SARASOTA COUNTY WATER ATLAS
ORAL HISTORY PROJECT
NEW COLLEGE OF FLORIDA — FALL 2014

Georgia-born, she came to Sarasota in 1978, and she has worked at the Mote Marine Laboratory as a scientist ever since. She started as a volunteer. Dixon eventually earned the position of program manager of Mote's Chemical and Physical Ecology group, soon after earning her doctorate in Chemical Oceanography. She has over 36 years of experience in interpretation of water and sediment data from the rivers, estuaries, and coastal waters of Florida.

Interviewee: Dr. Kellie Dixon
Interviewer: Mary Robertson
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Locations of Interview: Mote Marine Laboratory & Aquarium and New College of Florida

PART I

Robertson: Okay, will you introduce yourself?

Dixon: My name is Kellie Dixon, and I'm a senior scientist here at Mote Marine Laboratory and I've been working here since 1978 when I came to Sarasota.

Robertson: Where are you from originally?

Dixon: That's a little hard to answer. I was born in Rome, Georgia. The grandparents all lived in Georgia, but my dad was in the Navy, and so by the time I graduated from high school I had gone to eleven different schools, lived in at least eight different cities: Newport, Rhode Island; Virginia Beach; Jacksonville; San Diego, places like that, and so every year or so we would move for my dad's job because he was a fighter pilot in the Navy. And so I don't really have any good friends that I, you know, went to kindergarten with but have lived in an awful lot of places. And then every summer and Christmas and holidays, things like that, we would go back to Georgia and catch up with the grandparents and the cousins, things like that.

Robertson: How did you end up in Sarasota?

Dixon: My first husband was from Sarasota, and we met in college and then came back to Sarasota. And I first started volunteering at the lab when I got here and then the man that I was volunteering for left to take another job, and I ended up taking his job, and so have been working

at the lab ever since. At that time we were based at Midnight Pass down on the south end of Siesta Key and the old lab was really a charming building and it was a very different atmosphere from the way it is today. Comparatively few researchers and—but some of the early projects that we worked on were pretty interesting and the lab also was known for its shark research that really started with the beginning of the lab when Dr. Eugenie Clark first started her research here and in the area.

Robertson: What was Sarasota like when you first got here?

Dixon: It was certainly a lot sleepier than it is now. I would say that not only the science scene but the arts scene and everything else was much smaller. On Longboat Key, for instance, coming from the south end of the Key, we would go over the bridge and then it was several miles up the Key before you got to the Colony Beach Club and that was really the first structure that you could see from the Gulf of Mexico Drive and there was a place that we could noodle through the trees and get to the beach there and so that's why we drove out there. But other than the colony there was very little out on Longboat. And at that time too the lab itself, where we are here, wasn't here because it was still down at Midnight Pass, and so it wasn't as developed. But certainly even from Atlanta, Georgia where I had been living, the climate was really attractive. When I first came to Sarasota, it was over a Spring Break and just to have the house open and the sun and everything; it was very charming.

Robertson: Okay, you sort of answered this already, but are there any other ways that you would say the area has changed since your first arrival here?

Dixon: Well, 75 stopped in Tampa, so to keep on going to get to Sarasota you'd have to get on 41 and drive 41 to come down here. I'm pretty sure it was four-lane most of the way, but certainly having 75 completed down through the interior increased just the traffic and the accessibility to the parts further south so I'm sure that had a big impetus in just the development of the overall region.

Robertson: Tell me about your first days at Mote.

Dixon: Well, the first project that I was involved with Mote was one of the interesting ones that I was talking about. When satellites had first been launched to view the ocean and the Earth from space—this was a brand new field and one of the first satellites that went up was the Coastal Zone Color Scanner—and the satellite picture would look at the color of the ocean, quantify that in terms of different wavelengths of light, and then would associate that with the amount of chlorophyll in the water. And the lab was part of the surface truthing effort for this satellite, and so we would actually go to Marina Jacks and charter a fishing boat that we worked with and we would go out forty miles offshore and collect samples, and we would measure it for color and for chlorophyll and— in fact, I meant to find that— [looks through drawer]. Let me see if I can find

this, there was a little device that we used to actually measure the color with, but I don't see it. Nope, sorry, I don't see it but it was actually an aluminum thing that folds out and it had tubes of different colors of water from green all the way to blue and you would hold it out and you would say which one it was the closest to because at that time they didn't have handheld devices that could measure a full spectrum of the type of, the type of light that was actually reflecting from the water to match it up with the satellite. But that was a while ago, and since then they've gone onto many more, many more sophisticated satellites. But still, the same principle of having a boat and samples being collected on the surface while the satellite goes over and then validating the satellites information with the actual samples that were collected on the surface remain, you know, just the way they go about it.

