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Joe J. Guidry (JD): This is Joe Guidry on August 28th at the Southwest Florida Water Management District[1] office on 301[2], and I'm interviewing Brandt Henningsen. Brandt, could you tell me uh, when and where you were born and raised?

Brandt F. Henningsen (BH): Well I was born in San Antonio, Texas, February 27th, 1952. My father was in the air force at the time, and then he got out of the air force and enrolled as a freshman at the University of Texas under the Department of Geology when he was like 30 or 31 years old, and got his degree in geology, and then became a professor at Charleston State College, which eventually became Charleston State University.

So I grew up in small town in Texas called Stephenville, Texas. Small town just about the center of the state. Roughly about ten thousand people. And so that was back, we moved there in 1957. Right now, instead of it being ten thousand, I think there's 14 thousand people there. So it's still a small Texas town.

JG: And you grew up with a kind of environment of science and um—

BH: Yeah, my father's a geologist, but I'm a biologist. But um, I think I became interested in biology, not only because we're in a rural setting but also because I was in boy scouts, and we spent a lot of time out hiking and camping and out in the wilds. And

1A regional agency of Southwest Florida responsible for planning and regulating the consumption of water resources, the use and protection of wetlands, and other water-related activities.

2U.S. Route 301

our house was just right in front of a forest. So I spent a lot of time out in the forest roaming around as a kid, playing and exploring.

And then also, when I was ten years old, my parents bought me a little mask, fins and snorkel. And I know the first time I put that thing on and I got in a swimming pool, I looked around, I went, oh my God, this is amazing. And just about the same time, Jacques Cousteau[3] started publishing his books and having his television specials. And so, that put me into the mode of, someday I want to be a marine biologist. I want to be a marine ecologist. And so I pursued that dream, and I finally got there.

JG: Well uh, how did you come to Hillsborough County? Was that for your education?

BH: Uh, yes. I'd finished my bachelor's degree and master's degree in Texas, at Lamar University for a bachelor's and then Texas A&M University in Galveston for a master's degree. And then came here in May of 1977 to go to the University of South Florida to work on my PhD. And I don't think I ever envisioned not to return to Texas. Certainly my mother and father would have preferred that. But, you know, you just kind of get here, and you get connected and you're married. And then you have kids. And then you have a job. (BH laughs) And so I'm here for the duration.

JG: Yeah. And while—so you came here because of USF.

BH: Yes.

JG: Did you then go to work for the Water Management District while you were in, pursuing your doctorate, or—

BH: No, actually. The way I paid through graduate school was through teaching assistantships, research assistantships, and then being an adjunct professor for Hillsborough Community College and doing consulting work for Mote Marine Lab[4] on a research grant thing. And then after I graduated with my PhD, the first job I got after graduation was the natural resources management department down in Collier County. So I worked down there.

3A French conservationist, ocean explorer and scientist. He co-developed the Aqua-lung which was later refined to the open-circuit scuba technology used today. During his life, he produced more than 120 documentaries and more than 50 books. His work allowed people to appreciate and understand the resources of the ocean.

4An independent, non-for-profit marine research organization based in Sarasota, Florida.

I thought I was going to be doing a lot of artificial reef[5] work in Naples Bay and then near shore, Gulf of Mexico. But it actually turned out to be more like review of proposed developments. It was permitting. I just was not cut out to do that sort of work. Don't have the—I don't have the proper mental fortitude to do that. It's very taxing and stressful work. And fortunately the SWIM[6] Act passed in July of 1987, Surface Water Improvement and Management Act of 1987. And an ex, you know, graduate student friend of mine, who was working for the water management district was aware of that, and he called me and said, hey, there's this SWIM program that's going to be cranking up and they might be looking for a marine ecology type. You might want to apply.

So I did apply, and I was able to get a position here. And I've been here, you know, ever since. So I actually started with the SWIM program on December 28th, 1987. I was the fourth one hired and I am the last of the original SWIMers. Everyone else is either retired or has moved on to other positions.

JG: Can you uh, can you explain a little bit about SWIM and what it did, and Surface Water Improvement Management Act.

