

Dr. Pamela T. Plotkin

Interviewed by Dr. Jen Brown

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Corpus Christi, Texas

Transcribed by Maxwell McClure

Dr. Pamela T. Plotkin: ...It's very exciting—especially for the students.

Dr. Jen Brown: Yeah.

PP: Yeah.

JB: All right, we are on and it is February 21, 2020. This is Jen Brown. I'm with Dr. Pamela Plotkin. Um, and we're here today to talk about her work, uh, with sea turtles, and ecology, and kind of other Gulf of Mexico history. Uh, so, just for the record, do I have your permission to record?

PP: You have my permission to record this interview.

JB: (laughs) Okay, thanks. Um, so perhaps a good starting point is your background. Do you want to tell me a little bit about your early life, growing up, what got you interested in animals and biology?

PP: Yeah, great question. So I grew up in New York City on the west side of the city, on ninety-eighth street between Broadway and the West End. I had an interesting childhood because I felt like I was trapped in the city, but I wanted to be outdoors with animals and blue skies, and green grass, and I was so far away from those environments, living in the middle of New York City. And so my only escape was to watch television and to see those environments. I gravitated to shows like Mutual of Omaha's *Wild Kingdom* which was a popular show back in the 1960s where Marlin Perkins went out in the field, and he went on safaris, and he saw animals and captured animals, and learned about their lives, and so I was fascinated with that show. *Tarzan* was also one of my favorite shows because Tarzan was swinging through the jungle on vines, and he had a chimpanzee, and there were lots of, uh, wildlife all around him. And so those were the kinds of shows that I lived for because they gave me a glimpse into the environments that I wished I had access to, uh, but didn't as a child. So, that was my early, early childhood, and we

moved to New Jersey across the river from where I grew up in my teen years, and that gave me access to grass, and trees, and wildlife, and I became really excited about those, um, natural places that I didn't have access to as a young child. And, when I went off to college as an undergraduate at Penn State University, I was fortunate to have access to a program that had just, uh, just materialized at the university, and it was wildlife science. And I knew that as soon as I saw them advertise that major, that that was the major for me because I wanted to work with wildlife. [3:05] And I wanted to save threatened and endangered species. And so, I felt that if I could become a biologist who studied those animals, I could contribute to saving them in the wild. And so, that was kind of how I got into the field of wildlife biology and wildlife conservation. When I was a sophomore in, um, the wildlife science program I wanted more interaction beyond the classroom. I wanted a research experience. Back then, there were really, very few opportunities for undergraduates to gain research experience. And I talked to professors, and I applied for jobs, and never got anything. And then one day, I was walking down the hallway, um, on my way to class, and I saw on the bulletin board this poster, uh, for the Student Conservation Association. So I ripped off one of the little cards, I mailed in my card, and they sent me a nice brochure about their program, which placed college kids as volunteers in national parks across the United States. I had this beautiful booklet that listed all the different summer opportunities, and so I read through all the opportunities, and we were allowed to select three opportunities and apply for just three. My first choice was to go work in Minnesota with wolves. My second choice was to go work in Northern California with wild horses. And my third choice was to go Padre Island National Seashore in Texas and work with endangered Kemp's ridley sea turtles. Well, I didn't get the number one choice, and I didn't get the number two choice, but I did get a phone call from Padre Island National Seashore, and they interviewed me, and offered me the position. I was so ecstatic, I had to honestly get a map out to look to see where exactly Padre Island National (laughs) Seashore was because I knew nothing about the Texas coast—and, uh, got really excited after I took a look at the map and saw how exciting it looked, just on a piece of paper. And, uh, I got a bus ticket sent to me, uh, and I took a bus from New York City to Corpus Christi, Texas in 1982 and, got here in May, and fell in love with Texas, with Padre Island National Seashore, with the wildlife that were here at the time, and just with the whole way of life in Texas back then. It was just so different than anything I had ever been exposed to in the New York, New Jersey, Pennsylvania area. [6:00] And so that really was the beginning of my career, was that first research experience I had through the Student Conservation Association, and at Padre Island National Seashore.

JB: Can you describe, uh, what you did that summer, and what Texas and this area was like back then?

PP: Yeah, so, you know, I was nineteen, twenty, years old at the time, and so through the eyes of somebody that young, um, this was the wild west. And, you know, there was no concrete, there were no boardwalks on the beach; there was nothing on the beach. And you know, North Padre

Island didn't have houses, and Schlitterbahn, and hotels, and so, it really was quite different then compared to the way it is now. And I found that exciting because I had never been in an area for that long period of time where I wasn't surrounded by people. The park service gave me housing on the island in the park. I lived in a trailer that was on the beach, and during the day, I worked, and at the end of the day, everybody went home, the visitors went home, it was me and the coyotes on the island. It was an incredible experience. Um, my main job, however, was to help with the Kemp's ridley sea turtle restoration project, which then was really in its infancy. And it had started in the late seventies out of the need to try to save the Kemp's ridley sea turtles. It was a last-ditch effort that the United States and Mexico developed to try to ensure that if something happened at the primary nesting beach, which was located in Mexico, that there would be a secondary population of Kemp's ridley sea turtles in Texas to someday, um, to be that plan B in case the nesting beach in Mexico was destroyed by some act of nature. The eggs were collected in Mexico, a small percentage of eggs were collected in Mexico, flown to Padre Island National Seashore. They were incubated on Padre Island National Seashore. The hatchlings were allowed to crawl down the beach, and swim out into the water a few feet, and then we would scoop them up and drive them to Galveston, Texas, and they would go into buckets at the NOAA Galveston lab, and the hatchling turtles would grow there for about a year. And then those hatchling turtles, which at the end of the year were about dinner plate size, would be thrown into the Gulf of Mexico. [9:03] The idea here was that they, being exposed to Padre Island National Seashore sand and water, they would remember those cues, potentially chemical cues, and when they became adults, they would return to Padre Island National Seashore to lay their eggs. By holding onto them for a year, they would grow bigger to a size where there would be fewer predators that would be capable of eating them and killing them. And so we would, at the end of the year, go and toss those turtles out into the Gulf of Mexico and hope that someday they would come back to Padre Island National Seashore to lay their eggs. So that was my job was to incubate the eggs, and I did that not by myself, there were there were always other people there, but Donna Shaver, Dr. Donna Shaver, who is still there today and leads the sea turtle restoration program and recovery program for the seashore was my very first boss. She trained me and taught me everything I needed to know about how to incubate turtle eggs, and how to raise those hatchlings, and transport them up to Galveston. It was just such an exciting experience because I had never seen a sea turtle. I had never, uh, really thought about marine biology and, um, the opportunities to study the oceans until that point. From that point on, I knew that was my calling, and I wanted to be a marine biologist.

JB: So how did you make that happen?

[10:53]

PP: So, I finished my undergraduate degree in wildlife science at Penn State University, but for my senior year, I decided that I would, take my senior year elective classes at Texas A&M

