Molly Graham: [00:02] This begins an oral history interview with Dr. Quay Dortch for the NOAA Heritage Oral History project on May 2, 2023. The interviewer is Molly Graham. It's a remote interview with Dr. Dortch is in Washington, DC, and I'm in Scarborough, Maine. I'm wondering if you can start with your background a little bit. What are some of your earliest memories from growing up in Richmond?

Quay Dortch: [00:30] Oh, I don't remember Richmond at all. We lived in Richmond, and then my father got another job, and we moved to Newport News, Virginia. I vaguely remember living in an apartment house there. I must have been two to three. Then, we moved to a house outside of Norfolk. And I vaguely – well, I hardly remember that one. Then, finally, we moved to another house in Norfolk, and that's where my strongest memories start. That must have been when I was four or five, somewhere in there, which is probably pretty typical for when people really start remembering things.

MG: [01:21] What was that area like? What do you remember doing for fun growing up?

QD: [01:29] Interestingly, we lived right across the street from these really big mansions that were right on the water, but we did not live in one of those big mansions. All the houses on our street were very solidly middle class. There was this real dichotomy between the, I think, probably older, wealthier people that lived across the street in these large houses with brick walls and large gardens and big lots, and us with our more perfectly fine but smaller lots, smaller houses on the other side, with lots of kids. My memory was just lots and lots of kids to play with. This was, of course, post-war, the beginning of the baby boom. That's part of why there were so many kids. Back in those days, I had, as I got older and older and older, a certain block limit where I could go. But other than that, I was supposed to be there when they called for dinner. That was the restriction on where we could go and what we could do. I remember it being gangs of children, basically. I don't mean it – well, we got up to a bunch of pranks, I got to say. I look back on it, and I'm a little bit surprised, but nothing really awful. Not serious vandalism or anything like that. But if there were people in the neighborhood we didn't like, we would do things to their houses that they probably didn't appreciate, like walking on her lawn. [laughter] We had one neighbor who didn't like us to walk on her lawn. But it was a pretty independent childhood. Then, in the summers, I would go spend – well, maybe that was later after we moved to Washington. But certainly, part of the summer, my whole family would go up to the place in the mountains in Pennsylvania, where my grandparents had a house, and I loved going up there. So that was always something I looked forward to. And then, when I was twelve, my father got fired from his job. I never really asked him about it, and it made a radical change in our life. But it turned out – it sounded catastrophic at the time. But he found a job pretty quickly in Washington DC, doing the same sorts of things he'd been doing, only with many more promotional opportunities, with Geico, which is a big insurance company. We moved up here, and my parents say that it was the best thing that ever happened to them. Their lives had been – my father grew up as a Southerner. He had a very limited cultural exposure. My mother was a little bit more culturally aware of things, but still, I think, had not been exposed to a lot. So they moved up to Washington, DC. We lived out in this neighborhood that, again, there were lots of kids, but there were lots of people from all sorts of different places and all sorts of different religious backgrounds and cultural opportunities. My mother in particular, but even my father, really came to realize they really enjoyed lots of very different people. So, my father,

who had started out – and this was an evolution that took his entire life. Some of it happened quickly, some of it happened more slowly – feeling threatened by people that were different from him, and that included people who were Jewish, Asian, Black – you name it. He was somewhat, or a lot, bigoted. It changed. When we moved up to the second place where we lived in Washington, DC, my two best friends – one was Jewish, and one was half Japanese and half Chinese. So, my parents became friends with their parents. That, I think, along with my father being exposed to many different people where he worked, really made a change for them. My mother was very culturally interested in things like going down to the Kennedy Center and going to plays. She loved opera, but she couldn't get my father interested in that, so I don't think she got to really do that. I think I mentioned how my mother, when I was a child, was the stay-at-home parent and not cut out for being a stay-at-home parent. So, after my sister was born and got old enough – and there's nine years between us so by the time my sister was old enough for my mother to start working, I was probably in high school. But she became a better person when she started working. I think things improved a lot for the entire family slowly over time, moving to Washington, DC.

