

TRANSCRIPT

INTERVIEWEE: Steve Gittings

INTERVIEWER: David Todd

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David Todd [00:00:01] Well. Good afternoon. My name is David Todd, and I have the great privilege of being here with Dr. Steve Gittings. And with his permission, we plan on recording this interview for research and educational work on behalf of a non-profit group called the Conservation History Association of Texas, and for a book and a website for Texas A&M University Press, and finally for archive at the University of Texas at Austin, which has an archive known as the Briscoe Center for American History.

David Todd [00:00:35] And I want to stress that he would have all rights to use the recording as he sees fit.

David Todd [00:00:41] And, at this juncture, I thought I should just ask and make sure that this whole format and program sounds good to you.

Steve Gittings [00:00:49] Sounds fine.

David Todd [00:00:50] All right, well, then, let's get started.

David Todd [00:00:53] It is Tuesday, February 27th, 2024. It's about 4:00 PM Central Time, 5:00 Eastern Time.

David Todd [00:01:03] My name, as I said, is David Todd. And I'm representing the Conservation History Association of Texas. I'm in Austin. And we are conducting a remote interview with Dr. Steve Gittings, who, is based in the central Maryland area, outside of Washington, DC.

David Todd [00:01:22] By way of introduction, Doctor Gittings attended Westminster College in Pennsylvania, where he earned his B.S. in biology, and then received his M.S. and Ph.D. in biological oceanography from Texas A&M University in College Station.

[00:01:38] Dr. Gittings began working on the Flower Gardens and associated banks around 1980, doing a biological characterization of the banks, and then from 1992 through 1998, he served as the first sanctuary manager at the Flower Gardens National Marine Sanctuary. Following that, he went on to serve as the Chief Scientist at the Office of National Marine Sanctuaries at NOAA, the National Oceanic and Atmospheric Administration, where he is currently.

David Todd [00:02:11] Today, we'll talk about Doctor Gittings' life and career, to date, and especially focus on what he can tell us about coral reef ecology, Flower Gardens and the National Marine Sanctuary system in general.

David Todd [00:02:25] So, that's just a small introduction to a complicated and involved life, but I hope that'll get us started.

David Todd [00:02:36] I wanted to ask you if you might be able to tell us about your childhood, Dr. Gittings, and your early years of growing up in Dunkirk, New York, near Lake Erie, and if there might have been some experiences or people at that stage in your life that might have gotten you interested in animals, the ocean, water, research, perhaps?

Steve Gittings [00:02:58] Well, in fact, if you go back just to touch before Dunkirk, New York, I lived in a place called Clifton Knolls, New York, near Albany and Schenectady. And I can blame the water park on a dive that I made really off a high board when I was about 4 or 5 years old.

Steve Gittings [00:03:15] And I think it was the summer before my first grade, because I moved in the middle of first grade from there to Dunkirk, and I had done my check-out swim with the lifeguards so I could swim alone. And they must have also allowed me to go off the high board because of that, because I remember, diving off the the high board into the water. And when I hit the water, I dove right, right out of my swimsuit. And I will never forget, being on the bottom of that swimming pool, looking up and seeing my swim trunks floating on the surface.

Steve Gittings [00:03:48] And, there was no way I was going back up to the surface. And I remember a lifeguard eventually coming down to get me.

Steve Gittings [00:03:57] And you'd think that might scare a guy away from the water for the rest of his life. But for me, well, all I could think of was I never wanted the ability to breathe underwater any more than I did at that point in time.

Steve Gittings [00:04:11] And I had dreams about breathing underwater for years after that, and until I was 16, when I finally got my YMCA certification to SCUBA dive. And, now I've been diving more than 50 years.

Steve Gittings [00:04:24] So, that was an imprint on my life that never quite went away. And it didn't scare me away from the water, but it really got me more interested in the water, surprisingly.

Steve Gittings [00:04:35] So, but as far as like my interest in nature and so forth, it occurred after that. That has to be handed to my father, I think. When I was about 4 or 5, he took us and my whole family to Cape Cod to see the waves from a hurricane that was way off-shore. And my brothers and sisters, they were between 9 and 12 at the time, they were running on the beach, running from the waves. And, and one of the larger waves caught my youngest of the three, my sister, who was, I think nine at the time and started taking her out to sea, literally, it was hauling her off to sea. My father saw what was happening, and he ran down the beach and into the water and brought her back.

Steve Gittings [00:05:23] And everyone was shaken by that. I was very young, so I probably wasn't shaken as much as everyone else, but I have never forgotten or gotten that image out of my mind.

Steve Gittings [00:05:34] So, it seems like really early on, I was impressed by the fact that nature was in charge, not us. And, I got to give that one to my father.

Steve Gittings [00:05:45] And, also, growing up between the ages of, I guess I was maybe six and 18 in Dunkirk, New York, on Lake Erie, the shores of Lake Erie, with parents who gave me quite a bit of leeway and leniency as far as allowing me to do things I wanted to do, more so than most people do nowadays. I spent a whole lot of time exploring that lake, swimming across the harbor or sailing whenever I wanted, wherever I wanted, and eventually getting that SCUBA certification in 1973.

Steve Gittings [00:06:17] So I was on Lake Erie a lot. So, for me, my early interest in water and even the ocean and nature had a little bit less to do with animals and research than it just did with sheer adventure and fulfilling that dream I had of breathing underwater. I really had no vision for science at the time as a youngster.

Steve Gittings [00:06:40] But I was pretty good in school and science and, thankfully, science and adventure merged nicely, eventually, when I got into college and became what I turned into a career. So, I definitely eventually picked up interest in research to go along with my interest in nature and so forth. And, it became my career.

Steve Gittings [00:07:02] So, that was my young history in how I kind of got interested in these parts of the world.

David Todd [00:07:09] So, I guess some of this research you've done in oceans and years subsequent to this period, is far offshore. You're in boats. You're in ships. I understand that you had an early introduction to vessels, sailboats in particular. Can you tell us about that?

Steve Gittings [00:07:33] Yeah. My father owned a 28-foot cabin cruiser when I was a youngster, and until I was done with high school really. And they used to allow me to stay on that boat all summer, live on the boat. Our house was only about seven or eight blocks away from there. But, for me, it was a big adventure to live on a boat with no parents around. And I did that.

Steve Gittings [00:08:02] And I call vividly seeing in 1969, the men landing on the moon on a nine-inch TV that we had in the V-berth of that cabin cruiser. So, it was another adventure. I wanted to be that guy. I wanted to be that guy on the moon. I wanted, you know, it's one of those adventures I got to experience from our our ship.

Steve Gittings [00:08:25] But at the same time, my dad also helped me buy this 11-foot sailboat that I saw in the back of Boys Life magazine - at the time, \$200. And he said, if I could raise half the money, he'd pay for the other half of the boat. And I raised the money and he bought the whole boat for me, so I got to keep my \$100. So, he was just proud of me for raising the money from, you know, unloading dishes and doing yards and things like that.

Steve Gittings [00:08:54] So, yeah. So I had my own sailboat. And I sailed that thing a lot in Lake Erie, even out to the point where I could barely see the stacks from the Niagara Mohawk power plant on-shore, at our harbor entrance. So, it's pretty far off-shore for a young kid. And I remember getting this very anxious feeling one time in my stomach when those stacks just about dipped below the horizon. And it occurred to me (I didn't have a compass; I didn't know what a compass was, all I had was a site on land to see. And if I had gone any farther out, or if a cloud had come up, or a storm had come up, who knows where I'd be today. But I turned my boat around and I made my way back to shore.

Steve Gittings [00:09:36] And, I don't know, maybe I got a little smarter from that trip, but not a whole lot more. I didn't have very good guidance on how to navigate a boat at that time. But I sure had a boat, so I wanted to go do it.

Steve Gittings [00:09:50] I had read books about other people doing it. So here's me looking for adventure.

Steve Gittings [00:09:55] There was a book I read way back then called "Dove", which was about a boy who had sailed around the world, a 16 year old boy. I thought, if he can do it, why can't I? So it got me going.

Steve Gittings [00:10:09] And, I was also a member at the time of a sailing club that we had in the harbor of Dunkirk, called the Dunkirk Junior Harbor Sailing Club, I believe it was. And in 1970, I won this regatta that we had in the sailing club called the Tin Can Regatta. And the trophy was a tin can. So, I still have that tin can on the shelf at my house. It's this red-painted, empty coffee can, sealed, and painted on it, my name and a big number one. So I was very proud of winning the Tin Can Regatta in 1970. And I even have a picture from the Evening Observer, our town paper, showing me and my friends sitting on the stairs of the yacht club, all holding our tin cans. So I was pretty proud of that.

Steve Gittings [00:11:04] So, yeah, I spent a little bit of time on the water even back then, and the ships got bigger and thankfully, and run more, way more, professionally than what what I did.

David Todd [00:11:14] Good. Well, you mentioned, that that this, 11-foot sailboat that you ended up acquiring with your father's assistance, was something you saw in Boy's Life, and I was wondering if there are any sort of items of sort of public media, whether it's magazines like that, or books, perhaps, or TV shows, or movies that might have been influential for you in your early explorations of the natural world.

Steve Gittings [00:11:44] Yeah, there were, for sure. As a kid, I was a real sucker for super heroes - you know, Superman and Batman, like a lot of kids. And I was also a huge fan of that show "Flipper". I don't know if you remember that one. It was about a dolphin. But I wasn't a fan of the dolphin that much. I wanted to be the guy who was the park ranger, the father. Porter Ricks was his name. That's who I wanted to be. I always wanted to be a park manager.

Steve Gittings [00:12:15] And, I also wanted to be Lloyd Bridges - remember the diver on Sea Hunt? Or there were guys in the Sea View Submarine on Voyage to the Bottom of the Sea. I loved that show.

Steve Gittings [00:12:28] I always liked the people that sort of ran the boats and ran the operations on those shows.

Steve Gittings [00:12:34] And this kid, Robin Graham, who wrote that book, Dove: I wanted to be him going around the world on my own. Probably would have been a disaster, but I would have loved to try it.

Steve Gittings [00:12:46] So, I still love reading Dirk Pitt novels - you know, Clive Cussler novels.

Steve Gittings [00:12:51] So, looking back on my career now, you know, I've had a lot of those adventures, you know, between travel and diving and submarines and even being a park manager. Not all that different than those heroes I grew up really admiring when I was reading or watching TV, minus the crimes and the murder.

Steve Gittings [00:13:18] But when I got into college, turned around 19 or so, I had a chance to go to the Virgin Islands with a class in college, a tropical ecology course that was being taught by a professor named Clarence Harms. And all that adventure that I had read about in or seen on TV in the earlier years started coming true, right about, well, right during that trip.

Steve Gittings [00:13:49] When I put my face in the water in St. John, it was love at first sight. The trip really set me on a course for the rest of my career. I just knew right then, that I wanted to understand and learn more about the the magic I was seeing underwater there. And, it was a real game-changer for me, that one college course in 1977, I think, when I took that course.

Steve Gittings [00:14:19] So, yeah, growing up on Lake Erie in the '70s when I did - that was, that was called dead back then. Lake Erie was considered dead. And this was the opposite of that. This was fully alive and, changed my life when I finally went to college. So, that set me on this whole course.

David Todd [00:14:37] So, you mentioned this professor that you had at Westminster College. Are there other professors, or for that matter, classmates that you might have met in school or college or grad school who you feel have been inspiring or influential for you?

Steve Gittings [00:14:55] Well, the ones that really stand out: I mean, you have to start with Clarence Harms because, well, my dad getting me started, of course. And, a lot of influential people probably along the way, but Clarence Harms was really the first I would call a mentor, and a game-, a life-changer for me, a person that really made that big difference. You know, after that trip to the Virgin Islands, I came back to Westminster and I couldn't take enough courses in oceanography, limnology, invertebrate biology, physiology, all the things that I knew would, I would need for the next phase of my life, which was going to be this thing, something ocean.

Steve Gittings [00:15:32] So, Clarence did that for me. And he had an enthusiasm level for that science that really just became something that I adopted.

Steve Gittings [00:15:42] But in grad school, at Texas A&M, I really got lucky again. I met Tom Bright, who was a professor and a coral ecologist at A&M in the Oceanography Department, and he became my major professor for both my Master's and my Ph.D. Work. And he also gave me a lot of leash in my research, at the time. A superb teacher as well. And we spent a whole lot of time in the field together, where he was really exceptional. And when I used to complain about going to the field, not complain, but, bellyache a little bit about having to miss class in grad school, Tom would always say, "Field work first", and that was his motto.

