



Dawn Wright Oral History Interview, June 10, 2016

Title

“A Career Spent Mapping the World's Oceans”

Date

June 10, 2016

Location

Valley Library, Oregon State University.

Summary

In the interview, Wright describes her family background and upbringing, with special attention paid to her formative years growing up on the island Maui. In reflecting on this time, Wright discusses her early interest in science as well as the beginnings of her love of the ocean and the impact made by her experiences of multiculturalism in Hawaii.

From there, Wright details the circumstances that led to her attending Wheaton College in suburban Chicago for her undergraduate studies. After noting her work there as a Geology major, Wright discusses her move to Texas A&M University to pursue a master's degree in Oceanography. She then recalls her adjustment to life in Texas as well as her memories of both her first ocean cruise as well as the scholarly research that she conducted during these years.

Wright next traces her years of involvement with the Ocean Drilling Program at Texas A&M, commenting on her work as a marine technician and the opportunities for global travel that the position afforded. After that, Wright shifts focus to her doctoral studies at the University of California - Santa Barbara, noting her engagement with GIS and her first experiences of a deep ocean dive.

The remainder of the interview is primarily devoted to Wright's years as a faculty member at Oregon State University. In this, she describes her move to Oregon, the eight months that she spent as a post-doctoral fellow at the Hatfield Marine Science Center, and her memories of settling in at OSU. She likewise discusses individuals at the university who made an impact upon her, the process by which she set up her research program, and the main themes of her scholarship while on faculty. Wright also touches upon her evolution as a teacher; shares her thoughts on the challenges that OSU has faced with respect to diversity; discusses the broader advancement of women in science; and notes the history of her passion for bicycle racing.

The session concludes with Wright's insights into the role that social media can play for academics and an overview of her work at Esri.

Interviewee

Dawn Wright

Interviewer

Chris Petersen

Website

<http://scarc.library.oregonstate.edu/oh150/wright/>

Transcript

Chris Petersen: OK, today is June 10th, 2016 and it is my pleasure to welcome Dawn Wright back to campus. For the record, Dawn and I have been trying to get together for a couple of years. [laughs]

Dawn Wright: Two years, yeah. [laughs]

CP: And today we've succeeded, so I'm very happy about that. So we'll talk a lot about your connection with OSU, but we'll endeavor to develop a fuller biographical sketch as well. So I'll ask you to tell me a bit about your early life. You were born in Baltimore, is that correct?

DW: Yes. I was born in Baltimore, but we left Baltimore when I was four or five years old, and we went to Saskatoon, Saskatchewan Canada, and that was mainly because of my mother's work. My mother was a professor/lecturer in speech communication. My father was a basketball coach. So in terms of where my family went, we went where she was getting work, getting positions. It was easier for my father to get coaching positions wherever we ended up.

So we spent a year in Canada and then from there we went to Hawaii. So I consider Hawaii my home in terms of growing up, because we were there through the formative years of my childhood until we had to leave there when I was in high school, when I was finishing up high school.

CP: You were on the island of Maui, is that correct?

DW: On Maui, yes.

CP: Can you tell me a bit about community life, growing up on Maui?

DW: Well, we were on Maui, this was in the '60s and the early '70s, so Maui was extremely rural back then. It was nothing, of course, like what it is now. Very small communities, very easy to get to know a lot of families, a lot of people on the island. For me, it was wonderful because of being near the ocean and getting to know kids who were from all of these different ethnic backgrounds, the different kinds of foods, the different cultures; not just the native Hawaiian culture, but Filipino, Chinese, Japanese, Portuguese. So for me, it was learning to love the ocean but also learning to love people of different backgrounds.

We fit right in but, at the same time, we didn't, because it was also during the Civil Rights Movement and, as wonderful as my experience in Hawaii was, it was also my first experience in terms of racial bigotry, just from being teased in school. There's a long story there that probably is too long for your interview, but it was a good juxtaposition to learn about life in that way.

CP: So this is where the attraction to the ocean started?

DW: Yes, this is where it all started. It started by living in Hawaii and then also seeing Jacques Cousteau on t.v. But mainly just being in the water a lot, mainly body surfing and snorkeling and swimming, and just falling in love with all of that.

CP: How about your interest in science? Did they go hand in hand?

DW: Yes, I think the interest in science went very hand in hand. I started off first, like many children, being totally taken by the Apollo moon missions. Apollo 11 was just, it was one of those things where you remember what you were doing, exactly where you were when a certain world event took place. And I remember, as clear as a bell, being in front of the t.v. on my living room floor, just transfixed by the Apollo 11 mission.

But then after that, I really turned again towards an interest in the oceans, and my first thought was to become an underwater photographer, because that's what I understood Jacques Cousteau to be. He was a photographer and a videographer, not necessarily a scientist. But very soon after that idea, I really got attracted by science itself. Especially geologic science and especially volcanoes, again being on Hawaii and knowing about the active volcanoes on the Big Island of Hawaii. And so an interest in geology was the first draw.

[0:04:49]

And I learned through books – these were in the days before the Internet – I learned through books and through magazines, how do you go about becoming something? Nowadays we have all kinds of programs and all kinds of information on the Internet, but I learned through books that, to become an ocean scientist, you needed to first specialize in one of the primary sciences, either geology, chemistry, physics, or biology. And interestingly enough for me, it was not the biology that attracted me. Everybody that I talked to, they all focused on marine biology and that is most certainly charismatic and that's what people think about when they think about oceans and becoming an ocean scientist. But for me, it was the rocks and the sediments and, particularly, the structure of things, especially volcanoes.

CP: Was there a person closer to you than Jacques Cousteau who helped prompt this? Or was it mostly from within that you developed these passions or interests?

