

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
VOICES ORAL HISTORY ARCHIVES

IN PARTNERSHIP WITH
NOAA HERITAGE AND THE NATIONAL WEATHER SERVICE

AN INTERVIEW WITH MICHAEL SEKI
FOR THE
NOAA 50th ORAL HISTORY PROJECT

INTERVIEW CONDUCTED BY
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Molly Graham: This begins an oral history interview with Dr. Michael Seki for the NOAA 50th Oral History Project. Today's date is January 25, 2021. The interviewer is Molly Graham. It's a remote interview with Dr. Seki in Honolulu, Hawaii. I'm in Scarborough, Maine. I'd like to start at the beginning. Could you say when and where you were born?

Michael Seki: When I was born? 1957, here in Honolulu.

MG: I was curious about your family history, how they came to settle in Hawaii, and how your parents met.

MS: I don't really know when my parents met, to be honest. I think I mentioned in the survey, I'm third-generation, meaning my parents' parents moved here from Japan. Most people in Hawaii who emigrated back then came from the southern parts of Japan. So it was either South Honshu, which is the biggest island there, Hiroshima, those areas, or from Kyushu, which is further south, the southern island. So a lot of them came over to work in the agricultural fields, whether it was sugar plantations or pineapple fields. Obviously, [my family] immigrated here. My parents were born here, and we followed.

MG: Did you hear from your grandparents about what that was like for them immigrating here?

MS: No, my grandparents died pretty young – young for me. I'm fortunate where I'm old enough that I knew them. I obviously got to meet them. They didn't speak English very well, and I don't speak Japanese. So our ability to communicate was somewhat limited. So a discussion like that would require a little more capability if you will. So no, we never had those conversations. You get it from your parents a little bit. I knew my grandfather came in – my maternal grandfather came in, worked at the docks. He was not in the field. He actually was a foreman at the docks, which obviously in Hawaii, it's a big deal. I think my grandmother was a housewife if I'm not mistaken. Many of the Japanese females tended to the home. My paternal grandfather, I knew he owned a laundry business. I only know this because when he passed away, a former governor of the state of Hawaii actually showed up at the services. Out of curiosity, we asked why, and it turned out that the governor's parents worked for my grandfather at the laundry. So they knew each other back then. It turned out, later on, that my uncle, my dad's brother, ended up working for the state of Hawaii under the governor's umbrella when he was working. So that gets kind of flipped in time. My paternal grandmother, I don't know if she held a job per se, not that I knew of. But I knew she was a tea ceremony instructor. So their house was built where it had its own tea ceremony room. I don't know if you're familiar with that. But the Japanese culturally have a thing called a tea ceremony – very ceremonial – that's done in a special room with what they call *tatami* mats; they're straw mats on the ground. It's something I don't understand because I never was formally trained. Obviously, you need to be formally trained to do anything in those things. So I know she did that. Being a master, she was given her designated kimono. They have what they call emblems, or they call them mon, M-O-N. She had her own as a master. So society-wise, she held a very high place, but I didn't know much about it because obviously, when you're that young, you don't really care.

MG: What do you know about your mother's experience growing up in Hawaii?

MS: Well, you don't hear a lot. She's one of four siblings [inaudible] to a Catholic parochial school, as we all did after that, as well. We hear the stories about how she lived in a part of town in Honolulu, where – the stories you hear about is when you grew up in these smaller places, where you run around the neighborhood. But the story you hear most is when they bombed Pearl Harbor. She was, of course, a very young girl. And how she saw the planes come over, and how she [inaudible]. She talked about the neighborhood kids. You could relate because when I was young, my grandparents lived in that house where she grew up. So we would go obviously and visit that house and play in the same neighborhoods that she did growing up. So you did get that sense. My youngest siblings didn't have that opportunity. So it's something that I recall. My dad, I don't know much at all, other than he was really the independent one. He grew up swimming. So he spent many, many hours a day swimming at the local YMCA. He swam competitively for one of the renowned swim coaches here. Eventually, he went to Indiana University, where he swam for the school. In fact, recently, one of my second cousin's kids – so that makes it his second grandniece, or whatever it is. She's at Indiana, and she actually sent back pictures of my dad, who I understand – all the pictures are still on the wall in the complex in Bloomington. So, much of his world revolved around his swimming.

MG: How did he end up in school in Indiana?

MS: Scholarship, swimming scholarship. My mother grew up in a Catholic school system. He grew up in the public school system here. But because of swimming, he got a swimming scholarship to attend Indiana, and got his degree in business, came back, and worked for the National Cash Register Company. He spent a number of years there until he left to open his own competitor cash register company that was locally based. He and a couple of his friends went off and opened a business here to compete with NCR. My mother went off to the University of Colorado, where she became a registered nurse. For all of her career, she worked at hospitals here. It was a Catholic hospital, St. Francis, where she started and ended up at another one down the street, where she worked for the remainder of her career in more of these specialty areas. So she worked in the ER [emergency room], went to the ambulatory care unit and the cardiac care unit.

MG: You mentioned the bombing of Pearl Harbor, and it sounds like both your parents have memories of that. Did they ever tell you about that day?

MS: My mother did. My dad never did. My dad was quite quiet. I assume he was here somewhere [inaudible]. They were very young. They were born in '28. So they were only eleven years old or so. So they were children when that happened.

MG: Did anything about their life or the way they were treated change after that event and during World War II?

MS: They were not interned. My grandfather was a foreman, and my mother's eldest brother was in the war; he fought for the US. Many of the Japanese, American Japanese even, were interned in various camps, not only here in Hawaii; many of them were sent to camps in California, and they spent many, many years there. For those, obviously, they had everything

taken away from them. We were fortunate in that respect, where my family was able to retain all of their holdings and pretty much lived the war years here in Hawaii, pretty much unscathed.

MG: What are some of your earliest childhood memories?

MS: Well, obviously, it was a whole different time. I grew up in a parochial school, as well. Except for kindergarten, I went to school there, and I could walk to school by myself, which is something just unheard of today, which is really sad. You could walk the two blocks over to go to school, a lot of fond memories back then. I was trying to recall; going to a Catholic school, you're in a uniform, so it's a very different perspective. I took French as a foreign language from when I was in the second grade, and it carried over through college. I took French for many, many years. Not that it helped me any. I didn't keep it up, so obviously, it's lost. I'm still a Catholic today. I'm sure that the upbringing in the schools contributed to that. My mother was Catholic. And when we were growing up, like I said, she worked at St. Francis hospital, which had its own chapel and its own priests over there in a house on the hospital campus. So I would spend a lot of time at that house with the priests there and on the playground while my mother worked, so much so that when I was in school, they had a newspaper called the *Catholic Herald*. As a kid, you would go, and you would sell subscriptions. Because I had the whole hospital there, I would either come in first or second in the amount of sales in the state just because you had that opportunity to do that. So she was Catholic, and I grew up in that environment. My dad was not. My dad was Episcopalian, but he didn't really push any of that. A lot of the education was really brought about by my parents. I have three siblings. So my eldest sister, we're kind of close; we're three years apart. Then I have a younger brother and sister. My brother is six years younger, and my sister is eight years younger. So there were two different cohorts if you will. I'm very close to my older sister. Coming up, my mother, as a nurse, would work the three to eleven shift and the graveyard shift. So we spent a lot of time with my dad. That was very different from when my brother and sister were born. So that kind of flipped. My mother stopped working for a while to raise them. They were raised by my mother more than my dad, where my sister and I were raised more by my dad than my mother, at least in the early years. I think that you could see that later in life, the differences in how we were brought up.

MG: What do you mean?

MS: Well, just the closeness of our relationships with our respective parents and opportunities that we had. My mother never drove, so my brother and sister had all of their upbringings pretty much at home. With my dad, he would go out, take us out to eat at a burger place, and watch movies a lot more than my younger siblings – just small things that were differences in opportunities that we had just because of the time we spent with our respective parents.

MG: In the materials you sent me, you mentioned some cultural and family traditions. What would be some of those that the family would maintain?