Robertson: Would you say that you have a favorite project that you've worked on in your time here?

Dixon: Hmm. There've been an awful lot of different ones. We did a lot of work in Lake Okeechobee, of all things, kind of a ways away from the ocean, but we were measuring the effects on fish, and water quality, and zooplankton. We were measuring the effects of them harvesting for *hydrilla* because the lake was, the lake was just getting choked with *hydrilla* and so they were doing quite a bit of harvesting and they were concerned that that was going to damage the ecosystem and the fisheries that were there and so that was, that was interesting. We also did a project that we referred to as Four and a Half Rivers. One of the big issues in Florida is fresh water, and having enough to drink and being able to supply it to all the people that are coming and so the southwest Florida water management district in our region is in charge of determining how much water they can take out of the rivers and so, this would have been in either the late eighties or the early nineties, they first started trying to figure out how they were going to determine how much fresh water they could remove from these rivers. And so we had a sampling a program that we did in the Withlacoochee River, in Crystal River, and Weeki Wachee, and there was another little tiny spring-fed system that we did, Aripeka. We also did some work up in the Waccasassa River, and so we would go up there either every quarter or every month and sample for salinity and nutrients and we did some biological sampling so we could see how the salinity in the river controlled the biology and then they could predict how the salinity would change based on how much fresh water they took out, and then we could make estimates of how much the biology would change in the river because they didn't want to damage the biology beyond, beyond any repair. And so a lot of the pictures that I have in there [gestures to computer] are pictures from those rivers, and they were all just gorgeous and going up there and running on the river. Most of them had very few people on them, and that was always spectacular just to be able to be on the rivers like that. Have you been out to Myakka? Myakka State Park?

Robertson: Not yet, no. One day.

Dixon: Okay, well if you go out there and if you look over one of those bridges, or if you look over the bridge, let's see—I'll think of another one. Or if you go down 41 here and you go over the bridge at South Creek and look up the creek there, and it's very wild looking and just gorgeous and so that's what these rivers were like. And then the one in Aripeka had all these little tiny springs, and there was—you'd be in kind of brownish water, that was clear but brownish, and then all of a sudden you'd come across—there'd be a little depression and the water coming out of it just looked like turquoise blue because it was a spring vent that was discharging water right there, and so these spring vents were really, were really pretty and certainly the water quality in them is very different. And so we were, you know, we were studying the water quality there and it was just really charming to be able to see these. Later on we did another project for about eight years in the Chassahowitzka spring and river system and that was a really, really cool place. There are just a few homes along the river, there's a campground at the head of the river, and there's some homes near the head springs but they're not real visible. There's a lot of water that comes out of it, and so it has a very deep vent that's, you know, coming to the surface; very clear. There are some algae problems in it, particularly around the head spring, but then as it goes downstream there was lots of native, submerged vegetation like *Vallisneria;* that kind of tape grass looking stuff. Bulrushes: we would see otters, and gators, and manatees, and dolphins, and then from where the spring actually comes out of the ground you're in this wetland forest; very, very pretty. And then you get to the coast and it transitions into marsh, and then as you go out through the marsh there are lots of little distributaries and little creeks that come in. It's very shallow in a lot of places; we were working out of airboats that the Fishing Wildlife Service was driving us around for. And then as you get off shore, it gets very rocky; there's not much sediment in the system that's visible there, and so there was just huge, literally, underwater meadows of attached macroalgae that were just— when we first went up there we expected it to be seagrasses because they're pretty common in the area but for the most part, near shore like that it was these macroalgae and some seagrasses, some *Halophila*, but also some really nifty little algae called *Acetabularia* and they look like a tiny little umbrella about, the whole umbrella's about this wide [gestures to imply small size] and they're on a little stalk, about like so [gestures]. I think I have some— yeah, I do have some right here [rises from seat, picks sample up from top of cabinet]. See those? That whole umbrella and stem is a single cell, and they're kind of a light, bright green; really pretty. So that was fun, going up there. And we, you know, we did a number of different samplings. We sampled for benthos, we sampled for fish, we did a lot of work sampling for algae, particularly in the river because the groundwater coming out of the main spring there has become gradually contaminated with nitrate over time, and it's coming from human sources from inland and within the spring shed, and so it's then travelling through the ground and coming up and so this nitrate supports a fair amount of algal blooms in the river itself. So that was one of the reasons we were studying that, but it's a gorgeous place and if you can get up there I'd highly recommend it. I do have some digital pictures of that I can show you.

