Dr. John W. ("Wes") Tunnell, Jr.

Interviewed by Jen Corrinne Brown
February 9, 2017
Corpus Christi, Texas

**Jen Brown:** This is Jen Brown. It is February 9th, 2017. I'm here on the campus of Texas A&M University-Corpus Christi, and I'm here with Wes Tunnell to talk about his work in marine biology and ecology. Do I have your permission to record?

**Wes Tunnell:** Yes, you do, and I have your form over there, too.

**JB:** Okay, thanks.

**WT:** (Tunnell laughs) Remind me.

**JB:** We can take care of that afterwards.

**WT:** Okay.

**JB:** Perhaps a good starting point would be to tell me a little bit about your background and early life.

**WT:** Okay. I'm a third-generation Texan, although I was born in Biloxi, Mississippi, because my father had just graduated from medical school and wound up in World War II in Biloxi, Mississippi, for a couple of years, and so we came back to Texas to Gregory, where he was raised, and then he started his practice with my mother, who was a physician also. They practiced there from the mid-forties to the mid-eighties, retired, they both passed away about fifteen years ago or so, I guess. So he really was instrumental in the direction I went, in that he encouraged me to get outside, and to do something that I wanted to do, that I would enjoy doing, and would do a good job of it. He was really instrumental in my life. I was raised there in Taft, a small farming community. I actually went off to Colorado to Adams State College to start my degree because I'd been traveling and actually hunting out there as I was younger. And, um, I didn't follow my dad's advice to start with, to find something that I wanted to do; what I did was I wanted to find something that would make me a lot of money so I could go hunting and fishing all the time, so I went into pre-dentistry, but it was too cold out there for me, so I only stayed one year, and I came back to Kingsville. Then Texas A&I, now Texas A&M-Kingsville, that's where I got my bachelor's and master's. I met there a very influential professor that really kind of caused my career, but we can get into that more later. Just as I was finishing up my master's, I got drafted into the Army, right at the height of the Vietnam War, and thought I was going over there, but I was really fortunate and wound up at the foot of the Golden Gate Bridge for two years. So I did that between my master's and Ph.D., and then I'd been accepted to work on my Ph.D. at the University of South Florida in Tampa; St. Petersburg was where the marine lab was. They made it good after I got out, no paperwork or anything, they said, come on, we appreciate what you did. I went over there for one year, and it was a brand new Ph.D. program, and they

were having all kinds of problems and things, and so I moved back to Texas A&M, and that's where I got my Ph.D. Then, I started here—well, I actually had a job offer in Mexico, and I often wondered what my life would have been like if I had taken that job instead of this one. But I took this one in 1974, came here, and I've been here ever since. I think I've probably had more offices than anybody on campus, and more buildings I've been in. I counted them up one time, I think it was eleven different offices in five different buildings (both laugh). Yeah. It was all teaching to start with, because that's all we were doing was teaching, but there were a couple of us who wanted to do research and so we started getting into research. I helped develop the Center for Coastal Studies, and that led to the Harte Institute, and the NRC building across the parking lot, all kind of part of a package, a focus we can get into later. Then in 2013, I retired from kind of the academic side of things, and I stayed here half time; so I come in Tuesdays, Wednesdays, and Thursdays still, and I may do that for another year or two before I totally wind down. One of the things that I've enjoyed the most is the book series, and I'll probably hang onto that, even when I reduce more, I'll hang on to that. That's kind of it in a nutshell.

**JB:** Yeah. What drew you to marine biology and ecology?

**WT:** What now?

**JB:** Um, what drew you to marine biology and ecology?

**WT:** Probably that professor in Kingsville. I'd lived on the coast, and I'd been to the beach and the bays a lot during my life, so I was comfortable around the coast. But when I went to school down there, my sophomore year I had to do some catch up from what I didn't do in Colorado, but then my junior year, the summer between my sophomore and junior year, I took this man's class. Dr. Allan Chaney was his name, professor of biology there. I did really well in a really hard class of his that most people never made an A in; it was comparative anatomy, of all things. I just really got into it. I didn't mention somebody earlier. Lester Walker was my high school biology teacher, and he kind of inspired me into really liking biology, so that was an important part, too. But Dr. Chaney invited me, after that summer, to go with him down the beach in Mexico to collect brine shrimp eggs. He had aquaria in the building, the biology building, and he asked me to kind of take care of the aquaria. Since he was kind of cheap, and they [the university] didn't have much money, and since he liked to go on field trips, we went to the beach in Mexico. We took these four boxes of gallon jars, empty, and drove a hundred miles down the beach, and found these brine shrimp eggs in the Laguna Madre down there, that was super briny, there were just windrows of eggs all along the shores. We picked those up, filled up the gallon jars, and came back. That experience of picking up sea shells on the beach and seeing the beach—we camped, we were gone for, I don't know, four or five days, I guess, and picking up the brine shrimp eggs and taking care of the aquaria is kind of where it all began. I realized I really liked the marine environment. As a kid, I'd been hunting a lot so I'd been in the woods and in the fields, and all that sort of thing, but I just really connected with the marine side of things with that trip, and then with other trips.

**JB:** And, what was A&I like when you attended and this was in the—what years were you there?

**WT**: I started there in 1964, and I got my bachelor's in 1967, and my master's in 1969. It was, uh, I don't remember the student population then, but it was probably in the neighborhood of five thousand, so it was a small, South Texas regional college, but it was really this professor that kind of made it. There were some other professors there that were good in their fields and there were some that were really bad, but this guy's the one that just sparked me, and not just me, he's had a whole legion of students that became interested in biology, many of which went on to get their PhDs and to important positions, and they always heralded him as being the one that started it. He was one of these people that was just really connected, and a whole cadre of students, a tree that grew from him. He's the one who really got us out in the field, he was all about field trips (coughs), and so that's where I got that beginning of kind of liking, this hands-on field-oriented biology. I felt like you needed to get out into the field, if you were going to be a field biologist, you needed learn in the field. If you were going to be a lab biologist, and that's what I told my students that I would advise, if you were going to be a lab biologist, you probably ought to take more chemistry and learn what you need to know in the lab. If you were going to be a field biologist, you probably ought to take some geology along with your biology, so you learn about the land also, but you need to get out in the field in order to do that. So that became my mantra in my classes, all the different ones I did those early years. Probably for the first twenty or twenty-five years I was here, I spent thirty days on the ground, camping with students, a couple of weeks in Mexico each year and then other long weekend trips that were three, four, five days in length. It was really just getting them in the field, and immersing them in the biology and ecology of the field.

**JB:** And what were some of your experiences like early on, going out into the field?

**WT:** Uh-huh. I loved the camping part of it. I became a boy scout early in life, I really enjoyed that, but I gained a lot of skills with it also, of how to—survival, in the wilds, and I enjoyed the camping and that sort of thing. I just really enjoyed the fieldwork. There were trips I took with actually the professor here, Dr. Henry Hildebrand, he's the one that I credit as being the one that was kind of the founder of marine science program here in 1957. He left just as I came. But I went on some field trips with him down on Padre Island that are just as clear as if I did them yesterday. With Dr. Chaney, he was more of a vertebrate zoologist on the land, but he did these coastal trips, too. I remember several of the ones on the land, we'd go to the Pecos River out west, and we would seine in the rivers out there, day and night. We went to a big ranch near Catarina, west of here, and it was along the Nueces River, and we hunted alligators at night in the river, and I caught an alligator by myself, it was just a six footer. It wasn't that big, but I actually waded in the water and grabbed it on the mouth (Tunnell laughs). I look back on that stuff, and thought you were an idiot (both laugh). Those kind of experiences were what I remember, so when I started here, I just told my students, that's what our program was going to be about. We were going to be getting in the field, and those trips to Mexico that we did for almost thirty-two years, uh, they're the ones that the students I see now, that were here twenty, thirty years ago, they say that was the most educational experience of their whole career. The things they learned, not just about the academic side of things, but the culture of Mexico, the politics, driving in Mexico, camping on the side of the road, when we broke down, just things like that. It was the experiences that were really important to them, and educational.

