Dr. Shirley Pomponi Oral History Interview

Sept. 30, 2020

JOANNE FLANDERS: This is an oral history interview with Dr. Shirley Pomponi who is based in Fort Pierce, Florida. I am Joanne Flanders, I am based in Bethesda, Maryland, a suburb of Washington, DC, and today is September 30, 2020. So good morning, Dr. Pomponi.

SHIRLEY POMPONI: Good morning, Joanne, how are you? Please, call me Shirley.

JF: Shirley, I will, thank you. Shirley, thank you for agreeing to participate in this oral history. We, Ocean Exploration and Research, our office is creating a collection around the theme of ocean exploration. And we wanted to interview you because of your experiences in the field of ocean exploration, natural product discovery, human-occupied vehicles, and more since you've had such a broad and interesting career. So thank you for joining us.

SP: My pleasure.

JF: So tell me, where and when you were born?

SP: I was born in Wilmington, Delaware, in 1949.

JF: And I see [00:01:00] when I looked at the map that Wilmington is across the river, somewhat across the river from Penns Grove --

SP: Right. So that's where I grew up. I grew up in Penns Grove, New Jersey, so it's right on the Delaware River and right across the river from Wilmington, Delaware, so... My mom was a nurse, and she trained in Delaware so that's why we -- that's why I was born there.

JF: Very interesting. So tell me, I see you that your paternal grandparents emigrated from Italy in the early 1900s. Where in Italy did they come from?

SP: They came from an area north of Rome, and in fact, there's -- the hometown is -- there's still family members who live in that hometown just about -- maybe about a hundred kilometers north of Rome, yeah. So, yeah, my grandfather emigrated first actually when he was very young. His family sent him over and to work actually in the coal mines. So he emigrated, arrived in New York, and then immediately went to join family members in West [00:02:00] Virginia and worked in the coal mines and then when he was -- at 12. Then at 16, he went back to Italy and got my grand-- got married and then came back to the US and then they moved. They were in West Virginia for a while till

they started their family in West Virginia and then moved to Penns Grove, New Jersey, in the -- I think around the mid 1930s, early 1930s.

JF: And it was West Virginia because of the coal mine there --

SP: Yes. Yeah -- there was family there already, and he was already working there in the coal mines. And there was a community established there, so that's where they went when my -- when he returned with my grandmother.

JF: Very interesting to leave at the age of 12.

SP: I know. And as my grandfather got older, he would tell stories about when he was a young boy in Italy. And I mean, he got to be really kind of reminiscent of [00:03:00] in telling this. And at the time I wish -- oh, gosh, I wish I had -- now I think about this, I wish I recorded these stories. But it was always a treat to visit my grandfather and have him tell us these stories about when he was a young boy in Italy and the things that they did.

JF: Your maternal great-grandparents, they also came from Italy in the late 1800s?

SP: Yes. So, my great-grandparents and my maternal grandparents were actually born in Pennsylvania. My maternal great-grandparents were from Southern Italy, and they emigrated and went to a community in Northeastern

Pennsylvania in the Poconos called Roseto, Pennsylvania. And in fact, probably about, I don't know, maybe 40 or 50 years ago, there was a study that was done of the residents of that community of Roseto. Because even though they were eating a lot of this Italian food that was supposedly really fatty and greasy, which it's not, but had a very [00:04:00] -- like an unusually low incidence of heart disease. So there's this big study, this Roseto study that was -- so my grandparents and great-grandparents lived in that area, and my mother was born there.

JF: Have they told you why -- what led to the emigration?

SP: No, I think just seeking a better -- what led them to move to the United States -- seeking a better life, that was it, just seeking a better life for their families.

JF: Mm-hmm. And both sides of your family then moved to New Jersey in the '30s?

SP: Yes, yeah, yeah. But actually, my maternal grandparents actually moved to Washington, DC, first and then moved to New Jersey. And it was actually right after the Depression and so it was really tough. I know my grandfather was part of the, kind of this workforce that was just paid by the government to do things like dig [00:05:00] ditches and stuff like that, so it was a tough life. My maternal

grandparents had three children, so my mother and she and a sister and a brother and then my paternal grandparents, five children, so my dad was one of five.

JF: And emigration in itself a challenging experience.

SP: Especially back then thinking about coming -- you know? I mean it was all by ship. They came over on steamers, so it was... When you stop and think about taking -- really taking that risk and stepping outside of your comfort zone and going to an entirely new country especially like my grandfather on my dad's side, as a boy, he was 12 years old, so...

JF: To learn the language?

SP: Yeah, to learn the language, a different lifestyle, away from your family, yeah. Yeah.

JF: So your father [00:06:00] James Pomponi, he was born in West Virginia in 1923.

SP: Yeah.

JF: He served in World War II?

SP: Yes, he was in the army, and he served in the European campaign. He was involved in D-Day. I knew he was in the army. He never, as in that generation, he never really talked that much about what they did and the horrors that they saw. It was only around, I think it must have been

the 50th anniversary of D-Day, I'm trying -- it was either -- yeah, it must have been the 50th when *Saving Private Ryan* came out. And I remember going to the movies with my mom and dad to see that, and after like the first five minutes, my dad got up and walked out. I said to my mom, "What's going on? Why --?" And she says, "This is -- he was there. That's where he was, and it just brought back all these memories," and that was when he really [00:07:00] started opening up and telling me what it was that he had done during the war. When I would ask him prior to that, he'd say, "Oh, I strung telephone wire," and you see workers stringing telephone wire out on the streets and stuff, and you don't think anything of it. It's like, oh, my dad climbed telephone poles and he strung wire, and never told me he was in Normandy. And then I realized that what he meant was that he was in that advanced team that would go ahead and establish the communications so that others could follow. When he finally opened up and talked about his experiences during the war, it made it very clear to me why, number one, he never wanted to go on a cruise, a pleasure cruise. He had no interest of going on a ship ever again and just the kind of like that courage [00:08:00] that again that generation displayed and not --

I mean very different from what my generation with the Vietnam War and how -- you know, the men and women who served really. All of these have -- just have different experiences and different ways of dealing with them.

JF: He must have very much been on the front lines then?

SP: Yes, oh yes. Yes. Hiding in basements and having people protect them, and it was incredible really. Actually what's interesting is that I've been recently going -- my mom passed away earlier this year and I've been going through their things, and I found things that he -- that -- you know, like souvenirs that he brought back. And my brother and I talked, and my brother and I were just looking at them, and there were coins, and coins [00:09:00] with swastikas through them -- on them, and printed on them, and it must have been a bracelet that he brought back for my mom that had Belgian coins and just things like that. So it was just reminders and remembrances of what he did and how he served, he like tens and hundreds of thousands of others who served our country.

JF: And those experiences that he had, he must have been at a fairly young age?

SP: Oh yeah, yeah. He was, yeah, probably early twenties I would imagine, very early twenties, yeah. He was 23 when

he got married, so it was -- you know, and that when he had already been back a couple of years, so I would say maybe late teens.

JF: So he married your mother.

SP: Yeah.

JF: They lived in New Jersey. Do you know where they met?

SP: They met actually in [00:10:00] Penns Grove. And I think it was when he was -- I think it was... I think it was when he was home one time kind of on leave; I don't know. And my mom knew him from -- you know, they went to the same high school, but at the time, she lived in a different town about five or six miles away ... But they were in Penns Grove, and he invited her to go to the movies, so yes. They knew each other from school, didn't travel in the same circles at all, but, yeah, he invited her out on a date. And it's interesting because my mother and her sister got married in a double wedding, so they got married the same day, the same -- you know? I think because they both got engaged around the same time, and they got married at the same time, which neither of them liked by the way. They wanted to have their own separate wedding. [00:11:00] (laughs)

JF: Unusual experience today, unusual experience, so... And you mentioned that your mother was a nurse.

SP: Mm-hmm.

JF: Where did she study?

SP: So she studied in -- and that was back in the time when you didn't need to have a degree. You went to school for three years to become a registered nurse. She trained at a hospital in Delaware called Memorial Hospital. It's not there anymore, but it's part of that whole hospital group that still exists. And she really wanted to go and enlist and serve as a nurse in the army, but my grandmother wouldn't let her, so she didn't. (laughs)

JF: Does she talk much about her early nursing years before --

SP: Oh yeah, yeah, and they had... She worked for a while. She worked really until -- I guess until I was born, so she worked for a while. [00:12:00] And they had different experiences because they would put them in -- during training and then after training in different hospitals, so they served for a time in psychiatric wards, they served for a time in wards where it was like infectious diseases and things like that, so, and she did some private duty nursing as well. So, yeah, she enjoyed that and then once we came along, my brother and I, then it was customary then

for moms to stay home and take care of the kids, so... Once we were in high school, she went back to nursing, and she worked as a nurse in migrant worker camps near us. Where we grew up, it's a big farming, agricultural area, but they had migrant workers who came in -- that time, I think mostly from Puerto Rico, but they had lived in really awful conditions, and my mom was a nurse for the [00:13:00] migrant worker children.

JF: You had exposure to health care early in your life?

SP: Oh yeah, yeah.

JF: Did that play a role in what you ultimately chose for yourself?

SP: Actually, I wanted to be a nurse. In fact, I wish I had that book close by, my favorite book -- I know it's out here somewhere -- was *Nurse Nancy.* And it was a Little Golden Book, and it was my favorite book growing up. I wanted to be a nurse, that was it. I knew from day one that's who I wanted to be was a nurse. I was a really good student in high school, and my mother's -- and still back then, if you wanted to be a nurse, you didn't need a degree, you did a three-year registered -- you know, you could do LP-- Registered nurse was what I wanted to be, and my mom said, "No, you have to go to college. Once

you're finished college, if you still want to be a nurse, then you can be a nurse," so... I got heavy pressure from the guidance counselor at my high school as well. [00:14:00] So I selected a school that had a really good placement of its graduates into pharmaceutical companies. I mean it's really weird the way this all happened because I would have -- I could have never planned it this way. But it had a really good placement of its students and its graduates in the pharmaceutical companies. It was in northern New Jersey, there were a lot of pharmaceutical companies there. So that's why I selected that school, and I got a scholarship so that was the plan. The plans changed, but that was the initial plan.

JF: Well, this is the College of St. Elizabeth, you're talking about?

SP: Yeah, a Catholic girls' school. It's not anymore; it's a university now, and it's a coed university. But at the time, yeah, all girls, and it was -- I lived on campus. You either had to live on campus, or [00:15:00] at that time, if you were local, you could live with your family. I mean at that time, you couldn't live in apartments or anything like that -- you either lived in the dorms or you lived with your parents, so I lived in the dorms. I got a

really good education. I think it was good being in an all-girls' school because it gave us the confidence to do really anything that we attempted to do -- we wanted to do, so... I feel like I got a really, really good education.

JF: Well, and you graduated summa cum laude?

