphin Swim through the QR code to see what it was really like to travel down the Mekong.

Every day the team was pleasantly surprised by how much positive attention and support they received from all of the local communities wherever they stopped to rest or camp. However, during these interactions with locals the team learned the sad truth that thousands of Cambodian children can't swim and drowning is the leading cause of death for Cambodians aged 1 to 17. This has given rise to a new initiative "Swim like a dolphin" with the goal of making more Cambodian children safe and confident in the water, while also having fun. Visit thedolphinswim.org to help or learn more.

Another important way SDRP contribute to Irrawaddy dolphin conservation is by providing database expertise and independent photographic analysis, which allow for more accurate and timely estimates of the number of dolphins remaining and therefore increases the effectiveness of conservation efforts. During the second half of Jason's trip, he presented an update on this work during The International Expert Workshop on Management and Conservation of Irrawaddy Dolphins in the Mekong River. He also accepted an invitation to join the Scientific Advisory Committee for the Global Small Cetacean Research & Conservation Initiative, a non-governmental, science-based body dedicated to providing scientific guidance for ongoing and future small cetacean conservation efforts that was initiated and led by the Wuhan Baiji Conservation Foundation, China.

*One of two safety kayaks for The Dolphin Swim helps a local Cambodian river guard remove a fishing net from the river. Nets like these remain the leading cause of premature death for Irrawaddy dolphins.*

*Want to see what it was really like to adventure down the Mekong River in support of the critically endangered Irrawaddy dolphin? Use this QR code to check out a video from WWF-Cambodia.*

*An Irrawaddy dolphin surfaces near The Dolphin Swim's support boat. Fewer than 100 individuals of this critically endangered species remain in the Mekong River.*

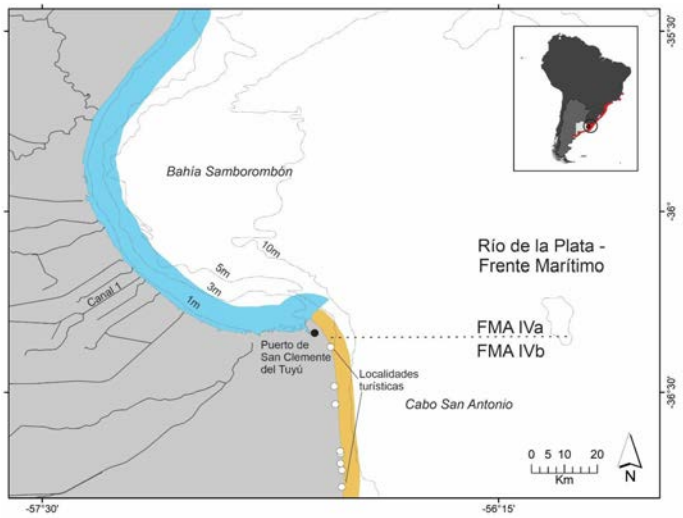
## Franciscana dolphin conservation research, outreach, and education activities in Argentina

*Fernanda Zapata, Victoria Gonzalez Carman, Gustavo Thompson, Ignacio Bruno, Agustina Caride, Ana Cabrejas, Agustin Echezarreta, Roberto Nicolas Lai, Ximena Merelle D'herve, AquaMarina*

Over the past few years the AquaMarina team in Argentina has engaged in a variety of franciscana (*Pontoporia blainvillei*) conservation activities, summarized below, with funding from Disney Conservation Fund, and administered through Brookfield Zoo Chicago's Sarasota Dolphin Research Program. The SDRP has worked on franciscana conservation with AquaMarina since 2003.

*Mortality of Franciscana Dolphins During the Black Drum Fishing Season in Argentina*

Each year, artisanal fisheries targeting black drum in Samborombón Bay overlap with the core habitat of the endangered franciscana dolphin, resulting in one of the highest known risks of incidental capture for this species. Between September and December 2023, our team at AquaMarina monitored the artisanal fleet based at the port of San Clemente del Tuyú, northern Buenos Aires Province. This period coincides with the peak season for black




*Survey locations of franciscana dolphin bycatch in northern Buenos Aires Province, Argentina. Colors indicate artisanal fishing areas in Bahía Samborombón (light blue) and Cabo San Antonio (orange). FMA: Franciscana Management Area. Inset: gray shading highlights Buenos Aires Province and red shading represents the distribution of the franciscana dolphin.*

*Black drum fish catch in an artisanal fishing vessel (Photo by Lic. Sofia Jones).*

drum (*Pogonias courbina*), a culturally and economically important species, but also overlaps with areas heavily used by franciscana dolphins. Based on 259 fishing trips and the fishing effort of 44 artisanal fishermen, we gathered detailed data on bycatch through direct collaboration with fishers. In total, 96 dolphins were documented entangled in bottom-set gillnets during the three-month season. Mortality was strongly associated with fishing effort, especially soak time, with an estimated average rate of 0.187 dolphins per kilometer of net per day. These numbers highlight the severity of the bycatch problem, with impacts that could undermine the long-term survival of local franciscana populations if not addressed. Encouragingly, some fishers expressed concern about dolphin entanglements and interest in testing mitigation measures such as acoustic deterrents (pingers). With the collaboration of artisanal fishers and the SDRP, we are planning trials of these devices in Samborombón Bay during upcoming fishing seasons.

*Collaborative Trials of Fishing Pots: A Safer Alternative for Franciscana Dolphins*

In Argentina, conservationists and fishers are testing innovative fishing pots to reduce dolphin bycatch. Early results show that while catch efficiency remains limited in early trials, pots offer a safe alternative with no entanglements of franciscanas. AquaMarina organized a participatory workshop with the Fishing Gear Development and Capture Methods Program of INIDEP (National Institute for Fisheries Research and Development) and 16 artisanal fishers to design and build experimental fishing pots. Four pots were tested between April and July 2024 in the coastal waters of Samborombón Bay and San Clemente, alongside traditional gillnets, to compare catch performance and safety for marine mammals. Preliminary results showed that while gillnets yielded much higher biomass, pots captured fish with better quality and — most importantly — recorded no franciscana dolphin or other megafauna bycatch. Fishers pointed out challenges related to pot size and efficiency, but their interest in co-developing solutions remains strong, highlighting the value of co-designed approaches that combine local knowledge and scientific expertise. Future steps include testing modified designs with more units and in different seasons, aiming to refine pots as a viable, dolphin-safe alternative to gillnets. We are grateful for the support of INIDEP and artisanal fishers in this collaborative innovation to protect franciscanas while sustaining artisanal fisheries.

*Escuela de Mar: Inspiring Communities to Protect the Franciscana Dolphin*

Through interactive activities on beaches and in schools, the *Escuela de Mar* program brings ocean conservation to life, reaching thousands of people and building empathy for the franciscana dolphin. In January and February 2024,

*Artisanal Fisher Jose Arce using nets and pots simultaneously to compare different fishing methods (Photo by AquaMarina).*

*Children from the San Clemente del Tuyú summer camp who participated in a Photo-ID fin game using materials provided by the SDRP, which we incorporated into our activities (Photo by AquaMarina).*

*Families are being instructed on what to do if they encounter a stranded animal on the beach (Photo by AquaMarina).*

AquaMarina set up the *Escuela de Mar* stand at a beach resort in San Clemente del Tuyú, Buenos Aires Province. Over two weeks, more than 1,300 people participated in hands-on activities, from assembling skeletons and observing plankton under microscopes to role-playing as "marine biologists for a day." Children and families also engaged in artistic workshops using recycled materials and left wishes for dolphins at the "Empathy Totem," with messages such as "*I wish dolphins could swim free without nets.*" The program extended into schools across Buenos Aires and Buenos Aires City, adapting activities for different educational levels. These actions fostered empathy, responsibility, and civic awareness among students, creating a lasting connection between communities and marine biodiversity. A creative highlight was the launch of a conservation-themed rap song, teaching people how to respond to stranded animals — a hit that spread through social media and reached more than 16,000 views. Importantly, *Escuela de Mar* was independently evaluated by sociologist Francisco Martinelli Massa, who highlighted its effectiveness in promoting empathy, reflective thinking, and civic responsibility. The evaluation also recommended expanding the program's digital component through AquaMarina's YouTube channel as an additional educational tool. By combining science, art, and play, the *Escuela de Mar* builds a new generation of ocean ambassadors.

*"We Don't Protect What We Don't Know": Building Local Awareness in San Clemente*

Raising awareness is the first step toward conservation. In San Clemente del Tuyú, AquaMarina is working directly with local businesses and residents to make the franciscana dolphin and sea turtles visible as part of the community's natural heritage. In 2024, AquaMarina launched a public awareness campaign among local businesses. Volunteers visited 259 shops, spoke with their owners, and placed a sticker on their windows with the slogan "*Let's protect the franciscana dolphin.*" The idea was simple: to make the species' presence visible to both tourists and residents. The results were eye-opening: although 91% of shop owners were born in San Clemente, 42% did not know dolphins lived along their own beaches. This finding revealed a clear starting point: knowledge is the path to care. The campaign continued in the summer of 2025. By the end of January, four volunteers visited 341 shops. The impact was clear:

- 88% agreed to display the sticker.
- 66.9% knew that sea turtles live in the area.
- 66.6% knew about the dolphins (a 9% increase from the previous year).
- 83 shops still had last year's sticker.
- 117 shops also displayed an infographic about dolphins and/or sea turtles.

Beyond the numbers, shopkeepers' voices gave the campaign its true meaning. "I was waiting for you," said one; another shared, "I know there are dolphins because you told me last year; now I also know there are turtles—wow!" These small actions are building community pride in local biodiversity.

*"3K for the Franciscana Dolphin": Walking and Swimming for Conservation*

Sometimes the best way to connect people with conservation is to celebrate together. In San Clemente del Tuyú, AquaMarina organized a unique event that brought music, art, sports, and community pride to raise awareness for the endangered franciscana dolphin. In February 2025, more than 100 people joined the "*3K for the Franciscana Dolphin*," walking three kilometers along the beach accompanied by a *murga* (a traditional performance group with percussion, singing, and dancing) and colorful flags. Alongside them, open-water swimmer Miguel completed the same route in the sea, cheered on by lifeguards and beachgoers as he arrived at the coast of San Clemente. At *Balneario Costa Maluco*, the walkers were welcomed with a festive closing event featuring music, raffles, talks, and surprises. The initiative's purpose was to raise awareness about the conservation of the franciscana dolphin while strengthening community bonds and a sense of belonging. Local partners made the event possible, including *EcoMurga* from a local school, the inflatable Banana from Playa Norte, the San Clemente pier, *Aula de Mar* swimming school, and Balneario Costa Maluco, among others. Of the more than 100 participants, over half were women and children.

*AquaMarina team and beachgoers joining the 3K walk along the coast (Photo by AquaMarina).*

## Establishing a dialogue with dolphin-watching operators may be turning the tide for the critically endangered bottlenose dolphins of the Gulf of Ambracia (Greece)

*Joan Gonzalvo and Carmen Andrés, Tethys Research Institute's Ionian Dolphin Project*

The subpopulation of bottlenose dolphins (*Tursiops truncatus*) inhabiting the Gulf of Ambracia, Greece, with an estimated 150 individuals, is listed as Critically Endangered in the IUCN Red List of Threatened Species. This largely isolated and small population faces a range of human-induced pressures. Among these, unregulated dolphin-watching is potentially disrupting the dolphins' natural behavior and habitat use. In recent years, some noticeable behavioral changes in Ambracian dolphins had been observed by Tethys Research Institute's researchers. Most significantly, during summer 2024, when conducting biopsy sampling with colleagues from SDRP, no samples were able to be collected due to the dolphins being incredibly evasive, rarely allowing our regular research boat to come within 50-100 m from the boat.

Marine tourism is growing fast in the Gulf and different on-going projects to develop new marinas, or upgrade a few already existing ones, may be adding more pressure and disturbance to local dolphins as a consequence of the likely increase in numbers of recreational boats moving through its semi-enclosed waters. These vessels often approach too fast, too close, or spend excessive time 'chasing' dolphin groups, causing stress and interfering with some of their vital activities such as feeding and resting. Since 2019, a local dolphin-watching company has been operating with two vessels working in tandem, running through and around the dolphins. The cumulative effect of these practices may be the main cause behind the concering change in dolphin behavior, a decline in approachability.

This ongoing and increasingly worrisome situation prompted us to organize a meeting in June, at the early stages of the busy tourist season, with representatives of the dolphin-watching company to share our concerns and to try to convince them about the importance of applying some very basic guidelines to reduce disturbance, such as maintaining minimum approach distances, limiting boat speed and observation duration, and prioritizing the animals' welfare over tourist demands for a "dolphin show." As a first consequence of this meeting and follow-up contacts, the company has improved their practices (e.g., no loud music is now played when the boats are near the dolphins, and their clients are not encouraged to shout or clap to "call for the dolphins' attention" and to "motivate them to have fun and bow-ride their boats"). Moreover, the briefing given to their clients now includes basic information, provided by Tethys, about dolphin biology and ecology, the Gulf of Ambracia, and its conservation challenges.

*Dolphin-watching boats pursuing and boxing in dolphins in the Gulf of Ambracia.*

This change in how the dolphin-watching company operates has been confirmed by conducting undercover ("secret shopper") on-board observations to evaluate dolphin-watching tours and learn about the information given to clients about the animals and their responses. Although we are at an early stage in achieving sustainable dolphin watching and more work will be necessary in the coming years actively involving all local stakeholders, there is indication that this newly established collaboration may be a significant step towards turning the tide for dolphin conservation in the Gulf of Ambracia. We are very grateful to Dolphin Quest for supporting our work.

## Bridging oceans: collaborative research and capacity building for ray and cetacean conservation in the Galápagos

*Krystan Wilkinson and Kim Bassos-Hull, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Sarasota Dolphin Research Program (SDRP) conducts capacity training with colleagues and research institutions worldwide, taking an ecosystem approach to studying dolphins, their predators and prey, and other marine species in the Sarasota Bay study area, some of which are endangered. In 2021, SDRP staff members, Krystan Wilkinson and Kim Bassos-Hull, were invited by research colleague, Dr. Diana Pazmiño, from the Galápagos Science Center (GSC) and Universidad San Francisco de Quito, to provide guidance on tagging and tracking of sharks and rays. In 2023, Krystan and Kim led a workshop at GSC to highlight how acoustic receiver networks for detecting fish tags can be used to address research questions related to marine animal habitat use, residency, and migration corridors; with the ultimate goal for researchers in the Galápagos to establish a shared acoustic network, similar to the Sarasota Coast Acoustic Network (SCAN) that Krystan and Kim co-lead (see SCAN article on page 34 for more info). Through the Ocean Tracking Network's receiver loaner program, Diana's team obtained 12 acoustic receivers for deployment in the Galápagos Marine Reserve. In March 2025, a multi-institutional team – including Krystan and Kim – traveled to

the Galápagos to help deploy the equipment and embark on a research expedition to support a wide range of research initiatives.

The multidisciplinary expedition combined snorkel, SCUBA, drone, and boat-based surveys, as well as targeted sampling and tagging, to advance the conservation of multiple marine species while providing critical training and research opportunities for students. These efforts documented the distribution of four Mobula ray species – including newly confirmed records to rare observations of the giant devil ray and the sicklefin devil ray – and deployed fourteen acoustic tags on both oceanic manta rays and spotted eagle rays, plus seven miniPAT satellite-linked tags on mantas. The team also collected genetic samples from twenty-five manta rays, three whitetip reef sharks, three spotted eagle rays, and one mobula ray; these samples were in addition to the 35 genetic samples collected before and after the research expedition during targeted species-specific surveys. Collectively, the observational sighting data, tag data, and genetic samples will help our research collaborators better understand population connectivity, horizontal and vertical movements, habitat use, and areas of potential human-wildlife conflict for multiple ray species. Concurrent to the ray research efforts, the newly launched sailfin grouper project collected blood and size data from five individuals, including one of the largest sampled to date. These data will be used to refine models on growth, maturity, and spawning trends to support fishery management in the Galápagos Marine Reserve. Between receiver deployment and ray/fish sampling sites, the team collected cetacean (dolphin and whale) sighting data, including observations of a male orca preying upon a sea turtle. This individual was later confirmed to have been first photographed by the Cetacean Galápagos Program in 2016 and tagged with a satellite-linked tag in 2017.

Following the research expedition, SDRP Program Director Randy Wells joined Kim and Krystan on San Cristóbal Island to accompany Daniela Alarcón and Santiago (Santi) Diaz of the Cetacean Galápagos Program for boat-based surveys. These efforts involved taking pictures for photo identification, biopsy dart sampling to collect small tissue samples for genetic and contaminant analyses, and collecting drone images and acoustic recordings for behavioral studies. Over the course of five survey days, the team encountered blue and Bryde's whales, orcas, dwarf sperm whales, common dolphins, and bottlenose dolphins. The bottlenose dolphins appeared to ride at the bow in a way that made them suitable for tagging with satellite-linked transmitters via the TADpole (pole-mounted Tag Attachment Device, see page 33). As a result of this observation, Randy and SDRP Senior Researcher and Lab Manager, Aaron Barleycorn, will be traveling back to the Galápagos in March 2026 to deploy six satellite-linked tags with Daniela and Santi.

