NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
VOICES ORAL HISTORY ARCHIVES
IN PARTNERSHIP WITH NOAA HERITAGE AND THE NATIONAL WEATHER SERVICE

AN INTERVIEW WITH STEPHEN GILL
FOR THE
NOAA 50th ORAL HISTORY PROJECT

INTERVIEW CONDUCTED BY
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SILVER SPRING, MARYLAND
DECEMBER 4, 2019

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Molly Graham: This begins an oral history interview with Stephen Gill for the NOAA 50th Oral History Project. The interview is taking place on December 4, 2019, in Silver Spring, Maryland. The interviewer is Molly Graham. I like to start at the beginning. Could you say where and when you were born?

Stephen Gill: I was born in Lake Placid, New York, up in the Adirondacks, on November 21, 1948.

MG: Happy belated birthday.

SG: Yes. [laughter]

MG: Tell me a little bit about your family history and how they came to that area.

SG: Both of my parents were born in the Adirondack area, my mother in Lake Placid, and my father nearby in a place called Vermontville, not too far away. They both came from large families, which were predominant back in that day. My mother has four sisters and one brother. My father has lots of sisters, as well. I have a whole bunch of aunts and uncles and first cousins that were all in the North Country, all of which have either passed away or moved on now. I only have one cousin that still lives up in Lake Placid.

MG: Where did they spread out to?

SG: Everywhere. My brothers moved on to – one is in Seattle, and one is in Florida. Another one lives nearby me in Maryland.

MG: Tell me a little bit about your father. What did he do for a living?

SG: Well, my father was a carpenter. He worked for my grandfather, my mom's dad, and his firm, building homes. Then, soon thereafter, while we were in junior high school, he formed his own company and became a building contractor in the Lake Placid area. All of his sons, me included, worked for him during the summer. So we all learned building trades and carpentry from him growing up.

MG: Your mother was a nurse.

SG: She was a part-time nurse. She had four kids, so she was a part-time nurse at the local hospital, yes.

MG: Do you know how your parents met?

SG: I forget the story. I guess through a mutual friend, they met. They were both around nineteen or twenty years old.

MG: Do you have siblings?

SG: Yes, I have three brothers. I have an older brother and then two younger brothers. We're all within five years of age. So my mother was really busy there for a while.

MG: Four boys are a lot to handle. Tell me about some of your earliest memories from going up.

SG: Well, growing up – it was a great place to grow up, Lake Placid, a rural area, isolated back then pretty much physically. Our TV stations were a station from Burlington, Vermont, and Plattsburg. We had a local radio station. So I had limited access to the outside world. Of course, no internet or anything. We didn't really have a TV until I was around seven or eight years old. It's a rural area, mountainous. We spent most of my childhood in the nearby woods, playing in the woods. My mother would call us for dinner, and then we'd come out of the woods and eat dinner. A lot of hiking and camping. In the wintertime, sports – we skated and skied and played hockey. It was a great place to grow up. My graduating class in high school was only fifty-four people, fifty-four students. The school was a combination grade school/high school, so you knew everyone by their name, and you knew where they lived. The community was only three thousand people, so it was very protected, nice, calm, surrounded by family and cousins, a very all-American kind of community, and bringing-up.

MG: What year did you graduate from high school?

SG: 1966.

MG: Can you tell me about some of the classes you were taking in high school?

SG: In high school, I took all the regular classes and so forth. The main one that got me interested in my career is I took an earth science course, fundamentals of geology, weather, and the earth. No other course before that caught my mind like that one. I thought that was really interesting, and keyed my interest in – for the first time, in thinking – I took that as a junior in high school. That got me thinking about what I might want to do as a career. Before that, I didn't have a clue about what I wanted to do. That was the most important one.

MG: Did you enjoy that teacher who taught that class?

SG: Yes, I did. He was a good teacher.

MG: What was your plan after graduating from high school? What did you want to do next?

SG: Well, I applied for college at a couple of different schools. I didn't have great grades, but I managed to follow my brother. I got accepted into New York University. Back then, they had a School of Engineering and Science. I remember him telling me they interviewed him to see if I could make it down there at the college. Thank goodness he said yes. So they accepted me to that school. I was there as an undergraduate with my brother for three years, and then he graduated a year ahead of me.

MG: Tell me about being on a college campus during those years in particular. There were a number of student movements and anti-war protests.

SG: Well, '66, so back then, the [anti]-war movement really hadn't taken hold yet. I was pretty much of a conservative mindset myself. It's fairly conservative country up in the Adirondacks. They're still mostly Republicans. Most of my cousins are [Donald] Trump supporters as opposed to Democrats. But my mother was always a Democrat. Going to that campus, it was a very enclosed campus. It was a separate campus from the downtown New York University. So it was not an urban area. It was in the Bronx. It had a campus setting. It had a nice meadow in the center of the campus. It was very much almost a rural feel, surrounded by apartment buildings in the Bronx, but it was self-enclosed. It had a fairly small number of students at that campus. So that was fortunate because it wasn't a big shift to, all-of-a-sudden, Washington Square, Manhattan. It was a big buffer for me to go there. So the war movement didn't really start noticeably until 1968, '69, '70, that it was on campus and marches and protests started. By the time 1970 undergraduate rolled around, the professors in the engineering school, which was pretty conservative – we didn't get grades; we got pass/fail. They didn't bother with exams or anything because people were too busy protesting and joining the movement. But I stayed there for another three years because I went to graduate school at the same campus, and got my master's degree there. I was there working part-time as a carpenter in an apartment building complex and going to school.

MG: Where were you living?

SG: Different places. Living in different apartments with folks, then living in a fraternity house. I was a member of a fraternity. A couple of years, I was there.

MG: Do any stories stand out to you about your fraternity experience?

SG: The parties, of course, I don't remember. [laughter]

MG: [laughter]

SG: It was a very close-knit group of people. We ended up having a hard time getting pledges after a while; fraternities weren't doing very well on campus. But we went against our national fraternity code, and we initiated four women into our fraternity, and actually, one black person that we initiated, which also was frowned upon back then. We didn't let the national fraternity know this, but we took them through the initiation process. and they became part of the [fraternity]. So we're proud of that. Then one of those women ended up being my wife. So I married her.

MG: So, it was a good way to meet girls.

SG: The fraternity parties. Of course, all the women's colleges would bus down students. That was the thing to do back then was have busloads of women come down to fraternity parties.

MG: Originally, you went into this program intending to study meteorology, but changed your course of study.

SG: I wanted to be a meteorologist, like a weatherman on TV. I don't know. [laughter] But that interested me from the earth science class. But in my undergraduate degree, you take a combined degree, meteorology and oceanography, because essentially all the physics are the same except the Z direction. The vertical direction is up or down. It's down for the ocean. But the formula and the basic concepts are very much the same in terms of fluid movement. A lot of our courses were – I took oceanography and meteorology as an undergraduate, but then I became slowly more interested in the oceanography part of it.