Robertson: Really?

Dixon: Mhmm.

Robertson: I'd like to see those.

Dixon: Let me see if I can dig them up here [searches through computer photo files]. Well, keep talking so your tape doesn't run out.

Robertson: Oh, sure. Okay, let's see. Will you tell me a little bit more about your role here at Mote?

Dixon: Hmm, okay my role at Mote. Well, when I first started here, as I said I was a volunteer. The guy I was working for, took his job when he left, and then I worked as either a technician, then a staff chemist for years. I started writing proposals to local agencies here and was also providing water chemistry services to other groups at the lab. The lab's done a fair amount of work for power companies, looking at the types of environmental impacts the power companies have and quantifying that, and part of that is looking at either the physical properties like the thermal impacts, which I ended up doing a fair amount of, or looking at water chemistry, turbidity, things like that, and so I would work with the other people, the other groups in the lab. And then in '99, I hadn't even really considered this as a possibility but one of our board members, [Myra Monfort-Runyon] said, "Well, does she want to go back to school? I'll help her go back to school," and so she was instrumental and supported me to go back and get my doctorate, and I was going to the [University of South Florida] St. Pete campus, but still right up the road because I live in Bradenton, but so I was able to commute up back and forth for that for classes. I was able to do my research here on a project that I had gotten funding to do here, and so that worked out well. And so then not long—I don't think I had gotten my doctorate yet because that was in 2009 but I did become a senior scientist here at the lab, and so now I'm a program manager that I have been for some time. I was a program manager of the chemical and physical ecology group; there are six or seven of us and we work in water quality, and look at physical and nutrient related types of analyses. We also trace anthropogenic pollution using optical brighteners, which are the kind of things that make your whites whiter and your brights brighter. If you see the laundry detergent ads; well, those are organic dyes, and they absorb UV light that our eyes are not sensitive to, and they re-emit it in the blue, and then you can see it. And so that's why a piece of paper looks so white, or if you get a piece of paper under a black light, you know how white it looks? Those are optical brighteners and we can actually trace those in the water too, and they're associated with septic effluent, you know, with people that are washing clothes. So, those are some of the analyses. We're also doing a fair amount of optical modeling, and seagrasses can use blue light, and they can use red light, but they can't really use green light. That's why they look green because they're actually reflecting that green back to your eye; they're not absorbing it and they're not using it for photosynthesis. So different materials in the water absorb different wavelengths of light, and so even though we measure the

total amount of light that's penetrating through the water column, it may or may not be the right kind of light that seagrasses need, and so we're able to take some optical models that have been developed and we can actually calculate what colors and how much of these different wavelengths penetrate through the water column and determine if seagrasses have enough. So we've done that work since about '99; we've been working on that kind of model of results, and now we've done it in Charlotte Harbor, we're working on it in Sarasota Bay, and we just finished a large project up in Old Tampa Bay, looking at that. So that's all within this chemical and physical ecology group. I also work with the ocean technology group here; I inherited that program from another one of our senior scientists here, and there we have instruments that use optical methods to detect whether *Karenia brevis*, the red tide organism, is present in the water column or not. This—and it's called an optical phytoplankton discriminator, this OPD, for short [laughs]—we can bolt this onto a dock, or a piling, or we can also put it in what's called an autonomous underwater vehicle, or an AUV, and the kind that the lab has is a Slocum Webb glider, and it's a very passive instrument, and it changes its buoyancy in order to fly through the water. So, when you want to go down, it compresses the air, so overall the instrument becomes more dense; it has a couple of wings sticking out from the side so it starts sinking, and the wings make it move forward. Then when it gets close to the bottom, you expand that air, now that system's more buoyant than the water, and it expands back up again. In the meantime this OPD is bolted in the middle of this, and it's sampling as it goes down, and sampling as it comes up, so we can tell if *Karenia brevis* is present on the bottom where the satellites can't see it, and just where it's concentrated, so that's been really fascinating. That's a relatively new effort for me; I've been doing that for not quite two years I guess, and that's been really fascinating as well, just seeing some of the nifty tools that we've got. Does that explain it [laughs]?

Robertson: Yeah! So how often would you say you're in the lab usually?

Dixon: In the lab? Like with a lab coat on with water on my hands? Almost never now.

Robertson: Really?

