

COVER

Annual Report
2020



TARAS OCEANOGRAPHIC FOUNDATION

INTRODUCTION

The Taras Oceanographic Foundation, a 501 (c) (3) non-profit organization based in Jupiter, Florida, was founded in 1998 by Dr. Stefan E Harzen and Barbara J Brunnick, Ph.D., who created the Foundation to advance marine science and the long-term survival of both people and the oceans, through research, conservation, education, and cultural programs.

The vision of our Founders was to create a truly sustainable organization, built around a cross-disciplinary, strategic network that results in minimal program costs and overheads.

The Founders also envisioned to offset the Foundation's carbon footprint so that the organization's operation would not have a negative impact on the very life systems it seeks to protect. With the emergence of blue carbon offsetting, we offset our carbon through a sea grass restoration program (sea grass habitats are up to 35 times more effective than Amazonian rainforests in their carbon uptake and storage abilities).

As we enter into the third decade, we continue to demonstrate that a small organization, driven by a relatively few dedicated scientists and citizens can create highly successful programs and initiatives that have lasting measurable, and positive impacts. Our dolphin conservation research has produced new insights into the lives of these fascinating animals. The long-running lecture and concert series continue to attract and excite large audiences, and our Ocean Sentinels Club provides great opportunities for dolphin enthusiasts to participate and contribute in various ways.

Naturally, the successful execution and advancements of our programs is only possible through the incredible dedication and commitment of our entire team, including those who serve as research assistants, or interns and volunteers on a temporary basis. Equally obvious is the fact that no organization can meet its objectives in isolation. Instead, partnerships across a wide spectrum of society (locally, regionally, nationally and internationally) are required. The list is too long to be included here, but suffice to say that we are extremely grateful to all those who continue to engage with, and support the Foundation.

With this Annual Report we provide an overview of our current programs and activities. We continue to be driven by our never-ending curiosity and sense of exploration of paths yet untraveled.

Board of Directors

THE CASE FOR STUDYING DOLPHINS

We are often asked why it is important to study dolphins in the first place, and so we asked our Founders to share their answers to this question.

Firstly, marine mammals embody most of what we need to understand about oceans. They hold positions at the highest trophic levels. They can tell us a lot about food chains and energy flux in the oceans. Through their many adaptations to marine life, including remarkable diving capabilities, marine mammals reveal a great deal about what is important in the ocean; where are sites of high productivity, what is the most energy efficient way to travel in the water, what are the best senses to use in the water. We now know that acoustics is very often the best sense to use underwater, better than vision because light does not travel through water well at all.

Secondly, dolphins, because of their complex and sophisticated behavior, are especially interesting subjects for studies of social organization, communication and evolution. More than valuable intellectual exercises, these studies help us understand phenomena such as population decline, recovery, and extinction, and teach us to care about the world. Generally, understanding begets caring.

Thirdly, dolphins are a vibrant part of the global ecosystem and their populations have been severely

affected by, and continue to be extremely vulnerable to human impact, including interactions with fisheries. Knowledge about the mechanisms of these interactions will help reduce these conflicts. While gill nets and drift nets will continue to decimate marine life, marine pollution looms as the most menacing threat of all. If we have any philosophical leanings towards preserving nature, either for future generations or for its own value, than learning enough to prevent this damage is crucial. Dolphins are the ocean canaries, warning us about the disastrous effects of pollution and habitat destruction, and they can be our guides to where to look for answers about how our oceans work.

Last but not least, dolphins are archetypal 'charismatic megavertebrates'. Throughout centuries, every culture that has come into contact with dolphins has created myths and legends about how they came into being, and what their existence means to the world. In our times, whales and dolphins have come to symbolize, more than any other species, the concern for the environment and a special symbol of sharing the earth. People react to them with empathy and express concern for their welfare. They epitomize and illustrate many of the problems humans inflict upon the sea. They engender in people who might not otherwise care a wish to improve the 'health' of the marine environment. The huge interest in these animals can therefore be used to encourage interest in the sea more generally, with whales and dolphins becoming flagships or ambassadors. Ecosystem protection and management in some cases, such as with the Endangered Species Act, is based on specific species, and without doubt being charismatic has its advantages. Dolphins are powerful symbols that encapsulate our environmental successes and our failures. The late Jacques Cousteau was absolutely right when he said, "If we can't save the whale, what can we save?"