University. And that summer that I was working at Padre Island National Seashore, one of the staff suggested that I go check out Texas A&M University. They said I would like it, it's a great school and very similar to Penn State, and it'd be a great place to check out. So I drove up to Texas A&M University one weekend, and there was nothing there but a university, and it just it looked a lot like Penn State, you know, Penn State was a town where there was just the university and that was it. And so, uh, I thought, "Okay, well this looks like a nice place." and they had marine biology classes, and Penn State didn't. So, I took those marine biology classes my senior year and you know, tuition was significantly less at Texas A&M than it was in the northeast and at Penn State University I was paying \$200 a credit hour as an undergraduate at Penn State, and at Texas A&M University, state residents were paying \$4 a credit hour. So here's a good part of the story: so I was doing my senior year of classes at Texas A&M University, and I decided to get a job, and so I started looking for jobs, and there was an organization on campus called Texas Sea Grant that was hiring a student worker, and I applied for the job, and I got the job at Texas Sea Grant. So, you know, at this point in time, I'm about twenty, twenty-one years old. I get a job working for Texas Sea Grant on campus at Texas A&M University, College Station, and my job is to clean the fish tanks and maintain the animals, and make sure they're healthy and alive, and to also help out with their marine education program. [13:00] So because I had that job, I was able to convince the registrar at the university that I was a Texas resident, and therefore should get the \$4 a credit hour tuition. And I guess the argument I made was so compelling that the registrar agreed, and she flipped the switch, and I became a Texas resident (laughter), so I was paying \$4 a credit hour. I finished my undergraduate degree, and I decided I wanted to go on to graduate school because after all, it's only \$4 a credit hour, who couldn't afford to do that? I was fortunate to find a professor who wanted to work with me. And her name is Mary Wicksten, Dr. Wicksten is still a professor at A&M-College Station and her specialty is invertebrate zoology, and in particular, decapod crustaceans, or crabs. She is a crab expert. She knows more about marine invertebrates than probably anybody in the United States. She's just like a walking encyclopedia. And so she took me on as a graduate student, and I think part of her willingness to take me on was because we went on a field trip together once, and I was just overenthusiastic, and wanted to stay up all night collecting animals where everybody else wanted to either go to sleep or go drinking at the bar. I was the nerdy kid who wanted to collect more animals and look at them under a microscope because she taught us about all these interesting animals that I knew nothing about and opened up a whole new world to me. And so I think she figured anybody who, you know, was as nerdy as I was about marine invertebrates was worth taking in as a graduate student. So she took me on as a graduate student and I ended up, uh, studying sea turtles again, and, uh, with a little reluctance from Dr. Wicksten because she didn't know anything about sea turtles, but when I convinced her that sea turtles eat marine invertebrates, she saw the connection between what I was doing and her specialty area. And so she embraced it fully, and I worked with her for a little over four years, and the reason it took me that long was because while I was a graduate student, I got a job at the UT Marine Science Institute and, uh, just lucked into that job. I one day found a, uh, dolphin on the beach,

and it had been injured, but was still alive, and we were at Padre Island National Seashore that day, and they called this guy by the name of Tony Amos at UTMSI to come and pick up the dolphin. [15:55] So he got the dolphin, and I volunteered to walk that dolphin around the tank that he had in the university yard and did that probably for about thirty six hours nonstop with a bunch of other volunteers. Tony saw how dedicated I was to helping marine animals that he offered me a job, and I couldn't refuse. At that point in time, I was, you know, coming down on the weekends to collect data for my master's thesis and I thought well, if I could be down here all the time working for Tony, I could still collect my data at nights and on the weekends and do my master's thesis research. And so I did those two things at the same time. So it took me a little bit longer to finish up my master's degree but it was really rewarding because I was studying the dead loggerhead sea turtles that were washing ashore at the time, and there were lots of them because back then, shrimp fishermen were not using turtle excluder devices in their nets, and there were a lot of sea turtles that were getting caught and drowned in the nets. I had an incredible sample size because there were dead turtles and nobody wanted the big dead stinky loggerhead sea turtles, so for me, it was an opportunity to get some data. What I learned was that the loggerhead sea turtles were eating crabs, which we already knew was one of their favorite food items, but here in Texas, they were also eating a soft coral known as a sea pen. A sea pen looks like a pipe cleaner. If you've ever seen a pipe cleaner, it's got a wire in the middle and then a little fuzz on the outside, that's exactly what a soft coral looks like. There's a skeleton that's kind of gray colored on the inside, and then pink fleshy polyps on the outside. [18:00] I started finding loggerhead sea turtles that had eaten two pounds, three pounds, four pounds, even five pounds of sea pens. At the end of my study, it was clear that this was one of their preferred food items. I started looking in the literature to try to find out more about sea pens. I wanted to know where they occurred. Were they in deep water? Were they in shallow water? Were they, you know, important to other organisms? And there was nothing known about sea pens. This where my professor, Mary Wicksten, got really excited because she realized this was an organism that people knew very little about. So we sent off some of my samples to an expert at the National Museum in Washington D.C. He verified the species as the sea pen *Virgularia presbytes*. It doesn't have a common name other than sea pen. Then I wrote a proposal to NOAA to see if they would give us a ship so that we could go out on the Texas coast and look for sea pens. Lo and behold, they were very excited about funding the project, and they sent a ship down here for, uh, seven days so that we could drag the Texas coast from Port Aransas down to the Port of Brownsville looking for sea pens. And we discovered, um, a community that nobody had ever discovered before, which is really kind of amazing because at that point in time, people had been studying the benthic areas of our coast, pretty intensely, and a lot of it was because there was a lot of oil and gas exploration. And so there was a lot of interest in studying the ocean floor, but nobody was looking close to shore. That's where the sea pens occurred. And they were in only about six to ten meters of water, so you could literally stand on the beach and probably throw a ball out to the areas where some of these sea pens were living, and they occurred in these huge dense beds, just massive beds, that when we pulled our dredge, um, that dredge would be so

filled with sea pens we could barely lift that dredge. It would take us you know a couple of hours to get all of the sea pens out of the dredge because it was just stuffed with sea pens. And so it was pretty exciting, we got to map the sea pen beds from Port Aransas down to the Port of Brownsville, and we're still actually describing that benthic community, and hope to finish up that paper this year because I published part of the story, the map where they occur and the information about the sea turtles eating, uh, the sea pens, but we never published the other part of the story. And that is that this is basically an undescribed benthic community that, um, is not just important to sea turtles, but important to fish, and importance to other invertebrates. So we found a lot of things living in the sea pen beds. And it provides structure and habitats for things, it provides food, and it provides some great shelter. So, we're still working to get the rest of the story out, years, decades later.

[21:40]

JB: It's kind of interesting because it seems like there's a focus on finding information about kind of the charismatic animals, the sea turtles, the redfish, and the kingfish, that sort of thing, but then there's all these other vertebrates and invertebrates that are forgotten about.

PP: Yeah, you know, I think it just, um, it depends on people, really, getting out there and wanting to study the animals, and if you don't have people who have a passion for knowledge and have some sort of funding opportunity or mechanism to get out there and do the work, there are a lot of things that go unreported, undiscovered, unnoticed, unstudied, understudied. There's a ton of diversity, you know, within spitting distance of our shores here in South Texas, and it's just waiting for people to get out there and study it. So for years now since I came back to Texas in 2011, I've been talking about sea pens, and trying to get somebody interested in getting out there studying sea pens and all of the other fauna that live in the sea pen beds. And no one seems to have an interest in it, and so, uh, so yeah, it just depends on, you know, really what people are interested in. My greatest fear is that there are fewer people now who are interested in marine diversity, and marine invertebrates, and the animals on our planet in the same way I saw people interested in it back when I was a graduate student. And there were lots of us when I was in graduate school, you know, there was somebody studying the amphipods and somebody studying the copepods, and somebody's studying every group of invertebrates that we could get our hands on. I just don't see that same cadre of people with the same sort of passionate enthusiasm, and maybe I'm just not hanging out in the right places anymore, but, um, things are also really expensive now, and it takes a lot of money and teams of people to do research compared to back in the 1970s and '80s when, you know, you just jump in someone's pickup truck and go out with some nets and collect some samples and throw them in jars and, you know, do that repeatedly and, you know, get some data. [24:16] So, yeah, it's unfortunate and there's a lot of emphasis now on trying to put more time and resources into studying the deep sea because that area is understudied. And I agree, that it actually is quite understudied compared to a lot of other places

on this planet and places not on this planet. But there are still some places within spitting distance of our beach that are quite understudied that we know nothing about, or very little about. So, for those budding graduate students who are out there looking for opportunities, we haven't studied everything there is to study, we still have lots of things to discover, especially about our marine world.

JB: Yeah, so, um, just randomly like were you doing—how did you find the beds? I mean was it just some random dredges, and then you kind of—

PP: Yeah—

JB: —started realizing?