Dixon: Most of what I'm doing now is data and writing and, you know, there's a certain amount of administrative stuff. But the data analysis is certainly challenging. In fact, [Dr. Ari Nissanka] and I just got back a couple of weeks ago from a week-long course using a multivariate non-parametric statistics package so that we can do even more data interpretation. And so that part is fun and I think I mentioned before to you that working here has been really fascinating because it's like you're being paid to learn things. It's like being paid to go to school, being paid to figure things out and learn as much as you can fr— Well, first of all, to design how you're gonna collect data so that it can provide an answer for you and then collect the data, make sure that it's good data, and you know, everybody works on that, and then taking the data and putting it in a different statistics package for instance, to- you know, to interpret it and to figure out what your answers are.

Robertson: Okay, what would you say is your favorite part about what you do?

Dixon: I think my favorite part is working with really talented, really caring, and just really hardworking people. The group that we have is phenomenal. People go out of their way to make sure that they complete a sampling even if it's uncomfortable weather and people go above and beyond to make sure that the data that they produce is the best possible. They're looking at the data, they're getting it, and they're not just writing the numbers down but they're looking at the numbers and so you say, "Wait a minute; all of them have been 0.1 except this one's that's 0.4. Is it really 0.4? Did I write it down wrong or did I— you know, was there a bubble in the machine or whatever? I'm gonna re-run that one just to see. Sure enough, it is 0.4. Hmm, I wonder what that is." You know, so that kind of care and attention to detail means that you end up with a data set that is really ironclad. And then you know that you can use even these unusual numbers and learn things about the environment with them. So I think the people that we've got working here, I think that's the most fun.

Robertson: Okay recently, like today, there's been a big push of people that are, you know, encouraging girls to like branch out more into sciences and math and computers and those sort of fields. Would you say you've experienced any hardships or struggles with, you know, being in— working in science?

Dixon: I would say no, and some of it was family history. My brother is ten years younger than myself, and so it's a little bit like having two only children for a family [laughs] because he wasn't hardly even a real person before I went away to college, you know. And so my mother was a chemist before she married and became a homemaker, my dad was a pilot, and so technologically inclined, and so I was encouraged to do as much as I could and if I didn't get good grades I heard about it [laughs]. But I was encouraged to do whatever I was good at and to, you know, go out there and be proud of what you're doing. And then in the schools that I had, I think because of that family backing, I didn't have any problem opening my mouth and asking questions and just learning, and certainly since I've gotten here, and I've been here, gosh a long time now, since '78, certainly I've never felt like I've experienced, you know, the glass ceiling that they talk about for women. And it's—you know I've worked hard and spent a lot of time making sure that the work that I did was correct and as good as it can be and I think people respect that, and I wouldn't have that any other way. I have seen some studies where like how teachers call on boys and girls in science class differs and that some of the more subtle forms of

steering genders into different career options but I don't think I—if I did, I missed it [laughs]. Now we actually work with research experiences for the undergraduate. It's an NSF program where college students come for about 10 weeks in the summer time and work on a project and do a presentation and things like that, and it's designed to foster entry into the sciences for underrepresented groups, and at this point these young women are no longer considered an underrepresented group. In fact, the young men are considered underrepresented [laughs] in this particular case. So, I think we're making progress. There will always be, you know, if you have a family, and take some time off to raise your kids, there will always be a disconnect in salary there if you lose more than a year or two of, you know, routine raises or cost of living thing, but in terms of entry into the field itself, I don't see that as a problem, or we've been fortunate here at the lab in that regard anyway. And actually, in the chemical and physical ecology group, it's all women except for one man [laughs]. The ocean technology group is all men except and then myself, but in our group it's all women except for our newest employee [who] is a young man that just graduated from University of Tampa.

Robertson: So there's a good balance there.

Dixon: Mhmm, mhmm.

Robertson: Okay, you were talking about, you know, when you were younger and asking questions and being in school and that kind of thing. Did you know that this was what you wanted to do when you were a child?

Dixon: No I was gonna be a vet [laughs]. I was gonna graduate, you know, from college and then go to veterinary school, but at the time, coming back from Sarasota—Gainesville was 3 hours away without the interstate, and so it was gonna be— it, you know, was logistically not feasible. And so that's when I started volunteering here at the lab, and just really fell into it. It was not by plan. I certainly wouldn't recommend it as an approach to organizing your life [laughs] but for me it turned out.

Robertson: What made you want to be a vet when you were younger?

Dixon: All during high school I was riding and I wanted to be a large animal vet for horses and cows. So just, you know, just being around them all the time.

Robertson: So--

Dixon: Now I've got cats [laughs]. We used to have snakes but now we have cats.

Robertson: So, animals have always been a part of your life?