MG: Tell me about some of those classes you were taking.

SG: It was an engineering school. They had an oceanography and meteorology department. No matter what degree you were taking, you all took the standard physics and math courses. You had to take a language; I took French because I took French in high school. It was mandatory back then to take a foreign language. So you took the English literature course. What else? We had a chance of gym or ROTC [Reserve Officers' Training Corps], and I did ROTC for a while. It was a broad brush of a lot of different things. Freshman and sophomore years, they were mandatory. Then in your junior and senior years, you branched into more specifically – more and more courses having to do with meteorology and oceanography.

MG: You graduated, but then stayed on for the master's degree in oceanography.

SG: Right. I did it part-time because, in order to pay the tuition, I had to work part-time and go to school part-time.

MG: How were your jobs changing? Did you stay in the trades?

SG: I was working as a – I worked at a paint factory for a year or so at twelve bucks a day, tax-free. Then I got a job as a building maintenance contractor. One of the women fraternity members, her father owned an apartment complex [inaudible], and I got a job there as a maintenance contractor. So I did carpentry work at the apartment complex for about three years part-time. That paid pretty well and paid my tuition as I went to school.

MG: How did your research shift? What were you studying in the graduate program?

SG: I wasn't doing any particular research, per se. It was just coursework. We did some field studies and so forth. Then the engineering school was closing. NYU was getting rid of that engineering school. As a result, I had to look for a job and had to finish up my master's thesis as soon as possible. That oceanography department ended up becoming part of the City [College] of New York, CCNY, and all the professors moved there. But one of the professors at NYU was working out in Montauk, New York, on Long Island at the New York Ocean Science Laboratory, which is a consortium that got together from several universities, NYU, CCNY, Long Island University, Stonybrook. It became a physical location and had projects where graduate students and professors could do their research and pursue their research, and get grants and work through

grants. I ended up getting a job there before I finished actually writing and completing my thesis. I moved out there in early 1973, and started working out there, and finished my thesis out there. My professor and boss was my advisor for my thesis, so it worked out really well. The only hardship was – back then, of course, I wrote my thesis on a typewriter with paper and correction tape. It took several tries to get it smooth. I didn't have to worry about losing the memory stick. So I finished that. Then, right after that, the school closed. I was one of the last people to actually get a degree from that school, from NYU Engineering School.

MG: What was the topic of your thesis?

SG: I did it on the physical oceanography of Long Island Sound. One of the grants and one of the studies that I worked on out there was taking measurements. There was the Shoreham Nuclear Power Plant on Long Island, and we did the environmental study for that. There was also a dumpsite for the dredging of the New London River for the submarine base. We did the environmental study for that. We had a bunch of different studies in Block Island Sound and out the New York Bight. We did a lot of work collecting data and analyzing the data, and writing reports. It was a really good experience out there doing that kind of work.

MG: Were there any interesting findings with what you were gathering?

SG: No, I wouldn't say lots of findings. It was a background environmental study on what the background was prior to any thermal loading at the plant. The plant wasn't built yet, so we didn't really study that. We just provided the background information. In the dumping site, we did take measurements right as they were dumping to see how well the material spread or didn't spread, or how much it contaminated the water column.

MG: I grew up in Eastern Long Island, and we were always told not to drink the water because there were so many people we knew with cancer. Maybe it was a rumor.

SG: From what?

MG: I don't know.

SG: I don't remember hearing that. The water was brackish at best. It probably wasn't very good for you. I can't imagine what out there would be in the water to cause cancer.

MG: I'm not sure.

SG: Where I worked and near the Ocean Science Lab was an old Navy base. There might have been something there. There's isn't too much out there – old military installations or industrial installations out there. That didn't stop me from eating the mussels or the bluefish or the flounder.

MG: Were you living in Montauk at the time?

SG: I lived in Sag Harbor, great place.

MG: I love Sag Harbor.

SG: And commuted to Montauk. My wife got a job in Sag Harbor, working at a Rowe Motors company. She was in their administrative office. We really enjoyed that. We'd go out and catch our dinner, and lived on the water. At work, we played volleyball at noon every day. Had a great time out there. When I left there, to work for NOAA [National Oceanic and Atmospheric Administration], that place was closing. So NYU closed. Then this place closed. I was wondering if NOAA was going to shut down when I moved down here, but thankfully it didn't.

MG: Before you came to NOAA, was that when you had the opportunity to go out to the Scripps Institution of Oceanography?

SG: That was after I came to NOAA.

MG: Can you talk a little bit about that transition to NOAA?

SG: Yes. That was after. So I was looking for jobs out there, and I applied to NOAA. Just a blanket – not a specific job, just oceanographer, and I sent my application in. Out of the blue, I got a call. Well, it was a predecessor organization to what the organization I retired from is now. I stayed with the whole organization. It's just amazing because he hired me over the phone. They had a large program going on. They were doing lots of hires, and they needed people. I had a master's degree, and I was hired over the phone. They said, "Show up." It worked out because six months later, the Ocean Science Lab closed down.

MG: This was the predecessor organization to the National Ocean Service?

SG: No, it was called the National Ocean Survey back then. It was part of NOAA. It was a tides and water levels branch part of the National Ocean Survey. It was still the tides. Now it's called the Center for Operational Oceanographic Products and Services, which is a line office within National Ocean Service now. Back then, it was just a branch within the hydrographic survey's office. It was just a small branch within a larger hydrographic branch of the National Ocean Survey.

MG: Was the position at headquarters here?

SG: Yes. Actually, back then, we worked out in Rockville. NOAA had three buildings on Executive Boulevard. I think they're all torn down now. They were terrible buildings. I worked in Rockville and lived in Gaithersburg.

MG: Tell me about the nature of this work and what your duties were.

SG: In NOAA back then?

MG: Yes.