Building research capacity is a central goal of our partnerships in the Galápagos and provides a foundation for collaborative, regionally grounded scientific

*Salomé Jaramillo gained large shark acoustic tagging experience during her visit in September 2025.*

*Daniela Alarcón observing research sampling during 2025 dolphin health assessments while Santiago Diaz keeps the animal cool by keeping the skin wet.*

*Santiago Diaz and Daniela Alarcón with Krystan Wilkinson, Kim Bassos-Hull and Randy Wells during 2025 dolphin health assessments.*

*Daniel Armijos and Kim Bassos-Hull with a large spotted eagle ray in April 2025.*

investigation. Following Kim, Krystan, and Randy's visit, SDRP welcomed four Galápagos colleagues to Sarasota in 2025: Daniel Armijos, Daniela, Santi, and Salomé Jaramillo. Daniel is a research assistant at the Galápagos Science Center and worked with Kim and Krystan during April 2024 spotted eagle ray field research. While Daniel already had a lot of ray handling experience, the rays in the Galápagos are much smaller than those seen in Sarasota. The Sarasota research trips allowed Daniel to gain experience with larger individuals, reinforce his knowledge of the species, and learn new methodologies he can apply to his work in the Galápagos, specifically the use of LIDAR technology and drones to collect ray measurements. Santi and Daniela, PhD students and staff of the Cetacean Galápagos Program, participated in the SDRP-led dolphin health assessments in May. During this time, they built connections with professionals from diverse areas of cetacean science and received training in focal follow methodology from SDRP Deputy Program Director, Katie McHugh, to apply in the Galápagos. Santi stayed longer with the SDRP team to expand training in other field-based methods, and under the guidance of Senior Researcher and Lab Manager Jason Allen, began learning to use FinBase and importing Galápagos dolphin and orca sighting data into a catalog. In September 2025, University of North Carolina - Chapel Hill PhD student, Salomé, joined Kim and Krystan for both ray and shark fieldwork. Salomé gained acoustic tagging experience with larger rays and sharks to support her research in the Galápagos focused on the movement behavior of adult and juvenile scalloped hammerheads and juvenile rays. She also observed her first pygmy devil ray during the trip in Sarasota!

We would like to thank our research partners at the Galápagos Science Center, Universidad San Francisco de Quito, Proyecto Mantas Ecuador, University of the Sunshine Coast AU, and Georgia Aquarium. Funding for research activities and international training was provided by Mote Scientific Foundation, an anonymous Sarasota-based foundation, and Georgia Aquarium. All Galápagos-based sampling was conducted under the proper Galápagos National Park and Ecuadorian permitting agencies. All Florida-based sampling was conducted under approved state and federal permits and received IACUC approval from Mote Marine Laboratory.

## Bermuda update

*Robyn Allen, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Bermuda Pedestal and surrounding waters present a unique, idyllic environment to study offshore bottlenose dolphins in deep, cold waters only a few kilometers from shore. There is a history of marine mammal sightings around the Bermuda islands; however, bottlenose dolphin sightings were limited, and unconfirmed, until 2001. Consequently, the year-round and long-term occupancy by these dolphins had not been well established until recently.

The Sarasota Dolphin Research Program (SDRP) supports this research with their many years of expertise in this area, including collaborative tagging and tracking efforts since 2003. Dedicated photo-ID efforts began in 2015 with support from Dolphin Quest as well as the SDRP. The current dolphin photo-ID catalog contains 186 unique individuals. The data are beginning to show that some individual dolphins are seen over multiple years, suggesting that there is repeated occupancy of these dolphins in Bermuda waters. By continuing to track the individuals over time, we will be able to better understand the movements and occurrence of these dolphins. One individual, Tt0050, who was first seen in November 2004, has been identified by its particularly unique dorsal fin seven times. It was most recently seen on October 25, 2019, creating a sighting history spanning almost 15 years! Photo-ID field efforts will continue year-round, increasing our understanding of this dolphin community living in the waters around Bermuda and help better conserve them as well as the environment in which they live. This work is made possible thanks to funding from Dolphin Quest and in-kind support from SDRP.

*Tt0050, first identified in 2004, off the coast of Bermuda in 2019 (Photo by Bermuda Cetacean Sightings).*

# *Behavior, Social Structure, and Communication*

## Playback experiments to free-swimming dolphins examine signal function and effects of received level

*Laela Sayigh, Laurine Lemercier, Woods Hole Oceanographic Institute; Vincent Janik, Marco Casoli, Peter Tyack, University of St Andrews; Frants Jensen, Aarhus University; Katie McHugh and Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

We have been studying the whistling patterns of Sarasota Bay bottlenose dolphins for more than 40 years, especially with regards to their individually distinctive signature whistles. This past year we continued our studies of stereotyped non-signature whistles (NSW) that we described in last year's *Nicks'n'Notches*. This exciting work earned us the inaugural "Coller-Dolittle Prize" for studies of animal communication. We have learned so far that dolphins' responses to playbacks of recorded whistles can vary based on a lot of factors (sex, age, group size, activity) so we have more work to do to understand how NSWs function – stay tuned for updates next year!

While in the process of doing these playback experiments, we observed some unusual avoidance responses to familiar stimuli, leading us to wonder if high amplitudes were the cause. Thus we began a study of how the amplitude level of the signal may affect responses to playbacks, a topic that has not received much study to date. We analyzed direction of response (towards or away) for 93 playback trials (carried out since 2017) involving two broad classes of stimuli: familiar and unfamiliar. The loudness of these stimuli were divided into two categories based on common whistle sound levels. Response direction was significantly influenced by source level, especially in females, who showed more negative responses to higher sound level stimuli, regardless of type. We also looked at fine-scale movement responses (Overall Dynamic Body Acceleration, or ODBA) in a subset of 41 trials where the animals were wearing suction-cup-attached DTAGs (digital sound and movement recording tags). Received level of the sound (measured directly on the tag) significantly affected dolphin movement responses, increasing both the magnitude of ODBA and the duration of elevated ODBA responses, with females again showing stronger responses than males. Lastly, there was a link between response strength and direction, with negative responses showing significantly greater increases in ODBA than positive responses, reflecting high energy avoidance of louder stimuli. These results have led to us to use stimuli no louder than 140dB re 1 µPa in our current trials. Overall, our data show that playback amplitude is an important variable to take into consideration when designing and implementing playback experiments to study signal function.

## Long-term DTAG research supports investigations of the behavioral ecology of Sarasota dolphins

*Frants Havmand Jensen, Jeanne Shearer, Austin Allen, Aarhus University; Laela Sayigh, Woods Hole Oceanographic Institution; Vincent Janik and Peter Tyack, University of St Andrews*

Over the past 14 years, we have been instrumenting bottlenose dolphins in Sarasota Bay with small, short-term sound and movement recording tags (DTAGs) in connection with catch-and-release health assessments. These suction-cup-mounted tags provide a very detailed glimpse into the lives of these animals for up to 24 hours after they are released from their health assessment, and allow us to study their echolocation and foraging behavior, their communication and social interactions, and how they respond to human interactions. In recent years, we have combined these DTAG deployments with overhead observations from a drone. In 2025, we deployed 18 DTAGs on Sarasota Bay dolphins, including several juvenile male groups and a pair of juvenile males with a female, in addition to more typical mother-calf pairs.

Our growing DTAG database now includes 136 tag deployments and is being used to answer a variety of questions. This year, we are continuing a methods-focused project to validate methods for identifying calls from tagged marine mammals and also using data from tagged animals to understand whistle repertoires across the community. We also have had student projects investigating drivers of whistle complexity in calves and developing methods for predicting activity states from accelerometer data, and we are wrapping up a study looking at energetic costs of vessel interactions.

*Left: Austin Allen gets ready to put on a DTAG during Sarasota health assessments in May 2025.*

*Below:* R/V Nai'a *initiating a focal follow in Sarasota Bay, deploying a hydrophone and drone (Photo by Oceanic Research Group, Inc.).*

# Health, Physiology, and Life History

## Sarasota Bay dolphin health assessment: May 2025

*Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

With the primary support of Dolphin Quest and help from a team of 164 people, we were able to match last year's great success with our 2025 Sarasota Bay dolphin health assessment project. During May 12-23, we had 86-96 people working each day from 13 boats, collecting data and samples in support of 39 projects. In spite of bad weather on the first day, we were able to sample 19 individuals. Eleven of these individuals were from our list of highest priorities - first-time samplings. These stats exactly match those of 2024. We sampled six females and 13 males, ranging in age from 3 years to ~35 years. One female was determined to be in her first trimester of pregnancy. Overall, health was good for most of the animals. Body conditions were unremarkable this year, with 11 animals being 1-17 kg above expected weight and eight were 1-9 kg below. Some lung health concerns were noted for a 9-year-old male who had been badly bitten by a shark when very young. DTAGs (digital sound and movement recording tags) were deployed on all but one of the dolphins handled, and hearing tests were performed on all but one dolphin. Satellite-linked tags were deployed via TADpole (see page 33) on two dolphins to test new attachments.

One of the primary goals of the project was to provide training opportunities to those who might be involved with responding to live strandings around the region and country (stranding network members, law enforcement personnel, agency representatives), and to researchers who might want to implement similar projects elsewhere around the world. While we had trainees from Bermuda, Denmark, France, the Galápagos, and Spain, international travel concerns and federal agency cuts and travel restrictions reduced the number of participants in this component of the project this year.

We thank Dolphin Quest, NOAA Prescott, NIEHS (College of Charleston), Harbor Branch Oceanographic Institution/FAU, Fundación Oceanogràfic, National Marine Mammal Foundation, Clearwater Marine Aquarium, Sarasota Police Department, SeaWorld Orlando, and several generous donors for their support of this project.

## Offshore tagging and health assessment

*Randall Wells, Aaron Barleycorn, Jason Allen, Brookfield Zoo Chicago's Sarasota Dolphin Research Program*

Building on our previous offshore work (see page 22), we wanted to: 1) increase our sample sizes for health and movement data of dolphins over the West Florida Shelf, 2) test a novel suction-cup-mounted camera tag developed by Jeremy Kiszka of Florida International University (FIU, see page 37), and 3) try out a new hoop-netting capture approach. With support from Mote Scientific Foundation and FIU/Fahlo, we conducted an offshore tagging and health assessment project during September 24-26. We experimented with streamlining our operations and reducing expenses, with a smaller, faster, less expensive boat (Mote Marine Laboratory's 13-m *R/V William R. Mote*), and a smaller team (11 people total), focusing on brief handling and quick tagging instead of the more extensive health assessments that were accomplished previously with Mote's larger *R/V Eugenie Clark* with its large, open deck and air-conditioned lab space, separate tracking and supplemental crew boat, and a team of 15-20 people.

We had near-perfect conditions offshore, and the new approach worked well with Atlantic spotted dolphins (we had also successfully TADpole-tagged them from this boat), but the boat's bow wave was of little interest to bottlenose dolphins. With Aaron Barleycorn and Jason Allen as the hoop-netters, we were able to catch three Atlantic spotted dolphins, examine, sample, and measure them, and tag them with satellite-linked transmitters. We deployed FIU's camera tags on two of them, and successfully tracked and recovered the small floating tags the next day after they released from the dolphins, more than 50 miles from our dock. Both tags successfully recorded video and behavioral data, the first time they had

*Atlantic spotted dolphin "Patty" the day after tagging, with a somewhat smaller dolphin acting like it might be her calf.*

*Left: Releasing the last three dolphins of the May 2025 health assessment session. The veterinary examination vessel, with the blue tops (*R/V Flip*), is rafted to the sample processing boat with the green tops (*R/V Norris*) (Photo by A. Harshbarger).*

been used on dolphins. We resighted previously tagged Atlantic spotted dolphin Michael, within 25 km of his 2023 tagging location. Furthermore, we matched newly tagged-dolphin Patty with sightings in June 2022 and May 2024 via photo identification within 26 km of her September 2025 tagging site. To date, the three recently tagged dolphins are exhibiting ranging patterns consistent with what we have seen previously for this species. Our September 2025 efforts bring our total up to 15 dolphins successfully caught, sampled, and tagged over the West Florida Shelf during 2022-2025, plus the eight TADpole-tagged dolphins.

*Examination, sampling, and tagging an Atlantic spotted dolphin on a specially designed mat alongside the* R/V William R. Mote.

## Life history patterns of Sarasota Bay bottlenose dolphins

*Sarasota Dolphin Research Program staff, students, volunteers, and collaborators over the decades*

An animal's life history can be considered to be its schedule of survival, growth, and reproduction throughout its lifespan, encompassing events from birth to death. For long-lived animals, such as bottlenose dolphins, identification of life history patterns can be challenging. The Sarasota Dolphin Research Program has been observing the resident dolphins of Sarasota Bay for more than 55 years, and we recently compiled our long-term findings for a peer-reviewed article in *Frontiers in Marine Science*, entitled: "Life history, reproductive, and demographic parameters for bottlenose dolphins, (*Tursiops truncatus*), in Sarasota Bay, Florida."

As summarized in the article's abstract: "Detailed histories have been collected for resident individuals through integrated observations, systematic photographic identification surveys, tagging and tracking, catch-and-release health assessments, remote biopsy sampling, and stranding response. This has produced a unique dataset documenting life history milestones and vital rates of a small cetacean. Analyses of data from 482 resident Sarasota Bay dolphins have revealed estimated maximum life spans of 67 years for females and 52 years for males. For females, predicted age at sexual maturation is 8.5 years, with a predicted age at first reproduction of 9.6 years. Females were observed to give birth when 6-48 years of age, and have been documented with as many as 12 calves, with 45% observed post-separation. Ten percent of females were considered to be reproductively senescent, having gone >13 years without producing a calf. For males, predicted age at sexual maturation is ten years. Males 10-43 years old sired calves, producing up to seven calves each. The average calving interval was 3.5 years, albeit with effects due to mother's age, birth order, and calf survival. Seasonal reproduction was evident, with 81% of births occurring during May-July. Mean annual birth rate was 0.071. Mean annual fecundity was 0.182 births/adult female (defined as females 6 years or older). Recruitment rate through reproduction was estimated to be 0.050 based on calves surviving their first year. Immigration was infrequent, with an estimated annual rate of <0.013. Overall estimated maximum annual loss rate, from mortality, emigration, and changed identification characteristics, was 0.072. Periods of increased loss rates were related to environmental events, and factors that may be important to long-term population resilience were suggested."

The full publication is available through open access: Wells, R. S., A. A. Hohn, M. D. Scott, J. C. Sweeney, F. I. Townsend, J. B. Allen, A. A. Barleycorn, K. A. McHugh, K. Bassos Hull, G. N. Lovewell, D. A. Duffield, C. R. Smith, and A. B. Irvine. 2025. Life history, reproductive, and demographic parameters for bottlenose dolphins, (*Tursiops truncatus*), in Sarasota Bay, Florida. Frontiers in Marine Science, Marine Megafauna, Special Topic: The dolphins of Sarasota Bay: Lessons from 50 years of research and conservation. 12:1531528. doi: 10.3389/fmars.2025.1531528

*The youngest and oldest dolphins of Sarasota Bay in 2025. Above: 2772 is the 2025 calf of F277 (her 2nd calf), first seen August 14, 2025. Below: Boot (F261) is 56 years old this year, and we have seen her with 5 calves since her first identification in 1993, the most recent born in 2020 (and disentangled from fishing line during a rescue in 2024).*

## Baseline respiratory health in Sarasota dolphins 2014-2025

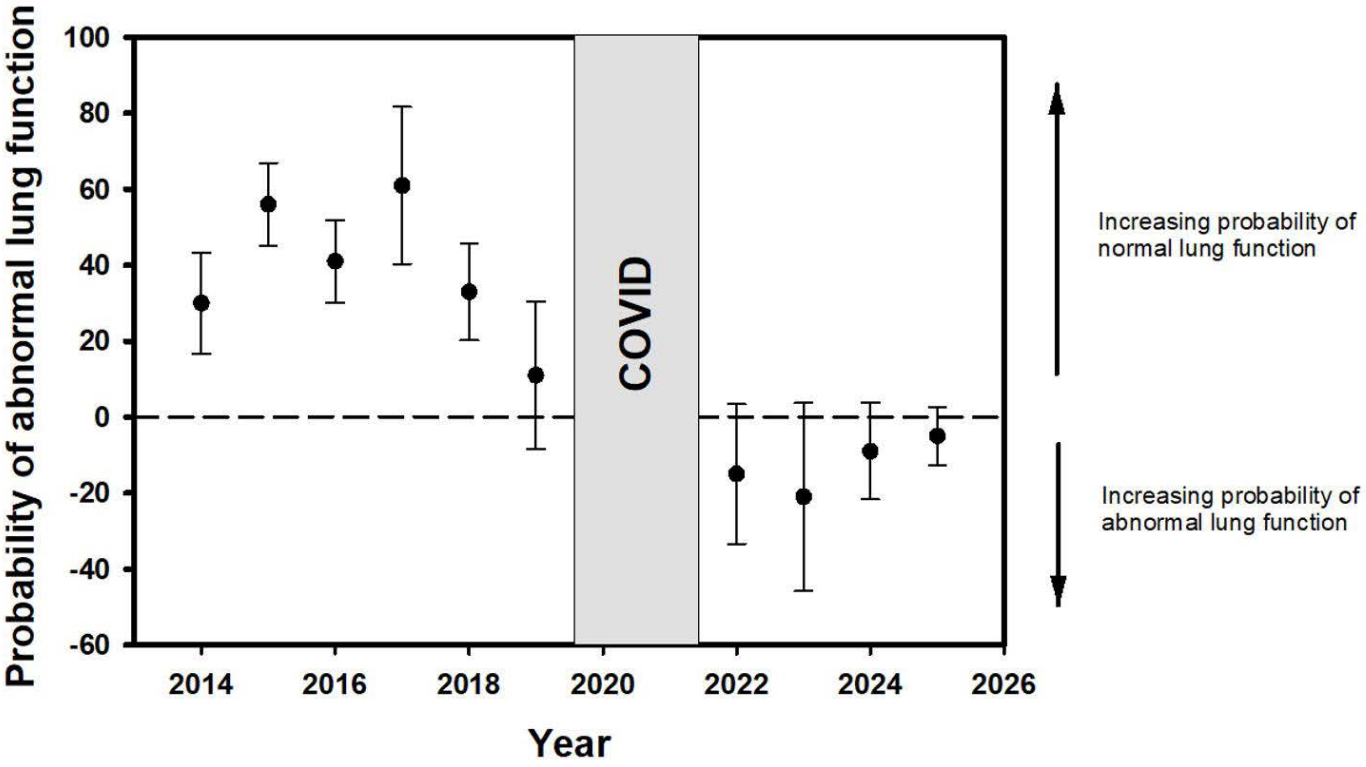
*Andreas Fahlman, Fundación Oceanogràfic; Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago; Jay Sweeney, Dolphin Quest*

Respiratory disease is one of the leading causes of sickness and death in small whales and dolphins, both in the wild and in human care. These animals are very good at hiding signs of illness until the disease is already advanced. Traditional medical tests like X-rays and ultrasound can help detect breathing problems, but they are difficult to carry out in wild animals and require specialized training.