MG: [07:38] What was that move like for you? How did you adjust to being in a new place?

QD: [07:43] The first neighborhood where we lived in Washington, there weren't many kids for some reason, and not many my age. That was not a great – I missed this gang of kids that I had hung out with in Norfolk. They moved deliberately right before the end of school so that I would get – so I was in the elementary school there for a couple of months, but it wasn't enough, and so I didn't really make any friends. We were there for about two years. We moved from closer to DC to quite a bit further out into one of these big subdivisions. Washington was expanding at a great rate at that point. That neighborhood was the one with lots of kids and where I adjusted better to living there, adjusted better to the schools, etc. I was not a very good student. I tested high, and my mother was always telling me why couldn't I work up to my potential. But at that point, I didn't have any real interest in doing it and didn't really start – I got interested in science – biology – through a very charismatic high school science teacher who kept all of these animals, from rabbits, snakes, mice, rats, later a monkey. My friends and I all hung out there in the afternoon, and I sort of became part of a science nerd crowd, which, in this giant high school of probably around two thousand students, you sort of needed something like that. Eventually, I started taking more science classes, particularly with this person who was the biology teacher. I took Advanced Biology with him and also was a lab assistant for two years, and became first the secretary and then the president of the biology club, which I didn't think about at the time, totally unaware that this was a mixed group of boys and girls, and for a girl to be president of even the biology club was probably pretty unusual at the time. But I didn't think about it. It just, for me, was natural. And being near NIH [National Institutes of Health], we invited all of these people over to give us talks. They were all really generous with their time. It was really a fascinating and affirming experience for me. I didn't really think about careers so much in biology. I didn't think of it as something I would pursue. But clearly, I was set on that path pretty early without knowing it.

MG: [11:10] It sounds like this biology teacher was very encouraging of you and gave you some great opportunities.

QD: [11:16] It's interesting. He was absolutely by the book; he had no favorites, and there was a whole bunch of us. So, we all had opportunities. You took them, or you didn't. I don't remember him ever sitting down and talking to me and saying, "Quay, you could do this, or you could do that." Never any personal advice of any kind, but just [created] an environment that was encouraging, I think. It was as much my peers in a way as this environment that he created. Now, whether a different person would have done a different – it's interesting to think about his style because, particularly these days, could have so easily gone south having this whole cadre of students who were doing this teacher worship, but he was very careful not to play favorites.

MG: [12:23] I also wanted to ask you about some of the big moments of the 1960s and living so close to and in DC, such as the assassination of President Kennedy, the March on Washington, and the ramping up of the Vietnam War. How were you impacted by these events, if at all?

QD: [12:43] I, like everybody at that time, remember exactly where I was when Kennedy was assassinated, and it came over the loudspeakers. I was in school at the time. So, I definitely remember that. The March on Washington was an interesting time. I'm trying to remember which year was that.

MG: [13:08] '63.

QD: [13:12] I don't remember that so much as later, some of the riots in Washington because, at that time, which was quite a bit later, I was working downtown, and my parents wouldn't let me go to work for a while because I took public transportation not too far from where some of that was going on. All that I remember about the March on Washington was, at the time, my father's response to it, which was not great. Unfortunately, one of the problems with my family when I was a kid was my father's racism. As I became a teenager, I reacted very badly to that. I ultimately became somewhat estranged from my family, in part because of that and a whole bunch of other things. We used to fight about racial issues all the time when I was in high school and into college. It was not pretty because it became pretty personal.

MG: [14:43] Dr. Dortch, what year did you graduate college? Would this have been '65 or '66?

QD: [14:49] No. I graduated college in 1970. I graduated high school in '66.

MG: [14:52] Sorry, I meant to say high school.

QD: [14:55] Yeah, '66. The group that I hung out with at school was very interested in all the demonstrations, and some of them went down and took part in demonstrations. Because of my family situation, I was never able to do that. My father was a pretty authoritarian kind of person, and there were certain rules and those that you just couldn't break. That was one of them.

MG: [15:33] What else about your high school years stands out to you?