MS: [inaudible] I'm trying to recall what I sent you. It's important as you go through the generations. It was important with my kids that they understood where some of this comes from. In Japanese culture, New Year's is a big day. Now Christmas has taken root, but it wasn't a big

deal in Japan. Christmas wasn't; New Year's always was. There are various traditions that go on, whether it's bamboo or mochi, which is a rice cake, or whether it's going to the temple. There are certain things that culturally they just did to ring in the New Year. Much like fireworks are done in the US, they have certain activities. If you look at it, you'll see in the various pictures that we go through every New Year to celebrate as it comes in. There are other things that are done uniquely in Japan. You see the fish prints that I put on the slide or the way that they conduct business. The Japanese built their businesses on relationship building. There are aspects of that culture that help mode how I work here in the US, just being aware because you're brought up in that world. You're brought up in a world of being very respectful of your elders, of your family, of building trust. The Japanese are somewhat unique in that, especially in the world of science. It's getting to the point where you build the trust in the relationship, which benefits the work environment forever. So as you flip through some of the presentation I gave you, or some of how my career evolved, you'll notice people in there that've been influential that I've known for thirty, forty years; some of them were as young as I was when we were starting out, but we became friends. Often in Japan, what it is, is after hours, they would go out and socialize. They'll go to the bars, which are very famous in Japan, where you build those relationships off of work. It's called *nomikai*. When you look at that slide, that's what it is. Even today, when I go there and meet with the dignitaries and the heads of the agencies, it's very customary to go off and bond over drinks and food. You do that over time. You build that relationship and trust. With some of them, it goes from year to year to year. Whether you're there or they come here, you continue to build on that. Some of these folks, even to today when they're retired, you maintain those relationships. But they're there when you try to achieve some of the things that you want to achieve at work. Access for me, let's say, to fishery databases or opportunities for cooperative research came about because you made the investment in those relationships. With others, you just wouldn't be able to get there. The Japanese are interesting because it's often trust first before you can make headway. The example I like to use is – we're involved with the science and management of highly migratory species, meaning tunas and billfish, that is a shared resource by other countries that fish the oceans. Years ago, to manage and do the population assessments of these resources, you need information from all the countries that are exploiting the resource. So we created bilateral, multilateral agreements with these countries to get at their data. But they're very reluctant because, like in the US, the fishers learn that when they give you the data, what normally comes back are regulations that impact their ability to fish. There are always restrictions. But with some of the Japanese, as you build that, they're more receptive because they trust you to share the data. We've gotten this on a number of [inaudible] with some of the data that came off of the drift net days. I don't know if you remember when Asian countries would use these "walls of death," and they were miles and miles of nets that lay across the ocean. They have since been by the UN [United Nations]. This goes back to 1992 or so. It was an incredible dataset, from a science perspective, because it caught everything. It gave you a sense of what's actually out there that you just would never know. Because we worked with them, we were able to develop a collaborative program and shared datasets to better understand. That wouldn't have happened if you didn't have those relationships [inaudible].

MG: I'm wondering how COVID and social distancing is impacting those efforts.

MS: A lot. You're sensitive to that, so I stay in touch, even today. Over the holidays, I wrote them all. You write them notes, see how they're doing because you know they're going to do this. It's not just them; you know their families; you know their spouses. So, like I say, it goes beyond just the work. In many ways, it carries over here as well. I mentioned the influence of the Asian fishers in the fisheries here in Hawaii. Likewise, many of those practices are carried out in the industry as well, of how you deal – so many of them were influential in creating the fishing industry that we see today. So likewise, many of the ways that I was brought up is shared equally by those that have run the industry for many decades. I think as time goes on, it's changing. Obviously, we have become much more multicultural. There are many different drivers now, but you still see the core of some of those cultural practices embedded in a lot of what we do now, not only science but actually in the business end as well.

MG: You mentioned your grandfather worked down at the docks. Where was this? What town?

MS: Honolulu. I don't know much more beyond that. All I knew is he was a foreman down there. My mother would just say that because of that, he enjoyed many privileges of the job. The example she would use is during the war, there were restrictions on meat. So a lot of folks struggled to find protein sources. But it's the source of why spam became a very popular food here in the islands because it was readily available, and so they used that to get by over those years. My mother would say that because he was a foreman, we didn't have many of the limitations that others had had because he worked at the docks, which was the context of why that would come up. But otherwise, I didn't know much more.

MG: While growing up, what was your relationship with the fishing industry or fishing period?

MS: None at all. That's a whole different story. When I gave the talk, you called it – what was the title of it? What did I call it? It was a very unorthodox path. I didn't pursue an education to become a fisheries scientist. In fact, when I was hired by NOAA [National Oceanic and Atmospheric Administration], I didn't even have a fisheries class. A lot of it just evolved – an opportunity and peripheral interests that just came to me.

MG: Growing up, were there classes or subjects you really enjoyed in school or teachers that stood out to you?

MS: I don't know. When I was – obviously, not in grade school. When I got to high school, I'll be honest; I didn't spend much time in high school. I was fortunate; I was in advanced math classes. I went to a private Catholic High School. How it worked was when you're coming in as a freshman, and you're in these honors math classes, you finish algebra in the summer going in. Actually there, you start your freshman year with geometry. So you finish that your sophomore year, and you're taking analytical geometry and trigonometry. Then, by your junior year, you're off to [inaudible] calculus at that university that's adjacent to the high school campus here, Chaminade University [of Honolulu] now. Otherwise, they were experimenting, at the time, with what they called alternative schedules. So on Monday and Fridays, you would have your schedule from periods one through eight. Then on Tuesday, Thursday, they'd reverse, so you'd go from eight to one. Then, Wednesday was the alternative. So they had a curriculum of things to do, where all the clubs would meet. You could do film study or some of the various clubs. I

was in the surf club. So that day was there for you to look at alternative learning opportunities. What that allowed you to do was to compress your schedule, if you will, into just a certain number of time periods. I began working full-time when I was fifteen years old. I worked at a gas station out here. So with the big blocks of open time, you're able to go to school for half the day and work the other half and, of course, beyond that. So either you worked in the afternoon into the evening, or if the schedule reversed, you could go in and open the shop in the morning, work through the morning, and then go to school. So I worked full-time since I've been fifteen years old and was able to still get my schoolwork done. By the time I became a junior, they had, at the time, an early admission program, which means that you could take some of your classes at the university, which was next door. So I only had three classes at the high school [inaudible] the university, which – they don't meet every day. Classes were either Monday, Wednesday, Friday, or Tuesday and Thursday, or, in some cases, four hours on Saturday for the semester. So I took advantage of that because I had the grades to do that. So you had more flexibility to be able to work and spend less time in high school. That's how I went for four years. So I wasn't really invested much as a high school student, as far as getting on with life, if you will. So that was mostly my high school years. Then I went to college. When I was done with high school, I went to college, and I got a job. This is where the career starts changing. I got a job with a physiology professor, who had me taking care of his animals. So what he did was he studied the – he worked at the med school, but he looked at the temperature physiology of animals, and he particularly looked at seabirds, sea turtles, monk seals, and dolphins. So he looked at metabolism. In the case of sea turtles, they [inaudible], so how they thermoregulate because they're cold-blooded animals. So I was there, and he did his experiments. Initially, I was there to take care of his animals. So I would every day go there. They were in tanks, so I fed them and made sure they were cared for. We did field experiments at one of the offshore islands here. So I would run his boat, make sure that he got there, drove him down there, helped him in the field as we looked at seabird nests and burrows they were in, and looked at the physiology through their habitat. I did that for a couple of years before leaving to go to the mainland to continue my education. But by then, my mind had been made up to become a – I wanted to get into physiology. So when I went to the University of Oregon, I obviously went to biology with a specialization in physiology, and my coursework followed that route. When I was graduating, of course, my professor gave me a recommendation to go to graduate school. I decided instead to come home. He had a job waiting for me, of course. So I worked for him for the remaining summer once I graduated. We were doing seabird work. But it was time to move on. So he said, "Well, the Fish and Wildlife Service has a program." Back then it was called the Young Adult Conservation Corps [YACC]. You got minimum wage, but you would go, and you would basically get started in working for the government, in this case, assisting with the stewardship of wildlife. But they were, at the time, launched into what they called the tripartite agreement. So the northwestern Hawaiian Islands – they had just passed Magnuson-[Stevens Fishery Conservation and Management Act], and the [inaudible] had just come about. So there was this big effort to do exploratory work of what the natural resources were in the northwestern Hawaiian Islands. You know what those are?

MG: Yes.