**JB:** Yeah, so you took your coral reef ecology class to Mexico, was that the thirty-two years?

**WT:** Yes, uh-huh. That was a graduate class in coral reef ecology. In the first years, we went to Vera Cruz, I think the first eighteen years, in a couple of different places to the reefs there, and it was a summer class so it was really intense and only fieldwork. We spent just three days in class, just giving them a little bit of information, class and lab. It would be all morning in the class, and all afternoon in the lab for three days. Then we took a couple of days to pack everything up, then a two-day drive down there, and two weeks out on the island. The first week would be teaching them about coral reefs in the area, the second week was a research project, they always had to do a research project. They'd get home, and it was all up to them to write and analyze their data, write their research project, and then present it at the end. It was a whole research process that they had to go through, and we did that for eighteen years, but unfortunately the reefs down there just really started going down environmentally. I had the opportunity with my Fulbright award to live in the Yucatan for a year, and I knew there would be some places on the east coast, on the Caribbean that we could go, and it took a couple of years to find a place, but we finally switched then. We wouldn't drive anymore, because that was too far to drive. I would send a van down with the tanks and compressors and zodiacs, and motors, all the heavy stuff, some of my experienced students that had been hanging around for longer than should have probably, because they wanted to do that again (Tunnell laughs). And then we'd fly the students to Cancun, and then I'd rent a car, and they'd bring the other van up and pick up the rest of the students. So we would—actually in the Sian Ka'an Biosphere Reserve, it's a wonderful, beautiful place there that's protected in the middle of Quitana Roo, the state there on the Caribbean side of the Yucatan. I had a friend from Minneapolis, of all places, who had three houses right on the beach, inside the reserve; he let us stay there for free the first four or five years we went, and then he got a partner who said you can't let these people stay there for free. We had to pay a little bit after that, but it was just a perfect place to go, and I didn't have to worry about what you have to worry sometimes with any students, particularly undergrad, sometimes graduate students, of taking them on field trips and them going to find a bar, and then you were getting into trouble like that. We were so far in the boonies, they couldn't go anywhere (both laugh); I had them locked up, you know. In Vera Cruz, they were on an island, five miles off shore, so they literally couldn't go anywhere there. This other place was a bumpy road, twenty-five miles long; it took you two hours to drive into town, so nobody ever left. It was just a perfect place for education and nothing else (Tunnell laughs), and the experiences along with it.

**JB:** Do you have any memorable experiences from those trips?

**WT:** Oh yeah, lots of them (Tunnell laughs). Uh, I guess one guy that comes to mind often when people ask me about this, he went when we were going to Veracruz, and he was one of the first students to go in the late seventies. He got down there and got an earache and couldn't go diving the whole time we were there, and that's what they went for, they wanted to go scuba diving all day, every day. He went back the next year, so that he would get to dive. The first night we were there, he was out on the pier of this little island that we were staying on, and the students were fishing, and he caught a moray eel, and he reached down to pick it up, and it latched onto his hand and cut it really bad; we had to take him into town and get stitches and stuff, and that took a whole day to do that sort of thing, so he couldn't get in the water again (Tunnell laughs). So that's an example of the kind of thing that would go on.

**JB:** Um-hm. Yeah. And then you took other field trips with other classes as well?

**WT:** Yeah, the local classes that I did, marine ecology for instance, we would go down the island for a long weekend, and we'd do a transect from the beach across the dunes and they'd have to tell you all the plants and animals in the transects. And then I would take them down the Laguna Madre to our field station, and they'd do the same there. We'd do what we call a diurnal, twenty-four hours of study. Every four hours, they would have a different task. They'd have to go seine or sample with a different kind of net or something down there, so they'd learn the total aspect of the changes that take place in a twenty-four hour period for plants and animals. I did ichthyology for a while, that I probably shouldn't have been teaching, but there was nobody here to do that, and it turned out to be one of my favorite classes. It would be two-thirds marine, we would pull a seine in the waters and beaches all over the place here first, then we'd do a weekend field trip all around the Hill Country. We'd go up all the little streams and things around Kerrville, Fredericksburg, all that. It was later in the year then, in early November, so it was always cold, giving the students a hard time about getting in the cold water, you know pulling the seine, camping out (both laugh). Then my Mollusca class, was the one that I did take the students to Mexico again; I took a one-week trip with them. We'd drive all the way to southern Vera Cruz, hitting the different kinds of beaches, and rocky shores, and mangroves, the tropical areas that we didn't have up here, so they could compare the tropics to the temperate area where we are here.

**JB:** Did you do any of your own research on those trips?

**WT:** Uh, I guess just keeping records of changes from photography and field notes. Most of the research that was done was actually with the students, doing their projects I would oversee, like on the coral reef class; I think there were twenty-one students who got their master's degrees, and two that got their PhDs in all those years. They would go the first year as a student, and then they'd go back the second, and sometimes even a third year, to do their research down there while we were there. That's how the book that I did, the coral reef ecology book, a lot of that was based on the theses that were done, that we had done in the studies down there because not many people had studied it back then in the seventies or before that.

**JB:** I noticed in that book and some of your others, you had a lot of your own pictures in there. When did you get into photography?

**WT:** I guess when I was in the army. A friend of mine was in the navy and would be stationed periodically in San Francisco, and he'd come by and say, what do you want me to get this time, because he would be, I think four months in San Francisco, four months in Alaska, and four months in the Philippines, and everything was cheap in the Philippines. He bought us stereo equipment and that's where I got my first camera. Well, my dad had got me a little small camera before that I'd used, and I didn't know much about it, but all of my friends in the Army were all masters and Ph.D. guys. They'd all gotten drafted and were in this little small medical diagnostic research lab at the foot of the Golden Gate Bridge, and some of them were really good photographers already, and I learned a lot from them. That guy bought me this Rolex in 1970, and I've had it on my arm ever since, you know (Tunnell laughs). Yeah, the photography was always with a Pentax in the early years, then a Canon in the later years, and then I kind of fell out

of it when everything went digital. Most of my work then was with the students, underwater, and we switched from a Nikonos camera, the underwater one, to a digital one so we didn't have to develop the film, but ironically, about, I think it was about three summers ago, just as I was retiring, HRI allowed me to use one of the work study students to scan my slides. I had twenty thousand slides (Tunnell laughs). I didn't know I had that many, in these filing cabinets full of them, and she scanned them all for me. Then, over about a year or so it took me to organize them and get them set up so they were usable, and they've really come in handy. I get people calling me quite frequently to ask, hey I know you have some pictures from down there or down there. It's been really helpful and fun, gives me something to do in my retirement (both laugh).

**JB:** Yeah. Um, so, besides field trips, can you talk about your experiences teaching here at this university when you started?