SP: Yeah, yeah, yeah. But it was halfway through -- like halfway through that we had and it was taught -- mostly nuns taught us. And we had the opportunity between my sophomore and junior year to go on a field trip, and this is the first time that the nuns ever took students out of the country to do something [00:16:00] like this. So it was in Saint Croix, and there were nine of us bio majors who went, and I got certified to dive right before that because I wanted to be able to dive while I was there. We had to do little projects, field projects. There was a marine ecology class, and that was it, I was hooked at that point. So that's when I decided at the beginning of my junior year that I wanted to go into ocean science. I wanted to be a marine biologist, that's what I wanted to do, so I really focused more heavily then, and we had a pretty standard program in the biology department. Most of the graduates went into health-related fields. It was a strong but more like a liberal arts education, so it was a

broad education. So it was [00:17:00] going to prepare me -- I think prepare me well for graduate school.

JF: Okay, so you graduated summa cum laude from undergrad. In high school, you were your valedictorian.

SP: Yeah, yeah -- that's why my mom made me go to college because I was a good student. (laughs)

JF: So did studies come easily to you? What do you remember about your academics?

SP: I will say my parents never pushed -- they never had to push me. You know, like all the pressure I put on is self-inflicted pressure, so I never -- you know? I want to say I studied hard. I worked hard. It probably came easier to me than it did to some other students, but it wasn't like it was a natural, I had to study. But I was also involved in a lot of other activities. I mean I was a cheerleader, I was involved in other activities at school as well, so we did a lot of other things in high school, [00:18:00] as well, so...

JF: So a busy, pre-undergraduate, very busy and full and successful valedictorian, cheerleader.

SP: Oh, yeah, yeah, I was captain of the cheerleaders. I mean it was fun. We had fun in high school. In fact I have a very good friend from high school who also relocated to

this area about 20 miles away from where I live, so we get together as well now too.

JF: Wonderful. So I wanted to ask you, Italian family, a Catholic undergrad, which I understand, there may have been multiple reasons why you chose that school. What role did religion play in your family's life?

SP: A pretty strong role. I mean my mom had to convert to Catholicism to be able to marry my dad in church. We went to church every Sunday. We went to Sunday [00:19:00] school. I went to a public elementary school until about the -- until fifth grade and then we switched to a Catholic elementary school, so from fifth grade up through college, I was in Catholic schools. So it was like being in a private school in the Catholic, like the elementary and high school, but it played a big role, I would say, in my life. It was part of our culture. We celebrated holidays like Christmas and Easter. Those were big family holidays as well, but we were members of the church, active members of the church.

JF: And instructed by nuns likely?

SP: Nuns and priests in high school, mostly nuns in college, although we had some [00:20:00] lay professors, so nonreligious professors as well, so yeah. I don't ever

remember thinking that it was -- the level of education I got was on par with my peers, and I was well prepared to go to -- when I went to grad school, I didn't have a problem in grad school, I felt like I was well prepared.

JF: And so when you did go to graduate school, was that -- you did not take time off? You went straight from undergrad --

SP: I did --

JF: -- to graduate school.

SP: And I mean I was a good student, I applied to -- and that was right around when ocean science was -- it was just starting -- There were schools like URI, which they were just starting their graduate program in oceanography; Miami of course had one going. I'm trying to remember; I applied to I think five schools. I think I applied to the University of Delaware, [00:21:00] URI, Miami, and two others that I can't remember. First, I thought I'd like to go to Delaware because it was close by to where my family lived, but then I decided on Miami, University of Miami. And at the time, that was in 1971, there were a hundred graduate students in the -- at the Rosenstiel School for Marine and Atmospheric Science, a hundred graduate students across all the disciplines -- physical, chemical, geological, biological, fisheries, the works, six women.

So we were really in a minority there. Six percent of the graduate students then were women. It gradually increased, but for sure, we were in a minority.

JF: And what was that experience like? Did you feel impacted by it professionally?

SP: No. In grad [00:22:00] school, no, I did not. It was only later on when we started to see some kind of discrimination when it came time to get jobs. If you were a woman, you weren't going to get paid as much as your classmate who's a male. But during grad school, no, I didn't really feel like there was any bias or prejudice. It was just hard to get in; it was very difficult to get in. I was fortunate and -- but it wasn't just you apply and you wait for the acceptance. I applied and then on a weekly basis, I contacted the person who was on the committee for admissions, and during spring break, I drove down to Miami and arranged for a meeting, so I could have that kind of face time. It was very tough, and I was seeing my friends [00:23:00] who -- in fact a friend of mine who was trying to get into med school, she just couldn't get in right away. It took her three years to get into med school, and she was top as well and a great, great person.

JF: Biological was the --

SP: Biological oceanography was --

JF: -- biological oceanography -- it sounds as if that was a straightforward choice for you.

SP: For me it was, yeah, it was a straightforward choice. Now, when I went to college, it wasn't. In college, it was a choice between, when I had to select my majors, like, oh, do I want to do math or biology? I mean once I knew I had to go to college, it's like and I really -- I was -- I loved math, loved math. And it was just flip a coin to biology, you know, so... Yeah, I knew for sure I wanted to go into biological oceanography, and I thought [00:24:00] when I first started that I wanted to work on fish -- fishes. So I got an assistantship working in the lab of one of the professors who was a fisheries biologist, but then I ended up working on sponges. (laughs)

JF: How did that happen?

SP: Yeah, it's kind of an embarrassing story actually. My second semester was tough. I had a lot of classes, it was just heavy, and one of them was invertebrate systematics, and it was taught by two kind of legends in invertebrate systematics, Ted Bayer and Gil Voss, I mean legends. I was interested in systematics, and I guess I'm maybe that kind of like OCD type of person, has to have everything in

order. And we all had to do projects, and [00:25:00] the project was to do synonymies for a certain number of species in a phylum or some taxa. So in synonymies, you have to go back -- you know, there's the present name of that species but then you have to -- it's almost like ancestry.com for species. So we had to go back and see what was the original name of that species, how did it change over time, why did it change, things like that. I can tell you this is -- it's an embarrassing story -- if you're going to do crustaceans, you have to do like, I don't know, 20. If you had to do sponges, you only had to do six. I'm like, okay, I'll take sponge. Nobody wanted sponges, so I said, "Okay, I'll take sponges" because it's like, okay, this is going to be a piece of cake. And then I started looking into these sponges and how they were named and trying to trace their history of names and stuff, [00:26:00] and I didn't get it done that semester. I had to take an incomplete, and I finished it over the summer because I just -- it was just a lot of work. But that hooked me because you also had to go out and do some collections and collect some species, some -- you know, and collect some -- whatever your taxon was that you were focused on, collect those species and then identify those

as well. I just got hooked on it, so that was when I decided I wanted to do a master's thesis on sponge systematics and because of my background at College of St. Elizabeth, we had a really strong background in cell biology, histology, microtechnique, stuff like that. So I was really interested in the cellular aspects of -- if there were different cellular characteristics that could help distinguish one taxon from another. So that was what my thesis was on, so it was... [00:27:00] That's how, and that's it, and I've been hooked on that. Sponges have been my professional passion for -- ever since that second semester in grad school.

JF: And what were your expectations? You then went straight into your doctoral work?

SP: I did not go straight in --

JF: Oh, you didn't?

SP: -- No, I took off a semester. So I finished in May of 1974 and then I didn't start my PhD work till January of 1975. I knew, I was pretty sure I wanted to go for a PhD, so when I defended my thesis, I requested acceptance into the PhD program at that time and then -- which I was able then to defer. So I worked for Florida Sea Grant [00:28:00] at the University of Miami as kind of an outreach specialist for

which I have absolutely no training at all, but that's where I worked. I worked there because I just felt like I needed a break from grad school. Still had a lot of friends who were in grad school, mostly geologists, and I just wanted to see how I would -- you know, how -- if I liked -- if I was satisfied just with a master's degree. So I worked for about six or seven months for Sea Grant, and really enjoyed that, and then went into the PhD program in January of 1975 so -- yeah, '75.

JF: And so with Sea Grant, outreach work, extension agent, along the lines of being an extension agent?

SP: It wasn't so much an extension agent like we know of Sea Grant right now, and that was in the earlier days of Sea Grant as well, so just kind of like doing [00:29:00] not so much public policy documents but information brochures, things like that. But during that whole period of time, I was still hanging out a lot with my geology grad student friends and started thinking about, what, the research they were doing because they had all started into a PhD program then and started just thinking about their research and what I'd really like -- what I'd like to do. During that period of time was when I started formulating my ideas about what I wanted to do for my PhD research so that when

I started, I knew exactly what I wanted to do. It only took me three years to get my PhD because I knew from day one exactly what I wanted to work on, and because it was also at the University of Miami, I didn't have to take as many courses, so a lot of the master's courses counted towards my PhD as well.

JF: And what was it then that you chose to focus on?

SP: So my geology [00:30:00] friends were all sedimentary geologists working on carbonate -- carbonate sediments, carbonate geochemistry. I was interested in sponges that bioeroded calcium carbonate, so boring sponges or bioeroding sponges that excavate coral skeletons, limestone, bedrock. And I was interested in finding out the mechanism, the cellular mechanism, again cellular -- the cellular mechanism by which they were able to bioerode the calcium carbonate substrates. So it was mostly looking at electron microscopy, scanning electron and transmission electron, so looking at the cells at that boundary between the sponge and the carbonate substrate and trying to figure out exactly what was going on. We hypothesized that it was a chemical -- some kind of chemical process [00:31:00] and so that was really what I was focused on, trying to elucidate that.

JF: And at that time, the health of the corals -- perhaps we weren't as aware as we are today about the changes taking place.

SP: Yeah. The fun thing is I got to dive all the time, so I dove in the Florida Keys, mostly in the Upper Keys but no, I mean it was -- that was when the research still -- this was during the 1970s, so the whole 1970s when I was doing the research. So it started in '71, I finished in '77, and then stayed down in Miami for a couple more years. So I had a lot of opportunities to do fieldwork in the Florida Keys, Bahamas, a lot of work in the Bahamas, throughout the Caribbean. The reefs were just stunning, really beautiful, I mean large. Even in Florida, in the Florida reef tract, thickets of staghorn coral and stuff. To see this over the years [00:32:00] decline has just been heartbreaking honestly. I got to dive a lot, pretty much on a weekly basis during my PhD thesis research. And ironically or maybe coincidentally, I don't know, I mean there was a group from Harbor Branch Oceanographic who had a field -- they had a field station at Pennekamp Park and so they were working on... So Phil Dustan, Karen Lukas, there were four or five of them who worked for Harbor Branch but actually were in kind of a trailer at Pennekamp Park and went out

and were doing monitoring of the reef, so working on corals and algae as well. So I used to go diving with them quite frequently.

JF: At that time, what were your expectations for what you might do after you received your...? [00:33:00]

SP: Yeah. I knew I wanted to stay in research and academia although -- because initially when I was under-- my master's -- for my master's degree, I figured I'll go back to New Jersey, I'll work for the equivalent of the environmental -- the department of environmental protection. So that's what I figured I was going to do-- be involved in some way with environmental protection. But then, by the time I was doing my PhD and thinking about what I wanted to do after that, I was pretty sure I wanted to continue doing research in an academic environment.