SG: The office was involved in measuring and processing and analyzing water levels. Tide data was the main product, but also part of that was Great Lakes water levels. With the NOAA reorganization, the Great Lakes survey was independent and worked with the Corps of Engineers. In the reorganization, the Great Lakes survey came to NOAA and was placed in this tides and water levels branch. That's what it was called – not the tides branch, but tides and water levels. We had people that came in from the Great Lakes and had to move down from Detroit. Several of them moved, and several of them didn't move, apparently, as part of that reorganization. So they came in, and we'd work on both the Great Lakes and tides stations, which there were tides stations around the country, and then we installed tides station for part of hydrographic surveys, charting surveys, and tidal current surveys, taking measurements for current. So one of the main products was tides and current predictions. We produced prediction tables of what the future predictions would be for tides and currents. We had several long-terms stations that we managed and maintained. My main job back then was – my first job was logging in data. [laughter] Back then, data came in not electronically; it came in the U.S. mail in tubes. It was analog strip charts of data. It was either a pen and ink graph of data or, back then, they were starting to use punch paper tape data. So the water level recorder was a float-operated device, but it would translate the data onto punch paper tape. Every six minutes, it would punch a water level in a binary code. They would mail that in. Every station had a local tides observer, a water level station observer, whose job was every month take the record off, put it in a tube and mail it. Then also, put a new record on, make sure that the timers were battery-operated timers, or they were spring-wound clock timers. They would have to maintain those timer systems. They would also take independent readings of water level from a nearby tide staff, a graduated staff. They would read that, so they would calibrate actual readings once a day with what the gauge was reading. That became part of the quality control. We had to maintain contact in the office with the tide observers. We had to log in the data. Back then, they had the processing section, which I eventually became the head of that would process the data and tabulate the data and produce products from the data, and analyze the data that would go on to a tide prediction. The other main product back then – I was familiar with water levels and tides in my career and in college, but I wasn't familiar with the application of the data to calculating a datum, the surface. From the data, you would calculate the mean high water or a mean low water or a mean sea-level, which is important now. So you would tabulate the data and process it to compute monthly data, monthly means of sea-level, high water, and low water. Then from those, you would compute accepted tidal datum elevations from the data. You would either use a nineteen-year record or an equivalent nineteen-year data by adjusting a short record to a long period. We had an adjustment procedure to do that. So we produced accepted datums. The interesting part of all the water level stations that also I wasn't familiar with is that there would be water level stations themselves, and the tide staffs were surveyed in using survey equipment to benchmarks – brass disks installed and established nearby the tide stations. That became the land elevation. So by the surveys, you related the water level elevations relative to the land surface nearby. That becomes very important when you start looking at sea-level records, where back then, the purpose was for marine boundary applications. That's what I was actually hired for because, back then, NOAA had established a cooperative program with most coastal states, not all, where they'd go by and install short term stations all throughout the coastal zone, put in tide gauge benchmarks. These benchmarks became the focal point for establishing a mean high water line, or mean low water line. Those were the boundaries between private ownership above mean high water, and state ownership below mean high water, and then federal ownership was mean low

water out to the sea. So you had a program to establish boundary lines for private owners, state and federal. These gauges became the mainstay for determining those boundaries. So I was hired. We had several people – I did not participate, but we had several people who went out to the individual states and became field party chiefs for going up and down the coastal zone of the state and establishing short term, one-month to three-months or one-year stations over a three to five-year phase program. So it was a lot of money spent on state personnel and federal personal on these field parties. It produces hundreds and hundreds of records that we'd have to bring in and process at headquarters, again, all mailed in.

MG: Would you also archive those, so they were available in the future?

SG: Yes, everything was archived and sitting in archives somewhere now, all those records. Of course, the digital data – as computers came on, the data were archived on magnetic tape, or now those data have been transferred into the cloud somewhere. But yes, all those data have been preserved. You can go back and get records from the 1800s, the physical record, strip chart record. That's always interesting to do that. Actually, those analog records proved valuable, and there was a program to bring them out of archives and to research them and find them because those strip charts record the tide data, but they also recorded tsunami signatures. So when a tsunami came by, the tide gauge reacted to it. So the tsunami research community used archived data to document past tsunamis that weren't a previously tabulated part of the record.

MG: Were you just looking at the Atlantic coast?

SG: No, stations were all throughout Alaska, Pacific Islands, Bermuda, Caribbean Islands, and all the coastal states of the U.S. So long term stations were established that we maintained.

MG: Were there particular tsunamis that were recorded and measured that you remember?

SG: No. Not really that stands out. Later on, what became interesting – the old historical records were interesting to the research community. The new stations are all real-time now, every six minutes, and you can also put them into a tsunami or storm surge warning mode, where you get fifteen-second data from these gauges in real-time. So it's always fun when an event occurs, to sit on your computer screen, and watch the data come in from these stations in real-time. So that was the exciting part later in my career, where you'd be watching in real-time all these events unfold as the flooding occurred or as damage occurred.

MG: You were describing these boundaries that you were helping establish standards for. How was that determined beforehand?

SG: Before, it was just based upon the NOAA nautical charts. They would draw the mean high water line and the mean water line. The cartographers would do this. They used photogrammetric techniques, photo techniques, to do this very manual process, where they would go in and take these photos and adjust them to draw the lines, depending on the tide data. So it was a drawn-out process to do that. Now it's done by lidar remote sensing.

MG: Have those lines changed over time?

SG: Oh, sure. As sea-levels change or the shoreline changes. That's the biggest difference. As shoreline erodes or accretes or whatever, especially in dynamic areas of shoreline change – inlets – and after a storm comes, you don't have a beach anymore. So yes, they change locally quite a bit. The main thing is erosion.

MG: Can you talk a little bit more about that? Examples you see or places where it's been particularly devastating?

SG: Well, the Chesapeake is a good example locally, where there's no bedrock; it's all loose soil or wetlands. So you have a combination of sea level rise, wave action, current action, and then you have the land slowly sinking. The erosion slowly affects – there's always news stories you hear about the islands of the Chesapeake Bay – Crisfield Island, Tangier Island, all these islands are slowly disappearing. Over our human experience, they've disappeared. They originally had fairly large communities on them. Then even the coastline on the Eastern Shore of the Chesapeake Bay, the [inaudible] winds come from the west, so there's a lot of continuous erosion on that eastern shore of the Chesapeake Bay. That's just one example. Where you have steep cliffs and bedrock, it's not too bad. Then you see the stories out west of coastal erosion, where the houses are built near the cliffs. So there's examples all over the place of either erosion affecting society or people have to move. Now the latest example related to climate warming is in Alaska, where the coastal villages on the west coast of Alaska were icebound in the wintertime. They didn't have coastal erosion. You have really huge storms in Alaska that come through every winter. I mean, monster storms that you don't see in the lower forty-eight, but didn't really affect many people. They would hunker down and let the wind blow. But there was no water effect. Once the ice started going away, the storms would start eroding away the coastline – all these towns that are built on sand spits on the ocean side of lagoons. Those communities are having to move or having to retreat into up-river or inland. So that's the latest example, and that's a whole culture that's being affected. They really don't have their resources to move their own towns anywhere. So there's increasing numbers of stories in Alaska of people having to retreat.

MG: Were you seeing evidence of rising sea-levels and climate change as part of this fieldwork in the 1970s?