**WT:** Um-hm. Sure, sure. Yeah, like I say, it was a great place to teach because of the age of the students. Most of them, anyway, were up there in their late twenties and early thirties, they wanted to learn, and those kind of people are easy to teach. They're eager to learn, ask questions, and get out and do things. I saw a real transition, you know, in the early nineties, when all of the sudden, we changed, and that age bracket dropped down, and pierced body parts, tattoos, and funny clothes, and all of those kind of things. It was just an immediate transition in about a two-year period of time that we went through, but in the early years we had hardly any money, but really good students, and we just made do with what we had, mainly doing the field trips that we could. The couple of us that wanted to do the research allowed us to get some grants, and get some equipment that we could then train the students on. That helped, particularly in the graduate classes, that we could utilize things like that. I taught a mixture of undergrad and grad classes, and I'd say eighty percent, eighty to ninety percent, of the classes I taught were field classes because I always liked getting out in the field and that sort of things. I did a couple that were just classroom classes, both undergrad and grad. Those early years, that's what stands out to me in them, there were really good students that wanted to be here. We didn't have much money to do much, but we really had a good time.

**JB:** What was the transition like in the nineties?

**WT:** Uh, it was, uh—I attribute Dr. Robert Furgason, our former president before Dr. Killebrew, as being the one who really—you know our growth from the seventies to eighties was kind of like this [gestures a slight incline] and when Dr. Furgason came, it did like that [gestures a steep incline] so you can see that the couple of first years that he was here, the things that he did to help us jump, us up like that. He was a real aggressive president, obviously. He's the one who built many of the buildings on campus during his fourteen years as a president, which is really unheard of. He got us to four years. He got us to join the A&M system. What's the third one? I'll think of it in a minute. He was the one I credit with making that hockey stick turn in the growth and population. We had all of these students. He tried to get us funding, as he could, for various things. He helped me that very first year he was here; he came in December of '90, I think it was, and was thrown into the Texas legislative, that odd-numbered year, '91, he went there. Towards the end of that time frame—back then, Todd Hunter, who's now a Republican, was a Democrat in the House, he had befriended him because Dr. Furgason, as an engineer, always went with data. He always had the numbers when he went. He got to be the go-to president that lots of the

legislators would call in and ask him, because he had the information and data to back up stuff. At the end, as the story goes, the night before everything was closing down, Bob and Todd were having dinner or coffee or something, and Todd said, well is there anything else I can do for you, and Bob said, well, I have this one professor that really works hard, his name's Wes Tunnell, he's been trying to get some marine science stuff going. He's got a Center for Coastal Studies, but he's had it going for eight years and hasn't had any money, except what he's brought in himself, maybe we could help him with that, and he said, well what do you want, and he said maybe a hundred and fifty thousand dollars a year or something like that, and he said, well let's give him two hundred (both laugh). That's how the Center for Coastal Studies went from this to taking off. It was those behind the scenes kind of things and friendships that really helped us in those early years to take off.

**JB:** Um-hm.

**WT:** The same kind of thing happened with the Harte Institute. You probably haven't seen this in writing, but Bob Ferguson tells the story about how when he met with Mr. Harte about the Harte Institute and Mr. Harte wanted to give funding, big funding, for the institute. I think, if I remember right, his idea was to give twenty-five million to the university to start this endowed institute, and there would be five endowed chairs and five million per chair, and that's really generous for chairs, even in big universities, that's really generous for chairs. Bob, as he tells the story, looked at him and said, and even Ed Harte said the same thing, he said he looked at me and said, well, Ed, I don't think that's enough. So over the next two hours they went through this process from twenty-five million to forty-six million, and it was very specific, the way Bob always worked, and it went from five chairs to six chairs, and each chair would have two PhD fellowships that would go with that, and then there would be a five million dollar operating budget; that's how those numbers added up to forty-six million. Those friendships and things like that really helped propel the university in those early years. As you get bigger, I think it gets harder and harder to do. That thing was, uh, I'd say, common in the early years, when everybody knew everybody, when we were small (Tunnell laughs).

**JB:** Um-hm. Um, can you talk a little about your work in the Center for Coastal Studies and the Harte Research Institute?

**WT:** Yeah, in the early years in the Center for Coastal Studies, when I went to President Alan Sugg, at that time, and told him our idea, there were a few of us who wanted to do research; we thought the best way to do it was to have an entity to run the money through so we could keep up with the accounting and that sort of thing, and fund our projects, and so I wanted to start this center for research. That was in the early 1980s, that we got the idea and put it together, and I went to him in '84, and told the idea and he said, yeah, Wes, that sounds like a good idea, I don't have any money, but you can do it if you want to. Then he actually called me back after I got back to my office, and said, Wes, I found $4000 that I'll let you have to start your center with (both laugh). I took the four thousand dollars, and I took a trip with it, and (Tunnell laughs) it sounds funny, took a trip with it. I had always known throughout my early career that marine laboratories were a place where lots of marine research took place, because main campuses were oftentimes inland, but the marine lab was right on the coast, right on the water, so that's where everybody would come there to do their research; a few people would be there all the time, but

most would come down. I planned a trip all the way across the gulf to Miami, talking to the marine lab people along there, asking them about, how do you run their lab. I didn't know any of that stuff, you know, you don't get taught that in school, asking them how they got started, just all kinds of questions, took lots of notes, and came back. That was just really an important time for me for learning about what we needed to do to get started. We hit a snag to start with, in that I got that in 1984, and I got the Fulbright Award in 1985–'86 academic year, so it didn't jump off very quick. A guy named Gary Powell at the Texas Water Development Board saw what I was doing, and he wanted to help. He gave us a couple contracts, not really grants, but contracts to do water quality monitoring in South Texas. It was pretty prescriptive, going to these sites in certain places and taking water to do certain kinds of chemical tests to them. It would run from Corpus Christi Bay all the way down the Laguna Madre. We got where he programmed five days to do it, we got it down to about two and a half, and we were making money on it, because it was just a turnkey deal of what you could do. We used that to leverage for other projects. I learned that process then of using funds to make things happen with leveraging and matching, that sort of thing. We did that until ninety-two, when Dr. Furgason came, and we finally got funding to get started for the center. The same kind of thing started with the Harte Institute, when I was asked in August of 2001—Mr. Harte made the announcement in September of 2000—in August of 2001, Dr. Furgason asked me if I would be the associate director of the institute that was to be developed, and if I would do three things. One was to help develop the institute, the organization, that sort of thing, one was to help design and build the building for it because he had actually gone out, gone to the legislature and gotten the funding for a building aside from the endowment, because Mr. Harte said you can't use this money for a building, this is only operational money, and then the third one was to develop a Ph.D. program, our first marine science PhD program. So, silly me, I agreed to keep being the Director of the Center for Coastal Studies, and teaching my classes, and adding this on top of that (Tunnell laughs). I finally, after a year or so, got out of my classes, and was able to get other people to teach those. It was really super busy during that time frame. I did the same thing at the beginning of that, I took a trip, it was actually three or four trips. I went to all the big marine labs from the Gulf to the Atlantic, to the Pacific, talked to Woods Hole, Scripps Institute, all the biggies, Miami, and asked them about their new buildings, what were the newest and latest things, but also about their organization and structure, if they had an endowment, and it was interesting to see that almost none of them had an endowment then. Many of them do now, it was a time frame when they saw what we got, others decided that was something they needed. It was fall of 2001 and early spring of 2002 that I did all those trips to learn about marine labs., Then I put all that material together, and our early advisory council for the Harte Institute was really a working council that Bob Furgason was able to get Sylvia Earle to chair it, since it was her book *Sea Change* that got the Harte children interested in the sea at first, and then they gave the book to their dad, and he read it and he agreed that this was really an important thing.He said want to do something with my legacy and funds in Corpus Christi, so let's endow something in Corpus Christi, and all the kids agreed, that they thought that was the best thing to do. That book *Sea Change* and Sylvia Earle was the connection that got our advisory council started, and she had all these high-level friends all over, and she asked people from the oil industry, from academics, from government, from *National Geographic*, all these high-powered people to be on there, and they were really a working council that first four or five years. We worked right up until the opening of the building in 2005. That was really, uh, a godsend of being able to make all that stuff happen just by the circumstances that came in place because I had that experience from the Center for Coastal Studies, translated it to the Harte

Institute, and then by Bob getting Sylvia to join with us, and bring in all those high-powered people?