Dixon: Yeah, a little bit. I wouldn't call myself a, you know, any like— I don't have a dog and really our cats are only fairly recently that we've gotten them. And I mean I enjoy animals, and more than that I enjoy wildlife and, you know, watching animals in nature and the different— you know, like otters. Otters are way cool. In our canal behind our house, we'll see manatees, those are pretty fun. So I certainly enjoy the natural history and wildlife and watching wildlife like that. I'm not so much a collector or a pet owner; I guess is the difference there for me.

Robertson: Is there a favorite animal or organism of any sort that you've worked with?

Dixon: That I've worked with?

Robertson: Mhm.

Dixon: You mean, at the lab? Yeah… no, I haven't done really any animal work to speak of at the lab, so—

Robertson: Or any of the plants, you know like— [Gestures to plant sample.]

Dixon: That one's pretty cool. Let's see— I think I have another one that's one of my favorites [stands to sort through sampling folders].

Dixon: This is one of the ones from Chassahowitzka [shows photo].

Robertson: What would you say is the most rewarding aspect of what you do?

Dixon: Well, I certainly like figuring things out. It's fun working with people when they're new to a particular skill and seeing them accomplish that skill, master it, and then get better than you are at it [laughs]. That's pretty rewarding, and so then we can kind of grow our own experts in house, as it were. Yup, that's pretty much fun, and we've also had a long history of working with

red tides, and I have. One of the worst red tides that we've had here was during the nineties and I remember swimming off of Turtle Beach down at the south end of Siesta so that we could swim out to where the bloom was the thickest; I mean, it looked like almost like tomato juice poured in the water, it was that thick, so that we could fill up carboys of that and bring it back to the lab to work with it. But now we do most of our sampling from boats instead of swimming in it [laughs]. But we have been looking at the types of nutrient regimes, or what types of essential nutrients are present and what forms they're in when a bloom occurs, when it starts and when it peaks, and then as it declines, the types of nutrients that you find, and how much of them are present varies quite a bit. We've just finished a number of papers for an ECOHAB project, and "ECOHAB" stands for the Ecology of Harmful Algal Blooms, and that was funded by Noah, and we had a bunch of people working on all different aspects of it and we're just about to release a special issue that has fourteen different papers in it all on this same group of red tides that we were all working on at the same time. And having that opportunity, both to interact with the other researchers—for all of us to be doing our different skill sets on the same bloom was crucial for learning how these things interact because if I did one thing on this year, and then the next year someone else did their thing, and then the next year someone else did their thing, we'd never really be able to know how to compare those or how they stacked up together. But we were able to do a lot of different nutrient sources all at the same time, and what it turns out is, is that it depends on where you are, whether you're in an estuary or near shore or a long way offshore, and it depends on whether the bloom is just starting or whether it's, you know, on a decline. And so depending on where you are and what the bloom stage is, the types of nutrients that are important differ quite a bit, and so one of our—one of my favorite sayings is that "nature is messy" and this organism that causes this red tide is very messy. It's, you know, it's like it's coming to a buffet and it doesn't really care whether it eats from this bin or that bin or that bin: it just needs to eat [laughs] and so these various nutrient sources that are supporting the red tide, it's gonna take it wherever it can get it. And so that makes it very difficult to predict what path the bloom will take and whether it will continue to increase or decrease. So that part has been very interesting; it's a very complex problem. The public that doesn't understand all of these complexities wants a simple answer, and there's not a simple answer, certainly not with this organism; and so as scientists you have to get across that message that it's not a simple problem, it's not a simple answer, and yet not make the public feel like they're not getting anything for their research, you know? So you have to craft your research questions carefully, and then make sure that the expectations for those questions are met.

Robertson: Okay, so you were saying the public a lot of times doesn't, you know, fully grasp the complexity of the issue with red tide and other issues you might work with here. Do you feel that your experience as a scientist has changed how you view the world in any way?

Dixon: I think when I see things in nature, particularly if they look like they should not be that way; I know I'll ask why, and how. What could possibly be causing this, and how could you identify that for sure, just a way of looking at nature and framing a problem into something that you could measure and learn about.

Robertson: That's a good way to look at it.

Dixon: It's just kind of a habit, you know [laughs]?

Robertson: Yeah, I remember when I was in, like, biology and chemistry and physics back in high school, I used to, like,—just from being in those like introductory classes for like an hour at a time each day, I would think more like about the world. It was nice. Anyway, when you're not here at Mote, what do you like to do?