Steve Gittings [00:16:24] And him saying that just made me realize the importance and value of experience in the field. And, it wasn't just being in the field, it was meeting the other people who were truly field people. And you'd really expand your horizons by meeting people who study the same things you do, but not just academically, actually in the field. And it was through those kinds of contacts over the years that I really generated opportunities for next level jobs for me and experiences for me. So I really am grateful to Tom.

Steve Gittings [00:17:00] He was with me on the first dives I ever made in the Gulf of Mexico, the Florida Keys, the Bahamas, Arabian Gulf (he took us to Dubai), the Indian Ocean. We went to Guam and Australia together. So Tom was with me all those first-time experiences that I had in those places.

Steve Gittings [00:17:21] He and I published our first article together. In fact, my first scientific paper was with him in 1983, about a part of the Flower Garden banks. And we'll talk about that later, I'm sure. But we just published our most recent co-authored paper in 2023, 40 years later, after our first publication. And I'm very proud of that fact.

Steve Gittings [00:17:44] But also, you know, just incredibly thankful to him for being such a great tour guide, you know, a teacher, a cheerleader for me throughout my career, and a mentor for, what, 40, 44 years now. Tom is the most influential of any of my professional colleagues that I've ever worked with.

David Todd [00:18:08] That's very special to have somebody that sees some promise in you and encourages it and, you know, helps it bloom.

Steve Gittings [00:18:17] Yeah.

David Todd [00:18:17] So you mentioned, that, one of the adventures you had, one of the field expeditions, I guess more appropriately, with, Dr. Bright was going to the Flower Gardens, and I thought that that might be a good segue to talk about that. I mean, it's such an interesting place, and you know so much about it. Could you give us a little bit of an introduction to the reason the Flower Gardens are there, sort of the geologic background, maybe?

Steve Gittings [00:18:46] Yeah. 160 million years ago, when dinosaurs were walking Earth, the Gulf of Mexico was a different kind of place. It was a shallow sea, subject to really high evaporation levels. So, a lot of salt accumulated along the shores of the Gulf of Mexico, much like what you see in some evaporating seas nowadays.

Steve Gittings [00:19:13] Over time, though, the sediments that were carried by the rivers of North America, they buried thick deposits of salt with overlying terrigenous sediments - you know, sand, silt, all that came from land. And all that hardened under pressure and became the seabed that we see nowadays.

Steve Gittings [00:19:35] But, below the surface of the seabed, all this salt, it's very, it's quite pliable and movable, and it could squeeze up through, by overlying pressure, and because of its own buoyancy, it could squeeze up through faults and cracks in the seafloor and also push up the seabed in certain places into forming small mounds on the seafloor.

Steve Gittings [00:20:01] So, some of these mounds, like the Flower Garden banks, stick up several hundred meters above the seafloor, let's say 100 meters or so. And, they're shallow enough and they're, nowadays, in gin-clear water on the outer continental shelf that's warm enough for corals even to grow on top of the banks.

Steve Gittings [00:20:23] So, coral reefs have formed on a couple of the banks out there - the East and West Flower Garden banks. All the other ones are either a little too deep or a little

too close to shore to be in those perfect conditions. So, they have different kinds of animals, but very rich assemblages of a lot of tropical plants and animals on them.

Steve Gittings [00:20:42] So, the geology was to form the banks, but it pushed some of them up into these waters that are conducive to tropical ecosystem development. And that's what's happened on the banks of the outer continental shelf of the Gulf of Mexico.

David Todd [00:20:58] Well, that's so interesting. And I guess one of the intriguing things, is that I guess these mounds, banks, these reefs, are 100 miles off-shore. And so, I guess not obvious to the naked eye for most, most mere mortals.

Steve Gittings [00:21:18] Right.

David Todd [00:21:18] I was wondering how, these Flower Gardens were first discovered. Do you know about any of the early reports of the Flower Gardens?

Steve Gittings [00:21:28] Yeah, there aren't a lot of really good written reports from the time. In fact, I don't even know if there were any written reports from fishermen that used to work the banks off-shore. But word on the docks is that they fished the banks in the early 20th century, and may have even named the Flower Gardens, based on the colorful things that they brought up, bits of, you know, marine life that they brought up on their hooks and their anchors. So, not 100% sure exactly how the name came about, but that makes perfect sense. And that's what some of the, you know, reports say.

Steve Gittings [00:22:08] But we do know that, you know, not too many years later, in the '30s, hydrographers first mapped the banks in the offshore area. And that interested the geologists who started to study them after that. So, after the 1930s, when geologists got involved, they first published some of their work in the 1950s, about the size and the nature of the banks and the subsea features below the banks.

Steve Gittings [00:22:36] And they discovered, through the geological studies that they did, that the banks had been pushed up by salt domes from below. And that mattered to them because, the way salt domes form and alter the seabed creates places that tend to capture oil. So, they were looking for reservoirs of oil. And it turns out that reservoirs are associated with the edges of salt domes. So, nowadays if you look, and back then when you looked, they would try tapping these reservoirs by drilling around the edges of salt domes. So, they needed to know where they were. And then even today they're still looking for reservoirs, obviously. And some of them are associated either with the edges of salt domes or underneath salt.

Steve Gittings [00:23:20] Salt moves in all different directions and ways. It can form umbrellas, and it can form domes and there're hideaways for oil all around salt domes. So, that's why they were so interested.

Steve Gittings [00:23:34] During those years, they also would take samples of the bottom. And a guy named Henry Stetson (and you might recognize that name because there's a bank out there called Stetson Bank), but Henry Stetson studied those samples that came up from the banks and was the first to confirm that there were living corals associated with the offshore banks in the Gulf.

Steve Gittings [00:23:57] So, this was a big surprise to the biologists who then became interested in it. And a guy named Tom Pulley, who was the director of the Houston Museum of

Natural Science at the time (this was around 1960), he convinced the Navy to send a ship out (he had Navy ties: he had been in the Navy), a ship called the USS Wren, to go to the Flower Gardens.

Steve Gittings [00:24:21] In 1960, they took the first divers out there, for scientific diving expedition, at least. I'm not sure. There may have been some diving out there a little before that, but, the first scientific expedition was in 1960, run by Tom Pulley. And it was the first of many, many dives to come after that in the following years.

Steve Gittings [00:24:43] So, that was kind of the start of, you know, discoveries of the Flower Gardens. Those were the key events - of course, from the fishermen in the early 1900s to the first dives in the 1960s.

David Todd [00:24:57] Well, that helps us to understand how people's awareness began and grew. And then, maybe you can talk a little bit about your personal introduction to the Flower Gardens. When was your first visit to the Flower Gardens?

Steve Gittings [00:25:12] Yeah, I came about 20 years after the first dives were made out there. That's when I started graduate school. I had never been to Texas before that. But when I got to grad school and started working with Tom, he invited me to come out on a cruise where they were going to be doing submarine dives on the Flower Gardens to study a place called the East Flower Garden brine seep, which is this amazing brine pool at about 220 feet deep on the bank.

Steve Gittings [00:25:37] And, they were going to do some sub dives. That's not particularly deep for submarine diving, but that's what they were going to be using to study it. So, this wasn't a diving expedition. It was going to be a submarine diving expedition.

Steve Gittings [00:25:49] And that was my first summer at Texas A&M. And, of course, I immediately jumped at the opportunity to go out on a ship. It was heaven for me to be 100 miles offshore, in a tropical-feeling place, and starting this career that I'd been dreaming of for the last few years.

Steve Gittings [00:26:07] And Tom had been doing dives with these subs for years to characterize the banks of the outer continental shelf. So, believe it or not, he was getting sick of diving in subs.

Steve Gittings [00:26:17] And, I had talked about doing my master's project on this brine seep that he was going to visit. And to my huge surprise, one morning, he said, "Hey, do you want to take my dive today?" I was shocked and tried to act cool about the whole thing and, said, "Sure".

Steve Gittings [00:26:38] But for the next couple hours we spent in the galley describing or deciding how to handle this dive and what I was going to do, what I was going to collect, what I was going to, how I was going to record the information and get it back to him.

Steve Gittings [00:26:54] And, for the next five hours after that, I was, five or six hours, I was in that sub with Billy Green, the sub captain, and collecting all the samples I would need for my Master's. And I eventually got everything on that one dive to do my entire Master's project.

Steve Gittings [00:27:13] So, that was my first dive at the Flower Gardens. Hardly anybody can say that their first dive out there was in a submarine, but I can. That got me started at the Flower Gardens.

David Todd [00:27:23] That is amazing. So. I guess one of the things that really is distinctive about these Flower Garden banks, is that they are one of the first that that were protected. And I was wondering if you could talk to us a little bit about the long and somewhat tortured route to getting it designated - the West and the East Flower Garden banks, as a National Marine Sanctuary. And maybe a place to just start, so that we we kind of know the background of this, can you talk to us a little bit about the governing statute and where it might have come from, the National Marine Sanctuary Act?

Steve Gittings [00:28:09] Yeah, that's what we call it now. But, the National Marine Sanctuary Act was not a stand-alone act at the time. It was part of a larger act called the Marine Protection, Research and Sanctuaries Act that came out in 1972, which, by the way, was a really important time frame, as you know, for environmental legislation in general.

Steve Gittings [00:28:35] But this act came out mostly not for designating sanctuaries. That was a minor part of the act, really. But mostly to protect from ocean dumping. In fact, a lot of people call it the Ocean Dumping Act, even today, the MPRSA.

Steve Gittings [00:28:51] But the third part of that act, third, they call it a "title". The third title of the act was, something that enabled the designation of marine sanctuaries. But that part was almost removed from the act. It was renewed for a while from what I understand (this was a little before my time). This was the '70s when I was still in, you know, I guess, undergraduate , or not even - I was in high school.

Steve Gittings [00:29:19] So, from what I understand, though, the title three had been removed from that act. And it was only added back in after changes were made in the language to from it preventing activities, to it protecting certain things that had ecological, historic or educational value. So it was "protection" that allowed it to get back in. But they reduced the emphasis on preventing human activities, because they knew that was going to turn people off to the marine sanctuary idea. In fact, President Nixon at the time didn't want it in there.

Steve Gittings [00:29:56] But when it was finally passed, that was in there - allowing the protection of, you know, things like not just ecosystems, but, maritime heritage resources like important shipwrecks and things like that. And that's why we do it today.

Steve Gittings [00:30:13] So, over the course of the next 20 years or so, it, it created a track record for itself of success to some extent, and not being so restrictive to human activities that it was too cumbersome for the public to accept.

Steve Gittings [00:30:28] So, it actually became a stand-alone act in 1992, called the National Marine Sanctuaries Act, which is what we work under today. The act itself has changed and been modified and updated and so forth. But now it's a stand-alone act. And that happened the same year, coincidentally, that the Flower Gardens was designated.

David Todd [00:30:49] Okay. Well. Thank you.

David Todd [00:30:51] And, so, this this act has created, it empowers, I guess, the Congress to designate sites as sanctuaries. But I gather there needs to be some sort of petition or request. Is that correct?

Steve Gittings [00:31:07] Yeah. The Flower Gardens isn't a bad case study to look at, even though it took longer than most sanctuaries to designate. It did go through a similar process as most sanctuaries do, or at least how they're supposed to, on paper. They don't always do that. Sometimes Congress jumps to conclusions and says, "This place will be designated", but you know, that can happen too. Or a president can designate something under a certain act so that eventually becomes a marine sanctuary. So, there are some different processes that can take place.

Steve Gittings [00:31:38] But the Flower Gardens was nominated to be a marine sanctuary, or at least it was talked about to be nominated within a year of the Marine Protection, Research and Sanctuaries Act coming out. In 1973, it was first mentioned and that act had only come out the year before.

Steve Gittings [00:31:59] But it had basically an 18-year or so journey. And I can recap some of the highlights of the Flower Gardens' journey to becoming a sanctuary. I wasn't there to see the beginning part of it, the first seven years or so. I came in in 1980 and watched the last 12 years of that journey, and then ever since.

Steve Gittings [00:32:19] But the earliest discussion, like I said, of designation of the sanctuary of the Flower Gardens as a sanctuary was 1973. But the oil industry opposed it at the time and really ended those early, any early discussions that happened.

Steve Gittings [00:32:36] So, I don't know if there was any formal nomination back then, but it was definitely discussed as a candidate site. But I think the industry assumed that a sanctuary would shut down oil development in a large part of the region, the Northwest Gulf, and that just was not acceptable to them at the time. As you know, it was and remains a big oil-generating part of the world.

