

Notes From the Field | Fall 2022



An Update from the Research Director

s of late September, this year we feel very fortunate to have had a quiet summer for hurricanes. Mostly due to the continuing Saharan dust, which travels all the way over from Africa, and high-pressure system wind shear, it's been quiet here in Florida and the Bahamas. Of course, hurricane season goes through the end of November but at least, historically, we are through the peak of mid-September so we'll take it.

After 10 years intermingling with the local spotted dolphins off Bimini, we can now say that our displaced group from Little

Bahama Bank (LBB) has pretty much integrated with the locals. Not that there wasn't fighting and flipping throughout this time, but as a natural experiment it has been our job to observe and collect data to tell the story of this mass migration event and integration.

For those of you that follow our work, you'll remember that we documented a drop in chlorophyll, a proxy for plankton, up on LBB. We believe that the dolphins had to move for lack of food. Although there are still some spotted dolphins left on LBB, they are few and far between. As we receive photos

and video from a few dive boats that frequent the area, we can see that the southern group of spotted dolphins is still around. We hope to get back ourselves next summer since it's been a while for us to survey LBB ourselves. Most of our work these days is situated down in Bimini on Great Bahama Bank (GBB). And we hope that there continues to be enough food for both groups of dolphins off Bimini, however the food crash that occurred up north on LBB is likely the tip of the iceberg. Climate change is just beginning to show us the consequences for dolphins and

we can only watch how they adapt, or don't. Stories like ours are happening around the globe, on land and at sea.

So, for all of you who have sponsored us for years, a big thank you. Without our important baseline work over the years we simply would not be able to see or understand these large-scale changes. We hope to continue to monitor and observe any changes in the environment and the dolphins in the years to come.

Denise Herzing, PhD Research Director Wild Dolphin Project



LETTER FROM THE PRESIDENT



t is my privilege to continue to serve as President of The Wild Dolphin Project's Board of Directors and to enjoy a front row seat as Dr. Herzing and her team break new ground in the study of Atlantic Spotted Dolphins "In Their World...
On Their Terms."

At the end of each

field season, when things finally start to settle down from a summer at sea, we can take some time to reflect upon the achievements and breakthroughs made by Dr. Herzing and her team.

The 2022 summer season provided a lot of great dolphin encounters for our guests and crew aboard the Stenella. Our team observed 93 different individual dolphins belonging to both the Little Bahama Bank (LBB) and Great Bahama Bank (GBB) groups. Included in the 93 individuals were six new calves, four of which were female and two that were male. The calves were curious about the humans they encountered and frequently swam by to get a closer look. Our crew also observed 16 pregnant females, which hopefully means we will have a new group of calves to learn next year. More importantly, it means that the resident populations at LBB and GBB are recovering after dipping in recent years. It's always encouraging to see pregnant females and new calves because that means the females are finding enough food to support a pregnancy which can be good indicator of a healthy population.

In addition to the new calves and pregnant females, our crew and guests also got to witness a wide variety of different behaviors this summer, including courtship, nursing, babysitting, feeding, aggression and play. It's always nice to know that the dolphins are still allowing us to see all of these behaviors and trusting us to observe as much as we can without interfering. This mutual curiosity and having the dolphins be habituated to human presence has allowed for us, as a project, to learn so much from these animals.

I would like to welcome two new additions to the Wild Dolphin Project family. Captain Peter Roberts, who has joined us to take care of our most important tool, the R/V Stenella, and Graduate Student Haley Knapp, who has joined us in our Florida-based lab to analyze previously collected samples in order to determine paternity of calves. Welcome to The Wild Dolphin Project!

I look forward to continued advancements in our research through technology and the commitment of our team in 2022 and beyond and hope to see you on one of our trips.

Axel Stepan, Board of Directors, President

MEET THE TEAM

Science and conservation writer and WDP research assistant for many years, Bethany Augliere is our research associate, photographer, social media wiz, blog writer, and more. In 2021 she launched our "meet the team" series of blogs. This year she interviews board members to get a sense of the people who help the Wild Dolphin Project fulfill their mission.

Captain, Pete Roberts

Welcome Back, Captain Pete!

After 7 years away, Captain Pete has returned to the Wild Dolphin Project!

Captain Pete returns to the project with decades of experience, both with us and other vessels, holding a U.S. Coast Guard 1600-ton master license, open oceans. He filled in for our last two trips of the 2022 Field Season, and now he's hard at work during our off season to get the R/V Stenella ready for next summer.

Prior to his return, Captain Pete was working as captain and first mate of a few different yachts based out of the Palm Beach area, ranging from 54feet to more than 100-feet.

We are grateful to have Captain Pete back and his excellent troubleshooting and dolphin-finding skills. We know we are in capable hands.

Captain Pete is particularly excited to get back in the water next summer and is curious if some of the older dolphins recognize him, having known him for more than 20 years.

Board of Directors President, Axel Stepan

After receiving his MBA in 1999, Axel started his career as an investment banking associate at Deutsche Bank in New York and has been active in the corporate finance and investment business ever since. In 2001, he assumed the role of managing partner at Douglas Pike Associates, an investment firm with a focus on private equity, as well as commercial real estate development and investment in the Rhode Island and Florida markets. Axel first became involved with the Wild Dolphin Project as a passenger on one of WDP's Bahamas trips and, since 2013, has served as Vice President of its Board of Directors.

Q: How did you find WDP and what inspired you to join on a trip?