**JB:** What do you think the secrets to your success in setting up these programs, and also grant writing, publishing?

**WT:** I think a lot of it has been that I've enjoyed working with people, and I've always tried to sit around the table with them and agree to hear both sides of the story. That's part of the environmental story for this area. Back in the seventies or eighties, on environmental issues like dredging the Corpus Christi Ship Channel deeper, or building a big pier somewhere, or something like that, digging a pipeline across the bay, I was always one of the ones fighting against doing that, or at least doing it in the most environmentally friendly way. Then I saw this change in the nineties where things started changing where, even the big oil companies, started changing their attitude to having environmental departments that helped guide them in the things they do. Not that I'm saying they're doing everything right today, it's hard to do that when you're in heavy industry, but I did see a real change in the nineties. In fact, some of the people on the Harte board, one of them in particular was a guy that I had hunted with in the seventies, deer hunting, he went on to be the head of Dresser Industries, and he met and worked with Dick Cheney of Halliburton to join those two companies together. Bill Bradford was his name. He became the CEO of that combined company, he had all this clout, crazy, and Sylvia invited him to join the board, and I had known him for a long time ago. Those kind of connections like that, of being friendly and helpful to all kinds of people along the way, were key. I used to always tell my students in class, at the beginning of particularly graduate classes, "be friends and make friends" as you go through graduate school because you don't know where those people are going to be some day. I said, a professor told me that to do that, and he said, look to your right and your left, and see who's there now, and think about this in thirty years. I looked to my left and to my right, and Billy Causey was sitting on this side and Roger Zimmerman was sitting on this side. Billy Causey was a spear-fishing, scuba-diving, crazy nut that liked to drink a lot, and Roger Zimmerman was a dairy farmer. Billy Causey is now the superintendent of the Atlantic, Caribbean, and Gulf of Mexico National Marine Sanctuaries for the whole United States. Roger Zimmerman, who retired last year, was the director of National Marine Fisheries for the Galveston Marine Lab for the last twenty-five years. It really hit me that way, so I always tried to get the students to make friends and be friends, because you don't where all these people are going to wind up some day. They'd look at their sides, and they'd say, ha ha ha, like I did (Tunnell laughs). Both of those guys were Dr. Chaney's students too. It's interesting how those things happen. Back to the local story, the EPA program that was funded in the early nineties, called the National Estuary Program, there's about twenty-five or thirty of them around the country. Ours was called the Corpus Christi Bay National Estuary Program. It transitioned into what we have now, is the Coastal Bend Bays and Estuaries Program, the guy Ray Allen, that I mentioned to you.

**JB:** Um-hm.

**WT:** In the beginning, you had four and a half years to summarize everything in your area. We got lots of grant money from them to do all kinds of stuff about the Coastal Bend. It was the Coastal Bend, the twelve-county Coastal Bend area, and what that did was, we had to set up a

science committee, a policy committee, and all these different committees, but it had to, the EPA made us, bring in stakeholders of all kinds, so we had to have the fishermen at the table, we had to have the port authority at the table, we had to have refineries at the table, the academics at the table, the hunters, so it was all kinds of stuff. It made us listen to the other side of the story, and everybody had an important story; it was, okay, if you're going to have this program, you all have to work together to make this work. And part of the success of what we see in the area today, I think goes all the way back to that; I don't remember the timing, 1993, 1994, something like that, when it got started, and it was that four and a half year program, that transitioned to the private one that is now, that Ray heads, that was really an important transition in the area.

**JB:** What would you attribute that transition, in terms of industry being more concerned with environment, to in the 1990s?

**WT:** Yeah, I did a lot of thinking about that, and my friend Bill Bradford, I use him as an example. He was a guy who loved to hunt and to fish, and I don't know where the awakening came, I think a lot of it may have come from universities that started teaching environmental science about that same time, and kids starting, uh, teaching their parents about taking care of the environment rather than just using the environment. I saw that with Bill, in that he transitioned to this, it's better to take care of a place, have the economy and ecology work together, which is now a Harte mantra, but if you take care of the environment, you can have the natural resources that are there. You do things sustainably, and you can enjoy the environment, too. I think that the nineties where when I saw that taking place, and I think it was with people like Bill, who realized that, even though I'm in heavy industry, we can do things better and make the environment benefit from that in the long run, rather than just tearing up the environment and then going on somewhere else and doing it again.

**JB:** How would you rate industries in this area in terms of their interactions, or how has that changed over time?

**WT:** Uh, I'd say, just like people, there's a wide range of variation. There's some that got very engaged, like Koch, they have environmental education that they fund in the area. Your battery getting low?

**JB:** No, it's good.

**WT:** They have environmental education. They set up an area next to their refinery out there that's a wetlands, they let kids and classes come out into the area, so there are various ways. Some of the refineries don't want to do any of that kind of thing, they live by the rules. Part of the seventies and eighties, early seventies, was when all these laws came out, you know, after *Silent Spring*, Rachel Carson's *Silent Spring* in the sixties, that's when things really started changing for the environment. It took a long time to make it happen, but a lot of really important, strong laws were passed in the early seventies. Within that time frame, the, what we call point source pollution, it means the end of the pipe, where they were dumping things from the refinery, whether in the river, or bay, or harbor in our case, which is good in our case, it's in a contained area, they had to clean up stuff before they could put it in there. Before that, all those environmental laws, it was some pretty nasty stuff going in there. The Houston Ship Channel

was the example I used to use with my students, and the Cuyahoga River was another example, they caught on fire. There wasn't anything spilled (Tunnell laughs) they'd just been putting stuff in there for so long, it just caught on fire. Now people catch fish in our inner harbor and in the Houston harbor. I don't think I would eat them, but they catch fish there, but back then there wasn't anything living in there. There was this huge transition that took place, starting in the early seventies with all those laws that went through the nineties, and it's still happening today. There's still fights that go among different groups. The latest one here you see on the news all the time is Portland and the Exxon cracker plant, ethylene cracker plant they want to put in over there, but there's always a give and take, and that there needs to be that give and take. Sit around the table, listen to all the stakeholders in the area, and then make a decision from there, a reasonable decision from there.

**JB:** Um-hm. How do you see the role of science in decision making and conservation?

**WT:** Uh-huh. Science needs to be unbiased information, that's kind of the mantra of the Harte Institute, too, is that we need to be an honest broker, the third person. We need to provide the accurate data and information. I've always not been engaged in advocacy kinds of things, I've always been a person who wants conservation, obviously, and preservation of some places and conservation of others, how to take care of them. And I started early in my classes teaching environmental science, and how you take care of the environment, and how you do things right in order to take care of the environment, but I never got into the advocacy side of things because you can taint your credibility by being somebody out there waving a sign or something, rather than being the person that provides the data or the interpreted data and the summary information that the agencies can use and the public can use. That's the place where the scientists often break down is that they're not good communicators with the public, they may be with the agencies because they have scientists in the agencies. We really need to have people in science who are willing to be able to cross that boundary to be able to talk to the public and give them that understanding about the sciences. Sylvia Earle is a good example, Carl Safina, there are lots of other writers, science writers, that are really good scientists that have written for the public and understand it. To me, there's this being the honest broker, being the third person that provides the information, accurate information that can be trusted, and then let the two sides make the decision.