QD: [15:40] I think I got a great education despite not being in the academic track. My high school boyfriend, whom I still stay in touch with, was in the academic track. It wasn't [that] I was not in an academic track; he was in the really fast track, and I was not. I think once we got

to college, that didn't make any difference. It was really interesting. I'm not sure that it made any difference for our futures. I had some great teachers, particularly one who taught creative writing. Because, at the time, I thought I was good at creative writing. Maybe if I had pursued that, it would have been a different career. Now, I write like a scientist. That's mostly what I remember about my high school years.

MG: [16:45] What went into the decision to go to Randolph College? What was the process of applying for colleges like for you?

QD: [16:55] Like all kids, I didn't want to bother doing it. And I can't even – well, let's see. I applied to Smith. I'm trying to remember the name of the place where my high school boyfriend went in Carlisle, Pennsylvania. Randolph-Macon. It was then Randolph-Macon Women's College. That was because one of my aunts had gone there on my father's side. There was a fourth one. Now I can't remember what it was. Because my grades did not become good until my last year in high school, when I started doing really well – that's kind of late to suddenly be applying to colleges and getting good grades. So, the only place that accepted me was Randolph Macon. That's where I went. My parents paid the full amount, which back then was not quite so – well, that's not quite true; my grandmother helped out. I don't think it would have been possible otherwise. So, I went there the full four years. I was not especially delighted at the idea of an all-women's college, but I think it was the best thing that happened to me because I got a great education and came out of it thinking that I could do anything. Given what I was confronted with when I got into graduate school, it was that feeling that I could do anything that I think kept me going and just made me double down when they told me I couldn't do something.

MG: [18:45] Your years in college were concurrent with the Women's Movement.

QD: [18:51] No. Graduate school more. Or at least that's my memory of it; about the '70s was when it started. I remember standing there in front of this instrument with somebody talking down to me yet again about something. This was in the lab. I was in graduate school in chemistry at Indiana University. So this is skipping forward now quite a ways. There was this idea in the women's movement that when all of a sudden you realized – it was called a click moment when you realized that you were being – whatever it was – treated as second class. As I stood there, it was like a bolt of lightning hit me that that is what the problem was.

MG: [19:55] What happened? And what do you do with that?

QD: [20:04] It isn't so much what happened as the ability to sustain myself through those two years. Well, there were a lot of things that happened over those early years that just were unbelievable. Obstacles to me that I would have to walk out and say, "That wasn't me. That wasn't because of me. That was because I'm female." So, right after that, I took an oral exam with this guy I was taking a class from, and there were like five of us in the class. He gave each of us an oral exam. He would ask me a question, and I would get a sentence into the answer, and then he would finish it for me. Then, he gave me a lousy grade. I was pissed beyond words because I knew I knew the material because I worked with it every day. I was able to say to myself, "It wasn't me. It wasn't that I didn't know it. It was because he was an asshole." I didn't use those words back then. But that was what he was. I ran into that a lot. They just started