The aim of marine mammal studies in general, and dolphin research in particular, is to develop progressive knowledge and understanding of their biology, adaptations, behavior and ecology, which will lead to better protection of species and their habitats, contributing to bio-diversity in such a way that a sustainable use of the sea becomes possible. If you understand dolphin echolocation and how it works, then you have the tools to apply that knowledge. If you are a conservationist and are concerned about dolphin entanglement in nets, the knowledge allows you to build better fishing nets that will not harm them. The application of the knowledge depends on what you value: for an academic, to further knowledge and understanding; for an applied researcher, to be able to provide information to managers on the implications of a range of management options, for a conservation biologist: to find ways of ensuring the health of populations. In the end, all this will contribute to a better understanding of the impact we have on our planet. You can't have seven billion people growing and running around on a planet without having some major impacts. Right now we are making choices we don't even understand; better to make an informed choice don't you think?

Most of science consists of answering very small questions. Each one may not have much value in and of itself, but when the whole picture is to be seen, each of the many small pixels of knowledge will be required. So in the long term, we can expect to truly understand some of the things that are affecting cetaceans and their behavior. In the short term, however, one cannot expect too much. Important results in this field are usually gained through long-term research, which will then constitute the wisdom and the power to make the best possible decisions about the future. Research aimed only at solving a specific, well-understood short-term problem is not going to provide us with the answers we need ten or twenty years from now. We need to commit some fraction of our resources, our dollars and time, to basic science, understanding that it is a risk taking investment; not all science hunches pay off, but when they pay off they pay off big. And this investment of resources should not be done because it is 'en vogue' to be concerned about the animals, the oceans and the planet, but because it is intellectually and morally the correct thing to do. By better understanding one group of marine creatures, with which we compete for resources - prey and habitat - we may be able to better manage our affairs on this planet.

In sum, excellent research provides several results: First, it leads to a deeper understanding of the world and its basic mechanisms of function, or in other words, an increased appreciation of the biosphere in which we live. Secondly, it provides a baseline of data against which we can measure changes and information that can be put to practical use, thus reducing our impact on these animals and their environment. And thirdly, the advancement of knowledge usually entrains an increase in public awareness and then support from the general public, which is a crucial determinant for maintaining biodiversity, the survival of the variety of species and their habitats and a wise resource use by man.

Everyone should support dolphin conservation research. Search the Internet for the word dolphin sometime and see how many 'hits' you get. People put their money in things they value and hold interesting. The public, in general, wants to know more about dolphins. This desire to know and see creates opportunities. The application of those opportunities, once again, depends on your values and your creativity. Why do dolphins hear sounds up to 150 kHz while we hear only to 15? What is there to listen to anyway? Why do only male humpback whales sing? What directs Humpback whales in Hawaii to swim directly north in the summer? How do they know which way is North? Do dolphins 'see' an image in their brain from echolocation signals that is similar to what we see with our eyes? Does a dolphin think, and if he does, what does he think about? Why do spinner dolphins chorus and sing exactly the same whistle? Why do dolphins have pointy rostrums? But most importantly why does any person care about the answers to these questions?

The main point is that many people do care, and therefore there is a world of opportunities available, opportunities for scientists and researchers, naturalists, students, public entities, business and the public at large. If we have any leanings towards providing future generations with the amazing experience of encountering wild dolphins, we should all support dolphin conservation research.

Our personal interest in dolphins and marine mammals dates back more than 40 years. Since then, we have studied a number of different species, including elephant seals, killer whales, gray whales, Atlantic Spotted dolphins and bottlenose dolphins. Our journey took us to beautiful places on the Pacific Northwest, the California coast, Portugal, the Bahamas, and eventually to Palm Beach County in Florida. While places and dolphin species have changed, the reasons we laid out of why it is important to study dolphins, and what they can tell us about ourselves, have not. And as we continue to pursue our passion as conservation scientists through the work of the Foundation, we invite everyone to join and support our work so that it may provide lasting opportunities to a new generation of researchers, scientists, naturalists and the public at large to encounter wild dolphins along our coastline.

Dr. Stefan E Harzen & Barbara J Brunnick, Ph.D.