PP: Yep. So we came up with a cruise plan before we got on the ship, and we decided with that we would start near shore and we would go into deep water, and then we would zigzag back in. So we had this beautiful zigzag cruise pattern going from Port Aransas all the way down to Port of Brownville, and we didn't find any in our deep water samples, there was nothing. But when we got to about six, ten meters of water, that's when we started picking up sea pens in our dredge. Basically we just dragged this dredge all along the way and we picked it up and looked to see if we had anything. It was kind of like looking for a needle in the haystack, but we found lots of needles, and that was the cool part about it was that we did pinpoint exactly where the sea pens were. It was really one of the most exciting parts of my career that I had because it felt like it was mine, it was not something someone else had done before. Things that I did after that part of my career, I was doing things that other people you know had already done or had already started doing and they didn't seem like they were just completely mine. But the sea pen work was completely mine. And, uh, it wasn't just about sea turtles either, and that was the part that I really liked, because there was, uh, you know, it was really a complex habitat of sea pen beds and sea pen communities. And so I'm eager to get back out there, and planning to get back out there this spring with a boat and not a big ship like we had last time. I want to take a small boat out to one of the places that we sampled and found sea pens. And I have a little ROV that I can operate, and it has got a camera. And so I want to get out and I want to send my little ROV down there to see if we can get some video of sea pens because I never got to see what it actually looks like. All I got to see was, you know, either a sea pen in a turtle's stomach after it had been eaten or a sea pen that we pulled up in the dredge. So I would like to see what it actually looks like in the water, and I'm really excited about that.

[27:37]

JB: Um-hm.

PP: Yeah.

JB: Neat.

PP: Yeah.

JB: That's amazing that is, you know, the same sort of questions and discovery—

PP: Yeah.

JB: Huh. Um, well, okay have a lot of questions here. Let's go back to Tony Amos. Can you talk a little bit about working with him, and what happened to the dolphin?

PP: Yeah, so we named the dolphin Bobo and Bobo had been attacked by a shark and he had really bad lacerations, and we didn't think Bobo was going to make it. But we kept him going as long as we could, and he died, uh, a few days after we had recovered him. And, uh, as I mentioned earlier, Tony thought, “Well, anyone who would hang around for thirty-six hours and help out with a dolphin surely, you know, would make a great research assistant.” And so he was in the market for a research assistant at that time, and um, he had just gotten a grant from Texas Sea Grant, so here's another intersection between my life and Texas Sea Grant. Tony had gotten a research grant from Texas Sea Grant to study the marine debris patterns on Mustang Island. Tony had been studying marine debris on Mustang Island for many years before then, and now he finally had some money to help pay for the work he was already doing. And part of that was to hire a research assistant. So he asked me if I wanted a job and I said, “Absolutely.” Part of my job was to go out on the beach with Tony, and enumerate and categorize all of the garbage within his marine debris area on Mustang Island, pretty much all of Mustang Island. And then, once a week I would also go out, and I would do a sweep of certain plots on the beach to actually pick up the garbage, bring it back to the lab, and then assess it, and categorize it, and weigh it. I would collect not just garbage but also natural items. [29:45] So you can only imagine when sargassum would wash up by the bucket-full, how much I had to bring back to the lab, and weigh and sort through, but it was so much fun to get paid to do something like that, and to learn as I was doing it. Because I learned about what was washing up, in what quantities, and what sargassum would come in with, and what plastic bottles would come in with, and all that sort of stuff. Tony already knew all this stuff in his head, we just had to just kind of, uh, prove that everything that already existed in his head and the patterns that he had already knew existed actually did indeed exist with the numbers that were collecting through the surveys and the beach cleaning exercise. It was really a lot of fun, and at the same time, you know, Tony did so many things. He was a jack of all trades, he was the person everybody called when something washed up alive or dead. I became Tony's assistant who would go out and get these things when he couldn't. And sometimes he could come with me just for the adventure, which was always a lot

of fun, because we'd get a call and, you know, the description of whatever was on the beach was not always accurate. So, you know, sometimes it was a turtle and you know we knew we were going to find, either an alive or dead turtle. But one time I got a call from Tony at three in the morning and he said "I just got a phone call and somebody says they saw a harpooned baby whale on the beach near Bob Hall Pier. Do you want to come with me?" And I said, "Well who could miss out on a harpooned baby whale (laughs) at Bob Hall Pier?" And so he picked me up at my house and I jumped in his truck and we drove very fast down to Bob Hall Pier to go see the harpooned baby whale (laughs), and we got there and it turned out it was a dolphin that somebody had stuck a broomstick into. And the funny part about it was it was a dolphin that we had actually found a few days before, and we had already marked it as having been recorded, and we had, you know, measured it and collected all of the samples we needed and then the county or the city, I don't remember who was responsible for that area, was supposed to take it and bury it, but obviously they hadn't done that. And somebody stuck a broomstick in it. And some beachgoer decided it looked like a harpooned baby whale so (laughs) we always had adventures like that, and every day working for Tony was an adventure regardless of whether there was a supposed harpooned baby whale or not because Tony just had fun with life and, uh, saw humor in everything. [32:35] He was an amazing person to work with because he was just a wonderful human being and he loved everything about life. It was just amazing—

JB: Um-hm.

PP: —great experience.

JB: And you were finding also dead turtles? Can you talk a little bit about that?

PP: Yeah, so we found a lot of dead turtles, um, not just loggerhead sea turtles, so I told you about the loggerhead sea turtles, we found a lot of Kemp's ridley sea turtles, found a lot of green sea turtles, found a lot of hawksbill sea turtles. I did a lot of necropsies, the animal equivalent of an autopsy, with those animals and we learned a lot about those animals. I would try to take those samples and share them with different scientists around the country to help increase their sample sizes. For example, hawksbills eat sponges primarily and I'm not a sponge expert and I didn't want to be a sponge expert, but I knew somebody who studied hawksbills in Florida and she was a sponge expert, so every time I found a dead hawksbill I would send her our hawksbill samples and she was very happy to receive those. What I did save from each of the samples was any kind of garbage that I found in the stomach or intestines. And so Tony and I published a paper about the marine debris we were finding the sea turtles eating and, uh, also the debris that they became entangled in. And so back then, you know, you think about it, it was the 1980s, that was before we had single-use plastics in our daily lives. And so the kinds of things we found were things like you know plastic twine, fishing line, plastic bags, but not the grocery bags, because we didn't have those back then it was more like Hefty garbage bags, and, um, a couple

of plastic pellets from plastic manufacturing, and balloons, pieces of balloons, so it was very interesting and I remember at the time wanting to do more with that part of the research I was doing and people told me that wasn't real science and I shouldn't focus on the plastic ingestion that we were finding. I actually had a journal editor once tell me to take that out of the manuscript I had submitted to the journal because they said that wasn't real science. So I kind of drifted away from that area of my research, and saved all that plastic that I had found, and Tony and I made a little display, and that display sat at UT Marine Science Institute for I don't know, maybe about twenty plus years. And when I returned to Texas in 2011, I took the display and brought it back to my lab in College Station, and it sat there for a few years, and I was fortunate to get involved in another study in 2015, this time it was from Pacific Ocean sea turtles. [36:08] And somebody, a colleague of mine in Hawaii, had acquired a large number of stomach and intestinal samples from Pacific sea turtles, and he wanted to know if my students and I were interested in analyzing the samples and I said sure. And so my graduate student and a couple of undergraduate students and I worked up those samples. This is a different ocean, but these samples were from the late '90s through the early 2000s, and we found a lot of plastic in those samples. What I forgot to tell you about the Gulf of Mexico turtles that I looked at was over fifty percent of them had eaten some sort of garbage, and this was back in the 1980s. In the Pacific samples I looked at, over 89 percent of those turtles had eaten plastic, and we're not talking about you know one little nibble, we're talking entire stomachs filled with things like bottle caps and plastic spoons, and one turtle had a toothbrush in its stomach, and it had bitten a toothbrush in two places so that it was three pieces of the toothbrush in that turtle's stomach. I was pretty shocked when I saw the types of plastic, and the amount of plastic, and I felt guilty at that point in time because I felt like I could have and should have done more back in the 1980s to call attention to this problem, and I hadn't. And so I decided to start finding ways to talk about the plastic that we were finding in turtles. And about that time, uh, my new graduate student Christine Figgner came and joined my lab, and she was starting research in Costa Rica, and she was out in the field, I believe it was, I want to say it was about 2015, 2016, um, maybe even 2017, and I'm sorry I can't remember the actual year anymore, and, um, must have been 2015, and she's doing her research, catching turtles, putting them on the boat, and she catches this turtle that had something in its nostril. She thought it was an invertebrate, a barnacle, or something, and she started tugging on it, and realized it was not an animal that was living inside this turtle's nose, it was a plastic straw. She videoed this whole extraction of the plastic straw from the turtle's nose, and when she got done with her fieldwork that day, she called me up and told me that she had taken a video of a sea turtle that, had a straw in its nose, and she said it's pretty hard to watch the video, and you can tell the turtle is in pain, and its breathing was compromised, and during the straw's extraction, it was also in pain. She wanted to upload it to YouTube because she wanted people to see what happens when single-use plastics get in the ocean and its impact on wildlife. She said that if you think I shouldn't upload it, I won't and I said, I think people need to see the pain that animals suffer as a result of our overconsumption of single-use plastics and the inability to dispose of it in proper ways. And so she uploaded that