having women in their Ph.D. programs then, and so I ran into that kind of behavior. One person refused – instead of sitting down and taking a single exam for your Ph.D., every month, you sat down, and you were given three test units on different subjects. You could do as many as you wanted at that time within a three-hour period, and you had to pass so many for a master's degree and so many for a Ph.D. He refused to grade mine because he said, "I can't read your writing." Now, I don't think he would have done that to a male. That was back before computers and everything. So there was just not an option for that sort of thing. I was in this lab room where we did our research, and my office was in the same room with four other people, one of whom really had trouble with women. So, this is where the Vietnam War came into things. He was very pro-war, and I was very anti-war. He would post pictures like that iconic picture of the little girl burning up with the napalm running down. He posted that on the door of our lab, which offended me every day when I walked in. He did it not to show what he thought but to irritate me. We were getting along so badly that everybody in the lab knew it. So, my advisor, whose lab it was, said that he could work during the day, and I had to work at night. I came in one afternoon, just before everybody quit, because I had to go down to the stockroom and get chemicals because I was growing cultures, and they had to be fed on a regular schedule. I came in, and I caught this other graduate student taking the chemicals that I had and pouring them down the drain. Had I come in late or at my regular time, there would have been no chemicals there, I wouldn't have been able to make a medium, and all of my cultures would have died. I caught him at it. He was sitting there laughing and gloating at his desk. I picked up this big jug of sodium chloride. I have never in my life been so angry. I mean, the idea of seeing red. I was going to hit him over the head with the bottle of sodium chloride. Instead, I took it and slammed it on the desk in front of him and then just walked out. Everybody in the building heard it because I was pretty strong. It shattered and went all over the place. I didn't get kicked out. But I got banned from the lab. I finished up my thesis without a complete set of data. Fortunately, I already had plans to leave. I'd passed all my exams for a Ph.D. But I stopped with a master's degree and went on to Oceanography in Seattle. This was Indiana University where this happened. I already had plans to go to Washington. So, it was not a great time. Years later, I ran into my advisor, John M. Hayes. He said, "Oh, it was so terrible that you left because it made the statistics look so bad. You passed all your exams, and then you left with a master's degree." I didn't really – and I've regretted ever since saying – because he'd long since left that university, gone to Woods Hole Oceanographic Institution. I just happened to be at a meeting there and decided to see him because he'd been relatively helpful in comparison with everybody else. I mean, things were so bad. All the guys would go out for lunch. On my birthday, they invited me out for lunch. But the rest of the time, I didn't get to join them. I didn't have the wherewithal to just invite myself; maybe I should have. If I [knew] what I know now, I might have, but I didn't back then. But the idea that I could and would make it through all of this was what sustained me in this because the pressure to leave was just so great. [There] was nobody sitting there – I, at other times, had people later tell me, "You should leave." At least this was more of a neglect or antagonism, but not "just leave," which I got later.

MG: [27:11] I'm curious how it was that your response was to become more resilient and determined instead of frustrated and stymied.

QD: [27:24] I just didn't see any other path. By that point, I knew I was as good as they were because it was pretty unusual for somebody to pass all their exams for a Ph.D. as quickly as I

had. And I knew that. Not that anybody said, "Quay, that was a great job or anything like that," because boy, they sure didn't. It wasn't until I ran into this former advisor – and that was probably only, I'm thinking, ten years ago, maybe a little bit more, twelve years ago that I ran into him that, that there was any acknowledgment at all of – and no acknowledgment of his role or the organization's role in what happened in allowing this atrocious behavior to continue.

MG: [28:25] Were there other women in the chemistry department who were encountering the same things? I imagine there were many more men in the program.

QD: [28:33] There were so many more men that there were no other women on my floor. I just didn't know any women to talk to about it other than, I guess, there were a few of us who were TAs [teacher assistants] who were women. They tended to put us teaching Allied Health, the chemistry courses for Allied Health because those were mostly women. The male TAs didn't want to teach them because they thought they were frivolous and not serious students. They would put two women on these courses as TAs. The reason that I was told that is that there tended to be more accidents in these labs, but they also had more students. So, I don't really know how true that was. But that was the only time I really talked to other women about what they were experiencing. I think analytical chemistry and physical chemistry were the two – and I was in analytical chemistry – that had the fewest women. I think that was part of the problem. But it never crossed my mind when I started. It took a long time. Even though there were these click moments, a true understanding of what was going on just didn't come for a long time. For a long time, it seemed like random events.

MG: [30:24] Backing up a bit, what was it that brought you to pursue a degree in chemistry in the first place?