DW: I think it was mostly from within. Jacques Cousteau was somebody that I saw on t.v. and later on there were people like Robert Ballard, with the discovery of the *Titanic*, and Sylvia Earle, with her amazing conservation work. But it was mainly just admiring the science, admiring the oceans, and admiring a lot of people who studied the oceans. My mother would always give me an article or point me to something on t.v., like, "see, look what this scientist is doing," or "see, look what's happening here." And it just continued to be an internal encouragement.

CP: Your mother was very important to you.

DW: Very important. My father is important to, but my mother was really the, she's the one that I'm closest with. I'm an only child, we are best friends. We basically had to build a life together from the age of eleven, because my parents split up, and so we're the family unit. Yeah, she's a real precious gem. [laughs]

CP: Well, I'm guessing that college was always something that was in your sights?

DW: Yes, college was always something there. Again, because I figured out that in order to become a scientist and become an ocean scientist, you had to go to college. And especially for ocean science, there were very few places in the U.S. where you could get a bachelor degree in oceanography. And I think even today that's the case, there are more and more schools that allow you to get a bachelor degree, but certainly back in the '60s, '70s, and '80s, there were only a few places. And so the answer was to go to graduate school. So you definitely had to get your first degree in basic science and then go on from there to specialize in that, like geologic oceanography or what have you, in graduate school.

And at the time, I didn't know anything about geography. Not that there wasn't any information, but I was not exposed to geography as a discipline until I got into graduate school. So that's another interesting part of my story, because my work here at OSU, I was appointed to what was the Geosciences department and the Geography program within that. But that came very late in my training.

CP: Well, my understanding is that you finished high school in Maryland but then you wound up at Wheaton College, which is in suburban Chicago, is that correct?

DW: Yes.

CP: How did that happen?

DW: Very cold, very far away from the ocean, although I guess you could count Lake Michigan. But that was the influence of my mother again, because she went to Wheaton College. Wheaton is a very small, private, liberal arts college. It has a Christian ethic; using the term "Christian" nowadays is loaded, especially evangelical Christianity, but that still is the label that's placed on Wheaton. It's known as the alma mater of Billy Graham, the evangelist.

What I was looking for was mainly a good, wholesome, safe college experience. At the same time, Wheaton is one of the few Christian colleges that had, and still has, a Geology program, which is an interesting twist because there is a thread of, I don't want to say anti-science, but the Creationist movement, it's not very friendly to geology. And there aren't enough, I would say, Christian colleges that train young people in geology. And now we also have the whole area of

climate science, climate change. But at any rate, Wheaton fit the bill for me. I wouldn't have chosen to go there based on its location in Chicago, I went based on the quality of the school and the fact that they had geology.

[0:10:10]

CP: So geology started out for you with volcanoes. By then, had it shifted in a different direction towards the ocean? Where were you at in your interests at this point in geology?

DW: I was still very focused. I went to Wheaton for the reasons that I mentioned, but it was so that I could get a good Geology degree to go on to an ocean science, oceanography graduate program. I was very focused on the stepping stones, and at that small liberal arts college level, you get the basics. They only offered one oceanography class at Wheaton, which I, of course, took. But they had just the basics – they had the mineralogy and petrology, structural geology, stratigraphy – all of those basic elements that you needed to get into a good graduate program or to, during that time in the 1980s, a lot of Geology graduates were going to work for oil companies. I didn't worry about that because I was just very focused on getting to graduate school.

CP: And you wound up at a very good one. My understanding is that Texas A&M was one of the best in Oceanography at the time.

DW: I did. I did wind up at a very good graduate school, I was very thankful for that. There were a lot of schools that were possibilities for me, but I only ended up applying to a few of them, and Texas A&M offered me funding, so that was another lesson that I learned, [laughs] that you go where the funding is. And so I had some fellowship funding to get me through my program there.

CP: Tell me about the environment at A&M for you.

DW: Texas A&M, it was a shock to my system. It's a wonderful university, it was an excellent Oceanography program, and they were also the science operator for this international program called the Ocean Drilling Program, which, I was really in the right place at the right time. And because I was at Texas A&M, I was able to get a job as a sea-going marine technician with this Ocean Drilling Program, which is right there. That was wonderful. But Texas A&M was a shock to my system, mainly because of the size. I went from a small college, 2,000 students on campus; at the time I was at Texas A&M, they had 36,000. So just from sheer numbers and the sheer size of the campus, it took a little getting used to.

There was also the culture of Texas. I had never lived in Texas before. People were very friendly, I felt very comfortable there. But at the same time, it was just a little bit of a culture shock, getting used to living in Texas, the weather and everything. But my experience at Texas A&M, by and large, was a good experience.

CP: As a master's student, was this your first experience of an ocean cruise?

DW: It was. And I almost changed my major, [laughs] because I went out to sea, and I got terribly seasick, and I thought, "oh no, how am I going to become an oceanographer if I can't even survive a five-day student cruise?" I was sick for three out of the five days. [laughs] But what helped me was that, by that fourth day, I had gotten over the seasickness. And since then, I've learned that I have – of course, you get seasick because of a problem in your inner ear, and my condition is such that nothing helps me. Patches, medicine, nothing helps. And so in going to sea over the many years, I figured out that I just needed 48 hours. I took me 72 hours on this first cruise, but once I got my sea legs, so to speak, I enjoyed it immensely and everything was fine then. I've been on over twenty cruises or expeditions, but that first one was an eye-opener. I thought, "oh no, I'm not going to be able to do this!"

CP: What was your research focus during this time?