Dixon: Hmm. Well it's certainly changed over the years. As I said, I used to like to ride a lot. Then as my daughter was growing up she was riding, so I wasn't riding then but I would go to the stable with her and the horse shows and things like that and that was fun; that was a big part of our life. At that time too we were doing a lot of cruising on our sailboat; we had a small sailboat that we, all three of us [my daughter, husband, and myself], could pack into and go sailing, really just a floating camper. And so we would either just go to the end of the canal and throw out the anchor, spend the weekend, or on longer trips we could [coughs] go down to Charlotte Harbor where it was still very wild looking there. Our longest trip in the sailboat was when we went to the Dry Tortugas; that was really fun. And then, variously I've done some woodworking or most recently another woman here and myself. We're doing Japanese ink painting, *"Sumi-e":* the black—you've seen the black ink?

Robertson: Yes!

Dixon: Okay, so we've been doing *Sumi-e.* I've also been doing quite a bit of target pistol work; I enjoy that too, going to the range and seeing if can hit the bull's-eye [laughs]. So, plenty to do.

Robertson: Do you have any favorite spots nearby?

Dixon: I guess that would be whether you need a boat to get to them or not. A lot of the ones that I like to go to are where there're very few people and so you need a boat to get to them. For that matter it's nice just being anchored on a boat somewhere. I mentioned how pretty the Chassahowitzka river system is; that's nice. I enjoy Myakka State park, just driving through there; I find the vegetation and everything about that very soothing, you know, just the emptiness part of it. I doubt if I'll ever go to the new mall [laughs]. That was a facetious remark, but I would rather go where there are fewer people than more people.

Robertson: Yeah, I went last week for the first time.

Dixon: How was it?

Robertson: It was very crowded; lots of traffic, lots of people.

Dixon: Yeah I'll bet. Were you able to park?

Robertson: Yeah, after a while.

Dixon: [Laughs] After a while.

Robertson: We had to kind of loop around a few times but we found one.

Dixon: Oh, and I also like to cook.

Robertson: Yeah?

Dixon: Yeah, just different things, different ethnic things. I like to cook Thai, Chinese, Spanish, Italian, whatever.

Robertson: Do you have a favorite dish that you make?

Dixon: Hmm, no not really a favorite one because I'm always making something different; even the things that I wanna try and make again the same way seldom turn out the same. So as a

chemist, where we measure everything when we're putting together our reagents and analyses here, when I'm cooking I don't measure very much at all [laughs] so it always turns out differently. But when you're washing dishes here at the lab, we have a protocol where you rinse something three times with tap water and then you rinse it three times with our distilled water to ensure that the container is clean. So here I am at home, having a coffee, I finish my coffee and then I rinse my cup three times before I know what I'm doing [laughs].

Robertson: Do you find that work oozes into your personal life in any other ways?

Dixon: Oh yeah, completely. Completely. This is not a job for forty hours a week, you know; you can't walk away from it because there's always more to do than you can really do in a forty-hour week. And then things come due. Either a contract says you have to have a report in by this date, there's a deadline for a publication on this date, there's a proposal due that you have to turn in by a certain date or else you don't even get a chance to do the work, so when you have anywhere from six to twelve people who are depending on you getting proposals to keep them working. You gotta suck it up, and I've spent many a Saturday and Sunday writing proposals or reports or data analyses or things like that, so it's just part of the job. It doesn't really quit [laughs] but that's why it's good that it's interesting, you know; if it was just stuffing envelopes then, you know, none of us would still be doing it. Because it's challenging and interesting and intellectually stimulating while, yeah, you've missed out on some hobbies or, you know, extra time, it's still interesting stuff and I still enjoy it.

Robertson: That's good. How would you ideally spend your Saturday, in a perfect world?

Dixon: Well I mean as much as I enjoy what I do here, it is nice to have a break and so a perfect Saturday would be to have a beautiful day like we had today, to have the house open, maybe dig in the yard a little bit or clean up some of my orchids, you know, trim out the dead stuff or stuff like that, maybe cook something new, have some friends over, and eat it [laughs]. That would be— oh, and have my daughter and her husband come too; that would be fun.

Robertson: So you garden?

Dixon: A little bit, a little bit. I have orchids which are the original survivor plants; the ones that I have are the ones that do very well with very little attention. Sometimes when my mom comes to visit every six months or so, she'll fertilize them and that's the only time they ever get fed.

And, you know, just not really gardening I'd call it more keeping the yard neat, but it's nice to be outside; you feel like you're being productive and yet it's still fun to be outside.

Robertson: If you weren't at Mote, what else would you do?

Dixon: As a career or—?

Robertson: Yeah, as a career.