Steve Gittings [00:33:00] In truth, though, even at that time, most of the threats to oil and gas development, or posed by oil and gas development were mostly dealt with by another part of the federal government that dealt with, that regulated, the oil and gas industry - the Bureau of Land Management. And by 1974, they had some restrictions in place that took away most of the threats, realistically that the oil industry posed. And, those are still in place, believe it or not, even since 1974.

Steve Gittings [00:33:35] And a lot of them came from the fact that Tom Bright and other scientists at the time saw these places, like the Flower Gardens, recognized the threats that were posed from oil drilling or dumping of drill muds and other discharges, or vessels that might anchor up on the reefs, and, you know, activities like that within the oil industry.

Steve Gittings [00:33:59] Now, and so they worked the system as it was back then and got the BLM to impose these restrictions so that they could protect the banks from those threats.

Steve Gittings [00:34:10] But there were still other threats in place at the Flower Gardens - things like vessel anchoring that were unassociated with oil and gas, you know, giant ships, or, you know, certain kinds of fishing that might be destructive to the reefs. And that's what rekindled the idea of a true sanctuary nomination for the Flower Gardens. We weren't as

worried about oil and gas, but we were still worried about other things, or they were. I wasn't around yet.

Steve Gittings [00:34:36] 1977 was the real first official nomination, as I understand it, of the banks. And, so at the time, Tom Bright helped put together documents that would eventually become the management plan for the Flower Gardens. So, they even started preparing those things way back then.

Steve Gittings [00:34:57] In the late '70s, though, the battle, you know, with or against oil industry mistrust about this nomination was still an uphill battle. And, one of the biggest threats to the banks, as I mentioned, was ship anchoring, not by oil and gas, but by other vessels. And it was dealt with separately also from that sanctuary designation, through something called the Fisheries Management Plan.

Steve Gittings [00:35:24] So, Tom Bright, and all the others who were still worried about these problems, found other avenues to deal with some of these problems. And the Fisheries Management Plan, they thought, was one place they could do it. So, ultimately, though, even though they temporarily had it added to the Fishery Management Plan, the Draft Management Plan, a no-anchoring provision - that was 1982.

Steve Gittings [00:35:46] By the time the Final Fishery Management Plan came out in 1984, that provision had been removed because somebody along the way, must have been, maybe a general counsel, some other lawyer, who knows who, maybe, maybe other fisheries managers said, "You know, if anchoring is not a fisheries issue, how can we put it in a fisheries plan?" So, somewhere along the way, somebody removed that provision. And when the final management plan came out, it wasn't in there.

Steve Gittings [00:36:15] So, it was not a happy day for Tom Bright in 1984, when he got word that the Fisheries Management Plan was final and the anchoring provision was not part of it.

Steve Gittings [00:36:27] So, here we were, back to square one with no anchoring taken care of. And frankly, no new fisheries provisions for the Flower Gardens either that might restrict certain kinds of gear that could cause problems on the bottom - you know, long-lining, for example, that when lines would snag on the bottom, tear up the corals and all that. So that was a problem at that time.

Steve Gittings [00:36:56] Coincidentally, about that same time, and we're talking the mid-1980s now, the number of divers starting to visit the Flower Gardens was rising rapidly. But movement on the sanctuary had stalled.

Steve Gittings [00:37:11] So, at the time, I was a graduate student. I'm watching this play out from my lab. Through 1984, '85, '86, '87, more and more diving was taking place and no new action on the sanctuary.

Steve Gittings [00:37:25] And I finished my degree in 1988, and I had won a contract to start the monitoring program, a long-term monitoring program, at the Flower Garden banks through BLM, which at that time was called the Minerals Management Service. They gave me a contract, and so I was becoming more actively involved with all these divers.

Steve Gittings [00:37:50] And a lot of them wanted to start a nonprofit, or some of them did, said, "Let's start a non-profit that we could use to raise money to install mooring buoys at this bank, so ships don't have to anchor - including the dive boats that were going out there regularly and dropping their hooks on the bottom, trying not to damage anything, but having a hard time not doing it, as you know. It's hard to control your anchor.

Steve Gittings [00:38:15] So, they wanted to install mooring buoys to stop the anchoring problem, which was a very decent thing to do. So, we started a group called the Gulf Reef Environmental Action Team. It was a non-profit and raised money to buy a compressor to run a hydraulic unit, a hydraulic drill, underwater. We'd buy coring bits. We bought cement. We bought stainless steel mooring points, these big U-shaped bolts about two to three feet long, and line for our buoys. We bought surface buoys. We bought fuel for the boat. We bought food for the boat, and we all went out and installed 12 mooring buoys at the East and West Flower Garden banks in 1990.

Steve Gittings [00:39:04] And it really got the attention of NOAA who had been sitting on their hands, I guess, you'd say, because they weren't being pressed to push for the sanctuary designation very hard.

Steve Gittings [00:39:17] But, in 1990 also, I think it was the same year that the current NOAA chief scientist was Sylvia Earle, whose name you might recognize - a very famous marine conservationist and biologist and scientist, and a lady named Trudy Coxe, who was the head of the office that ran the marine sanctuary program at the time. They decided they wanted to visit the Flower Gardens and find out what all this commotion was about.

Steve Gittings [00:39:46] And we had them come out. Well, they brought a NOAA ship out. And I went with them. Tom Bright went with them, and we introduced them to all the major players at the time, including the oil industry people. And they were very excited when they went back to Washington that this really was a model opportunity to produce a marine sanctuary that would really be healthy, happy, dominated by research and very active public, not heavily impacted by coastal, you know, influences. So, it really had a chance to be a beautiful, wonderful marine sanctuary, a model for future designations of other ones.

Steve Gittings [00:40:28] So, that really helped things happen.

Steve Gittings [00:40:31] Another thing, a very important event happened that I should mention. And that was in 1983, a ship, and this was, remember, we're stepping back a little bit now, back to the time when the anchoring provision was dropped from the Fishery Management Plan, a big tugboat, not associated with oil and gas. - it was a barge carrying tug - anchored up at the East Flower Garden Bank. I think it was the East Bank. A 200-foot ship dropped a large anchor and dragged it across the reef in a way that caused about 100 meters or more, maybe a couple hundred meters of toppled, abraded, fractured corals across the top of the bank, a big scar.

Steve Gittings [00:41:13] And, there happened to be a group called Continental Shelf Associates, who was a consulting firm that had a contract at the time to do some monitoring at the Flower Gardens. And they saw this happen. They were out there at the time, and they documented it - anchor on the bottom, cable, a chain, dragging across, and then the damage that it caused.

Steve Gittings [00:41:37] And they sent that video to us showing us what was going on out there. And that video found its way to a scientific conference in New Orleans that was happening about a few months later. And a staffer for a congressman who was fairly influential in Washington, D.C. at the time, Solomon Ortiz, saw it, and sent it to this congressman and said, "We got to do something about this".

Steve Gittings [00:42:06] So, after everybody found out that the anchoring provision was removed from the Fisheries Management Plan, but this big anchoring incident had happened, it stimulated interest, let's say, in Congress to get the Flower Gardens back on the evaluation list for candidacy for Marine Sanctuary.

Steve Gittings [00:42:29] It also didn't hurt me because Tom got a contract from NOAA Marine Sanctuary office to do a damage assessment on this site. So, here's going back to meeting people at the right time. I got to meet the Marine Sanctuary people early on in my career, back in '83, to do this damage assessment of this, it was called the "Nick Candies" anchoring incident. Nick Candies was the name of the boat.

Steve Gittings [00:42:53] So here I got to meet all these folks from NOAA who I would later be applying to for a job. So it worked out for me.

Steve Gittings [00:43:02] But we also regenerated interest in this sanctuary nomination at a time that was really critical. And, eventually the Flower Gardens was added back on to the site evaluation list for NOAA and reactivated interest in the sanctuary designation.

Steve Gittings [00:43:21] But then, you know, later in the '90s when the Gulf Reef Environmental Action Team installed buoys, that showed NOAA that the public was way more interested than they thought in this isolated place 100 miles offshore that only researchers visited now and then. It wasn't true. The public was really interested. So that that all sort of broke the dam, you know, it was the drop of water that broke the dam for sanctuary designation, which ultimately happened in 1992.

David Todd [00:43:56] So this is fascinating. And it sounds like it's sort of a scientific story. There's a political angle. There's the recreational diving folks. There're fishermen and oil and gas. It's got everything.

David Todd [00:44:09] There were a few other incidents that I'd love to hear your comments about, because it sounds like they might have been factors. One was, I understand that a freighter named the Wellwood, ran aground on a pretty significant reef in Florida. And then also the Mega Borg had an explosion off the coast of Galveston. And I'm wondering if, you know, those helped, you know, push this nomination forward or were they not so significant?

Steve Gittings [00:44:41] I'd call them indirect. But they certainly worked for me. I worked on both of those incidents. In 1984, coincident with the Fisheries Management Plan coming out without their anchoring provision, this large ship called the Wellwood ran aground on Molasses Reef in the Florida Keys, way on the other side of the Gulf, and then around the corner. And it smashed part of the reef at about 20 and 30ft deep, where the the ship hull, you know, ground it to oblivion, creating a parking lot, basically, on this reef.

Steve Gittings [00:45:22] Well, NOAA, Office of Marine Sanctuaries again, gave Tom Bright a contract to do the damage assessment and then a recovery study on that site. They had biologists that did that kind of work as well, but they did it visually, and they wanted us to

bring some quantitative techniques that we used at the Flower Gardens, photographic techniques, to the Florida Keys, so that if they ever went to court, it wouldn't just be somebody's word on how much damage there was, but there would be quantitative information to back it up.

Steve Gittings [00:45:55] As it turned out, the observations and the estimates that were made by the sanctuary biologists were dead-on. They were really good, and I would trust them to this day with their damage assessments. But. In court, you know how it is. They call it hearsay. So they wanted quantitative.

Steve Gittings [00:46:15] Well, we took our techniques over to do all this photography sampling at the Wellwood site. And, in 1984, '85, '86, we were doing that work, and, it became a big load for us, a workload. And Tom had, about a couple years into it, took the job as the Sea Grant director at Texas A&M. So, he didn't really have time to run this project as much as he would want to. And I was the senior student in the lab at the time, and he asked me if I would take over the management of this project, and the graduate students, and the travel, and the sampling, and the analysis, and everything, and the report writing, with his assistance, for this project.

Steve Gittings [00:46:57] And I said, "Okay, as long as you pay me twice what a graduate student gets because it's a full time job, Tom". And he said, "I know, I know. Here, okay, I'll pay you for a full-time graduate job. And so, you're basically an employee of the university." So, it was my first full-time job, and I probably made, you know, 900 a month instead of 500 a month, or something like that.

Steve Gittings [00:47:21] But for me, it was a life-changer. At the time, I was working on barnacles in the Gulf of Mexico. That was going to be my Ph.D. work. And because I had to put so much time in on the Wellwood project from '84 through '87, I eventually transitioned to doing my Ph.D. research and thesis on the Wellwood damage assessment, recovery study. Actually, my thesis was more on the recovery portion than the damage assessment. So, it was the factors influencing recovery rates.

Steve Gittings [00:47:56] So, for me it was great. And for NOAA, as far as its influence on the Flower Gardens, it was a time period when things like that were happening quite often - shipwrecks, groundings. This was a big one, obviously the biggest one that had happened to date. So, it was changing the way NOAA felt about human vessel traffic, especially around coral reefs. So, it might have had an indirect impact on their, you know, making them recognize the potential problems at the Flower Gardens and pushing it eventually over the hump to become a sanctuary.

Steve Gittings [00:48:35] But it was a little different, because it wasn't anchoring. It was a shipwreck, you know, literally a grounding. So, I don't give it a whole lot of credit for making the Flower Gardens happen.

[00:48:45] The Mega Borg was much closer to the Flower Gardens. It was only about 50 miles away, I believe, and it was a fire on board an oil tanker that eventually spilled a whole bunch of oil into the Gulf. And then, you know, how they dealt with that was more or less an, an oil response, than it was a sanctuary designation. So, I don't think that Mega Borg had much of an influence at all on this Office of National Marine Sanctuaries' ultimate designation.

Steve Gittings [00:49:15] There were other people at NOAA who responded to the Mega Borg and dealt with dispersant use and burning oil and picking it up in other ways, skimming it and so forth.