DW: It was on geology. I ended up, through a series of circumstances that are familiar to graduate students – you don't know what specifically you're going to study, and sometimes it depends on what data are available or who is willing to work with you on a particular project. But I ended up getting some data from the Tonga Trench in the southwest Pacific, and it ended up being a geophysical study, it wasn't straight geology, I was actually doing some marine gravity modeling, numerical modeling. It wasn't an area of strength for me. I was hoping to work with some actual rock samples, but I ended

up working mainly with numbers and equations. So that was a good – it stretched me. And it wasn't the best thesis, but I was able to do it, and do it mainly because of the help of two Ph.D. students in Geophysics, in another department.

[0:15:21]

The advisor – I mean, if this interview ever gets out beyond Oregon State, I don't want to mention the name of my advisor, because he wasn't the best advisor. He's a brilliant scientist, but he really didn't have, I wasn't mentored and guided by him. And in fact, one of the reasons I decided to go for a Ph.D. after that experience was so that I could actually have students of my own and really work with them and pay attention to them and guide them and not have them go through what I went through as a student.

But everything worked out. I passed, defended, got my master's degree, and was told at the time, by this advisor, that I should consider going for an MBA or going to law school and give up on oceanography. And I knew that that was not – that did not compute. My experience certainly could have been better and I certainly could have done better, but it wasn't all my fault and it wasn't because I didn't have the ability. So that was a little bit of a jolt but it was actually a good jolt. And I did continue on; the rest, as they say, is history.

CP: You referenced the Ocean Drilling Program, you were a marine technician for three years, is that correct?

DW: Yes.

CP: I'm interested in the work but also you travelled so broadly to some exotic places, and I'd like to know a little bit more about that experience.

DW: Yes, the Ocean Drilling Program – and there are so many scientists in CEOAS who can tell you more about the modern-day Ocean Drilling Program, especially Anthony Koppers, because he's been a co-chief scientist on many of these cruises, and I think has been working at the governance, he and Alan Mix and others, have been working at the governance level of Ocean Drilling. The whole idea behind ocean drilling, which followed on from the Deep Sea Drilling Project of the 1960s – when I was part of the program it had become the Ocean Drilling Program, now it's the International or Integrated Ocean Discovery Program, it's gone through several different cycles.

But the idea is that you go from point to point throughout all the world's oceans and you are doing your experiments, taking samples of rocks and sediments at these sites within the specific area, that is to answer a specific scientific question for that study area. And that specific question has been posed by this group of international scientists who all want to come together to answer that question. They finish their work, the ship goes in to the nearest port to that area, and then goes out again to another area that is not the same as the area that were at before, but it's sort of in a progression. So you might go through several areas in the western Pacific or the central Indian Ocean. The expeditions are scheduled so that people with their science questions, they are put in to the schedule so that the ship can go help people to answer their question in this region and then we'll go to the question that was posed by other people in a similar region, and it just goes like that, continuously.

So if you are a sea-going technician with these programs then you're basically going all throughout these regions of the world and you get to go to all the wonderful ports of call to help you get to those areas. So it couldn't have been a better jumping off point after getting a master degree in Oceanography, and I'm still really indebted to the Ocean Drilling Program and to all the people that I worked with. And I will never, ever get an opportunity like that to get all that sea time in, because it's very rare that you just – we were at sea for six months out of the year on those expeditions, because they're on a drilling vessel, the vessel is anchored into the sea floor, so it's got to stay there for as long as it takes to get the core samples needed. So you're normally out for two months at a time, whereas for other kinds of ocean science research, you may be out for a couple weeks to a month, but rarely two months. And then the other extreme is if you're on an ice breaker and you're in the polar regions, they're on bigger ships and they can stay out for even longer.

[0:20:04]

CP: Well, you had mentioned the reasoning behind the decision to pursue a Ph.D., you went to UC-Santa Barbara, why did you select Santa Barbara?

DW: Yes, Santa Barbara, that's how the geography came into play. I selected UC-Santa Barbara because of a small little article, a couple paragraph article, that my mother saw in *The Chronicle of Higher Education*. [laughs] And when you think about these kinds of things, it's really wild how your whole destiny can really be set by the smallest of things. This was not like a great big, it was just a couple paragraphs, and it mentioned geographic analysis. At the time, when I was thinking about stopping with the Ocean Drilling Program and going back to school, UC-Santa Barbara got a major, major National Science Foundation grant to establish a National Center for Geographic Information and Analysis. And it was doing this in collaboration with two other schools – at that time it was called the State University of New York at Buffalo, which I think they're called the University at Buffalo now, and the University of Maine. So there was this triumvirate or this triangle in this consortium. Now, I was interested in this national center and possibly going to school to participate, and of those three schools, Maine, Buffalo, or Santa Barbara, which one would you choose in terms of geography? [laughs] Or in terms of weather.

So I chose Santa Barbara. And at the time, you had to apply to become a geographer and Santa Barbara did not require you to have any prior background in geography. That's really interesting because a lot of programs, you need to have a bachelor degree or a master degree in that field if you're going to pursue a Ph.D. Santa Barbara didn't put any of those constraints on their applicants; they just wanted somebody who was a good potential scientist. So that was very attractive. And then finally, they offered me some funding. So again, I had to go where the money was. I can't remember where else I applied for a Ph.D., but again, Santa Barbara came through with this funding package for me that covered my entire Ph.D. time, so I couldn't turn that down.

CP: Was your first experience of a deep dive during this period?

DW: Yes, it was. And it was very interesting because I started off as a Geography student at Santa Barbara and they had some ocean scientists who were in that Geography department, and they were only there because Santa Barbara, at the time, didn't have an Oceanography department or a Marine Science or Marine Studies department. They have that now, or they have the equivalent of that now. They had a couple of physical oceanographers, ocean physics people – I didn't, and still don't, do ocean physics, but I ended up being a teaching assistant in those classes for these professors.