JF: Well, you received your doctoral degree in, let's see, '77?

SP: Nineteen seventy-seven, yes, and then I stayed in Miami for about another couple of years doing a postdoc and again working on some environmental aspects, [00:34:00] kind of pollution in Biscayne Bay, monitoring communities of sponges-- in my particular case, sponges around these kind of, at ocean outfall areas. We did a lot of diving in some fairly polluted waters.

JF: Well from there, you went over to the Eastern Shore of Maryland --

SP: Right. So --

JF: Horn Point Lab, University of Maryland Lab --

SP: University of Maryland Horn Point Environmental Lab. I was on the research faculty there and was conducting research on sponges that bioerode oyster shell, so we got some funding again from Sea Grant. Again, I've had a lot of funding from Sea Grant over the years -- I'd say probably the primary supporter of my research for my entire career has probably been NOAA, so through Sea Grant or OER or, you know, different [00:35:00] programs there. We were interested in monitoring and comparing oyster populations that were heavily bioeroded in certain areas and how that affected quality of the oyster meat, growth rates, and so on.

JF: How is it that you came upon this position at Horn Point?

SP: Okay. I was married to someone else at the time, and my husband was recruited to be director of the Horn Point Lab so went with him, so that's how I ended up there at Horn Point. And I was there from 1979 till --

JF: Eighty-four.

SP: Actually ’84 but really till ’88, but typically till ’80--mostly till 1984. Because [00:36:00] then I started consulting for a small company called Sea Pharm that was based at Harbor Branch.

JF: And at that point, you had been involved with sponge research for many years.

SP: Yeah, for -- and part of what I -- when I was -- I would say probably towards the end of my graduate work was right around the time that -- and I knew how to identify sponges, so I mean I had basically taught myself. Plus there was a research -- there was a member of the research staff at the Rosenstiel School who also studied sponges, and he taught me a lot about sponges and how to identify sponges. He had done some research with one of the big names in sponge taxonomy Max de Laubenfels. The name of this research support person was Bob Work, and he was the one who taught me a lot about how to identify [00:37:00] sponges and I very systematic-- And at that time, there was no -- there were no keys -- and I was trying to identify these sponges for my research. So I got pretty good at it and then around, I guess, the mid to late ’70s was when a lot of the offshore oil leases in the Gulf of Mexico started their applications for permits to do that. And in order to drill

or to get approval to drill, you had to do an environmental impact study, and that involved basically trawling and dredging in the area, getting an idea of the biodiversity of that area. And there are a lot of sponges in the Gulf of Mexico and so I was retained by some -- a lot of these environmental -- some of these groups that were doing the environmental impact studies and so I was retained to help identify sponges. So I got pretty good at identifying sponges, [00:38:00] and that's what prepared me, I think, for the job that I eventually got with Harbor Branch. Because I think it was probably in late November of 1984, I got a phone call from a guy by the name of Ed Armstrong who's since passed away, but Ed Armstrong. And he said, "I was referred to you by Klaus Ruetzler at the Smithsonian, we need somebody to help us identify sponges." And I had been doing this kind of as a consulting job to pick up extra money when I was a grad student and so on. So I went through the whole procedure, "How many sponges are there, how are they preserved, when do you need the IDs, what's this for?" that kind of stuff. And he said, "No, no you don't understand. We just recently over the last few months started a program in drug discovery -- marine natural products, drug discovery. And we're finding that

[00:39:00] there are a lot of sponges, and we're going out and doing these collections, and we need some help in figuring out what everything is." So now it started getting kind of intriguing. I'm like, "Oh, okay, that sounds --" Now, at this point, I was living in State College, Pennsylvania, and still working doing some -- you know, doing work at the Horn Point Lab but living in State College at the time. And it had just snowed three times, I think I had already shoveled off my sidewalk three times, and I said, "Well, sure, what do you -- when you do you want me to do this?" And he said, "Well, it's really short notice, but we have an expedition going to the Bahamas in a week, and we would like you to join us, and we're going to be using a submersible," and I'm like, oh my God, this is like amazing, and I'm trying to control, I'm like, "Phew, Send me a ticket," so I started. So I went out on the [00:40:00] first cruise, and it was on the smallest of the research vessels at Harbor Branch called the Sea Diver and using the Johnson Sea Link. And I was like, wow, this is so cool because I was familiar with deep-sea sponges but only from the literature, and from literature, from like the 18-- the mid 1800s where they had these beautiful color prints or color drawings of sponges that had been dredged

up from the bottom that I knew didn't look like that because I had been out on expeditions when I was in grad school. Actually, we did an expedition along the Mid-Atlantic Ridge, so I knew what these sponges looked like when they were dredged up and then just actually to be able to see them in deep water, it's like, oh, my gosh, that's -- it really does look like that. How these taxonomists at the time figured that out is beyond me and the color -- even the color. Again, I knew [00:41:00] from dredging up sponges that by the time they got to the surface, they were gray and muddy, so it was pretty cool. But I was really concerned because it was -- the way these collections -- with the submersible, very specific, you can pick up one thing at a time, so really specific, but they were also diving. They were chemists, and they were -- you know they're -- it's like they come back with a goody bag full of sponges all mixed up, and I'm like, oh my God, what are these, you know? After the third day, I was so upset, I'm like, "No, you can't collect all this stuff, not this way," so... But that's what I was there for. I was there to help them with their -- how to collect. How do you collect things, how do you separate things, how do you preserve things? And so I started going out on the

expeditions for the first... So the first year, they put me on retainer for like a hundred days and so I was going out doing the -- helping with the collections, [00:42:00] getting the collection protocol in place, how to record all the data, how to put the data in a database, how to keep all this organized, how to -- write software to generate labels, so you don't have to handwrite out labels, just stuff like that. And that was at the time when Harbor Branch was still a private research institute, and they were funding a lot of ship time, so we got a lot of ship and submersible time. So the first year, it was -- that was '85, 1985, it was like a hundred days a year and then by '86, I was going out like a little bit more. And by '87, I was spending three weeks in Florida, not at sea the whole time but just working and helping the chemists say, "Okay, well, we found something active in this species. I suggest you look at these others because they're related," and so we worked together. [00:43:00] It was really, it still is a really fantastic team. It's a multidisciplinary and interdisciplinary team, so we really had to work together. We would focus the collections, target the collections. I was responsible for identifying things that were active and then saying, "Okay, here's what I think you

might want to take a look at." We had natural products chemists, cancer cell biologists, virologists, microbiologists, and we all worked together really as a team and learned from each other. So it was and still is a really rewarding experience because you get to learn so much more and think about how do you apply, how do you apply sponge taxonomy to the discovery of novel natural products so that-- So then, after I was spending like three weeks out of every month [00:44:00] in Florida, and I said, "You know, maybe you guys ought to offer me a job," and they said, "We've just been waiting for you to tell us you were ready to move to Florida." Because I didn't really -- when I was in Miami, I didn't really like Miami very much, and when I left, it was like, oh, I'm not going to [move?] back to Florida, so here I am 30-plus years later still in Florida.

JF: Well, when you went to Florida then, it was for the work with Harbor Branch --

SP: It was, yes.

JF: -- natural product--

SP: -- specifically for the drug discovery program.

JF: And prior to that when you were consulting and I guess your first dive was several years before that?

SP: Yes. So my first submersible dive? Yes. So actually, my first submersible dive happened in Jamaica, and it was at the time when they -- there was a submersible there, and I was doing field research in Jamaica as well. So this was maybe about 1982 or ’83, I’m not exactly sure [00:45:00] of the year. But there was a submersible there, and I got to dive in the submersible for the first time there, and I think it was one of the Perry submersibles, and that kind of hooked me on deep-sea biology. So when I was told, “We’re going to have the submersibles out,” I knew about the Johnson Sea Link submersible, so it was like, oh, my God, this is really an incredible opportunity. And for sure, I would say that was the hook that got me to go there in the first place. And I think probably for many of us who are still at Harbor Branch, it’s the hook that kept us there for as long as we stayed because it was just incredible opportunities to do some exploration in areas, and not -- there are not that many human occupied vehicles to do that type of research, so incredibly lucky.

JF: And at that point, had you done [00:46:00] any collection work using remotely operated vehicles?

SP: No, no, and in fact -- no, it was only -- let me think. No, I had not. So my first experience using remotely

operated vehicles was actually at Harbor Branch. And part of the way that developed was that our -- we had self-rescue capabilities for the submersibles. A lot of self-rescue capabilities, primarily prevention getting entangled because there had been the accident with the Johnson Sea Link before it was owned -- while it was still owned by the Smithsonian. And so there were a lot of safety procedures that were in place. Primary was prevention, so having well-trained pilots and crew to avoid getting into situations where you would get entangled but also other things that were [00:47:00] incorporated into the submersible design. So the thruster blades were like kind of Cuisinart blades, so there was like a -- if a line got tangled and it got caught in it, it would get cut, and self-rescue capabilities where we have what was called the [downhaul?] retrieval system. But one of the self-rescue capabilities that Mr. Johnson -- Seward Johnson Jr. wanted to bring on was to have a remotely operated vehicle out there at all times so that whenever there was a submersible in the water, we had the capabilities to deploy an ROV for rescue. So having that, then we were tasked in the drug discovery program to see if we could use the ROV -- we could multipurpose the ROV, so if we could use the ROV for

collections as well, so I was involved. In fact, that year, I actually was at sea for a hundred days that year. I don't remember what year it was, but [00:48:00] we spent a hundred days testing this ROV and being able to modify it, develop tools for it, so we could use it to collect as well. It was tough because it was on the smallest ship and we were in -- the control room was actually in one of the storage areas that they use, so we were... And I get seasick, so it was -- I was popping a lot of scopolamine at the time and to -- but it was tough work. And it was okay, but we had been spoiled by the Johnson Sea Links and we're able to -- I -- you know, we all -- my report from that was that we should stick with the Johnson Sea Links because we were much more productive, we were much more precise, we could collect things more quickly, and that, [00:49:00] and it was more fun too. I mean you're down there, you can see all of this stuff and have a better view. So ROVs have definitely advanced a lot more since then in terms of the capabilities where the camera is all around, so you've got that almost 360-degree visibility that you have in the Johnson Sea Links. For me, having the experience of being in the JSLs, in the Johnson Sea Links and knowing that it's not just what's in front of me that I'm focused on, but I

need to be looking there and there, and having a pilot next to me. So while I'm looking over there, he's saying, "Oh, did you see that over there?" That experience I think made me a better ROV -- you know, like better able to use the ROVs because I knew that I had to not only focus on [00:50:00] at the -- just what the cameras were [facing?] [spacing?] right in front of me. But it's like, "Okay, can we turn around a little bit this way and see what's over there, can we turn around a little bit this way and see what's there?" And I've asked my colleagues about this too who had a lot of experience in the subs, and they said the same thing -- That having that experience and being there and knowing where you should be looking really helped us to be better at exploration and collections using remotely operated vehicles.