A5: I came across Dr. Herzing's book at Barnes & Noble in 2011. When I read it, I realized that WDP was a local organization, so I called and ended up speaking to Denise for a while. She told me about the field seasons I had read about



Captain Pete Roberts



Board President, Axel Stepan, diving below an Atlantic spotted dolphin in the Bahamas during a research expedition.

in her book and the possibility of going out on a trip the following summer. I jumped on the chance and went out on my first trip in June of 2012.

Q: What was that first trip like?

AS: I specifically remember an encounter with a group of bottlenose dolphins crater-feeding. I didn't appreciate at the time how unusual it is to have such an encounter with bottlenose dolphins, a species which is not the primary focus of WDP's research. We spent about 45 minutes in the water during that first encounter, observing their behavior. I was hooked I wanted to know more. That first encounter alone exceeded any expectations I had. I went back the following year and many more after.

Q: What made you want to get involved with the project and become a part of the board?

AS: During that first trip in 2012, we were "stranded" in the Bahamas for about 2 days Hurricane Debbie because made the crossing back to Florida impassable. During that time, I got to spend a lot of time with Dr. Herzing and her colleague Dr. Adam Pack. I had never been exposed to the scientific community prior to that trip and, with a background in finance, my idea of "research" was always to learn as much as you can for prospective financial gain. The time spent with Dr. Herzing and Dr. Pack opened my eyes to the idea of researching Atlantic Spotted Dolphins for the sole purpose of gaining knowledge. As simple as it sounds, that was a new concept for me, so I wanted to stay involved and learn more about what WDP really does.

Q: What's your goal as the president and what would you want people to know about WDP?

AS: The more I learned about WDP's work, the more intriguing it became. Technology continues to evolve and continue to utilize devices, such as Ecological Acoustic Recorders (E.A.R.s), Cetacean Hearing Augmentation Telemetry (C.H.A.T.). The work is ongoing, so my goal is to support the team at WDP in any way I can. I can't wait to see where it goes.

Board of Directors Vice President, Drew Mayer

Drew's heart has always belonged to the natural world, but by age 23 he joined Shearson/ American Express and found himself on Wall Street for the next 20 years where he developed into an investment manager specializing in pattern recognition and what is now known as algorithmic trading at Prudential-Bache and UBS.

However, in 2004 he was retired and searching for ways to connect back to science and nature, especially dolphins and whales. He was checking out books at the local Barnes & Noble in South Florida, and found a signed book by Denise Herzing, Ph.D., founder and director of the WDP. Then he saw that she was based nearby in Jupiter, Florida. He called her up the next day to volunteer and the rest is history! Now, he's the Vice President

of the Board of Directors and has been on countless research expeditions, and even shared the experience with his adult children. "WDP is a great fit for me, it engages my heart and mind... these amazingly intelligent animals and some of the world's top scientists working together, using cutting edge technology toward exciting breakthroughs. It's a privilege to be included.'

Drew is always helping out and assisting us with gear, technology, and generally just fun to have aboard! If we're on a snorkel break – he's the first one in the water and the last one out.

Q: How did you get the attention of Denise when so many people want to volunteer with , MD, bš

DM: I called up and spoke with the office administration and mentioned my experience with pattern recognition using computer algorithms, and Denise got on the phone right then and there. We chatted a bit and then she asked for my resume, which I immediately faxed over. Then, she asked if I could come meet her at the office the next day and I did.

Q: What was your first research expedition like to the Bahamas?

DM: The first trip is like just mind blowing when you get in the water with the wild dolphins for the first time. They actually recognize you — not recognize you as an individual — but they recognize you as another being. It sends chills down your spine.

Q: Any memories that stand out over the years?

DM: There's been a lot. I remember one of my first trips I was observing a big aggressive group and there was this big huge scarred up male bottlenose dolphin — I think his name was Nightmare. And then spotted dolphins were using us humans almost like a shield from the bottlenose. And eventually, this coalition of males surrounded me and it's me and them facing this big bottlenose dolphin. That was incredible. It sends chills down my spine right now just thinking about it because it was just such a big, intimidating animal.

Another memory was when we were coming back from the Bahamas, coming close to the deep water of the Gulf Stream in about 1,500 feet of water. And, suddenly the captain cut the engines. We could see on the surface these huge Goliath groupers, flopping around with their eyes bulging out of their heads. Then we see a fin come up, a black fin, pretty tall and a spout, and then another one, then another one. It was a pod of false killer whales. They were swimming down - because Goliath groupers live on the bottom — finding them, bringing them up until their swim bladders popped, then they proceeded to eat them leaving nothing but the gill plate. One of the scientists on board put his hydrophone in the water to get some of their vocalizations. They started scanning the boat and you could feel it. They were in the water but you could feel the boat vibrating from their vocalizations and echolocation. It was amazing.

Q: What is your goal as Vice President?

DM If I have something to contribute, I do. We have some very smart, experienced and well-intentioned people on the board. So, occasionally I give my two cents and I think we make some pretty good decisions. This project has been around for almost 37 years.

Q:: What is your favorite part of being part of WDP?

DM: My favorite part of course has to be the dolphins. There's nothing like it. Everybody involved with the Wild Dolphin Project will tell you the same thing. We're here for the dolphins. We want to see them survive. We want to see them thrive. And if by chance were able to be smart enough to communicate somehow with them eventually, then that's the golden ticket! But I love the people I work with, I've made some fantastic friends. love being around geniuses, and it's my chance to hope some of it rubs off on me!