BH: The SWIM program was, like I said, was established by the SWIM Act of 1987. And what the SWIM Act says, is that each of the five different water management districts will identify surface water bodies—that's lakes, rivers, streams and estuaries—in need of restoration and/or preservation. Write a management plan to accomplish those goals and then implement the plan. And in the SWIM Act, certain water bodies were specifically named as, this will be one of your priority water bodies and go and figure out other ones in your district that you want to include on your list. So—

JG and BH: —Tampa Bay—

BH: —was specifically named in the SWIM Act as this will be one of your top priority water bodies. So, we started off with a total of ten priority water bodies, and this was decided by a regional committee, regulators, Joe Citizens, uh and SWIFTMD[7] employees —SWIMers, you know, SWIM employees—and came up with a first list of ten. And

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5Human-made underwater structures typically built to promote marine life, control erosion or block ship passage.

6In 1987, the Florida Legislature created the Surface Water Improvement and Management program (SWIM) as a mechanism to address nonpoint pollution concerns affecting at-risk water bodies in the state.

since then, we now have a total of 12 priority water bodies. But Tampa Bay is still one of our top priority water bodies.

JG: It must have been pretty energizing to come to work and then have the state be behind this kind of restoration work and environment. And this started under Governor Bob Martinez[8], a republican.

BH: Yes. Yes.

JG: But I mean that everybody seemed, it seemed to have bipartisan support.

BH: It was. It was very popular program, and when we first started out—each of the five SWIM teams, through the five water management districts—we had very significant state funding. And we actually received 90 percent of our funding from the state and then 10 percent would come from the water management district. And then after several years, that kind of shifted to an 80 percent state, 20 percent uh, you know, water management district funding, which is ad valorem taxes. And then that shifted to 60/40, and then kind of a 50/50, and then it went 0/100. (BH and JG laugh)

So for, gosh, probably over ten, twelve years now, we receive no state funding whatsoever. So our particular SWIM team, for the Southwest Florida Water Management District, really is the only fully functional SWIM team in the state. And that's because our governing board, and when we had our Basin Boards, which now have been abolished and we only have a governing board. Our boards though, have always supported us, and they continue to support us.

They apparently believe that we do good, quality work. Like the product that we are producing for our 12 priority water bodies. And they have always voted to continue to fund us.

JG: Can you tell—what are the 12 priority water bodies?

7SWFMD is the Southwest Florida Water Management District**,** a regional agency of Southwest Florida responsible for planning and regulating the consumption of water resources, the use and protection of wetlands, and other water-related activities.

8
An interview of Robert Martinez is available as part of the ELAPP Oral History Project collection.

BH: Ah, you know, I don't have every one of them memorized.

JG: Don't worry about it.

BH: If you want that I can get that to you.

JG: Yeah. That's not. I know I wouldn't be able to remember.

BH: But they are scattered among the 16 counties on the mid-west coast of Florida. So it goes all the way basically from Crystal River up north and far south as Charlotte Harbor down in Lee County—or actually Charlotte County would be the end of ours. Because we're the north half of Charlotte Harbor. Of course Tampa Bay is in there, Lake Thonotosassa, the Winter Haven chain of lakes, just—

JG: Apopka or—

BH: I don't—Apopka is not in our district, so.

JG: So you came here as part of this team and what were the first things? You had the priority list. You had to figure out how you were gonna—what you needed to do and how you were gonna do it. Um, and at the same time ELAPP was coming and was being adopted by Hillsborough County.

BH: Yes.

JG: Did that help your job?

BH: Well, yes it did. It turned out that SWIM started in 1987, well it turns out that the Hillsborough County ELAPP program also started in 1987. So we're both celebrating our 30th anniversary this year, during 2017. And so, we have kind of been a coevolved sister programs that have tended to complement one another. So, when the Hillsborough County ELAPP program began, you know, and they started purchasing land, well some of that land actually was very attractive to the SWIM program, as far as a potential restoration site for Tampa Bay. And in fact, when they first started buying land, they were

just buying land that was reasonably intact, had limited to no physical disturbances, intact systems.

But in, like 1990, they came to us and said, look, we're looking to perhaps buy a tract of land that is highly disturbed and would need a lot of restoration work. If we pursue that, would you join forces with us? Can we be a team? And, uh, we'll go to the county commissioners and try to get them to support buying an altered piece of land, saying that ELAPP will purchase the land and the SWIM program will then restore it. And that piece of land was the Cockroach Bay tracts[9].

JG: Oh really?