YouTube video and, you know, within hours it started getting views, and it turned into a viral video that really fueled, provided jet fuel, for the anti-straw movement that was just beginning in this country to emerge at that time. [39:55] At that point in time I knew I had to do something more with all that plastic I had collected and was sitting in my lab. Chris helped me put together these little, what I'll call traveling museum exhibits, that I then began taking out to school kids and showing them and talking to them about my research and what I was finding over the years, and giving them information about single use plastics, how much there is, how much we're finding in the oceans, how it's impacting our wildlife, and then talking to them about what they could do to change their own use of single-use plastics, and what we each could do every day to reduce our plastic footprint. I still do that as often as I can, talk about sea turtles and plastics, and I know Tony would be proud because that was one of his passions. And Chris is still out there doing it and spreading the word and trying to make a difference with everybody from legislators to school kids so that everybody understands that single-use plastics have a cost, a huge environmental cost. I'm really proud of all that she's done.

JB: I've seen that video, I've actually shared it (laughs).

PP: Yeah, it's a hard video to watch, and it really, um, really causes people to think a lot about their use of single-use plastics after they watch it.

JB: Um-hm.

PP: Yeah, it's kind of cool that, uh, you know plastic has come back to me at different parts in my career and I feel like I've got to do more now.

JB: Yeah. Um, can you talk about, also you mentioned earlier, um, I don't think we got this on tape, that you were finding, uh, dead sea turtles washing up when you were working over there and—

PP: Yeah.

JB: —um, the causes of that and then also, um, Henry Hildebrand's interest in that?

PP: Yeah, yeah, so I'll tell you when I was working at Padre Island National Seashore that very first summer, one of my jobs was to go get the dead sea turtles off the beach and bury them in the sand dunes. And it was a stinky job, um, but I loved being on the beach and I loved being near animals, even if they were dead. And so I would bury the turtles, and I remember one day a visiting scientist from Australia came to visit us at the national seashore. [42:45] We had a fresh, dead sea turtle wash in that day. I was about to be dispatched to go bury that turtle, and he said, "No, no don't bury it." He said, "Bring it back to me. I want to do a necropsy." And his name

was Colin Limpus, and I brought back a fresh, uh, dead Kemp's ridley to Colin, and he had his knives all ready to go, and had a little apron on. And he went through for the next two, three hours, opening up that turtle and teaching us all the different anatomy of that turtle inside and out, and opening up its stomach and intestines. And when he did that, out spilled out all these beautiful crab pieces, and I was hooked at that moment. He started telling me how his graduate students actually have to count the number of crab claws, and how many are left claws and how many are right claws so they can figure out how many actual crabs the turtles ate. He was just going on and on, and he was just so excited by the gut contents of this turtle that it was hard not to be excited along with him. At that point, I realized that there was an opportunity here for me because nobody wanted to do anything with the loggerhead sea turtles, they were just big stinky turtles, and no one was interested in loggerhead sea turtles. So that was how I decided that I was going to study loggerhead sea turtle diets. And so instead of pulling them up on the dunes and burying them, I started cutting them open and collecting samples. And, um, and so shortly after that I went, and I was working for Tony Amos, and he was similarly excited about every dead turtle I found. He'd want to come out and watch me do a necropsy, and watch me open up the gut contents. He found it fascinating as well, and so he was pretty good friends with, um, a faculty member at Texas A&M-Corpus Christi, which of course back then was known as the University of Corpus Christi or Corpus Christi State University, and his name was Henry Hildebrand and Henry would stop by Tony's lab about once a month just to talk to Tony about what he was seeing on the beach because he knew that Tony was driving the beach, looking at garbage, and looking at other things. Henry knew more about the beach and the coast than probably anybody else did. He stopped by one day when I was there, and Tony introduced him to me, and Tony told him about my research looking at sea turtle gut contents. So I started talking to Henry and telling him about my research. And Henry was a bit of a quiet, introverted guy, never readily had much emotion in his voice or his face and didn't seem to want to talk to me very much on that very first occasion, but he came back the next month and he talked to me a little bit more. [45:35] And every time that he would come back, he would talk to me a little bit more, and a little bit more, and he too became fascinated by what I was finding in the sea turtle stomach and intestinal tracts. And so we struck up a friendship, and it was just really exciting to have somebody with his wealth of knowledge and at his career stage be interested in my research. So we got to be pretty good friends.

JB: And did you know who he was when you met him the first time?

PP: You know, I had read so many things that had been written by Henry Hildebrand. He clearly knew more about the coast of Texas and Mexico than anybody. So I was in awe of his knowledge and I was little intimidated and scared of him, too, because I was twenty-something and he was much older than I was. And so, you know, I wanted him to think I was a legitimate scientist and, uh, worthy of this time so I was always very stressed when Henry would come by because it felt like I needed to prove myself to Henry and I did finally do that. I got just as much

out of those conversations as Henry did because if I asked him a question, he would, you know, very willingly share his knowledge about the distribution and abundance of the different animals I was finding, and the turtle diets. And he just loved talking about sea turtles in general so he would tell me stories about where he had been in Mexico, and what he had seen, and who he spoke with and what they had seen, and so we got to share sort of field notes, if you want to describe it that way. We both had a field notebook in our head that we would then share with one another, and it was really, uh, very exciting for me to have somebody to talk to about these things and to hear the feedback that he gave me, so yeah, it was exciting to have somebody like Henry talking to me.

[47:29]

JB: Hm, that just sounds great. Um, so you eventually decided to go back to graduate school?

PP: Yeah, so I finished my master's degree at Texas A&M, but I worked at UT Marine Science Institute, most of that time for Tony. I knew I wanted to go on to get my Ph.D., and, Tony at the time had gotten two large grants to go do research in the Arctic and the Antarctic. And as exciting as that was, I wasn't very excited about it because I get seasick. The thought of being in either one of those environments for long periods of time being seasick were not very exciting for me. And so I decided not to stay and work with Tony, instead, I went back to Texas A&M in College Station, and I was fortunate to get a spot in a sea turtle lab. And Dr. David Owens was the PI of that lab, and David took me into his lab, and he was just starting a research project in Costa Rica at the time. And so I thought that was a pretty good trade-off, I'm not going to go to the Arctic or the Antarctic, but I'm going to go to Costa Rica, right? And so I—the cool thing about his project, uh, is that he was fascinated by Kemp's ridley sea turtles. And he was fascinated by their mass nesting behavior so, you know, back when there were a lot of Kemp's ridleys, uh, back in the 1940s and before then, they would all gather offshore near the beach in Mexico, Rancho Nuevo, and then they would all emerge synchronously to lay their eggs at the same time and you could see forty, fifty, sixty thousand females on the beach at one time. Well, that behavior no longer existed by the 1980s because the population had been decimated. And so Dave Owens wanted to study that behavior, and he decided to study that behavior in Costa Rica on the Pacific Coast but studying the sister species, the olive ridley sea turtle. [49:53] There were over a million of them still in the ocean back in the early 1990s, so it was a great model system to go and study and try to apply your research findings on olive ridleys to the critically endangered Kemp's ridley sea turtles. So I was a part of a big lab of students that went out to Costa Rica, and we all had different projects, and my project was to use satellite telemetry to study the migrations of the turtles, and there was this old urban myth if you will, that the ridleys, either Kemp's ridleys or olive ridleys would travel like little social units, the same way fish group together in schools, or birds flock together, or whales travel in pods. There was this theory that sea turtles did the same thing, and that every year all the female turtles would travel together