**JB:** Um-hm. How did you communicate that to your students?

**WT:** Uh, one way was to engage them like Dr. Henry Hildebrand did with his students. He used to drag his students down to public meetings. Billy Causey told me he thought that was so stupid, he didn't know why he did that, and then when Billy got into NOAA, and he saw that public meetings were the way things happened, he understood why Dr. Hildebrand made him do that. Getting them engaged in those things is a part of it, and seeing how the system should work, and it doesn't necessarily always work that way, but having public input, and around the table with all of the stakeholders is probably one of the best ways for it to happen.

**JB:** Um-hm.

**WT:** Yeah. I related that—I would, in my marine ecology class particularly, I would set aside little fifteen- to twenty-minute blocks, and then invite the agency people on campus to come over. That's another story of getting all of those agencies here on campus. But I would invite them over and the students would learn what's the role of the US Fish and Wildlife Service Ecological Services Office, what's the role of Texas Parks and Wildlife Department, so they'd learn about all these different aspects and not just think about them, oh, that's the state, or oh, that's the feds. Now, our students who graduated from here over the last four years, populate almost all those agencies. They're great about it now. Those students who are workers there now like to come back and do that in the classes. Some of the faculty over there do the same thing, to bring them in.

**JB:** Um-hm.

**WT:** That is a story that I missed along the way is that in the eighties, when I was starting the Center for Coastal Studies, we had the US Geological Survey on campus. They'd built a building in the late sixties on campus when it was the University of Corpus Christi. It's the Blucher Building now, and that was the USGS Office of Marine Geology for the Gulf and Caribbean. It had these high-powered PhD researchers that were all over the Caribbean and Gulf of Mexico all the time. They were so successful, they needed more space, and when we moved out of the oldest science building, which is the little bitty two-story building right across the parking lot over here, most people don't see it now, but it's where the US Fish and Wildlife Service used to be and the ROTC and some of those ancillary groups are, that was my first science building when I came here. It was a UCC holdover, built in the fifties. The USGS went to them and said, went to the president, Sugg at that time, and said we'd like to have this building when your new science building is finished in 1978, and the new science building is the Center for the Sciences, as they call it now, in the middle of the spine of campus. That opened in '78, and Dr. Sugg said no, no, that's an old building that's been here since the fifties, we just need to tear it down, and they haggled and haggled. Finally, the guys over there were really convincing and said, you know, we can engage your students and things we do, make them research assistants and things like that, he said, okay. I knew some of those guys over there because my students were already working for them, and so Dr. Sugg said, okay, you can have the building rent free, but you have to pay utilities, custodian fees, and if you do any modifications, but you have to pay for them, you can basically just have the building and pay all the fees for it. Well, word got around pretty quick, hey, it's rent-free at the university. I started promoting that with state and federal agencies, and by the, I think was by about '87 or '88, that whole building was completely full of state and federal agencies. I wrote a prospectus, I called it back then, in the late eighties, and got it to Senator Truan, who was—the building is named after him now, and gave him that prospectus to build a new building to have all these agencies together because it was a win-win situation where the agencies were on campus working together. The engineers in town called it one-stop shopping. They could come here and meet all the agencies, state and federal; they didn't have to drive all over the county to meet them, and then our students were getting either internships or work responsibilities half-time or something in there. Everybody was benefitting from it, and Senator Truan just really liked the idea, and so he just wrote a sentence on the end of another bill, just a rider on a bill that went through, $10,000,000 to build the NRC building. I thought it would take ten years to convince somebody to do it, but he did it two months after I gave it to him (both laugh). That's how the NRC building came about. We moved in there in '96.

It was a mixture of university research entities, and state agencies, and it turned out that there was a little-known state law that we didn't know about when we started, that only five percent of the building could be non-state entities. Over half of the old building was federal agencies, so the federal agencies couldn't come to be in this brand new building. They had to stay in the old one. They allowed me to bring one group over there, one of the federal groups, I put them in the Center for Coastal Studies with us. That functioning of that building continues to work well with the same kind of things that I just mentioned. Unfortunately, somebody in the administration after I retired, unbeknownst to me, decided to kick out the feds out of the oldest building over there, and they had to move off campus. My understanding is that they're trying to do the same with the NRC building, because the deal with it was that it was a twenty-year signed contract. It was a state building, not a university building, and that was kind of a hold up for a year or so, with Austin, they said we can't build a state building out of Travis County, Austin's area. Finally they got over that, but that twenty-year contract was that this will belong to the state, but you will run it and manage it, take care of all the people in it, but after twenty years, it goes to you. We're up to that time frame, and I've been afraid what was going to happen at the end of that, and since I'm kind of out of touch now, I'm not sure where that is, I've just heard some rumors about it. I guess you shouldn't put that in your recording (both laugh).

**JB:** Um, is that a common thing on campuses to have agencies working with science departments?

**WT:** There were a few of those around, but it was usually one agency, like Fish and Wildlife, uh, one group of Fish and Wildlife has been on the A&M campus for decades. A Forest Service office has been on Stephen F. Austin campus for decades, but to have a whole group of them, it wasn't common at all. In fact, after we made it happen, we were the envy of the area because some of those agencies that were here had, not grant money but contract money, and they saw that they were—we'd go down the hall drinking coffee together and they'd say, well, we need to have this project done, could you do that Wes if we gave you twenty thousand dollars for that. So I'd hire a student to go do that project, and it led to a lot of the thesis projects in that process. We had people visiting from the East Coast, Florida, other places that came, said how'd you do this, we want to get agencies on our campus. So I told that story a lot, over and over again, and some other places did make that happen. USF, where I went long ago, their marine lab area has now, I think, four federal agencies and two state agencies on their little peninsula there in St. Petersburg. It's really a good thing to have them interacting together, get the students working in there; the students actually get jobs when they get out because they've already been observed by the workers there. It's really a good situation.

**JB:** Um-hm. The other thing I wanted to ask about, um, you've been talking about working with science and different agencies, but a lot of your work seems to be also working with Mexican counterparts. Can you talk a little bit about that?

**WT:** Yeah, and I run that back to Dr. Chaney also. That first field trip I took down the Mexican beach with him in 1964 or '65, I just fell in love with going to Mexico. It was different, and so diverse when you go further down in—biodiverse, from rainforests to cloud forests to coral reefs and everything. I just got hooked on it and my wife and I started traveling there first in '66, the year we got married, we drove all the way down the central part of Mexico, in Mexico City, and

the West Coast, we just did this three-week trip driving all over the place. I just fell in love with Mexico, and so I decided that after a seminal trip during my PhD time, I got to go to the Bahamas on a ship, looking at coral reefs in that area, and I thought, wow this is what I'd like to do once I get a job, I was still a student then, was to, I called it, "introduce students to the tropics", actually take them down and immerse them on a coral reef, so they could learn it that way rather than just looking at a book or looking at preserved specimens in a jar. That trip, two-week trip to the Bahamas, is what kind of spurred my idea of taking the field trips to Mexico, and then once I started into that, and saw how much the students enjoyed it, that's part of the reason I continued it. I probably should have stopped it after about twenty-five years. It got to be difficult when I had all these other things going on with the center [Center for Coastal Studies] and the Harte Institute, but I had some really good helpers then, postdocs and PhD students then, that would help with the class. It took a lot of load off of me, and the students just loved doing it so I just kept going (Tunnell laughs).

