COVER

Annual Report
2018

TARAS OCEANOGRAPHIC FOUNDATION

INTRODUCTION

This is our 20-year Anniversary. 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 provides free or low-cost access to operational resources (boat time, office and meeting spaces, etc.). In addition, they implemented sustainable business practices, resulting in minimal program costs and overheads.

The Funders also envisioned to offset the Foundation's carbon footprint so that the organization's operation would not have a negative impact on the very lifesystems it seeks to protect. Hence, ever since the Foundation was created, we have continously calculated our carbon footprint, estimated it when precise figures were not available, and offset it through various initiatives. Wth the emergence of blue carbon offsetting, we have now entered into a long-term partnership with *The Ocean Foundation* and offset our carbon through their sea grass restoration program (seagrass habitats are up to 35 times more effective than Amazonian rainforests in their carbon uptake and storage abilities).

The past year has once again demonstrated that the Foundation is a very successful organization, driven by a relatively few dedicated scientists and citizens, with no salaried staff, creating measurable, positive impacts through our programs and initiatives. 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 Certified Dolphin Naturalist 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 intern and volunteer 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 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 as part of this 20-Year anniversary annual report.

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 gillnets and driftnets 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 'charasmatic 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?

How can a small organization like ours make a difference? The answer is rather simple. 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 bio-diversity, the survival of the variety of species and their habitats and a wise resource use by man.

Which brings us to the last of those questions we are asked all the time: who should support dolphin conservation research? There is currently a widely held belief that dolphins have value to people. Search the Internet for the word dolphin sometime and see how many 'hits' you get. People believe that dolphins have value and they put their money in things they hold interesting and value. 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 lis-ten 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. And so if we have any leanings towards providing future generations with the amazing experience of encounerting wild dolphins, every signle one of us should 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.

I. 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 15 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. 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 nearly 100 surveys throughout 2018. In the process we generated almost 30,000 photo-ID images. As of the end of 2018, we have identified more than 600 bottlenose and spotted dolphins, many of which are seen regularly in our coastal waters.

A number of research assistants, interns and volunteers have been supporting our dolphin conservation research, both in the field and the lab, including Jim Coyne and Chris Thalman who have been our skippers on most of our field surveys during the past two years. We continue to welcome applications of interested individuals.

The 2019 field season is well under way and we expect to further increase the number of surveys, and thus the amount of valuable data and information in the coming year. 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 (RUVs) 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

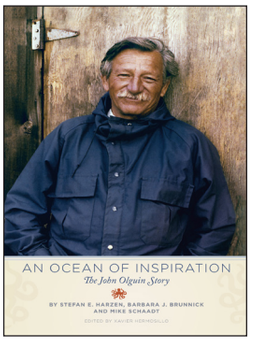
to expand our observations into the underwater world and thus improve our understanding of how dolphins live their lives, and what we can do to ensure they continue to be around for future generations.

Adopt-A-Dolphin

We are re-launching our adoption program in 2019. Adopting a dolphin is an easy and effective way to support our research and conservation efforts. It is the perfect gift for yourself and/or that special someone. It is meaningful and lasting. It helps protect these wonderful, intelligent creatures and the world they live in, and it allows you to follow the life of your dolphin, learn about the community he lives in, the places he travels. Our goal is to have 300 of our dolphins adopted on an ongoing, annual basis.

Ocean of Inspiration

This authorized biography is the true-life account of John Olguin (1921-2011), Director Emeritus of the Cabrillo Aquarium in San Pedro, California. Although born into poverty and struggling with a speech impediment for many years, John refused to take no for an answer when people challenged his dreams. A natural-born leader and educator, he connected his passion for teaching and nature, and created one of eco-tourism's most successful endeavors: whale-watching. Throughout his life, John experienced the world in ways well beyond the imagination of most, and he made sharing the glories of nature his life's mission. John was a founding member of the American Cetacean Society, a Silver Star recipient Army hero, revered mentor to countless lifeguards, godfather to multiple generations of scientists, and joyful teacher of millions of children. John's adventures should inspire us all to pursue a life of personal and professional generosity, humanity, love and commitment to protect our oceans, the world around us, and our communities.



This is a special program aimed at raising sufficient funds to deliver a total 1,400 copies of the book to schools, libraries, other institutions, as well as deserving individuals. Over the past 12 months, we have delivered the first 150 copies.

Meet the Scientist Lecture Series

This is the first of two signature edu-tainment programs of the Taras Oceanographic Foundation. *The Meet the Scientist Lecture Series* finishes its 15th season in April 2019 and continues to attract anywhere from 250 to 350 people to each event. The 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 pm. 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. The annual schedule is posted on our website.