Steve Gittings [00:49:30] And so, NOAA, in general, was probably interested in the marine sanctuaries to the extent that they can protect a place from oil spills or help us respond to oil spills. But again, quite indirect, I would say, in terms of its influence on the sanctuary designation.

David Todd [00:49:49] Okay. Well, so, I guess to sort of weave all these strands together. 1992, I gather George H. Bush, president at that time, designates or signs off on the legislation to create a sanctuary. Is that right?

Steve Gittings [00:50:09] That's right. Yeah. I believe he was the one that had the ultimate signature on it. I don't know if he knows that or not, but he was. He was the one with the ultimate signature on the designation document.

David Todd [00:50:24] Okay. All right. And then, we may be getting a little bit ahead of ourselves, but while we're talking about the designation or protection of these sites, I thought it might be good to just get your comments about 1996, which I guess was a critical date. Stetson Banks gets designated. And then 2021, when I guess an additional 14 or so other banks...

Steve Gittings [00:50:49] Yes.

David Todd [00:50:49] Get added to this burgeoning sanctuary area.

Steve Gittings [00:50:53] Yeah, we can talk about those other designations, because they're, they're quite interesting and have a little bit of history themselves - interesting ones for sure.

Steve Gittings [00:51:06] You know, in 1992, we had the two coral reefs, the Flower Garden banks or the, let's say, the two banks that had coral reefs on their summits protected through the sanctuary, and still through the restrictions that were imposed by the Minerals Management Service and some other things with EPA and so forth. So, a lot of things helped protect the Flower Gardens.

Steve Gittings [00:51:29] But, divers that were going out at the time were going to the Flower Gardens and to Stetson Bank, which was on the way out to the Flower Gardens. So, Gary Rinn, who ran the charter boats at the time, would always try to stop at Stetson Bank because it was a fascinating place to dive. Imagine the moon loaded with fish. It was a place that looked like the moonscape when you dove down to it, because it didn't have coral reefs on it, but it had all these rocks sticking up in various beautiful configurations, and sponges growing on the rocks, some corals growing on the rocks, but not a reef itself.

Steve Gittings [00:52:06] It wasn't a, you know, self-fulfilling place where corals were growing up on corals, on top of corals, on top of corals. It was just a little single layer of corals here and there, and a bunch of individual colonies, but loaded with fish and everything else because of the productivity of the Gulf of Mexico and this hard-bottom outcrop that Stetson Bank was. It was also a salt dome, but it was just pushing up seabed.

Steve Gittings [00:52:36] So, divers would dive there and say, "I like this better than the Flower Gardens. When are we going to designate it a marine sanctuary?" And I was kind of offended because here I was, the manager of this Flower Gardens sanctuary at the time. I had just gotten the job, and people were telling me they liked another place better than than my sanctuary? Well, that was that was an acceptable.

Steve Gittings [00:52:55] But when they said, "How do we make it a sanctuary?" I said, "Oh, I'll ask people that might know." And, I had a friend and colleague at NOAA named Chris Ostrom, who was my go-to person. When I did things that he liked at the Flower Gardens, he would advertise them up to NOAA and up through, you know, the leadership and so forth. And he was a big cheerleader for me at the time. And he was a great person who loved the Flower Gardens - would come out as often as he could. And he had also worked in Congress.

Steve Gittings [00:53:25] So he said, "If you want a sanctuary designated at Stetson Bank, there are ways to do that that don't involve going through the entire process that the Flower Gardens went through that took 18 years. There might be ways to do this differently." He said, "I'll talk to some friends I have in Congress."

Steve Gittings [00:53:44] And he went and talked to a guy named Terry Schaff, who worked for Solomon Ortiz at the time, the congressman I mentioned before, who was the chair of one of the subcommittees of the House Merchant Marine and Fisheries Committee at the time. And, he said, "We're going to bring Terry Schaff out to the Flower Gardens and Stetson Bank and show him what we're talking about and see what he thinks. And he can answer all the questions that the divers have about designation as a sanctuary."

Steve Gittings [00:54:13] And Terry was as turned on to the Flower Gardens and Stetson Bank as anybody who dives there. They all love it. And so, he went out there. He answered everybody's questions. They asked him the same things they asked me: "How could we help?" And he said, "Well, start by writing your congressmen and tell them how much you want this done. I will make sure he sees the mail, and I will see if he thinks that he's got interest in some form of designation of this place as a marine sanctuary."

Steve Gittings [00:54:44] Well, Terry went back and did everything you do in Congress. He did all those things, answered the phones, answered the mail. And Solomon Ortiz was interested. So Terry wrote up legislation for the congressman, I'm sure. That's the way things are done up there. And, started moving it, helping it move through Congress.

Steve Gittings [00:55:07] And what it would do would add Stetson Bank to the Flower Gardens sanctuary, not create its own stand-alone sanctuary. It was way too small for that. And there're way too many other candidates on the list that you wouldn't want to bypass, because that wouldn't be fair. But adding it to the Flower Gardens sanctuary was potentially possible.

Steve Gittings [00:55:29] So, they needed boundaries on what would this sanctuary be. How big would it have to be? What kind of shape would it take? And Tom Bright and I and a few others got in a Zodiac and wandered around Stetson Bank with a little depth finder and found a square that would encompass the bank that we thought the divers were interested in, and sent those coordinates to Terry Schaff, and he added them to this legislation. And that's how the original boundary of Stetson Bank portion of the sanctuary happened.

Steve Gittings [00:56:04] So Stetson was added in 1996 after a few glitches and so forth. One thing we had to do a lot of was, talk to congressionals who might want to sign on to the idea, but also the oil industry people who might be affected by it, fishermen who could be affected by it, NGOs at the time that were active in the area, and make sure everybody was on board with the idea. And once that happened and things lined up properly in Congress where they could slide a bill through at the right time, they were able to eventually do that.

Steve Gittings [00:56:38] So, Stetson made it in 1996, four years after the original sanctuary was designated. And so, we're all pretty happy for how many years now we've had Stetson and Flower Gardens together, three banks in the sanctuary.

Steve Gittings [00:56:55] By the time I left the sanctuary (I was manager between 1992 and '97), we really only worked on those three banks. But there were a lot of other banks that Tom Bright and others had studied back in the '70s and '80s, in the northwestern Gulf of Mexico, that had a lot of sensitive tropical communities growing on them - probably a couple of dozen.

Steve Gittings [00:57:22] And people started asking about those banks, but not until a time after I left and came to headquarters to start as chief scientist at headquarters. By that time, there was new management for the Flower Gardens. G.P. Schmahl was manager. Emma Hickerson was research coordinator. Marissa Nutall came on board later, and Michelle Johnston came on board. Those folks focused more attention in the early 2000s on the other banks that I had not really considered looking at when I was managing the sanctuary. I had a list of things I wanted to do, a check list, and once I got done with that check list, I moved on.

Steve Gittings [00:58:04] And the new management had other interests, and that was characterizing the rest of the banks in the Gulf to see whether they were adequately protected. And there was a lot of public support for that. And NOAA supported it by giving them ship time, to go do those things. So, some of that work was done.

Steve Gittings [00:58:22] And there was definitely interest in adding more banks to the sanctuary through the early 2000s. And it took a number of years to do the characterization work. And then, in the, I can't remember what years we started, we put together a working group to look at, objectively, you know, which of those banks really were threatened the most, were most vulnerable to certain kinds of activities, and might be considered for further protection.

Steve Gittings [00:58:57] The Sanctuary Advisory Council (that was the group that helped advise the managers of the sanctuary on management actions) put together a subcommittee that they invited me to sit on with a bunch of other people to take an objective look at these other banks and look at what were the communities that grew on the top of the banks. What were the threats? Were there any places where there had been documented incidents of damage, etc., and, and make a recommendation to the Sanctuary Advisory Council on whether we thought some of them deserved additional protection.

Steve Gittings [00:59:34] And over time, there were lots and lots of meetings, and workshops, and working group sessions, that, and then public sessions, you know, comment sessions to where the Sanctuary Advisory Council finally recommended to the sanctuary that 14 of the banks be added to the sanctuary. And it went through a public process not unlike an actual designation of a marine sanctuary. But it was really part of what we call a Management Plan Review of the sanctuary. And part of that action was considering these new banks for candidacy.

Steve Gittings [01:00:16] Eventually, it went through all the hoops. And in 2021, I believe it was, 14 new banks were added to the sanctuary. I stumble on this because I wasn't really part of all that work as much. I was gone by that time. But, J.P. and the rest of that crowd did an exceptional job bringing on board 14 additional banks to the sanctuary, which tripled its size.

Steve Gittings [01:00:41] And, and still, it's not a huge sanctuary. It's only something like 150 square miles, I think. And that's relatively small compared to thousands of square miles for some of the other sanctuaries. But, in the Gulf of Mexico, and I don't mean this to be pejorative, but you kind of have to take what you can get, because there's a lot of oil and gas activity out there. And if you start gobbling up territory and not allowing development when it's not really the big threat to the sanctuary that's being proposed, you'll run into roadblocks.

Steve Gittings [01:01:18] So restricting the size of the boundaries around some of these banks was really important to getting agreement among the stakeholders to actually make this sanctuary addition happen. It was really important politically to make that happen. Otherwise the oil industry would have said, "Sorry, no way you're getting this giant new addition that says no to ... and even if it doesn't say no to oil and gas initially. Some president down the road or some Congress down the road could say, 'sorry, we're modifying the sanctuary - there'll be no oil and gas activities allowed at all.'"

Steve Gittings [01:01:53] And that's not, that's not going through a normal public process. And it wouldn't have been really right to do that, because truth be told, oil and gas drilling is heavily regulated in the Gulf of Mexico, including activities, that would be the types of activities that could harm these banks. So, we have a partnership in a way, with another federal agency so that oil and gas issues are dealt with by them, but partly on behalf of these protected areas.

David Todd [01:02:27] Okay. All right.

David Todd [01:02:31] So, we've we've gone forward to 2021, you know, talking about the Stetson Banks and then the addition of the 14 additional banks. I thought that maybe it's time to reel back a little bit and talk about 1992, which was a significant year for you and the Flower Gardens in that, you know, the Flower Gardens got status and then you became its first manager. And I was curious, how you got that position and what your goals were as the first manager of the sanctuary there.

[01:03:05] Yeah, that was that was a good time. That's when I became. Like the guy on Flipper, the park manager, I reached my goal. But I graduated A&M in 1988 and I had contracts for about four years. One for monitoring at the Flower Gardens, another one for doing surveys of some banks in the eastern Gulf - some very deep reefs, old reefs, ancient reefs. I also had money from NOAA to do work on the Nick Candies, some work on the Wellwood still in the Florida Keys, and so forth.

[01:03:40] So, I was pretty well positioned, and I knew a lot of people by that time inside NOAA that were associated with the Marine Sanctuary program. So, for four years or so, I worked on those other contracts. And in 1992, when it was evident that the sanctuary was going to get its final designation in January, I think in 1991, they advertised for the sanctuary manager job. It was the only job that was going to come out. And so, like I said, I was in a good position to apply for that job even though I had no park management experience. I had a lot of

research experience. I had management experience for management of projects. I had a good track record and reputation with NOAA, so I felt pretty good about all that, including the sanctuary office.

Steve Gittings [01:04:35] And NOAA thought the sanctuary was mostly going to be focused on research. So, they wanted a research-focused person in the job. Didn't have to be a scientist, but that's what they, I think they preferred that. So, I also had a bit of a vision for what based on, you know, what I'd learned from Tom over all those years, of what I thought that sanctuary could be. It wasn't just me. It was me talking with him all those years. And I got through the first review. You know, your initial application to NOAA, and they asked me to do a phone interview.

Steve Gittings [01:05:13] And, my goals at the time were to do things like build relationships with the stakeholders that were, you know, that could be a problem if we didn't build those relationships, like oil and gas people and so forth. But also with relevant academic institutions and try to generate interest in people working at the Flower Gardens, the other government agencies that operated out there and had regulatory authorities of their own, and trying to also facilitate access to the banks for researchers and, you know, famous photographers and journalists and documentarians and so forth, because I knew this place was a real treasure that had not been discovered by the rest of the world. So, you know, my big visions were those kinds of things.

Steve Gittings [01:06:05] Some of the strategies that I thought we could do to make all that happen was to establish an advisory group that was composed of all, you know, those kinds of people, representatives from those different types of organizations. And I wanted to work with Gary Rinn, who was the major charter boat operator at the time, and I wanted to get space on his boat for graduate students so they could get out there. They had no money to pay for that. But he offered up free spaces whenever they were available.