Interviews and blogs written by science writer, Bethany Augliere. The blogs in their entirety can be found here: wilddolphinproject. org/media/blog. Follow Bethany's work here: bethanyaugliere.com This newsletter content was edited by Melissa Infante.



Board Vice President, Drew Mayer, ready to help deploy our passive acoustic listening

2022 SUMMER SEASON HIGHLIGHTS

This past summer had its challenges with bad weather and COVID, but we had some great dolphin encounters along the way! We saw a total of 93 individual dolphins, 42 Little Bahama Bank (LBB) individuals and 51 Great Bahama Bank (GBB) individuals. We did not make it up to LBB this summer, so all of the LBB individuals we encountered were those that moved down to GBB.

During these summer months, we observed 16 pregnant females (9 LBB and 7 GBB). If you remember from last year, we had 18 pregnant females but this season we only encountered 6 new calves (3 LBB and 3 GBB). Even though this number of calves seems low, there were some pregnant females from last year that we did not see. Hopefully next year we will see them with calves in tow. The low number of new calves could also be the result of pseudopregnancy, some that may not have carried to term, and predation. The Wild Dolphin Project (WDP) has reported a 25% mortality rate within the first year of a dolphin's life. While this is just a part of nature, we grow attached to these dolphins and can't help but feel sa'd when a calf is not seen the following vear. It has been documented in cetaceans, especially in Orcas, that they do mourn the loss of their calves and the footage is

heartbreaking to watch. Mila, a well-known GBB resident spotted dolphin, was always a curious and playful dolphin in the past. However, this summer, her personality seemed to shift. She appeared more agitated by people in the water, and on more than one occasion she signaled that she wanted us out or to leave her alone. Modolla. Mila's calf from 2020, was not sighted this year and while we cannot say for sure this is the reason for her personality shift, it does make you wonder if she is grieving for her lost calf.

On a more positive note, we did see a calf who beat the odds and survived the loss of his right eye! Nugget, Nassau's seventh calf, was first seen by WDP in 2019. In 2021, Nugget had a wound over his right eye socket and the eye was gone. We were worried that since Nugget was so young that he might not make it with the loss of his eye, so we are very happy to report that he is doing well and his wound has healed! Nugget still seems to favor his left side and if you are on his right, he will often go inverted so that he can track you with his good eye. When we saw him, he was with Nautilus, his older brother, and a mix of GBB and LBB juvenile males. Nugget tussled with the other iuveniles in the group and appeared to behave like a normal juvenile male spotted dolphin.

In regards to what behaviors

were observed this summer, we had a good range. We saw play, courtship, babysitting, aggression, and foraging. The playful encounters are always some of our favorites because the dolphins choose to interact with us. Most of the play behavior was juvenile spotted dolphins playing keep away with pieces of sargassum and the occasional scarf we would bring in the water. But during one encounter we saw Deni, an adult spotted dolphin, play with a fish she caught. Deni and her new female calf, Dolby, were playing with sargassum at first and then out of nowhere Deni zoomed off! Dolby stayed with us, and a few minutes later Deni came back with a Ballyhoo in her mouth. She mouthed it, and occasionally dropped the fish to then pick if up again. She did this over and over, so I swam down to get a closer look. Deni seemed to be playing with her food! There are multiple reasons for this behavior: to adjust the fish to go head first down her throat, to teach Dolby how to handle this type of food, or to just play with it. Since Dolby didn't seem interested and since Deni adjusted the fish multiple times, she appeared to just be playing. After about 15 minutes, she swallowed the fish and then went back to checking out the sargassum.

We also had a fun encounter with some juvenile spotted

dolphins who played with two unlucky filefish. The filefish were at the surface and the young dolphins buzzed and circled around the fish, kind of trapping them at the surface. Spotted dolphins do not eat filefish, but we have seen them use the fish as a toy now and again. As we approached, the filefish saw us and immediately swam for cover between us and our cameras. The spotted dolphins tried to get the filefish out from their hiding place, but they had no such luck and blew bubbles in irritation. At one point, we dove down in an attempt to lose the filefish and this helped a little. But eventually the filefish left us and took cover along the hull of our boat! The dolphins tried to dislodge them from the boat but eventually gave up and moved on. Check out the filefish blog on our website to see some really fun pictures from this encounter!

Aside from playful encounters, we also observed courtship behavior. When we have encounters where courtship behavior occurs, we are very interested in who is involved. We are curious to know who is siring the offspring within this mixed group of dolphins. Do we have mating between GBB and LBB dolphins? This summer we did see some inter-group courtship behavior between Linus and Bonito (adult male LBB spotted dolphins) and Akita and



Nugget, in the middle, with his eye wound healed



Deni with the ballyhoo in her mouth.

Sycamore (young adult female GBB spotted dolphins). In the future, it will be interesting to study the genetics of new calves and see who has been mating between the groups, or if there is still a preference to mate within the same group. Inter-group mating is beneficial because it can add diversity into the gene pool. Genetic diversity can be advantageous to a group of animals that have to adjust to their surroundings as things continue to fluctuate due to climate change.

Babysitting was also observed this summer. Podrick babysat Pixie, her younger sister, with the help of another juvenile female named Ninja. During this encounter, Pixie excitedly swam about and Ninja and Podrick stuck close to her never letting her out of their sight. Picard, Pixie's mom, was not seen while we were in the water but she was probably very close by. Babysitting is an important skill for young juvenile females because this is how they practice for motherhood and future calves of their own.