JF: That's very interesting. So I want to talk with you a bit more about your experiences when you were at Harbor Branch, but let me back up a bit. There was a period in your CV from '88 to '94 where it wasn't clear to me whether you were --

SP: What I was doing, okay. So yeah, okay, so from '88 to -- okay. I actually was part of the -- it's called the Sea Pharm, S-E-A P-H-A-R-M, [00:51:00] and it was like a

subsidiary but a for-profit company that eventually ended. And so some of us worked for Sea Pharm, some of us worked for Harbor Branch Oceanographic and then eventually, I think actually it was... In fact, I was working for Sea Pharm until early 1988. So when I was a consultant, it was a consultant for Sea Pharm. When I moved down to Florida in February of ’88, I became an employee of Harbor Branch at that time. So I was in charge of collections, so during that period of time, so I would say from ’88 till maybe ’90 or ’92, -- I’m trying to remember when it was -- I was really in charge of the collections program. So we had a little department, like department chair or something, not a chair but, oh, group leader. I was a group [00:52:00] leader of the collections program, then I started getting promoted, so. (laughs) So then, I became a division director of the drug discovery program but still doing research. So that was during that period from like ’88 to ’90 or ’92 that then start-- I also started, at that point, my own research program within the collections group where really I was looking at sustainable production of compounds. Again, I was -- never lost interest in sponge cells, sponge cell biology, so I started a program there to look into whether or not we could produce these compounds

in vitro but then became director of the drug discovery program. I honestly don't remember how long [00:53:00] that was, probably about four years, and then went through a period of, again, being promoted up director of research -- VP for research at Harbor Branch and then eventually CEO -- president and CEO of Harbor Branch. And I was in that position probably for about five years, I want to say, and then when we became part of FAU in 2007, less -- the end of 2007, then I stayed on as... I wasn't really president and CEO at that time because now we were part of the university but as head of -- director of Harbor Branch for another -- for about another year and then they replaced me with their pick of who they wanted to be in charge of Harbor Branch, so --

JF: So tell me about that, if merger is the right word, that partnership or merger with FAU. [00:54:00] What was that --

SP: Right, okay, so what happened was in 2004, Seward Johnson Jr. who had been chairman of the board of directors of the Harbor Branch Foundation, which provided support for Harbor Branch, he decided to retire from the board. At that time, there was an endowment that his father, Seward Johnson Sr. had set up, the interest from which was what supported our

operating expenses. I was going to say we're very much like MBARI, but MBARI is very much like Harbor Branch because the way it was set up was that our founder did not want -- you know, they did not want us to go outside to seek support for our research. They were going to provide support for our research. The goal was for the scientists and engineers to work together, develop new tools for deep-sea exploration. [00:55:00] So that was actually part of the Harbor Branch -- our whole history was developing tools and technologies and the science for deep-sea exploration, so... But when Mr. Johnson Jr. retired, he decided to move the -- to take the endowment. So the endowment that we were living -- the interest from that endowment that we were using for operating was no longer there, so... And the funds, the endowment that was remaining was not enough to generate enough income to support ongoing operations. Mr. Johnson Jr. had been preparing us for this because when he took over when his father passed, at that point, we were mandated to go out and seek [00:56:00] support from agencies and other foundations. So we were already doing that and so part of our portfolio was already coming from grants and contracts and we were doing some research for pharmaceutical

companies for the drug discovery group. But clearly, it wasn't enough to support ongoing operations and so we started -- the board of directors started looking for other options to provide support, ongoing support for Harbor Branch, and that's how the partnership with FAU emerged.

JF: And at the time because that was more than 10 years ago, how did you -- what was your vision of how it might work going forward?

SP: Yeah. I can tell you about my vision. [00:57:00] My vision was to -- that we would be able to continue doing research. We would be able to continue going to sea. We'd be able to fund our sea-going operations, and expand -- basically expand our geographic footprint as well, so we'd be able to... We already had an informal relationship with FAU and also with Florida Tech and so we had students, we could mentor students. Many of us were adjunct faculty already at Florida Atlantic University or Florida Tech, so we had graduate students. But really our vision was that there was going to be eventually like an oceanographic institute, like a whole program in ocean science with undergraduate and graduate degrees in ocean science, and actually we have -- it has led to that. It's taken about 12 [00:58:00] years to build that up. Now, our goal was to

be able to be more involved in a formal way in graduate education. It's taken a while to realize that vision but our -- we have a master's program in marine science and oceanography that started about two or three years ago. Right now, the PhDs are offered through biological sciences integrated biology. So, the PhDs are in integrated biology if you have a marine science biology research project that you're working on.

JF: Well, that's all very interesting, and leading up to that period of time, your roles began to shift. As you said, you're beginning to move --

SP: More towards administration.

JF: Exactly. So division director for the biomedical marine research and then [00:59:00] vice president and director of research and now --

SP: Research, yeah res--

JF: Yeah. Did you see that coming?

SP: No. No, but I mean I -- no. Because for each of these trans-- except for the VP for research, the transition from my group leader position in -- as collect -- in charge of collections to division director was because of a change in leadership that was mandated by the board of directors. So I kind of went in as an acting, acting and then became the

director. And in fact as a director, I was acting director for a while, for a long while, and I said to my boss at the time, "When are you going to start doing a search for the division director? I don't want --" you know. Finally after a year, I said, "You need to get -- this is acting, this is an acting position, I don't want to do this" and so they [01:00:00] hired someone. They did a search, hired someone. He was there for maybe, I don't know, a year and a half, two years, moved on to something else, and lo and behold, here I am acting again. It was always kind of like an acting thing. The only one that wasn't was the VP for research because then, at that point, I was much -- I was really as division director. At that point then we had another division director and so I was back to doing research but my boss -- as division director, we did a lot of interactions with the other divisions, so we were really trying to do cross-division projects and programs, and so... So that's why, in fact, the position was created so that we could do more interdivisional work and help [01:01:00] to develop a strategic plan where we'd work together more collaboratively among the divisions. And then the becoming director of -- present and CEO of Harbor Branch was again an acting thing. There was a change in

leadership, I was asked to go in as an acting director of the institute, and then it morphed into being there for more than an acting thing. So it was never something that I really aspired to do. I love doing research, and actually now that I'm not doing administration anymore, I'm doing research, and I'm just loving it, really loving it.

JF: Did those stints in the administrative role or the acting role, did it change your perspective?

SP: Yeah. Yes, it did. I will say that it gave [01:02:00] me the opportunity to interact more. It gave me the opportunity to see how science was run as a business. What you needed to do to -- helping -- like as a director and trying to figure out where is our portfolio coming --? You know, we need to have a diverse portfolio, we need to have some grants, we need to have some contracts, we need to get some foundation support, that type of thing. So that, it really helped me a lot in developing my own research program that's been continually funded and mentoring others to develop research programs as well. So it just broadened the opportunities that I had to interact at that level with others, which is how I got involved in the President's Panel and doing work for the National Academies and things [01:03:00] like that that I -- you know? And even in terms

of just different organizations for marine labs, National Association of Marine Labs, the Southern Association of Marine Labs, things like that and getting into leadership positions in those organizations as well. It definitely broadened my perspective of ocean science, the value of ocean science, applications, why we need to be able to demonstrate why what we're doing is not only interesting, but important.

JF: Well, and through those years, you had also begun to work quite a bit more directly with the pharmaceu-- Pharma right, the pharmaceutical industry?

SP: Yeah.

JF: So tell me a bit about that dynamic and what that was like for you to really begin working with that industry?

SP: That was actually pretty interesting as well because [01:04:00] as we were -- as chemists we're discovering things, the cancer cell biologist were discovering activities, and the culture at Sea Pharm first and then at Harbor Branch was to make sure we patented our discoveries, so we could protect them. Because the goal was to be able to get them -- was to develop a drug and to be able to license that discovery and have a pharmaceutical company develop it. So we started getting more and more involved

primarily through the collaborations of our chemists. So a chemist would go to meetings, present papers and posters and the publications, and that would generate interest from the pharmaceutical companies. And so that was when we started getting some research support from pharmaceutical companies, so provide support for discovery just to be able to send some of the extracts to [01:05:00] pharmaceutical companies. They would screen the extracts as well and work together closely in the discovery process as well. So we had quite a few interactions with Pharma both with big Pharma and with small biotech companies.

JF: Mm-hmm. Tell me, during those years as well, that's -- of course in 2000, that's when the President's Panel on Ocean Exploration was convened and president -- then-President Clinton directed the secretary of commerce to convene a panel of America's finest ocean explorers, scientists, and marine educators to develop a national strategy for ocean exploration, and one in which discovery and the spirit of challenge would be the cornerstones. In that report, it discussed the renewed interest in marine bioprospecting over the past two decades and that we had barely begun to tap the potential of the world's oceans. So in respect to natural product discovery and [01:06:00] bioprospecting,

what were your expectations then in 2000 of what such a national program could really provide the country and really the world?

SP: Yeah. So I think in terms of like what we now call the blue economy, back then looking at for -- drugs from the deep, drug discovery, what I thought was that since we knew that biodiversity in the ocean and, especially in the benthic environments where I was most familiar and where I did most of my work, it was incredibly diverse. And that biological diversity was what was underpinning and forming the basis for the chemical diversity that we were seeing and the discovery of novel natural products with pharmaceutical potential. And so my goal in when I -- like an expanded exploration program would give us broader access, greater access to that biodiversity. [01:07:00] And being able to carefully and systematically sample that biodiversity and evaluate it for the development of bioproducts whether they were pharmaceuticals or fine chemicals or enzymes or pigments or things like that. For me, to me it was like an opportunity. If we're going to be expanding exploration, it's going to open up way more habitats and environments for us to explore and to care for -- and I use this word care for, and deliberately exploit

but basically sustainably use those resources. And I found myself in a room with like legends, people I had looked up to. It's like, oh my gosh, I'm in a room interacting with people who were famous ocean explorers, so it was really, really interesting. And I've developed [01:08:00] long-term relationships with these individuals where we interact, we talk to each other, we bounce ideas off of each other to this day.

JF: Well, it's been two decades now since you met.

SP: I know.

JF: How far have we come do you think in terms of meeting those goals?

SP: I think we've come really far in meeting those goals especially when you consider that we have a dedicated program within an agency focused on ocean exploration. And the efforts that NOAA has taken to keep that program going for all of these years, I think it's just been incredible. I'm not sure any of us would have predicted that we would have been able to get congressional support and agency support, presidential-- you know, the support [01:09:00] across the board to keep -- for exploration. And that the biggest concern was, well, these scientists are just going out on a whim and doing things, and what's the value of it.