Steve Gittings [01:06:37] So, I wanted to publish sanctuary research reports. I wanted to start a newsletter. All these kind of strategies that you do to increase the visibility of a place and talk it up.

Steve Gittings [01:06:51] I wanted to become more involved with the Houston environmental community because, you know, most of the people that went to the Flower Gardens came from, or a lot of them did back then, the dive clubs were really important to me to build relationships with them, because they were the ones that made things happen out there when it came to putting mooring buoys in and all that. And some of them were professionals in their own field, some in oil and gas, some in photography. And we used those people to the best we could to advocate for the place.

Steve Gittings [01:07:23] So, I literally, when I did my phone interview, I had an envelope with all that stuff written on there, one side of one envelope, and it was just a, you know, small envelope, wasn't even a manila envelope. So it wasn't a long list. But each one of those things would take a lot of effort to make happen.

Steve Gittings [01:07:44] And, I also had support that some other people vying for that job might not have had - Tom Bright being the biggest advocate for me. So, you know, I used that to the best I could. Tom was offering up free office space for the sanctuary to get started. My first budget at the Flower Gardens the first year was \$29,000, not including my salary, thank God. But so we had to look for freebies. And Tom Bright gave me office space. Amoco, the oil

company, gave me furniture. All I had to do was drive a truck to Dallas. And they were getting rid of a bunch of old furniture that the sanctuary still has today. That furniture was so good. I can't believe they were throwing it out, but literally, they were remodeling. So that's how we got the furniture for the sanctuary. And Tom also offered staff support for the sanctuary.

Steve Gittings [01:08:45] All I had to do as first sanctuary manager, once I got the job, and I finally did, (that was magical to me: they offered me that job), all I had had to do was issue a permit, I mean, a contract for someone to maintain those mooring buoys out there, which were the asset of the sanctuary at that time. They were given, donated, to the sanctuary by the non-profit. So, it was our job to maintain them. So, I had a mooring buoy maintenance contract. I had a government van that was given to me by the government. All I had to do was pay for gas and then reimbursing Sea Grant for the use of their photocopier. By that time, \$29,000 was gone.

Steve Gittings [01:09:29] But that's how I got the job, with my little envelope of vision and strategies, and some help from Sea Grant, a lot of help from Sea Grant.

David Todd [01:09:41] You were lean and mean, to be sure.

David Todd [01:09:44] Well, I think it's interesting that you thought a lot about these relationships and partnerships and stakeholders, and I think, one of the the groups that helped you out, as I understand, was the Gulf of Mexico Foundation and a fellow there named Quenton Dokken. And I was curious if you could talk a little bit about the sort of leverage that they might have provided.

Steve Gittings [01:10:07] Yeah, yeah. One of the first people I called was Quenton, because he and I had been doing field work together for a few years by that time. And, there's another person I called named Gary. Oh, wow. I should remember things like this. These are important people. I'll think of it in a minute. But he was a biologist out at Channel Islands National Park at the time. Gary told me about a non-profit they set up to help support their park, to make money easier to spend than it was going through the federal government.

Steve Gittings [01:10:46] So, Quenton offered to set up something called the Gulf of Mexico Foundation ... I'm sorry, something called the Flower Gardens Fund within the Gulf of Mexico Foundation, that was basically an account for people to donate to. So that if anybody ever wanted to donate to the cause to make the Flower Gardens sanctuary a better place, they could donate their money to his foundation, put it in the Flower Gardens Fund account, and that could be turned back around and spent on the Flower Gardens in any way that they wanted to.

Steve Gittings [01:11:20] So, Quenton offered to do that. It was an account that would, we could take donations or payments, you know, we could sell shirts if we wanted to, and money would go into the Flower Gardens Fund. But it really opened up the opportunities well beyond what federal employees are allowed to do on their own. And I had enough flexibility given to me by NOAA to work with Quenton, you know, on that, openly, and not have to hide anything. You know, Quenton would do all the work. I would just help advise him on, "Hey, if I was going to spend money, this is how I'd like to see it spent".

Steve Gittings [01:11:53] And we would do some great things like, buy ship time so that graduate students and other scientists could have their time on the Flower Gardens and get their research done. And they didn't have to become NOAA divers to do it. They could do it on

their own diving, you know, auspices. So, we could put publications together quite easily. We could sell products like shirts, hats, whatever. We could set up annual events in Houston (we called them Nights on the Flower Gardens), once a year, to give away awards to volunteers that helped that place, you know, in one way or another, or you know, we give awards to players like Minerals Management Service for doing all the good work they did to protect the banks over the years.

Steve Gittings [01:12:46] So, Quenton was a big part of us being able to operate out there in ways that other marine sanctuaries weren't really doing at the time. So, these were innovative ways that helped me do something with \$29,000 in my first year. And every year I will say that we were able to raise enough money in the Flower Gardens Fund, either through donations from oil companies or sales or grants, you know, things like that, to at least double the budget of the sanctuary.

Steve Gittings [01:13:17] And as the budget went up year after year to, you know, 100 grand or some number like that, in the next couple of years, we were able to double that with outside money. That really helped the sanctuary operate. And even give away fellowships to graduate students to help them finish their work.

Steve Gittings [01:13:36] Quenton was also really instrumental in setting up an arrangement with Mobil, who had a platform at the East Flower Garden Bank, right in, just inside the sanctuary boundary at the time, that allowed scientists to live on and deploy their instruments and boats and diving from the platform at the East bank.

Steve Gittings [01:14:00] Sorry. What was that?

David Todd [01:14:01] Was that the High Island platform?

Steve Gittings [01:14:03] Yes. High Island 389. And we had a relationship with the operators on that platform. One of them at the corporate level. He served on the advisory committee for the sanctuary. But then, two of the people who lived on that platform, half the operational time on it, they became close friends of ours and helped us. Every time we'd go out there, Mobil would let us live on the platform for weeks at a time with those two guys, and operate from there, research vessels -Zodiacs, rubber inflatables - put them in the water, put divers in the water, go over to the banks, do their research, come back, stay there, eat, play, whatever. We did dive training from that platform, you know, deep dive training.

Steve Gittings [01:14:48] So we did a lot with that Mobil platform for a few years. Mobil would even fly us out every now and then on a chopper usually woulwe'd have to go on a boat, but, we didn't care because it was free, free opportunity for research.

Steve Gittings [01:15:02] So Quenton handled that operation through the Gulf of Mexico Foundation for years, and really gave research students a big opportunity to get their work done. So he helped a lot of graduate students get things done.

Steve Gittings [01:15:18] And one of their operators, Hector Gutierrez, he loved diving so much. Well, he wasn't even a diver when we started. But he picked up diving and he eventually became the director of the NASA Neutral Buoyancy Lab in Houston. You know, that big pool where they train the astronauts to do space shuttle work and so forth - extravehicular activity? Well, Hector became the director of that. But we're the people that introduced him to diving in the first place on the Mobile platform at the East Flower Garden bank. So.

David Todd [01:15:54] You know, I think it's really interesting these sort of informal connections and friendships and partnerships that make things happen when it's not clearly legislated or required.

Steve Gittings [01:16:08] Yeah.

David Todd [01:16:09] So, one of the things I thought was interesting is that you all were pretty creative about how to get some money in the till. And, I think that one of the projects you had which raised money and I think exposure as well, was the Little Texas Band fundraiser. Please tell us about that.

Steve Gittings [01:16:28] What a fantastic memory that is. I still have friends from that, including the guys in the band, believe it or not. But this was, what, 1994 or '5? Maybe somewhere in there. I was contacted by a lady named Lori Wilson, who was doing PR work for the Reef Environmental Education Foundation, which is a non-profit in the Florida Keys that does fish censusing. Still operates - very good organization. She had a friend named Gene Drees, who was a promoter in front of music and a manager out of Nashville for Warner Brothers Records. And, what a magical guy he is.

Steve Gittings [01:17:12] But they had this idea of taking the members, the diving members of Little Texas, which was at the time a very famous band, as famous as any of them out there doing country music, really good music. "God Bless Texas" was maybe their most famous song. But, they wanted to take them diving at the Flower Gardens because it would look good for their image. And they were from Texas and wanted to dive at the Flower Gardens. And three of them were avid divers, so we all thought it'd be a great way for all of us to get a lot of attention, including them.

Steve Gittings [01:17:47] So, this was one of my strategies, you know: introduce famous people to the Flower Gardens. Here we go. And NOAA gave me permission to do all I needed to do. So, we went up to Nashville to talk with them about how this was going to go down. We'd bring them down, they'd do their dives. We train them how to census fish. So, REEF was involved too - the reef census people. So, we would jointly take them out there, teach them how to identify fish. They would collect some data. We'd do some promotional work, you know - video and all that. And then when they came back, they would do a benefit concert for the sanctuary and for REEF.

Steve Gittings [01:18:28] So, we went up to Nashville and sat in the boardroom of Warner Brothers Records. Bugs Bunny sitting up in the rafters and big stuffed animals all over the place. It was amazing. And I got to know Gene Drees, who as I said was their promoter. He turned out to be the most magical of people. We've worked with him on a number of projects since then, and I'm still close friends with Gene.

Steve Gittings [01:18:53] But we spent three days on the boat with Little Texas, doing fish censuses and made this promotional video for the concert. And then the rest of the time was basically listening to jokes from people who are used to being on the road in busses and knew lots of good jokes. And we had a few people on our crew that were from New Orleans and, you know New Orleans people probably well enough to know how they can join in quickly on a fun time like that. So, we had a ball for three days with those guys.

Steve Gittings [01:19:26] And then, later on, we sold tickets and did promotions. We made a video, a guy named Brian Huff with a videographer who came out with us on the trip to do the project. And he was just, he had some kind of karma that the rest of us just don't have. When he came back from one dive, he had video of a manta ray. He had video of turtles, guys swimming underwater (you know, the band), and then a hammerhead swimming through the sun above him when he was looking up toward the surface. So he got it all. I mean, you don't see hammerheads in the summer out there, but Brian sure did. I don't know how he did.

Steve Gittings [01:20:08] But, they did the benefit concert at a big dive show, and we made something like, I forget, it was 60 or 80,000 dollars in that thing through ticket sales, through, what do you call it, Sales of, what do you call it?

David Todd [01:20:28] Merch?

Steve Gittings [01:20:29] Merchandise. Yeah, merchandise. But what do you call it when you bid on things, auction.

David Todd [01:20:34] Auctions. Sure.

Steve Gittings [01:20:36] Yeah, I got a \$650 guitar out of it because I couldn't stop. I was going to have something from that concert, and, but I like the looks of this guitar that was up there. And Chris Ostrom was holding my daughter in back of the room, and, I'm up there bidding on this guitar, and in the middle of it all, my daughter looked at Chris and said, "Who would pay \$600 for a guitar?" And then about two seconds later, "Sold! Steve Gittings." Yeah, you win. And Ostrom goes, "Aww. Of course, your dad is the guy who would bid \$650 for a guitar." So, my wife rolled her eyes and I still have that guitar in the basement.

Steve Gittings [01:21:22] Well, let me tell you one thing about that guitar. They decorated it up specially for this trip. It was customized with all the guys' signatures and all that. And I looked at it just a couple of years ago, looked at all the fish they had painted on the guitar, and one of the fish is a lionfish. I never noticed that until just a couple of years ago. Lionfish weren't even at the Flower Gardens back then, but they became an invasive species in 2000 or so, and showed up at the Flower Gardens around 2011, and are a major problem in the western Atlantic now. But they weren't even known back then to be an invasive species in the Atlantic. So, how they got on the guitar, I have no idea. But by 1993 they were on that guitar. So strange, strange things happen.

David Todd [01:22:09] Very prescient.

David Todd [01:22:11] Well, so, one of the things I was intrigued by is that, and I think you mentioned this in passing, is that the Flower Gardens are in the midst of this very productive, very rich oil and gas field in the northwest of the Gulf of Mexico. And I'm curious how you threaded the needle of having a protected site in the midst of all this activity, you know, and with the platforms and the barges and access nearby.

Steve Gittings [01:22:45] Yeah. You know, it wasn't as hard as you might think building those relationships with the oil industry, even though I make them sound like they were big barriers to the designation. And at the time, they were, I would say they were. But, once the sanctuary happened, we were past most of that. I think they were pretty comfortable with the designation, the way it went down - the fact that they were still allowed to operate around the

Flower Gardens, but not in the sanctuary, except for one platform that was grandfathered in and it was eventually removed.