Most of the dolphin encounters we have are with the spotted dolphins, however sometimes we have mixed species groups, and occasionally we will have encounters with just the bottlenose dolphins. This year we had a good interspecies aggressive encounter that started off with just a few juvenile male spotted dolphins tussling with some bottlenose dolphins. Then a larger group came in composed of adult male spotted and bottlenose dolphins. The two groups merged, and the aggression escalated and we observed a lot of side-mounting behavior

where the male bottlenose dolphins side-mounted adult male spotted dolphins. We believe this is a dominance display used by the bottlenose dolphins, and it is very common to see during interspecies aggression; rarely is it observed when spotted dolphins fight other spotted dolphins. We also saw charging, biting, open mouth displays, and head-to-head displays all behaviors commonly seen during aggression.

The bottlenose dolphin encounters we had this summer were surprisingly great! Usually the bottlenose dolphins are less tolerant of us, and move on shortly after we enter the water. But this summer we observed some awesome crater feeding, where two of these encounters were in about 20-25 ft of water so we were able to get some close-up footage of the dolphins as they dug for food on the bottom. We also observed some intraspecific bottlenose dolphin aggression where one bottlenose dolphin seemed to be the main target of the aggression. We rarely see this type of behavior, so even though both encounters were really brief and in murky water it was a treat for us to get to observe it first-hand!

Even though this summer was difficult in many respects, the dolphins always make it worthwhile. We can't control the weather, but at least we can make the best of our time while we are there. Hopefully mother nature turns down the wind dial next year and we can have a full summer season!

Until next time, Cassie Volker-Rusche Research Assistant



A filefish taking refuge with Cassie.



Pixie (top) being babysat by Ninja (middle) and her sister Podrick (right).



Interspecies aggressive group. A male bottlenose is side-mounting a male spotted in the middle of the group.



Bottlenose dolphin crater feeding.

FIELD REPORT

THE RESPONSIBILITIES OF GOING FROM INTERN TO CREW MEMBER



Hayley Knapp

magine, just close your eyes and imagine. Feel the warmth of the sun on your skin, the playful tickle of the breeze moving your hair, and the refreshing spray of salt water on your face. Hear the laughter of the other crew members and passengers, the humming of the motor, the crashing of the waves against the hull, and the

distant splashes as something jumps out of the water. See the sunlight sparkling on the water, the vibrant shades of blue—ranging from aquamarine to a deep, azure blue—the thin layer of salt coating every handrail on the boat, and the dark, sleek shapes leaping through the foamy waves at the bow.

This picturesque scene is what awaits you aboard the Stenella. Twice, I have tasted that life as a student intern for The Wild Dolphin Project (WDP) during their Atlantic Spotted dolphin ecotourism trips in the Bahamas, and the word "magical" doesn't even begin to cover it. Life as an intern aboard the Stenella is busy but worth every second. As an intern, my job was to learn about the dolphins—how they operate socially and behaviorally—, and learn the importance of observing them "in their world, on their terms."

Like all interns, I performed daily dolphin watches, recorded environmental information, participated in aquatic observations, and listened to educational presentations each night from crew members. While I tested my ability to learn the dolphins from their unique identifying features through intern identification exercises, committing them all to memory was not necessarily important. I was just an intern dipping my toes into the vast ocean of dolphin education and conservation. Little did I know that would all change.

This past summer I was blessed to join WDP as a crew member. Just months before, I had been accepted to Florida Atlantic University as a graduate student to study dolphin genetics and thus became a part of this amazing team. In the past, the WDP has gathered fecal samples from the dolphins,

and with these fecal samples we can figure out the paternity of the calves! All of these past samples have been stored in freezers for years, and now my job is to work through those samples for my master's thesis.

In regards to life as a crew member aboard the Stenella, the adjective "inconceivable" doesn't even hold a candle to what it's really like. As a crew member, I had all the same duties as the interns, but with some added challenges. During in-water observations, I was now responsible for: operating video equipment, knowing and counting individuals and age classes present, learning how to sex the dolphins, and learning how to take good ID photos. At first I thought you wanted to take as many photos as possible, but I quickly learned to not take just any photo. Full side-body shots are the most useful, and you have to train





Left: Hayley filming an interspecies interaction. Right: Hayley shooting video of spotted dolphins.

yourself to not be trigger happy. Being responsible for knowing the individuals will take a lot of time and practice! At night, throughout the day, and sometimes early in the morning, I would sit down and identify each and every dolphin from my photos using the dolphin identification binders. Knowing who is who has been an essential puzzle piece in learning about the life history of these dolphins. After many hours with my photos, I gained a lot of respect for the photo ID process that crew members go through. It can take hours to get through your photos if you don't know the animals. Overall, as a crew member, there was a lot more that I needed to pay attention to during the underwater encounters and then dedicate a lot more time afterwards trying to identify who was involved. As an intern, I was just there to experience the wild behaviors, but as a crew member I am now responsible for so much more. Knowing who was there and what was going on, helps us educate the passengers on the dolphin behaviors they observed while we review the footage from the day.