to a certain beach and then they would lay their eggs on those beaches. There was a lot of pretty good anecdotal information where people would see the same turtles hauling out on the beach together at the same time year after year after year in certain places. My job was to use the satellite telemetry to determine if the females that emerged onto to the beach as a group retained that group cohesiveness once they left the nesting beach. I would get a group of about seven female turtles that were all crawling up on the beach at the same time, and I would put satellite transmitters on them, and then we would track their migrations away from the beach. As soon as they left the beach, they would all go in seven different directions, and I did this three times with three different groups of female turtles. But what was really cool was that they would come back to the beach at the same time and at the same place. They had this amazing ability to cue back into the same cues that brought them there and in the same place, but they were not hanging out together, so, um, so we couldn't rule out that there might be some, what we call social facilitation involved in the behavior. So it could be that the females show up at a nesting beach, they swim around for a couple of days and kind of reestablish their little units or cohorts, and then emerge on the beach together, we couldn't rule that out. [52:32] But they certainly do not retain that cohesiveness once they head off into the deep waters. So, I did get to go swimming with them one time before they actually started nesting. And it was me, a couple of other people, and about ten thousand turtles swimming in the water of the Eastern Pacific. And there was incredible visibility and, these females were just kind of swimming back and forth, checking me out while I was checking them out, letting me touch them, and just waiting for whatever signal they wait for that beckons them to crawl ashore and nest synchronously. It really was an incredible experience. So I got to live in Costa Rica, back in the jungle for about six months at a time, and, for two years, and just have an incredible research experience. But, uh, as exciting as that was, it still wasn't as exciting as my sea pen research. And, and part of it was because you know it wasn't—I didn't feel like it was really mine because it was my professor's idea, and, it was really what he wanted to do and I just got to execute it. But it was still a blast.

JB: Well, sounds like it. I was actually going to ask, like, were there any downsides of doing research (laughs) in Costa Rica, or—

PP: Well, you know, it was a challenge living where I was living. Uh, it was a remote location, we had no electricity, our water came from the stream, cooking was done on a little gas stove, you had to carry that gas five hours on your back over a mountain. Everything that I needed was five hours away and could only come in if I carried it there so there were challenges. There were crocodiles, there were jaguars, there were boa constrictors, there were army ants, there were all sorts of people that would come by like egg poachers wanting to take the turtle eggs or, you know, people who just wanted to rob the field station. So there were a couple of downsides, but they were all really good learning opportunities for me, and my dream of being Tarzan living in the jungle actually came to fruition, because there I was living with monkeys, and crocodiles, and all the other animals, so it really was amazing from that point of view.

JB: Oh wow.

PP: Yeah.

JB: Huh. Um, we've been going for a while. Do you need a break?

PP: I'm good.

JB: Okay.

PP: Yeah, if you want to keep going I'll just take a sip of water.

JB: Yeah, sure.

[55:27]

PP: You're getting me to tell some stories I haven't had the chance to tell in a long time.

JB: Oh, good (laughs). Um, okay well, so I guess, let's see, we talked about mass nesting and what interested you. Can you talk a little bit about your research in the dissertation phase, and then after—

PP: Yeah.

JB: —what you found out about ridley turtles?

PP: Sure, yeah so I think some of the main takeaways from my research were not just that, you know, the olive ridley turtles don't migrate in schools, or pods, or any kind of social units, but that they, in the Eastern Pacific Ocean, which is a very interesting environment because El Niños occur there regularly. An El Niño brings in warm water in the areas that naturally are cold water areas, and that disrupts the food web. Things that, animals eat are no longer there, and so animals that can move typically do move. So there's a lot of variability in the environment there, and I had predicted that migrations of the turtles would be similarly variable from year to year depending on whether an El Niño was present or not. Well, fortunately, in the middle of my study, there was El Niño. And so I had turtles with transmitters on, and they did a lot of different things during the El Niño year than they did during a non-El Niño year. And they survived, and they, at least a couple of them, you know, kept their transmitters on long enough for me to track them for more than a year. So I was able to look at where they went in the non-El Niño year versus the El Niño year, and what I found was that they have great flexibility in their migratory

behavior, which is different than what we know about sea turtles, or at least what we knew about sea turtles up until that time. Up until that time, the model was that a sea turtle goes from their one feeding ground to their nesting beach, and then when they're done nesting, they go back to that same feeding ground. [57:55] Well, that's not what olive ridley turtles do at all. They're following a very mobile and variable food source so their food may be near El Salvador one year, and the next year, it's down near Panama, and so they've got to move to get the food that they need to sustain and nourish themselves, and they don't have fixed food resources like a lot of other sea turtle species do. So that's pretty exciting. Um, it often bodes well for them when you think about climate change scenarios. As the climate changes and waters warm, the currents shift and the food that they usually eat also shifts, I think they're going to have the behavioral flexibility to make those adjustments, and I think that's why that species has been so successful and, remains the most abundant sea turtle in really on our planet is because they have that ability to adapt very quickly to changing food locations and changing food sources. So that was the other cool thing that I learned from my research.

JB: And what did you find out about the cues that brought them back?

PP: Ah, that's the million-dollar question. I learned nothing about their cues (laughs), and people are still trying to study what those cues are. The only thing I can tell you is that large amounts of rain mask those cues. And the way I know that is because in September 1990, I put out, I think it was eight satellite transmitters on eight turtles, [59:44] and I also took blood samples from them. I also did an ultrasound scan of those turtles. They were due to come back in October, so they nest every thirty days, and they typically only lay two times in a year. So they nested in September, and I got their blood samples, had their ultrasound scans, we expected them back thirty days later. Well, in mid-September, after they finished their first nesting, it started raining, and I'm talking torrential downpours for six weeks. Six weeks straight we did not see the sun, and all of a sudden rivers just broke through the beach out of nowhere. Um, roads were flooded, I've never experienced anything like it. Everything I had grew mold on it, and it was just—there were thunderstorms every day. I can't remember the total amount of rainfall, but it was feet of rain, many feet of rain over that six-week period. From the transmitter data, what I do know is that those turtles just hunkered down, they hung out offshore and did nothing. They barely even came up to breathe during that time. They'd come up and breathe a couple of times a day, but the rest of the time, they'd hunker down below. And, um, so nobody nested in October when we expected them to come back and lay their eggs. There were a bunch of turtles that would come up on the beach, and they'd kind of plow their head in the sand as if they were sniffing it or sensing something in the sand, and then they'd turn around and go back out into the water. [1:01:28] So there was no mass nesting in October, and then about mid-November, about the second week in November, the sun came out, the skies parted, no more clouds, no more rain, and boom. Those turtles came back, and there was a mass synchronous nesting on the beach when we didn't expect it to occur. And I recaptured all of those turtles, and got additional blood samples

and additional, um, ultrasound scans from them. So those turtles held on to their eggs for that six-week period because the nesting conditions, nesting environment was not suitable for the production of an egg or hatchling. And, um, so whatever cue they get that sends them to the beach was masked by all that rainfall, and they all received some signal that told them do not lay your eggs until that day in November, when they all crawled up the beach. It very much is an environmental stimuli, and I don't know any more beyond that, other than rain causes them not to lay their eggs if there's too much rain. And, yeah, that's as good as it gets. But there are some young researchers who are out there studying the cues and hopefully, in the next year or two, we will know a little bit more about the cues that send them to the beach and actually get them onto the beach. So they will show up a few days before the mass nesting, and then it's like somebody blows a whistle, and they all hit the beach at the same time. And I don't know what that whistle is.