Steve Gittings [01:23:21] But, but yeah, most people that work in the oil and gas industry are a lot more willing to listen to reasonable protection measures than you might think. They actually have a lot of the same goals. The last thing they want to do is spill anything out there or disrupt the environment, any more than has to be done to produce the oil. And they're pretty heavily regulated too.

Steve Gittings [01:23:49] So, but, you know, just to tell one story: before I became a sanctuary manager there, probably the year before the designation, Texaco had proposed to put pipelines in between the East and West Flower Garden banks, which are 12 miles apart. And, you wouldn't think that would be that big a deal - 12 miles apart, a gas pipeline laid on the seafloor at 400 feet deep, and 30,000 miles of pipeline on the Gulf of Mexico sea floor at that time. So what was a few more miles of pipeline going between these banks going to do?

Steve Gittings [01:24:27] Well, that's not how it works. That didn't matter. People got word of that and saw an article in the paper one day. NOAA had nothing to do with this. This was a non-profit group that put this article in the paper saying that Texaco was going to cut through the Flower Gardens with this pipeline. That wasn't what was going to happen. But that's what the headline said.

Steve Gittings [01:24:55] And of course, it sounded quite bad. So people were up in arms about Texaco laying this pipeline. And a bunch of stuff went down in that year, and Texaco eventually was forced to, or opted to, move that pipeline east of the East Flower Garden bank. So it went outside the banks and didn't, wouldn't have any influence on the banks whatsoever.

Steve Gittings [01:25:20] It cost them several million dollars to do that. But they, you know, in the interest of public relations, they had to do it. And, you know, a couple of million dollars here or there, no real big deal. But they weren't happy with the way it went down.

Steve Gittings [01:25:36] And government didn't have anything to do with that. But the government had to, you know, sort of, we were supportive of the idea of protecting the banks even more. I wasn't part of the government yet.

Steve Gittings [01:25:50] When I came in a few months after all this went down, and I'm at a dive show on the first day of my new job in Houston called Sea Space. And of course, everybody's dressed in t-shirts that say "Cancun" or something on them, and shorts. And I look down the aisle and I'm standing with some other of my colleagues, and here come three guys walking down the aisle in very expensive suits and looking pretty dapper at a dive show. And I said, "Who are these guys?"

Steve Gittings [01:26:23] And they came right up to me and congratulated me for getting my job, introduce themselves. And, one of them was from Texaco Pipeline. Another guy worked for the offshore industry lobby, the National Ocean Industries Association. I can't remember who the third guy was. But he was also an oil industry person, I think maybe a legislative rep for Texaco.

Steve Gittings [01:26:51] And, they said they wanted to chat with me about, you know, this new job I had and the whole Texaco pipeline thing, how that happened. And they just wanted to talk about it.

Steve Gittings [01:27:04] And my first thought was, "Is this the way things are going to work, you know, in my job?" And am I going to start being bullied or whatever? And my second thought was I could lose my job tomorrow if I ... They had invited me out for dinner. I thought, "Uh oh, if I accept that, what happens?" So, I said, "Well, I got to talk to my leadership about that, see if I can go out with you guys and talk."

Steve Gittings [01:27:29] And, I told my folks about it and they said, "Look. Go out with them and have dinner and and listen to what they have to say and see what happens."

Steve Gittings [01:27:37] And, so we did it. And they took me to this restaurant in Houston, down in the wine cellar of the restaurant - beautiful little room to have our dinner in. And we had menus that didn't have prices on them. So, I thought that was interesting. But I ordered whatever I wanted.

Steve Gittings [01:27:55] And it was really an interesting discussion when it all came down, because basically what they were trying to tell me, or what they told me, was, "Look, here's the history of the pipeline incident, the way we saw it and the way it went down and what it cost us. And you know how we're okay now. But, if anything like this ever happens again, A) here's our phone number. Call us before you call the press. Because when things get in the press prematurely, without the full story, you, you know, they can go sideways."

Steve Gittings [01:28:27] And they were basically opening the door to communication. And so that became actually the way every oil company worked with me through the course of the years. When questions came up, I could call somebody who would get me to the right person in that company to answer the technical question that I might have had or some other question. And, it was pretty open door policy with industry.

Steve Gittings [01:28:53] I mean, I had people twisting arms for me now and then, and that helped, you know, especially the regulators at Minerals Management Service. They were really good at helping open those doors because they had the regulatory authority to do that. They could say, "Look, you got to listen to this guy." Or they would invite me to come with them on spill drills. And that really helped us, help me get to know how the industry really worked.

Steve Gittings [01:29:16] So, I think they all saw that I was putting forth a genuine effort to get to know their world and helping them to get to know mine, and we came down in between. And we had relationships that I thought were really good over the years. And like I said, it wasn't as hard to build those relationships. Or it wasn't as uphill a battle as you think it might be. It took time and it took effort, but it wasn't that difficult. Put it that way.

David Todd [01:29:44] Okay, well, so, you know, we talk a little bit about all these efforts to, protect Flower Gardens, and, and I think it might be nice to get, sort of a, a closer view and a sense for somebody who's dived on those reefs many, many, many times for some of the really charismatic things that that you can see there.

David Todd [01:30:08] And one of the things I thought would be exciting to hear about is the mass coral spawn that you managed to witness in the early days when, that wasn't really well understood and it was really a pretty, new and unusual thing.

Steve Gittings [01:30:26] Yeah. You know, I guess everybody in their profession has these career experiences, these life experiences, that happened as part of their career. And that was

one for me. That was an event that was, it was once in a lifetime because we discovered it. And it's just once it's discovered, it's discovered. But it had never been seen before.

Steve Gittings [01:30:46] And that this was August of 1990, a couple of years before I got the manager's job. I was still doing research. I was in charge of the monitoring out there, so, like I said, I'd gotten to know a lot of the divers. And, I was at Texas A&M working on some other contract, and I got a phone call from Gary Rinn, that boat operator, and he said one of his divers, Jennifer Lange, had come up from a night dive the night before and said she'd seen the water just full of these pink little particles that made it really hard to see underwater. Like all this junk was in the water. And what was it?

Steve Gittings [01:31:29] And, then the more he described the activity, the more it sounded like the mass spawning events that I'd heard about in the Pacific that had been pretty widely reported on the Great Barrier Reef. And out there, it happens seasonally, you know, according to certain full moons once a year and that kind of thing. So, the more, you know, he described it more, I said, "I think this is some kind of spawning, and maybe we ought to look at the history of the Pacific, and then ask people in the Atlantic who study coral biology whether they'd ever seen anything like this in the Atlantic".

Steve Gittings [01:32:09] And, I called a lady named Alina Szmant who studied coral reproduction. And there had also been reports in the past, as I recall, of people in Bermuda reporting every once in a while the smell, an odd smell, on the water during certain nights of the year. And they thought it might be some spawning going on in the bottom. So, there were some indications that, like, well, Alina had seen coral spawn in the laboratory. And so, there was some indication that corals in the Atlantic reproduce.

Steve Gittings [01:32:44] Duh. They must.

Steve Gittings [01:32:45] But how they reproduced? Was it anything like in the Pacific? And that's what we didn't know.

Steve Gittings [01:32:50] Like in the Pacific, a bunch of coral species spawn at the same time. That's called mass spawning. That's the definition. So, Alina and I talked and we said maybe we ought to set up a cruise next year at the same time, same full moon, same time frame relative to that full moon. So, we looked back a little bit at the calendar that Gary had described. And eight evenings after the August full moon was when Jennifer had seen all that activity, and she had seen it at about 9:15 at night on that particular night.

Steve Gittings [01:33:20] So, we said, "Okay, Gary, next year we'd like to lease your boat in August on the full moon, but, not till a few days after the full moon".

Steve Gittings [01:33:30] And we mounted a group to go up that trip, a bunch of sport divers, several scientific divers from my crew, and went out to the Flower Gardens and got in the water a couple nights before all this, and nothing was going on. The corals looked normal, you know, with their little tentacles out feeding, at night, like they usually do.

Steve Gittings [01:33:52] And then on the night, the eighth evening after the full moon, which matched the previous year's observation (different date, but the same night relative to full moon), we went down to the bottom and started looking at about 9:00 at night. And we noticed something unusual where all the corals were ... they didn't have their tentacles out and feeding. They looked like they do during the daytime. We thought that was odd.

Steve Gittings [01:34:17] But then in the next few minutes or so, ten, 15 minutes, the mouths of the coral started getting wider and wider and wider, and they still didn't have their tentacles out, but they started looking very unusual. They were kind of bulged upwards, like a pencil eraser, sort of, by the thousands on every coral that was out there, of a certain species. Not all corals, but certain species of corals looked like this.

Steve Gittings [01:34:40] And then, at 9:15, they all started releasing all these little BB-sized bundles, pink bundles, just like Jennifer had described, by the millions into the water column. And gradually it grew more and more and more thick in the water column. And before you knew it, we couldn't, you couldn't see your hand in front of your face, because it was just the way we described it later was an upside-down snowstorm. Basically, it was like a blizzard going on there.

Steve Gittings [01:35:10] And that happened at the same time on the same night.

Steve Gittings [01:35:13] And we were blown away by it. You could hear people screaming underwater. And by the time we all got back to the surface, we were all laughing and screaming. And all as giddy as you can be after a dive.

Steve Gittings [01:35:25] So that was my first. That's when I realized we were seeing something very special that nobody in the Atlantic had ever seen before and people had seen in the Pacific, but we didn't even know they happened there.

Steve Gittings [01:35:37] So, of course, we published the paper on that within the next year or so to describe it. And, we spent the next few years, every year, going out on these same dates, and on a few dates on either side of that, because there were some other corals that spawned at the same time of year, but not quite on the same night. And we tried to learn the timing of all the species, and when they spawned relative to each other and tried to figure out why, you know, how they had all this figured it out and why they spawn at slightly different times.

Steve Gittings [01:36:09] And that has to do with trying to minimize hybridization, and maximize, you know, fertilization of one single species.

Steve Gittings [01:36:18] So, we did all kinds of experiments over the next few years with coral fertilization and timing, and published all that in these papers.

Steve Gittings [01:36:27] So, being the first people to witness that in the Atlantic was something very special to us. And it was also a sign of just how healthy the Flower Gardens were, because the corals that spawned happened to be the corals that are most abundant out there. And at the Flower Gardens, there's almost 60% of the bottom is covered with living coral. So, if you can imagine coral spawning happening on that scale.

Steve Gittings [01:36:53] You go to most other coral reefs in the Atlantic, and coral cover might be 10%, 20 if you're lucky. You know, there's three times as much cover at the Flower Gardens as that - four or five times as much! So, it's a very dramatic event at the Flower Gardens. Even though it might happen in other places, it's not quite as dramatic because the coral density is so much lower in other parts of the Atlantic.

Steve Gittings [01:37:19] Very special thing.

David Todd [01:37:22] What a sight that must have been.

Steve Gittings [01:37:24] Ah! Amazing.

David Todd [01:37:25] And a great discovery too.

David Todd [01:37:29] Well so, one of the things that I think is so interesting is that this coral, in this context, this support system for a whole panoply of aquatic life. And I was wondering if you could tell us a few stories of some of the unusual creatures you've seen. I understand you've seen whale sharks, of course, hammerheads, manta rays, moray eels.

Steve Gittings [01:37:54] Yeah. They all have their own little stories.

Steve Gittings [01:37:59] Yeah, well, turtles: start with turtles. I helped Emma Hickerson, who was my research coordinator at the Flower Gardens. She was working on her Master's back in the '90s - '93, '94, '95. She needed to capture these 2 or 300-pound loggerhead turtles, and get them up on the boat to do studies on their blood and attach transmitters to them, measure them and all that.

Steve Gittings [01:38:24] So, we would capture these turtles underwater just by swimming up to them. And if you could get them at night and they were near the bottom, you could just hold their shells down, their heads down, against the sand, and they wouldn't be able to move. If you tried to hold them, though, up in the water column, they had very strong flippers so they could swim away from you. So, you had to hold them down a little bit. You know, ride them down to the bottom a little. It wasn't too hard.

Steve Gittings [01:38:49] But then you'd maneuver them into a big net that you had. One diver would hold the net above the turtle, then you'd let him up into the net, and they'd swim into this net, and then you'd bring him to the surface and pull them up on the boat, which, that's where it got to be difficult, because they're so heavy. They're big, bulky things.

Steve Gittings [01:39:11] And get them up on the boat. Put them on a couple of tires that were on the back of the boat, so their flippers wouldn't hit the ground and they'd start crawling away. So they'd be suspended in mid-air, almost, just sitting on these tires.