SG: Yes. It's interesting because the tide stations, we kept to very high engineering standards. We surveyed them in every year. In other words, we maintained their vertical stability. We always knew where the water level was relative to a datum on the land all the time. So, as a result, when you start looking at these tide data records over time, you start seeing mean sea-level change relative to the local land. So these tide stations weren't installed to measure mean sea-level or climate change, but overtime they became an important first measurement system for looking at sea-level change and what was going on. Then we had a whole set globally. We became involved with the global community and looking at tide station records over the whole world, and it became a pretty strong consensus from all the tide stations that there was some sea-level rise going on. You're talking a couple of millimeters per year here and there, but you started seeing a consistent picture of sea-level change, except for Alaska or other areas, where it was still due to the climate change, but the interesting application in Alaska was the records

show strong sea-level fall. Sea-level was falling relative to the land; it was retreating. The reason for that is because the land was rebounding from the sea due to the loss of the weight of the glaciers. All the fjords in Alaska, all the glaciers have been melting and retreating to the upper mountain. That weight goes away, the land rebounds because the weight is no longer there. So you can see from our records the actual movement of the land was stronger than any sea-level rise signal. All those plots of data over time show the sea-level going down, as opposed to going up. Of course, in areas like Louisiana and Texas, you see sea-level rising very fast because the land is sinking very fast.

MG: Were you also partnered with the EPA [Environmental Protection Agency] on some of these projects?

SG: Well, we had a project early on that I worked on as well in the late '70s with EPA, that was our other main project. EPA wanted to determine the relationship of mean high water relative to change in species in marsh grass. They were interested in cataloging of marsh grasses in the U.S. We went in and installed tide stations. The EPA had a biologist come in and look at the marsh grass samples, and determine their spatial variability. We developed a relationship between mean high water and the change in species if there was one or not. So my first fieldwork as – almost right away, I had a two to three-week field trip in California – tough place to visit. We drove the length of California and put in short term tide stations at every single marsh. We visited every coastal marsh in California up and down the coast. That was amazing, driving up and down Highway 1 in California with a survey crew.

MG: Yes, not a bad detail.

SG: Yes. So that was a good job. We did several locations on the East Coast and the West Coast, funded by the EPA.

MG: What were you attempting to measure there?

SG: We would establish benchmarks. We would determine the mean high line physically from the water level record, and the EPA biologists would look at well, where are the changes in marsh grass relative to that physical elevation line that we determined?

MG: Was it around this time that you went to Scripps?

SG: Yes. That was 1980. I came to work in 1975. So 1979 to '80, we had a grant with a staff oceanographer at Scripps. He worked for Walter Munk out there. He was a former not-NOAA, but back when the portion of NOS was called the U.S. Coast and Geodetic Survey [USCGS]. He was a tides specialist for the government, for our predecessor organization back then.

MG: Are you talking about Bernard Zetler?

SG: Bernard Zetler. Then he retired from USCGS before that. For several years, he was working for Walter Musk. So NOAA established a grant with him. So he worked under a grant. I managed that grant, where he would do some special studies for us in terms of how to best

determine water level measurements and process water level data for application to these marine boundaries or this EPA study. So we had a little internal office competitive application, where we went out there for a year. Three of us took turns going out there for a year under this grant. So I was the first one to go out there. We moved out there to San Diego. My wife and I moved out there. Then I studied under him, learning tidal analysis and everything you want to know about tides. Then we did some applications to what Walter Munk was doing at the time. So I was out there with all those graduate students, and got to sit in on some courses, and got to run on the beach every day, and watch the sunset every day. So it wasn't a tough job.

MG: Bernard Zetler was a big deal. Can you tell me more about working with him?

SG: He was the "god of tides," and then working with Walter Munk, everybody was in awe. You go into a meeting, and everybody treated him with so much respect, and also Bernard Zetler with so much respect because they have so much knowledge. You come to know them. [They're] down to earth. They're really fantastic people. They're people-people, very kind, and tremendously smart in terms of what they're able to see and envision. I was always in awe of looking at their vision of what they're going for and how they challenge their graduate students. So it was amazing.

MG: Can you say a little bit more about the grant project? And were you enrolled in a program at Scripps?

SG: I audited some courses. I wasn't there for a formal education; I was there to work. So I brought studies from the office that we needed work on, and Bernard Zetler and I worked on them together. So he led the way. As we went along, I learned from him everything I wanted to know about tidal analysis. That helped me all throughout my career that one year of learning.

MG: In what ways?

SG: Well, it got me my next job and my next promotion in terms of leading a tidal analysis branch, and piqued my interest in writing papers and doing research on the data that we had. We tended to let the data sit and have a single purpose application to a datum or a benchmark elevation. The data as a time series was not really looked at in terms of what's in the data and what else can we learn from it and what other products can we get. Because I had that knowledge, I was able to use that and expand.

MG: What was the promotion? What was your next position?

SG: I was an oceanographer, and then I became a supervisor. I guess it was branch chief of the tidal analysis section of the tides office back then.

MG: Did you come back to the DC area?

SG: Yes. After a year, I came back and worked for a while. Soon after that, this position opened up, and I was selected as chief of that branch. In my previous job, I was already a

supervisor, but only a supervisor of four people. So I became a middle management person. I was a supervisor of five people, but they would supervise twenty-five other people.

MG: What else was different about this role and the work you were doing?

SG: I opened up a lot of contacts with foreign governments and foreign databases, international databases that were compiling data from different countries. Back early on, I used to disseminate monthly mean sea-level data from all of our stations to a centralized database. That was done by calling them on the phone and reading that data to them. There was no internet or transfer. We used to compile that, and they would produce international reports and sea-level measurements. So there was a large international effort. Also, because of that position, I became the NOAA contact for the International Hydrographic Organization, IHO, and they had a tides committee. I became the NOAA rep to the tides committee. That was the international charting organization, and so there were several NOAA offices involved; Coast and Geodetic Survey has members on several committees on that IHO, and so I was just one member of the NOAA delegation, but the only one for this tides committee.

MG: In your international efforts, were there participants from every continent?

SG: Yes, pretty much. Not every country, but most countries were involved. Some of them not constantly, but yes, a lot of European countries, Japan, Korea, Australia, several South American countries, and then Africa countries as well – South Africa. So, yes, I got to visit several of those countries because we had annual meetings that we rotated from country to country. That was a highlight of my career on that committee and traveling the world going to these meetings.

MG: Tell me about some of the places you traveled to.

SG: Well, I think my first one was just to the U.K., to England. Then Portugal. Where else? South Korea, South Africa, Brazil. Where else? I don't know. It escapes me now. They were only a week-long, and you're in meetings most of the time. So at most, you had a couple of days to [explore]. But as the host of the countries, they always used to take us on a nice day trip to see the countryside as part of the event. That was the highlight after the meetings.

MG: This would be for the committee you were on?