**JB:** Hm.

**WT:** Yeah, so, that's part of what really helped the institute, the Harte Institute, also was I started making connections back in the early seventies, when I did my PhD research in Vera Cruz, on the coral reefs there. I had to learn how to get a permit, so I met a scientist that would help me do that in Mexico City, and then he became a lifelong friend. We had him come up here, in fact, for a year, when we started the Harte Institute in 2001-2002, and he helped us with a lot of connections into Mexico, but then—

**JB:** Who, who is this?

**WT:** Ernesto Chávez is his name. In fact, he's coauthor with me on the book and did a number of chapters on the coral reef book. And then that year that I lived there in the Yucatán, I really learned a lot more about the culture, rather than just these quick trips, one-, two-, three-week trips all the time. I met lots and lots of contacts, and that trip was what really helped with the center, and mostly with the Harte Institute, because Mr. Harte wanted us to look at the whole Gulf of Mexico. Most people in the U.S., when you talk about the Gulf of Mexico, you're just talking about the northern part, and he wanted us to consider all of it, with Cuba and Mexico, in addition to the U.S. That helped me with all these contacts, being able to get on the phone, or send an email, to all the friends that I made in all these universities and all over the place, that year that I lived there. It's unfortunate, now, the university told us—the university system, I don't remember the timeline, I think it was 2007 or 2008, that we could not drive into Mexico anymore because (coughs) of all the problems, the drug cartels and violence, all of that sort of thing. That just kind of broke my heart, because I just loved to drive down there, but I could see what was going on, too. At first, it was the West Coast, where all that stuff started. Tamaulipas, just south of Texas, was the safest state around. We used to go there all the time, several times a year, but then it became the most dangerous state so I haven't been to Tamaulipas since 2008 or so. I made a deal with the university that since I did so much research in Mexico over the years, publishing and all that sort of thing, that they would allow me to go, but I couldn't take any students with me.

**JB:** Hm.

**WT:** (Tunnell laughs). If I flew in, I couldn't drive, but I could fly in, and so—

**JB:** How do you think that's impacted the, uh, studies of Tamaulipas and the Laguna Madre down there?

**WT:** Uh-huh. For Tamaulipas, it just cut it off. We haven't done anymore, and the Laguna Madre book that we're just starting again, when we did it the first time, I went down there, I flew all over, I met people and worked for them. This time, I can't do that, so this time, we actually got some professors at the university in Tamaulipas, to do the chapter for us in the book, to update those twenty years since the other one. It hadn't affected us as much in Vera Cruz, which is now more dangerous than it used to be also, but we can still go there for meetings. The Yucatán now is probably the safest place in all of Mexico. Our team, the Harte group, still goes there pretty regularly. Yeah, so that's okay, in that sense.

**JB:** What—how would you describe the changes to the Laguna Madre? Are there things that you want to address in this new edition of the book?

**WT:** Yeah, we want to be sure that we keep in the forefront the things that can hurt or damage the Laguna Madre. In the broad sense, it's nicely protected already because the barrier island is Padre Island National Seashore that protects it, and so development can't take place out there. The mainland is mainly the big ranches, the King Ranch, the Kenedy Ranch, and the Yturria and Armstrong ranches, and they're pretty well protected—and those lands on those ranches are beautiful, they're like a national park, they've really taken care of them. It's just on the north end, the Corpus Christi, Flour Bluff, North Padre Island area, and on the very south end with Port Isabel and South Padre Island. Both ends want to build a new causeway, an additional causeway across. They say it's for safety, but we think, in science, that they want to use that to increase development out on the island. I've always taught in my classes, we shouldn't live on barrier islands. Barrier islands are to protect the coast, and when right storm comes along, we haven't had once since 1970 here, so there's a lot of complacency about what goes on about building on the island. The islands are a barrier that should protect us. We shouldn't be out there, and if you build a causeway, it's going to develop. Those are the examples of the biggies right now that we want to bring to the forefront that that shouldn't be taken place.

**JB:** Um, I read in the book, is it the JFK causeway?

**WT:** Yes.

**JB:** They're still doing research on the impacts of building that?

**WT:** Yeah. It was, the first time that it was built in the late twenties, it was just a set of pilings, with these little troughs in it, that the model T cars could put their tires in, and they just drove across it. It was called the Patrick Dunn Causeway, but the hurricane of, I think it was '33, ripped the top off of it. You can still see the posts in the lagoon sometimes when the tide's real low. And then the next one was an earthen causeway, which they shouldn't have ever done, but it was easiest thing to do, it was cheap just to push the dirt out there. They left an opening for the

Intracoastal Waterway, and then the one that's called the Humble Channel, it's out from Flour Bluff, and that really restricted water flow in the area. But we did a study as they were contemplating doing a new bridge. There was a lot of concern about raising at all because many people felt that the Laguna Madre was dying because of that bridge, the earthen causeway. We did a study and it showed there was some impact up close, but as you got further away, there wasn't that much of an impact. The system would benefit from raising the causeway as much as could be afforded, and so the optimum would be to raise the whole thing as a causeway, but that was just so expensive that it wasn't ever going to happen. When they did rebuild it eventually, ten, fifteen years ago, however long it's been, they did that section near Flour Bluff, put it up on—because that's where the southeast wind hits the mainland shoreline and then pushes along the shoreline to the north, and so it opened it up, it allowed circulation along that way, with the Intracoastal still being on the other side to work.

**JB:** Hm, interesting. Um---

**WT:** I think I need to take a break.

**JB:** Oh, yeah, sure. Let me pause this.
[end of recording #1]

[start of recording #2]

**JB:** Okay, we're back with part two of the Tunnell oral history. Um, did you want to add anything to your thoughts on the causeways and development of the islands before we switch gears?

**WT:** Uh, I think some of the things out there have been taken care of since our book came out. For instance, they put these air, I don't know what you call them, aeration devices up in the ends of canals in Padre Isles, they were getting stagnant because there was no place for the water to circulate. We mentioned that, but it probably didn't come from out of the book because agency people had been saying for a long time that would be a way to help the stagnation of those things. Some things have been addressed, and it's more difficult to dredge canals, and things like that now, now that we know the importance of sea grasses and how important they are to the system. We have to always look at alternative ways to do things, so directional drilling has allowed them to sometimes drill in the Laguna Madre, but they do it from the land, and directionally drill over to there. There's other kinds of environmental things, new things that have helped in the last couple of decades with that sort of thing. I'm sure once I get into the book again this time, it will bring to the surface new things. You know, last time, there were four scientists and five graduate students that did that first book for The Nature Conservancy, because it was just a contract, and really we didn't intend on it being a book; it was just a report that we were doing for them. This time, I just counted up this last weekend, it's going from nineteen chapters to twenty-three chapters, and nine authors to twenty-seven authors. It's kind of like the A-Team this time. They're all the experts that have been studying this stuff, Donna Shaver and that sort of thing, for all these categories. This time, we're going to do a really cool job of not only updating it, but really beefing it up as a substantial book for guidance for this area.