PROGRAMS

Palm Beach Dolphin Project - Protect Wild Dolphins

Prompted by rising concerns about the well-being of wild dolphins along our shores, we launched a long-term conservation study of dolphins in the waters off Palm Beach County 17 years ago, aimed at providing insight into dolphin behavior, habitat use, social lives, and how the health of these top predators, and the conditions of the natural resources they depend upon, may directly and indirectly impact our own health and well-being.

The Palm Beach Dolphin Project is the flagship program of the Foundation. We conduct our dolphin conservation research along the southeast coast of Florida under a NMFS/NOAA permit, which was renewed for another five years in 2020. Specifically, we (1) shed light on the local dolphin population,

including whether its members are resident or transient, (2) compare, contrast, and evaluate how different environments influence dolphin distribution and habitat utilization, (3) assess the overall health status of the animals, (4) provide an understanding of how our own health and well-being is impacted by the conditions of marine environment, and (5) help develop conservation measures benefiting the ocean, dolphins and all people.



We conduct boat-based surveys employing photo-identification techniques, GIS mapping and analytical tools. Using research vessels ranging in size from 26ft and 34ft, we conducted less than 50 surveys in 2020 (due to Covid).

As of the end of 2020, we had identified more than 600 bottlenose and spotted dolphins, many of which are seen regularly in our coastal waters. We continue to collaborate with our colleague Marilyn Mazzoil at HBOI and expect to intensify the exchange of dolphin identification data between our two organizations.

Drones and Dolphin Conservation

When most people think of drones, they may think of Amazon’s announcement to deliver their packages with drones, or, on the darker side, the use of these remote controlled vehicles (ROVs) in the military. Some may have seen one of their neighbors flying a drone for fun, others may have privacy concerns. What all of the vehicles have in common is that they are either controlled by a ‘pilot’ somewhere on the ground, or a preset flight program. As it turns out, aerial drones are now also being used in various scientific exploits, including conservation research of whales and dolphins. Following some experimentation, we are in the process of combining a drone-based data collection process with artificial intelligence to count and identify dolphins in real time. And because dolphins spend most of their time below the surface, we are also experimenting with underwater ROVs to expand our observations into the underwater world and thus improve our understanding of how dolphins live their lives, and what we can do to ensure they continue to be around for future generations.

Meet the Scientist Lecture Series

This is one of our two signature edu-tainment programs. This program commenced its 17th season in the fall of 2020 and because of the pandemic has been delivered on the Zoom platform. Most lectures were recorded and are available for viewing on our YouTube Channel called *Palm Beach Dolphin Project*.

The lecture series promotes (1) the pursuit of science, technology, engineering and mathematics (STEM), and (2) the communication and overall relationship between scientists and the people of the communities in which they live and work. The series also serves as a forum for all stakeholders and constituents to share their views and activities with a wider audience, while providing a wonderful resource of a wide range of information for students and adults alike. Over the past decade this program has also become an informational nexus with a sufficient sphere of influence to facilitate and otherwise contribute to widespread policy advances and personal changes in attitudes.

The lecture season always begins in October and concludes in April, with all events held at the auditorium of the Jupiter High School at 500 North Military Trail in Jupiter, from 7 to 9 p.m. (during normal times). We hope to be back at the auditorium for in-person lectures in the fall



of 2021. All events are free, open to the public, suitable to anyone beyond the age of ten, and no RSVP is required.

The Meet the Scientist Lecture Series is produced in collaboration with the Jupiter Environmental Research and Field Studies Academy (JERFSA), a four-year academic program focusing on ecological principles and processes, environmental awareness, field studies, critical thinking and leadership skills. It is sponsored by the Rotary Club of Jupiter and Tequesta and the Jupiter Inlet District.

Ocean of Notes Concert Series

The Ocean of Notes Concert Series is our second signature edu-tainment program. The concert series promotes musicians and their craft, and provide people across all income levels with an opportunity to experience live music performances, while learning about our important research and conservation work. Science and music are actually closely related. It is the interaction of sounds, tempo, and pitch that creates music, just as facts and knowledge, combined with imagination and conjecture, produce new scientific discoveries. And if you listen, you can hear dolphins, whales and a myriad of living things, together with currents and tides, performing a symphony that reverberates throughout the marine environment.