SG: Yes. It was an international committee for the International Hydrographic Organization. They established standards. It was mainly a standards-setting and operations setting of how to do charting, how to make charts, and how to display charts, and how to collect data for charting. The standards became international standards in the U.S. I was a member of that. So we had a lot of input to those international standards so people could exchange charts and information and cooperate on surveys and so forth. It was well-represented around the world. Fortunately, it was an English-speaking organization because it was originally founded by the U.K.

MG: This was when you were working for the tidal analysis branch.

SG: Yes, that's when I started, but I continued that all through my career. Even though I went on to staff in this office as the chief scientist, I still maintained my role as this tides committee person.

MG: It gets a little confusing for me as an outsider to understand all the offices.

SG: Wow. There are so many reorganizations; I don't even remember the names of the organizations I was in. But there were a couple of big shifts though. Jumping back to when NOAA was formed – I joined in '75, but NOAA was formed in 1970, and that was a big deal back then. It's amazing that we still exist today intact pretty much, but it was a big difference. NOAA became oceans and atmosphere because it brought in the Weather Service and the Ocean Survey into NOAA. It brought in the Fisheries Service. These were all separate, funded, no centralized – then it brought in environmental data service, which was transformed to a satellite data service, data centers, and so forth. So it was a big deal bringing all that in. And prior to NOAA, the legacy organization of the tides and water levels branch was hydrography. Back then, prior to 1970, there was an organization called the U.S. Coast and Geodetic Survey, a long-standing organization, founded by Thomas Jefferson [that] surveyed the coast. So you had geodesists and hydrographers and scientists. Back then, it was an exploration organization, exploring the coasts and charting the coast. So it was pretty exciting if you were – a lot of hard work where you lived and worked in the outdoors and surveyed the coast, and you worked on ships, of course. That was an old legacy organization. For a hundred years or so, the technology changed very slowly. So a lot of procedures were all manual procedures, highly professional craftsmanship. Building a tide gauge, you had to really be a mechanical engineer to build a tide gauge and to maintain a tide gauge. Or cartography, you had to be really skilled in what you were doing. Or geodesists taking measurements, you had to be really skilled in taking very precise measurements and documenting them while working in a harsh environment. It was really a tough organization and a lot of pride in that organization. That organization, when NOAA was formed and was no longer independent. Parts of it became part of the hydrographic office part of the National Ocean Service. But it was no longer called the U.S. Coast and Geodetic Survey. A lot of the people in that survey didn't appreciate that loss – very upset about it. That was one of the things I noticed when I [first] worked here is that there was a lot of [laughter] snide remarks about NOAA and Nixon and reorganizing it. That's changed over time, and the hydrographic office still exists. The National Geodetic Survey is a separate organization now that still exists. The tide branch has grown and expanded to become what it is now, the Center for Operational Oceanographic Products and Services [CO-OPS]. But they all trace their roots back to the U.S. Coast and Geodetic Survey part that expanded. Of course, National Ocean Survey became the National Ocean Service because it brought in Coastal Zone Management. It brought in marine debris programs. It brought in a research arm. So it brought in a bunch of different offices into the mix with the legacy survey organizations.

MG: Was that right away when NOAA was formed or later on?

SG: It expanded over time. Yes, they were looking for things to put into NOS. There's several organizations, re-orgs, and on and on and on.

MG: Yes. Looking at your CV, your titles indicate the former office names, like "Sea and Lake Levels Division."

SG: The worked stayed the same, and the data stayed the same; it was just that we put it in a different box. But it was all part of the National Ocean Survey, which became the National Ocean Service. The main umbrella stayed the same, but we changed throughout in terms of minor changes, actually.

MG: One of the other things on your CV says you "eliminated a processing backlog of several hundred station months of data." What does that mean?

SG: That was a big deal. When I inherited the branch, we had all these marine boundary stations. Hundreds and hundreds of stations were put in in the mid to late 1970s. Those data all came in or were continuously coming in from the longer-term stations. Well, we didn't have the people or the system to handle that data. All these marigrams, these punch paper monthly tapes came in and were put in a cupboard. It was a very slow process of getting them done. I had to develop a program and work with the folks that I had to decrease that backlog and get rid of it. I managed to do that [by] treating people nicely. [laughter]

MG: [laughter] You shifted into the digital era during this time.

SG: Yes. Of course, in 1973, we didn't have personal computers or desktops or internet or anything. So when I gave – we used to have to write project instructions, telling the field parties what to do, where to put stations, how to maintain them, how long to put them in, where to put them in, detailed instructions to the field parties. We used to do that – we have to write them out by hand and give them to the secretary who had a typewriter that would type them out and retype them out. Maybe we had a correcting typewriter; I don't know. So I ended up writing instructions a lot by using previously typed pages and cut and paste.

MG: Literally cut and paste.

SG: Literally cut and paste and tape to get something written. We did that for several years. That was a big deal. Everything was just manual, so we had adding machines, or the computers were very – IBM 360 type or what PC could do now – we had a computer back then that might be able to what a PC can do now – computer systems that had to be handled with care, and you couldn't do anything fast. You had to really maintain them. It was a real difficult transition. In 1983, when I became the chief of the analysis branch, we finally got – the internet was just coming on board, so we finally got some computers to put on our desk that we could do some Microsoft Word type things. But nothing hooked up to the internet or anything, except eventually for email – nothing to a database, so you couldn't use them to process data. Our processing section always had single purpose terminals that talked directly to the computer to process data. So you had to go to a section of the office and work. You couldn't work at your desk and do any analysis or processing work. The data that we got in from the punch paper tapes and analog marigrams were converted to a digital form and put on eight-track tapes in the office. The digital punch paper tapes were optically read and put on a tape. You would have to create that tape and walk it down to a building nearby to get it mounted on the computer to get

processed. You would have a printer, maybe in the office. So everything was done highly manually. It was a real interesting transformation. I was trying to get the PC in and getting the data handled. Eventually, of course, those work stations software became mounted onto your PC and became part of your work station on your desk to process the data. That was the transformation that took [from] 1975 to 1987. That was a slow process. It wasn't something that happened overnight, but it was incremental improvements. By the time we moved to Silver Spring in '97 – I think we moved here in '97 or '96 from Rockville – we still had our old computer, but we had a new system coming on board, a whole new database system and new terminals. So we ran two systems simultaneously, and then got rid of the old system after assurance that we had continuity. So the continuity aspect of everything we did throughout time was important to run parallel systems. We didn't change water level gauge technology without running them new and old simultaneously for a long period of time to understand the differences and then move on to new technology. That was a really important part, throughout my career, of maintaining the integrity of the data over time and not losing the continuity of the record.

MG: Would you have to train other staff members to get on board with the new technology?