[1:03:17]

JB: Hm. Um, you know, it seems like a lot of your research and other research, um, changes a lot depending on available technology.

PP: Absolutely, yeah, yeah. So when I started in 1990, attaching satellite transmitters to turtles, I was one of the first people who was able to do it successfully, and I credit my success to the species that I was working with because they are in the open ocean and because they like to spend time at the surface basking in the sun while they're in cold water. I got wonderful data because your data is dependent on the turtle being at the surface when the satellite's overhead. So, if your turtle is at the surface a lot, you get a lot of data, and you get really good quality data. And so because this one species spends a lot do time on the surface, I was really lucky. The other part of luck that I had was that the attachment method I used worked really well. I was using basically fiberglass cloth that one uses on a boat or a car with fiberglass resin. Nothing fancy, nothing high tech, but it worked on this species, and it worked really well. I would go in to the hardware store in Costa Rica and (laughs) I would buy it, and I kid you not, the first time I bought it at the hardware store, the guy came out, had a bottle of gin filled with fiberglass resin, and I got really nervous when he came out with a bottle of gin and I said, "No, no (laughs), I don't want to buy gin, I want to buy fiberglass resin" And he said, "No, no," he explained to me in Spanish, and my Spanish wasn't very good at the time because it was my first year there, he explained to me in Spanish very slowly that he had taken a gin bottle and poured fiberglass resin into the gin bottle because they just had a big vat of it [1:05:10] in the back so I never knew what brand of fiberglass resin I was using, but the Costa Rica fiberglass resin was the bomb and worked better than the U.S. resins. So that was really the secret to my success was that, uh, fiberglass resin in a gin bottle, and the fact that the turtles like to hang out at the surface. So, yeah it was a lot of fun. You know, as a graduate student, you're always worried whether you're going to collect enough data for a dissertation, and I ended up having too much data for my

dissertation, and there's still some data that I haven't analyzed from my dissertation. I'm saving that for my golden years, (Brown laughs) which are fast approaching so—

[1:06:00]

JB:—Um, so, how's your—after that, how did, um, how did your research go? I mean, did you want to keep answering those same questions, or are there questions that—new questions that you thought of?

PP: Lots of new questions. I think every time I've done, uh, a study, I've come out with more questions at the end of it than I had going into it, and I think that that's the sign of a successful project is that you've answered some questions, but you've come out with more. That's what I think what keeps really good, um, good academic scientists going their whole careers, and, you know, you write another grant proposal with the new questions you get funding, and you just keep going. And, uh, after I was done with my doctorate, I had the good fortune to go to Washington, D.C. for a year, and Texas Sea Grant gave me a fellowship to go and have a marine policy experience in Washington, D.C., and I was fortunate to spend a year working in NOAA's Office of Protected Resources, and that was really import to me because I was studying threatened and endangered sea turtles, and I wanted to understand how policy was made because that policy, in particular things like the Endangered Species Act, impacts how people manage sea turtles, and that impacts their conservation status so I wanted to understand how conservation policy was developed. During that year, I got to get involved in a lot of different projects, and at the end of that year, I knew that I didn't want to stay in Washington D.C., I really wanted to go back to academia and be a scientist, but I brought with me a lot of really good lessons learned about what made a difference, uh, in Washington, D.C., and how I could make a difference with my research. [1:08:05] A lot of it was learning how to communicate with people who aren't scientists. As a nerdy scientist who grew up in academia, I realized how ill-equipped I was when I got the Washington, D.C. because I talked like a nerdy scientist, and, uh, people in Washington, D.C. didn't understand that language. I really struggled with communication, but at the end of that year, I became a much better communicator, and really have worked on that throughout my life to try to help people understand why my science is important to them or important to somebody else, and to try to distill that science in a way that is meaningful, and understandable, and not too geeky and (laughter) and, you know, so for example, when I start talking about the transmitters, it is of no value to tell people anything about the battery of that transmitter and how many decibels it transmits at or how big it was or how much it weighed and scientists will get into all of those details and want tell you all of the details that are not very interesting. So I learned to drop all of that stuff out of my conversations when I was in Washington, D.C., and get to the heart of the matter, and tell people why things were important, why are sea turtles important, why are the oceans important, and those were hard things to communicate and still are in many ways.

JB: It seems like sea turtles are very popular, I mean, in terms of the general public.

PP: Yeah.

JB: Were they when you started your research?

PP: Not at all. And yeah I don't know how they, when, or how they grew in popularity, but yeah, I mean, you go down the road now and you see people have sea turtle stickers, people have sea turtle tattoos, people have sea turtle shirts, and earrings, and yes sea turtles are cool now. So it's really, it's mind-blowing for me because I'm doing something that's cool now that wasn't very cool back in the 1980s so it's kind of neat to see. And that's good because I think that people have a better appreciation not just for sea turtles but for our oceans as a result of their interest in sea turtles. A few years ago, a colleague of mine told me that I was doing too much to downplay my sea turtle background. And I said, you know, "But I'm not a real active researcher anymore and I'm now in more of an administrative leadership role for an organization that does many things." And he said, "But people love sea turtles and you should be using your sea turtle background to benefit you and your organization." And I was like, "Okay I'll give it a try." And people like sea turtles and so I try to, [1:11:06] even if I have to give a talk about something that may be more mundane, I always try to throw in a sea turtle story or tell something that people can grab on to. What I found is that people are now asking me to talk more about sea turtles than ever before which is kind of cool because that is an easy thing for me to talk about.

JB: Why do you think they are so popular?

PP: Well, I think that any charismatic mega-vertebrate is popular, right? So, you know, sea turtles are kind of mysterious, and dolphins are mysterious, and whales are mysterious, and they live out there in the ocean world, and we get to see glimpses of them sometimes on television, and so television probably has played a role in it. Um, we get to see them sometimes in movies, I know there have been a lot of, you know, well-received movies in recent years that have charismatic megafauna in it. We get to see them at, you know, aquaria and, you know, zoos. We also have the opportunity now that we didn't have back when I was younger to get close to animals. And so in some places where sea turtles go on beaches to lay their eggs there are tourism programs where they bring tourists out to watch the turtles lay their eggs. And there isn't anything more thrilling than seeing your very first sea turtle crawl up on the beach, dig a hole with its rear flippers, drop a bunch of ping pong ball-shaped eggs into it, cover up that hole and then crawl back to the beach. I've seen people cry during that experience, and so I think as these opportunities become more available over the last few decades, we've developed a culture of sea turtle enthusiasts throughout the United States and abroad as well. [1:13:07] And so if you think about this area, in particular, I mean Padre Island National Seashore has these amazing events

every summer where they, after they're done incubating their hatchlings, they bring the hatchlings out to the beach and they invite the public to come out for these public events. Well, if you go to one of those events, it's like going to a rock concert. There's thousands of people who have come from all over the U.S. just to watch a little hatchling crawl down the beach and enter the Gulf of Mexico. That's an opportunity to educate people about sea turtles, and to get them interested enough to want to do more, and to just embrace sea turtles in that experience that they had. So, the good will that that one program generates is really quite astounding. Just go look at their Facebook page and see how many followers they have, it's just amazing. And then down the coast, we have got Sea Turtle Incorporated which has a similar program of hatchling releases, but they have a rehab facility, too, where people can come in and see the turtles that are being rehabilitated. I think that that closeness that the public has to the animals, and the more they learn about them and some of the challenges that they face, really has helped sea turtles and our oceans, and other megafauna as well. So, I guess that's what I would attribute it to. And, uh, but I think it's multiple things, and then social media, right? Because everything is so much more accessible now through social media and through our smartphones. Someone goes out on a boat, sees a sea turtle, videos it, uploads that to YouTube or Facebook, and everybody else gets to see it and have that experience along with that person, so I think that all those different technologies that we have now are making things more accessible.

JB: Um-hm. How do you think that translates to conservation or policy?