A much simpler and faster option is lung function testing (also called spirometry), which is already widely used in humans to check for breathing problems. In dolphins, we have developed a computer algorithm that uses results from lung function testing to predict whether their lung function is normal or abnormal.

Using data collected from 2013 to 2025, we applied this method to dolphins in Sarasota Bay. The results suggest that after COVID, a larger proportion of animals show signs of abnormal lung function. We are now also using this diagnostic tool to assess stranded dolphins and whales. This gives veterinarians and rescuers an important new way to evaluate changes in lung health, providing valuable information that can guide care and improve outcomes.

*Dolphin undergoing lung function testing using the portable CetaSpiro.*



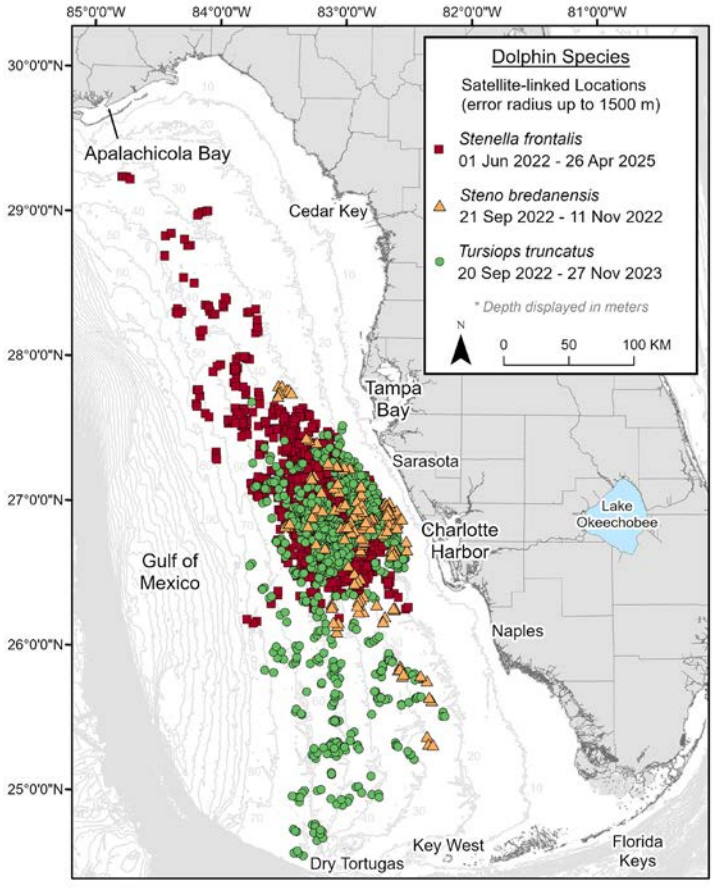

*Results from lung function testing using spirometry from 2013 to 2025. Data are expressed as the average (± standard error of mean) probability of normal (positive values) or abnormal (negative values) results from lung function test. The test provides a score between 100 to -100, where positive values reflects normal lung function and negative values represent abnormal lung function.*

# Ecology, Population Structure and Dynamics

## Movements of Florida's Gulf dolphins

*Krystan Wilkinson and Randall Wells, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

In May 2022, we initiated studies of dolphins inhabiting the waters over the West Florida Shelf with a primary goal to improve the understanding of dolphin stock structure and habitat use through tagging, tracking, and genetic sampling. With support from the Florida RESTORE Act Centers of Excellence grant program and supplemental support from Florida International University (FIU) and Fahlo, we have caught, sampled, and tagged 12 dolphins. We used Mote Marine Laboratory's 16m-long *R/V Eugenie Clark* equipped with a specially designed bow pulpit to hoop-net bow-riding dolphins of three species (six Atlantic spotted, five bottlenose, and one rough-toothed). This vessel also has an air-conditioned lab for processing samples collected for health assessments. Thanks to support from NOAA RESTORE and Mote Scientific Foundation, we have also deployed eight satellite-linked tags on Atlantic spotted dolphins using the TADpole, a pole-mounted Tag Attachment Device (see page 33) developed by SDRP in partnership with Woods Hole Oceanographic Institution. We presented our research results at the 25th Biennial Conference on the Biology of Marine Mammals which was held in Perth, Australia in December 2024.




*Highest quality tracking locations for Atlantic spotted dolphins (n=12), bottlenose dolphins (n=5) and rough-toothed dolphin (n=1) over the West Florida Shelf.*

We are currently developing a manuscript summarizing tracking data from 2022-2025 and long-term photo-identification resightings. These data are showing that these animals are consistently using areas over the West Florida Shelf concentrated between Tampa Bay and Charlotte Harbor, 14-146 km from shore and 63-245 km from the shelf edge. Sam, the single rough-toothed dolphin tagged, showed movements closer to shore than the Atlantic spotted dolphins and bottlenose dolphins. He also had shorter dives (average 1.2 min vs. 2.1 and 2.2 min for spotted and bottlenose dolphins, respectively) to shallower depths (average 9.4 m vs 25.8 m and 21.2 m for spotted and bottlenose dolphins, respectively). All three species showed signs of diving to the sea floor. Our findings suggest that the National Marine Fisheries Service – the U.S. federal agency in charge of managing dolphin stocks or population units – may need to reconsider stock delineations, as for example, Atlantic spotted dolphins are currently managed as a single stock and the continental shelf bottlenose dolphins are considered one stock spanning the 20-m to 200-m isobath across the northern Gulf. Our observations suggest more fine-scale stock structure may be present in offshore environments.

## Movements and dive patterns of spinner dolphins off O'ahu

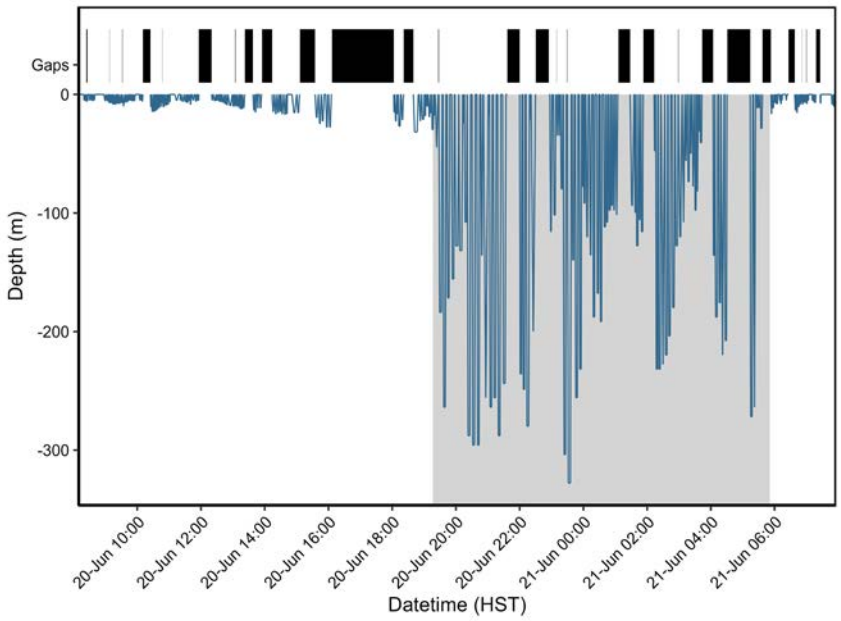
*Randall Wells and Aaron Barleycorn, Sarasota Dolphin Research Program, Brookfield Zoo Chicago; Robin Baird, Cascadia Research Collective*

In its tagging debut outside of the west coast of Florida, our pole-mounted Tag Attachment Device, the TADpole, was used to tag nine spinner dolphins (*Stenella longirostris*) off the island of O'ahu. These dolphins face a number of threats from human activities, and information on their ranges, social patterns, habitat use, and dive patterns is needed to help with their protection. With a grant from Dolphin Quest, Inc., Robin Baird of Cascadia Research Collective and his team worked with Aaron Barleycorn and Randy Wells in June to accomplish the first-ever tagging of this small, fragile, acrobatic species with satellite-linked tags. Leaving from Wai'anae Harbor near the western tip of O'ahu each day, the team was able to tag bow-riding dolphins in shallow, protected bays near shore. This is the first time electronic tags have been used with this species in Hawaiian waters since 1979-80, when a team led by pioneering marine mammal scientist Ken Norris (and including Randy Wells) tagged spinners with VHF (location-only) tags off the Kona coast of the island of Hawai'i. The satellite-linked tags deployed in June via the TADpole were a mixture of: 1) location-only tags, 2) high-resolution GPS tags, and 3) location and dive tags, all produced by Wildlife Computers, and provided a wealth of information on movement and dive patterns.

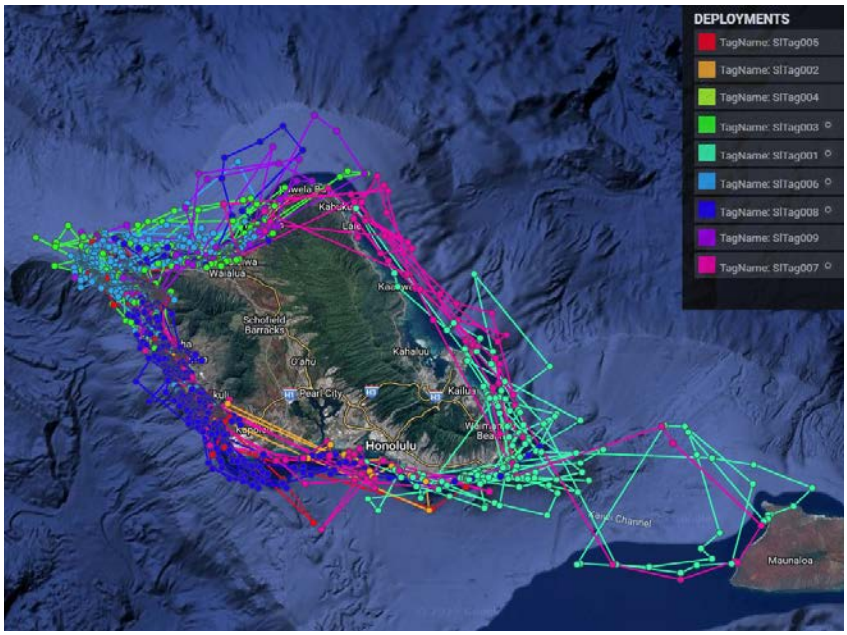
Over the course of tracking that lasted 6-60 days, the dolphins moved around the coast of O‘ahu, with two traveling to neighboring Moloka‘i briefly. The group compositions were fluid, with dolphins frequently coming together and separating. Following the pattern described initially by Norris and colleagues for spinners off Hawai‘i Island, the dolphins tended to rest in shallow inshore waters during the day, and then move offshore to deep water for night-time feeding. Preliminary data analyses found night-time feeding dives to more than 900 ft, with the dolphins staying down for more than nine minutes, the first time such dives have been documented for this species.

We were very pleased with the success of the TADpole tagging operations. The median tracking duration of tags applied by the TADpole was 41 days, more than three times the 12.1 day median reported by Cascadia Research Collective for 121 small cetaceans tagged via an alternative remote tagging system, barbed projectile LIMPET tags. The tag performance with spinner dolphins was comparable to that for Atlantic spotted dolphins SDRP tagged in the Gulf of Mexico (median = 38 days). The TADpole is demonstrating its utility as a conservation tool beyond a prototype as it has now been used: 1) on three dolphin species, 2) in two oceans, 3) from multiple boats, 4) by multiple taggers, and 5) with three different kinds of satellite-linked tags. Additional tagging at other Hawaiian islands is planned.

*Spinner dolphin tagging with the TADpole off O‘ahu, June 2025. The frame-grab on the bottom shows the dolphin leaving with the tag successfully placed on its fin.*




*Example of the diurnal dive patterns of a tagged spinner dolphin off O‘ahu, showing that all of the deep dives (vertical lines) occurred during night-time (shaded) hours, with some dives reaching more than 300 m (>900 ft). Gaps (black blocks at the top) indicate periods when no data were collected.*




*Cumulative tracks of nine Hawaiian spinner dolphins tagged via the TADpole off O‘ahu in June 2025, through July 21st. Different colors represent different dolphins.*

*Spinner dolphin, Tag003, tagged during June 2025 off O‘ahu.*

## Plenty of fish? What surveys reveal about Sarasota Bay and its dolphins

*Elizabeth Berens McCabe, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Sarasota Dolphin Research Program (SDRP) studies the connection between dolphins and the fish they eat by conducting regular seasonal fish surveys in Sarasota Bay. These surveys track how many fish are present, how many different species there are, and the size ranges of those fish. This information helps scientists understand which habitats dolphins rely on, what prey species they prefer, and how *Karenia brevis* red tide blooms affect the local fish community. Since beginning in 2004, the project has also created opportunities for new collaborations and research. For example, a recent effort involving SDRP scientists Krystan Wilkinson and Kim Bassos-Hull along with Dr. Zoe Pratte (Montana State University) examines the microbiomes – the community of microorganisms, including bacteria, fungi, and viruses – of various benthic and marine ray species living in Sarasota Bay. In 2025, surveys indicated healthy fish populations and no signs of red tide, an encouraging sign that Sarasota Bay remains a thriving ecosystem for both dolphins and the many species they depend on.

Our fish surveys take place in two seasons each year: winter (January–March) and summer (June–September). During these surveys, we conduct ten sets per month using the *R/V Flip* and a 183-meter purse seine in seagrass habitats. Last winter we caught 4,782 fish representing 51 different species, an average of 154 fish per set and 113 dolphin prey per set. This summer yielded 46,662 individuals of 62 different species, averaging just over 1,166 fish per set and 1,011 dolphin prey per set. To put these numbers in perspective, 2025 yielded the 11th-highest average winter fish abundance and the 5th-highest summer abundance since surveys began in 2004. Dolphin prey ranked 7th highest in winter and 3rd highest in summer. Compared to 2024, when we recorded our 6th-lowest winter abundance, average winter catches in 2025 increased by 37% for all fish and 95% for dolphin prey. Summer catches were similar to 2024, declining slightly – down 3% for all fish and 1% for dolphin prey.

*A Polka-dot batfish (Ogcocephalus cubifrons) caught and released during July 2025 surveys.*

*Intern Cheyann Eder with two sea stars during August 2025 surveys.*

Our past research has shown that the strength, timing, and frequency of red tide blooms affect how well dolphin prey fish can resist the effects of a bloom, how quickly they recover afterward, and the overall makeup of the fish community. The structure of these fish communities is strongly shaped by the amount of *K. brevis*, but recovery usually happens within a year once the bloom ends. Following the most recent red tide (Nov. 2022 - Mar. 2023), our analyses from the summers of 2024 and 2025 showed patterns similar to past events. During the bloom, fish numbers, species diversity dropped sharply. But once the bloom ended, recovery was fairly quick – by summer 2023, fish abundance had returned to average levels, and in 2024 and 2025, abundances ranked among the highest recorded since 2004.

In summer 2025, common prey fish like pinfish, scaled sardines, Atlantic threadfin herring, mojarra, silver perch, and pigfish were especially abundant, as is typical for this time of year. Mullet and gag grouper were more abundant than expected. However, abundance alone does not tell the full story. Dolphins tend to eat fish within a certain size range. This summer, the proportion of pinfish large enough for dolphins to eat (≥96.3 mm) dropped slightly, from 17.7% in 2024 to 15.7% in 2025 - both below the long-term average of 23.5%. This winter, the proportion of consumable pinfish was about average. A similar pattern was observed in pigfish: the summer proportion within the right size range declined from 33.4% in 2024 to 30.0% in 2025, both slightly lower than the long-term average of 37.6%. In contrast, the winter proportion of pigfish large enough for dolphins to eat rose dramatically, from 56.9% in 2024 to 92.5% in 2025 – well above the long-term average

*Elizabeth Berens McCabe, volunteer Fraser McLean, intern Etaf Jumaa, and intern Caydence Pennington retrieving the purse seine net.*

*Intern Abigail Hansen measuring a pinfish before releasing it back into the bay.*

of 55.8%. These results highlight that prey size, not just abundance, plays a critical role in shaping dolphin foraging opportunities.

Ongoing work continues to investigate the effects of red tide on fish, dolphins, and sharks in Sarasota Bay, as well as how the ecosystem recovers after blooms.

We are deeply grateful to the many interns and volunteers who have contributed their time and effort to this project – their help makes this work possible. Funding is provided by the Charles and Margery Barancik Foundation.

## Mullet on the move: How fish behavior shapes dolphin life

*Elizabeth Berens McCabe, Krystan Wilkinson, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Sarasota Dolphin Research Program (SDRP) examines how wild dolphins in Sarasota Bay interact with their food sources by analyzing dolphin distribution in relation to the fish they eat. Dolphins depend on certain prey species, so understanding how those fish move – where they go, when they are available, and how their behavior changes during disturbance events such as harmful algal blooms caused by *Karenia brevis* red tides – provides valuable insight into dolphin feeding habits. If prey are absent, too small, too large, or found in different habitats, dolphins' foraging success and energy acquisition can be affected.

The resident bottlenose dolphins of Sarasota Bay eat a variety of fish species found in seagrass habitats, including mullet, pinfish, and ladyfish, as well as sound-producing species like spotted seatrout, Gulf toadfish, and pigfish. To better understand prey movements relative to the dolphins, we launched a pilot study in 2023 to learn more about the movement patterns of striped and white mullet, key dolphin prey items. Fish movements were determined using acoustic transmitters – small devices implanted inside fish – and passive telemetry through the Sarasota Coast Acoustic Network (SCAN), a system of more than 80 underwater acoustic receivers in and around the bay (see the SCAN article on page 34 for details). When a fish carrying an acoustic transmitter passes near a receiver, the receiver detects the signal and records the tag ID, date, and time. With help from SDRP interns, 18 SCAN receivers were installed in Palma Sola Bay to support this project, as the area is an important habitat for dolphins, especially mothers with calves. Between October 2023 and November 2024, 78 mullet were tagged with Innovasea V9 acoustic tags, providing long-term, broad-scale movement data throughout the region. In addition, two striped mullet were followed from a boat for a 24-hour period in April 2024, generating short-term, fine-scale movement data.