SG: Well, there's always a lot of resistance to a new system, of course. That's just a natural part of the process. But I think I mentioned – I don't know if I mention it there, but the biggest cultural shift in the office, along with the technology shift, was the smoking in the office shift. It was a big deal, a huge deal, because you had to deal with people and our culture and their personal space. It very quickly became knock-down-drag-out fights in terms of – but you had the laws, and then you had policies come into place. They had no choice, the smokers. When I first came to the office, almost everyone [smoked]. Smoking was predominant in the office. Everyone smoked at their desks – cigars, pipes, cigarettes, whatever. Fortunately, I had a window that opened; it rarely ever closed tight, but I had a window that opened in my office. It was a big deal. I wasn't a smoker, and I asthma, too, and COPD [Chronic Obstructive Pulmonary Disease]. I still have COPD. So it was a big deal for me. Culturally, you just don't really think about that. You think about the data and the science and so forth. Slowly, we got together in our office – because it's an open office. It didn't matter if you were at one end or the other end; you had the smoke there. So we put in smokeless ashtrays, where it sucked in smoke and filtered it a little bit. Then we bought larger systems that filtered the air and still allowed smoking. Finally, you couldn't smoke only in certain portions of the office. They had smoking rooms in the office. Finally, they kicked the people out to the hallways where the elevators; you could only smoke there. Finally, they kicked them out altogether outside. So when you came to work, there would be a whole bunch of people sitting outside smoking, taking smoke breaks. I don't know if they did any work or not, but they used to take several breaks a day, where they'd be out there smoking. I just noticed coming in today there was one person out there smoking in the cold.

MG: Yes, it's been a real cultural shift.

SG: So you had to deal with people not working happy. You had the technology changes, and the smoking changes. It was something to behold back then. I don't know how we made it through it. People stopped smoking basically.

MG: So, it was positive.

SG: It was positive. Getting there was not a fun experience. Yes.

MG: Something else I have in my notes is that you developed training modules, and you were working with the ACSM.

SG: American Congress on Surveying and Mapping. They're an organization that merges government expertise and private industry. It's a nice organization. So the ACSM, you can be a government person or a private surveyor community, hydrographic surveyor, or a boundary surveyor, and they did a lot of work for these marine boundary states. So we just provided baseline information on the boundaries. The private community, the state community, had to go in and survey those lines and determine the boundaries. We didn't determine on the land where they were. We just provided the baseline information. So we did a lot of education in terms of what tides are and tidal datums and how they're determined and what they're all about. So we would provide training sessions a couple of times a year to the private surveying community.

MG: In 1997, you became the chief scientist for CO-OPS.

SG: Right. Up until then, I was head of the Tidal Analysis branch/division – it had several iterations. Yes, so then I switched and became the chief scientist.

MG: For the Center for Operational –

SG: Oceanographic Products and Services. Originally, it was just a division still within the hydrographic office, but because we expanded slowly, we became an independent office within National Ocean Service. For a while, we were just a staff organization. Then we became a full-blown line office. I don't remember what year that was, maybe seven or eight years ago. Fairly recently, we became a separate office on par with the Hydrographic Survey office, and on par with the Coastal Zone office, on par with these other offices.

MG: How was your role there different? This is at a higher level.

SG: There, I was still highly involved with standards, training. I was still involved with the global community. I became a lot more involved with analysis of sea-level data, a lot more involved with the climate change community over time in terms of analysis of sea-level records, and so forth. I got a lot more of a handle on upgrading our routines in the office. I co-authored a bunch of papers, did my own research on tides and published papers and reports, but also worked with and mentored people to write papers. So just looking at the data, a lot of them weren't analysis reports with results. A lot of them were just data reports. Here's all this data we collected, and we produced all this information, and it's on the database, but we need to put it into a form that someone could read and say, "Oh, that's what it's used for. This is how I can use the data." So we wrote data reports on the applications of the data themselves. So I did a lot of that work. When I did that, I trained people. So as time went on, we developed more formal training. When I first started training, it was overhead projector with the slides. So when I did training or went somewhere for training, I carried a box. My carry-on luggage was a box of

overhead slides. Then it became the slides, projector slides, so we did those. We had to do the artwork by hand. We did the slides and put in artwork depicting moon's phases and earth-moon-sun alignments, and so forth. We had an artist on staff – full-time job of creating slides from our drawings. Then PowerPoint came along, and that became a lot simpler.

MG: What were some of the topics of your talks and presentations?

SG: A lot of it was tidal theory, what produces the tides, how tides move, and what they are around the world and why, why do tides change from month to month or from day to day, why do they do it, and what is the background theory on what causes tides to begin with. Then, all the way through – well, how do we process data to produce tidal datums? So it was tidal theory, tide data collection [and] how to do that, how to process the data, and then how to analyze it, and how to produce products. So we did training on a whole soup to nuts thing.

MG: Who were some of the other people or offices you were working with?

SG: Well, I would work with a lot of the senior people on the different branches. So we would have different people work on different aspects of it. When I did training, I'd always try to take someone with me to teach them how to train, so I didn't have to do all the training to outside organizations. Then we developed a whole in-house training program. My last couple of years, I was working on a formal in-house training, not external training, which I did a lot of, but internal training – detailed training on analysis and tides and something they could apply to their job. It was more mandatory training. A new person coming in, a young oceanographer coming in, you don't have operational experience in tides and datums. You might have a chapter in an oceanography course, but you don't have any experience in the application, and this work at all in the surveying aspect. So one of the first things is train these people and make them be able to move up in their careers as well.

MG: Did you have an opportunity to teach at a college? This sounds like a good college course.

SG: No. It was mainly through these organizations like ACSM or at conventions. Maybe to another organization, like USGS [United States Geological Survey] or the Corps of Engineers. I did a lot of training for the Corps of Engineers people. That was the main training. I also gave training in tides at the Naval Post Graduate School in Monterey, California and for the U.S. Naval Oceanographic Office in Mississippi.

MG: Do you want to take a quick break for some water?

SG: Okay, yes.

[TAPE PAUSED]

MG: I will turn this back on. As part of your role as chief scientist, you were the NOAA lead for one of the U.S. Climate Change Science Program reports. Can you say more about what that was?

SG: Yes. I was appointed that role because my office was the one that produced the U.S. long-term sea-level trends. So we took these tide gauges and computed long-term sea-level trends, and determined reference datums. Because of that role, it became important in terms of understanding oceanographic change in terms of climate change and how sea-level changed and occurred in the United States. So I was appointed to this – I think it's every three or four years the Climate Change Science Program, which is a U.S. government interagency program, would have to develop a report. So this particular iteration then – there was an iteration before, and there's been several after this. I don't know if it exists anymore in the present administration. They would produce a report on impacts of climate change. Part of that was understanding how sea-levels were part of that. So I worked with a team from USGS and EPA and U.S. Park Service to develop these chapters – just one of the many parts of this report, in terms of looking at the physical characteristics of climate change and how they manifest themselves. So I was on a team that we just met together for a year and a half, duked it out, fought, played politics, developed text we all agreed to, and assigned authorship to these various components. At the end, we produced a nice report in terms of effects of sea-level rise. So I added into that – I wrote a couple of the chapters and provided data and support. I used my organization to help support me and obtain datasets and information for the report.