But what really got me involved with deep diving was through the Geology department. I can't remember, really, the circumstance that got me connected with the geologists at UCSB, but there were a couple of professors – one in particular, Rachel Haymon, who came back from an expedition, doing her own research, and it was with the camera sled that Robert Ballard had used to discover the wreck of the *Titanic*, it was the same sled, the Argo II sled. And the Woods Hole Oceanographic Institution engineers who were working with that camera sled experimented with collecting the data in a GIS, Geographic Information System, and it turned out to be the Esri ArcInfo GIS at the time.

So Rachel comes back from her expedition with the data that she needs for her project, but it's all in this GIS format that she could not use, she didn't understand, they didn't have GIS in her department. And the word somehow went out that they needed a student to help them with this project, and that's how I got brought in, because they said, "well, here's a student, she's in Geography, that's where you know about GIS, that's where the GIS expertise is. But she's also been to sea and she's a geologist, so why don't you get this student involved?" So that's how I got drawn in.

[0:25:00]

When they do their camera sled studies, that's sort of like a first reconnaissance. And when they find sites that are exciting from towing the sled with the camera attached to it over these areas, then they pick the areas to go diving and actually take samples. So getting involved with Rachel Haymon was my entry to getting involved with the ALVIN submersible, because she then got funded to go down to some of these selected sites with ALVIN. And that became part of my dissertation, because I was helping her to use GIS; I was developing a GIS environment for her to continue her research, and that's how that started. So it was great.

And she also was very, very good about giving students the opportunity to go down in ALVIN. There are a lot of oceanographers who will go their entire career and perhaps not get that opportunity. But she not only had the opportunity herself, she allowed her students to go. So, gosh, it was great; I'm so thankful.

CP: Can you give us a sense of what that experience is like? I mean, on some level it seems romantic, but also terrifying. [laughs]

DW: It is both. For me, it wasn't terrifying. They ask you, before you go into ALVIN, whether or not you're claustrophobic and whether or not you have a problem with epilepsy, for obvious reasons. There's no problem with seasickness in ALVIN, unless you're on the surface bobbing around for a long time, you might get seasick. But the deployment and the recovery of the submersible is usually so fast that I never had that problem, and if I didn't have that problem, most people don't have it. [laughs]

So that leaves you with the romantic part, and that really is, for me, that's what it was. Because you are descending through the lighted zone of the ocean, and so you see these beautiful shades of blue until things get progressively darker and darker into pitch black darkness. And so you could be in outer space, but they say that, in the ocean, the saying is that you're in inner space. And particularly in some parts of the ocean, for me we were in the eastern Pacific, and a certain species of bioluminescent siphonophores are just below the photic zone in those waters. And when those organisms crash into each other, there are little flashes of bioluminescent material that go off in the water column, or in the water surrounding you. So to us, it looked like a little firework show going on outside the widows of the submersible. Complete, just fantastic.

And then you get to the bottom of the ocean, the pilot turns on the lights, and then there's this eerie landscape that looks lunar in some places. So again, it's like being an astronaut. This is why, I guess, we have the saying that there are astronauts and then there are aquanauts. And it has the total feeling of exploration, you're seeing places that have not been seen before – either they've never been seen before by any other human beings or they've only been seen by a handful of other people on the planet. So there are a lot of parallels.

So doing that kind of work, it's a less expensive way of having a fantastic expedition, because to go up in the space shuttle, who's going to have a chance to do that? But many, many more of us have gone down to the ocean floor, at least.

CP: The birth of "Deep Sea Dawn."

DW: Yes, and the whole "Deep Sea Dawn" thing, I can't remember how that started. Someone at UC-Santa Barbara started to call me that, and it's one of those things where it just snowballed, [laughs] and the next thing I knew, I finally just gave up. And I think I've put it on some of the things that I used here at Oregon State and just continued. I guess it's the alliteration too; it's a fun name. [laughs]

CP: Well, from Santa Barbara you began your association with at least the state of Oregon. You did a post-doc based out of Newport? Is that correct?

DW: Yes.

CP: Can you tell me about that? How did that come about?

DW: Yes, and that's another, I think, being in the right place at the right time, and this is where I hope you do interview Gordon Matzke, because Gordon Matzke, again, it was a little thing, a little two-line thing that he saw in the *Association of American Geographers Newsletter*. He was looking through the list of students and their dissertation titles, and he saw the title of my dissertation at UC-Santa Barbara, because even though I did both geology and geography at Santa Barbara, I was processed through the Department of Geography there. So it came out as mainly a geography dissertation.

[0:30:17]

And at the time, Oregon State was looking for a new assistant professor. I think they hadn't hired an assistant professor in about twelve years. And what was the Department of Geography at Oregon State had become the Department of Geosciences; I think that happened around 1988 or '89. But this was around 1993, and so they were looking to hire a new assistant professor. He saw that my work was a cross between those two disciplines and he said, "you know, maybe this is someone we should take a look at and have her come up and give a talk." And so that's how that happened. I was able to come up and give a talk, one thing led to another, and I was hired by the department.

But I was also hoping to do a post-doc. I wanted to do the traditional one- or two-year post-doc at a lab, and then go from there to a tenure track faculty position, because I didn't think I was ready to be an assistant professor yet, I thought that was too fast. But what Gordon and NOAA did together was to – and this was mainly on the Oregon State side – they were willing to craft an entry employment package for me to actually pay for me to post-doc at the Hatfield Marine Science Center for eight months, and then come on to the Oregon State campus in September and start my faculty position. That, again, is wonderful. I don't know of anyone else who has had that kind of arrangement. I hope that my experience has not been unique, but it was pretty neat. And so Oregon State gave me my post-doc experience.