Observing dolphins in their natural habitat and educating people on these beautiful creatures is a career I have dreamed about for as long as I can remember. Interning with The Wild Dolphin Project has helped me swim even closer to that dream. My intern experiences with the WDP and their hands-on teaching method have not only taught me the importance of long-term field observation, but also prepared me for graduate school. Because of my field experiences aboard the Stenella, I learned valuable skills when it comes to photographing wildlife, understanding cetacean behavior and relationships, observing wild animals, and educating the public on dolphin conservation. I am thrilled to be a part of this family and have learned so much from each team member. From dipping my toes into the water to diving head first into studying dolphins, I can't wait to continue my journey in this field with this amazing crew as a graduate student!

Hayley Knapp FAU Graduate Student



SUMMER FIELD RESEARCH 2023 BAHAMAS TRIPS



e are looking forward to continuing our work studying and observing Atlantic spotted and bottlenose dolphins next summer, which will be our 39th consecutive year in the field! We invite you to join us aboard Vessel Stenella and learn about the natural behavior and lives of dolphins in the wild. All trips leave from West Palm Beach, Florida on a Tuesday morning and return 9 days later Wednesday afternoon. A full-time cook is aboard ensuring everyone is well fed and hydrated as some dolphin encounters can be lengthy and can happen multiple times throughout the day.

As a perk of maintaining a membership with the Wild Dolphin Project, members receive the first chance to sign-up. Be on the lookout in December for an email from our trip coordinator with sign-up instructions. In January, those on the inquiry list will be notified of the remaining availability and the updated schedule will also be posted online for the general public to sign up. To be added to the 2023 trip inquiry list, email your contact information along with what state/country you are traveling from and which trip(s) you prefer.

Internship Program: Students currently enrolled in high school or college with an interest in marine biology can participate as an intern. Include documentation that you are

currently a student (i.e. current class schedule, student ID card, unofficial transcript, etc.) with your initial email. Intern responsibilities are to conduct daily dolphin watches on the bridge, assist the research team with logging data, underwater photography and photo identification processing. An assignment needs to be completed prior to joining us in the field. Interns must be at least 18 years of age at the time of the trip.

Are you ready to join us? For more information please visit:



wilddolphinproject.org/participatebahamas-trip



wild dolph in project. or g/participate/student-internship-opportunities



Melissa Infante WDP Trip Coordinator 561.575.5660 wdptrips@wilddolphinproject.org

	2023 FIELD SEASON SCHE	DULE
Trip #1	May 23 - May 31	Open
Trip #2	June 6 - June 14	Open
Trip #3	June 20 - June 28	Open
Trip #4	July 4 - July 12	Open
Trip #5	July 18 - July 26	Open
Trip #6	August 1 - August 9	waiting list only
Trip #7	August 15 - August 23	waiting list only
Trip #8	August 29 - September 7	waiting list only

NEW RESEARCH

A natural social experiment has been taking place in Bahamian waters, and we've been there to witness it

As it turns out, dolphins can make friends with strangers, according to our new research published in the journal Marine . Mammal Science.

Exodus

In 2013, about 50% of the Atlantic spotted dolphins who had been living off Grand Bahama Island for more than 30 years moved south 100 miles, off the coast of Bimini. But, another group of resident dolphins already lived on this bank. We decided to monitor both field sites, develop a catalog of the resident Bimini animals, and observe what happened. "Such a large-scale immigration is very rare, and we were excited to see

what happened in this highly social species," said Cindy Elliser, Ph.D., lead author, research director of Pacific Mammal Research, WDP research associate.

From 2013 to 2020, our field researchers recorded 206 total dolphin encounters off Bimini and collected data that included individuals pre--sent and behaviors, such as fighting, playing, mating, feeding

traveling. Sometimes, groups were just the resident Bimini animals, other times, just the immigrants from Grand Bahama — and sometimes. the groups were mixed.

Results

Using SOCPROG, a software that analyzes animal social structure using individual identifications, we found that while the communities are integrating, there are still strong bonds within the original communities, said Cindy. Initially there was little interaction and two distinct social clusters delineated by residency status, though the number of interactions has in-

"Although this creased. isn't necessarily surprising - you won't just leave the good friends you have had over many years — it is an interesting mixture of old and new relationships that is shaping the social structure and showing that both new and old relationships can

be maintained and create a new, different community," she added.

Looking Ahead

Cindy Elliser, Ph.D

The dolphins from Grand Bahama originally left, likely due to a collapse in the food web from environmental changes. With habitat loss and warming oceans, populations will have to adapt

to survive. "The future of different communities or populations may depend on how they are able to withstand these types of large scale changes," said Ćindy.

This is truly a unique study showing the full integration of a displaced spotted dolphin community in the northern Bahamas with a local one in Bimini. "After watching their gradual integration, this paper describes their full integration over 7 years, males and females, young and old. Only long term field work and a dedicated research crew of the Wild Dolphin Project can illuminate such complex behavior," said Denise Herzing, Ph.D., founder and director of the WDP. "It shows us the importance of long- term research, especially now that climate change is impacting ocean habitats."

Bethany Augliere

Science Writer & Social Media Coordinator Wild Dolphin Project





Top: Dr. Cindy Elliser, previous Researcher for the Wild Dolphin Project, currently is the Research Director and Founder of Pacific Mammal Research in Washington, presenting at the Society for Marine Mammalogy 2022 Conference. **Bottom:** A group of juveniles including resident Bimini individuals, and Grand Bahama Island immigrants.