Ocean of Notes Concert Series

The *Ocean of Notes Concert Series* is our second signature edu-tainment program and will celebrate its 10-year anniversary in 2019. The concerts promote 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.

Past concerts featured Roy Rogers, slide guitarist extraordinaire, and his band, the Delta Rhythm Kings, singer and songwriter Gove Scrivenor, solo guitar virtuosos and recording artists Richard Gilewitz and Tony McManus, Grammy nominated instrumentalist and master on guitar, banjo and mandolin, Tim May, violin and fiddle players Gretchen Priest-May and Mark Russel, Bert Lams, founding member of the world famous California Guitar Trio, and local musicians Linda Kiley, Gary Frost, Debbie Tassone, Margo Posner, Stefan Harzen, Suzanne Cannon and Rick Cohen.

The concert is typically scheduled for August or September (the 2019 date is September 7) at the Performing Arts Academy of Jupiter, and is livestreamed by Cliff Gorden and his company MyBlueskyTV. Ed Spencer (Sandhill Images) continues to be our concert photographer. Recordings of previous concerts can be found on the Palm Beach Dolphin Project YouTube page.

Tony McManus, Mark Russell, Richard Gilewitz and Stefan Harzen (left to right).

II. PUBLIC OUTREACH

As in previous years, the Foundation participated in the Jupiter Jubilee, a community event organized by the Town of Jupiter, and the PadleFest organized by the Palm Beach Marine Industry Association and in a number of smaller events. The Foundation provided a number of photographs, books and other artwork to other organizations to be used in silent auctions and raffles. Board members, most notably our Research Director Barbara J Brunnick, Ph.D. and Dr Stefan E Harzen, participated in countless meetings and delivered numerous speeches and presentation to community and business groups. Our research assistants, interns and volunteers provided much of the support that made it all possible.

Graysen Boehning, Malia McGetchin, Hailey Emalfarb, Barbara Brunnick, Ph.D. (left to right).

III. ADMINISTRATION

Even though the Foundation is a small, all-volunteer organization, administrative tasks are performed with the same level of expertise and professionalism typically found in larger organizations. Certain specific services, such as legal advice and tax-related services are provided by third parties.

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.

The Foundation website provides written and media content, is responsive and its content is frequently updated. The Foundation also has a presence on Facebook with three pages: Taras Oceanographic Foundation, Palm Bach Dolphin Project, and Coastal Dolphin Conservation.

Perhaps most importantly, the Foundation continues to operate in accordance with long-established sustainable business practices, which ensure that our efforts towards dolphin and marine conservation and our edu-tainment programs are being delivered on the smallest ecological footprint possible. We regularly record and monitor our consumption of materials, energy, fuel etc. and maintain the informatiuon in a comprehensive database, which we use to calculate our carbon footprint on an annual basis. Since the carbon foot print is not publicly available for each and every item we happen use in the process of delivering our programs and managing the Foundation, we typically double our actual offset to compensate for the associated uncertainties.

Our carbon foot print was calculated with 20 tons for 2018 and we decided to offset our carbon footprint through SeaGrass Growth, a Blue Carbon Offset Initiative of *The Ocean Foundation* (see certificate on the next page).

SeaGrass Grow
The Ocean Foundation

BLUE CARBON OFFSET CERTIFICATE

PRESENTED TO

The Taras Oceanographic Foundation

FOR OFFSETTING

20 Tons of CO_2

Thank you for your donation of $400 to offset your carbon footprint through SeaGrass Grow! Because of your generosity, ocean and coastal environments will be strengthened and protected. Thank you for supporting the work of SeaGrass Grow!, a project of The Ocean Foundation.

Mark J. Spalding, President

4/3/19

Date

The gift has been deposited and recorded in the 2019 tax year. For your tax records, The Ocean Foundation is a 501(c)(3) charitable organization recognized by the IRS. The Ocean Foundation's tax ID is 71-0863908. According to the Pension Protection Act of 2006, The Ocean Foundation is required to remind you that it has exclusive legal control over all assets contributed to it. In accordance with IRS regulations, this letter acknowledges that these grant funds may be used only for charitable purposes and not for the benefit of the donor or donor advisor or other impermissible private benefit. No goods or services were provided in exchange for this donation.

IV. OUTLOOK

Our immediate goals are to continue delivering all our ecisting programs while enhancing the impact we have throughout our community. Furthermore, we are exploring and persuing new frontiers of collaboration, increase the opportunities for stuident s to join us interns and/or research assistants, and attract additional manpower with professional expertise in marketing and public relations, and legal affairs, to help us further enhance our programs, and increase our reach and impact.