To date, more than 470,000 detections have been recorded by 70 receivers in SCAN and two regional collaborative networks, FACT along the Southeastern U.S. Coast and The Bahamas and the Integrated Tracking of Aquatic Animals (iTAG) network in the Gulf. These detections showed that tagged mullet move throughout the dolphins' home range. Their movements included signs of possible predation as movements of three fish were detected beyond what would be thought as possible by several hundred miles, as well as spawning, and residential behavior. Fine-scale movements of the 24-hour tracked fish showed strong site fidelity, staying close to their release sites and following what were likely normal movement patterns for that time of year. Interestingly, both fish traveled the least and sought shelter under docks during dawn and dusk, supporting the idea that they may be more vulnerable to predators at those times. Preliminary findings from this project were presented by Elizabeth at the International Conference on Fish Telemetry (ICFT) in Traverse City, Michigan, this summer. Analyses of mullet movement, residency, and habitat use are ongoing, with the final set of 30 transmitters scheduled to reach the end of their battery life in fall 2025.

In the future, we hope to expand this project by incorporating data on verified predation events. These detections would build on our existing movement dataset and improve the interpretation of acoustic telemetry results, such as residency and connectivity analyses, by providing crucial information on the fate of tagged fish. They would also help identify patterns of predation risk, offer new insights into predator-prey dynamics, and guide the strategic placement of acoustic receivers. More broadly, incorporating these data would create a more complete picture of animal movement and predator-prey interactions by directly measuring mullet predation.

We thank Pete Hull, Mote Marine Laboratory's Marine Operations Department, Mote Marine Laboratory's Fisheries Ecology & Enhancement group, and the SDRP interns who contributed to this project. This work would not be possible without their help. Funding was provided by Mote Scientific Foundation.

*Intern Reilly Guth, staff member Cecilia Thompson, and intern Maeve Murphy servicing a tag receiver in Palma Sola Bay.*

*Elizabeth Berens McCabe and intern Romane Mouton during mullet tracking in April 2025.*

## Shark research in Sarasota Bay

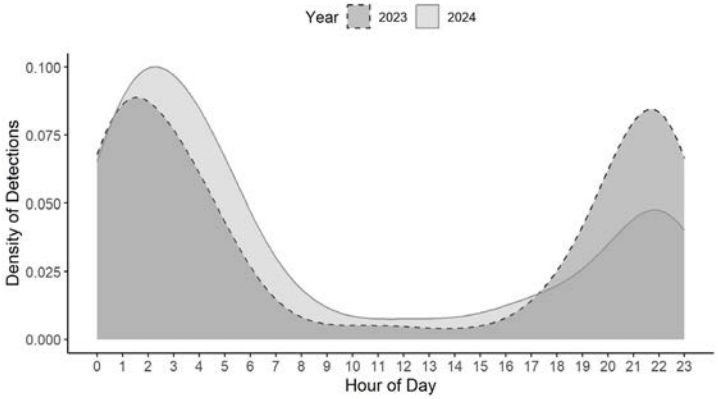
*Krystan Wilkinson, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The SDRP not only studies dolphins, but also their predators and prey to gain a deeper understanding of the ecosystem dynamics that shape the dolphin community. Through monthly photographic identification surveys, we document shark bite wounds on local dolphins, providing evidence of unsuccessful predation attempts. These data are crucial for understanding seasonal and annual changes in predation pressure on the dolphin community. Thus far in 2025, the SDRP has documented at least seven Sarasota resident dolphins with fresh shark bites. Bull sharks and tiger sharks are the most frequent predator of the dolphin residents. As part of her thesis research, New College of Florida MS student and former SDRP intern Sydney Haas is working to identify which shark species are responsible for the observed bite wounds (to learn more about this project see the next page).

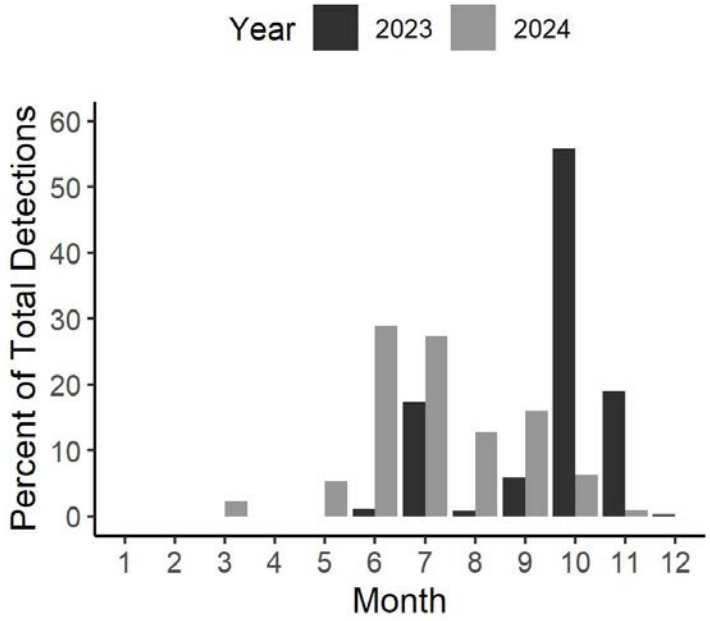
In the past few years, we have begun tagging coastal shark species, in collaboration with Mote Marine Laboratory's Shark and Ray Conservation Research Program, to better understand shark-dolphin interactions in the area. Most of our efforts have focused on bull sharks – the primary predator to the Sarasota dolphin community – using acoustic transmitters to track their movements and habitat use (see SCAN article on page 34 for more information about the technology). To date, 55 bull sharks have been tagged, each with transmitters expected to last seven to nine years. Because receiver downloads provide tag detection data primarily from the previous year, we have only recently begun to receive the data to be able to analyze shark movements within Sarasota Bay.

During 2023 and 2024, six bull sharks were detected on receivers located within Sarasota Bay or in the passes connecting it to the Gulf. Most of the detections occurred at night between June and November. This seasonal use also coincides with when we most often see fresh shark bite wounds on the dolphins. Of those sharks detected in Sarasota Bay, three of the sharks – "Samantha", "Scout", and "Wiley" – returned in 2023 and 2024. Scout, a 191 cm male tagged along the coast of Anna Maria Island in September 2023, spent much of October inside Sarasota Bay in both years. We'll learn if he visited the area again in 2025 after the SCAN receivers are downloaded in spring 2026!

*6741 (2025 calf of 1674) with a fresh shark bite in September 2025.*




*Density of bull shark detections within Sarasota Bay across hours of the day, showing peak occurrence at night.*




*Monthly percentage of bull shark detections that occur within Sarasota Bay, showing greatest presence during June-November.*

Additional bull sharks have also been detected along the coast and at artificial reef sites, and we continue to track their wider movements through iTAG and FACT, two collaborative regional acoustic telemetry networks. We are also monitoring the movements of other shark species including tiger sharks, sandbar sharks, dusky sharks, and one scalloped hammerhead shark.

Funding for this research has been provided by an anonymous donation to Brookfield Zoo Chicago and Mote Scientific Foundation. Special thanks go to Jack Morris, Val Hagan, Dr. Bob Hueter, Dr. Demian Chapman, Capts. Dean Dougherty, Greg Byrd, Pete Hull and Cody Cole (Mote Marine Laboratory), as well as Dr. Jayne Gardiner and Tonya Wiley for their assistance with shark tagging and sampling.

## Developing a method to determine the size and species of shark biting bottlenose dolphins in Sarasota Bay

*Sydney Haas, New College of Florida*

Shark dental morphology studies have shown that interdental distances (the distance between individual teeth) and bite circumference are correlated with the minimum size of a shark and in some cases, the species. This prior research is informing my master's thesis project as I develop a method to determine the species and size of sharks that are biting the dolphins in Sarasota Bay. I am using field-collected photos of dolphins with shark bites and measuring the interdental distances of the bite marks present on them.

Photos of dolphins with shark-inflicted injuries do not have a scale or reference measurement (i.e. a ruler/ tape measure) present to easily measure the shark bite circumference or interdental distance. Therefore, I am using various morphological measurements collected during SDRP-led catch-and-release projects to determine whether certain areas of the body can act as scale in photos. Some of these morphology measurements include the base length and height of the dorsal fin, and various other body measurements. Because shark bite wounds on the lateral (side) body surface may distort the interdental distance measurements, I am also evaluating various girth measurements. Measuring the interdental distances of shark bite marks present on dolphins requires a few preparatory steps. First, I need to examine the growth rate and pattern for each morphological measurement to determine which parts of the body can be used as a scale in photos. The growth models suggest that males and females differ for nearly every measurement in question. Beyond serving as a scale for photo-based measurements, these models will help determine whether body proportions can be generalized across sexes or are so individual-specific that reliable estimates are only feasible for dolphins with recent health assessments or involved in a catch-and-release event, such as a rescue.

Next, I need to determine the amount of distortion that can occur in photos due to the curvature of the dolphin's body. Depending on the morphology reference that is used, morphological features not in the same plane of reference as the bite may appear larger in the measuring software. While this difference may be small, it can influence the interdental distances being measured, which are on the scale of millimeters. To calculate this distortion error along different parts of the dolphin body, during the 2025 Sarasota Bay dolphin health assessment project, a tape measure was laid vertically along the body of the dolphin while collecting various girth measurements. I am measuring the tape measure at different points from the dorsal surface to the ventral surface, via computer program ImageJ, to determine the level of distortion at different points along the curve of the dolphin.

Thereafter, I will examine if the interdental distances present on shark jaws matches those left behind on

*Lisa Whitenack and Sydney Haas working on constructing the faux shark jaws.*

dolphins. I created two faux shark jaws, a bull shark and a tiger shark, using teeth from dried shark jaws, and made impressions onto pork butt (commonly used for wound impression testing) and dolphin blubber taken from recovered carcasses. I will compare the values made by the impressions to those that I measured directly on the faux shark jaws. If differences are present, I will quantify those.

Finally, I will measure the interdental distances of shark bite marks present on the dolphins, using the results from the preparatory steps as a guide. I will only be considering photos with fresh wounds (red or white tissue present) as scars distort, stretch, and fade over time. A minimum size and species of shark will then be assigned to each wound. My ultimate goal is to create a generalized model and workflow such that other researchers working in different systems and with other dolphin communities or species can adapt this model to address predator-prey interactions between sharks and dolphins in their geographic location.

Collaborators on this project include Dr. Krystan Wilkinson of SDRP, Dr. Heidi Harley of the New College of Florida, and Dr. Lisa Whitenack of Allgeheny College. I would also like to thank Gretchen Lovewell of Mote Marine Laboratory's Strandings Investigation Program (SIP) for providing access to and data from recovered dolphin carcasses. I would also like to acknowledge and thank Dr. Stephanie Adamczak and Dr. Aleta Hohn for their guidance during growth model development.

*Sydney Haas with F155, who had a healed sharkbite, during the 2025 Sarasota Bay dolphin health assessment project.*

## Connecting for conservation: New discoveries in pelagic ray biology and ecology while building global capacity

*Kim Bassos-Hull, Krystan Wilkinson, Jonathan Crossman, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

Pelagic rays are among the most endangered groups of elasmobranchs globally. While capable of moving large distances, they are often tied to island or coastal lagoons and estuaries for bearing live young or because of food resources and are susceptible to human impacts, such as bycatch in fisheries, habitat loss, pollution, and vessel disturbances or strikes. Through collective research, large gains in knowledge have been made about their biology and ecology over the last 20 years, which has aided in their conservation and management. One example is the whitespotted eagle ray (*Aetobatus narinari*) which is found in the Atlantic basin and Gulf of Mexico. It is now listed as endangered on the IUCN Red List. Since 2009, Mote Marine Laboratory's Sharks and Rays Conservation Research Program in collaboration with Brookfield Zoo Chicago's Sarasota Dolphin Research Program have conducted research with this species near Sarasota, Florida, sampling and tagging 733 eagle rays to date. This research has involved more than 100 high school, undergraduate and graduate students, professional colleagues, and aquarium personnel in training and capacity-building. Students and colleagues from more than 15 countries including Mexico, Cuba, Brazil, Ecuador, Colombia, Sri Lanka, Kenya, South Africa, U.K., France, and Belgium have participated in this research. Additionally, we have collaborated on in-country research in locations such as Cuba, Mexico, Bermuda, Brazil, and the Galápagos Islands, Ecuador.

These global collaborations are exemplified by Atlantine (Tine) Boggio-Pasqua, a PhD student at Aix Marseille University in France, who is collaborating with us to understand Atlantic pygmy devil ray (*Mobula hypostoma*) biology, ecology, and population structure in the Atlantic Basin. She initially trained with us during her master's research on whitespotted eagle ray age and growth. Now, as part of her PhD, she has just submitted her first dissertation manuscript titled "Closing the gaps: Integrating biological, ecological and taxonomic data to support the conservation of the Atlantic pygmy devil ray (*Mobula hypostoma*)" to Aquatic Conservation: Marine and Freshwater Ecosystems. Tine has also been instrumental in establishing and leading the Atlantic Mobulid Research Coalition, which coordinates researchers in the Atlantic Basin and Mediterranean who are working on critical conservation issues for mobulid rays.

*Salomé Jaramillo (University of North Carolina) and Pilar Blanco (Florida Gulf Coast University) take devil ray disc width measurements in September 2025.*

*Kim Bassos-Hull and Atlantine Boggio-Pasqua release a devil ray after sampling and tagging near Destin, Florida in April 2025.*


*Drone view of the release of a whitespotted eagle ray with overlay of morphometric measurements taken (disc width, total length and standard length).*

While involving several students and research colleagues from a variety of universities, in 2025 we began using a DJI Phantom 4 Pro V2.0 drone (piloted by SDRP Staff Researcher Jonathan Crossman) to test methodologies for measuring ray size while free-swimming (this life history information is important for management). We tested drone measurement accuracy by comparing nine rays measured both on the boat and again after release, finding that all measurements were fairly close (average within 6 cm). Paired with the CatsCam tag, we also tested drone-based and active tag focal follows to assess ray responses to anthropogenic disturbances (such as vessels) and to evaluate data from the CatsCam accelerometer tag compared to behavior recorded with the drone. Next year, we plan to continue refining these methodologies and increase our sample size. Through our studies, we have learned that it takes cooperation and a village of researchers to shed light on ray biology and ecology which ultimately leads to enhanced conservation measures, a topic which Kim presented as an invited Keynote presentation at the Southern African Shark and Ray Symposium in September. These research activities and collaborations have been made possible through support from the Georgia Aquarium, Mote Scientific Foundation, Save Our Seas Foundation, Nausicaá Aquarium, Waterlust and an anonymous local Sarasota philanthropic foundation.


*Southern African Shark and Ray Symposium Keynote speakers Elisabeth Fahrni Mansur (Bangladesh) and SDRP Research Associate Kim Bassos-Hull (second and third from left, respectively) with conference organizers Taryn Murray (SAIAB)(far left) and Rhett Butler (WCS)(far right) in Makhanda, South Africa September 2025.*

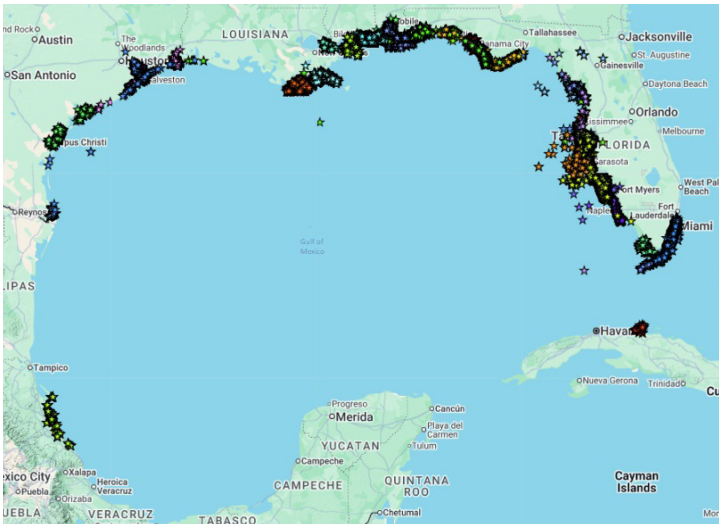
## Gulf of Mexico Dolphin Identification System update

*Carolyn Cush, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Gulf of Mexico Dolphin Identification System (GoMDIS) is a collaborative effort born out of the devastating *Deepwater Horizon* oil spill in 2010 and several Unusual Mortality Events (UMEs) in the northern Gulf of Mexico. These events showed that there was insufficient information to protect bottlenose dolphins as mandated by the Marine Mammal Protection Act. GoMDIS brings together research groups from around the Gulf of Mexico, including the U.S., Mexico, and Cuba, to share and organize photos and data of photographically identified bottlenose dolphins within their study sites. This information is stored on the Ocean Biodiversity Information System Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP) allowing online access for our collaborators to compare animals between study sites, find matches, and arrange data sharing.

Matching dolphins between sites provides information on where they travel, how their ranges may change over time, and even where stranded dolphins originally came from. Compiling individuals' sighting histories from multiple research projects can give greater context to dolphins' lives, and helps with the selection of appropriate release sites for rescued dolphins after rehabilitation.

GoMDIS added thousands of images over this past year and includes images from 46 different catalogs, representing 31,656 dolphins and over 58,180 photos. To date, 2,456 matches have been made between groups, helping combine efforts and expand what we know about these animals across the entire Gulf region. We are deeply grateful to our collaborators for their continued support and contributions of images and data to this effort. Funding over the past year has been provided by the NOAA John H. Prescott Marine Mammal Rescue Assistance Grants program.