And I think it's taken a while to be able to demonstrate why this is important, but I think now that -- the legislators, the sponsors, they get it, they understand. I'm not sure that the general public completely understands yet what the value is, but I think we're getting there. And, of course, that report led to the National Academies' study as well, so it was kind of like a double whammy. So having the President's report and then the National Academies' study that Congress supported was really, I think, helpful in getting this all started because the -- between the President's Panel and the Academy [01:10:00] recommendations, that really laid the groundwork for establishing exploration programs.

JF: And I believe you were vice chair?

SP: Yes, yeah.

JF: And I'd like to talk about that and your experience with the Academy and the National Science Foundation, but before we do that, let me ask you. There was a period of time, I think it was in 2009, that there was a new Cooperative Institute-- Ocean Exploration, Research, and Technology, CIOERT, and you -- a competitive?

SP: Yeah, yeah.

JF: -- a competitive opportunity-- which you were awarded --

SP: Yeah.

JF: -- and became executive director of. Tell me about that --

SP: Yeah. It was almost like a David and Goliath thing. It's like we really should apply for this, we really should apply for this, you know, we really should apply for this, and it's like thinking about this, oh, gosh, and... But we knew that Woods Hole was going to apply for it, and it's like, how do you compete with -- how do you compete with Woods Hole and -- you know? [01:11:00] But we did it and we -- it was... We sought advice from colleagues who were also -- who also had cooperative institutes or succeeded in getting funding from cooperative institutes. I honestly didn't think we were going to get it. Really, I was just stunned, absolutely just stunned that it was like when I found out, I was like, oh, my God, I can't believe it. And the timing actually worked out pretty well as well because that was -- I think we may be found out in April or May, I don't -- I'm trying to remember. I think I was in the Netherlands at the time teaching but it was -- so maybe even in March of 2009, but that coincided exactly with when there was a change in leadership at Harbor Branch. So I was no longer director of Harbor Branch, so I didn't have that. [01:12:00] Because I was really thinking, how am I

going to do -- how am I going to like run this Cooperative Institute, run Harbor Branch? So it worked out all for the best during that. It was pretty cool. We were just shocked, very pleased about this and -- but not expecting it at all, so... Yeah and so I directed that for nine of the 10 years. We're actually in a no-cost extension right now, but at that point, I thought it was -- because we weren't sure if we... So we went through the five-year review and then we got renewed for another five years, so yes. So then, at that point, I was thinking, okay, maybe I need to step back especially if we're going to recompete, if we're going to compete again because I knew I was not going to be the one who was going to be doing that. And I thought it would be a good idea to step back and have [01:13:00] a couple of other people, the opportunity to go in and manage the Cooperative Institute for a year and then be prepared, have that experience. So if and when we decided to apply, compete again for the next Cooperative Institute, that they'd be ready.

JF: So a great challenge, which you took on?

SP: Yeah. It was challenging because even though the legislation couldn't -- even though the authorization was for much higher, the approp--, as we know, there's

authorizations and then there are appropriations. Because I -- I'm thinking that we had this in there for -- I want to say it was like 50 million dollars? I think we had to put in a budget for 50 million dollars. I can't remember but I think it was 50 million dollars. And then to find out, you know, thinking like, well, it's not really -- [01:14:00] no, it wasn't 50 million. It was 22 and a half million for the five years, so over 10 years, yeah. So it was 22 and a half million dollars, and that's what we put the budget in for. So I was very naïve, and I thought, ah, this is great, we're going to get two and a half million in year one and then 5 million dollars a year for the next four years, this is great. The reality of the situation was that, of course, a budget wasn't approved for NOAA that that was great and that was that high, and then the budget for OER was not that high. So instead of getting two and a half million, we got like maybe the first year, maybe, I don't know, one and a half million, something like that. And so it was never up to that level that we were expecting. And the Cooperative Institute is four partners, so we had University of North Carolina at Wilmington as our primary partner and then we had SRI International for technology and University of Miami for ships and some of

the educational programs as well, [01:15:00] so, but we made it work, you know, we made it work. We were able to leverage a lot of support and just worked within the constraints of the budget and making sure that we were meeting what NOAA's expectations were, what were NOAA's needs, because it's a cooperative institute. You're working to provide expertise, capabilities that are not available within the NOAA [lab?], so to work in a collaborative way to -- how do we provide the support for OER. So it worked out, it worked out well and then the second five years, the funding level increased as well, so it was good, and we retained the same partners over the years, had a number of collaborators as well. So it worked out, it worked out pretty well.

JF: We have [01:16:00] more to talk about, but let me ask you, would you like to take a break? It's 11:20.

SP: No, I'm good, I'm fine, or do you need to take a break? Would you like to take a break? I'm good, I'm just going to -- yes, me too, I'm going to have a little sip of my tea. I talk too much, so just cut me off when you're ready to --

JF: Oh, not at all.

SP: You have a lot of editing to do.

JF: So you mentioned your work in the Netherlands at Wageningen.

SP: Wageningen, yes.

JF: Your title was special professor, and you were actually traveling to the Netherlands --

SP: Mm-hmm.

JF: -- to teach --

SP: Yeah, I've been teaching a class in marine biotechnology there. I think this was my 12th year that I taught. It's the first year that I had to teach it virtually but 12 years. And that really came about at a marine biotechnology -- an international marine biotechnology conference. [01:17:00] I am the one and I would go to those. They had them every other four years. And this one was in Italy, and I had the opportunity to... It was very unusual the way they had this conference in Italy. They took us to different -- bused us to different places along all of the -- like Southern Italy. It was really interesting. We would, kind of, sightseeing but going to places like biotechnology companies and universities and research institutes and then have our -- and then go get bused some place, have a wonderful meal, have our meetings at night, so there was a lot of time during the day to talk

to the participants. So I had the opportunity to meet René Wijffels, and he was in charge of the biotechnology, the bioprocess engineering program at Wageningen University and -- but working on sponges [01:18:00] and so we were really -- we really started a collaboration at that point -- I want to say it was in 1998 -- and started working together. I had students coming over from the Netherlands doing internships in my lab and then I was invited to help teach this -- a marine biotechnology class that had a few sections, one on metagenomics, one on product discovery, chemistry, and one on sponge biotechnology. So I contributed to that for -- I taught the sponge biotechnology section for many years and then was invited to apply for a special professor position there. So it's an actual position, a five-year appointment. Typically, it's for people who are in industry in the Netherlands, and they actually go and spend one day a week [01:19:00] at the university and mentor students or teach, or do things like that. Because I live in the United States, the expectation was still that I would spend 20 percent of my time on this collaboration, but I didn't need to go over -- be there 20 percent of my time. But I was in the begin-- And this was a collaboration between the Harbor Branch and Wageningen

University, so... So I started teaching classes more regularly, going over more regularly, and mentoring graduate students but PhD students and master's students. So I've had a long series -- several master's students and three PhD students from Wageningen. And that's continuing; I'm still doing that.

JF: So during that same period of time, you've been able to check off a few very exciting things from your bucket [01:20:00] list.

SP: Yeah. So professionally, there were three things on my bucket list that I really wanted to do: One was to dive in the Mariana Trench, but of course, there were only, at that time, I think, what, three -- well at that time, only two individuals who had gone to the bottom of the Mariana Trench and then later three, and now, there are more than that of course. I really wanted to, that was on my bucket list to be able to do that. The second one was to be able to do a saturation dive in the Aquarius underwater habitat and be able to live underwater and then the third, which is no longer on my list, was to dive under the ice in the Antarctic. Because there are lots of sponges in the Antarctic as well, so I was really [01:21:00] interested in doing that. But what soured me on that, well first of all,

I hate being cold. I'm definitely a warm water diver, but what kind of soured me on that was at the time that I was really interested in doing that, you had to go through this training because you went through the NSF facility there, and you had to do -- and regardless of whether you went through there or through New Zealand because, you could go through New Zealand as well, you had to do this training. And at the time, it was really weird. I mean at the time, I think you had to be able to spend one night outside like in some kind of tent or something, but you also had to do this crevasse training, and I have an intense fear of heights, an absolute, intense fear of heights. So for me, the thought of having to look down a crevasse and be able to have to climb... So there's just absolutely no way I'm going [01:22:00] to do this, no way, so I just -- that got crossed off of my list. But because of being involved with the Cooperative Institute and Ocean Exploration and Research, I had the opportunity to do the other two things. So I had the opportunity to go out on the *Okeanos Explorer* and work in that whole Mariana -- on that expedition, which was just like a life-changing experience. It was just incredible. Those of you who know me know that I am not -- I was dragged kicking and screaming into doing work with

ROVs because I just never had really good experience with ROVs. I'm a believer, I'm definitely a believer now. I mean, I see the value in this and having that kind of -- being able to do ROV [01:23:00] exploration with others in that same room saying, "Okay, well Patty, what do you think that is?" or being able to say -- like phone a friend, which I thought was totally cool being able to call on people and say, "Well, what do you think this is?" Or the sea star would show up and then Chris Mah would call in. So that whole experience of being on the *Okeanos* was really totally cool. When I went on, you know, I thought -- well, of course, again anybody listening to me knows that I don't have problems talking, but I thought how am I going to talk for eight hours? There's an eight-hour dive, how am I going to keep this dialogue going on? But fortunately, I had Patty Fryer, and she's as much of a Chatty Cathy as I am. So between the two of us, we had no problem with that, but I was really concerned. It's like, well, I know [01:24:00] sponges, but I don't know deep-sea sponges from the Pacific, I don't know hexactinellid sponges, these glass sponges, I surely don't know the deep-sea octocorals or things like that. How the heck am I going to do that? But that's where having this telepresence-enabled

exploration really pays off because you've got people all over the world who are either phoning in or chatting, and you can call on them and say, "Tell us a story about this," so just really an incredible experience. I will say I was overwhelmed when I first went in and I saw all of these -- the keyboard in front of me and all the different screens and how do you --? You're talking to the pilot; you're not supposed to talk to anybody by their first name. You say, "Pilot, this is science one or science lead one." You don't say -- you know? And at the time, my [01:25:00] husband was out there and so I couldn't say, "Don, could you please do this?" You're just saying pilot or copilot or navigator or something like that. And everybody is talking and so you've got, again, this -- it's only the first couple of days that this is happening because then you get smart about how you're -- what you're supposed to do. I'm hearing the bridge, and I'm hearing the pilot talking to the copilot, and I'm hearing navigation, and somebody's talking about the videos that they're taking. Meanwhile I've got text messages coming in, I've got -- I'm on the computer, and people are emailing me, we've got the chat, and we're supposed to be paying attention to what's going on. And very kind of a prescribed way about how you

communicate so that you're communicating properly and trying to get -- figure out what the heck is going on. And that lasted, I want to say, maybe two or three days, then I started turning buttons off. I think probably by the end, [01:26:00] there were -- I probably only had three lines open, where you really need -- these are the ones you have to leave open. But I don't need to talk to the bridge, I have nothing to do, so I turned off the bridge. I don't need to be talking -- it was only when you needed to talk to somebody, you turn that button on and then you can open up that line of communication. It was really, at first, overwhelming but then just you're totally immersed. And I think that people don't realize that when you go out to sea, it's like you're on call 24/7, so... Even though the dive from launch to recovery was about eight hours or 10 hours, you're up early preparing for that. When the ROV comes back up on deck, there are samples that have to be processed, so you're spending hours doing that. You're working with the videographers to select [01:27:00] the best of for the day. You're putting all this together, so you can send a little report out to everybody who was following the dive and those who had signed in to follow the dive but hadn't followed the dive, so you're trying to

give a summary of what was going on. Patty and I took our responsibilities really... We were careful about that, and we wanted to make sure that we were doing a good job on behalf of the community because we were representing the community. We weren't chief scientists; it was a distributed network of scientists involved in exploration. It was unlike anything that I had ever done before because my experiences were as being a chief scientist or one of the co-chief scientists on an expedition doing my work, not work for the scientific community.