MS: So you know there's the main eight, and there's a whole stretch of Leeward Islands; they run off to Midway, Kure. So he said, "Well, there's a job that you can go and work for them

under this one-year project. It's working with seabirds." I said, "I love seabirds. I can do that." But it was to look at the feeding ecology of seabirds. So you looked at sea birds, you studied sea birds, but it was really what they ate. Of course, seabirds eat fish and squid. So that was really the launch into my career. They paired me up. While I worked for Fish and Wildlife, I worked at the National Marine Fisheries Service [NMFS] Honolulu laboratory [inaudible] Southwest Science Center. I had a mentor, really a wonderful man. He taught me because I didn't know much. We started from a huddle – all the different fishes huddle up – identify them, and more so, how to look at remains, how to identify animals that come out of a stomach when you don't have the whole animal. So much like a criminal investigation, if you will, you look at dissecting, you try and look at clues as to what the animal may be. You become an expert in osteology or the bone structure and the uniqueness of the bones of all the fish as they apply to your ability to identify what they are – the same with squid, cephalopods. We did that. I worked with a local expert. He was an international expert, but he was a tremendous help and influence on my life here on how to work with and identify squids through the various differences in their anatomy. The crustacea, you went and sought out experts. Whether it was through the literature, self-teaching, or finding experts, you learned to identify the vast fauna that makes up the basic food of the [inaudible] species that inhabit. It covers everything from small surface picking terns to the long-ranging albatross that have very diverse diets. So that was the launch of understanding the marine environment, what's there, why they're there. It really formed where I wanted to go. So after the year was up, my job was over. But then Fish and Wildlife said, "Well, we want to give you a job here" to continue to work and to work for them. But then the National Marine Fisheries Service also said, "Well, we'll offer you a job." Fish and Wildlife was a GS-5 biological technician. Fisheries offered me a GS-4. But I knew the people at Fisheries better. I knew what I wanted to do there. They were going to do marine fisheries work versus Fish and Wildlife, who, once it was done, you're not sure what you're going to do. You were going to go off and work in the refuges. I have no idea what would occur after that. So I opted to take the lesser-paying job with NOAA, and I've been there since. This is 1980. I finished the seabird work, and then Tom, who was my mentor – he was great. But I transitioned over to the true fisheries part of the lab. They were doing exploratory surveys for fishery resources among the Northwestern Hawaiian Islands. So I started spending time at sea on the research ships and learning all of the aspects of the fisheries, the species, and understanding what it is to do assessments, and so on and so forth. So I did that for the remainder of the time of that program, which then transitioned over to a seamount program, and then we went into the territories. So my career just went from there. We got into the latter part of the '80s. In the mid to latter part of the '80s, my supervisor then was George Boehlert. George, at the time, came over from Oregon State, and he very much has an academic mindset. So he wanted me to go back to school at that point. I said, "Sure." So I took advantage of the advanced studies program. I forget what it was called. It wasn't called advanced studies, but it was a very similar thing. The government would pay for your schooling. So a number of us did this. Two of my friends went off to the University of Washington for one year. They took that, and they got compensated; I opted to stay here in Hawaii. I did halftime, so I spread the year over two years to get the coursework done here and still worked at the lab. I went here under my advisor, who was the squid guy who I worked with during the seabird study who taught me all that. So I became his graduate student and eventually got my master's from him, looking at the assemblages of cephalopods in the North Pacific through frontal zones and how the assemblages change as you move throughout the ocean with respect to water masses. So that was a big change when I did that. Again,

whether it was George, whether it was Dick, or whether it was Tom – all of these folks were mentors. You can't say enough of the influence they had on your life, even the first one, who gave me the job of feeding his animals and instilled the love of science. Even today, he's still alive. He's in his nineties, but we still stay in touch because they had such a profound impact on your life, which is why mentoring is such a big deal. So when I finished my master's, he said, "Why don't you continue on and finish the PhD." NOAA was, of course, very supportive of that. I worked on NOAA projects all along. But if you go back to 1980, when I was doing work, one of the projects was a cooperative squid study with people at Hokkaido University. There was a fellow who became a very, very good friend – there were several, but this one in particular. He went on, over the years, to become a full professor at Hokkaido University. We spent many years on ships together, but we were very good friends. He wanted very much for me to do some studies in Hokkaido with him. So I decided at that point to leave the University of Hawaii and go do my PhD work with them. He said that I don't have to quit my job. I don't have to move. I would work on a project of choice, study under him, and work with them on doing that, and I did, which is why I had to go to Hokkaido a few times, obviously, to defend and to do some of the work there and to work with my committee. But it was an incredible experience to be able to get your degree there. The people that you associate with, even to today, whether they were your fellow students, who became a very big part of the Japan Fisheries Research [and Education] Agency – you didn't know it then, but that's how it turned out. They become folks that become your counterparts even as you move into – fast-forward ten, twenty years, and they're the movers and shakers in the Japan fisheries science world, or even international because they're all involved with PICES, the North Pacific Marine Science Organization. They were your friends, but now they're your colleagues and folks that you're very comfortable working with and tackling things together. So from an education point, that's how I got there [inaudible] unusual role that got me to where I was at that point, and this was in the early '90s.

MG: There are a few things I want to follow up on. When you started working as a teenager, what was your motivation for a job? Did you need to support your family, or were you starting a savings account?

MS: No, it's just what you did. One, I wanted to drive. So I wanted to drive. That was number one. My dad was someone who said, "If you're going to drive" - he really felt that you needed to support your own habits. So I told you he was great. Because he had his own cash register company then, he knew everybody. "So, what do you want to do?" He said I could work at any of the supermarkets, bagging there or any of the gas stations." He knew them all. He knew all the people who had the gas stations and all the supermarkets, anywhere I wanted to start a job. To be honest, I didn't really care about the pay; I wanted to do something that was kind of cool. So I said, "I want to do cars," partly because my uncle, my dad's brother-in-law, owned a 76 Union [Oil] dealership. My dad would always go to fill gas there. So I had a soft spot for that particular brand. So when he said, "What do you want to do," I said, "I want to pump gas, but I want to do it at a Union 76 station." They had one down the street. Of course, he knew them and got me a job there. It was kind of weird because my friends all went to work at the various supermarkets, and they started bagging. But they quickly went to cashiering and then to stock, and they were making twice as much as I did within the one to two years that I was back making ten cents [inaudible], but it was a cooler job if you will. The one big perk was it was during the gas crisis. So this is in 1973, '74, '75, and I never was impacted by the gas shortage because I

worked there, and so obviously, we had access to fill the car. Whether it was my family car or my car, I would be able to go in there. They had even and odd days. I would have to walk up the street to the highway and follow the last car with a cone into the station because there were such lines trying to get gas back then. But again, I was very fortunate; I never was impacted by the gas crisis because I was working there – one perk of being underpaid and doing that, but it taught me a lot. I was a fifteen-year-old kid, and the owner trusted me enough to give me the keys to open up in the morning. So we'd open up at five in the morning, and I'd go there, take the money out and open up the station. It taught you a great deal of responsibility even at a very young age. I think it laid the framework for how I lived my life since then.

MG: I was curious how you first hooked up with this professor from the University of Hawaii, the one that hired you to feed his animals.

MS: Fate, luck. I looked at an ad, and he was advertising for someone to take care of his animals. I called him up – no experience, but he said, “You're hired.”

MG: What was his name?

MS: His name is George Causey Whittow. He was a research physiologist but also taught gastro-thermoregulation for the [John A.] Burns School of Medicine at the University of Hawaii.

MG: I was curious how you found the University of Oregon and why that was the program you chose to go to.

MS: I couldn't tell you. I don't know. Back then, you look at [inaudible] checking out. I wanted a bigger school. I don't know why it was Oregon and why Oregon over Oregon State. That should tell you that marine science was not in my mind because if you wanted to become a marine scientist, you would have gone to Oregon State; I did not. I became a Duck instead of a Beaver. In retrospect, everyone who went to Oregon in the marine science [inaudible]. I'm obviously an odd duck there. But Oregon had a better physiology department, a better biology department, a better genetics program than Oregon State, so that became my driver more. I think I looked at Washington. There are reasons why I didn't go there. I can't remember now.

MG: Can you tell me a little bit about your time in college, what you did for fun, and the classes you took?

MS: Let me see. So I transferred there. Anytime you transfer from one university to another, the requirements change. So I ended up – Oregon runs a quarter system as opposed to Hawaii, which had the semester system. I didn't want to stay there longer because I was paying out-of-state tuition. So it was a pretty significant hit on my financial life. So my goal was to finish in two years. But to do that and to make up all the new requirements, I needed to take a substantive load. We were in the sciences, so they all had labs. I remember the first year; each quarter, it was between nineteen and twenty-one credit hours. You learned very early on, in a quarter system, that it's really intense. You try and go back, and you look [inaudible] year. So whether it was physics or organic chemistry or inorganic chemistry, some of those, they're year courses, so they have a book, and they'll use three quarters to get through the book. The ones that aren't,

like animal physiology or genetics or some of the semester courses, they compressed down the book into a quarter. So you cover the same material in less time. So it gets really intense. You just didn't have a lot of spare time. I spent so much time in labs, so much time in the classes, and, of course, studying because that's all you did. When I got there, obviously, I didn't know anyone. I eventually met a local guy, who ultimately became my roommate. My first year there, my roommate was a twin who came from California. We pretty much kept to ourselves. But I did eventually latch on to the Hui 'O Hawaii Club. Oregon has a very fairly large population of people from Hawaii who go to school there, even today. It's grown significantly, where they have a very large alumni association for the University of Oregon. So when I wasn't studying and I wasn't in classes, they would gather at the student center, where you would just go and hang. We didn't hang in our respective living places. I lived in an apartment off-campus; some lived in the dorms. Our central place was the campus center where we weren't eating, we weren't studying, we were playing with the pinball machine or whatever it was. This was in the 1970s. So a lot of distractions. They filmed *Animal House* when we were there. Some of my friends were going – they got jobs as extras on the set. Of course, it rains all the time. For someone from Hawaii, that can get pretty depressing. So we spent a lot of time indoors. I would go there in October, so just when the rainy season was coming on, the cold was setting in, and I would leave in June, right after my last final, just when it was becoming sunny. I came back home to go to work back with my professor. So other than just going to classes, I really didn't have much to do. I did take up golf because I needed a PE [physical education] requirement. So I took up golf then, and that's where I started playing golf, even today. So that was one extracurricular thing that I did. That was pretty cool. There was a golf course that was close enough that you had to walk if you could, but again, it's cold. So you're always playing in the wet, cold. If you talk about climate change, I think you get more sun there these days than you ever did when I was attending school there.