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ARTICLE

Marine Mammal Science

Integration of a social cluster of Atlantic spotted dolphins (Stenella frontalis) after a large immigration event in 2013

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Demographic changes can result in alterations of social structure and behavior which in turn may affect survival, reproduction, or movement and may influence how populations respond to changes in the environment. In 2013, 52 Atlantic spotted dolphins (Stenella frontalis) left Little Bahama Bank (LBB) and immigrated into a resident group of spotted dolphins on Grand Bahama Bank (GBB), Initially there was little interaction and two distinct social clusters delineated by residency status. Here we describe the social structure of the dolphins on GBB between 2015-2020. Analyses were conducted with SOCPROG 2.9 and coefficients of association were nonrandom. The number of associations between LBB and GBB individuals increased, and standardized lagged association rates indicated continued associations over time. Modularity analysis showed one community without clear social clusters, although there were preferential associations within the original communities. Multiple Regression Quadratic Assignment Procedure indicated that sex, age, and residency status were good predictor variables that explained the patterns of the association indices. Male alliances were present between LBB, GBB, and LBB/GBB males. New and old relationships are influencing the social restructuring of this community. This

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RARE BEHAVIOR BLOG RESEARCH

Since The Wild Dolphin Project started in 1985 Dr. Herzing, along with her colleagues and graduate students, have put out multiple peer reviewed research papers on the behavior, acoustics, and ecology of the two species we study in the Bahamas. Over the years, some

behaviors are rarely observed and there is not a large enough sample size to do a proper scientific study. These behaviors are still very interesting and we are sharing them with you in our rare behavior blog series. Some have already been published and more are to come!















Bottom Behavior



"In one rare observation, in 1995 while recording this behavior on the bottom, the camera caught the creation of a sand-filled vortex after a bottlenose dolphin tapped the bottom while swimming by. The vortex, or sand tornado (only visible because of the sand in it), moved towards a fish hole, and the dolphin moved over to the vortex and dug for a fish. The physics

of a vortex is such that it will move towards an area of low pressure, such as a hole. This may indicate that the dolphin was actually creating a tool to help it search for and mark/identify a fish hole. Wow! Such vortices may easily exist in the water without being visible to a human observer, and only when sand filled the vortex were we able to observe it. This would be the first such observation of a dolphin creating a tool, via the manipulation of water action, for foraging purposes. Dolphins have been observed easily manipulating water and creating bubble rings both through the expulsion of air from their blowhole, as well as the rapid movement of their dorsal fin and body in a small tank, creating a bubble that they then use as a toy. So, it appears that dolphins are master manipulators of water in many ways."

Can-anyone-hear-me



"Known for their aerial acrobatics, cetaceans perform leaps, cartwheels, head and tail slaps, and even spins. Researchers don't know exactly why the animals perform these behaviors but there has been speculation that the aerial displays could be utilized for many different reasons such as getting the attention of or communicating with other individuals in

their group, removing parasites or pests, aid in feeding efforts, used as aggressive displays, or simply for fun.

On July 17, 2021 we came across a lone Atlantic spotted dolphin

performing multiple cartwheels and head-slaps at the surface. We identified the individual, an adult male we call Doc, and observed a wound on his right side above the pectoral fin. It's unusual for us to see a spotted dolphin alone, so we were curious if he was seriously injured or if something was wrong."

Pesky-remoras



TWe have seen this remora species on both the Atlantic spotted and bottlenose dolphins of all ages in our study site. The younger animals perform aerial acrobatics (leaps) in what appears to be an attempt to dislodge the remoras. Mothers have also been observed trying to help remove the remoras from their calves by grabbing at them

with their teeth. However, we have not seen any successful removals by either another dolphin or the dolphin itself, but not for a lack of trying."

Bubbles



"There is one bubble that shows a clear aggressive signal, and that is the bubble ring, or torus. Often displayed during a fight, or as a signal of impending aggression, this bubble is hard to miss. Interestingly, the bubble ring has been created and used as a toy in captivity. But in the wild, this is an aggressive signal.

When a fish manages to hide behind a human, or against the side of our boat, the dolphins will go under the fish and expel a large bubble, attempting to dislodge the fish from the surface. The bubble is usually accompanied by some intense echolocation clicks, so clearly the dolphins have their acoustic eye on the target. They just need a little help, from the bubbles, in extracting their prey."

OTHER NEWS - EVENTS

TURTLEFEST



On Saturday, April 2nd, Cassie Volker-Rusche and Liam Groth attended the 17th annual Turtlefest benefitting Loggerhead Marine Life Center. This free-admission event focuses on promoting ocean conservation through interactive educational exhibits and marine life, as well as music, art, shopping, games, and other family-friendly activities. Over 1,000 guests attended this event and one person who signed up for WDP's newsletter was selected to win a two-tone membership.



On Wednesday, October 19th, Cassie Volker-Rusche gave a talk to a group of students at Keiser University. The presentation covered an overview of who we are here at The Wild Dolphin Project, what we do, and what our future holds. There were students who attended in-person and also through zoom.

WILD & SCENIC FILM FESTIVAL



On Saturday, April 9th, Denise Herzing and Melissa Infante attended the 8th annual Wild & Scenic Film Festival, benefitting Jupiter Inlet Lighthouse and Museum operated by the Loxahatchee River Historical Society. Over 400 guests attended this event one person who signed up for WDP's newsletter was selected to win a two-tone membership.



Dr. Herzing kicks off the SE Florida chapter of the Explorers Club with a Wild Dolphin Project work update during the October 23rd meeting.