JF: Oh, [clears throat] excuse me, a remarkable, remote [01:28:00] experience then?

SP: Yes, and also coming from the culture of where it's like, okay, I'd like to collect that sample, let's go ahead and do that. Our job was to cover a certain amount of territory and explore and so a lot of times, we were being moderators as well saying, "Okay, well, we can't spend too much more time on this, we need to move on." And as well, saying -- trying to say, "Okay, we can only collect like four things, and if it takes a half an hour to collect something or --" you know? Now we've used up maybe two hours of our time, and that's cutting into what on a deep dive may have only been a six-hour dive to begin with or a

four-hour dive to begin with. So you have to kind of weigh all of that -- what are the needs, is this something really novel that we've never seen before, is it something where we actually need a sample to be able to identify it, and then just all the new stuff that we were seeing that I had never seen before. So it was, yeah, a very, very [01:29:00] interesting experience, and one -- I think a valuable experience and one where -- I mean I'm pleased to see that this is continuing because it gives more people the opportunity to share in the excitement of exploration than we were doing before. I hate to use the analogy of space, but you've got to engage. You've got to engage users. You have to engage the public in things that we think are really exciting. You need to be able to generate that excitement. And so being able to share that through telepresence I think was a huge advantage and one that was -- that would not have been as easy to do using manned submersibles, human-occupied vehicles because you're getting that where you can see that there's -- using fiber optics for example to go through, but then you've got that concern about, well, is that going to get [01:30:00] tangled up in something? If you've got people in the submersible, and you're down deep, and you've got lines

going up to the surface, there's always that concern about entanglement and safety issues. And so I think part of the reason why there was less of an interest in doing manned-undersea exploration and more of an interest in doing -- using remotely operated vehicles was because we could engage more people in that process.

JF: It sounds like that was really a once in a lifetime kind of opportunity. And you mentioned space, which you had another remarkable experience closer to home and in shallower water. That was also on your bucket list.

SP: Right. And again, I had the opportunity because of the Cooperative Institute. And I'm going to give a shout-out to Alan Leonardi because it was Alan who really supported this. [01:31:00] Two of the projects that were supported by NOAA through CIOERT were development of technologies for sampling organisms and measuring organisms. (clears throat) Excuse me. One was the device called CISME the Coral In Situ MEtabolic Analyzer, and it was one that was developed -- an instrument developed by Alina Szmant and Rob Whitehead at UNCW, University of North Carolina Wilmington. And what this allowed divers to do was to take this instrument and put it over top of a coral, made a very gentle -- it [there?] was a soft gasket, so it didn't

damage the coral, but you could isolate out a small area. And actually, I have this big thing here, but it was a small area of the coral and then monitor photosynthesis [01:32:00] and respiration, so it was kind of an incubation chamber, really, really interesting. It's actually now commercially available as well. So one of the, I think, big success stories in terms of like technology-readiness level, that's one of the words actually out and being used, but it wasn't being used for -- actually till the Aquarius mission, it had not been used in deeper water. So we were interested in seeing how deep we could go with it and then the other -- and if we could use it on something other than corals. So I was interested in seeing, could it be used on bioeroding sponges. So we've got these sponges that are bioerod-- so I'm going back to my roots and my PhD research. Could we measure sponges that were bioeroding, growing into coral skeletons and look and see? And we were comparing two species of bioeroding [01:33:00] sponges -- one that had dinoflagellate symbionts and so there was some photosynthesis involved, and one that did not. And so our goal was to see if we could, number one, use it -- how well it worked in deeper water and, two, how well it worked for other organisms besides corals. And then the other

technology that we were developing, again with the ultimate idea of getting it on to an ROV, was a rapid, small volume biological sampler. So being able to take a biopsy if you will and so because I saw how long it was taking to collect a sample because you're -- when you're in an ROV-- and it has nothing to do with the skill level of the pilots, they're very skilled, but they're on a -- the ROV is on a tether, maybe being dragged by the ship or a current. You have to get yourself in position. You can't just kind of plop right on the ground [01:34:00] like you could with a submersible for example, or move into a wall and position ourselves and steady ourselves. You're moving all the time and so trying to go in and steady yourself over a sample and then be able to surround it with a collecting tool and collect it. It was a long time to set up. And so I thought wouldn't it be good if we could have something where it would just be like a little biopsy. You could go in and take a small sample when you needed a sample for molecular analysis and so on and then have that retained in kind of a quiver if you will or a sampler where you could then bring those back and so not have to spend as much time. So we worked for a while on developing a handheld unit that could be used. And so part of what we wanted to

do -- in fact, the initial thing I wanted to do on Aquarius was to be able to use that sampler and to test that -- do some field test on that sampler. I had the opportunity then [01:35:00] to be part of a NASA project called the NASA Extreme Environment Mission Operations or NEEMO. And it was through the developer of the -- what we called the Stinger, the handheld biopsy unit that I got that introduction because he was working with some people at NASA and some other projects as well. So I submitted an application to be part of the NEEMO team, and NEEMO has been -- that was -- we were NEEMO 23, so it had been -- there were 22 other missions on an annual basis. The whole idea is it's an analog for space exploration and so it gives NASA the opportunity to put astronauts in a small space for a certain period of time, see how they respond working in close quarters with others in an extreme environment, [01:36:00] being able to make excursions like extravehicular activities, so making excursions out of the habitat. But it also gave NASA the opportunity to develop some tools and processes that then they could -- so they could develop them in a relatively safe -- in a safe environment before they would deploy them on the Shuttle or the space station for example. Like you have a small

space, you have a lot of stuff to store, you put stuff away, and then how do you find it? So one of the things that we tested during NEEMO 23 was they put these like little RFIDs on everything so that we could figure out where everything was, but we tested a bunch of things. But NASA was really interested because they wanted the astronauts to be able to get experience using tools for planet like lunar or Martian exploration. They were really interested in the CISME unit because it was kind of [01:37:00] similar to some of the geological samplers that they would have. Although I asked about the Stinger, they said, "Yes, but can you bring along the CISME as well?" It was a really interesting experience to be able to do that, and I was inside the whole time, so I was kind of like... And also what they wanted to test in this, in NEEMO 23 was the difference between having the scientist whose technology you're deploying during the mission. Up until that point, scientists were not the -- they're not the ones who are the principal investigators for the project. Whatever it is that's being tested, the scientists are not the ones that are on the space station. And up until NEEMO 23, the PI was not in the habitat either. The PI was [01:38:00] back on shore. So they wanted to see -- test

and see what it would -- how it would be if the scientists were actually in the -- on the space station or on the lunar surface as well. So that's the role that I played in terms of the marine science objectives, but it was an interesting. People said, "Oh, aren't you going to be claustrophobic?" I'm like, "No, I mean, I don't get claustrophobic." "So well, aren't you going to be scared?" "No, I've been diving for 50 years; I'm not scared. It's 60 feet deep, what--? I'm not --" I was really, really excited about it. It was just an amazing experience on multitasking, being able to do multiple things at once, having every minute of your day and night scheduled and learning. The other thing they were testing on during that mission was giving the astronauts [01:39:00] the ability to control their schedules. So that never happened before. So we could move blocks of time and say, "Well, I was scheduled this time to do this lunar landing module test to see how focused I could be." Well, somebody else is using it right now because we were late getting back in from the extravehicular activity. So being able to do that. So there were a lot, I mean looking back on that now, I think about how we did a lot of things. Plus I'm such an astronaut groupie, I got to be -- I got to live and train

first of all with real, honest to God astronauts and then actually live and work with them. So one of them was Samantha Cristoforetti who -- from the European Space Agency, and she held the record for quite some time for the longest duration International Space [01:40:00] Station mission for a woman and then, you know, it's been broken since then. And then the other person, the other astronaut was an astronaut candidate -- she's an astronaut now -- Jessica Watkins, and she was just completing her astronaut training. And then the other scientist was -- is a research professor from University of South Florida but mostly working on kind of neuroscience, so looking at how -- behavior. So there were a number of tests that she was running as well from inside the habitat as well, so, and then we had the two habitat technicians. So there were four women and then two men, the habitat technicians who make sure we weren't going to kill ourselves down there -- made sure everything was running properly and stuff, so it was, yeah, really an amazing, an amazing experience.

JF: So in a way, they were -- if you've [01:41:00] heard of this expression before, they were your doppelgangers, your expedition doppelgangers?

SP: Yeah, yeah. And to reflect back on a question you asked me only two hours ago about the coral reefs, and so the -- this is based on a Conch Reef animal, kind of Middle Keys. And of course at night, once we were finished working -- because it was really scheduled when you were finished and then when you could rest for 15 minutes before you went to bed, and it was fine. And sometimes we just did extra stuff because everything was just so totally cool to be able to experience. But one of the habitat technicians was my age, so we were like grandmother and grandfather of the group. I mean for sure, my fellow aquanauts were young enough to be either my daughter or granddaughters [01:42:00] so that's -- you know? I was like the John Glenn. In fact, my husband said, "John Glenn wasn't available so that's why they asked you." One night, the other habitat technician and I sat down, and we were looking out this big porthole, and we were just talking about it because we both had experience diving there 50 years ago. And to look out and see the condition of the reef was just absolutely heartbreaking, really, really heartbreaking. Many nights we talked about that about the -- what can be done -- and the status of the reefs and what can be done to reduce that impact and to

mitigate some of the damages as well. So it was really an amazing experience.

JF: It sounds like it. Now, that was in 2019. [01:43:00] In that same year, you achieved another professional goal, a very significant develop -- to develop a marine invertebrate cell line, a first.