*Sightings in GoMDIS 2025 are from 46 different catalogs including the U.S., Mexico, and Cuba.*

# Dolphin Rescues, Releases, and Follow-up Monitoring

## Sarasota Dolphin Research Program involvement in interventions and stranding response

*Randall Wells, Aaron Barleycorn, and Carolyn Cush, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

We have worked in partnership with Mote Marine Laboratory's Stranding Investigations Program (SIP) for decades, helping to investigate reports and recover stranded dolphins to try to better understand the threats to Sarasota Bay's long-term resident dolphins, and leading rescues when interventions are recommended. This builds on our published findings that these individual interventions can have population-level conservation benefits. We have support from the NOAA John H. Prescott Marine Mammal Rescue Assistance Grants program to: 1) provide tags and tracking services to stranding response programs around the country for follow-up monitoring of rescued and/or rehabilitated dolphins, 2) assist stranding network members with preparation of intervention and/or release plans, including selection of release sites and methodologies for follow-up monitoring and maintaining the Gulf of Mexico Dolphin Identification System (GoMDIS) as a means for potentially determining the sites of origins of stranded dolphins, and therefore the most appropriate release sites, 3) train personnel for tag attachment and monitoring, 4) enhance safe dolphin handling capacity for the network by providing training/experience opportunities for potential dolphin catchers, veterinarians, stranding response personnel, law enforcement agents, and government personnel during bottlenose dolphin health assessment projects, and 5) assist stranding programs with dissemination of information resulting from follow-up monitoring of their cases. We consulted with NOAA on a number of potential interventions around the southeast this year, and participated in a bottlenose dolphin rescue effort in southwest Florida. We also consulted on a number of entanglement cases around the world.

## Intervention workshops

*Aaron Barleycorn and Jonathan Crossman, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

On August 21st, SDRP staff members Jonathan Crossman and Aaron Barleycorn were invited to a dolphin and whale disentanglement workshop hosted by Hubbs-SeaWorld Research Institute in Melbourne Beach, Florida. The workshop was attended by organizations from across the state of Florida with the intention of building remote disentanglement capacity and cooperation throughout the state. The morning included presentations about best practices for dolphin and whale rescues, discussion of tool innovation (including the TADpole – see article on page 33), and debriefs of specific interventions over the last year. The afternoon was spent on the water practicing remote disentanglement techniques. We were also able to acquire some new tools that can be used for future interventions.

*Jonathan Crossman with a specialized cutting tool attached to a pole at the bow of the boat practicing whale entanglement cuts on a towed line.*

## Eckerd College search and rescue team advanced marine mammal rescue training

*Jason Allen and Aaron Barleycorn, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

On August 19th, SDRP lab manager and Eckerd College graduate Jason Allen returned to his alma mater in St. Petersburg, Florida, to help the Florida Fish and Wildlife Conservation Commission (FWC) train current Eckerd College Search and Rescue (ECSAR) team members to identify, document, and assist with the rescue of injured, sick, or dead marine mammals. The course provided the opportunity for 40 students to get classroom as well as hands-on boat-based experience responding to strandings involving manatees and small cetaceans. While ECSAR has been assisting FWC for many years, this is the first formal training they have received. The training was very successful and plans are underway to continue this program for the foreseeable future.


*Eckerd College Search and Rescue students receive training to assist the Florida Fish and Wildlife Commission in marine mammal rescues during an exercise on Boca Ciega Bay on August 19 (Photo by Andy Garrett).*

## Dolphin rescue updates

*Aaron Barleycorn, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Sarasota Dolphin Research Program (SDRP) applies its experienced, highly trained team and specialized gear to lead or participate in rescues of dolphins that have been injured, entangled, or stranded. When this occurs in the Sarasota area, we have the opportunity to monitor the animals post-release, in some cases for many years. This led to the important determination that each individual dolphin rescued leverages population-level conservation benefits. When we assist with rescues elsewhere, our colleagues are often able to provide us with updates. Below are updates on some of our rescued dolphins, as of October 2025.

**Merrily**: In 1985, the SDRP performed its first dolphin rescue. Merrily (FB11), the less-than-1-year-old calf of FB19, was found entangled in a mullet net while SDRP personnel were performing life history research nearby. Without intervention she surely would not have survived. The team was able to remove her from the net, and she has been an important member of the Sarasota dolphin community ever since. Now 41 years old, Merrily has had five calves, and at least five grand-calves. Her youngest grand-calf was born this summer. She is seen regularly on our monthly surveys, most recently on September 4, 2025.

*Merrily (FB11) and her grand-calf, SAL1, born to C115 in 2025.*

**Scrappy**: In July 2006, Scrappy (F248), a juvenile male, was observed entangled in a men's Speedo bathing suit. He had managed to put his head through the waist and one of the leg holes, and the suit had worked its way back to the point where it was cutting into his pectoral fins. On August 3, 2006, Scrappy was briefly caught to remove the suit. Now 25-years-old, he and C835 have been forming a male alliance. They have been seen together several times in 2025, most recently on September 10, 2025.

**Ginger**: In December 2008, Ginger (F211), a recently independent juvenile female, stranded on Siesta Beach. SDRP staff were among the first responders. She was taken to Mote Marine Laboratory's dolphin hospital, treated for complications from the stranding, and released two months later. SDRP radio-tagged her and closely monitored her for two months post-release until the tag transmissions ceased. She has since been regularly seen during our monthly population monitoring surveys. Ginger's story inspired SDRP volunteer Cathy Marine to write a children's book about her time at Mote entitled "No Dead Fish for Ginger." She is often seen during surveys with her 2-year-old calf, most recently on September 5, 2025.

*Ginger (F211) and her most recent calf, 2114, born in 2023, in August 2025.*

**Nellie**: In February 2010, the calf of resident dolphin FB25 was seen with plastic twine and a metal hook tightly wrapped around her head, embedding in her tissues. She was temporarily captured, disentangled and released on March 1, 2010. She was named "Nellie" in honor of Dr. Nélio Barros, a great friend and colleague and former Mote Stranding Program manager, who had recently passed away. Since her rescue she has had four calves, and we are expecting her oldest daughter to make her a grandma any year now.

*Nellie (F221) and her most recent calf, 2213, born in 2023, in October 2025.*

**Lizzie**: Long-term Sarasota Bay resident Lizzie (F113) had an eventful 2012. She was given a temporary satellite-linked tag during our health assessment project in May, and she and her 3-year-old calf were regularly followed to compare their behavior with and without the tag. During one of these follows SDRP staff noticed that Lizzie had become entangled with monofilament line around one of her flukes. Shortly after, her calf was struck by a boat propeller that left a large gash on his dorsal fin. Lizzie and her calf were briefly re-captured on July 20, 2012 to remove the fishing line and the tag. Lizzie is regularly seen during our monthly surveys. Born in 1996, Lizzie has had nine calves to date.

*Lizzie (F113) and her most recent calf, 1139, born in 2024, in July 2025.*

**F316**: On April 1, 2019 we rescued F199's calf (now F316) who had fishing line deeply embedded in his fluke, and was incredibly emaciated. Honestly, we did not have high hopes that he would survive, but veterinarians determined his best chance was to be released to recover in the wild. Fortunately, F316 proved us wrong. We continue to track him and see him regularly during surveys. F316 is indeed doing well and his fluke has healed. He was seen on September 4, 2025

**Dit**: On August 9, 2023, SDRP staff traveled to Cedar Key, Florida to attempt a remote disentanglement on a newborn dolphin entangled in clam fishery netting. The dolphin, "Dit", had been seen multiple times since June 18th by the Cedar Key Dolphin Project (CKDP) with a life-threatening wrap of netting around its body and pecs. Working with CKDP and the University of Florida Marine Animal Rescue team, we were able to locate Dit with his mom, "Nail," and use a grapple attached to a long pole to remove the netting from the free-swimming newborn. Soon after, major hurricane Idalia devastated the area with 100+ mph winds and 7 feet of storm surge. Fortunately Nail and Dit survived the storm and are regularly seen together, most recently on May 29, 2025.

*Dit seen this year in May still with mom, Nail (Photo by Cedar Key Dolphin Project taken under NMFS Permit No. 27867).*

**Roy Kent**: On February 1, 2024 one of our survey boats found juvenile dolphin, C556 (now F334), with fishing line and a bobber wrapped around and cutting deeply into his fluke. We made several attempts to locate and remotely disentangle him, but he was determined to be very difficult to locate and stay with once located. Because of his tendency to be "here, there, everywhere", he was nicknamed Roy Kent after the Ted Lasso character. On May 21, 2024, we were able to briefly capture and release Roy, without the fishing line and with a clean bill of health from our expert veterinarians. He is seen regularly during our monthly surveys, perhaps being a little less evasive without the painful entanglement.

**F332**: On January 16, 2024, our survey boat found "Boot" with her 2-year-old calf (now F332) in Palma Sola Bay. The calf had braided fishing line wrapped around its dorsal fin. Braided line acts like a serrated blade when wrapped around a dolphin, cutting deeper and deeper as the dolphin moves. The line had already begun to severely disfigure his fin. Boot spends much of her time north of our survey area, so we did not see them regularly after the initial sighting. Luckily, Boot and calf came into Palma Sola Bay during our 2024 health assessment project, and we were able to temporarily capture, treat, and release them. The line had since accumulated quite a bit of algae, creating more drag and more damage to the fin. We have seen Boot and calf a few times during monthly surveys, most recently on August 1, 2025. F332's fin is fully healed, but will be disfigured for life – a stark reminder to us all to reel in our lines when dolphins are present, to properly dispose of our fishing line, and to avoid using braided line altogether.

*F332 seen in August 2025 in Palma Sola Bay, a few hundred meters away from where he was rescued.*

## Progress with our pole-mounted Tag Attachment Device (TADpole)

*Randall Wells and Aaron Barleycorn, Sarasota Dolphin Research Program, Brookfield Zoo Chicago; Michael Moore and Tom Lanagan, Woods Hole Oceanographic Institution; Robin Baird, Cascadia Research Collective*

Building on our 2023 first successful deployment of a satellite-linked tag on a bow-riding Atlantic spotted dolphin with our pole-mounted Tag Attachment Device (affectionately known as the TADpole), we and our colleagues have been able to tag seven more Atlantic spotted dolphins in April 2024, December 2024, and February 2025, nine spinner dolphins off the Hawaiian island of O'ahu in June 2025, and in October 2025, the Cascadia Research Collective team was able to tag another spinner dolphin and the first bottlenose dolphin off Lana'i.

The SDRP has engaged in tagging dolphins with satellite-linked transmitters since 1990, and has been involved in preparation, deployment, and/or tracking of more than 250 such tags. Previously, attachments of satellite-linked tags by SDRP or others had required catch-and-release, or use of a rifle or crossbow to attach a projectile tag via embedding darts. We wanted an alternative to the existing approaches, so in 2014 we began working with Woods Hole Oceanographic Institution (WHOI) veterinarian Michael Moore and WHOI engineer Tom Lanagan to develop a new approach.

The prototype design developed by WHOI uses pneumatic pressure to secure a tag to the trailing edge of the dorsal fin of a bow-riding dolphin with a single pin, in just a fraction of a second (see photo below). The development process was iterative. Designs were first tested in the lab on dorsal fins from dead stranded animals. After tweaking, field testing was done in Florida and Hawai'i, followed by more tweaking and lab tests, and then more field tests of the tagging system and attachments in Florida. The primary issue we encountered was the great speed with which dolphins can move out of the device when they feel its touch, before the device could trigger and attach a tag. This rapid response time is great for thwarting toothy grabs by potential predators, but not so good for potential taggers. Further modifications reduced the tagging time by crucial milliseconds. Parallel tests of attachment pins were performed with bottlenose dolphins in Sarasota Bay to better understand the duration of attachment and ultimate tag shedding. A description of the tool and its development was published in 2024, and a copy of the paper can be found at: https://animalbiotelemetry.biomedcentral.com/articles/10.1186/s40317-024-00364-3

*Atlantic spotted dolphin "Bernd" tagged via the TADpole on February 26, 2025 off Sarasota, Florida, one of 19 dolphins tagged via the tool to date.*

Tags remained attached to the dolphins for up to 89 days for the Atlantic spotted dolphins (median = 38 days), and 62 days for spinner dolphins odd O'ahu (median = 44 days, some were seen with tags after transmissions ceased). The median attachment durations were more than three times the medians for tagging small cetaceans via an alternative remote tagging deployment system, dart-attached projectile LIMPET tags, as deployed by Cascadia Research Collective. Attachment durations remain shorter than those for hand-mounted tags, and appear to be related to location of tag placement on the fin, which is very challenging given the different simultaneous 3-D movements of the dolphin, boat, and tagger.

Deployments to date have demonstrated the utility of this tagging tool to the point of planning for use with further field projects, but with a number of caveats. We are still learning the limitations of the tool with each attempted deployment, and identifying refinements needed. It is not, and will likely never be, a dolphin tagging tool that will be applicable for every foreseeable situation. However, every dolphin that can be successfully tagged with this tool is one less dolphin that might not otherwise have been tagged, or might have been tagged with a more invasive and less effective (in terms of attachment duration) approach, such as projectile tags with multiple penetrating darts. Among the conditions leading to successful tag deployments to date include: 1) tagger experience, 2) calm conditions, 3) slow-moving dolphins, 4) proper positioning for surfacings at the bow of the boat (distance and angle). This last point is likely vessel- and species-dependent. To date, we have tagged three species. Where dolphins ride and surface will depend on the bow wave pushed by the vessel – different vessels will have different bow wave characteristics. We have successfully tagged from bow pulpits on multiple vessels, using multiple taggers. We need to develop and test the ability to use the tool from a variety of vessels and with different species, and have plans in place to pursue both of these goals in the next year, starting with bottlenose dolphins in the Galápagos.

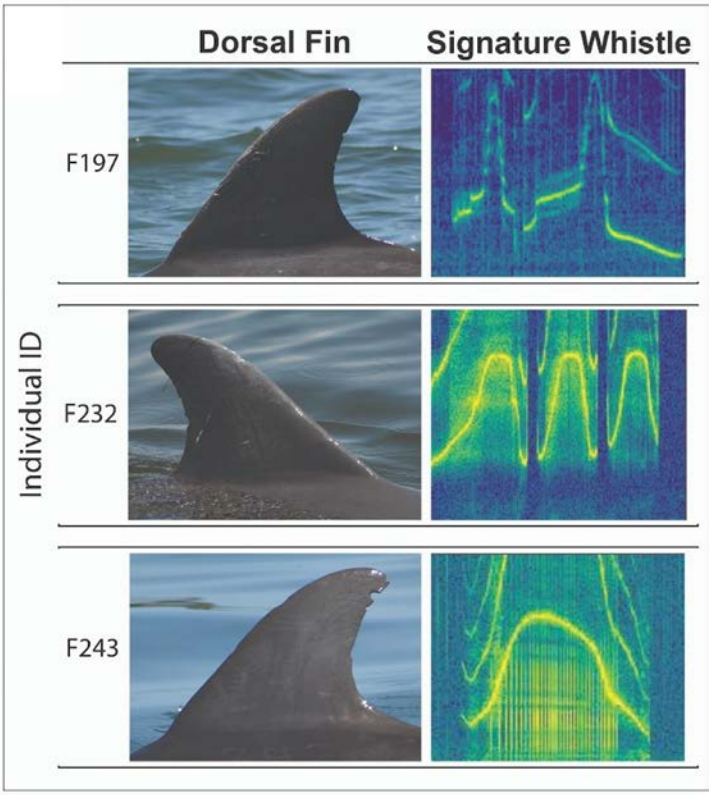
Anyone who would be interested in collaborating with application of the TADpole at their research site should send us a photo of the proposed tagging vessel, and video of the dolphins riding at the bow, so we can assess feasibility.

We greatly appreciate the help of the groups that have provided support along our development journey, including Dolphin Quest, Inc., Mote Scientific Foundation, NOAA's RESTORE program, National Marine Mammal Foundation, Cascadia Research Collective, WHOI, Dolphin Biology Research Institute, and an anonymous donor through Brookfield Zoo Chicago.

## The Sarasota Bay Listening Network

*Katy Holmes, Katie McHugh, and Cecilia Thompson, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

A major goal of bioacoustics – the study of animal sounds – is to develop technologies to automatically detect and identify individual animals from recordings of their sounds (Acoustic Individual Identification – AIID). Scientists from SDRP and other institutions are collaborating to design, engineer, and test an AIID system. Since 2017, we have recorded more than 356,000 hours of underwater sounds in the Sarasota Bay area using passive acoustic listening stations (PALS), collectively known as the Sarasota Bay Listening Network (SBLN, see map on next page). PALS consist of shore-based dataloggers that continuously record sounds picked up by cabled hydrophones (underwater microphones) situated in nearby waters. Over the past year, we have begun to upgrade the PALS so that they not only record underwater sounds but also automatically detect dolphins and manatees using these recordings. How does this work? The upgraded system, engineered by Loggerhead Instruments and known as PALS2, runs a deep-learning algorithm called a Convolutional Neural Network, or CNN, that detects patterns in visual representations of sound recordings called spectrograms. CNNs are trained on labeled datasets consisting of many examples of target and non-target sounds, such that they "learn" to recognize sounds of interest. In this case, we use a CNN trained to identify dolphin whistles and manatee calls.