Dixon: Hmm. I still would be intrigued to be a vet, but I mean it's too late to go back and do that but I still think I would enjoy that: same kind of making decisions, figuring out things, treating animals. There's probably a lot more of the business end, dealing with the owners of the animals that I don't have a good concept for [laughs]. You know, I don't think I have enough talent to do this but it would be very intriguing to try and do something artistic as a career but I don't think I have that level of vision but I enjoy that very much.

Robertson: How long have you been doing the Japanese—

Dixon: The *Sumi-e*?

Robertson: Yeah.

Dixon: Two years or three—something like that. It's been lots of fun. Ari and I go and we have a teacher who's in town, Keiko Romerstein, and she's won national prizes and is a very talented. Not only is she very talented, she's a very talented teacher, and those two don't always go together; but she's a very talented teacher and it's a nice break from science, very different from science.

Robertson: Mhmm, I would imagine. Are you involved in any other of the arts here in Sarasota?

Dixon: Yeah, no. No, not really. It's hard to get out; sometimes it's hard to even get to the painting but no I haven't participated nearly as much as I might've.

Robertson: Is there anything else you would like to share?

Dixon: I don't know. I can't really think of anything else that would translate well, you know, for the different viewers. There's been so much of the time here at Mote that's been little tiny incidents that, you know, accumulate until they're a part of your fabric and they're hard to pick out and tell just one little piece of lint at a time and have it make sense [laughs]. But it's been a really wonderful place to work and, like I say, we're being paid to learn things, and it's hard to beat.

PART II

Robertson: Tell me about some of your fondest memories while at Mote.

Dixon: Well probably one of the most satisfying projects we pulled off was a large sampling; we were coordinating the efforts of Manatee County, Sarasota County, Mote was helping, we had a couple of University people who were helping us, and this was when the Sarasota Bay National Estuary program was relatively new. We had 101 stations that were located between Ana Maria Sound and the Venice Inlet and we sampled that entire region in less than a day. I can't remember now how many boats we had; I think we had 6 or 8, so we had to have 6 or 8 meters, 6 or 8 crews, kits of bottles, all the equipment that we'd need to collect the samples with. So pulling that off was kind of a logistic triumph because if you've been around boats at all you know, what like two to three times of out ten they won't work, so being able to have them all run for the entire sampling—and we did this quarterly for a number of years, and it was kind of the first synoptic sampling of Sarasota Bay. Sarasota County had been sampling and they would sample one region in one week and then the next week they would sample another region because they only had one person and one boat kind of thing, and so by having all of these people pulled together we were able to collect the whole snapshot of the bay and its water quality all at the same time, so that was pretty neat. Another fun memory was when my daughter was about, I guess she was about three and the lab always had a Christmas party and one of the staff members would always be [Santa Clause]. So Santa would arrive by boat and so we would all walk across from the kitchen where we were having the party, walk across to New Pass to the dock and then Santa would come zooming around on the boat and get off and give the kids presents and that was kind of fun. It was, you know, a lot smaller place then, a lot fewer scientists, but it's still maintained its collegial feel; you know. When funding cycles occur and one group doesn't have enough funding and yet they have some technicians that are really good that they want to keep and then if another group has funding, even if they're in a different field

we'll try and trade people back and forth just to, you know, cover salaries and things like that, and that kind of attitude I think persists and makes it another thing that makes it nice to work there.

Robertson: Would you say that you've learned any important life lessons from working at Mote?

Dixon: The answer is of course yes, I'm just trying to put them in a pithy phrase for you. No plan survives the first contact with real life; planning can get you through a lot of unexpected instances; and if it was easy it would've already been done, and we wouldn't be doing this work.

Robertson: Okay, so is there anyone you would say has had a particularly significant influence on you?

Dixon: I think my parents, my dad especially, and we talked about that the other day, how they always encouraged me. After I got to Mote, I think the man I was working for, who I ended up marrying, taught me that just because a number comes out of a machine, doesn't mean that it's right and that you have to understand your instrument or your machine and you have to be essentially suspicious of your data until it's proved to be correct, and that takes extra steps but then once you have that, then you can really trust that number and you can work with it. Then probably the third person is a man who's been my boss for a long time; he's retired now, and he is an ecologist and is probably the one that knows the most out of anyone that I know about the rivers and creeks of Florida; the biology, as well as the chemistry. Even though he's an ecologist he's not a bad chemist either.

Robertson: So what are your plans for the future?