It was also nice for NOAA, because they had a research associate who could also help them with their fledgling GIS program. Actually, it wasn't fledgling, they were actually doing some of the best ocean GIS work at the time, so it was great for me and I hope it was helpful to them as well. And so that's how that happened. So it was a nice connection between NOAA and Oregon State, and it's because of the creativity here on campus, but also what's available at the Hatfield Marine Science Center, because, as we know, we have NOAA and ODF&W and EPA and all of the uniqueness and wonderful things that are at the Hatfield Marine Science Center.

CP: Which celebrated its fiftieth anniversary last year.

DW: Yes.

CP: Can you tell me about that as a place of work?

DW: It was wonderful, I loved being there and I was so sorry that I only had eight months. But I made some life-long friends there. What is wonderful about it is – I'll talk about it from a cultural standpoint, because we know that the science coming out of the Hatfield Marine Science Center is stellar, and at the fiftieth anniversary they talked about all of the discoveries and all of the progress and all of the neat things that have happened there. But because of the remoteness of Newport and the fact that you've got a whole bunch of these fantastic scientists together in a small place, people are of like interests. And so the social network there is very, very strong. It's not like many places where you work with your colleagues and then you go off to a different life and you socialize with different people. Maybe you want to get away from your colleagues [laughs], I don't know. But it was not like that when I was there, it's a very tight-knit community.

It's also a community – I think it's still like this – where people have dogs. A very good dog community. And that's how I learned. I didn't have a dog when I was there, but I soon got a dog after leaving Newport, and my dog, Lydia, actually became part of the of Hatfield Marine Science Center dog community as well. [laughs] I would go to parties and they would talk about Betty and Phoebe and I thought these were kids or these were people, and they were dogs. So my dog Lydia became part of that community too.

CP: That is the first time that's come up in this project, I'm pretty sure. [laughs]

Well, so you finally arrived at OSU around '94-'95?

DW: So, it was '95.

[0:35:04]

CP: '95, ok. Well we've established how the position came about, I guess I'm interested, from there, about your initial impressions of the university and of the town as you settled in a bit.

DW: Oh, well, by that time I had been in Oregon for the eight months, and even though the weather in Newport was a little rough for someone coming from southern California, the beauty of the state, the people, all of that was fantastic. And my experience on campus here was great, and it was mainly because of friendly senior faculty members. Gordon Matzke was the chair of the Geography...was he Geography program chair? He was Geography program chair. Cy Field, a geologist, was chair of Geosciences. Cy Field and Gordon Matzke, in their capacities as Geosciences department chair and Geography program chair, were very, very supportive of me as a new faculty member.

And I really appreciated that, particularly because I was the only one. Sometimes faculty are hired in a cluster, like you might come in and then someone is hired right after you, maybe in the same area. In my case, Roy Haggerty, who is now

the interim dean of CEOAS, he was hired not that long after me, but he was hired into the Geology. I mean, we have to get into the split personality in Geosciences, because there's the Geography and the Geology there, so it's not like a pure department. So there are some interesting cultural things that were going on in Geosciences. Anyway, for me being the lone geographer, maybe for Roy being the first – I don't know what his situation was, but he was a new geologist – both of us needed support from older faculty members. And in my case, I really got that.

And I really appreciated faculty like Jon Kimmerling and Chuck Rosenfeld, because I was hired to teach and developed the Geographic Information System curriculum, and to pick up where Jon Kimmerling had left off. So Jon is a cartographer who also taught GIS and developed great things in GIS. Chuck Rosenfeld was overseeing, I believe, the remote sensing. So cartography, GIS and remote sensing are very closely tied together as specialties within geography. So again, it was great working with those faculty members.

And then there were other faculty members, like Julia Jones, who is a very interesting and neat connection because Julia, when I was at UCSB as a graduate student, Julia Jones was leaving UCSB and coming to Oregon State. And I always remembered how she was very kind to me during my campus visit at UCSB. There was no realization, there was no crystal ball, for us to know that we would end up as faculty colleagues, one day, at Oregon State. In fact, if anybody had told me that, I would have said, "you're crazy, that's never going to happen," but it did. So that was really neat as well.

CP: Did you have occasion to interact much with John Byrne?

DW: No, I didn't, and I wish that I had because John Byrne, with everything that he's given, not only to Oregon State but to the discipline of oceanography, I really wish that I'd had more interaction with him. It wasn't until later on in my career at Oregon State, and getting closer to his retirement, that our paths crossed.

CP: How about Jane Lubchenco?

DW: Oh, Jane Lubchenco, I just had coffee with Jane Lubchenco before coming here! We have had quite a bit of interaction, which has been a constant source of inspiration for me. And I think the pinnacle of that – I can't remember how Jane and I first actually met – but I did have a special GEO 599, it was a one-credit, I called it, "Great Women in Science," it was a small seminar course that I had developed during my sabbatical. And so when I came back from my first sabbatical, I wanted to actually have the course as a real course. And so Jane was one of the many female faculty members who participated in that seminar, and so I think that's how we first got to know each other a little better.

[0:39:59]

CP: Well, let's talk about your research at OSU. I'm interested, I guess initially, in learning more about setting up your program and then how it spun forward. There's obviously an awful lot that we could talk about, but I would be interested in knowing about the progression of your work and some of the milestones along the way that you reflect back on.