*Researchers identify individual dolphins visually based on unique dorsal fin features, and acoustically from signature whistles, which are also individually distinctive. Examples of the dorsal fins and signature whistles of three Sarasota Bay dolphins are shown.*

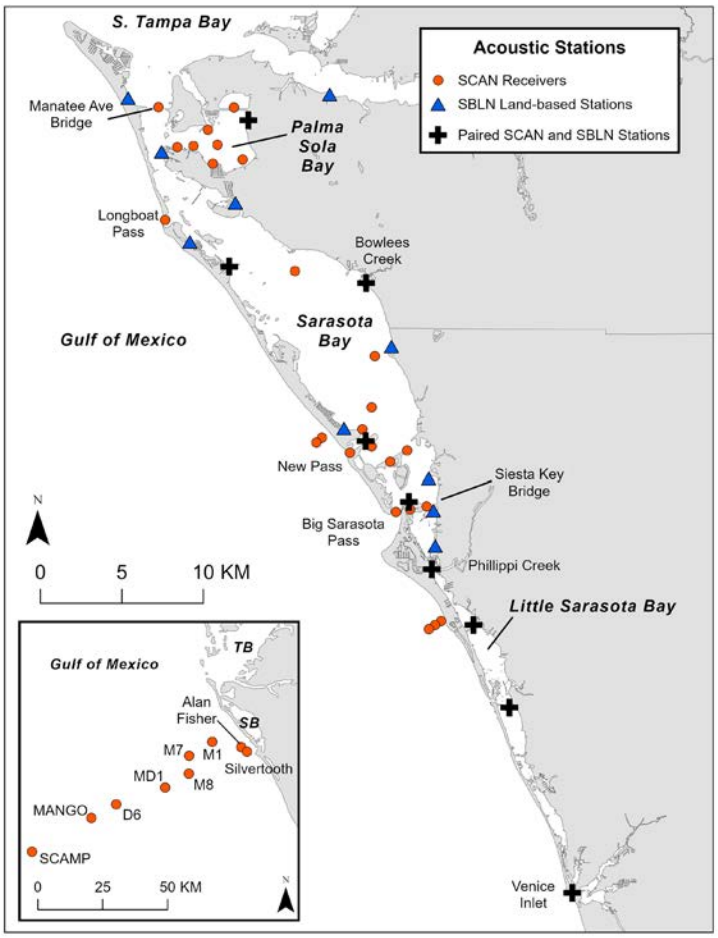
With dolphins, we can take this process a step further and identify individuals from their signature whistles – calls that individual dolphins use to broadcast their identity to other dolphins, similar to human names. The Sarasota Dolphin Whistle Database contains the most comprehensive catalogue of signature whistles for any bottlenose dolphin population worldwide. With this catalogue, collaborators from Woods Hole Oceanographic Institution and University of Aarhus in Denmark are training a second CNN algorithm that will automatically process and classify clips from sound recordings containing dolphin whistles. PALS2 uses Wi-Fi to automatically transmit clips with detected whistles to the cloud, where the second algorithm identifies signature whistles that are present in the Sarasota Dolphin Whistle Database, thus identifying individual dolphins.

In 2025, the SBLN began testing a prototype PALS2 system, as well as a public-facing website that will allow anyone to listen in to dolphins, manatees, and the Sarasota Bay soundscape in real time online when it goes public in 2026. The automated processing capabilities of PALS2 will replace time-intensive manual identification of dolphin and manatee calls in SBLN recordings, enabling more rapid scientific research on dolphin movements and behavior, such as responses to disturbances including noise from human activities, and locating specific individual dolphins to expedite rescues from entanglements.

## The Sarasota Coast Acoustic Network (SCAN): System status and hurricane impacts

*Krystan Wilkinson, Kim Bassos-Hull and Elizabeth Berens McCabe, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

The Sarasota Coast Acoustic Network (SCAN) is made up of more than 80 underwater acoustic receivers in and around Sarasota Bay, Florida. Partners include Brookfield Zoo Chicago's Sarasota Dolphin Research Program, Mote Marine Laboratory, New College of Florida, Florida Atlantic University's Harbor Branch Oceanographic Institute, and several other Florida-based institutions. This network collects vital data on the movements and habitat use of a wide variety of tagged animals – some of which are threatened or endangered. These include bull and tiger sharks (common predators of Sarasota Bay dolphins), snook, mullet, blacktip sharks, whitespotted eagle rays, and lesser devil rays. Acoustic receivers "listen" for acoustic transmitters (or tags) which emit a sound signal or "ping." When an animal carrying an acoustic transmitter passes nearby, the receiver detects the signal and logs the tag ID, date, and time.




*Existing and planned distribution of stations in the Sarasota PALS Network. SCAN stations represent underwater acoustic receivers while SBLN stations are shore-based hydrophones. For simplicity, SCAN receiver locations represent general areas being monitored and are not representative of the number of receivers in each location.*

Installing, maintaining, and retrieving receivers presents both financial and logistical challenges. Stations are typically serviced once a year, as the work requires specialized equipment and coordination with dive teams. Receivers are located in a range of environments – from shallow seagrass beds to deep passes and offshore waters – where strong currents, boat traffic, and depth can complicate anchoring, diving, and recovery. These factors make the process resource-intensive and require careful planning to ensure long-term data collection.

In 2024, the SCAN receiver array was significantly impacted by three hurricanes (Debby, Helene, and Milton), resulting in the loss, physical damage, and displacement of receivers, as well as increasing ambient noise levels that can temporarily reduce detection efficiency and range. With a generous donation from a local Sarasota anonymous foundation we were able to purchase replacement receivers and are collaborating with Reef Innovations Inc. in Sarasota to design a new receiver base that will be incorporated into reef balls. This new design for our coastal, less-protected receivers will not only reduce the risk of equipment displacement, but will also provide stable structure for reef habitat, enhancing the ecological value of SCAN monitoring sites. We will also be moving towards incorporating new Innovasea NexTrak receivers into the array which have a 40% greater detection range.

Despite the hurricane-induced challenges during 2024, SCAN was able to provide more than 190,200 detections of 184 distinct tags representing more than 17 unique species to tag owners via regional collaborative networks, iTAG (Gulf of Mexico) and FACT (U.S. Atlantic and The Bahamas). In addition to sharing tag detections, sharing the science with research colleagues and resource managers is an important aspect of the work we do. Data provided by SCAN were presented at five scientific meetings and two professional conferences, including the Southern African Sharks and Rays Symposium where Kim Bassos-Hull delivered a keynote address.

Ongoing improvements to the SCAN receiver array aim to optimize coverage and data collection across Sarasota Bay and along the coast. In 2023, we launched a pilot study to collect movement information for striped and white mullet – important prey for Sarasota Bay's resident dolphins (see the mullet tracking article on page 25 for more details). At the start of this effort, 18 SCAN receivers were installed in Palma Sola Bay, an important area for dolphins, especially mothers with calves. The receivers were strategically positioned in shallow seagrass beds, channels, access points to Robinson Preserve (a habitat restoration area), and at the bay mouth connecting Palma Sola to Sarasota Bay. Many of these receivers will be removed once the current mullet transmitter batteries run out in late fall 2025; the receivers will be repurposed for broader use within the SCAN array. Receivers previously deployed in creek habitats to support a study of snook movements have also been removed following transmitter battery expirations; however, two creek sites – Bowlees Creek and Phillippi Creek – will be retained for continued monitoring as they have contributed important detections for fish and shark movements and overlap with the Sarasota Bay Listening Network (SBLN). The SBLN is the sister network to SCAN, and together, these networks form The Sarasota PALS Network (PALS = Passive Acoustic Listening Stations). Additional SCAN stations will be added in 2026 to further increase overlap with SBLN, enhancing connectivity between the networks and improving our understanding of animal movements throughout the estuary (see map).

We would like to thank Mote Scientific Foundation and an anonymous local Sarasota foundation for their generous support throughout the development and continued maintenance of SCAN and the broader Sarasota PALS Network.

*Kim Bassos-Hull and Krystan Wilkinson demonstrate the active tag tracking system to Santiago Diaz from the Galápagos in April 2025.*

## Epigenetic age determination from tiny skin samples

*Ashley Barratclough, National Marine Mammal Foundation*

Epigenetics is giving scientists an exciting new way to study dolphins by estimating their age from tiny chemical changes in DNA, called DNA methylation. These changes happen in predictable patterns as animals get older, enabling us to create an Epigenetic Aging Clock. Even better, the method only requires a small skin sample, like the tiny biopsy collected when researchers attach a tracking tag to a dolphin's dorsal fin, to obtain sufficient DNA.

We now have a bottlenose dolphin Epigenetic Aging Clock with over 1,000 samples included. We have been able to apply this Clock to the samples collected during the SDRP studies over the West Florida Shelf (see page 22), specifically on 12 offshore dolphins, including five bottlenose dolphins with estimated ages between 7 and 29 years. This shows that epigenetics can provide accurate age estimates for dolphins that live outside well-studied populations, opening a window into the lives of animals that are otherwise hard to study. Knowing the age of offshore dolphins helps scientists understand population structure, survival, and overall health – information that is essential for conservation planning.

In Sarasota Bay, most dolphins have well-documented birth years thanks to decades of long-term study. But a few – seven individuals over the years – had unknown or uncertain ages. Using epigenetics, we were able to estimate their ages, which ranged from 2.5 to 41 years. Filling in these gaps gives researchers a clearer picture of lifespans, survival rates, and population dynamics, providing a powerful new tool for protecting dolphins both inshore and offshore.

*While most ages of Sarasota dolphins are known because we have observed them since birth, a technique is needed for determining the ages of dolphins of unknown history - epigenetics is filling this gap. Above C874 and her first calf, 8741, first sighted May 19, 2025.*

## Development and applications of a waterproof, mobile electrocardiogram (ECG) for dolphins

*Barb Linnehan, National Marine Mammal Foundation, Angell Animal Medical Center*

In both wild and managed dolphin care settings, cardiac assessment and monitoring are difficult due to inherent logistical challenges of animals living in the marine environment. Previous methods for in-water electrocardiogram (ECG) monitoring in dolphins faced limitations like signal interference, motion artifacts, and absence of wireless systems. This can make heart rate and rhythm monitoring particularly challenging in both settings. To meet this need, we have worked in collaboration with the U.S. Navy Marine Mammal Program and bioengineers at Luna Labs to create a mobile ECG specifically designed for dolphins while swimming. This collaborative effort was made possible by a grant from the Office of Naval Research, Small Business Innovation Research program, awarded to Luna Labs and the National Marine Mammal Foundation. The mobile dolphin ECG device that we developed is fully submersible and can be used in a variety of scenarios to improve dolphin cardiac monitoring. The ECG electrodes are embedded in novel, vacuum-powered suction cups, which maintain contact with the animal's skin despite water or animal motion. The device can be incorporated into a harness worn by trained dolphins while freely swimming, or can be used without the harness in animals not trained to wear equipment or in other scenarios, such as during transportations or during health assessment monitoring. Improved dolphin cardiac monitoring in a variety of settings, particularly while the dolphins are in-water, is invaluable in expanding diagnostic tools to assess cardiac health and monitor patient stability.

Limited ECG data has been published for wild dolphins, and for many dolphin species there are few baseline data available. There were previously no waterproof, wireless ECG systems available for wild dolphin cardiac monitoring.

*Barb Linnehan listening to the heart rhythms of Brooke (F309) while the dolphin is being monitored with an in-water electrocardiogram (ECG) instrument.*

*Barb Linnehan and Ashley Barratclough observe real-time heart rhythms on a tablet from a mobile ECG monitor on a dolphin nearby.*

*Left to Right: NMMF staff Ashley Barratclough, Barb Linnehan, Dayna Beagle, and Danielle Roberts during Sarasota Bay health assessments in May 2025.*

After successful use with managed care dolphins, we applied this mobile ECG technology to wild dolphins for the first time during the May 2025 Sarasota Bay dolphin health assessments. The ECG proved to be a valuable tool for monitoring the dolphins' heart rate and rhythm during handling, particularly while in the water. We were able to provide 713 minutes of live monitoring for 11 dolphins, with 608 minutes of primary in-water monitoring and 105 minutes as secondary monitoring on deck.

Gathering baseline data on dolphins during health assessments and improving the available ECG tools for monitoring will help continue to fill data gaps while also providing more information for patient stability while being handled. As we continue to develop the prototypes and various applications of the device, we hope that this technology will be able to benefit wild cetaceans and other marine mammals in expanded settings, to include stranding response, as well.

## Recent deployments of a new camera tag to unravel the behavior of free-ranging dolphins

*Jeremy Kiszka, Florida International University*

On September 24, 2025, and for the very first time, a newly designed suction-cup tag incorporating a camera and several other sensors was successfully deployed on two Atlantic spotted dolphins over the West Florida Shelf. These tags are the result of several years of development both in the laboratory at Florida International University and tested on bottlenose dolphins under managed care in the Florida Keys (Island Dolphin Care). AVEDs (Animal-borne Video and Environmental Data collection systems) have been developed since the 1980s on several marine species such as sea turtles, seals, and large whales, collecting videos coupled with multiple sensors (depth recorders and accelerometers, for example) that enable researchers to visualize what animals see in their natural habitat. These tags are attractive to researchers as they provide detailed records of behaviors that are difficult or impossible to observe from a boat, a drone, or any traditional observation platform. However, most tags available on the market are inappropriate for fast-moving dolphins: these animals are simply too fast or too small to tolerate existing devices. As a result, there are still many mysteries about the behavior of dolphins, such as their interactions with their prey or their social behavior. In 2020, I initiated a project to develop an AVED unit for small cetaceans (< 3 meters) including a camera, a logger collecting continuous data on depth, temperature, acceleration, and a gyroscope (measuring orientation). Since the tag is meant to be deployed for a period of about 12 hours and is attached with four suction cups, a release system was developed using a small magnesium link corroding with seawater, and a satellite-linked tag allows us to retrieve the camera tag once it is floating at the surface.

The project went through multiple phases: the design using computer flow dynamics, the test on animals kept under managed care, and the test on free-ranging animals…I will quickly mention that on several occasions, the tests failed, and the design had to go through multiple iterations! However, after years in the making, with the collaboration of the Sarasota Dolphin Research Program, we were finally able to deploy the tags. The two very first attempts over the West Florida Shelf resulted in the collection of several hours of data that are currently being analyzed: Atlantic spotted dolphins "Buddy" and "Denise" helped us to finally see that this tag is working and performing as we wanted it to! Of course, it is just the beginning and we now need more deployments, which we hope to do over the next year depending on the opportunities…more soon!

*Above: Atlantic spotted dolphin "Buddy" surfacing with a suction-cup camera tag. This was the first deployment ever of the newly designed tag.*

*Left: Jeremy Kiszka with his successfully recovered camera tag 50 miles offshore of North Captiva Island.*

# *Education, Outreach, and Training*

Education continues to be a major component of our program's activities, directed toward the general public, students, colleagues in the United States and abroad, and wildlife management agencies.

## Public education and outreach

We work to educate the general public regarding bottlenose dolphins and conservation issues through public presentations and displays at Brookfield Zoo Chicago and elsewhere, articles and interviews, and through volunteering and citizen scientist opportunities. We also produce books for the general public and students. For more information on our program's books and publications, please visit sarasotadolphin.org.

In response to an increase in dolphins taking bait, catch and discarded fish from anglers, we worked with NOAA Fisheries Service, Hubbs-Sea World Research Institute, Disney Conservation Fund, and fishing guides and anglers to develop an educational card displaying 10 tips intended to improve the experience of the angler or boater while enhancing protection for dolphins. The cards are available in English and Spanish as downloads at through the SDRP website at: sarasotadolphin.org/videos-and-downloads.

As a complement to the cards, we helped to develop a 30-second public service announcement (PSA), "Don't Feed Wild Dolphins." This animated PSA highlights the dangers of feeding wildlife along with ways that members of the public can interact with wild dolphins in a more responsible manner. This PSA, along with brief (2-8 min) educational videos we have produced about dolphin conservation and biology, are available through the SDRP website, at sarasotadolphin.org/videos-and-downloads.

We are participants in the Science and Environment Council of Southwest Florida's Watershed Audio Tour. This program features stops at sites across Sarasota and Manatee Counties, where stands with interpretive materials provide phone numbers that lead to more detailed descriptions. Each stop delivers watershed highlights, interesting facts, and suggestions for easy ways to help protect watersheds. While the tour can be accessed free from anywhere, visiting the featured locations at outdoor sites provides listeners an up-close and personal experience. Stops describing the dolphins of Sarasota Bay have been installed at Nora Patterson Park at the north end of Siesta Key, and at Selby Gardens' Historic Spanish Point. More information is available at: http://watershedtour.org/.

If you have not visited our website sarasotadolphin.org recently, you should take a look (and listen). Links to our publications are provided (sarasotadolphin.org/publications). The dolphins that have been featured as "Fin of the Month" in our e-newsletters over the years are compiled on the website, and in addition to photos and background information, recordings of their signature whistles have also been provided by our collaborator, Laela Sayigh (sarasotadolphin.org/meet-dolphins). Check out sarasotadolphin.org/learn/fun-facts!

## Sharing scientific findings and participation on international and governmental panels

Our efforts to provide information to our colleagues and wildlife management agencies continues through publication of numerous peer-reviewed scientific articles, through invited presentations at various scientific conferences, and through participation in national/international working groups and panels such as the U.S. Marine Mammal Commission Committee of Scientific Advisors on Marine Mammals, the NOAA/NMFS Bottlenose Dolphin Take Reduction Team, the U.S. Animal Telemetry Network, the Florida Marine Debris Reduction Guidance Plan Working Group, and the IUCN Cetacean Specialist Group.

## International training opportunities

As an important component of our mission, we provide training opportunities for scientists and students from outside of the United States. These training opportunities allow foreign scientists and students to participate in SDRP field and laboratory research activities and discuss with staff how such activities might be applied to their own situations at home. Standardized research methodologies facilitate comparisons across research sites. During the past year, we were joined by colleagues and students from Bermuda, Denmark, France, Galápagos, and Spain.

## Graduate students

As described throughout this newsletter, graduate students from a variety of institutions involve the resources of our program as they conduct their thesis or dissertation research. To date, 60 doctoral dissertation and 55 master's thesis projects have benefited from association with our program, through field research opportunities or access to data, samples, or guidance, including assessment. Over the past year, 13 doctoral students and five master's students have been making use of resources provided by the SDRP:

*Theresa-Anne Tatom-Naecker and Amanda Moors processing blood during health assessments.*

*Jay Sweeney examines a dolphin's eye while Michelle Greenfield-Feig shadows behind.*

**Doctoral Dissertations – Completed**

Hamel, Héloïse. 2025. Learning to mine the underwater soundscape: Behavior and acoustics of porpoises and dolphins through social and foraging challenges. Doctoral dissertation. University of Southern Denmark.

Rojas Corzo, Ariadna. 2025. Toxicology, reproductive (including nursery habitats) and depredation studies in whitespotted eagle rays (*Aetobatus narinari*). Doctoral dissertation. Florida Atlantic University at Harbor Branch Oceanographic Institute.

Swenson, John. Close Kin Mark-Recapture of whitespotted eagle rays to elucidate population structure and size. Doctoral dissertation. University of Massachusetts at Amherst.