2022 UBIQUITOUS COMPUTING CONFERENCE

Dr. Herzing was a Keynote Speaker at the Ubiquitous Computing Conference in Atlanta Georgia on September 13 2022. The title of her talk was, "Dolphins and computers: Rethinking Species-specific Interfaces for Animal Communication Studies". Highlighting both the history and current technological interfaces used with dolphins for communication research, Dr. Herzing has a long-standing research collaboration with Dr. Thad Starner's group at the Georgia Institute of Technology in Atlanta. The Wild Dolphin Project and the computer scientists work on machine learning techniques to decoding the dolphin's natural communication signals as well as underwater computers to create an interface between humans and dolphins.





CAREER DAY



On Wednesday, October 26th, Brittini Hill attended career day at Ed-Venture microschool in Waipahu, Hawaii. Over 100 students from kindergarten through eighth grade attended this event. Students rotated through career stations, hearing presentations from professionals including a submariner, an archaeologist, an artist, a surgeon, and our own marine biologist.

Do you have an upcoming event?

If your club, school, or community group is interested in having WDP attend or speak at your event, local talk or community engagement, please call our event coordinator, Melissa Infante 561-575-5660 or email media@wilddolphinproject.org.

JOIN US FOR A TRIP TO THE FLORIDA KEYS



Are you interested in booking a trip to the Florida keys? Join us in the spring of 2023 where we'll depart from West Palm and motor down the coast to the Keys where many of the reefs are a Nationally protected Marine Sanctuary. We'll explore various reefs, both inshore and near the offshore

edge, including Molasses Reef, Grecian Reef, and the famous underwater Christ of the Abyss statue. What better place to hang out than on a boat in the Florida Keys. Email Melissa Infante wdptrips@wilddolphinproject. org if you are interested. We look forward to exploring this area with you!



WILD OCEAN SCIENCE HIGHLIGHTS...

'ild Ocean Science 2022 took place on Saturday, March 26th at the Eissey Campus Theatre, the cultural hub for northern Palm Beach County, Florida. During the reception, guests enjoyed plant-based refreshments, browsed raffle items, and perused vendor tables. WDP team members chatted with guests about joining expeditions and other ways to participate with the project. American cameraman, producer, and director, Tom Fitz provided a visually stunning presentation titled "Filmmaking & Science: a natural partnership". Filled with amusing and riveting tales of his adventures behind the lens, Tom shared the ways filmmakers are able to illuminate the stories and discoveries of science.

PBS NewsHour Correspondent and Emmy Award Winning Journalist, Miles O'Brien emceed the event and moderated questions from the audience. The event concluded after congratulating the raffle winners.

Follow our Wild
Ocean Science page
to view past events and
upcoming announcements:
wilddolphinproject.org/media/
wild-ocean-science/

Melissa Infante Event Coordinator

wildoceanscience@ wilddolphinproject.org

VOLUNTEERS

This event would not be possible without the dedication and support from many great volunteers! Virtual or remote opportunities are available so please reach out if you are interested in helping with Wild Ocean Science in 2023.











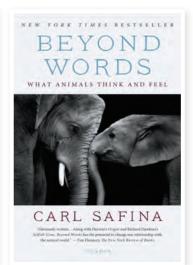


PHOTOS: SANDRA EFFERTZ

Top Left: Tom Fitz and Denise Herzing, Top Right: What a team! Left to right: Cassie Volker-Rusche, Brian Rusche, Rita Gohlke, Candy Lenney, Anamaria Restrepo, Barbara Whiteside, Kiele Mader, Melissa Infante, Lori Saar, Liam Groth, Theresa Carlsen, Allison Sanchez. Middle Left: Dr. Herzing meets guests and signs book Middle Right: James Garbose, winner of the seahorse watercolor print donated by Amber M. Moran, and Cassie Volker-Rusche, Bottom Left: Farley Rentschler, Denise Herzing, Tanya Burnett, Miles O'Brien, Suzi Tobias Bottom Right: Volunteers Barbara Whiteside and Apamaria Postropo

How Animal Cultures Raise Families, Create Beauty, and Achieve Peace BECOMING WILD "Forcinating .-. Dash information and limitionally occuping." The lift force forces

CARL SAFINA





Top: Books by best-selling Author Cark Safina. Bottom: Carl Safina writing underwater in Bonaire

SPONSORS

Sponsorship opportunities are available!

Find out how you can support our 6th annual event and participate in many VIP perks by contacting the event coordinator, Melissalnfante. Call 561-575-5660 or email wildoceanscience@wilddolphinproject.org.

Thank You 2022 Sponsors



SAVE THE DATE

WILD OCEAN SCIENCE

02.25.2023

FEATURING GUEST PRESENTER Carl Safina



Carl Safina's lyrical non-fiction writing explores how humans are changing the living world, and what the changes mean for non-human beings and for us all. His work fuses

scientific understanding, emotional connection, and a moral call to action. His writing has won a MacArthur "genius" prize; Pew, Guggenheim, and National Science Foundation Fellowships; book awards from Lannan, Orion, and the National Academies; and the John Burroughs, James Beard, and George Rabb medals. He grew up raising pigeons, training hawks and owls, and spending as many days and nights in the woods and on the water as he could. Safina is now the first Endowed Professor for Nature and Humanity at Stony Brook University and is founding president of the not-for-profit Safina Center. He hosted the PBS series Saving the Ocean, which can be viewed free at PBS.org. His writing appears in The New York Times, TIME, The Guardian, Audubon, Yale e360, and National Geographic, and on the Web at Huffington Post, CNN.com, Medium, and elsewhere. Safina is the author of ten books including the classic Song for the Blue Ocean, as well as New York Times Bestseller Beyond Words: What Animals Think and Feel. His most recent book is Becoming Wild: How Animal Cultures Raise Families, Create Beauty, and Achieve Peace. He lives on Long Island, New York, with his wife Patricia and their dogs and feathered friends.