DW: Yeah. Well, I'll take this from a different tack because I'm reading this really interesting book right now called *Lab Girl*. And since we're here in the library, I'll just say that *Lab Girl*, it's a book written by Hope Jahren who is a paleogeologist, well I guess she would call herself a paleobotanist/geobiologist, University of Hawaii. Anyway, in her book, it's her memoir, she talks about all of the work in setting up her lab – she does laboratory bench science as well as field work. And that's a very, very big part of her world and the world of a lot of scientists. It starts with the lab. I mean, the lab is the shrine, so to speak, because that's where everything happens.

And so, for me, it was really fun to be given some start-up funds and given some space to actually start a lab. And for me it was a computer lab, because the emphasis of my work has been on not just using Geographic Information Systems as applied to the oceans, but developing and improving the Geographic Information System on the geography side, given that applying GIS to the oceans forces some issues. You have to look at the world in three dimensions rather than on just a flat map, because if you're looking at the oceans, you have to be within a three-dimensional fluid. You can't just try to understand the oceans as a flat surface.

So in applying Geographic Information Systems to the oceans, that has led me and my students to develop some approaches that we hope have helped to improve GIS, regardless of where it's applied. It could be GIS below the Earth's surface, looking at rocks, it could be in the atmosphere, it could be anywhere. So that's been one emphasis of my work.

The flip side of that is that when you are applying Geographic Information Systems to the oceans and you are able to use the ability of GIS to look at many different kinds of data integrated together, not just one kind but several different types, that, in turn, helps you to understand that part of the ocean better as well. So the flip side of this has been – my work at Oregon State first was focused, it continued on from my dissertation work, which was looking at mid-ocean ridges, looking at the seafloor spreading centers. And when you're looking at a place where the Earth's crust is split at a big crack in the oceans, and moving apart because of the volcanic activity underneath, you've got that volcanic, the geologic activity going on, but then you've got these fluids that are moving through the hot rock there, helping to create these bent structures. So that's a chemistry problem. And then you've got these weird creatures that are actually able to live in these areas, so that's the biology. The larvae from some of these creatures is carried from point to point along the extent of the ridge, so that can even be a physical oceanography problem.

So in looking at these underwater hot springs, that is, to me, is a quintessential multi-disciplinary oceanography problem, because you're looking at geology, biology, chemistry and physics, and those different kinds of data sets. And what my work at UCSB had shown us was that you can use a Geographic Information System to look at these different kinds of data, integrate it together, and get a better understanding of how that mid-ocean ridge system is functioning in those different aspects. So that's essentially what I started off working on with my students in the lab that I built.

CP: Was there anything specific about OSU and the infrastructure available to you that enabled your work?

[0:45:01]

DW: Well, I was just thankful to have a lab, to have some space. I don't know about the – there are different things that are available at different times given budgets, and I brought in as much grant money as I could to fill a space with computers and to fund students. There was also this Terra Cognita laboratory that was part of the Geography program, giving some great work that Gordon Matzke had been doing with colleagues such as Dennis White working for the EPA, and they had a nice space within Wilkinson Hall, a large space, to support that work. And I was also welcomed into that laboratory as well. As my little laboratory spilled over and I ran out of room there because of the students that I was bringing in and the computers that I was bringing in, it was just nice to be welcomed into that space too, and I could put my overflow into that area. So that's always very nice.

CP: How about the research vessels?

DW: Now that's interesting because I have never been on the *Oceanus*. I have never been on any of the Oregon State University research vessels, because my work has been mainly focused on the southwest Pacific, because I tried to continue working in Tonga and in American Samoa. And for some reason, I ended up on Scripps vessels. Which, I think, it really doesn't make that much of a difference because Oregon State's vessels, Scripps, Woods Hole, Texas A&M, those vessels are all part of this University Oceanographic Laboratory System, or University National Oceanographic Laboratory System, so they have assets – University of Washington as well – they have assets that are available to the entire oceanographic community. It just depends on where you're working, where your study area is, and if you get funded then you are put on the most appropriate UNOLS vessel.

I've never really done much work off the Oregon coast, per se, again because of my southwest Pacific emphasis. During my post-doc, I was working on the Juan de Fuca ridge, which is right off the Oregon/Washington coast. But after finishing my post-doc, I went back to my roots, so to speak, working in the south Pacific.

CP: Well, you mentioned the experience at A&M that drove you to want to become a great teacher, which you did become. You've many awards for your teaching and I'd be interested in learning a bit more about the approach that you took to being an excellent teacher.

DW: Boy, I've never really felt confident in my teaching. And to this day, it's like you're talking about somebody else when you're talking about me getting teaching awards, because I went into the classroom being scared to death. [laughs] I was never really taught how to teach. There was some support for teaching at UC-Santa Barbara, but I went through UC-Santa Barbara on a fellowship, so there is a blessing to that but also a curse, because I was not required to teach. I was not a TA at Santa Barbara and I think, most graduate students, that's how they really learn how to teach is by being a TA.

I asked the department to give me an available TA-ship for one quarter so that I could at least get some experience. So I came to Oregon State having taught as a TA, just a lab section, for just one term. Not even a year, not even two years. So the idea of developing a course and teaching a course, it was a tall order for me. So it was just, I really don't know, it was trial by error, it was looking at other faculty and how they taught, when I had the opportunity. There was nothing like the Teaching and Learning Center here, there weren't those kinds of resources available, that I knew of, in the mid-'90s, when I was starting to teach here. So it's really, I don't know what to say, it's really just been – I think it's a miracle. [laughs] It just all came together. I guess the only other thing to add is that when you're teaching something that you really love, that comes through.

[0:49:58]

CP: Yeah. Well, an issue that's come up a lot over the course of this project is that of diversity. It's been a tricky issue for OSU for most of its history and I know, when you were here, you were in the midst of some conversations about the campus climate for communities of color, and I'd be interested in hearing your perspective on those conversations and your sense of that.