**Doctoral Dissertations – Underway**

Asplanato, Natalia. In progress. Abundance, spatial and temporal distribution and trophic ecology of Burmeister's porpoise, *Phocoena spinipinnis*, at the Beagle Channel, Argentina. Doctoral dissertation. Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Departamento de Ecología, Genética y Evolución.

Bankhead, Kyra. In progress. Network based diffusion analysis of human-centric foraging tactics. Doctoral Dissertation. Oregon State University.

Bergacker, Stephen. In progress. Biogeography of spotted eagle ray (Aetobatidae) - combining species delineation, population dynamics, and ecology. Doctoral Dissertation. University of Belgium.

Boggio-Pasqua, Atlantine. In progress. Life history, spatial ecology and population genetics of the West Atlantic pygmy devil ray (*Mobula hypostoma*). Doctoral Dissertation. Aix-Marseille University, France.

Dziobak, Miranda. In progress. Bisphenol A (BPA) in free-ranging bottlenose dolphins (*Tursiops truncatus*): exploring exposure routes, health risks, and insights into information dissemination. Doctoral dissertation. University of South Carolina.

Hampton, Cecilia. In progress. Evaluating feeding ecology of the durophagus whitespotted eagle ray, *Aetobatus narinari*, using CATSCAM suction cup mounted tags. Doctoral dissertation. Florida Atlantic University at Harbor Branch Oceanographic Institute.

Jaramillo Gil, Salomé. In progress. Comparing diet of spotted eagle rays in Galápagos and Florida using fecal DNA. Evaluating movement patterns of spotted eagle rays and scalloped hammerheads in nursery habitats in the Galápagos Islands. Doctoral dissertation. University of North Carolina.

Tatom-Naecker, Theresa-Anne. In progress. Quantitative fatty acid analysis in bottlenose dolphins; Technique validation and application. Doctoral dissertation. University of California, Santa Cruz.

Waldron, Jordan. In progress. Evaluating movement patterns and habitat use of the whitespotted eagle ray, *Aetobatus narinari*, in the Florida Keys. Doctoral dissertation. Florida Atlantic University at Harbor Branch Oceanographic Institute.

Young, Jordann. In progress. Resource specialization in a social marine predator: extent, drivers and impacts. Doctoral dissertation. University of California, Santa Cruz.

**Master's Theses – Completed**

Knight, Maggie. 2025. Characterization of phthalate metabolites in the blubber of common bottlenose dolphins (*Tursiops truncatus*). Master's thesis. College of Charleston.

**Master's Theses – Underway**

Evans, Isabel. In progress. Comparative efficiencies of software for photo-identification of the whitespotted eagle ray, *Aetobatus narinari*, in the Gulf of Mexico. Master's thesis. Swansea University, Wales, UK.

Fry, Elizabeth. In progress. Effects of early life *Karenia brevis* exposure on bottlenose dolphin calves. Master's thesis. New College of Florida.

Haas, Sydney. In progress. Determining shark species responsible for bite wounds observed on free-ranging bottlenose dolphins in Sarasota Bay, Florida. Master's thesis. New College of Florida.

Warden, Kylie. In progress. Climate factor influences, spatiotemporal variability, and bottlenose dolphin health related to plasticizer exposure measured over 30 years in Sarasota Bay, Florida (1993-2023). Master's thesis. College of Charleston.

## New College of Florida's master's degree in marine science program loves SDRP!

*Heidi E. Harley, New College of Florida*

As New College of Florida's Marine Mammal Science program looks back on our first year – and welcomes our second class of Master's students – we are happy to report that our aspirations to engage our students in SDRP's rigorous teaching, mentorship, and research activities have been fulfilled! Our student Sydney Haas has made great progress with her thoughtful and powerful SDRP mentor Dr. Krystan Wilkinson as they work to learn more about how specific dolphin body parts change as dolphins grow. Their ultimate goal is to find a reference point on the dolphin's body that will help researchers around the world better interpret information about which sharks are biting dolphins. Similarly, the ultra-capable Dr. Katie McHugh is helping graduate student Elizabeth Fry investigate the effects of red tide on dolphin calves exposed to *Karenia brevis* either in utero, in the first year after birth, during both periods, or during neither period. These projects are both possible not only because of these excellent mentors, but also because of SDRP's 55-year database focused on the same dolphin society. All of our students have also been in the classroom with SDRP experts and on SDRP boats learning techniques to study dolphins in the field. And the student response? Sydney Haas pretty much said it all: "My dream job would be working with SDRP forever. They're the best." All to say, last year we "had a dream" and this year? SDRP made our dreams come true!

## Grad student update - Where are they now?

*Doug Nowacek, Duke Marine Lab*

I first met Randy Wells and Peter Tyack at the Duke Marine Lab during the summer of 1992 when they, with Dan Rubenstein, came to Beaufort to teach the first marine mammal course offered at the Duke Marine Lab. That was already my third summer at the Duke Lab, that place got me hooked on marine science. The short version of 'where I am now' is right back at that same beautiful spot in Beaufort, NC at the Duke Marine Lab, though now as a full Duke professor in both the Nicholas School of the Environment and the Pratt School of Engineering as the Randolph K. Repass and Sally-Christine Rodgers University Distinguished Chair of Marine Conservation Technology. That's a really long way of saying I have an amazing position at an amazing institution where I get to work with amazing students and colleagues.

Now for the slightly longer version…after meeting Randy and Peter that summer of 1992, I decided to apply for graduate school in oceanography and to medical school to start in the fall of 1993. I was truly ready to pursue either career and figured I would see how things fell out over that year. I got into a few medical schools and, after my last rejection from ONR for what is now the NDSEG fellowship, I thought I was headed to medical school. However, after a wild story with FedEx and some help from folks in Woods Hole Oceanographic Institution and MIT, I did secure a fellowship and headed off to the MIT/WHOI Joint Program in Oceanography to study with Peter and, after defining a project to work on the Sarasota Bay dolphins, Randy too! I have so many wonderful memories and stories from my time in Sarasota, though the two most important things were my PhD and meeting my favorite person in the world, another SDRP grad student and my future wife, Stephanie!

I suppose the one story I should recount was 'The Blimp', or as I like to say, I did drones before drones were cool! As I remember it, some folks from the Navy brought to Sarasota a surplus helium-filled aerostat that had been used for over the horizon radio communications. Their goal was to film dolphins swimming away after being held for health assessments on the thought that their departure from the operation would be 'full speed'; the Navy folks were trying to measure top speeds in cetaceans. Well, unsurprisingly, the view from 100 or so feet above the water was staggering, and Randy asked if I wanted to try to use the blimp to get a better view of dolphins foraging… why not!? With a few spectacular crashes along the way, the footage from up there provided details we'd never seen before and, pairing it with towed hydrophones, gave us some truly novel insights into the acoustic and motor behavior of foraging dolphins. Randy, Peter, and the rest of my PhD committee (Andy Read, Dan Rubenstein, and Cindy Moss) were insightful and supportive of my pursuing this novel approach, and I have continued to work to bring new technology (hardware, software, novel combinations of tech) to the study of marine mammals. Who knew



*Above "The Blimp" in transit, cradled on our aircraft carrier,* R/V Hobo. *To the left shows "The Blimp" deployed.*

that around that time Randy Repass and Sally-Christine Rodgers had the foresight to support a position to work at the nexus of marine science and engineering to develop new tools for marine conservation research.

Steph and I worked full time in Sarasota after our respective graduate degrees, and had our first son, Jack, while we were living in Sarasota. We moved to Tallahassee in 2003 for me to take up my first faculty position in the Oceanography department at Florida State, and while I enjoyed FSU and working with the folks there, when the Duke job became available (the Repass-Rodgers Chair was a new position), I jumped at it and we moved to Beaufort in 2008. Or, as I like to say, I moved back to Beaufort some 18 years after my first summer there, and we have been in Beaufort since then. Our second son, Wyatt, was born in Tallahassee, though both kids really grew up living on the water in Beaufort (at least at high tide, because at low tide we live on the mud!).

Duke is a fantastic place to be, and I've had the good fortune to work with a litany of superb people and colleagues, starting with Randy and Peter and continuing to this day. I do wish I'd been able to get back to Sarasota more often and to work on more projects, but I have had students head south to work with Randy and company, including what I think was the first actual drone several years ago. Sadly, kinda like the blimp, the drone crashed

into the water at the end of its first mission…oh well, guess you have to walk (or crash) before you fly!

Since we left Sarasota, I've been involved in a variety of research projects, all with the focus of acoustic and behavioral ecology of marine megavertebrates, including fish, sea turtles, manatees and several species of cetaceans. A couple to highlight as folks might find them interesting. Off the coast of North Carolina, working with longtime friend and colleague, Andy Read, we have conducted extensive studies with short-finned pilot whales (*Globicephala macrorhynchus*) and the goose-beaked whale (*Ziphius cavirostris*). These studies have ranged from a SERDP project investigating the influence of a species' social structure on their response(s) to threatening stimuli to several years of US Navy funded studies looking at the responses of these species to naval sonar. In these studies with the Navy, we have tagged almost 100 Ziphius, which has made a huge contribution to our understanding of this cryptic, cosmopolitan, deep-diving species (they are the undisputed diving kings and queens with routine dives to >2000 m and the deepest we've recorded at >3000 m!).

I have also done a good deal of work with the interactions and potential impacts of anthropogenic noise on marine mammals. From shipping to sonar to offshore energy development, the noise we inject into the ocean can be substantial. For more than 10 years I was a member of the Western Gray Whale Advisory Panel (WGWAP), convened by the IUCN to evaluate the risks to gray whales of offshore oil/gas development off the Russian far east. My main contributions were focused on mitigating the effects of seismic air gun surveys, though our remit ranged from vessel interactions to pipeline construction. Recently, and also focused on offshore energy development, I have been leading a multi-institution project funded by the Departments of Energy and Interior on the interactions between marine mammals, sea birds, and bats and offshore wind development, the project affectionately known as 'Wildlife and Offshore Wind' or just WOW! Working closely with the developers we have sampled the focal species in/around the actual development activities (e.g., pile driving) to try to understand whether and, if so, how these species are impacted by these activities. While the project is in a strange limbo at the moment, we have produced lots of good work already with a great team that ranges from sea bird researchers from Maine and New York to bat investigators from Maine to statistical experts from Scotland! Putting a wrapper around our work on ocean noise is our network of researchers, NGOs, regulators, and industry representatives in our Global Alliance for Managing Ocean Noise or GAMeON!

*Left: Stephanie and Doug Nowacek on an expedition.*

With that, I'll end, though not before giving huge thanks to Randy and everyone associated with SDRP. The Sarasota program represents such an impressive team and it's just amazing to keep such an important and productive program going so long and so successfully – kudos and thank you!!

## Intern Program

During 2025, 18 interns and post-graduate trainees spent a combined 6,400 hours learning with the SDRP! This group included ten full-time BZC interns, two part-time interns supported through the Cross College Alliance Environmental Discovery Awards Program, and six foreign students and researchers training with the SDRP on field and lab techniques relevant to their fieldwork. We are especially grateful to the Charles and Margery Barancik Foundation for funding stipends supporting travel and living expenses for BZC-SDRP interns, and to Mote Scientific Foundation for funding cross-collaboration and training opportunities for students and researchers from the Galápagos Science Center.

## Intern Perspective

*Emma Moya, Lawrence University*

Living in Chicago and attending a small school in northern Wisconsin has drawn me to learn more about the ocean and the role marine mammals serve in this complex ecosystem. It has forced me to create opportunities and find doors to explore this passion, whether through interning at the Milwaukee County Zoo or the Brookfield Zoo Chicago, conducting research on fluorescent coral, or volunteering as an undergraduate research assistant in beluga behavior and signature calls. This only sparked my enthusiasm for pursuing graduate studies to become a marine biologist, yet I still knew I yearned for a greater adventure in this field. SDRP was my dream internship that helped the spark to grow even brighter through the skills and experiences I gained throughout my internship.

SDRP isn't the typical internship program where you only gain a few skill sets; here, you'll have the opportunity to acquire multiple essential skills to thrive in this field through hands-on experiences.

With that understanding, I was motivated to apply, knowing that every aspect of the experience would be new to me. It offered a unique opportunity to continuously learn, immerse myself in a different environment, and develop a wide range of skills — from shark bite analysis and photo identification to bioacoustics training, purse seine fishing,

*Emma Moya with a spotted seatrout during prey sampling before releasing it back into the bay.*

*Emma Moya during a dolphin survey in June 2025.*

boat maintenance, and the use of specialized software like ArcGIS and finFindR. On top of that, I'd gain hands-on experience conducting fieldwork through boat-based surveys, which would further deepen my understanding of marine science and the behavior of bottlenose dolphins. I wanted to be part of a program where I would be challenged, forced to problem solve, do field work, network with staff at SDRP and Mote, and have the hands-on experience of working with marine mammals that I not only dreamed of but knew I needed as a part of my journey in becoming a marine biologist. I was able to gain additional hands-on experiences by participating in necropsies on bottlenose dolphins with Mote's pathologists and stranding response personnel, where I asked series of questions, played detective of what caused this type of injury, thought how it could be prevented in the future, and what can we do to make it better for marine mammals, but really began to think of the big picture which led me to want to discover how the various types of anthropogenies impacts the physiology, behavior, and social structures of marine mammals. I've been able to explore this question through the continuation of my senior capstone, focusing on temporal patterns in vessel noise and dolphin whistle occurrence at Sarasota Bay Listening Network (SBLN) stations. This wouldn't have been possible without the support and mentorship of SDRP, along with the SBLN.

Of all the skills I've gained, the most vital one for becoming a scientist in this field is understanding what truly defines a scientist. Surprisingly, the toughest part isn't always the fieldwork — though it does come with its own challenges. Instead, it's the personal growth that proves most demanding. Being a scientist means more than just doing science; it requires confidence, courage, resilience, and most importantly, a willingness to face the unknown and embrace failure as part of the journey. These traits are what have sustained SDRP's legacy for 55 years and enabled it to produce pioneering research for marine mammals. By continuing to take bold steps driven by curiosity and ambition, SDRP has helped lay the foundation for marine mammal conservation and inspired generations of scientists to follow.

## Intern update – Where are they now?

*Ana Bishop, NOAA's Southeast Regional Office*

I joined SDRP as an intern in March of 2022. At the time, I had a freshly minted Marine Science B.S. in hand, but lacked clarity about what exactly I wanted to do with it. As a result, I decided to embark on a gap year after graduating college (University of South Carolina, '21) to gain more diverse experience and learn about different career paths in marine biology. I knew I was passionate about marine mammal research, but had limited field experience other than a previous manatee stranding response internship with the Florida Fish and Wildlife Conservation Commission. I wanted to build my skills in the field and as a scientist, so I eagerly applied to the SDRP internship program. Fortunately for me, it was one of the best decisions I could have made.

During my time with SDRP, I was exposed to fundamental marine mammal research techniques for the first time. These included boat driving and maintenance, collecting and recording field data, photographing dorsal fins and matching them in the lab (a process called "photo-identification, or photo-ID"), identifying individual animals and estimating group sizes in the field, biopsy sampling, and using geospatial software to record survey tracklines. I was in-situ with the population I was studying, and learned how to connect what I was observing every day with broader scientific questions and management implications. I was also fortunate that my internship took place at the same time as the SDRP dolphin health assessments, which gave me the chance to assist with dolphin research in an even more hands-on way. Two of my favorite memories from health assessments include holding a dolphin for the first time, and being driven on a police boat at what felt like 100 miles an hour to deliver samples before the Fed Ex office closed!

*Front row: Ana Bishop and Carmen Andrés Hervias. Back row: Fabien Vivier, Jonathan Crossman, and Kyleigh Fertitta on their way to do drone photogrammetry of Sarasota dolphins.*

*Ana Bishop reuniting with Randy Wells and longtime SDRP volunteer Dee Allen at the 2025 Marine Mammal Commission Annual Meeting in La Jolla, CA.*

*Ana Bishop photographing dolphins on Duke University's* R/V Shearwater *in 2023. NMFS permit GA25471.*

After concluding my time with SDRP, I entered Duke University's Master of Environmental Management program, with a concentration in Coastal Environmental Management. Thanks to my internship, I was able to enter the program as a more well-rounded student. I had enough clarity on my goals to tailor my graduate work directly to my needs, and my real-world experience from SDRP allowed me to pursue opportunities that I would not have been able to do otherwise. These included participating in a marine mammal research cruise off of Jacksonville, FL, completing a work-study that built upon my past photo-ID experience, and joining a field class that traveled to Churchill, Manitoba, to study beluga whales as sentinels of climate change in the Arctic. While at Duke, I worked under Dr. Andy Read's mentorship to complete my master's thesis titled "Will wind development adversely impact North Atlantic right whales through an increase in vessel traffic?", which was a fascinating spatiotemporal analysis of the impacts of offshore wind development on local vessel traffic. We are currently in the process of publishing that study.

Overall, my academic and internship experiences culminated in a passion for combining scientific research with actionable change. My internship showed me firsthand how vulnerable marine mammal populations can be impacted by human actions, and I was left wanting to apply the research on those impacts to species conservation and recovery actions. This goal led me to a contracting position as a scientific analyst in the National Marine Fisheries Service's (NMFS) Permits and Conservation Division, where I analyzed the impacts of offshore wind development on marine mammal species. I then began my current position as a contractor with the NMFS Southeast Regional Office, where I serve as the Rice's Whale Coordinator. The Rice's whale is a newly recognized baleen whale species endemic to the Gulf of Mexico and among the world's most endangered cetaceans, with fewer than 100 individuals remaining. My job is to work on the Recovery Plan for this fascinating and vulnerable species by identifying steps that scientists, stakeholders, and the public can implement to conserve the population. This role is truly a dream come true. I'm deeply grateful to SDRP for developing my passion for marine mammal research and conservation, shaping me as a scientist, and giving me the foundational skills that brought me to where I am today.