MG: What were you hoping to do then with the degree you were pursuing? I know where you ended up eventually. But what did you think your future career would look like at that point?

MS: You wanted to do it. You thought about working in academia. I think that's what the goal ultimately was [inaudible] graduate school. I recall when I was getting ready to leave, I ended up coming home, but I went down to visit Scripps [Institution of Oceanography], and I met with a professor there, Fred White. He was a physiologist there, and I sat down with him. It just turned out that he had just gotten bad news on three of his grants; they all got turned down. So he was in a foul mood. He told me, "Don't do this." He really discouraged me from pursuing graduate work. He said it's just not worth it. So I took it to heart, and I decided no, I was going to come back and work here and look for a job, not really having a plan, which is why when we were done, and my professor said, "What do you want to do," we talked about staying and studying animals. Then the Fish and Wildlife Service job came about. I was very unambitious then.

MG: Were you working for the Fish and Wildlife Service off and on, or was it just for the one year?

MS: It was one year. We had various names of what it was. I'm trying to look. It was a program that ran from '77 to '82 by the federal government. It had various takeoffs on that. It

was trying to get people interested in the federal system or get them exposed to it. So I guess when I worked for them, it was in the middle of that program. It was just a one-year, minimum wage job. You're coming out. You're young. It was – "I can do this."

MG: The surveys you were doing were on the NOAA Ship *Townsend Cromwell*. I read it was a rocky ship. Did you get seasick?

MS: Initially, your first time, yeah. People joke it's like a cork. I could take the whole hour talking about my adventures on the *Cromwell*. I loved the ship. I've sailed on bigger ships. I've sailed on Japanese ships. They all have their pluses. But the *Cromwell* had character. It's a smaller ship, so you didn't have separate officers' messes or engineering. We ate our meals together. We hung together. There was no video, so we watched reel-to-reel movies in the galley every night with a selection of one because whoever had that job got to – when we left port, we would get – they were normally thirty-day cruises. So they would get maybe thirty-five movies from the Navy. During the course of the cruise, you would see everything that you brought on. So whoever was running it would take what you saw on any given night. So we'd gather in the galley. You'd eat there. Recreation was there. Or you have an event, so just hung out with the crew or whoever was out there, the rest of the scientific party – smaller ship. You got to know people. The crew, when I sailed, were "lifers." They were former fishermen that came on, and they were on the ship for almost – it was unusual for somebody to leave the ship. So the crew was the people who lived there, and they were there for twenty years-plus. They were there before. They laid up the ship in 1973 during the big RIF in the [Richard] Nixon Administration. We came back. NOAA took over the ships, if you recall, in 1975, '76, whenever that was. They brought in their officers, the NOAA Corps officers. But these folks who were manning ships as private citizens prior to that became the boatswain, or they became the lead fisherman, or they became roles on the ship, but just not drivers of the boat. That became NOAA. I learned after I joined that my uncle, my grandfather's brother, was the radioman on the *Townsend Cromwell* before she was laid up because of the RIF. I only learned that after the fact when I started sailing on her, and those that continued to sail obviously knew him and asked if I was related, and we would exchange stories about who he was, how he was. Then you reflect back; when I was a little kid, and I would visit them. He, as well as a scientist whose wife worked with my mother, would bring back things from their journeys. You never knew that until well after you were working for these people and piecing together, putting two and two together, that wow, this is a small world. You're now working on a ship that these folks have been doing for many years. Somehow, it impacted your life even as a little toddler.

MG: Were you close with that uncle?

MS: Obviously, they sail two-hundred [days out of the year]. But my Aunt Mae, his wife, would always say, "Uncle is coming home. You guys want to come over?" So we would go over three, four times a year just to visit. My grandfather died young, and so it was an opportunity to go and spend time with him. I don't know. It was just something you did because they were relatives, and he was my only other grandfather's brother. So we did. It wasn't an excessive amount of time, but it was time to spend with them. What's ironic is that when he – they laid up the ship in '73, they moved to San Diego, and he died within the year after that. It was too bad

he never enjoyed retirement. But I did go up and visit his wife in San Diego after that at some point. At that point, I had not started working for NOAA yet. It's too bad she never knew that.

MG: You mentioned the RIF during the Nixon Administration that caused some ships to be laid up. Can you say what happened?

MS: Obviously, it's before I started. What I know is in 1973, I believe, was the last reduction in force [RIF] in the federal government. At the time, some of the folks who I met later on in life got jobs elsewhere, so I ran into them and got to meet them. Or those that did not get RIFed, and they were still at the Honolulu lab, and so you would hear about it. But during that course, they took the *Townsend Cromwell* out of service. It was just part of the government's reduction at the time. Then, when they created NOAA – we just had fifty years, so I ought to say it was in 1970, but the Corps didn't take over the ships, I don't believe, until later. It was in 1976 or so that she came back out under the auspices of the NOAA Corps. It changed because it goes back to a time when, prior to that, the ship worked for the lab. The lab was created in 1948 as the Pacific Ocean Fisheries Investigation [POFI] under the Bureau of Commercial Fisheries [BCF], Fish and Wildlife Service [FWS]. So they've been around for a long time. Actually, the ships and the crew were employees of the Honolulu laboratory. So we [inaudible] ships. We ran the ships. We had the [inaudible]. It was all under the purview of the lab back then. When they came [inaudible] they no longer were employees; they were employees of NOAA. So that was a fundamental change. I don't know all the details because I wasn't there, but that's the history that you hear. It was a pretty big change. There was still Kewalo Basin down here in downtown Honolulu. The ship would tie up there amongst the other smaller boats, the charter boats, and some of the fishing fleet that was down there. At the time, there was a tuna cannery. Bumblebee had their cannery there. The major fisheries were pole and line fisheries for skipjack that went into the cannery. So it was over the next five years or so after that, they lost the lease for the ships. So the ships moved over to the University of Hawaii's Marine Center at Sand Island. It was also a time when the cannery shut down. So you saw a ship pulling lines, skipjack, as the primary fishery in Hawaii to the birth of the longline fishery. That was a big, fundamental change that you saw in the fisheries in Hawaii. I would go down there to measure – I would sit there for hours, waiting for these pull and line boats to come in to unload at the auction. We would go there. When they come in, we would [inaudible] bins of fish that would come into the cannery. That was part of our duties, in addition to going to sea and other things.

MG: Was that your first position with NOAA?

MS: Yes. That would have been when I pretty much started working for the fish side of NOAA. So you went to sea on fish projects. You meet here. So as technicians, you would make all the gear we use in our surveys. You would sample tuna that came in from the commercial fleet. It was a ciguatera program. That's a dinoflagellate that gave off this toxic [inaudible] when people would eat – primarily a reef fish – and it would cause numbing, in severe cases death. So we ran a ciguatera sampling program of fish that came into the University of Hawaii, where they were trying to determine whether they could tell when the fish was toxic, meaning they had ciguatoxin, and they would pull it in, so the folks wouldn't eat those particular fish. Up to that point, they would market amberjack. They were one of the big carriers of ciguatoxin. So since that time, it's never been allowed to come back and be sold on the auction floor, even today.

Even if it's just a percentage that we have, without a means to adequately identify the safeness of consuming that fish because of ciguatoxin, it never became a commercial commodity, although they're very abundant.

MG: You mentioned your mentor, Tom. Was he someone who worked for NOAA?

MS: He worked for the lab. He was a scientist. So he's the one who was partnered with Fish and Wildlife to do the cooperative seabird feeding study. So he being a fish person and a Fish and Wildlife bird person, I spent the time with the fish people to identify all of the food items, the diet items, because Fish and Wildlife didn't have that expertise. Of course, I didn't have it either. But it was Tom's training that I did for three years as we went through there. Then, of course, it ended up being my first published peer-reviewed publication as well.

MG: Neat. Do you remember what that was titled?

MS: Yes. "Hawaiian Seabird Feeding Ecology." It was published in *Wildlife Monographs* in 1983, I believe.