QD: [30:32] Ah, yeah. I started out not being able to decide between biology and English. I ended up with enough hours for a minor in English but didn't declare a minor in English. I liked biology, and I kept taking biology courses, but two things sort of happened. I took my first college-level chemistry course. In high school, I had taken chemistry and had hated it and had gotten a D in it. So I didn't do well at all. But I took it with this woman, Dr. Whidden, who reminded me of my grandmother, or at least initially. She was very helpful in a way that no other advisor I had had was helpful. I enjoyed the class and realized that I was good at chemistry. And so, in the end of my sophomore year, I decided to switch my major, which had originally been declared as biology, to chemistry. I didn't have the math required because I'd done poorly in math in high school as well, so I didn't take the advanced math. I had to make up all the advanced math and the chemistry that I had missed, and the physics, and take all the chemistry classes, which I did in my last two years in college. It sounds hard, but it turns out because you use the physics and the math in the chemistry – and you also need chemistry for the biology – everything sort of fit together really nicely. It actually reinforced itself in a way. It was hard. There was no doubt about it that it was hard, but I persevered, obviously. I got a degree in chemistry with honors, with a minor in biology but an undeclared minor in English.

MG: [32:47] What made you choose Indiana University for your master's degree?

QD: [32:54] Life is so full of random things. I had applied to four mid-level chemistry departments because, by this point, I had pretty good grades and I had good GRE scores. At least one – now my memory is faulty – turned me down because they didn't take women. Two or three accepted me. And all of them were – I was sort of headed west, but they were the Midwest mostly, and it was more random than anything else. I talked it over with Miss Whidden (back then female faculty were called Miss/Mrs. and male faculty were called Dr.; I still think of her as Miss Whidden), and she didn't really push me in any particular direction. It was random, basically.

MG: [33:57] I know that Indiana University has a well-known and well-established chemistry program.

QD: [34:01] Yes. Yes, it did. Yeah. I mean, it was huge and is even bigger now, I think.

MG: [34:08] And then what brought you out to Seattle

QD: [34:14] It's another one of those random events which life is full of. I met somebody that I fell in love with at the end of my senior year in college. He was at the University of Chicago, and I was obviously at Randolph-Macon. And then he had a – I'm trying to make sure I get the years right; things are a little confused in my head. I guess that first year, he had a fellowship. He was interested in astronomy, and he had a fellowship at the University of Virginia in their Astronomy Department for a summer internship of some sort. I was working in Washington, DC, at NIH and living at home. He would come up and visit, or I would go down and visit him. Then he picked me up and dropped me off at Indiana University. And then, he went to Seattle, Washington, for graduate school in physics. There was a whole group of people that I met through him that were at the University of Chicago. There I was in Bloomington, and a lot of them were up in Chicago, including my college roommate, who had married one of his friends, which is how I had met him. I went up to Chicago with some frequency when I was in Bloomington. I kept seeing him occasionally. I would fly out to see him in Seattle, and I saw him in Chicago at Christmas. Then, the next year, I spent the summer – so this would have been between my first and second year of graduate school. I spent the summer living with him out in Seattle, working part-time in an organic bread bakery. Then came back to Bloomington [and] finished my second year there, but the plan was that I would go to graduate school at the University of Washington. So I applied in four departments that were related to chemistry, so chemistry, geology, I think biology – I can't remember – but also oceanography. The only one that accepted me was oceanography. I had no idea what oceanographers did. I moved to Seattle to live with him and started graduate school in oceanography, not realizing and not being totally aware that going into oceanography was like jumping out of the kettle and into the fire as far as the issues with regard to women. The department that I got into, I learned a couple of years later, had had one woman Ph.D. and had had a hundred male PhDs. I didn't know that back then. There were lots of women around. They were all working on master's degrees, and I didn't realize that. I did not want a master's degree; I already had one. But I didn't realize any of this right away. It took a while. So that's how I got into oceanography. I'm actually really glad. Much more interesting, in many ways, in part because there's a lot of the biology that was what got me into things to begin with. Also, I didn't think of environmental science as a field back then. But clearly, that's really tied in with oceanography.

MG: [38:13] How long were you in the Ph.D. program?

QD: [38:18] I got there in 1972. So, I started in the fall of 72 in a Ph.D. program, and then got my Ph.D. in January of 1980. So, a long time, considering I already had a master's degree. But they had a bad reputation for that; people tended to hang around for quite a while. That was not unusual at the time.

MG: [38:47] And how are you spending those years? Were you working and in classes? Were you working on a dissertation?