**JB:** And is The Nature Conservancy sponsoring the book again?

**WT:** Uh, they're going to probably do like they did last time. They encouraged, and at that time they actually helped get the funding, from the National Fish and Wildlife Foundation and the Caesar Kleberg Foundation in Kingsville. I'll be approaching both of those, putting together the story now for proposals for funding. I decided this time—last time, it was a thirty thousand dollar contract, and I basically paid the two people who worked for me to write half the chapters, more than half, three fourths of the chapters in the book. This time, most of the people have agreed, all of the people have agreed, they don't need money, but I need to have a copy editor to do some of the work and a graduate student to gather all the information and put everything in order for the press. It will be about an eighty, eighty-five thousand dollar project this time, but this time I wanted to make it a partnership. I'm going to the big fishing organizations, Coastal Conservation Association and Saltwater Enhancement Association as well as some of the ranching foundations to get ten or twenty thousand dollars each for them so it's a partnership thing. In my early discussions with them is that they're interested. We still have to go through the proposal process, and try to get that funding from them, but I think it will really be good that it will be a partnership this next go round.

**JB:** Um-hm. The book last time ended off with kind of an action plan for conservation of the Laguna Madre. How well do you think that plan has been lived up to or what has changed since then?

**WT:** Uh-huh. Yeah, some parts of it, mainly on the land, or the ones that you can point to, The Nature Conservancy actually used the concepts and those things that were in the book and at the end to help with a piece of land on the southern part, between Mansfield Pass and South Padre Island, to help purchase property in there. Usually what they do is work behind the scenes, kind of work they usually do is negotiate the funding for these things and negotiate the sale and contract of them. Then, they give them do someone else, usually a state or federal agency that then manages them. They do have some of their own preserves and lands that they take care of, but mostly they give it away so that it's protected. They've really helped enhance the Laguna-Atascosa Wildlife Refuge. Many people don't know about it because it's kind of in an out-of-the-way place. If you were driving down Highway 77 and got to Harlingen, you'd have to drive towards the Laguna Madre. It used to be a fairly small place that was set up for ocelots, and certain birds, that kind of South Texas brush country, and they've added land all around it on four or five different occasions since the book came out, and that they got out on the island, they made it a component of it, they made Padre Island a part of the Laguna-Atascosa. In that sense, yes, some land deals have taken place that were proposed in that last section of the book. Promoting sea grass conservation was one of the things we did, too, because eighty percent of the sea grasses in Texas are in the Laguna Madre. A lot of activity has happened in the last twenty years, or eighteen years since the book came out that has promoted that, and mainly Texas Parks and Wildlife took the lead on that, and they have a sea grass conservation plan for the whole state of Texas, and I don't take credit for the book as what made that happen, but having all the information in one place was really helpful to them and others. That was The Nature Conservancy's idea in the beginning was, put all this information over these seventy years and hundreds and hundreds of papers, summarize it, and put it in one place so it's easy for

us to get to. That kind of thing has helped scientists, students, managers, policy makers, just all kinds of people.

**JB:** Um-hm. I've been hearing a lot more about questioning the role of preserving large sections of habitat within wildlife conservation, and other types of conservation. Have any of those debates kind of filtered into the debates over the Laguna Madre?

**WT:** I haven't heard them. I would like to see some kind of status, federal status, maybe given to the Laguna Madre, not that it be protected completely, we'd never get away with that (Tunnell laughs), but we'd have to have our partners agree on whatever we did. What I'd like to see it become, there's this program called the LTERR, Long Term Ecological Research Reserve, it's really just designating a place that will do research for a long time and really learn about this area and the system and how it works, but because of the protection that it has by the [Padre Island] National Seashore and the ranches there, the middle part of it, I think is in pretty good shape, as long as we don't do something stupid along the way in that area, I think we're in pretty good shape. It's just the northern and southern ends where things can happen. I've heard some of the debates you're talking about, I'm also a trustee for the Texas chapter of The Nature Conservancy. A lot of that is land. I'm a part of it from a marine, Gulf health part. They really know that you have to put aside a certain amount, and it varies from whether you're talking a grassland, a forest, a sea grass bed, a coral reef, you need a certain amount set aside. There is research focused on what is the amount you need to set aside, and those answers are still on the way.

**JB:** Yeah.

**WT:** Lots of people are focusing on that sort of thing.

**JB:** The other thing that I wanted to ask you about is, have the threats to marine environments changed over the course of your career?

**WT:** Yes, for sure. You know, it used to be what we talked about earlier with the end of the pipe, the point source pollution, as we called it. When I was a kid growing up in this area, I'd go down to the bay, and even some of the creeks in the area, I'd see these pipes dumping ugh stuff coming out of the overflow tanks for oil and gas wells, and their work around those kind of things, and there was a creek over north of Taft I used to go to, just as a kid, and it just ran rusty-colored because of the high iron content that was coming out in the saltwater that they were dumping in that freshwater creek. Petronila Creek, out here, used to be the same way, that was a battle in the, I guess it was the late eighties, when finally, it was stopped. The oil and gas companies couldn't dump brine water into the creeks that ultimately go to the bays since we found out how important freshwater inflow is to the bay; it was kind of defeating the purpose if you put saltwater in there, and then the city's having to release freshwater to dilute the saltwater that the oil and gas companies were putting in. I saw that transition, and those places clean up over time, not fast, and oftentimes probably if you dug down a certain layer, if you dug deep, you'd probably find some of that bad stuff down there, but on the upper part of it; they look much, much better than they used to. That's one example that comes to mind right away. The point source thing, the other one that we're dealing with today is non-point source pollution, and that's one that sounds

silly to the general public. What do you mean non-point source? Really it just means polluted runoff. It's what's on the land, whether it's a parking lot where cars drip their oil, then it runs out into the yard out there, and then the rain flushes it down into the bay. There's not a pipe that's putting it in, it's just running off the land. In some places, that's pretty bad, particularly if you're in an industrial area around, say the refineries; they now have to have big berms to stop that runoff from running out into the bay. It has to be cleaned up first. That's an area where work is going on, and still needs work, is this non-point source pollution.

**JB:** And how's the kind of—I guess your career, you've focused a lot on coral reefs, biodiversity in marine environments, how has the science changed over time?

**WT:** Well, coral reefs, one of my loves, best loves, partly because they're so beautiful, or they were, to go to. An example that we did with a class, when we first started going to Vera Cruz, there hadn't been hardly any research done there. Our first decade or so was really just trying to determine what lived there, so I'd have students, one student would do a project on the fish of the reefs, I did my PhD on the mollusks of the reefs, somebody else would do crabs, somebody'd do shrimp, worms. Then, into the late seventies and early eighties, we decided it was time to start quantifying what was there. It's the progression that you would see on the land, too, of quantifying things, going from qualitative to quantitative. We stole, coral reef people in general, not just us, the idea that plant people use on the land in taking cameras, or just taking quadrats, of varying sizes of meter squared and line transects, and laying these things along a grassland or in a wooded area, and then counting everything that's there or taking a picture of it. In our case, in the 1980s, early 1980s, we used the line transect because you're scuba diving, and you could only stay down for thirty minutes or forty-five minutes at a time, you're really time limited in it. We would string this line across the bottom, and tie knots every ten centimeters, and we'd weight it on either end, and lay it across the reef. One student would going along with a waterproof notepad, and another student would go along and wherever there was a knot, they'd hold their finger, down at what was there, coral, a worm, a sea anemone, or whatever it would be. They'd log it in, and then we'd have to go back and transfer all of that in, and then try to statistically analyze several of these things, but then, towards the end of the eighties and early nineties, photography got into it. Using the Nikonos underwater camera, we built a jig that was the exact distance, thirty-nine inches I think it was, to take a perfect quarter-meter square picture from the camera. We would swim in a direction, you wouldn't have to lay anything out there, although some people would still lay it out, so they were very accurate with what they did, and you'd use one fin kick while scuba diving, and take a picture, and you'd have a strobe on it to get clarity and enough light, and you'd pick it up, kick your fin, put it down, you'd try not to look where it was going, you wanted to be sure you weren't going to damage something, but you didn't want to say, oh there's more over there than over here, you wanted to be as random as you could about it and take those pictures. Then, we would bring those slides, Kodak slides, back and have them developed. Then, we would project them on a wall, a white wall, with randomly placed dots up there. Then we could assign species to those dots, and we could see what the diversity of that was and the cover of it also in that area. Then, in the late nineties, early two thousands, the digital cameras starting coming along, and so we eventually switched the Nikonos in for a digital camera. We didn't have to do that projection on the wall. We did that at first, but then some bright software people came up with computer programs that you just sit at your computer, randomize your dots, and overlay it on the slide or the image that you took, and the computer just

determines all of it (Tunnell laughs). That's a good example of the transition over the years that I've been doing it, from qualitative to quantitative, and different kinds of quantitative.