While the pandemic prevented us from having our annual concert as in-person event, we recorded and live-streamed a concert featuring Tim May joining from Nashville, TN, Richard Gilewitz from Chicago, IL, and Mark Russell from Cambridge, MA.

While streamed concerts are fun, and attracted an audience with people from four continents tuning in, there are no substitute for in-person live performance. The concert can still be watched on our YouTube channel, called *Palm Beach Dolphin Project*.

Over the years our concerts featured slide guitarist extraordinaire Roy Rogers and the Delta Rhythm Kings, singer and songwriter Gove Scrivenor, solo guitar virtuosos Tony McManus and Bert Lams, violin and fiddle player Gretchen Priest-May and local musicians Linda Kiley, Gary Frost, Debbie Tassone, and Stefan Harzen.



Mark Russell, Tim May and Richard Gilewitz (left to right).

OCEAN SENTINELS CLUB

We launched our new Ocean Sentinels Club in 2020. The club is proof that conservation can be fun, rewarding and effective. The Club unites and empowers citizens to advocate for the conservation of dolphins and the marine environment across Palm Beach County, and beyond.

Club activities include music performances and art exhibitions, social events to exchange ideas about critical conservation and sustainability issues, and hands-on activities, such as coordinated boat-based efforts to remove floating plastics from the ocean's surface. Members help produce a series of short films illustrating how dolphin and ocean health are related to our own well-being and enjoy private dolphin and ocean expeditions to swim with dolphins, snorkel with whales, and explore coral reefs and other marine life. The Club also aims at educating and shaping the next generation of dolphin and ocean enthusiasts and stewards.

Membership categories include Individual Members (Full Members), Student Members and Corporate Members (Trustees). The benefit package for all of our members reflects our commitment to sustainability and our beliefs that the best things in life are not of material nature, but rather authentic experiences.

Don't hesitate. Join us. Simply scan the QR code (blue) to get to the Club page on our website. Then click 'Join Now'. Or go to: <https://taras.org/social-club/>.



PUBLIC OUTREACH

As in previous years, we had plans to participate in a number of community events but unfortunately all of them were cancelled due to COVID-19. We are cautiously optimistic that at least some of those events will take place in 2021 so we can return to personally engage with the public at large. Once public events are back on the schedule, we will also resume to provide photographs, books and other artwork to other organizations for their silent auctions and raffles. Board members, most notably our Research Director Barbara J Brunnick, Ph.D. and Dr Stefan E Harzen, look forward to participating in stakeholder meetings and delivering speeches again to community and business groups.

The Foundation website provides written and media content, is responsive and its content is frequently updated. The Foundation also has a presence on social media with three pages on Facebook (Taras Oceanographic Foundation, Palm Beach Dolphin Project, and Coastal Dolphin Conservation) and a Twitter and Instagram account (#tarasfoundation).

Finally, we started to produce a series of short films about our work and related, relevant topics. Following their original launch they were posted on the Foundation's YouTube channel called *Palm Beach Dolphin Project*. For the quickest way to get there, scan the QR code (red).



ADMINISTRATION

2020 was a fairly quiet year for obvious reasons. We used the time we could not spend in the field or on our other programs to completely update our website, including new menu items *Testimonials* and *Media Kit* under *About Us*. The media kit also includes a completely new and complete Brand Guide for the Foundation. Other new menu items on our website include *Dolphin Discoveries Fund* under *Programs*, several sub-menu items under *How to Help*, and the integration of a new, now very streamlined, fundraising tool.

Further, we developed and completed the documentation for our Capital Fundraising Campaign, aimed at raising sufficient funds to purchase a larger RIP for both research and dolphin tours (delivered in collaboration with Palm Beach and Jupiter Dolphin Tours). We are in the final stage integrating all the information, images and videos into a digital format we plan to introduce at the campaign kick-off in 2021.

We remain a small, all-volunteer organization that performs administrative tasks with the same level of expertise and professionalism typically found in larger organizations. The Foundation follows and adheres to a series of well-established policies and procedures pertaining to, among others, Code of Ethics, Conflict of Interest, Non-Discrimination and Document Retention Policies. Finally, we continue to earn the Guide Star Platinum Seal of Transparency.