QD: [38:56] Initially, I was teaching a lot. I was TA for Introduction to Oceanography for eight quarters, which meant multiple sessions each time. Later, I got various forms of teaching assistantships. At times, I had research assistantships, too. I mean, every graduate student pieces it together with combinations of teaching and research assistantships, doing the research for my Ph.D., and then occasionally having to do things to support myself. My major advisor, Ted Packard, left in 1975. That was the first time that I really ran into people telling me to go away, to get out of the field. There was the person who was the graduate advisor when it was learned that my Ph.D. advisor was leaving. I had to talk to him about what I was going to do. He said, "You don't have a place here. It's time for you to leave." And it just really pissed me off. I had had a run-in with him very early when I got there. He was one of the first people that I'd interviewed looking for advisors. The work that I had done for my master's degree was exactly applicable to what he was doing. I could walk in and run the instruments without training. And he was not interested in having me because he did not take women. I sort of knew what the basis of his – advice is not the right word – discouragement was. Fortunately, I was really lucky that the person who became my Ph.D. advisor – how he figured out that this was all occurring, I have no idea, but he approached me and said, "If you need somebody to work for, I'd be glad to do it." He didn't really do the kind of work that I did. I was finished doing the lab work. So, all I had to do was write my thesis. But this was in 1975. It took me another five years to get it written. Four and a half, actually. But he was extremely kind and really helpful over the years and actually was far more knowledgeable than I realized about what I was doing. I actually learned a lot from him.

MG: [42:04] Who was this?

QD: [42:05] His name was Karl Banse, B-A-N-S-E. His original field was meiobenthos, and I don't do work on that at all. I had taken a specialty seminar with him, where I had read up on them. I guess that's how he knew me. But he also wrote a lot of review papers about all kinds of things having to do with plankton and processes in the ocean. He had a real big-picture mind. I think that was why he could take me on as a student and be very helpful. That was actually quite amazing to me. I'm not sure what would have happened if he hadn't done that. I switched from – I mean, it wasn't really a switch because you didn't have to declare it. I had been a chemical oceanographer before, and he was a biological oceanographer, so I became more exposed to the biological oceanography side of things.

MG: [43:25] What was your Ph.D. topic?

QD: [43:33] It was how phytoplankton take up nutrients, particularly nitrate and ammonium, and how they take them up differently, and some phytoplankton prefer one over the other, and others don't. There was always this illusion that all phytoplankton prefer ammonium, and that's not really true. I did that for quite a few years after I got my Ph.D. but got into other things because there wasn't a whole lot of money in that.

MG: [44:07] The fellow that you went out to Seattle to join, how did that relationship develop?

QD: [44:14] Bob Schommer and I lived together for a few years, and then we stayed as a couple for a little while longer after that but split up by 19 – well, New Year's Day 1976. He went on to become a well-known astronomer and was head of one of the big telescopes out in Chile, but committed suicide about fifteen years ago. By then, all of us who had known him hadn't really seen much of him for a long time, so didn't really know much about it. But the relationship ended a long time ago, but I was glad that it got me into oceanography.

MG: [45:07] Did you meet your first husband in Seattle or around this time when you were working on your Ph.D.?

QD: [45:12] Yeah, my ex-husband, John P. Christensen, and I were in the same lab together. It was complicated because we met – we had desks right next to each other – but I was living in a group home with a bunch of people, including this person we've just talked about. My advisor left, and John went with my adviser, Ted, to Bigelow lab and was gone for a couple of years. Then he got his master's degree and came back to the University of Washington to get his Ph.D. with somebody else. We were then in labs near each other, and sort of by then, I had split up with Bob, or Bob had split up with me, so I was single at the time, and John and I got together. We got married just before we left Seattle. I graduated and had a postdoc for a year. He had a postdoc briefly, and then he got a job at Bigelow, going back to Bigelow. I didn't have a job but went with him. We got married in Seattle and then went to Maine.

MG: [46:30] For your honeymoon or to work?

QD: [46:33] No to live, to work – Bigelow Lab, which is in Boothbay Harbor, Maine.

MG: [46:39] That’s right. I'm in Maine, I think, as you know.