**JB:** What would you say your—the work you're most proud of is? Your publications, or other—

**WT:** You know, I didn't think I'd ever get into all of these books, and helping with these books early in my career. It was all, and as it should be with young scientists, publishing in journals, and all the journals have rankings, too, that they are at certain levels, so they try to get it in the best journal, and get the most scored, and get the best to help them advance in their career to the different levels. We didn't have the pressure here, like Tier I places would, but the pressure was just kind of on us, the group of people who really wanted to do research. We were publishing in journals, but since we were teaching so much, and developing programs, we didn't have time to get the NSF, the big grants, the prestigious ones. Then when I fell into this, mainly with the Laguna Madre book that led to the book series, to me these books are things that are going to wind up the shelf in the library forever. The journal articles can be searched and found, and they make a difference too, but when you summarize a whole lot of those things and put them into a book, they become the summary of a particular region, or area, or species, or group, whatever it might be. These things are what I really love doing now and helping with, that I'll probably stick with as long as I can, so doing the books and summarizing all that sort of thing. I can look at our scientists here, and give you examples of like Paul Montagna, who's our chair of ecosystem studies, he's real quantitative guy. He had more statistics classes than he did biology classes when he was going through his PhD. He's number one analytical guy in making these models and all of these things. He's top notch in the country, internationally, he's really highly respected for that sort of thing. But mine didn't go that way. He was at the University of Texas before he came here, so he had that pressure, he had to do that, he was in the right place then, but they wouldn't let him merge all of his scientific work with social studies. He wanted to work with socioeconomics and things to see how the socioeconomics affected the environment, and they said, nope you're a scientist, you have to work in science. That was one reason he came over here in 2005, when we hired him. In my case, I never got into the publishing in *Science*, and the big time ones, although I published over a hundred articles, I did mainly the teaching, teaching the students about research and trying to get them to publish, building programs, and then the books. I'm happy with my publications, some of those particularly, but the books, I think will stand longer than the publications.
[I am most proud of those things that will last a long time, the Center for Coastal Studies, the Natural Resources Center, the Harte Research Institute, and affect the most people in the long run. The most fun one, of course, and one which I am proud of for the students' sakes, is the Coral Reef Ecology class and field trips to Mexico. In addition, I was elated in 2016 when an underwater mountain in the Gulf of Mexico (Tunnell Mound) was named after me in honor of my Gulf work, and that the Harte Charitable Foundation named the Dr. Wes Tunnell Endowed Fellowship Program after me.]

**JB:** Um-hm. Well, is there anything that you think I missed, that you wanted to share?

**WT:** No, I think you did a good job of summarizing all of this. I guess if I look back over my career, it's the, uh, you kind of date things by big things that happened to you along the way. The starting the master's degree in '76, just after I came, was the key to getting research started here.

Then my time in the Yucatán with the Fulbright was what connected me all over Mexico, and then the starting of the Center for Coastal Studies and that whole learning process, administrating grants, and research together, then of course the Harte Institute was the culmination of all of that to be able to be involved. The center, I started with no money, and the Harte Institute, we had all kinds of money (Tunnell laughs). It was totally different. And we didn't talk about Cuba, and in 2002, with the Harte Institute, I got into Cuba. In fact, our advisory council met there in 2002, spring of 2002, and that opened the doors to Cuba to us, and I went there many times, made lots of friends over there, like I had been in Mexico that allowed the connections along the way. I guess the culmination is this institute, but I can also look back at the center and the NRC building, and see those are fixtures that are going to be here for a long time, too. The scholarships that I was able to start in the Center for Coastal Studies, seven of those, and those nine memorial conference rooms in the NRC building, those stand out also. Yeah, just a lot of good stuff. I was very fortunate to be here at the right time and have the right connections to make things happen.

**JB:** Yeah. Can I ask you a little bit about Cuba?

**WT:** Sure.

**JB:** So you were there, you said 2002, what was the—were scientists connected, you know, before then, in the Castro years?

**WT:** Yes, and that was the first thing probably after my first two or three trips over there that I saw in the first couple of years was, and I was amazed. I'd been aware of some of their research via their publications and that they were really talented scientists, but when I was there, and I saw that their salary as a professor was $29 a month, they lived on, the housing and food was provided, the medical care, education, and everything was provided, but they didn't have money to do anything; but they were happy people, and they did this incredibly good research in science. I was just, wow, this is amazing, and I'd go to their labs. One of the marine science lab that's connected with the university is an old apartment building that they've torn the apartment stuff out, and it was concrete as many of the buildings are down there. It had concrete floors, concrete walls, and one of my colleagues there that works on amphipods, a little tiny crab-like guy, he'd been publishing for years on these amphipods, really good papers, describing new species and that sort of thing, and when I walked into his office and lab combined together, and saw the concrete floor, and the shaky little wooden desk that he had his microscope on, I was like, wow, we complain about not having money for doing what we want to do, and see what they're doing, and what they don't have, it's really amazing. Yeah.

**JB:** Where did you get the idea for GulfBase? Or, is that what it is called, GulfBase? Yeah.

**WT:** Uh-huh, yeah, yeah. Well, that was in the very beginning, we had a meeting, it was in December of 2001, I don't even know how we pulled this off. After the first advisory meeting in October 2001, they told me to bring together some of the top scientists from around the Gulf, and ask them what they would like for us to do in creating a new institute. We brought together about fifty people, I think about thirty or so from the U.S., maybe more than that, thirty-five, and fifteen from Mexico, and two from Cuba, and after that we couldn't ever bring anyone over until

about three years ago, but two made it here from Cuba. We had a couple of days and just asked them, we have this opportunity with all this money to create a new institute, and what would you suggest we do, and they suggested create something that is not another one that is competing with all of us and trying to get the same money that we all are looking for, and create one that will help us all work together better around the gulf, and maybe create some things that will help us work together, and that's where the idea for GulfBase came, was to create a resource and research database that will help connect people, the people were the first things we went after. Then, we hired a cadre of graduate students back then in the Center for Coastal Studies, that's where we were for the first four years I guess of HRI. We funded them just to search for people around the gulf, and get their data, and make a page for each one of them and decided on all the details, and then we started adding coral reefs, and banks, and bays, and all kinds of other things that you see now. It was just to provide a resource for not only the scientists and students, but for the public. If they had something they wanted to know about the Gulf of Mexico, it should be the first place they look. If you Google many things about the Gulf, that's the first thing that comes up on the top of the list is GulfBase because it has so much in it.

**JB:** Yeah.

**WT:** Yeah. So just a resource for the Gulf.

**JB:** Okay, is there anything else?

**WT:** No, I think you've really been thorough. I'm impressed with your digging and searching and questioning (both laugh).

**JB:** All right, thanks, I'll turn the recorder off now.