Steve Gittings [01:39:25] And then you could do your measurements, take your blood, attach the transmitters, and eventually let them go back into the water an hour or so later. Turtles breathe air so they don't have any trouble staying alive for days at a time on a ship.

Steve Gittings [01:39:38] They actually used to capture turtles that way and put them in the hold of their ship and flip them upside down so they couldn't go anywhere, and they'd eat them over weeks of time. They'd stay alive.

Steve Gittings [01:39:47] So, but we didn't do that. We just keep them for a couple hours, do all our measurements, and put them back in the water. And they're tough animals. They can handle that.

Steve Gittings [01:39:56] But, so that was my, that was one of the fun experiences with turtles. And then we would track the turtles to see where they moved over time, and they would actually move between banks. So, they'd get up and move quite a bit.

Steve Gittings [01:40:14] And then manta rays: of course, we see manta rays out there pretty commonly. They're really beautiful animals. Most of the work we did on them involved getting really good images of their undersides, so we could document the patterns, the dot patterns and the lines and scars and everything on these individual animals. So, we could track individual animals over time.

Steve Gittings [01:40:41] And we'd see these things years apart from each other, same animals. But we'd also, later on, I didn't do this, but they started tracking mantas with tags that they'd spear and put into the animals.

Steve Gittings [01:40:55] But so we learned a lot of things over the years with mantas, by documenting their markings.

Steve Gittings [01:41:07] But one of the things we discovered with the mantas were most of them were smaller than we anticipated, than we expected mantas to be. Most of them were less than ten feet across. And mantas can get up to be 20 feet across. But we didn't see those giant mantas out there. What they learned over time, though, was that the Flower Gardens was part of a nursery area for mantas.

Steve Gittings [01:41:27] That was really significant. Again, it just makes the Flower Gardens unique because they had not identified nursery areas for mantas elsewhere. So, that made the Flower Gardens even more important to protect. So, that's mantas.

Steve Gittings [01:41:43] Hammerheads: well, they show up in winter only, really, at the Flower Gardens. Except when Brian Huff is looking for them. Then they show up in the summer. But that's that's karma.

Steve Gittings [01:41:55] But we see them mostly in the winter, schooled up at the Flower Gardens by the dozens. And it's quite a dramatic sight seeing these big big hammerheads swimming over your head, ten and 12 foot long. They always make me a bit nervous, especially seeing a bunch of them together.

Steve Gittings [01:42:15] But we never have figured out with the hammerheads exactly why they show up and why they school and why they swim around the Flower Garden banks in the winter. We never saw them eat or mate. Doesn't mean it's not happening. We never saw them have pups out there. We never see small hammerheads. So, as far as I know, that's still a mystery to be unraveled at Flower Gardens.

Steve Gittings [01:42:41] Whale sharks have their own special story for me because I didn't see whale sharks for the first 17 years that I did research and worked at the Flower Gardens. That means from 1980 through 1996 or so, I never saw a single whale shark, and I always heard these sport divers telling me that they swam with whale sharks. They saw one. It was on my dive and I didn't see it. And I thought it was a bunch of B.S. for the longest time, that there were whale sharks out there.

Steve Gittings [01:43:13] But I saw a few pictures over the years, and so I had to admit it was just me. Now, and people started asking me a few years into that job where I was going to go from there after 1995 or so happened, and, and I had had that sanctuary manager's job. Everybody said, "Well, you know what's next for you? Where are you going to go after that?" I

said, "Well, I'm going to stay here until I see a whale shark. And that'll be a sign from God that it's time to move on when I see a whale shark."

Steve Gittings [01:43:40] Well, in the summer of '96, I saw three whale sharks out there and it was like a two-by-four up side the head. I said, "That must be a sign that it's time for me to start thinking about my next job."

Steve Gittings [01:43:53] And oddly enough, about that time I found that old envelope lying around that I had all my goals and visions for the sanctuary written on for my interview and for the job itself. And I looked at it, and I had checked off most of the things that I had listed on that interview cheat sheet. And I thought, "Wow, I really have done most of what I can do here. You know, I got the researchers interested, I got the famous photographers there. We had documentaries on the Flower Gardens. We had the oil industry pretty well aligned with our goals. We had a foundation set up. I had an advisory group."

Steve Gittings [01:44:37] All those things that were on my envelope I had checked off, except one of them. That was permanent office space. We didn't have a budget for a permanent office. We couldn't build a building. We couldn't really, we didn't have the money to move my small staff at the time. We didn't have the infrastructure to do it, you know, enough furniture to fill an office.

Steve Gittings [01:44:59] So, it wasn't right to do that at the time. We just didn't have it.

Steve Gittings [01:45:03] The sanctuary program itself wasn't funded well enough to take a bunch of money out of their office to gin up a new office. So I didn't do that.

Steve Gittings [01:45:12] So, I had this one blank spot on my sheet, and I wasn't going to be able to do that in the next few years, it didn't seem like.

[01:45:19] So, I was offered a job at headquarters at the time because they wanted to have a permanent science coordinator for marine sanctuaries. They didn't have that yet. All they had was a science coordinator for what we called the Estuarine Research Reserves around the country. Those are a different thing, but they were managed by the same office. So, they wanted to separate the job duties and have a separate sanctuary national research coordinator.

Steve Gittings [01:45:46] And so they asked me to do that, and I said "Yes", because I had seen three whale sharks that year, and a few other reasons. But that seemed like the right thing to do. After 18 years, it was time to move on and and move up, I guess you might say. I'm not sure I agree with that, but close enough.

Steve Gittings [01:46:07] Well, you know, your new job and your current job at NOAA for science research must give you a wonderful sort of 30,000-foot view of all the many reefs and National Marine Sanctuaries of various kinds. And I'm curious, from that perspective, what do you find distinctive and valuable about, the Flower Gardens?

Steve Gittings [01:46:37] You know, even though I had no real good management experience before the Flower Gardens (other than some project management), I think I found my groove at the Flower Gardens with my management style. I learned what worked for me. I have a tendency or, you know, my management proclivity is to use a collaborative approach as much as possible and a persuasive approach to management.

Steve Gittings [01:47:08] I like building relationships, you know, which I believe builds trust over time. If people see that you're making genuine attempts to be objective and be a listener to their side. So, when it comes time to make difficult decisions, they trust that you've done your homework, you know, and all you can do to deal with their concerns.

Steve Gittings [01:47:36] I try not to get involved with conflict as much as possible. I don't seek it for sure. But when it happens, I'm comfortable enough with, you know, asserting myself, or taking the blame if I make a bad decision, or, you know, apologizing for those mistakes if I need to, because I feel like I'm making an objective attempt to do it. And if I get it wrong the first time, hopefully there will be a second time. Because if you deal with that right and keep that image of the relationship you built to kind of humble yourself, and acknowledge that you've made a mistake.

Steve Gittings [01:48:13] So, you know, I had rewarding experiences at the Flower Gardens. That was a dream job, for sure.

Steve Gittings [01:48:21] But, you know, I also learned how to help people get their start in business. A lot of those experiences I had were just ... I was along for the ride and people were along with me, or I might have coordinated it, but they were experiencing it with me. So a lot of young people had a chance to, for example, see that spawning, a life experience I had when I was much older than they were. They were in graduate school or whatever when seeing it. So, you know, they still tell stories about it like I do.

Steve Gittings [01:48:55] But, you know, I feel like I became a mentor to a lot of people at that job, in that job, and I carry that along with me up at headquarters. And I still try to do that with young research people and scholars that have scholarships through our program. We have this thing called the Nancy Foster Scholarship that we give out to graduate students across the country, and we have chances to interact with them and mentor them and train them on things like science, communication and all that.

Steve Gittings [01:49:23] So, I still have a chance to, you know, keep myself active in the field and active with people to help build their relationships.

[01:49:32] So, I brought all that from the Flower Gardens, I feel like.

Steve Gittings [01:49:38] I learned things at the Flower Gardens that I feel helped me make decisions at headquarters - things like how much resistance and resilience a healthy ecosystem can have. You know, I learned that at the Flower Gardens by seeing it firsthand. The Flower Gardens remind me of what healthy reef ecosystems used to look like all over the Gulf, all over the western Atlantic.

Steve Gittings [01:50:02] And as everybody knows that those reefs are not like that.

Steve Gittings [01:50:06] But we now know what we can target in restoration projects, what we should be trying to achieve, in restoring places.

Steve Gittings [01:50:17] I had a lot of opportunities to see management successes for certain species over the years, you know, not at the Flower Gardens, but just watching whale populations recover for so many species.

Steve Gittings [01:50:28] And, I've been involved in a project in the Cayman Islands with Nassau grouper, watching how that kind of a population, with proper management, can be restored. We're seeing those come back real strongly in the Cayman Islands.

Steve Gittings [01:50:42] You know, reefs aren't doing all that well over in the Caribbean, but we know we can restore certain things in the environment. And the Flower Gardens helped me realize what kind of targets we should be shooting for.

Steve Gittings [01:50:54] So, learning down there helped me understand that ocean food webs are really resistant, are really resilient, when they're given a chance, when we take our, as I say, our foot off the neck of nature and and reduce the pressures as much as we can so that nature's natural resilience can take hold. I think I learned that down there.

Steve Gittings [01:51:20] So, nature has a real high capacity to restore itself.

Steve Gittings [01:51:26] So that, you know, that leaves me optimistic in a lot of ways for, and perhaps helps keep me going, knowing that all we need is willingness, our willingness to change, and we can make it happen.

Steve Gittings [01:51:39] Our challenge is really to change the conservation ethic of people across the country and across the world, I think, in a way that they become more willing to allow change to happen and be, you know, more restrictive in a lot of places where we need to be - especially sensitive environments like coral reefs. They're extremely sensitive to change, as we can see now.

Steve Gittings [01:52:04] What are some of the changes that I guess, you're focused on at NOAA on reefs. I understand that, you know, there's climate change - just in general seems to be a big problem. Coral diseases like stony coral tissue loss disease. Invasive species. You mentioned the lionfish earlier. What are the problems that, you know, really give you pause or, you know, raise your concern levels?

Steve Gittings [01:52:33] Well, you know, so much has changed since I started my career.

Steve Gittings [01:52:38] We used to do research on reefs involving things like, we were worried about people touching corals and kicking corals. Or understanding what signatures of water quality were laid down in coral skeletons, things like that. Really esoteric stuff.

Steve Gittings [01:52:56] And the stability of coral reefs in the 1980s and '70s, when I was first studying them - they were to be marveled at, you know. The reefs were very stable systems, hardly changed at all. No one was even thinking about whether we need to study something like restoring coral reefs. No, coral reefs didn't change, until they started to, through the 1980s really.

Steve Gittings [01:53:24] That all changed basically when (while climate started taking effect, of course), but the big sea urchin die-off happened in the 1980s, 1983, and sea urchins were the most important at the time, most important herbivores on the reef, keeping the algae from growing over the corals. And, as soon as they died from this mass epidemic that blew across the Atlantic, in 1983, '84, algae started really taking off.

Steve Gittings [01:53:54] And so everything's changed on coral reefs since then.

Steve Gittings [01:53:58] And now we're in emergency mode. Reefs are in freefall.

Steve Gittings [01:54:04] Not just the algae overgrowth, but things like overfishing and, oh, generally overuse of reefs by people and all the chemicals added and so forth, right by that.

Steve Gittings [01:54:14] Coastal development, too much tourism, all these things that are operating on really fairly large scales - island scale, let's say, or reef scale - increasingly started taking their toll on the food webs of the reefs, you know, on the water quality of the reefs over the last, let's say, 50 years.

Steve Gittings [01:54:37] So then, when this mass die-off of sea urchins happened, the effects are amplified of all the other things that are going on on reefs at a time to stress them. So, you got multiple stressors. And just corals are cratering around the Caribbean.

Steve Gittings [01:54:54] And then diseases started becoming more prevalent in the 1980s. People started reporting black band, white band, yellow band, you know, white blotch, all these corals that were named by their colors, basically, and their patterns.

Steve Gittings [01:55:12] And it just added to their freefall.

Steve Gittings [01:55:16] And then we start seeing climate change becoming more and more evident on coral reefs, even more so than we saw elsewhere in the world. Of course, we hear about glacier melting and all that. Of course, things are happening with climate change all over the world. But reefs, as I said, are really stable places. And when they become unstable, they die quickly.