QD: [46:43] Oh, yeah. I forgot about that. Whereabouts in Maine are you?

MG: [46:46] Right outside of Portland.

QD: [46:48] Oh, yeah.

MG: [46:48] I was forgetting that Bigelow Laboratory was in Boothbay.

QD: [46:52] Yeah, yeah, as opposed to the lab [The Jackson Laboratory] up in Bar Harbor. This is different. I don't know if you know that Bigelow lab is totally soft money. You have to apply

for funding. If you don't get funding, you don't have money. They would give you an office and everything. At the time, they had some kind of big grant from NSF [National Science Foundation] to bring in a whole bunch of new people. At the time, there was Leon Cammen (became the Sea Grant Director), Dave Townsend, Rick Spinrad (became the NOAA Administrator), John, and me. I was the only one who was there without money. The other four were there with money.

MG: [47:55] Do you think that was a gendered thing, too?

QD: [48:01] Possibly. Sometimes it's hard to say. That's one of those – I think they figured I would come along. But Charlie was nice. Charlie Yentsch, who was the director of the lab, offered to give me money to do some work. I turned it down because I wanted to do my own work. I wrote grant proposal after grant proposal after grant proposal, and I eventually got funding. But for those of us who were on soft money there, and that included everybody except these four people who had money for three years – they were all on soft money. For the most part, most people managed to get a salary halftime – of the senior level scientists. For the technicians and stuff, because you wanted to keep technicians there, they all had full-time salaries. But the senior scientists would make sure that they kept their technicians and give up their own salaries to do that in order to keep them around. It was a hard way to make a living. Let's put it that way.

MG: [49:20] It's hard to deal with that uncertainty about future funding and commit to your research if you're unsure how long you'll be able to do it.

QD: [49:27] Yes. So, a lot of the time, I got funding elsewhere. I went back to the University of Washington to help them write up a huge data set that had been collected and collecting dust for many years, having to do with a plume of the Columbia River. I got a number of papers out of it, but I had to go back there often to work with people there on it. Then there were some more cruises as part of that. So, I went back for cruises as well. That was kind of hard on the marriage. Because then, when I finally got my own funding, it was to do work in somebody else's lab, Paul Harrison, in Vancouver, British Columbia. Again, I was away for long periods of time. I was away a quarter to a half the time all the time that I lived in Maine.

MG: [50:30] Backing up, I also wanted to ask, as a Ph.D. student, if you encounter folks who would become NOAA colleagues. I feel like I've interviewed a number of people who have come through the University of Washington.

QD: [50:47] I'm trying to think if I – interestingly, not. I mean, I've known people who were at the University of Washington at some time, many of them in a zoology department, not the oceanography department. Friday Harbor Lab is, I think, jointly managed by the zoology and the oceanography departments. You hear a lot of people having done work at Friday Harbor Labs. But that's interesting that I can't think of anybody that was in not just my cohort but around the time that I was there who came to NOAA. I mean, they might be, and they might have stayed in Washington.

MG: [51:39] I've been interviewing Dr. Usha Varanasi, who was getting her physics degrees there.

QD: [51:46] Yeah, I didn't know her. She might be a little older than me. I'm not sure.

MG: [51:50] I think she finished her degree before you arrived or around that time. What was the work you were doing for the College of Fisheries? I see on your resume "Research Assistant for the Fisheries Research Institute."

QD: [52:07] That was the same sort of thing that I was doing with marine phytoplankton for my Ph.D. work, only it was with freshwater algae because the people I was working with had a whole project on Lake Washington. It was doing studies with phytoplankton that were typical of Lake Washington. Unfortunately, I don't think a lot of that got published, which is unfortunate because there was a lot of data that we – but I think there's a lot of that. A project comes to an end, and there's not enough funding to get it written up.

MG: [52:47] Tell me a little bit about your time in Maine before you left to work on other projects. What was that move like? What was your life and Boothbay like?