Dixon: The future? Well, I'm not sure how long I'll keep working at Mote. My husband is close to retirement but I'm still enjoying what I do. My mother lives in South Georgia and there's farm property there that we'll be retiring to eventually but my mom right now is still chasing her chickens and driving her tractor and killing the snakes that come on her porch and all that kind of stuff, but if her health changes then obviously our plans will need to change just to care for her; but we're looking forward to getting up there. I'm going to have to have to get in shape because I've been sitting at a desk for a bunch of years, so I'm going to have to get in shape so that I don't die just hiking around the property [laughs] but it'll definitely be a commitment of energy and

time to keep it looking nice, make it safe, have it be a good wildlife habitat. There are deer and turkey and things like that on the property—some foxes, so I'm looking forward to that part of it but it's going to be a while. Then maybe when I do that I'll be able to do more of my painting, more gardening, that kind of thing; maybe some teaching, I don't know—you know, like tutoring or something for high school students; there's a high school that's not too far away.

Robertson: What were you like as student?

Dixon: I was a good student; I didn't mind working at it. The math and sciences came really easily, the English and history was dreadful, but I was able to persevere. That's certainly not my forte, but the math and sciences were just conceptually easy and so it was easy to work on those, and I enjoyed it.

Robertson: I'm the exact opposite.

Dixon: Oh really [laughs]?

Robertson: Yeah. Math and science I have to try so much harder to get, and then English and history classes were no problem for me.

Dixon: Well, I will say that the thing that makes the biggest difference though is the kind of teachers that you get exposed to because I had very good English teachers in high school and they were enthusiastic and knew their subject, and this was literature primarily that I'm talking about, in terms of interpreting literature, and that was okay. I mean it wasn't easy but it was okay and I was interested in it. Then I got to college and I had to have a humanities course and started with an 'English Poetry' or something and it was just dreadful. It was boring and it just wasn't—there was no rewarding feature from it for me, and so I switched to anthropology or something for that class, but you know, a different teacher can make all the difference in the world. In fact, I think in many respects it can decide your career if you have a really charismatic teacher that sucks you in and enthuses you.

Robertson: I agree.

Dixon: Can I talk about that one thing that I forgot?

Robertson: Yeah, definitely.

Dixon: One of the projects that I'm actually the most proud of—in the ’70s, sewage treatment plants were discharging very minimally treated wastes into Tampa Bay, and as a result, the nitrogen levels in the Bay were quite high, the chlorophyll was very high, the light reaching the sea grasses was much reduced, and so based on pictures of sea grass between the 1950s and the 1970s, lots and lots of sea grass—just gone away, and there were huge masses of macroalgae in upper Hillsborough Bay, and macroalgae is kind of an indicator or excess nutrient, if you get big accumulations of it. So what they realized was that the nitrogen concentrations—the chlorophyll concentrations were proportional to the nitrogen, and then they realized that the water clarity was primarily a result of the chlorophyll blocking the light, and so then they said, All right, how much nitrogen do we have to not put in the bay in order to reduce the chlorophyll and in order to increase the light in order to restore the sea grasses that we’d lost. Does that chain make sense?

Robertson: Yeah, yeah it does.

Dixon: Okay. So to answer that question you have to know how much light seagrasses need, and so in the mid-nineties another man at the lab and myself, we designed a project where we actually put out light meters at the bottom near the deep edge of the grasses, and they had two light meters separated by a vertical distance so that you could figure out just how clear the water was between them and extrapolate that back to the entire water column. So by doing that, we were able to determine that seagrasses, where they stopped at their deepest extent, they got between 20 and 25% of the light that hit the surface of the water, on average. So that number, that 20 and 25%, has been used to make millions of dollars worth of decisions of controlling nitrogen going into Tampa Bay. That same number has been used to try and help restore seagrasses in Charlotte Harbor—the whole Charlotte Harbor National Estuary Program down there which includes the Caloosahatchee all the up to Lemon Bay, and also we've used that same number in Sarasota Bay, and so it was one project that we did for a little over a year and it's had some very extensive repercussions. The information that we generated has been used in an applied sense very directly in our area and is very water-related in terms of improving the bay habitat and of course once you improve the water clarity, you improve the amount of seagrasses there then you have the cascade effect of providing more habitat for fish and etcetera, etcetera, etcetera. It really had a big impact and is probably one of the projects that I was the most proud of.

Robertson: Yeah, that sounds really cool.

Dixon: And that's what I forgot to tell you the other day; I can't believe I forgot it [laughs].

Robertson: When did you say that project was again?

Dixon: In the mid-nineties.

Robertson: Oh, okay.

Dixon: And we've written a couple of book chapters since then on it, and there's certainly other things besides light that affect seagrasses and that hurt seagrasses, but this is kind of one of the cornerstones.

Robertson: Very cool. Do you have anything else that you'd like to add?

Dixon: I can't think of anything; I'll think of something in the middle of the night probably [laughs].