Ways to Support our Research



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Employees can make a one-time or recurring donation to the causes they care most about. Employers can increase impact with a corporate match. Rest assured your donations will get where they're supposed to go — in the most efficient, cost-effective way possible.



Facebook fundraising

Facebook fundraisers make it easy to support causes that are important to you and they charge no fees for donations made to nonprofits.



Stock

Make a bigger impact by donating long-term appreciated securities, including stock, bonds, and mutual funds, directly to WDP. Compared with donating cash, or selling your appreciated securities and contributing the after-tax proceeds, you may be able to automatically increase your gift and your tax deduction. Download the form from our website or call our office for account information.



Amazon

Amazon smile will donate .5% of eligible purchases to WDP at no extra cost to you and no fees for us. Win win! Shop smile.amazon. com and select WDP as your favorite charity.

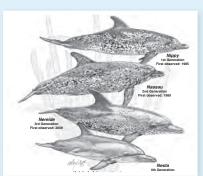
T-Shirts



New t-shirts featuring 4 generations of dolphins

This t-shirt highlights 4 generations of an Atlantic spotted dolphin family observed by the Wild Dolphin Project. Dr. Herzing first observed Nippy back in 1985 and her daughter, Nassau, was observed in 1989. One of Nassau's many offspring is, Nereide, who was first observed in 2009. She now has a calf of her own, a curious and playful female we have named Nesta. We look forward to watching Nesta continue Nippy's family line. Your support helps us continue long-term

family line. Your support helps us continue long-term non-invasive research on dolphins in the wild studying them "In Their World...On Their Terms." In 1992, both Nippy and Nassau were featured on the cover of National Geographic Magazine. Photographer Brian Skerry joined us in 2013 for an expedition to find and photograph Nassau as an adult for a story he was working on about dolphin intelligence. On that trip he spotted the "Afghan Girl" dolphin. Read our blog for more about Nassau: www. wilddolphinproject.org/a-nat-geo-photographer-and-dolphin-named-nassau/



Short-sleeve t-shirt design by Robin Lee Makowski.

Not only has Robin illustrated more than thirty published children's books, she also authored half of them. Her illustrations have appeared in publications such as National Geographic Magazine, The Cousteau Society's Dolphin Log, Surfer, and New Yorker Magazines. She has original artwork on permanent display in San Pedro, CA, at the Cabrillo Marine Aquarium's whale exhibit. Robin has taught workshops on drawing, colored pencil, and her specialty:

watercolor - most recently, watercolor on Aquabord. Her work can be seen in juried and gallery shows and on her website: rlmartist.com.



Long-sleeve T-shirt design by Morgan Will

Morgan joined WDP as a field assistant during the 2018 field season. Since then she graduated from Nova Southeastern University, majoring in Marine Biology and Environmental Science and is currently in a Masters Program for Marine Biology at the College of Charleston, South Carolina. Morgan is featured on page 5 of WDP's annual newsletter in 2018.

Memberships

As a member of the Wild Dolphin Project you get a free coffee table book from Dr. Denise Herzing, a newsletter, and first priority when signing up for summer trips! Whether you are looking to possibly participate onboard R/V Stenella or just stay updated on the project, our research, and upcoming events, a WDP membership will benefit you.

NEONATE - \$35 - WDP Book

TWO TONE - \$75 - WDP Book & T-shirt

SPECKLED – \$250 - WDP Book & T-shirt, invites for Florida work day trips

MOTTLED – \$500 - WDP Book & T-shirt, invites for Florida research day trips, meet and greet with project updates

FUSED – \$1,000-WDP Book & T-shirt, invites for Florida research day trips, meet and greet with project updates, intracoastal day trip on R/V Stenella

STEWARD – \$2,500 - WDP Book & T-shirt, meet and greet with project updates, invites for Florida research day trips, intracoastal day trip for 2 on R/V Stenella

AMBASSADOR – \$5,000 - WDP Book & T-shirt, meet and greet with project updates, invites for Florida research day trips, intracoastal day trip for 4 on R/V Stenella

GENERATION – \$10,000 - WDP Book & T-shirt, invites for Florida research trips, meet and greet with project updates, invites for Florida research day trips, intracoastal day trip for up to 6 on R/V Stenella

Corporate Giving

CORPORATE GIVING allows us to recognize your support both in our newsletter and on our supporters page on our website.

Supporter - \$100 - recognition in newsletter and website

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Benefactor - \$1,000 - recognition in newsletter and website, receive a t-shirt, invited to join Florida

work days and meet and greets with project updates

Top Sponsor - \$5,000 - recognition in newsletter and website, receive a t-shirt, invited to join Florida workdays and meet and greets with project updates, and an Intracoastal day trip aboard R/V Stenella.

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The Wild Dolphin Project

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and first priority when signing up for trips!

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You can also become a member online! Visit www.wilddolphinproject.org and click on "Become a Member / Donate Today" to sign up as a new/renewing member.

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