Steve Gittings [01:55:39] So, climate change was starting to wash over reefs, you know, like a burial shroud. It was just amplifying all these other effects.

Steve Gittings [01:55:49] So, what we really should have learned from the early coral studies was that letting water quality change in a way that would kill them, and that coral reefs, they require stronger protection than other types of ecosystems. Not the same.

Steve Gittings [01:56:09] But we, you know, insisted on managing coral reefs like other places. And we could allow multiple use, human use, to the extent possible. And, you know, we were basically asking, "Can we have our cake and eat it too? Could we still allow heavy use of coral reefs, and not just heavy use, but growing uses?"

Steve Gittings [01:56:27] And since, you know, the '80s, we've ramped up in immeasurable ways coastal development, tourism, etc., to where reefs are now way overtaxed, beyond what we even imagined they would be back then.

Steve Gittings [01:56:41] But we insisted that we could manage human uses in a way that we could still have healthy reefs.

Steve Gittings [01:56:48] I don't think we realized we weren't able to control our appetite, and we have way overdone it.

Steve Gittings [01:56:55] Now we're paying the price. Or really, biodiversity is paying the price. And what we see dying on reefs now is probably just the tip of the iceberg. I'm certain

we're losing a lot more species on coral reefs than the ones that we're studying, and even more than we ever knew were there.

Steve Gittings [01:57:14] That's a big problem, because if species are really being extirpated, they're not likely to come back. If they're going extinct, they're not coming back. And then reefs will never be anything like they ever were in the past, no matter what we do. That's a problem.

Steve Gittings [01:57:32] So, to be honest, when I talk about how healthy the Flower Gardens are, I fear for the Flower Gardens, because while they're healthy right now, even if we can control lionfish, which I mentioned before as an invasive species that showed up there about 15 years ago, let's say we can keep them under control, them and other invasive species.

Steve Gittings [01:57:54] And, even if we can keep algae growth under control or it doesn't have the same effect that it has in other reefs, because most of the Flower Gardens' other species are very healthy. Or if sea urchins come back and control it.

Steve Gittings [01:58:10] Even if we keep the most destructive diseases away from the Flower Gardens, we don't know if we can do that.

Steve Gittings [01:58:16] But still, there's this dark cloud of climate change looming out there, and that's starting already to build and show its ugly face at the Flower Gardens. We're seeing temperature changes. We're seeing bleaching at levels we hadn't before.

Steve Gittings [01:58:32] You know, most people believe in the next, the models are telling us, not just people believe, but the science is telling us, that within the next 20 years or so, rising temperatures at the Flower Gardens are probably going to cause coral bleaching to happen at a level that is unsustainable, and the corals won't be able to recover between bleaching events like they do now.

Steve Gittings [01:58:53] And if that happens, all bets are off about the health of the Flower Gardens in the next couple of decades.

Steve Gittings [01:59:01] So where does that leave us on, you know, research and management in general?

Steve Gittings [01:59:09] I don't think it's hard to make a case that we need much stronger protection for reefs than we're giving them now. Otherwise, we're going to lose the rest of them.

Steve Gittings [01:59:22] But, people counter that, about the impacts of people, by saying, you know, we've got climate change out there. How can we control that? And why should we worry about restoring reefs when we can't even, if we can't stop large-scale water quality. We can't stop climate. We can't stop all these regional problems from occurring, because there's not a lot of social acceptance for that.

Steve Gittings [01:59:55] Where does that leave us for the future? Not in a great place, I think.

Steve Gittings [02:00:00] A lot of the current work we're doing on reefs right now is focused on monitoring the causes of the declines - the bleaching, the disease, the invasive species, the

climate change - or trying to prevent or control things like diseases, and continuing to look for ways to restore reefs.

Steve Gittings [02:00:20] You know, finding temperature-tolerant corals, for example, or raising corals in labs and raising them in the ocean and out-planting the corals back on reefs.

Steve Gittings [02:00:30] But then a intensely powerful storm or a large bleaching event like happened last year occurs, and 90% of the restored corals are dead in days or weeks, and they're not going to come back once they're dead.

Steve Gittings [02:00:46] So, that reverses all the positive trends we're seeing with restoration.

Steve Gittings [02:00:53] And that's the challenge to the next generation of scientists and managers is, A) what do we study and what do we try to do in the science community? And, B) how do we manage for success? Not just on coral reefs, but else where, on other ecosystems too, because these problems I'm talking about are not local anymore, and they're not regional anymore. They're national and international, or really worldwide, global.

Steve Gittings [02:01:22] It's a huge challenge for science to take what we learned in the past and say, "Okay, that was nice to know, but where do we use that? How do we use that for benefiting management?"

Steve Gittings [02:01:36] I honestly don't have the answer. And, I'm not going to lie and make up a bunch of stories that sound like I do because, I don't know if I'd like to be or not like to be the next generation right now. Huge challenge. I can't wait to see some inventive minds come up with some solutions.

Steve Gittings [02:01:55] One of the things I ask scientists now or students now, is what do they see in 30 years, when they're done with their career? What's going to constitute a success? And, it's really interesting to hear them answer those questions, because not a lot of them are thinking big picture and managing ecosystems in a very different way than we are now.

Steve Gittings [02:02:18] For example, what if we started managing ecosystems for what we call ecosystem services rather than ecosystem sustainability? That means, what are the benefits that humans get from a place like a coral reef?

Steve Gittings [02:02:33] Can we keep some level of sustainable fishing happening on a reef that's not a coral reef anymore, but it's an algae-dominated reef, or a sponge-dominated reef, or a soft coral-dominated reef. It might be inevitable that ecosystems are going to look very different in 50 years from what they do now. How can we plan for that and still have societal benefits from ecosystems when we know they're going to look very different in 50 years than they do right now?

Steve Gittings [02:03:02] There might be a whole field of science that emerges because of the inevitability of change that we see coming, because we're reluctant to control our appetite. Not a very positive outlook, but it's a maybe a necessary one.

David Todd [02:03:24] Well, maybe we can flip this around. You know, you're asking...

Steve Gittings [02:03:29] Please do!

David Todd [02:03:32] This next generation of up-and-coming oceanographers and biologists and research scientists, what they anticipate. And I'm wondering, as you look back at your career, what do you see, you know, that you've learned as an oceanographer, a biological oceanographer, a reef ecologist? Is there something about this career that you've found valuable and and impactful for yourself?

Steve Gittings [02:04:06] Well, from a personal standpoint, I will never understand how I got so lucky to accomplish so many of the childhood dreams that I had - you know, all the activities and field work that I've been involved in over the years and things I've been able to see. Those are magical moments.

Steve Gittings [02:04:26] And while that happened, I, you know, befriended some of the most interesting people in the field, in my opinion. And I've always been happy that I could share all that good fortune with so many students and people that worked with me, volunteers and other collaborators and colleagues, and helping them, you know, get their start in this field.

Steve Gittings [02:04:47] So, from a personal standpoint, you know, I'm really fulfilled by my job.

Steve Gittings [02:04:55] I do sometimes ask myself about the time period that I have been working in, and how many changes have happened in that time period that I haven't been real happy with seeing and nobody is. So, is that a success or not? I've always felt, though, that I might feel good if ... you know, a lot of this revolves around our energy consumption in the world, and how we burn so many fossil fuels to get where we want to go and to produce what we want to produce. And, this is not pro or anti oil and gas, it's just the inevitability of our need to transition from certain kinds of energy to certain other kinds of energy. And I see that's going to happen no matter what, over time.

Steve Gittings [02:05:41] But I always thought that one thing I'd always like to see and, well, let me start by telling a little story about a friend of mine who worked for Shell, the head of environment for Shell for many years, another one of Tom Bright's students, Jim Ray. Great guy, but worked for Shell for his whole career. And I once asked Jim, I said, "Why is it that a big company like Shell is not thinking into the future far enough to where they could say, 'Look, we're going to transition from an oil company to an energy company and start embracing some of these sustainable forms of energy, renewable forms of energy, that are out there, even though that's not their big thing now, and it's not going to be their big thing for a long time, someday it might be their big thing. And if they want to still be a company in 50 years, they might have to be a different kind of company than they are now. Or a solar or a wind or who knows what company.'"

Steve Gittings [02:06:46] And Jim said, "That's not the way big oil companies think. We don't think that far down the road. It's bottom line. It's shareholders. It's short-term profits. It's, you know, we think in maybe four or eight year intervals because that's the way presidents are elected and administrations run."

Steve Gittings [02:07:05] And I took that as an honest assessment of why, you know, it's hard to get big change at big companies.

Steve Gittings [02:07:12] But I always thought, wouldn't it be cool if an oil company did decide, while I was still working, to become a different kind of energy company in the future, so that they can sustain their their company for the long term.

Steve Gittings [02:07:25] And one day I was down in the Metro in Washington, DC, and there was a sign off to the side. I wish I had a chance to look back at this picture so I could remember the details, but all it said was, oh. I can't remember the name of the company. Boy, this is going to ... I hate that you're recording this now, so I don't have time to look it up, but I'm going to look it up for you at some point, you know.

Steve Gittings [02:07:48] So and so is now so and so. That's all it said on this, on this poster. And it's might have been like "Stat Oil is now Equinor", or something like that. And I thought what does that mean? Why is something oil now Equinor? And I went and looked up and I Googled it and said, "Who is Equinor?" And it told this story about this company that is developing a long-term strategic plan to become something other than an oil company and not be perceived as just an oil company. They want to be perceived as an energy company.

Steve Gittings [02:08:24] And I thought, check that box too! One company is interested, it may not be a giant company, but they were doing it. And I thought, well, that's a big success story in my mind because here at least, it's a small victory.

Steve Gittings [02:08:40] And about that same time, and this was a while back, you know, BP, the giant company, British Petroleum, was a real leader in innovative technologies on the solar side. They had a giant solar experimental facility just a few miles from my house. And I was always impressed when I drove on U.S. 70 and drove past this BP solar experimental facility. And, that was right before the big spill, Deepwater Horizon. And I thought BP was actually getting there. They were the biggest company I knew that was looking into sustainable energy and renewable energy in the future.

Steve Gittings [02:09:33] And of course, when the spill happened, they had to change, you know, move money from here to there and drop certain parts of BP. And that went away, the whole alternative energy, experimental stuff, as far as I knew.

Steve Gittings [02:09:47] But it was unfortunate because I thought BP was one of the most progressive companies at the time that the spill happened. And then they became, they had to revert back to survival mode for quite a long time.

Steve Gittings [02:09:58] I hope they come back around and I hope other companies do too.

Steve Gittings [02:10:02] But, you know, as I look back, that was one of the metrics I looked at, one of the indicators that I was looking for that actually happened during my career that was, you know, somewhat positive.

Steve Gittings [02:10:14] And I hope, and I always thought, there was a lot of money to be made in climate change if companies made the right choices. And I think that'll happen. I mean, over time, a lot will happen that I think will help us take care of climate change, regardless of the political climate around climate change, because I think solutions are there that will make people a lot of money if they implement them.

David Todd [02:10:40] Well that seems like a positive note, and maybe a place to start thinking of wrapping up what we've been discussing - you know, how change happens and how you spur it to maybe take us in a good direction.

Steve Gittings [02:11:00] Yeah.

David Todd [02:11:00] I just might ask one last question while we're together here. Is there anything you'd like to add that maybe we just gave short shrift to before, but that occurs to you as another thing you wanted to mention?

Steve Gittings [02:11:14] Boy, there's so many little personal stories that in the course of my career, some of which I could tell you on the record, but, gosh, can I tell you anything? I don't know that I have any othe limericks or anything to jump into at this point. I think we covered a lot of ground.

Steve Gittings [02:11:38] But I wish I could, still wish I could remember the name of that oil company that became whatever they became.

David Todd [02:11:44] Well, I understand your point, though. That's very well taken that, you know, sometimes we just have to remake ourselves and step into the unknown, knowing it's the right direction, but maybe not knowing what it holds for us.

Steve Gittings [02:12:01] Yeah. Well, for as long as I'm here, I'll be watching.

David Todd [02:12:06] Good. Good.

David Todd [02:12:07] Well, thank you so much for your time today and, of course, for all your work over the years on coral ecology and managing these very special spots around the world.

Steve Gittings [02:12:19] Probably goes without saying that it was my pleasure.

David Todd [02:12:23] Good. Well, thank you so much. I'll let you go. I got a little icon - I'll push it and we'll stop recording. Okay?

Steve Gittings [02:12:31] Thanks, David.

David Todd [02:12:32] You bet. Thank you.