MG: What would the fights be about?

SG: We argued about: "Has this statement been peer-reviewed or not, or has that been reviewed, or is that acceptable language to use?" We had different agencies and different approaches to climate change and use of language. If you make some sort of statement, you had to say, "Where did this come from?" and "Was it reviewed at all in the scientific community?" The whole report was peer-reviewed, and you had to answer those questions. Some of the contentions early on were who's the boss, who's the lead authors – those kinds of things. It was an interesting process. This report came out in the [George W.] Bush administration, and it was really interesting that this was a climate change report that our chapter came out and stated anthropogenic change is causing accelerated sea-level rise, and here's what's going to happen, and here's some graphics and details of what might happen. [The report] provided numbers around this information. It was reviewed – there's a climate change science staff office in the administration that reviewed this. They made some changes and suggestions, but the report was largely unchanged. This was under Bush. I gave the Bush administration credit for not backing down on what was being stated in these reports. So I was proud of that, that we actually produced something worthwhile. I don't know if anyone ever read it. No, it was read. [laughter] It was peer-reviewed and referenced.

MG: What was the title of the report?

SG: U.S. Climate Change Science Program Synthesis and Assessment Product 4.1, Coastal Elevations and Sensitivity to Sea-Level Rise, December 2006.

MG: You mentioned you worked with the Army Corps of Engineers as well.

SG: The Army Corps of Engineers puts out policy documents that guide their projects and how they should be conducted, and what scientific standards they should adhere to, and what should

go into their preparation or design. They have to take into account sea-level change in their design. I was on a panel with them to help them to build standards for accounting for sea-level change in their design of their coastal projects. So a couple of different reports. I would meet with them and write chapters and write standards and put in how to do this, how to do that, what to take into account when designing projects, what formula to use. There was a lot of controversy on all the global models. Several different global models came out that showed a different projected sea-level rise curve, aggressive curves, flat curves. So we had to establish which curves do we want to use. We didn't focus on one, but we gave a suite of them, and we had established which suite of projects that if this happens, here's the formula for it; if this happens, then here's the formula for it, so you could plan in the future of what to take into account and how much risk you wanted to take depending upon the climate model, depending on how long the project was. A lot of the Corps of Engineers projects are fifty-year projects, hundred-year projects.

MG: You were also doing some work with the NOAA Climate Program Office. Does that still exist? What branch is that under?

SG: The NOAA Climate Program Office [CPO] still exists as a line office in NOAA and manages competing research programs. I did a lot of reviewing of funding proposals for them. They did a lot of grants for climate change to universities and so forth. I would be on review panels reviewing their proposals. CO-OPS was also involved with the CPO Global Ocean Observing System Program to which CO-OPS Tide Stations contributed.

MG: Who did you work under at the time?

SG: My boss was still the chief of CO-OPS, the chief of my office. I wasn't really working under anyone except my boss. I had to report back to him all I'm doing, and so forth. I didn't have to be accountable to any other office chief at all.

MG: Who was that? Who was the chief of CO-OPS?

SG: There were a couple of different ones. Back when I was doing most of this work was Michael Szabados, who's now retired. Then Richard Edwing, who's the present office chief.

MG: What was the IPCC Working Group's "Special Report on Extreme Events"?

SG: There's an International Panel on Climate Change that meets every five years that produces an international report. So the CCSP was national; Climate Change Science Program is U.S. IPCC is all the countries, and they put out a report. They just came out – well, they come out with several different reports. Part of that is sea-level rise and extreme events and how they're going to change. Because of my experience in sea-level change and measurements, I was appointed to a couple of these committees to review draft chapters in the reports. I wasn't an author for any of them. So I was on the national review panel, U.S. review panel for the IPCC. I was on a review panel to review the whole chapters and provide comments, and so forth, that would go into the final report.

MG: You retired in 2016.

SG: Yes, January 2016. Almost four years ago.

MG: Talk a little bit about wrapping your career and what you were working on in the years before you retired.

SG: Training and training modules. I was writing several internal reports on standards for how to operate different measurement systems, combining geodetic and water level data measurement systems, [and] working on this formal internal training program. We had an internal standard operating procedure document, very bureaucratic document – how we do everything in the office, soup to nuts, in excruciating detail. I worked on a couple of those. I reviewed a bunch of those. I was also on a review panel – a lead reviewer on all the papers prepared by scientists within the office. Then, the last big project that just completed after I retired – actually, I still worked on it a little bit when the report came out, was with the U.S. Navy and the U.S. Corps of Engineers. It was a combined study program to look at the risk of all U.S. military facilities worldwide and their risk for sea-level change. We had a report – a combination of government and academic folks worked on this report. We developed a methodology for how a military installation can assess risk for sea-level rise in planning in the future. So we developed a database and a procedure for doing that. We didn't do it for all the bases, but we developed a process for doing it and developed the database for doing it. That was the last big project I worked on. It wasn't just me there; there were a couple of other scientists in CO-OPS that worked on it with me.

MG: Is there anything else you want to tell me about before we talk about life since retiring and outside of NOAA? What stands out to you from your career?

SG: Well, we touched upon my career. I think the travel stands out in my career. In my career in general, I'm very proud of the career. It was a fun career. I didn't have a dull moment. The worst part of my career was commuting to the office. Sometimes it got testy, and supervision was never fun necessarily, but I got to work with a lot of people and got to see our office diversify from its legacy onto other applications was tremendously exciting. So I used to jump on all those studies. Applying our data to marsh restoration or applying our data to climate or applying our data to other applications beyond datums was a lot of fun developing that and analyzing data. I'd always be analyzing some data from our database. I had open access to our data, and I enjoyed just looking at data and analyzing it, and wondering why, and answering questions in terms of the stories, all this data has over time – a tremendous amount of stories that it can tell you. That data exploration was exciting. So it was a lot of fun.

MG: What went into your decision to retire?

SG: Forty years. I could have stayed on mentally, but I'm having some problems physically in terms of arthritis and COPD and some things. I wanted to do some other things before I couldn't do anything, so I just stopped working. But up until that point, I worked a hundred percent ten-hour days for almost my whole career. So it's been a lot different, and I enjoy taking naps.

MG: Tell me a little bit about your life outside of NOAA. You mentioned you met your wife in college. I was curious about her and her background.