SP: When I first developed this program, this sponge cell biology (inaudible) sponge cell biotechnology program at Harbor Branch, it was with the intent to develop in vitro production of the compounds, so be able to culture the cells and get these -- in this case sponges that were producing the compounds, to produce it in vitro. Well, that's all well and good if the cells will divide, but the cells wouldn't divide. I mean for years, we worked on this and so we had incremental improvements over the years. And I just stuck to it because I just loved what I was doing, I had good students, good lab managers, lab technicians, and we were making improvements but just never -- the cells just wouldn't divide. [01:44:00] I had pretty much given up on it and was actually ready to retire back in the beginning of 2019 or 2018. And actually what happened was one of my PhD students was working on optimizing nutrient medium, and we thought, okay, and this whole part of the

process when you're trying to optimize cultures, and so she did a really good job. She optimized the nutrient medium, she got increased metabolic activity but the sponges, the two model sponges that we worked on in our lab for most of that period of time, 25 or 30 years, it just wasn't working on this particular -- on this sponge. We saw incremental improvements, and then at that point, my lab manager, who's now a PhD student, Megan Conkling said, "Well, you know what --" And we had developed methods to cryopreserve sponge cells so that we could go out in the field, do the collections, cryopreserve the cells, and then we'd have those cells to work on. We had a freezer full [01:45:00] of different species of cryopreserved cells, and Megan said, "Why don't I just try this on these other sponges?" I said, "Sure, go ahead, do it." Well, lo and behold, the cells started dividing. We're like -- you know? And it wasn't the model sponges that we were using and then it's in fact ironically, the two models -- I mean we just chose our model sponges poorly. We had rationale for choosing those, but as it turned out, it was just serendipitous. It just turned out that, you know, Megan said, "Let's try this on these other sponges" and then the cells started dividing, and things that I would have never -- sponges

that I would have never selected to work on because they have lots of siliceous spicules or whatever, were the ones that were just taking off. And in the meantime, my graduate student in the Netherlands was working on a deep water sponge as part of a European Union Horizon 2020 project, [01:46:00] and I said, "You need to try Stephanie's medium on your sponge," and it started just taking off as well. And it was a different species, but the same genus as two species we were testing in Florida as well. And so we've gotten just really incredible results, but we're able to document. So basically, we've developed a cell line, and there are no marine invertebrate cell lines. There are primary cultures, but there are -- I mean not for corals, not for oysters, not for anything. There are no marine invertebrate cell lines except for the sponge cell line. So for me, that was the holy grail of my research program over the years. So I can't retire now because now there's all this cool stuff to do with our sponge cell lines. So we're really working on the appli-- like several applications now, so being able to see can we, [01:47:00] in fact, culture these sponges? And again, this is funded by the Cooperative Institute because we were looking at vulnerable sponge ecosystems. That was one of

the projects and so part of that involved cryopreserving these samples, so we would have genetic material, cryopreserved living material at some point if we needed to go back to either restore or things like that, but with no cell lines. It was just our repository, our zoo, our little sponge zoo, frozen zoo. So now, we're working on, okay, can we in fact, produce these sponge-derived compounds in culture, so we're working on that. That's one aspect of this work. Another aspect of it is can we culture these cells in three dimensions and make little sponges that we can use for restoration purposes? So we're working with [01:48:00] our aquaculture program to be able to grow sponges both for restoration purposes and also maybe for production of the bioactive compounds as well. And then really just using the cultures, the sponge cultures in much the same way that mammalian cell lines are used to test the health of our environment. So we're really interested now, and Megan Conkling who's the one who said, "Let's test this on all these other sponges" is working on her PhD, and she'll be using these cell lines to test the impacts of pH, temperature, sedimentation, other things on different species of sponges that are out on the reefs and being able to use that as a predictive model,

which ones are going to do well at a lower pH, which ones are going to do well at higher temperatures. It turns out this -- [01:49:00] these sponges are pretty resilient to high temperatures. For her thesis, her dissertation research, she's going to be looking at five or six key reef species along the Florida Reef Tract and looking at different things like what stimulates cell division, what causes cells to go into apoptosis, do we have a naturally immortal sponge, are sponges naturally immortal, which is a really interesting question and one that I've been interested in for a long time because sponges have been around for more than 600 million years. There are almost 10,000 described species. They're doing something. They've clearly been successful in their metabolic machinery. And so for many years, I figured, well, the reason we're not able to get these sponges to divide is, first of all, they've got really efficient repair [01:50:00] systems. And so if the cells are damaged, they'll become -- they'll go into programmed cell death or apoptosis and so if they're damaged, they're going to -- and this is what we would see, within the first 24 hours of our primary cell cultures, most of the cells died then became apoptotic. So it's like what are the factors that

are governing DNA repair of the cells that survived, what can we learn from those? But because now we've gotten to a situation where these cells will divide and divide and divide and divide and divide way more than any other cell line, we're hypothesizing that some sponges may be naturally immortal. So we're going to be submitting a proposal to NSF to get some support to test that hypothesis, but we're pretty excited about that. So that's what these [01:51:00] -- for me having the cell line has meant. We can now apply it to in vitro production, habitat restoration, and just being able to identify some of the metabolic machinery that's important in disease processes, so getting -- again getting back to that human disease process thing as well.

JF: Well, congratulations on that.

SP: Yeah, thank you very much. I mean it's really interesting because back when I went to college thinking I was going to be a nurse and selecting a school because, well, I might get into pharmaceutical research and then switching to marine science and then finding myself basically at the... You know when I got that phone call from Ed Armstrong at Harbor Branch, finding myself at the right place at the right time with the right expertise and the willingness

[01:52:00] to step out of my comfort zone and try something different. And never would have imagined that I would have been able to combine my initial interest in biomedical research or health care, if you will, with what ended up being my educational interests and my research interests. So I've been really, really fortunate and all along the way of having great mentors, sponsors who believed in the work that we were doing and being able to have the opportunities to broaden my professional experience.

JF: When I look back over your career and your accomplishments, to this point, it seems like it sort of exponentially just continued to grow and become more successful and lead to new things. And this latest really [01:53:00] creation is perhaps the key that will -- is going to open amazing doors.

SP: Yeah. Well, we're pretty excited about it, and I'm really focused now on trying to get my graduate students focused on this -- you know, start building up a research program that's funded and teaching them how to be successful at doing what they want to continue doing as research. There were very few places where you can go where your employers are going to pay for you to do research. You're going to

have to figure out how to support yourself doing that, so yeah.

JF: Well, you mentioned the science foundation, and I know you've had significant roles with the National Academy and the National Science Foundation. And currently, you're co-chairing an academy study on biological collections. And you were vice chair of the National Academy Committee on Exploration of the Seas. What has it felt like to be part of those two communities?

SP: Yeah. So the National Academy [01:54:00] experience has been also kind of broadening, professionally broadening for me because when you serve on these studies -- when I started on the ocean exploration study, there were quite a few people I knew who were members of that committee. But on most of the others, you're asked to be on studies where you don't know that many people and so you get to know them and what they're doing, what their expertise is. And I also served as a member of the Ocean Studies Board at the National Academies and then chaired it. And again, meeting people that you normally would not -- in my sponge science community, I wouldn't be normally interacting with these people, so again you learn a lot. And it gives you the opportunity -- depending on who sponsors the study, then

you're interacting really closely with the sponsors who are mostly the funding agencies. So as a matter of fact, the National Science Foundation sponsored [01:55:00] this latest study on biological collections and we'll be briefing them. We brief the sponsor; in fact we're briefing them tomorrow. You think about messaging, you think about the audience, and the National Academy studies are -- there are very strict guidelines on how these studies are conducted and how they're reviewed. They go through an intense review process and go back and revise sections, and it goes through re-review, and being very careful about what that message is and what the recommendations are. And the academy studies are powerful studies. I think probably just about every study I've been involved in has resulted in legislation and appropriations for the things that the -- for the items or the -- either the technologies or the programs that the studies recommended [01:56:00] be initiated or enhanced, so... But the Biological Collections Study is case in point. They contacted me a couple of years ago, and they asked if I -- and it's interesting because I manage the collections because part of the drug discovery program involved collecting samples and curating those samples. And we have

a collection of over 30,000 samples that we had as reference samples, so that if a compound was discovered, we could go back and ensure that we had the right identification for it, so we were very -- that was part of what I did. So we had this. It was a small private, considered a private collection not like these big collections that are in natural history museums, things like that. So I was asked to be on it, and I thought, it sounded like -- the statement of task sounded interesting, yeah, sure, I'm interested in that. But I don't want to be chair, and I can see where they were going with this. And they said, "Well, would you consider being co-chair?" I'm like, [01:57:00] "No, I can't be co-chair, I'm too busy, I've got too much to do." And then they told me who the co-chair was, and I had never met Jim. It was Jim Collins from Arizona State, but I knew of him from when he was at NSF, and I said, "Okay," so I kind of buckled under and said yes, be a good citizen and said yes. But the only other person on the committee whom I knew was George Matsumoto from the MBARI. All of the other people on the committee were curators of massive collections or really outside of my community completely. So I guess maybe the academy thought that was probably a good thing because then

we could -- you know? And it gave us the -- most of the... I think except for George and me who knew each other -- George and I knew each other -- none of them knew us, and we didn't [01:58:00] know any of them. And it was a terrific committee to be involved in. It was probably the first committee where everybody contributed, so... And you know how it is on most committees it's like some people-- everyone contributes, but when it comes time to writing, there are just a few people who are going to actually put pen to paper and write -- not so with this committee. We had a lot of input into the report. So it was very interesting and we've been disseminating the report now. We did a webinar with a sponsor, a briefing with a sponsor, we did a public webinar and then our briefing at Congress tomorrow actually. I said we were briefing NSF, but we're not. We're briefing Congress tomorrow. So it's a different committee, different briefings, and you have to have your message tailored for each one. And honestly serving on National Academies studies and other [01:59:00] panels like that has given me the experience to say, "Okay, what's the message that we want to deliver, what are the talking points, what are the -- what's that? What are the things that we want the staffers who may be involved in

providing support for the agencies whether it's NSF or NOAA or USGS or whatever, what is it -- what are the key messages from the report that we want to make sure the staffers understand?"

JF: So a great priming opportunity really. So I know we've covered a lot of ground and I wanted to ask -- I have a few more questions that I wanted to put toward you. Before we do that, are there things we haven't -- well, are there things we haven't talked about that you would like to at this point?

SP: I'm thinking about that, and I actually was thinking about that last night, and I thought there was one thing that I didn't put on there that I wanted to [02:00:00] talk about, but I just don't remember what it was. Let's see. I'm a member of the Women Diver's Hall of Fame, I forgot to put that on there. I was inducted into the Women Diver's Hall of Fame in 2003 and this is the 20th-- this year is the 20th anniversary of the Women Diver's Hall of Fame, and it -- the organization recognizes women who have made some kind of contribution to science, medicine, space. And I was nominated and inducted based on the work that I was doing in marine natural products drug discovery. I chair the scholarship committee. So part of the mission of the

Women Diver's Hall of Fame is to recognize women who have contributed -- as a result of their diving, [02:01:00] contributed to their field. But the other part is to provide opportunities for education primarily in diving-related fields in the form of scholarships and training-- and dive training grants. And I've been chairing that program probably for about 15 years now, so, and we're at our advocation period now. It started out where we were just giving maybe five or six scholarships and grants, and we're up to about 25 now, somewhere around $70,000 or $80,000 a year in scholarships and training grants. That's kind of the labor of love that I'm involved in in my spare time. So I think that's probably one of the other things that I'd like to mention. That's an important part of my volunteer and community activities as well.