MG: You mentioned there were a lot of adventures aboard the *Townsend Cromwell*. Can you share a little bit from that time? I know you would camp out on the islands.

MS: That was the first one. That's something that you never think that that's the last time you do something like that. They're a National Wildlife Refuge. As it went along, people weren't even allowed on the beaches anymore for the protection of monk seals and sea turtles and the interactions of humans. You go back then, and it was such a different time. And you have to remember that it was a time of exploration. So even our surveys – we're setting gear in pristine waters, waters that are, for the most part unexploited. So we were doing surveys to assess the resources for the potential commercial fisheries of spiny lobsters, deepwater shrimp, Deep Slope bottomfish, pelagic fishes, and all of those things as you went out and sampled. Back then, it was a time where you ate very well. Let's put it that way. It was an incredible time to be looking at an ecosystem that pretty much was – you want to say pristine. It's not totally, but pretty close. As you go up the chain, the fauna – you drop the anchor, and you have swarms of giant crevalle jacks swarming around the back of the ship. It's something you just don't see. Even fishing, when you'd fish, to drop a hook on the side, and that was always – you could fill up the back of the boat with their catches. They were so bountiful. It was pretty incredible. We did that. You'd go up there, and we had different gears, different species that you surveyed. Of course, all of these became publications in time. What was really good about that period is that we had another boss; his name was Richard [Uchida]. Back then, I was still a technician, but the biologists felt that only the biologists [inaudible] write. Richard felt that if you want to develop people and train people, you learned to write. You learned to do the science. So he did that. So all of us in the technician pool were given species and projects. We would go and collect the data, whatever it may be – whether they were diet studies, whether they were [inaudible] studies, whether they were reproductive studies. You would go. That was yours to work up. Collect the samples you need. Develop what you need. Do the analysis and write the papers. He empowered all of his folks to do that. Like I said, it was a cooperative program with the Fish and Wildlife, the University of Hawaii Sea Grant, with the state of Hawaii. In the end, there's a

compendium of volumes of all the work that was done over the period, and all of our papers got published there. So it was the launch of your ability to be a scientist. For that, you have to be grateful for his commitment and investment in folks to develop them and allow them to transition to scientists rather than just technicians.

MG: This was Richard Uchida?

MS: Yes, Uchida. He passed away last year, as did George Boehlert.

MG: I'm sorry to hear that. It was George who really encouraged you to pursue graduate work. Was that before, during, or after the next position, which was the fisheries biologist position.

MS: I became a biologist in --

MG: I have '86 in my notes

MS: Was it '86? So it was when I was working for – it was right about the switch, right around the switch.

MG: Your next position was under Jerry Wetherall and Jeffrey Polovina, whose name I see along with yours in lots of papers.

MS: Yes. So when I was working for them, this was in the late 1980s. I mentioned it was a drift net program. So it was a time when Korea, Taiwan, and Japan were laying miles of drift net on the high seas. There was a concern internationally that the boundaries that they were fishing were encroaching on high sea salmon, although the foreign countries were targeting squid. Of course, I had a long history of squid by that time because I worked with the Japanese for a while on their squid surveys. So they asked if I would work for Jerry – go over and work with Jerry, and this would be collaborative work with the Alaska Fisheries Science Center. It would be involved with working internationally with Canada and bilateral, which had Korea and Taiwan, and a big observer program that monitors commercial high seas drift net fisheries. So I did that over the next several years. But that took me away from the coastal insular fisheries into the world of the high seas. It's important because that was what I did from a science research side for the remainder of my career. It started me down the road of looking at the greater oceanography of the Pacific, to understand why animals are distributed where there are and why, understanding the dynamics of the ocean and their influence on living marine resources, albeit from the very smallest plankton all the way up to the charismatic native fauna. This was the launch into that world. Jerry ran, at the time, the open ocean program; they called it the pelagic program. So I worked that with Jerry, and it was an incredible program. Still, my science interest is there today. So as the director, I still stay involved with high seas science. Even as we look at new technologies and the loss of ship time and so on and so forth, having that period to invest – and if you look at my dissertation or even my thesis, it all centered around looking at the ocean and how they impact life. Where was I going with that? After Jerry, Mike Laurs became the lab director. He came over from La Jolla. We were still part of Southwest. Jeff Polovina was going to – they were going to create this small think tank and a lab. So it was just going to be Jeff and the three of us. We were going to go off and have the ability to think outside the box

and look at some science issues. So they asked if I wanted to join Jeff. So it was Jeff, myself, and a couple of other fellows that became this – I'm trying to remember. It went through various names – Ecosystem and Environment Investigation, EEI. So I did that and pretty much was allowed to have some flexibility in the questions we were going to pursue.

MG: What did that result in?

MS: You see all the publications? [laughter]

MG: Yes. [laughter]

MS: That's why. The big thing, what it did – it ended up developing a cooperative relationship with the University of Hawaii. So when I went there, and obviously, I did my masters there. [inaudible] very similar. I met this professor, and we became very good friends again. So we shared interests. He had his own interest in ocean dynamics, but we both cared about both sides. So we ventured off, and he became my partner in all of the surveys that would follow. As I would go out as chief scientist, he came out – and we would together design the questions of what we needed to get at. His name was Robert Bidigare. He was a professor in the Department of Oceanography. With him came his postdocs, his students, also the people he partnered with, his other colleagues. So why there's so many papers that we created is because now you have all of these people in each of our respective studies. We shared data. We shared the analysis. We shared paper. We shared the credit. So if you look at all of the work we did with eddies, with the satellite work, and interpreting the satellite information with in situ measurements to validate, corroborate what satellite data gave you throughout the ocean and their impacts, that all came about through the efforts of these collaborations. Jeff was my boss, so Jeff also was involved with some of this. We saw technologies evolve. When we started this, when you look at satellite remote sensing for the ocean, it was all about sea surface temperature. A lot of people were jumping on that bandwagon with Jeff and all of our partners. We took a different approach. We looked at altimetry, which was sea level height, that helped us interpret what ocean dynamics were really going on and, in ocean color, the productivity of the ocean in these high gradient regions. So it fundamentally changed how you could use satellite products to understand what was going on. So much of the work that would go on for the next ten, fifteen years fed off of that, whether it was the application of the satellite data to the movement of animals or how it influenced the productivity to the vertical motion of the ocean. We did that for probably the rest of my science career until I left to become the deputy director.

MG: I want to go back to understand better the drift net impact studies you were doing in the '90s. In 1992, the UN declared a moratorium on high seas drift net fishing. How did this relate to the work you were doing?

MS: Well, they looked at it, but like many things – and this is just my opinion – there are a lot of politics involved in international decisions. They felt the ban of drift net fishing, regardless of what science came out of it – although we learned an incredible amount – it just felt that the loss of life of what they were doing warranted closure, period, independent of what science said. The random deaths of turtles, whales, dolphins just didn't justify the fishing practice. Much in the way they look at trawling and the destruction of the seafloor habitat, it's getting to the point

where you say, “Well, is the fishing technology or the way you fish, is it justified in the damage that it does to your environment?” So it was more of that than our work, but it definitely helped us understand the ramifications and what was out there and the ecosystems that were being impacted by the gear.

MG: Something you said to Ed Glazier when he interviewed you was, “We didn’t know at the time, but this study gave us information that we would never know again.” I didn’t know what you meant by that.

MS: So it’s hard to describe. When you think of how big the North Pacific, and you look at a map of how much sampling was conducted through these observer programs – imagine this. You have these nets for less than two years, but it was about a two-year period, let’s say. And you sampled the upper ten meters of the surface with this gear, and you caught everything. So you knew things that took hooks, things that didn’t. So you had an idea of the distribution of species and species assemblages that you never knew, and you never will know again because there will never be a program that you’d be able to cover the ocean like that ever.

MG: This sounds like a great way to start your career. You had been working for a while, but it seems like it was such a great opportunity.