DW: Yeah. It has and, I think, will continue to be a difficult conversation for OSU because OSU's in Corvallis. OSU is not in Harlem, it's not in East L.A. I was on the USC campus recently – the University of Southern California – that is one of the most diverse campuses I have ever seen, and partly it's because it's in central Los Angeles, where you've got the cross-section of all those different ethnicities, all those cultures that are right there. It's an urban campus, also. And I think a lot of these campuses that are in small college towns, the diversity is just not there. Oregon has a diversity problem already, and I think it's been a continuing struggle for Oregon State to become a place that students of multiple backgrounds want to come to.

And I can speak really only for my community, the African American community, Oregon State has not been that kind of a campus. To its credit, it has worked very hard to be that. And one of the things that actually was very, very difficult for me in deciding to take a leave of absence from OSU, and then to take this full-time position at Esri and switch my status here from full-time faculty to courtesy faculty, was that Oregon State cannot afford to lose an African American professor. I think during most of my time here at Oregon State, I was the only female African American professor in the entire College of Science. Those kinds of numbers are really, really hard to think about and to deal with.

And Oregon State has had challenges in recruiting and retaining faculty of color. We have the Association of Faculty for the Advancement of People of Color, AFAPC, which I think is still a viable organization here, it certainly was valuable to me when I was here. Because that's part of the diversity discussion, because in order to attract the students, the students want to see diversity in the faculty, and so how do you achieve that?

So yeah, it's an on-going struggle and it's never going to be perfect. But one of the things that I think that OSU is doing really well is the cultural centers. Here on campus today, I've seen some of the renovated cultural centers, and that's a thing of beauty. I think it's a place that's very important for the OSU campus. At the same time, the cultural centers – and I hope this is not too controversial for this interview – but the cultural centers can also be a place where certain parts of our community can segregate themselves from the rest of the community. I went through this as an undergraduate student, because when I went to Wheaton College – Wheaton College struggles with this as well, being in the suburban Chicago area. Two percent of the population there is of color, and we had – I was the president of a student of color group and it turned out to be just us, just the students of color, and we wanted to bring the rest of the campus in, and it was very hard. It was like, "oh, ok, you guys have your group, good for you. And we will just continue on with the way that we live our lives and the way that we perceive the world." And that's not what this is supposed to be about.

So I think it's an on-going challenge. It's a thing of beauty as it grows, as it works, bit-by-bit. And from what I have – so, I've been away from campus for about four or five years, so I'm not at the apex of hearing and seeing how things are going, but my hope is always there.

[0:55:03]

Now in terms of faculty, like African American faculty, I think we're still trying to get more hires into the College of Science and in CEOAS, it's not there. And I feel a little guilty for having left OSU because of that. At the same time, I'm

in a software company that suffers from the same malady. And I've had a chance to be at the corporate level; I'm at the corporate level at a software company where to have an African American woman at that level is absolutely unheard of. So there's work to do there too. I guess there's just not enough of us to go around, but that will hopefully get better.

CP: What is your sense of the broader advancement of women in science?

DW: Ooh boy. My sense is that it is very hopeful. Very, very hopeful. I feel wonderful about it because we continue to see these fantastic young women coming in science. The student that defended today, my last student at Oregon State, she's a young lady who has a bright future in marine mammal genetics and conservation, and she may continue with a great career in NOAA. But Jane and I were just talking about this during our coffee break today, we were both presenters at this Women in Science symposium at the California Academy of Sciences. Fantastic meeting, there were a couple hundred young women, women who were senior in their career, there were some men who were participating.

But some of the stories that these young women told about how they were treated in their labs, the sexual harassment, the attitudes that are both subtle and overt, some of these young women today are going through things that I never experienced, even in my unusual circumstance. I never had to go through that in the '80s and '90s, and yet some of them were facing it now. So it's like, when are we going to get to the place where these are no longer issues, that we don't have to talk about this? We seem to go two steps forward and three steps back.

But again, like here at OSU, we've had the Women's Center and we have strong women faculty. Maybe OSU is seeing more women faculty move through the ranks all the way up to full professor or dean; we have some amazing deans. We have – I'm blanking on her name because I've not met her...is she the vice provost? She was in the Graduate School.

CP: Brenda McComb?

DW: Not Brenda. Who was Brenda's – maybe you'll have to edit this part of the tape [laughs] – who was Brenda's associate dean in the Graduate School?

CP: I'm not sure.

DW: Oh gosh. You'll have to edit this part of the tape. And she's African American as well. I should know her name. Anyway, to see someone like that here at OSU, that's fantastic. And then Brenda, all of the contributions that she has made, just fantastic.

So I think what we need to do is continue to see these points of light. There's always going to be the negatives, and our hearts will get broken from time to time, but we just have to keep moving forward. Because, again, I think back to my mother being educated, she faced the situation where there were just some schools that she was not allowed to even apply to, as an African American, and that is hopefully wiped off the face of the planet or of our national landscape now; we don't have to go through that. But there's still some ways to go.

CP: Well, we're running short on time. I would be remiss though, if I didn't ask you about bicycle racing.

DW: Oh. [laughs]

CP: You're interested in it on some level, is it something that you've participated in or just following?

DW: Well, I learned about bicycle racing when I was a graduate student at UCSB. I started off as a basketball player and a runner. I was a hopeful for the 1980 Olympics in the long jump, and I was a sprinter. The 100, 200 and long jump, those were my events. And then I played basketball throughout high school and college.

CP: Was this at Wheaton College?

DW: It was at Wheaton.

CP: Oh, wow.