PP: Well, I think for conservation, it can be good and it can be bad. Um, so some people—more people will want to go and see turtles, and some of them will do that in a responsible way, and others will not. [1:15:30] We see evidence of that every year, where you hear about somebody who was riding on the back of a sea turtle that came up on a nesting beach, and that person got caught and thrown in jail. And um, and then, you know, somebody sees one person riding a sea turtle on YouTube, and then others go out and want to go catch a sea turtle and ride on it. So those are the things that are really unfortunate. Um, I don't think overall those things are wholly detrimental to sea turtles because they seem to occur on a limited basis, but those are just the reports that we know about. I think most people are responsible, law-abiding people and want to help sea turtles and other wildlife and not to do damage to them. But I think that just educating people about our marine environment is beneficial because people, um, people become emotional when they see animals in need and they want to help them, and some people will go and volunteer in programs, some people will donate to those programs, and those are really good things to do to help conserve sea turtles. I think just the public awareness aspect is really beneficial to conservation programs.

JB: Um-hm. It seems like sea turtle ecology has a lot of women [1:17:00] compared to other fields. Do you think that's a fair assessment?

PP: You know, I don't know the answer to that question.

JB: Or at least, like, when you started?

PP: When I started, no. It was very male-dominated. And, uh, it was a little intimidating because there were only a few women, um, who had what I'll call credibility in the field. And it's so rewarding now to see that it is highly skewed towards the female gender if you look at graduate students, and assistant professors, and other professionals who are not on the academic track. It is biased towards females, and that's really exciting, you know, but I think that's representative of science in general, not just science that focuses on sea turtles and other charismatic megafauna. I think you see a significant increase in the number of females going into science, technology, engineering, and math. And that's great because I think that, when I was younger, I was discouraged from doing some of those things, and I'm sure I wasn't the only one. And I don't usually listen to people who discourage me (laughs) that usually actually encourages me. And that's a good thing, but a lot of, you know, young females probably do get discouraged by some of the things that they heard back in the seventies and eighties, and that's unfortunate.

JB: I mean, what sort of things did you hear? What was it like to be a woman in science then?

PP: Well, you know, it was a very different time, and I'm thinking back to the 1980s when I was in graduate school at Texas A&M, and it was a pretty conservative environment, and there would be male faculty who would tell the female students that they, really the best they could hope for after graduate school was to get married and to have a husband who was a scientist and to be supportive of him (laughs). And, um, they were very, very vocal. Um, nobody ever said that to me so maybe I had enough attitude at the time that everybody knew that that was not likely to be the route that I would take. But you know, there were all sort of very direct and indirect, uh, comments that were made in the classroom and outside the classroom. Some other examples were when you would go out in the field, and you would be with a research team, and it was mostly men and me, I would be given the task of taking the notes while the men did the heavy lifting (laughs). And that, um, yeah, that didn't sit very well with me, and I'd do that for a little while and the common refrain was "But you have such neat handwriting, Pam." So then I would take the notes and I would scribble them so that they were illegible and then (laughs) and then people would finally give up and let me go in the field, and then you have to prove yourself in the field and make sure that you were pulling your weight and working as hard as the guys were, and I loved doing that. So, um, my only weakness was working on research vessels and getting seasick, that was my main weakness, and I can remember when I was working for Tony, he sent me out on a research cruise on the RV *Longhorn*, it was the University of Texas ship. And it was a student cruise, and I won't mention the chief scientist's name, but he allowed me to come on the cruise. Tony had asked him if I could go out there, because this was the very beginning of my sea pen journey. And so we were going to get me on the ship, and we were going to go and

dredge and try to find some sea pens. Well, when we got out there, the seas were about four to five foot seas, and pretty choppy, and the weather was bad, and I was the first one to get sick within probably within ten hours of leaving port. And one by one, everybody on that cruise got sick, even the chief scientist. And the weather went from bad to worse to the point where we were up to seven to nine foot waves, gale force winds, and we were starting to lose things overboard because they weren't latched down securely enough for that bad weather. Finally, the chief scientist, turned the ship around, and we all got better because we were going with the wind instead of against the wind at that point. And the boat wasn't rocking quite as wildly anymore, and we got back to the dock, and I remember the chief scientist going up to Tony and saying, "She's never going to make it as an oceanographer or a marine scientist," and, you know, it was one of those statements that could have been career-ending. In his eyes, I was not worthy because I vomited on the boat, but so did everybody else, and, so, you know, you just, you kind of just dust off (laughs) your shoulders and pull up your boots, and just keep on trudging, and I knew that was my own weakness, and I should not go on vessels (laughs) for very long and certainly not during bad weather. So that was my one weakness in the field was the motion sickness on boats. But you know everybody learned to work with me on the boats, and, you know, let me be sick when I needed to be sick, and I got the data I needed (laughter).

[1:22:50]

JB: Hm. Um, so, do you, I think, witness a lot over the course of your career in terms of the recovery of Kemp's ridleys? Can you talk about what changed?

PP: Yeah, so I got my start, of course, with Padre Island National Seashore, and I knew that it was really a dire situation in the 1970s and the early '80s. And things didn't get a whole lot better throughout the 1980s, and I had the opportunity to go to the nesting beach at Rancho Nuevo in 1989 to see the nesting beach and the turtles firsthand. And it was really sad because during one of those mass synchronous nesting days, there were, I don't know, maybe eight turtles on the beach and they were all spread out to the point where you couldn't see them. They were still doing it at the same time. It was not a very good sign, that the conservation efforts were working. Now, mind you, that was just before the turtle excluder devices became mandatory across the United States. And so in 1990, once that did become mandatory, things started to change for the better. [1:24:21] There were fewer sea turtles washing up dead on Texas beaches, and slowly we started seeing signs of recovery in the number of nesting turtles, nesting Kemp's ridleys, at Rancho Nuevo. That was pretty exciting because I never thought we were going to see the kind of recovery that we have seen. And they're not recovered, but, they're certainly closer to recovery than they were, uh, back in the 1980s. I remember seeing the numbers beginning to increase, and feeling really encouraged about that. And then Padre Island National Seashore staff led by Donna Shaver started going down island regularly to look for sea turtles, and they hadn't been doing that for many years after the project had initiated and then

ended. You know, if you're not looking for turtles, then you're not going to see turtles, especially on that long national seashore stretch of sand because the turtles come up, they leave tracks, but those tracks are quickly windswept within an hour or two. So, you know, it's amazing that nobody was looking for the turtles, but they didn't have the funding for it and they didn't have the staffing for it. But once they staffed up and got some funding for it, they started finding turtles. And every year they find more and more turtles coming up on Padre Island National Seashore. Some of those turtles were the ones that we hatched on the island and released, and, um, that's pretty exciting that some of those turtles that were Head Started actually did come back to lay their eggs on Padre Island. That to me is one of the most exciting discoveries of all the work that was done to try to recover the Kemp's ridley sea turtles. We know we can grow sea turtles, and we know that we can get them to return to the nesting beach where they were imprinted. We just don't know exactly what those imprinting mechanisms are or were, you know, probably a combination of things, but we'll never know for sure what brought those turtles back to that spot they returned. That's a pretty exciting thing. The other exciting thing that we know is, if you reduce the incidental capture of Kemp's ridley sea turtles in shrimp trawls, they'll survive and live to adulthood, and then the nesting population will continue to increase. And so that's also a really important thing that we discovered through that project and program. And so it really is just an amazing, to me, the most amazing conservation victory that I have ever seen. You know, I know that there are other conservation success stories, and they're probably all equally compelling, but to me the Kemp's ridley sea turtle is the most compelling one because we were down to just a few hundred female sea turtles remaining on this planet, and now, we're up over ten thousand. And that to me is just an amazing story that demonstrates how a dedicated group of people across two countries, and multiple state and federal agencies, and non-governmental organizations can work together to recover an endangered species. The critical part of it was that the fisherman adopted this gear in their trawls that really was the most important part, I think, of the recovery effort.

JB: Were you involved in any of the kind of debates over regulation TED adoption?