MS: It was. I don’t want to belittle any of the other things that came before that because you learned so much from the time being at sea, the time being on the Japanese ships. An interview can only capture so much of it. There were things that you learned from the seabird feeding study even back then, as a technician, that formulated what ecosystem-based fisheries management [EBFM] needs and wants. People say, “Well, animals each squid.” But they become very species-dependent. With seabirds or any of these coastal species that feed on the same species, we have parts of the ecosystem that feed on the young. There are parts of the ecosystem that feed on the adults. So given species have different roles in the ecosystem and various [inaudible] stages of their lifespan. They need to understand that because a species is not just a species, it’s how they interact in the various stages, and they occupy the environment in different stages in different ways. Some, they school as young at the surface. So goatfish, if you look at the seabird paper, they’re probably the top two or three species that many of the birds feed on. But that’s because they are, as juveniles, balled up, made available through predatory fishes that drive them to the surface. But as adults, they’re settled on the floor of the reef, so they’re no longer available as prey to many of these. So it’s understanding how they work and how the system works. I wouldn’t have had that if I didn’t work on the ground level through the studies that we did there, through the fisheries process of what you’ve been able to observe, through the drift net program. In all of them, whether it’s in the seamounts, they contributed pieces that helped you understand the whole. So today, whenever I talk to my scientists, or when I talk to people, I use the word holistic, understanding the whole because everything that people study is a piece of the whole. You need to understand how the pieces fit together. This goes not only for the science but from how a center operates. We need to know how it all fits together to make it all make sense. So as we launch into climate, as we launch into EBFM, that’s critical that people understand that one piece doesn’t function without impacting another. You don’t have bycatch issues just for whales. You don’t have bycatch issues just for seabirds. They all interrelate because they’re all there being taught in the same ecosystem driven by prey dynamics,

driven by oceanography, driven by whatever it is that's attracted to the gear, whatever all of the pieces are, you need to understand the whole to really getting an understanding ecosystem providing the science of that ecosystem to the manager, who is going to make the decision for an ecosystem-based policy.

MG: Did the PICES program grow out of these efforts or this time period?

MS: No. So if you go back to the drift net program, so the drift net program was, on the science side, partly was – I don't know what the right word is, but they were part of the International North Pacific Fisheries Commission [INPFC] back then. They were dealing with predominantly salmonic issues. They were North Pacific temperate resources. In 1992, or thereabout, towards the end, the drift net program was the last science program INPFC took on. After that, they created the North Pacific Anadromous Fish Commission [NPAFC]. So they were dealing with high seas salmon, the donut hole. It involved Russia, Canada, the US – countries that were going to exploit international waters for salmon. Well, it didn't have a place really for this science program, so around 1992, Warren Wooster, who was a professor at the University of Washington, created the North Pacific Marine Science Organization, or the Pacific ICES [International Council for the Exploration of the Sea]. ICES is in the Atlantic. So the Pacific ICES was what Warren created, and that's what they were. The big difference between ICES and PICES was that Warren didn't want the science to be the major drive to feed management. So PICES does not do stock assessment. Their primary function is not to provide management advice. They provide the science to understand the marine systems. Until today, that's what it does. Actually, for me, my involvement in PICES was born from my involvement with INPFC back when the science was part of that.

MG: Did you work closely with or get to know Warren Wooster. He was a legendary ocean scientist.

MS: I knew Warren. We didn't buddy around, but we were acquaintances. When we worked, I was very young. My fondest memory of Warren – he came out to Honolulu, and we were having one of these smaller meetings at the East-West Center. We were at Dole Street at the time. Warren came over, and he says, "Mike, I want to visit the labs." The lab was built in '48. This is into the '90s, right? This is pretty in his history. He'd retired, but he was still alive. I said, "You want to see the lab? People want to condemn [the lab]. Why do you want to see the lab?" He said, "I want to say that I've been to the mecca." He said, "It was the mecca. It was the birth of fisheries oceanography." You have to go back and understand POFI to understand that. Back when they created the Pacific Ocean Fisheries Investigation there, we had three ships, four ships. I recall more. The three have become [inaudible]. All they did was go out and observe the ocean and their impact on tuna and the development. So this is tuna exploration back in the '60s. It started in the late '50s, but it was actually the '60s, the early '70s. We were born in the open ocean, and coming back for me is full circle. But it's when *Townsend Cromwell*– they found the Cromwell Current [also known as Pacific Equatorial Undercurrent]. So this came out of then *Cromwell* and [NOAAs *Bell M.*] *Shimada*. They worked on the high seas oceanography in La Jolla. That's where a lot of what we learned about ocean currents and their role with highly migratory species and some of those came about. It was the findings of that group, back when as BCF and POFI, that a lot of this was discovered. So, for Warren, I guess that was a big deal. I

think, for me, I came in at the tail end. I worked, when I started, with [inaudible] or with BCF. They were the [inaudible] – so these were the folks that were there when they created POFI. I was probably the last bridge to those days through the Magnuson, through the shift to insular sources, the resources of the two-hundred mile EEZ [exclusive economic zone], to the impacts of the Marine Mammal Protection Act [MMPA] and the ESA [Endangered Species Act] on our management, to the coral reef emphasis. All of these came about during that [inaudible], and a lot of those folks were there during the transition, but not many people had the opportunity to actually have the conversation with those who worked back then. They also, as the pioneers, if you will, were the ones that had the initial outreach to the Japanese. So if you go back into the '50s, '60s, or so, you see a lot of the original works of the US Fish and Wildlife Honolulu Lab were cooperatives of the National Far Seas Labs [National Research Institute of Far Seas Fisheries, NRIFSF] in Japan, in Shimizu, where they together created a lot of what we know today about [inaudible].

MG: I wanted to ask a little more about the master's program. Had you started your family at this point? It must have been a lot to juggle.

MS: [laughter] I got married in '87. It's interesting. I started my master's just about when we were starting a family. What do you recollect? Well, I recollect doing my physical oceanography take-home final in the hospital when my eldest daughter was born. I recall working on my PhD during all the hours – I have twin girls after that – working on that during the wee hours to get that done when they were born. So the early years were pretty crazy when you think back on what you're able to accomplish. Maybe it's a mind over matter thing. I don't know. But yes, they all happened at the same time. But I wasn't going to sea anymore. My days at sea were quite numbered at that point.

MG: I bet. You had your hands full. Can you talk about moving into your next position with the Ecosystems and Habitat Program?

MS: That was the work I was doing with Jeff. That was that period I worked with Jeff. It was weird. You're the leader, but all you had were – I had one person, and then they moved someone else in there. So I think, in the end, I had maybe three people total. But it was a program that, like I said, were small programs, but we had a lot of flexibility to address what we felt needed to be understood from a science perspective. We were, I think, incredibly productive. If you look from a science perspective of what came out, the intent of that small group, I think, speaks for itself.

MG: This was the era of the GOES [Geostationary Operational Environmental Satellite] satellite, and that really influenced your work a lot.

MS: Yes.

MG: Something else from your interview with Ed, you said, "Folks from the East Coast came in. They brought monofilament gear with light sticks and the birth of the swordfish fishery, which didn't exist before." What did you mean by that? What happened?

MS: So it was in the early '90s. There was a fellow. I think it was Bruce (Monnier?). He came in from the East Coast. They were going out. There was no swordfish fishery. So they went out there. The deep longline fishery would catch swordfish, but they brought a technology of using – the longline fisheries here used to use what they called basket gear – multifilament, longline, that you'd have a preset longline – I'm not sure how familiar you are. Then you would have baskets. So every basket represented drop lines. They were very set. You would go out there. You set them [inaudible] as you went down there. When Bruce came out, and there's a whole other story to this on the industry side, but I'm not going to go into that. They were able to bring out just a reel of monofilament as your mainline, and they would use a reel to just go out, and they would time when the hooks would go on and when you'd have a float. But on this, they learned – what Bruce came in with was if you set your gear shallow because swordfish tended to occupy more shallow [water], and you put light sticks to attract them, he said you would catch swordfish like they did on the East Coast. Sure enough. It started a migration. So I know boats came in from the North East Coast, old [inaudible] back from the folks who used to fish there for years. Some boats came in from the Gulf of Mexico as shrimpers who were displaced and took up longlining as a means to fish. And they came out here. So it exploded, where the surface longline fishery for swordfish was born and became the sixth largest fishery in the world. It was really amazing, but what happened shortly after that was the environmental impact. One, light sticks. Light sticks are plastic glowing glow sticks – marine debris. It was incredible how many light sticks ended up in the debris world. That quickly was made note of, and eventually, they banned the use of light sticks. Then came the interaction with sea turtles. So they actually shut down the fishery because of the interaction with sea turtles for about three years or so. It took the courts to come in to make hard caps on turtles, require no light sticks, but you'd have to use circle hooks. You have to dye your bait blue. You couldn't use squid bait; it'd have to be fish bait. So there were bycatch mitigation efforts that went into their – to allow the fishery to resume, and that went about. It was a non-fishery, much in the way the tuna fishery was there, but it was on a much smaller scale. It was a total shift in the '90s that we saw a longline fishery reach the level that it is today.

MG: Is there anything up to this point, in 2003, when the Pacific Islands Fisheries Science Center was established, that I'm missing?

MS: I'm sure there is. There's obviously a lot to talk about.

MG: I know. I have eleven pages of notes, and I know I won't get through all of them. I did want to ask more about when the science center was established. What is the impetus for this change and the impact? What were the administrative challenges? This was also when you took over as deputy director.