DW: And in high school. But I had some injuries, some bad knee injuries, that I was not able to run and to jump anymore. So I found cycling as an alternative sport and joined the UCSB cycling team. Didn't know anything about cycling but learned about cycling. And our team went to collegiate nationals, so I learned about training and getting yourself to that level of competition, and so I've become a fan of cycling.

[1:00:20]

And so I follow the Tour de France and I follow the Tour of California and all of these races. I'm a big fan of people like – and most Americans don't know some of these great cyclists – by Peter Sagan is the current world champion, I think he's just fantastic. Marcel Kittel is a German sprinter. So yes. And in Redlands, where I live now, we have one of the major domestic professional races on the calendar, which is the Redlands Cycling Classic, so it's really fun. And the race goes right past my street, so if I'm in town, I can see it right up close and personal.

CP: You're also very active on social media and I'm interested in your perspective on the role that that can play for an academic.

DW: Oh yes, that's – Jane Lubchenco, in her work in founding COMPASS, the science communication organization, that's something that is very important, I think, for scientists. Not everyone likes social media or is able to participate, put the time into it, but I find my participation to be very, it brings a lot of benefits. Because I find out a lot about research that's going on through social media, I share my research and my data through social media, it's another way to get the word out about what you're doing to different audiences.

I think some of us are getting to the point now where you can publish in *Science* or *Nature* or *PNAS*, and you'll get a readership from publishing in journals, but there's some blogs – I might put my research on a blog and get thousands more reads from my colleagues but also by other people who are interested. And it's just an amazing way to get the word out about what you're doing, and especially if you're trying to communicate to a policy-making audience or to resource managers. A lot of the work that I'm doing now is more focused on those audiences. The science that I do, I don't do the basic geographic, basic science, I'm not doing that anymore. The science that I'm doing, especially since I'm working for a software company now, is much more applied, and we're trying to reach different audiences. So sometimes a journal article is not going to reach that audience.

A journal article gives you the scientific credibility, but one of my most enjoyable experiences recently has been working with the Institute on the Environment at the University of Minnesota. They have this fantastic magazine, I guess it could be likened to *Terra* here, our Oregon State *Terra*. But it's different because they have a broad range of authors. It's called *Ensia*. And I had an article that was published in a peer-reviewed journal, it was called "Toward a Digital Resilience," about the importance of sharing your data and making your data resilient, especially if its climate data. Because if we're trying to help communities become more resilient to climate change, a lot of that design and action is based on data, so why not have your data be resilient as well? Well, *Ensia* worked with me to do a blog post based on that journal article, and that blog post has reached way, way more people than the journal article ever will. But it's based on peer-reviewed study, so it's got the street cred. [laughs] But it's a nice way to reach these other audiences.

So I'm a big fan of social media. It's also a great way to relate to your students; students are on social media, you can get to where they are, understand how they're seeing the world and how they are interacting with the world. But I know it's not for everyone.

CP: Well, as we conclude, I guess I would just be interested in knowing a bit more about Esri and where you're setting your sights these days.

[1:04:39]

DW: So Esri, a lot of people don't know that Esri is actually an acronym for the Environmental Systems Research Institute. And Esri started off as like a non-profit, and they were doing a lot of environmental consulting, particularly in landscape architecture. And this was in – Esri was founded in 1969 by Jack and Laura Dangermond, who remain the CEO, and they are the life blood of the company, it remains a private company. And that's one of the reasons I really enjoy working for this company, because Jack and Laura Dangermond, they have huge integrity, they are wonderful

people, they have a great ethic and ethics, and they really care about conservation, about understanding the world. And in doing their early work as an environmental consulting firm, they developed software to help them do their work, and then the software kind of took over as the main business. And so they ended up becoming sort of this giant in the Geographic Information System software world.

But what has been fun, in terms of working with them now, and the reason why I was brought on, is because they think about science and they actually created or reinvigorated this position of Chief Scientist, which is what I do for them. Where they want to not only be a vendor of software and sell their software for governments and conservation organizations and anyone who needs to understand geospatially, but they want to be seen and to function as a member, a good citizen, on the planet. And this citizenship extends to being a member of the scientific community as well. So they do research projects with universities and we're trying to – we've had a couple of nice collaborations with Oregon State, and part of my job is to facilitate these collaborations, these research collaborations. We do a lot of work for the National Academy of Sciences, or lending our advice and expertise to the National Academy, to NOAA, to USGS, to the Environmental Protection Agency, to the United Nations. And a lot of that work is my job.

So I have this fantastic job now where – professors here, they have research, teaching and service, that triumvirate, and a lot of what I do as Esri Chief Scientist is service and working on these boards and councils. I don't do marketing, I don't do sales, which is not what my job is, which I like, because I really don't want that. I want to continue on as an academic and as a scientist, and so I do that for Esri. And then we have these fantastic research projects that we're doing with partners such as the Nature Conservancy or the USGS or the United Nations. For instance, we're building these global maps of ecological land units and ecological marine units. These are global classification maps in 2-D and in 3-D for the entire planet, to help people to understand and evaluate ecosystem services, and to do protected area design and so forth.

So Esri continues to grow, continues to have good relationships with universities. And we have about 4,000 universities that are part of our site license program. One of my first jobs here as an OSU faculty was to actually establish an Esri site license for Oregon State. So I guess in doing that work and building a relationship between my lab and Esri as a company, and sending my students and myself to the conferences, I guess that was a good seed to plant, because who knew that I would end up actually being asked to work for them full time? So I'm still wearing these two hats.

CP: Well, Dawn, I know you've got a jam-packed schedule today and I want to thank you for spending a little time with us and sharing your memories of OSU. I appreciate it.

DW: Oh, well thank you, I really enjoyed the conversation. Thank you, Chris.

CP: Best of luck moving forward.

DW: Thank you very much.

[1:09:18]