QD: [53:02] I loved living in Maine. It was a wonderful place to live, as I'm sure you know. Back then, Boothbay was more isolated, I think. Particularly in the winter, there was a lot less to do. So back then, when the tourist season was over, they actually turned off the stoplight, took the insides out of the parking meters, and made traffic both ways on all streets. I don't know if you've been to Boothbay Harbor. The last time I was there in an offseason, the traffic lights were on all the time, and the traffic was – there was a one-way loop through the town. Being at a small lab means that you get to know everybody in a way that was really different from the huge University of Washington that I had come from, which had its good points and its bad points. I'm sure you hear about this from others. You couldn't leave town without somebody seeing you – "Oh, I saw you headed up the road to Portland the other day. What were you doing?" kind of thing. But when you needed help with things, there was always somebody to help out. It is a really good environment to be in, despite being so hard and financially difficult because of not bringing in a lot of money. We bought an old house and spent our life working on it. It's interesting. I have had reason to be in Boothbay Harbor within the last few years, and Bigelow Lab has now moved. The lab has moved to a new location in East Boothbay Harbor, which is really near where the house we owned was. I've driven past the house we owned, and somebody has fixed it up beautifully from the outside and, I assume, from the inside and given it much more love than I would have ever given it. I'm glad somebody who could care for it owns it. I look very back very fondly on that period of time – despite getting a divorce during that period of time – as one of the high points of my life.

MG: [55:29] What was the nature of the work you were doing at Bigelow Lab?

QD: [55:36] Mostly a continuation of my work with algae and how they take up nutrients. Through some of the people that were – so Rick Spinrad, Dave Townsend, me – oh, and Leon Cammen, who came to NOAA and became the head of Sea Grant. I worked on a project looking at the nepheloid layer in the bottom of the Gulf of Maine, which, for me, was a total departure

from anything I've ever worked on. I did some work with enzymes in algae and in natural systems. One of them was an enzyme called ETS, electron transport system, which is sort of a measure of metabolic activity. I did part of that with that project. But that meant going out and collecting samples. Most of my work had been with surface layers. I've done a little bit of that kind of work for my former advisor, Ted Packard. This is going back to when we first got to Boothbay. He gave my ex-husband and me a chance to go on a cruise on a French ship, which was measuring this ETS throughout the water column in the Mediterranean because it was a way of getting respiration rates and a way to look at an oxygen balance within the parts of the Mediterranean Sea. My former adviser had gone on the first leg of this cruise of the *Jean Charcot*, and then John and I went on the second leg. Since John had worked for him for many years, it was a pretty seamless sort of thing. I knew how to do the things. I had done them in part with this work on the lake in Seattle. So, all these things are connected in funny sorts of ways. That's what I did with them, this work on the bottom nepheloid layer, which at one point gave us an opportunity to go out in a submersible and go down to the bottom of the Gulf of Maine. That's one of my lifetime experiences is the opportunity to go down to the bottom of the Gulf of Maine in a submersible.

MG: [58:13] Tell me about that.

QD: [58:16] It took about four hours to go down and up. While you're down, you collect samples of various things. We were taking samples, both of the bottom and then samples at various depths, right above the bottom, with the arm and sort of sucking up the sample and putting it in a bottle, and then we processed it when it got up on the ship. It went by so fast. That was the shortest four hours that you could possibly imagine. It's funny. I wish I had the video from it because they have a video, and I never got it. I don't even really have a clear memory of the things we saw on the way up and down. But I remember being fascinated by everything, so there must have been a lot of stuff.

MG: [59:09] Dr. Dortch, we're out of time for today, but I hate to leave you in a submersible.

QD: [59:19] [laughter] We did get up safely.

MG: [59:20] [laughter] Okay, good. Well, when we talk next time, we can start diving into your teaching career and your time with NOAA. I'll be really excited to hear about all of that, too.

QD: [59:31] Well, you're doing a great job of interviewing. You must have had a lot of practice by now.

MG: [59:34] You are making it so easy and interesting. Thank you. I'm going to pause the recording, and then maybe we can take a look at our calendars.

QD: [59:46] Okay.

----------END OF INTERVIEW----------

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