*Ana Bishop photographing belugas in Churchill, Manitoba, Canada.*

## Intern update – Where are they now?

*Cara Rankin, University of Manitoba*

In 2023, I had the privilege of interning with the Sarasota Dolphin Research Program (SDRP), shortly after graduating from Eckerd College with a B.S. in Marine Science. I joined, seeking hands-on experience in marine mammal science and to strengthen my field research skills. The internship offered a variety of field and lab activities that were instrumental to my growth. I particularly enjoyed observing dolphin behavior during boat-based surveys and analyzing vocalizations in the lab to identify individuals by their unique signature whistles. We also assisted with diverse activities such as marine mammal necropsies, acoustic receiver maintenance, dolphin prey fish sampling, and releasing sea turtle hatchlings.

A highlight of my internship was contributing to Dr. Laela Sayigh's whistle catalog for Sarasota Bay dolphins, auditing audio clips to identify signature whistles. This directly supported my own whistle catalog for bottlenose dolphins in Tampa Bay, where I found overlapping whistle patterns across bays. These experiences led to my first peer-reviewed publication in Aquatic Mammals and solidified my passion for ocean acoustics and marine mammal behavior, a field I've continued to pursue since SDRP.

After the internship, I worked as an Ecological Field Technician for Manatee County, advancing my use of GIS and leading mapping efforts for gopher tortoise surveys, wildlife reports, and habitat restoration. I applied skills from SDRP to help launch a large-scale oyster restoration project in the Manatee River. While this role introduced me to wetland conservation and management, I remained drawn to ocean acoustics. In April 2024, I moved to

Winnipeg, Canada, to begin my M.Sc. at the University of Manitoba's Centre for Earth Observation Science.

My thesis, in partnership with Fisheries and Oceans Canada, is part of the Western Arctic Beluga Habitat Monitoring Program. I collaborate with Inuvialuit Indigenous communities in the Northwest Territories to study and help protect the Eastern Beaufort Sea beluga whale population. My research focuses on how depth sounders propagate across the Tarium Niryutait Marine Protected Area (TN MPA) and their potential influence on beluga behavior — ultimately informing safe sonar use in the Arctic. Fieldwork has taken me to the Arctic to conduct drone and aerial surveys, deploy oceanographic instruments, interview beluga harvesters, and support permafrost research.

This past summer, I co-led the deployment of six passive acoustic seabed moorings across the TN MPA to monitor critical beluga habitat. Drawing on my experience maintaining passive acoustic listening stations (PALS) at SDRP, we partnered with Loggerhead Instruments to develop 'beluga phones', real-time listening stations in Husky Lakes, NT that help prevent beluga strandings. None of this would have been possible without the help of David Mann, Katie McHugh, and Katy Holmes. I am incredibly grateful for my time at SDRP and the lasting impact it has had on my scientific career and relationships.

*Cara Rankin working on passive acoustic seabed moorings to monitor beluga habitat.*

*Cara Rankin working on a passive acoustic station in the Tarium Niryutait Marine Protected Area in Canada.*

*Left: Cara Rankin working alongside Katy Holmes and Cecilia Thompson on the Sarasota Bay Passive Acoustic Listening network station in Cortez as the dolphins closely watch them work.*

**International trainee perspective**

*Santiago Diaz, Cetacea Galápagos Program, Galápagos Science Center, University of Sydney*

In 2025, I had the incredible opportunity to spend several weeks with the Sarasota Dolphin Research Program (SDRP) as an international trainee. This experience was transformative both personally and professionally, and it has become one of the most meaningful milestones of my career so far.

As a PhD student at the University of Sydney and part of the Cetacea Galápagos Program (CGP) at the Galápagos Science Center, my research focuses on the ecology and conservation of dolphins and killer whales in the Galápagos Islands. While I had extensive field experience in Galápagos, the time I spent in Sarasota exposed me to a new dimension of collaborative research and conservation. Being immersed in a program with such a long history, working side by side with researchers, veterinarians, dolphin trainers, students, volunteers, and park rangers, gave me the chance to see how diverse expertise can come together to achieve one common goal.

The training I received went far beyond learning specific research or field methods. What made this opportunity unique was how much it broadened my perspective. I was able to participate in different aspects of dolphin research, interact with people from multiple fields, and gain insights from projects that spanned veterinary medicine, behavior, physiology, and ecology. Everyone I worked with was so generous with their time and knowledge, creating an atmosphere where learning and collaboration came naturally. For me, this was not only a chance to build skills but also to grow as a researcher and as part of an international scientific community. I returned home with a clearer sense of how to organize and run field operations,

*Santiago Diaz (far left) leaning over the live well on board the* R/V Ono*, examining a whitespotted eagle ray. Kim Bassos-Hull (middle) explaining the features of the ray and sampling methods.*

*Above: Santiago Diaz holds onto a dolphin fluke during Sarasota Bay health assessments in May 2025.*

*Left: Santiago Diaz helping launch a drone during a focal follow of a whitespotted eagle ray off Lido Key.*

from fine-tuning data collection protocols to improving how we process and manage information once back in the lab. Watching how efficiently the SDRP team worked in the field inspired me to adapt similar approaches for our surveys in Galápagos. These lessons are already shaping the way we design CGP's dolphin research, especially in areas like Photo-ID, drone-based photogrammetry, and long-term monitoring of foraging ecology and conservation needs.

I am especially excited about what lies ahead: Randy Wells and Aaron Barleycorn, part of the SDRP team, will be returning to Galápagos in spring 2026 to help us with our first efforts to tag dolphins with the TADpole. These collaborations are crucial for advancing knowledge of how dolphins use the Galápagos Marine Reserve and connecting our work to broader conservation frameworks.

I am deeply grateful to the Mote Scientific Foundation (MSF), whose support made my participation possible. Their funding covered travel and accommodation for me to train in the U.S., as well as the upcoming fieldwork of the SDRP team in the Galápagos. This kind of support is what makes it possible for early-career researchers like myself to learn, grow, and contribute to long-term conservation impact.

Looking back, the Sarasota experience was more than just training — it was a reminder of the power of collaboration, mentorship, and shared purpose. I returned to my work in the Galápagos with renewed motivation, better prepared to contribute to the protection of cetaceans in one of the most unique marine ecosystems on Earth. I will always be thankful and cherish this unique opportunity. Thanks to all the SRDP team, see you soon!

**Volunteer perspective**

## From construction sites to conservation: My unexpected journey into marine science. How a volunteer opportunity at the world renowned Sarasota Dolphin Research Program transformed my retirement from empty time into a great adventure

*Fraser McLean*

The thought of retirement sounded great to me, all that time to spend doing nothing. Then you retire and find that you have all that time and nothing to do. There's a void in your life between forty and sixty hours a week you have to fill. My first thought was to golf three to four times a week until your golf buddie tells you "do you realize this is the best you will ever be at golf, it's all downhill from here."

Having been in the construction business all my life, I was not someone who sat around. That's when I decided to look for volunteer opportunities. I had been to Mote Aquarium several times and it was so interesting to me that I decided to volunteer as a guide. As much as I enjoy being a guide at Mote I was looking for something more" hands on". While talking to one of my colleagues, he told me about Sarasota Dolphin Research Program. That's when volunteering became a big part of my life.

My first experience with SDRP was eight hours on a fishing seiner in Sarasota Bay catching and counting fish, I wanted to be hands-on and I sure got my wish. That day I learned that these fish surveys help scientists track the availability of prey that dolphins depend on. The health of the fish community is tied directly to the health of the dolphins and I quickly saw how even a volunteer's efforts contribute to a bigger picture. I enjoyed it so much that I went to my supervisor Aaron to see if there were any other opportunities to volunteer and that's when I joined the dolphin surveys.

SDRP opened a whole new world to me. Catching (and releasing) hundreds of fish, identifying, counting and measuring them as well as many other types of marine life that we get in the net. Then there are the surveys, searching for dolphins and identifying them from nicks and notches on their dorsal fins and discovering the new born calves.

*Fraser McLean (on the right) helps hold Moolah (F356) before release during Sarasota Bay health assessments.*

The thing I enjoy most about going out on the boats is it's never boring and different every time. Training time with Jason, adventures in the rain with Krystan, being a landing and take-off pad for Jonathan's drones, butt-swabbing sting rays with Kylee, clean-up days with Katie, watching Cecilia go from a trainee to a very competent captain, and my favorite, fishing with Elizabeth and the interns. I also enjoy watching the next generation of marine scientists learn from world class mentors, each experience adds another layer to my appreciation of the team and the program.

The highlight of my time with SDRP came last May when I was invited to join the team for a few days on the health assessments. Health assessments give scientists important data about dolphins' well-being, but they also reflect the health of Sarasota Bay as a whole. Holding on to a wild dolphin for over two hours was one of the great experiences of my life. You never forget your first dolphin F220. The detail and care the staff have for the dolphins never ceases to amaze me. I did think to myself if I had had that experience at 21 years old my life may have been very different.

I believe in life you need something to look forward to and SDRP has given me that. I eagerly await each month for my dates from Aaron to go out on the boats and hope the weather on those days is favorable. I hope to continue my volunteering for many years with this great organization.

## Community involvement in science

### *Citizen science and Sarasota Bay dolphins: Volunteers and research opportunities*

The concept of "citizen science" is nothing new for the SDRP. Back in the 1970's, our tagging and tracking teams were filled out largely with local volunteers. Beginning in 1982 and continuing for the next 25 years, we worked with Earthwatch, an organization that matches interested members of the public with research projects requiring assistance. Some of our more than 1,000 Earthwatch volunteers continue working with us today, providing valuable services and expertise. We regularly involve members of a team of trained local volunteers in our photo-ID surveys, our health assessments, our seasonal fish surveys, and in dolphin rescues.

## Sarasota Bay Listening Network opportunities for community involvement

*Katy Holmes, Sarasota Dolphin Research Program, Brookfield Zoo Chicago*

We encourage local coastal residents, educational, and public institutions to become involved with the Sarasota Bay Listening Network! You can contribute by sponsoring passive acoustic listening stations in our network, and/or support opportunities to use data and sounds from the network in educational and outreach programming. Please contact me at kholmes@mote.org with any inquiries.

**Brookfield Zoo Chicago Staff**

Jason Allen, BS, Senior Researcher, Lab Mgr.
Robyn Allen, BS, Staff Researcher, Sample Coordinator
Aaron Barleycorn, BS, Senior Researcher, Field Mgr., Volunteer Coordinator
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# Products

## Professional Activities Summary: October 2024 through September 2025

One accepted measure of the productivity of a research program is its record of achievement in providing information to the scientific community, wildlife management agencies, and the public. The following list includes our program's products since the publication of our last annual report, including the relevant work of our collaborators from partner institutions. Copies of specific papers are available through our website (sarasotadolphin.org) or they can be obtained upon request, as electronic pdf files.

**Published Peer-Reviewed Journal Articles and Book Chapters**

Baldachini, M., E. Papale, J. M. Shearer, R. S. Wells, and F. H. Jensen. 2025. Drivers of biosonar click rates in bottlenose dolphins (*Tursiops truncatus*) over the West Florida Shelf. Frontiers in Marine Science, Sec. Marine Conservation and Sustainability, Special Topic: The dolphins of Sarasota Bay: Lessons from 50 years of research and conservation. 12:1558655. https://doi.org/10.3389/fmars.2025.1558655

Bankhead, K., R. S. Wells, K. McHugh, and M. Cantor. 2025. Foraging in proximity to humans can shape social centrality in wild dolphins. Behavioral Ecology and Sociobiology, 79: 99. https://doi.org/10.1007/s00265-025-03641-0

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Scolardi, K. M., K. A. Wilkinson, and W. H. Aeberhard. 2025. Long-term aerial monitoring of Florida manatees, *Trichechus manatus latirostris*, in a diverse Gulf Coast environment. Endangered Species Research 56: 213-230. https://doi.org/10.3354/esr01394

Sequeira, A. M. M., …R. S. Wells…et al. (378 authors). 2025. Global tracking of marine megafauna space use reveals how to achieve conservation targets. Science, 388(6751): 1086-1097. https://doi.org/10.1126/science.adl0239

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Wells, R. S. and M. D. Scott. 2024. Common and Tamanend's bottlenose dolphins *Tursiops truncatus* (Montagu, 1821) and *T. erebennus* (Cope, 1865). Pp. 155-225 In "Ridgway and Harrison's Handbook of Marine Mammals: Volume 1, Coastal Dolphins and Porpoises" (Ed. T. A. Jefferson). Chapter 5. Academic Press.

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**Manuscripts in Press or Accepted for Publication**

VanCompernolle, M.,….R.S. Wells…et al. (>300 authors). Accepted. Vulnerability of marine megafauna to global at-sea anthropogenic threats. Conservation Biology.

**Presentations at Professional Meetings (n=23)**
**Public, University, School Lectures (n=54)**

*Members of the 2025 Sarasota Bay health assessment veterinary team.*

*Surprise 80th birthday party for long-time (41 years!) collaborator Dr. Jay Sweeney during May 2025 Sarasota Bay health assessments.*

*Jeanne Shearer and Austin Allen explaining DTAGs during May 2025 Sarasota Bay health assessments.*

# Program Operations

## As the lab turns...

*Sarasota Dolphin Research Program Staff*

Congratulations are in order for Dr. Katie McHugh, who was the recipient of the 2025 Brookfield Zoo Chicago (BZC) Rising Conservation Leader Award. The Conservation Leadership Awards (CLAD) were created in 2005 by the BZC Board of Trustees to honor the lifelong legacy of animal welfare and the worldwide conservation leadership of George Rabb, PhD, president emeritus. Katie was awarded this honor at the zoo's annual CLAD dinner in October.

Congratulations to Carolyn's husband, Commander Brian Cush, on his retirement from the United States Navy after 20 years of service. Thank you for your dedication.

Congratulations to SDRP PhD student Theresa Tatom-Naecker and Jacob Wiechmann on their engagement this November!

Kim Bassos-Hull and Pete Hull celebrated the marriage of their son, Ian, to Meilyn Sylvestre on June 20th in San Francisco City Hall. A heartfelt congratulations to the newlyweds!

We welcomed additions to the SDRP "fur"mily this past year – Aaron Barleycorn and Katie McHugh welcomed Loki into their family, Becca Blue joined Elizabeth Berens McCabe's family, and Frannie joined Randy and Martha Wells.

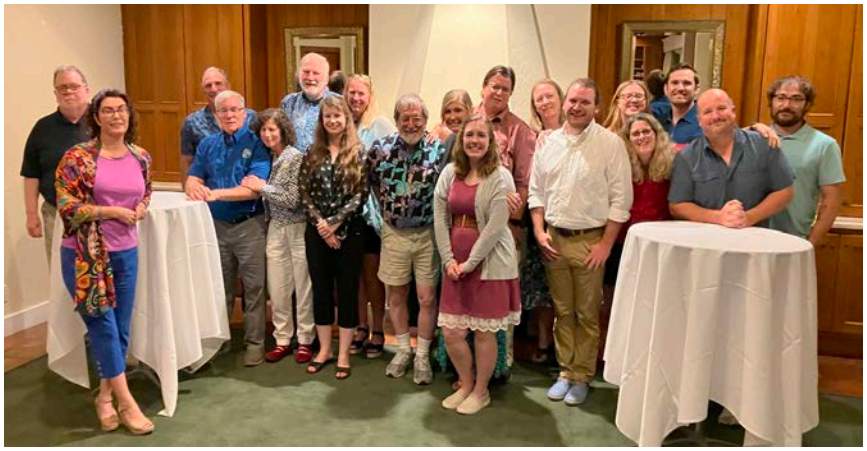
*Carolyn, Commander Cush, and family after retirement service.*

*Congratulations Jacob and Theresa!*

*Dr. Katie McHugh, recipient of the 2025 BZC Rising Conservation Leader Award, giving her acceptance speech. (Below) Katie with Brookfield Zoo Chicago President and CEO Dr. Mike Adkesson (left) and Program Director Dr. Randy Wells.*


*Frannie (above), Becca Blue (top right), and Loki (bottom right) join the SDRP "fur"mily!*

*Congratulations Ian Hull and Meilyn Sylvestre!*



*BZC-SDRP staff, Dolphin Biology Research Institute board members, and significant others celebrating the program's successes with a meal in August 2025.*

# *Opportunities for You to Help Dolphin Research and Conservation*

## SDRP welcomes equipment donations in addition to funds

Donations, including boats, computers, cameras, and vehicles, greatly help with our efforts, and can be made to Dolphin Biology Research Institute (dba Sarasota Dolphin Research Program). DBRI is a Sarasota-based 501{c}3 not-for-profit organization, incorporated in 1982, and dedicated to continuing our research and conservation of dolphins and their habitat. For more information on how you can help, please contact Randall Wells at (941) 374-0449.

**Dolphin Biology Research Institute would like to thank the following contributors for their cash or in-kind donations of $100 or more over the past year, from October 2024 through September 2025:**

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# *Opportunities for You to Help Dolphin Research and Conservation*

## Show Your Support for Brookfield Zoo Chicago's Sarasota Dolphin Research Program

The generous support from our partners ensures the continuation of the world's longest-running study of a wild dolphin population and provides our scientists the necessary resources to contribute to a better understanding of the structure and dynamics of populations of small cetaceans — dolphins, whales, and porpoises — as well as the natural and anthropogenic factors (factors of human origin) that impact them.

Your support makes a critical difference for dolphins and their ecosystems. With your help, our team can continue the development of an unparalleled base of knowledge about wild dolphin populations and maintain the SDRP's position as a unique dolphin conservation resource worldwide. For more information on how you can help, or to make a contribution, contact Brookfield Zoo at donorcircles@brookfieldzoo.org or call (708) 688-8560.

## Special Thanks

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*Brookfield Zoo Chicago President and CEO Dr. Mike Adkesson (left) and SDRP Director Dr. Randy Wells during May 2025 Sarasota Bay health assessments.*

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*Left: Brookfield Zoo Chicago participants during Sarasota Bay health assessments in May 2025.*


**This word cloud represents the 822 authors that have collaborated on 373 scientific publications over the years. Across publications, there are 2,408 author credits - here the size of each name represents the frequency in which each individual has been listed as an author on papers involving SDRP work. The sheer volume of authors represents our dedication to collaboration across organizations, countries, and individuals.**

# The Sarasota Dolphin Research Program

SARASOTA DOLPHIN
RESEARCH PROGRAM

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The mission of Brookfield Zoo Chicago is to inspire conservation leadership by engaging people with wildlife and nature

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