SG: She's short, but she was on the women's basketball team at NYU. Our fraternity played them; challenged them to a game. So we went out, and we played them. That's where I met her, is on the basketball court because I was going in for a layup, and she fouled me from behind and shoved me into the board. So that's where I first met her. The rest is history. She was not in engineering school. She was a liberal arts – she was actually a math major. She was behind me in school, so she didn't actually finish school until I moved down for NOAA here, for a year, and she was still going to school at NYU, finishing up. Prior to that, we did live together. We were together out in Montauk for the years that we lived out there. Then, when we moved to Maryland, she became a – she wasn't sure what she wanted to do, but she became a teacher. She was qualified as a teacher and went to Bowie State College for a teaching degree and got that. Then was hired as a math teacher at a high school over there, but her first day there was supposed to be an orientation, and there was a stabbing. I don't know. That ended her career in terms of teaching. So she worked various jobs. When we moved out to California, she was always interested in law school, so she applied to law school. When we came back from California, she went to the University of Maryland in Baltimore and got her law degree. While there, she clerked for a federal judge. Then she worked for a law firm in Baltimore for a while. Then got a job with the U.S. public defender's office in D.C. and became – she wasn't doing court work so much as she was a trainer. They had a nationwide training program that she led their training program nationwide and went to a bunch of different – held a bunch of different training seminars and put them on for public defenders around the country. That was great for me and the kids. We have two children and we went with her for many of these. She became president of the NACDL, National Association for Criminal Defense Lawyers. She became president of that organization as part of her job. She got the penthouse hotel rooms because of that. So we would stay on top floors of hotels in San Francisco and Boston for instance. We had some incredible family trips. She worked, and the kids and I would go out and play basically. Cancun, I remember that trip. So yes, a lot of good fun trips. Then she left that and went into private practice in the last decade or so. So she gets court-appointed work from the public defender's administrative office of the U.S. courts. She does court-appointed criminal defense. She does a lot of appeal work. She was on Wesley Snipes' appeal team for his tax evasion, or there's this woman in South Carolina who tried to kill Gerald Ford. She was on her appeal team for a while. Most of the time, she's defending these hard criminals.

MG: Well, tell me about your children.

SG: Okay. Two kids. A daughter who's thirty-one now. We didn't have kids until we were married for fifteen years. So my daughter's thirty-one and the son is twenty-nine. My daughter is living at home right now. She's in transition. She was working as a human resources person for a supermarket chain, Sprouts Farmers organic supermarket chain. My son went to Drexel University and got a degree in computer engineering. He works as a network person for – he worked originally for QVC Home Shopping Network, and now he works for Wawa, which is a chain. They have a headquarters up in Pennsylvania that he works for. [He's] their computer network person.

MG: On your survey, you said your wife Carmen emigrated from Cuba. I was curious if this was after the Cuban Revolution when her family came.

SG: Yes. Her father was very high up in the Havana Police Department, very high up. He didn't have a future. So they left in a hurry. They abandoned their home lock, stock, and barrel, and went up and got a plane flight to New York. One of the last plane flights. He had his bodyguard with him the whole time. So she was only about five or six at the time, so it was all a fun trip for her. The move didn't affect her. But her older sister and older brother were in high school or later than high school, and they never totally recovered from the transition. It took a whole lot to recover from that transition. She went right to a nice Catholic high school in the Bronx. They lived in lower Manhattan for a while for most of the time on the West Side. She had a good growing up and went to a good high school. She was very smart and got good grades, but her brother and sister had a really hard time in school and adjusting. So eventually, her parents – when we got married, shortly thereafter – right when they moved to the U.S., her father was very smart and bought a house in Miami and rented it out. When she retired, they moved out of New York and lived in Miami for the rest of their lives. Her brother and sister moved down there as well. So, yes, it was a – she only remembers a little bit of her life in Cuba, really. Of course, they hate [Fidel] Castro and that regime. They really don't have any close relatives still alive there. I think her sister went back, but she doesn't want to go back there at all, as long as that regime is still there.

MG: Is there anything I forgot to ask you about or anything you want to get on the record?

SG. We were all over the place. I don't know. I was thinking of this on my drive down. Most of NOAA is a pretty unique organization when you think about a government agency, where people think government agencies are onerous and bureaucratic and heavy. They're all of that, [and] NOAA has a lot of that bureaucratic red tape in it, but for the most part, when you think about it, NOAA produces products and services for the public. They really provide useful and information and products that people use every day, and a lot of it to save lives and prevent disasters, and to provide a better economy – a lot of our real-time data for navigation purposes. So I'm pretty proud of that overall mission of NOAA to do that. Even the regulatory portions of NOAA Fisheries gets a lot of bad press, but they try to sustain fisheries and the environment for people, not too successfully because there's so much stress on the marine populations, but they're still a science organization producing data to try to good with it. Some of our coastal zone, NOAA gets bad press sometimes on coastal zone, but really, they're all about developing a coastal zone management program. The management term is in there. That's often interpreted as bad, but it's coastal zone management in partnership with the states so they can develop their own management programs. Even the regulatory aspects of NOAA are really trying to do good. Their research arms, they have a very strong grant program, Sea Grant and other grant programs, where these grants go to local scientists; they don't go to some obtuse research firm. They go right to a local scientist that understands what's going on in their local environment. Even those grant programs aren't just for regulatory purposes or anything. I really like NOAA and its mission, and our part of it was just producing data directly to the public for their use.

MG: I have to ask – walking into the building with you today, a couple of people really made a point to come over and shake your hand. It seemed like a real honor for these folks to see you

and shake your hand. So I was curious about the relationships you developed with your colleagues. It seems like people have so much respect and admiration for you.

SG: Right. I haven't really stayed in touch with too many – I stay in touch on Facebook with a bunch of them. I haven't had a professional relationship with anyone since I retired. I was a trainer. I gave a lot of seminars. I gave a lot of talks. I gave a lot of pep talks disguised as training seminars to let people know how worthwhile they were and what they needed to do. I always stayed out of politics. There was no need for politics in science anywhere. I just had to stay out of that, in terms of what our local office projects were. I think I just developed a – and I'm always kind to people and listen to them, and talk with them, no matter if I don't like them or not.

MG: Well, I really appreciate that you came in and shared your story and so much of your time with me.

SG: Sure.

MG: This has really been a treat. I will be here for a few more days if you would like to add more to the record. You will also have an opportunity to review the transcript before it is released.

SG: If anything comes up. I think we covered everything. You asked the right questions.

MG: It's hard to cover everything when you're looking back on a forty-year career, but if there is something we missed, we can add it in at a later date.

SG: Yes.

MG: Thank you so much for your time.

SG: Sure.

----------END OF INTERVIEW----------
Reviewed by Molly Graham 1/4/2020
Reviewed by Stephen Gill 2/6/2020
Reviewed by Molly Graham 2/18/2020