MS: So you have to remember, at the time, Senator [Daniel] Inouye was still alive. He was in office. He was obviously a big influence in what happened in the fisheries world out here. We were, as you know, subordinate to the Southwest Fisheries Science Center. So anything that you really – our fisheries council was here. Of course, they were big proponents of creating your own region. It was a lobby for years, not by us but by folks who felt that you needed to have your own region. In 2003 was the realization of pulling the Honolulu Lab out of the Southwest Fisheries Center and creating the Pacific Island Regional Center. And it changed. It changed the

landscape for the fisheries out here. It wasn't just for Hawaii. It was putting the jurisdictional responsibility for Guam, or the Marianas, and American Samoa as well. So all of those pieces came in 2003. So the Science Center, we were part of Southwest. So we had a lot of – we had some of the science already going on. So it was: what will it take? The main thing for us was the transition to being an FMC, a financial management center because you're your own region now. So know you don't go to La Jolla. You're going to DC. So there were some fundamental changes in managing our budgets or managing your operational enterprise. You're on your own. For the regional office, there were all of six people probably that were part of the then Southwest Region. So they had to fully build-out. So there were five million dollars appropriate for what they called the Pacific Island Region – they called it the transition fund if you will. That was to help create the region and the center. Also, they have to, like all the other regions, get a sustainable fisheries division or protective resources division, habitat conservation division. We have international [inaudible]. So there was a lot more. So you can imagine going from an office of six to now, they're about an office of a hundred. The RA [regional administrator] there will say they're still not fully staffed, but they have to build up to meet the needs of the region. But in addition to that, they also created the Office of Law Enforcement [OLE] out here. So there's that whole section that's out here as well as the general counsel [GC]. So they have three lawyers. I think they're trying to get a fourth. So the whole enterprise from 2003 has changed a lot. For OLE, for GC, for the regional office, they saw the biggest change from 2003. For us, we were going through a reorganization. We've gone through some focus changes. We've built to meet the need of the managers. So we're structured very much like having [inaudible] a habitat, a (PR?). So there's analogous pieces of the science on the regional office side. The big changes were really, operationally, from IT, personnel, acquisition and grants, budget – being independent in that respect, as well as how to build the science operations – whether it's getting the permits, getting NEPA [National Environmental Policy Act] compliance [inaudible], running the labs, running the small boats, running the tide program. There are all of those pieces that you need to run the science operation that's over and above what you normally get in the reg [regulation] side, FMCs [Fishery Management Council]. So that's what the deputy's challenge was – was to create that transition. It's been a [inaudible] we've been in transition since. It's always evolving. It's always trying to meet the demands for a changing administrative culture throughout the agency.

MG: Can you talk a bit more about how the scope of your work changed as deputy director?

MS: Over the twelve-year period? Well, you'd like to think you got more efficient at it. 2003 was also when the science centers entered [inaudible]. It was more than just becoming an FMC. It was introducing a pay-for-performance system that no one's ever experienced. So that, I think, as a deputy, was – I don't want to say the most challenging, but certainly the most interesting challenge that you had. Even that, it evolved over the time that I did that. The model changed. The drivers of how do you – as it matured in the Fisheries Service, it had to align with how NOAA implemented it. So there were always tweaks. So you were always challenged on how to do it to the best that you could under the constraints imposed by the rules put forward by the Department of Personnel Management. So you had some control, but with others, you didn't. It always evolved. It evolved as people got (capped?) off. Every year was a little different just because you have new folks. You have folks where there bonuses or people that were no longer eligible for increases. That was a big part of being a deputy. The other parts were

accommodating the changes. So the coral reef conservation program was a new piece that was independent. It wasn't a fisheries piece, but it was something that came out in the [Habitat] Matrix Program under the Vice Admiral Lautenbacher, if you recall. That had its challenges as you try to coordinate with the Coral Reefs Conservation Program. Yet, all of the fieldwork came out of the science center. So how to find that balance the need to get at what they needed under the umbrellas of maintaining physical – how should I say it? Physical management, if you will. Field surveys are a very expensive proposition. Even today, as you juggle increasing costs from the surveys as well as from the labor [inaudible] that you see every year, it's a challenge. So you juggle every year that evolution of what that entails and still maintain what you need to meet your core requirements for the Fisheries Service under Magnuson, under MMPA, or ESA, and, like I say, the interactions of all of them. Dealing with the council and not as a deputy. We can get into that when we get into the next piece of it as director. So there are always different operational aspects of ships. 2003 was also when we got the NOAA Ship *Oscar Elton Sette*. *Cromwell* was decommissioned. We got a new ship. In the early years, I was a ship person. So I went to Florida to see the conversion, came back, see how that conversion worked to our requirements. T-AGOS [Stalwart-class auxiliary general ocean surveillance ships] like the *Sette* is a very different ship from *Cromwell* – very big. You couldn't do things you used to do on *Cromwell* like you could on *Sette*. So it changed your mindset as to how it is. So that, operationally, became a little bit of a challenge. At the time, I was the vessels person. So I dealt with all of the vessel issues on behalf of the center, as well as all the other pieces that come along with operational – that comes along with being the deputy. So there was never a dull moment – never is. I always had the hope of keeping my fingers in doing some of the science. You realize that often that's not possible. But my old director used to tell me the job is really to manage the science. But to keep abreast of what's important in the science world and where we want to go from a vision standpoint was always there. It's something you have to find time to make sure that you stay engaged to know what that is, to keep the pulse of what's important.

MG: How did you move into the position you're in as science and research director?

MS: When we became a center, and we became a region in 2003, pretty much from the beginning, Sam Pooley was the director, and I was the deputy. By and large, that's how it was. So we [had] only one director and deputy that the center had seen. When Sam retired in 2014, obviously, I applied for the job and was selected. The hire was very straightforward. It was open. I applied and got the job. The bigger question is what changed in 2015 when I went from deputy to the director.

MG: Well, tell me about that. What changed?

MS: Well, obviously, you do one job, and they're very different. The first transition was understanding what that is. Someone like me, I felt like – I went to hire a deputy, but I always felt I could essentially do both. But no, you can't. So that was the first realization. But the transition to divide our roles, I think, was a real challenge, and for me to let go of the deputy pieces, particularly with the budget – because as you go and you drive – I always feel you have a vision. When I was a director, your job was to have a vision of where you want to go. It's hard to implement a vision without having resources to put towards visions. So the budget and a vision go hand in hand often. Trying to build how that works took a little bit of time, how to

define the roles. As much as I love Sam, and he was the director, we did change things when I came in. I think the biggest one was I created a board of directors. So the directors of the divisions now became a board that I used to advise. I also created a science council to provide science advice that we talked about pertinent issues. What's the most important? What are we needing to get into or not? What are we going to drop as you deal with managing a fixed amount of resources, and you have you to prioritize what is it that we're going to do and we're not going to do. They're not decisions you're going to make on your own. So you have advisory teams. For me, it was the directors on behalf of the center as a whole and on the science side, just to get a sense of how we deliver the [inaudible]. It's irrelevant. So that was a big shift. Of course, the first thing was to make sure that your deputy and yourself are on the same page and you're in lockstep. Trying to get some of that in practice, I admit, was longer coming than I thought it would, or I was willing to give it. But I think in the end, it was great. Of course, he left to become the director of the Office of Science and Technology about a year and a half ago. So I'm currently looking for a new deputy. But I think we'll be in a good place when all is said and done. We always have to change. I don't think our Board of Directors had ever had a permanent group for much longer than a few weeks to a month or so. People retired. People left. So we're always somewhat in transition. Even now, the big one is I don't have an OMI [Operations, Management, and Information Division?] or a deputy. So as you rely on them to think as a team, it's a bit of a challenge sometimes as well. But I believe it's the model that needs to go forward. When I became the director, we also are the SSC [Scientific and Statistical Committee] at the council. We have a couple of folks that sit on the SSC, but for the most part, we're in the gallery just taking it in. I used to sit there, and they would be there talking about what the science center thought, or what they should do, or what they did if they got it wrong – whatever it is. I'd sit there, and I'd bite my tongue because you really didn't have a means by which to voice opposition or have input into that. So I became a director. I have a long-time relationship with Kitty Simonds, who's the executive director of the [Pacific Regional Fishery Management Council] because we've been there from when I started. So we talked about some of the concerns I had and where we wanted to go forward. We wanted to build a stronger relationship. So we came up with – and I asked her, "How about we set up an ex officio seat with the SSC for the center's director?" She thought that was a great idea. So that went into place. Well, of course, that's a lot of work. Last year, they even went to adding a fourth meeting. So now the council meets four times a year; it used to be three. Then, in COVID, the whole idea of that was to make sure you have one meeting in American Samoa and one meeting in the Marianas. But in COVID, you couldn't travel. So now, you had four a year, and it seemed like you were at the council's beck and call all the time. But I think it's been good. I think we've good. I think we've built a much stronger understanding between the council and regional office and what the needs are, what the respective roles are, and how you provide input on both sides as to what we need to provide and what needs to be done. If nothing else, to also make sure that they feel they have input to what we do. Even if we don't do everything they want, they understand why or where it's considered in the overall umbrella. So I think that was a big change that came when I became the director. We also consolidated our [inaudible] our ecosystem programs under one. We took our science operations outside of the director's office. So the current structure of five divisions – three science and two support – came with that change.