JF: Very rewarding. [02:02:00]

SP: Mm-hmm.

JF: We spoke about your experiences in submersibles and human occupied vehicles, so I have to ask you, your husband works in the same field that you do?

SP: Yeah. Yeah. So Don and I met actually going out to sea. In fact, he was on the very first cruise that I went on, a very first expedition back in December of 1984. Because I

was the new person, I didn't really -- I only got to do one dive in the sphere. I was in the after chamber for most of the time. But the dive that I got to do in the sphere, I got to do -- I think I -- I'm pretty sure I got to do with Don. He was one of the pilots, a member of the sub crew and so we -- you know? But he was really a good pilot, I mean excellent at doing -- collecting-- just, what the pilots have to do in the Johnson Sea Links is a lot. I mean you're [02:03:00] piloting the sub, keeping track of where they are, checking the radar, making sure you're getting good videos, running the manipulator arm, and he was really good at doing all of that. So I enjoyed working with him, so really admired him more as a submersible pilot than before we got involved in a more personal relationship. But that's how we met, we met there, and then, yeah, it was several years later that we started dating and then got married in 1997.

JF: And you are the stepmother of several children?

SP: Yeah.

JF: Who --?

SP: His two daughters, so the girls, yeah. Yeah, so I have two stepdaughters, they are both married, and Kimberly lives in Raleigh, North Carolina, with her husband Matt, and she's a

psychologist [02:04:00] and primarily with children -- that she's working primarily with children. And Keriann lives with her husband Jeremy and their son who's four. They live close by in Port St. Lucie, and she's a physical and occupational therapist. So, yeah, neither one of them went into marine science.

JF: Well, your own mother, she passed this year.

SP: Mm-hmm. She was really influential in my life. Very close, we have a very close family. My mom was the one who made me go to college and then my first year in graduate school, I was absolutely miserable. I've never been homesick in my life, but I was homesick. I moved from a small town to a big city, Miami wasn't really great at that point in time, I just was [02:05:00] miserable, I just hated it. And I went home in the summertime, which in grad school, you don't go home in the summertime. I went home in the summertime my first summer and got a job at a racetrack with a friend of mine from college, kind of an information girl at the racetrack, and I had no intention of going back to graduate school. That was at the end of the summer, I was like, I'm not going back, just no point in going back. And my mother said, "No, you're going back, just try for one more semester," and she drove down with me because I

don’t think she thought I was going to actually go back because I still had a job with the racetrack and they were -- it was like a circuit, so I knew that down in Miami I was -- I had a job down there as well. And she thought she’s never going to go back, but she drove down with me. In fact the first year when I was there at Thanksgiving time and I was so miserable, she said, “You can’t come home.” She sent my brother down to be with me at Thanksgiving, so I wouldn’t be so homesick. [02:06:00] So she was really -- you know, in that way. I mean she never forced me to -- the only thing she forced me to do was go to college and go back to grad school, and those were both good decisions. But her motto was, “You have to know what you want and then just go after it.” That was her motto. Just, “Shirley you’ve got to figure out what is it that you want and then you go after that. You set your sights on that, work towards that, be prepared, and go after it.” and that, I think about that a lot, a lot; I think about things. She really was a good influence on me and I -- a good, excellent family life. My parents were both extremely supportive. My one brother, I just spent the week with him last week, and we’re real... I grew up with lots of aunts and uncles, cousins who are like my brothers

and sisters. [02:07:00] We all grew up on the same block, so it was a big, extended family, very fortunate.

JF: And it continues to this day?

SP: Oh yes. Yeah, yeah. In fact, we, the Pomponi girl cousins, get together every year and we -- there are seven of us, and we do something fun for a long weekend. And this has been going on now since -- I'm trying to remember. The first one was the year that I was working on the proposal for the Cooperative Institute because I remember I was writing it when we were on our way to -- actually no, that wasn't the first year, that was the third year. So it must have been maybe 2006, maybe was the first year, yeah, 2006, so we've been doing that. This year, we didn't do it -- we're not doing it because of COVID-19 So when I was up in New Jersey this past weekend, one of my cousins had like a little kind of get-together for the girls, so we could have our kind of COVID cousins convention and then we'll hopefully resume next year. So, yeah, we -- [02:08:00] we're still all very close.

JF: A very healthy way to be.

SP: Yeah, absolutely.

JF: You received an award from your undergraduate school, the Mother Xavier Award, that recognizes Extraordinary

Leadership in Ocean and Coastal Research, Exploration and Education for the Healing of Humanity.

SP: Mm-hmm.

JF: What did that mean for you?

SP: For me to get that award meant -- it meant a lot to me because, of course, I've been supporting the college over the years, but I wasn't actively involved in the alumni association at all. And it was interesting the way this happened because, at the time, the president of the university was involved -- president of College of St. Elizabeth was involved in other activities in the state and so she was invited [02:09:00] to go. I was given the Champion of the Oceans Award at Monmouth University, and she was invited too. And they knew that I had graduated from St. Elizabeth, she was invited and so we had the opportunity to start talking. And then it was I think maybe a year or so after that or maybe even that same year that I was nominated for that award. So really, it meant a lot to me. I got that award and then I also got -- and I don't think I have this on my bio either -- into Iron Arrow, which is an honor society at the University of Miami. It's the highest honor that you can get as a University of Miami either student or faculty member or

staff member so that means a lot to me. It really meant a lot that my university, both the undergraduate and graduate, [02:10:00] recognized the contributions that I had made not only in science but in some of the other things that I've been doing as well, so you know, volunteer activities and -- anyway, yeah. It means a lot to me being rec-- you know, when you're recognized by your peers and by your university, it's -- it really does -- it means a lot.

JF: Well, a couple of points: You said I didn't think I could take on that chair role or that vice chair role because you were juggling too many things as it was. But apparently, your plate has continued to grow, and you're able to juggle more and more. And the amounts of activities that you're involved with are really --

SP: Overwhelming at times. (laughs)

JF: But also very inspiring.

SP: Yeah, thank you. Yeah, and I really am trying to cut back mostly because I just want to focus on the research. And, you know, [02:11:00] I'm in a stage in my life where I want to spend more time with my family. My grandson lives close by, I'd like to be able to just spend more time with him. And I've cut back a little bit already, and I'll probably going to cut back a little bit more, but I'm not going to

cut back on research because I just -- I mean I've just submitted. I have a proposal pending at EPA for sponge habitat restoration, I've got one that I'm working on for NSF, there'll be one I'll be submitting with my colleagues in the Netherlands to continue the work, so that's -- that -- that'll be my hobby. I really just love doing the research, and I'm blessed with good students, terrific laboratory manager, and a family who supports me. Don's -- he would like to see me cut back more so I'm not working all the time. And that was the one thing that my mom said before she passed, it's like, "Cut back a little bit. Please start spending time, some time in doing some -- more time for some recreational activities, nonwork [02:12:00] activities," so I'm trying to do that.

JF: Well, as you think about cutting back, I have to ask you. I'm going to step back in time a bit to the President's Panel. It described, as you know, key exploration objectives and fascinating challenges. Today, in addition to the things we've talked about, what challenge is fascinating you?

SP: In the context of ocean exploration, I think the challenge is making a transformational change in how we explore so that we can continue to... I mean we've done so much

exploration already, but we still know so little. So I think to me, the greatest challenge is being able to [02:13:00] make some transformational discovery that's -- or innovation that's going to allow us to truly increase the pace and scope of exploring our ocean planet and then being able to use those, use those resources to better the human condition as well and to better our planet. So I think that's the -- it's a technological challenge. It's like when I think about space, how are we ever going to -- you know, how are you ever going to get to some of these out -- other galaxies? You're not going to do it with the technology that we have today, and when you read some of the memoirs of some of the astronauts, they have some pretty interesting ideas about how space exploration is going to happen. And I think we've got the same challenge right here on our planet on how that's going to happen. To me, I think [02:14:00] that's the greatest challenge.

JF: The Panel also said this, a national program needs to be innovative and bold.

SP: Yeah, and it truly needs to be a national program, and I know NOAA has been trying to do that. It can't be stovepipe where one agency does this and another agency does this. Sometimes both agencies are doing the same

thing. I mean right now we have a number of private foundations that are also doing exploration, and I know NOAA, and I think to a certain extent NSF as well have been working, but I think primarily NOAA to try and develop a national ocean exploration program that brings in all of these elements. I think that's been successful too. I think that's been pretty successful in trying to get that coordinated. Coordination of it I think is going to be challenging because everybody has their -- just like when I go to sea [02:15:00] as a PI, I have my things that I want to do, and each of these foundations and agencies has either a mission. It's either a mission agency or it's doing basic research, or the foundation sponsors have a mission that they are pursuing as well. So being able to coordinate all of those is challenging and interesting, and I think it's something that's -- that can be done. I think it's achievable.

JF: So a very optimistic future?

SP: I think so. I think if you had asked me this question maybe five or six years ago, I would have thought, I'm not sure. I think because we've been able to use more technologies to reach out to more people and to engage more people in exploration and why it's important to [02:16:00]

know what we've got in our oceans but to preserve that and why the oceans are important. I think that message is gradually getting out, so I think another challenge is to make sure that we can teach our young learners about this, get our young learners involved but engage learners all along that whole scale from very young -- young children to seniors and making sure that everyone understands how important the oceans are really to our survival.

JF: The Millenium Council that led to the President's Panel on Ocean Exploration, it had a theme. The theme was honor the past, imagine the future, and your work and accomplishments have laid a path and are shining a light on that future.

SP: Thank you, thanks. The nice thing is that you've [02:17:00] got a community of explorers and each of us brings something to the table. So that it's -- you know, we learn from each other or we bounce ideas off of each other. Nothing is done -- you don't do anything by yourself. You have to do it in collaboration and cooperation and recognizing the contributions of others as well, and you need many of, all of these pieces to be able to fit into this. So we each have a role to play, and we each -- you know? We do need to recognize both the successes and the failures in the past, try not to be --

try not to limit our imagination based on what we perceive to be available funding but think about what can we achieve and what do we need to do to get to that point.

JF: Very promising. Thank you very much.

SP: Oh, you're [02:18:00] quite welcome. I enjoyed this. It was easy to talk to you, Joanne. I mean I think -- so thank you. I wasn't quite sure what to expect but -- yeah.

JF: Well, we greatly appreciate your insights and experiences and are thrilled that we will be able to put this under the Voices archives, and in several weeks, I will send your transcript. I'll send you a digital link by tomorrow, so you can watch it digitally and then you'll get a transcript. Would you also like this on a jump drive or is Google --?

SP: I can download it, it's fine.

JF: Okay, all right ,and then I'll send you a copy of the transcript as well.

SP: Good. Okay, Joanne.

JF: Thank you so much.

SP: You're quite welcome. Take care.

JF: Take care.

SP: Bye-bye.

JF: Bye.

END OF AUDIO FILE