PP: Yeah, so during those years, I worked for Tony Amos at the time, and I remember when the first set of regulations (clears throat), excuse me, was released publicly, there was a huge uproar all throughout the Gulf of Mexico. In Texas, I can't remember what year it was, might have been '88, the shrimp fishermen had a blockade of some of the major ports in Texas to demonstrate, and they did it in Port Aransas. I was living in Port Aransas at the time, and I remember Tony calling me up at about six in the morning and saying, "Don't leave your house." And I said, "Why?" And he said, "Because the shrimpers are revolting, there's a blockade, they've blockaded the whole ship channel in Port Aransas," and that weekend was the weekend of a very important deep-sea fishing tournament, and so all the people who had come to town to take their expensive vessels out to go deep-sea fishing with their expensive clientele and parties were unable to leave the dock because all these shrimp vessels were lined up in defiance of the federal

government's proposed rule. I did leave my house, and of course, I had to go down to the dock, and just to experience what was happening, and it was really meaningful to see the shrimp fishermen and their families out there protesting and speaking, and being very candid about what they felt was unfair. And I listened because I wanted to appreciate their point of view and learn from it, and many of them were my friends and my neighbors anyway, and I didn't think they would do me any harm, and that didn't happen. That was sort of my first experience, but then NOAA and National Marine Fisheries Service had public hearings up and down the coast. My professor, Dr. David Owens, he wasn't my professor at the time, but he knew me, and he was asked to testify at one of the public hearings in Galveston. He asked me if I could testify on his behalf and just read his testimony. He said he had it all written, but he couldn't actually go to the public hearing and read his testimony in front of the shrimp fishermen. I never asked him why he couldn't do that (laughs), and so I was honored that he would ask me to go read his testimony at this public hearing. And I was so clueless at the time [1:31:13] So I drove up to Galveston, and the NOAA people knew I was coming, and they asked me to meet them at some location away from where the public hearing was happening. I show up at this location, and there are the NOAA people, and I believe it was the FBI, and the federal sheriff and police, and I was a little nervous at the point in time, and they explained to me that there was basically an angry mob in the room and that, um, they were there to protect me and the rest of the speakers who were going to be speaking during this public comment period. And at that point I realized why my professor had sent me to this event because he chickened out (laughter). There were some people wearing bulletproof vests (laughs), and that made me a little, even a little, more nervous. I got up on the stage, and there was a room full of angry shrimp fishermen, and I was probably the second or third person—second or third person to speak. First person got out there and basically said we have to save the turtles, you guys have to use turtle excluder devices, and if they had had oranges and apples they would have thrown it at that person, but they booed that person off the stage, and another person got up and said something in support of the shrimp fishermen, and everybody was cheering. Then I got up and I read Dr. Owens' statement which was written like a scientist would write a statement and nobody understood what it meant. You could see everyone just kind of scratching their head, they were like, Well is that good or is that bad, because it didn't really mean anything to anybody in the crowd. At that point, I felt really relaxed because nobody was booing and nobody was cheering, and I got to get off that stage, get escorted back to my car by policemen, and then drive back to College Station or Port Aransas—I can't remember where I was living at the time. That was my second experience with the whole turtle excluder device controversy, and so that was really exciting, just to see the amount of stress and grief and the experience that people had on that side of the debate, and then I was very close to many of the people in the sea turtle community who had pushed for those regulations to be formalized, and so I had heard their very passionate conversations and speeches over the years about how important this technology was to saving sea turtles. I felt like I had a good appreciation for how everybody felt, and I felt like there was a middle ground there, and that's kind of how I felt about every environmental controversy, is that I always tend to take a middle ground because I can

appreciate everybody's point of view, and that's pretty much where I sit on just about every environmental issue. I try to understand why everybody feels so passionately about one side or another and never really head towards either the far left or the far right on anything.

JB: It seems like mainly everything in our country that things have gotten more polarized, particularly since the eighties and nineties, on the environmental issues?

PP: Yeah. Yeah, I credit my parents with producing somebody who doesn't go to the left or the right because my mother is a socialist from Europe, and she married a very conservative Republican when she came to the United States. And so she didn't speak any English when they fell in love or (laughs) when they got married, and I don't think she knew she married a Republican, but she found out obviously when she learned English. And so, um, so politics is something we never discussed at home. We knew that mom had her views, and dad had his views, and we did not discuss politics ever.

JB: Hm. I guess that's one way to get around it.

[1:35:25]

PP: And so, yeah, I appreciated what my mom would tell me, and I appreciated what my dad would tell me. So I think that's how I developed the view that I have on a lot of different issues.

JB: Um-hm. Um, let's see, well is there anything I missed? I mean, what else in terms of important topics or the changing in science that you think is important, or—

PP: Yeah well, when I think about the Kemp's ridley sea turtle, I think about Texas, and I think about the incredible contributions that Texans made to recover and restore that species, which is now our state of Texas sea turtle, by the way, I don't know if you knew that, but that's pretty outstanding. There was a group of school kids in the Galveston/Houston area that lobbied the Texas governor, who back then was Rick Perry, and the legislature to name the Kemp's ridley sea turtle the state of Texas sea turtle, and they approved it. And I thought that was fabulous to see kids, young kids getting involved. And so we have this wonderful state of Texas sea turtle now that is seemingly on the road to recovery. One of the cool things that I've tried to tell people over the years is that, when you look at that history of the recovery from really the 1970s all the way through today, and you look at what's been happening in the Gulf of Mexico, there have been a lot of things happening in the Gulf of Mexico. During that time, oil platforms increased significantly, and oil and gas developments increased significantly. At the same time, that sea turtle was increasing significantly. So, I tell that story so that people understand that, yes, we can develop our natural resources, and do it in a way that doesn't hinder the survival of some of our critically endangered species. And that's, to me, one of the best examples of both onshore

development and offshore development occurring at the same time that that turtle was making its own recovery and comeback. But that, there today seems to be a lot of stressors out in the Gulf of Mexico that are impacting the species, and collectively those stressors seem to be having an impact to the point where that turtle is not on the same trajectory it once was. So if it had continued to increase at the rate of increase it was experiencing in the late what I'll call the late nineties and early two-thousands, we should see their numbers continuing to climb, and we are not seeing that anymore. That change in the rate of increase in the population coincided with 2010, 2011 when we had Deep Water Horizon oil spill, but it wasn't just the Deep Water Horizon oil spill that occurred at that time, there were a lot of atmospheric and oceanographic conditions that were going on in the Gulf of Mexico that were impacting our resources. And so, you know, it's hard to attribute any decrease in the rate of increase of the sea turtle to any one thing. But clearly there have been multiple stressors in the Gulf of Mexico and continue to be, from hurricanes, to dead zones, to red tides, and other harmful algal blooms, all of those things have an impact either directly or indirectly on the food sources that Kemp's ridleys eat. So, I'm concerned about the future of Kemp's ridley, and that we're not seeing that same trajectory anymore, and I think that everybody's similarly concerned because it's not increasing at the same rate that it was. And it's going to take time, it's going to take another ten or twenty years before we know what impact the Deep Water Horizon really had on that species because it takes at least ten or fifteen years for them to reach sexual maturity and return to beaches to nest. So we still have a ways to go to find out what impacts the spill had, but there are other stressors out there, it's not just the after effects of the oil spill. So yeah, I think I'm cautiously optimistic that the species is going to hold its own for a while, but I think that it's going to continue to take a village, and it's going to continue to take resources, and it's going to continue to take people like Donna Shaver at Padre Island National Seashore who live, eat, and breathe Kemp's ridley sea turtle conservation, to do it. And she's reaching her golden years, too, and so I hope that this wonderful cadre of young female scientists that are in the pipeline are going to follow in her footsteps and pick up the rein, and run with it, and devote their lives to sea turtles the same way that she has.

JB: Hm, um, anything else?

PP: I think that's it.

JB: Okay.

PP: Just, it has been an incredible opportunity for me, and I feel very privileged to have lived the life I have lived, and to have had the opportunity to work with an endangered species. I'm getting misty eyed now, but it has been amazing to see a sea turtle come back from near extinction, and to get to play just a small role in that is really rewarding.

JB: That's really cool. [1:41:49]

PP: Yeah.

JB: Well, I'm going to turn it off.

PP: Okay.

[end of tape]