MG: Can you talk about how your science center may be unique from the others in Fisheries?

MS: I think the obvious one – this goes back when I created it – was to create a science operations division. Every science center conducts it differently. I wanted something that’s analogous to our administrative operations. There are so many moving parts to your ability to conduct science, whether it’s ships, small boats, wet labs, dive operations, NEPA, library, editorial – there are many pieces that really don’t fall under the purview of a traditional OMI. So we created a single place where they consider all of the science operations. So you have operations on the administrative side, operations on the science side. Obviously, if you took a Venn diagram, there’s some overlap, but that’s left for the two directors to look at how to deal with that, like safety. That’s one where you try to figure out where the science safety meets the facility safety and try to come together, come to how you’re going to [inaudible] that. It’s interesting. During the course of the change from the deputy to the director – during that period was when we made the move from Dole Street to IRC [Inouye Regional Center]. You can imagine what a change in culture that was from five separate facility places where the center was spread over town to all being under one roof, and many of the staff not knowing who the other people were. So we spent the first year having brown bags with random folks to get people to meet the other folks in the center. I thought that was really important. We set up core values so that folks have an expectation of how we want the culture in the center to be. So that was a big part of our [inaudible].

MG: Can you talk about how you interface with headquarters?

MS: Yes. So you know I did a detail in headquarters back in 2012. Obviously, that’s when I got to know Cheryl [Oliver] pretty well. And I worked with John. So I worked for John Oliver in my detail when I was back there. The idea was to transition John into retirement. So I was there from John to the interims, which was Pat Montanio into Paul Doremus. So I was there. That’s the period that I was there. So you knew a lot of the people. Obviously, you have a lot of interactions – then it was Ned Cyr, who was the director of the Office of Science and Technology. But NMFS has leadership calls. We have [inaudible] videos every week. We have leadership council meetings. So you know the principles. When I was back there, you’d know the principles and then some. So you know all of the folks that form the policy office or the [inaudible] or the other players. Many of those stayed there for years. As they transitioned, you get to know those who take their place – much like now – because Fisheries political turns over every administration. So now we’re in transition. So Paul goes up. Brian Pawlak moves and then shuffling pieces. So you interact with all those people all the time. So I think there’s a lot of interaction – the science board, we meet every week. We talk every week. So with the directors across the country as well as with the [inaudible] Cisco, in this case, and Richard Merrick before that. We’ve always been close and had a lot of communication, even back to when Steve Murawski was the science director or Mike Sissenwine. We’ve had this going on for a long time. So I don’t believe that that part of the interaction with headquarters lacks anything. I think there’s a lot of communication. I think there’s some of it that – we get challenged with budget rollouts, some of the policy, some of the why’s, some of that stuff goes on that we try and take up offline. But considering that we’re six thousand miles away, it’s a pretty decent relationship.

MG: Can you talk about how you’ve managed things in the last year during the COVID pandemic?

MS: Well, I've spent a lot of time doing this [video conferencing] from seven in the morning until I'm done. It's been hard. I did a lot of traveling. You can imagine how much travel you do when you're out here. You don't get in a car. You [fly] everywhere, not only domestically. So I'm the United States delegate to the PICES governing council. I'm the chair of their finance and administration. I'm the representative to the US delegation to the ISC [International Scientific Committee]. All of those involve distant relationships, and every year would involve a fair amount of travel. I think we've done okay. It's definitely not ideal. I think the best way to put it is we're able to keep it going. We're able to meet demands, what needs to be done, but nothing more. There are a lot of pieces that you just can't do remotely. So I think the efforts suffer a lot. If this is going to be the way it is going forward, I think you'll see a lot of these entities just fold; they're not going to be able to maintain efficiency or validity if you will – irrelevancy. It's just too hard to do across time zones and distances like this. The United States is on tap to host the 2022 first ICES/PICES meeting in the United States. It's going to be impossible to do it virtually. We're on tap to bring AFS [American Fisheries Society] here to Honolulu in 2024. I sure hope COVID ends by then. Otherwise, I'm not sure how that's going to work. We're on tap to host in Honolulu the Ocean Sciences [Meeting] 2022. That's AGU [American Geophysical Union]. That's ASLO [Association for the Sciences of Limnology and Oceanography] and TOS [The Oceanography Society]. Whether they're going to come here next year, I don't know. So there are many pieces of our science enterprise, as well as my responsibilities that I've committed, that very much are impacted by where we are in COVID, which means I just spend an enormous amount of time just talking to my little laptop computer here. So it's been hard.

MG: I can imagine. I have a few final questions. This project is to document and celebrate NOAA's fiftieth anniversary. Do you have any thoughts or reflections on NOAA as an agency, its impact, and evolution?

MS: I think it's a fabulous agency. Obviously, you've given your life to it. You believe in the mission for all that it stands for. We are just not resourced sufficiently to meet all that we are asked to do. I think that's the hardest thing because you always feel like you're just not answering the [inaudible] if you will. It's really hard. We go through many exercises to communicate what it is, and I don't know how successful we are in making that message clear. It's hard. If you just speak to the science enterprise, whether it's OAR [Oceanic and Atmospheric Research] and what they provide, or the Weather Service, and for the technological advantages that you need to [inaudible] or Fisheries, where you bring in more into the holistic world of what does it mean for the good of the nation. It's just hard to do everything that's needed with what we have. People ask what I have seen over my career. It's been amazing. I came in at a time when there was ocean exploration. This is fisheries exploration. There was fisheries development. We were looking at Midway as an [inaudible] for supporting high seas fisheries or looking at new resources for fisheries to exploit. Now it's all about sustainability. In the forty years where we've seen populations on the verge of decimation, we've seen protected species go on the verge of extinction or many on the endangered list with a few recoveries. We haven't even really looked at holistic environmental drivers to the living marine resources and its relationship to the environment that we [inaudible] to do it. There's so much to do. I think there's no other agency that exists that you can think of taking it on. We can't do it alone. When

we have these leadership discussions all the time on where we need to go, you can't expect to go at it alone. But today, everybody needs to come together and realize that to be the case; whether it's NASA [National Aeronautics and Space Administration], whether it's EPA [Environmental Protection Agency], whether it's [the Department of the] Interior, there needs to be somewhere where people realize that because it's just not realistic to task one agency to do it all. Actually, we've all heard that we know more about what's on the moon, or now maybe on Mars, than we do on the bottom of the ocean. I think it's a credit to ocean exploration that they've committed resources to know a little bit more about this planet. But it's changing in our lifetime of what we've seen with marine debris, what we've seen of the degradation of the oceans, and the human impact to it all, and what it means from a societal standpoint. It's hard to see and admit [inaudible], at least in the forty years that I've been around.

MG: My last question was just about your life outside of work. Can you tell me a bit about your family?

MS: I don't know. When you're a homeowner, you seem to spend a lot of time around the home. Between that and golf, I think that pretty much takes up all the spare time that you have. I have kids. They're grown up. When you have children, they're always children, whether they're babies, toddlers, adolescents, or adults. The problems never go away; they just change. I think some of those challenges will continue to change with life. As our children go off, and they go off, and they get married, and they pursue their interests, you think you have a little more time. Then you have the elderly, who you are now tasked to take care of. That goes back to the culture, where it all started. Asians, in general, culturally, have an obligation to take care of their old folks. So you live that every day as well. Our elderly, both that are left, we still deal with that. They've become tremendous – I don't want to say they're burdens, but they're big-time investments and financial investments. So while you think you're done paying for college, then there are always – whether it's your home or your elderly, you always find other pieces that you need to deal with.

MG: Well, I think I've gotten to the end of our questions. I know I've gone over time, so I really appreciate all the time you spent with me today. This has been so interesting. I'm glad we finally got to meet.

MS: Yes, likewise. If you have any other clarifying questions, I'd be happy to answer them. It's hard to find everything. So I tried to provide you with, at least, a presentation and my CV, which covers a good part of it. I'm sure there are nuances that you don't put in there.

MG: Yes. That was very helpful. Thank you. Again, if there's anything missing, we can plug it into the transcript later or schedule another call.

MS: Sure.

MG: Well, thank you very much. Enjoy the rest of the day. You've got so much more of the day to enjoy.

MS: I have more video meetings to take.

MG: Well, it was so nice to meet you, Dr. Seki. Thank you again for the time.

MS: Likewise, Molly. You take care.

MG: Bye-bye.

MS: Bye.

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