BH: And so that was a 651-acre tract that had undergone uh massive alterations with limited original, intact relict[10] habitat still on site. Most of it had been converted into agricultural production—farm fields—and there was (sic) three large shell, sand, rock mining pits. So it was a mining operation. So uh, lots of alterations. Lots of opportunities for restoration. So we did join forces with them. We helped them launch a campaign to champion that this would be a good site not only to purchase but then to restore, and we actually set up a tour for all of the county commissioners to come out, to come out and let us discuss what we envisioned would be the restoration for the Cockroach Bay tract. And the only commissioner that showed up was Jan Platt. And so, we took her on a tour, gave her our vision of how we could restore it. And our vision was, we would have a series of various types of estuarine habitats—open water, tidal, lagoons, tidal channels, intertidal marshes, islands, things like this—series of freshwater wetlands, and coastal upland restoration.

And so she really embraced that concept, liked it a lot and so we all went and made presentations to the Hillsborough County Board of County Commissioners, and they voted to support it. So this was the first piece of land that they had bought that was not in, you know, pristine condition. And it helped set a precedent for future ELAPP purchases. So after that, particularly when teaming with the SWIM program, they were able to justify, defend, and be successful in purchasing a number of other tracts that needed restoration because the SWIM program and ELAPP recognized the great potential that, if its purchased and protected, then we can restore it and then properly manage it. And of

9The Cockroach Creek Greenway was purchased by the ELAPP program in 2001. It consists of high quality pine flatwoods, scattered wetlands, and forested wetlands. This area provides crucial breeding habitat for some native species. The creek corridor provides a connection and potential travel corridor for wildlife between the uplands of the preserve and the coastal habitat along Cockroach Bay.

10Relict (or relic) habitat is an ecosystem that was once abundant in large areas but in now very small and limited.

course, once it's restored and it's put into the public arena, it will be open to the public for recreation, you know, passive recreational uses.

So um, we have actually done, on Hillsborough County land, 12—we've worked at 12 different Hillsborough County sites. Eleven of those are ELAPP sites that they have either bought solely by themselves or they bought in concert with the Water Management District, either through our Florida Forever[11] funds, Preservation 2000 [12]or Save our Rivers[13]. All public dollars coming from the state. But we have either co-purchased or ELAPP has purchased on their own, 11 of those sites. We have done a whole series of projects on those 12 restoration sites, and if you look at the total acreage, if you look at the total acreage that we have restored in concert with Hillsborough County, through their Conservation and Environmental Lands Management Department—before that we just called them Parks and Recreation Department.

It's almost 26 hundred acres of coastal habitats. And when we say coastal habitats, we're talking about various types of estuarine habitats, freshwater wetlands and uplands. A real habitat mosaic. A combination of habitats that typically would be found in a coastal environment that either were purely restored because they used to be there and were either altered or destroyed or degraded because of human activities, or in some cases, we would enhance some of the existing habitats that were already there but had been compromised. Or if the conditions were right, we would create habitats, particularly the estuarine lagoons. In low-lying coastal areas that were dominated or that are dominated by non-native vegetation and there's no native vegetation, no native habitat value. Those low-lying areas, we can actually excavate down into an intertidal elevation and create new intertidal channels and lagoons and intertidal marshes and islands, and various types of estuarine habitats.

So almost 26 hundred acres of new coastal habitats. If you look at the total number of acreage that SWIM has restored, with a variety of partners and a variety of parcels around the bay, we've restored a little over 46 hundred acres. So the 26 hundred acres, that we restored in concert with Hillsborough County, the majority being on ELAPP sites, that's over 55 percent of all of the coastal restoration that's been done for bay—for the bay—has been on county ELAPP sites, or county lands.

11Predecessor to Preservation 2000.

12This program has been replaced by Florida Forever. Both Preservation 2000 and Florida Forever seek to acquire and protect both conservation and recreation lands. The State of Florida has purchased more than 718,126 acres of land with a little over $2.9 billion.

13Save Our Rivers and P-2000 were created by the Florida Legislature in 1981 to enable the District to acquire lands for water resource purposes.

JG: And the 46 hundred acres, that was coastal acreage?

BH: Yes.

JG: That was Tampa Bay Acreage?

BH: Yes, yes.

JG: Great. Can you tell me what's the value of restoration? What happens when you do these things and restore the wetlands, and lagoons, and those things. What's the value to Tampa Bay and to the people of Tampa Bay when you do this?

BH: Well of course, you know, for the public of Tampa Bay, it gives them amazing new recreational opportunities to go out and enjoy, you know, a native natural ecosystem, with all of its wildlife and beauty. And um, these sites lend themselves to day hiking, birding, camping, canoeing, kayaking, fishing. You know, these are human activities that people really like to get out and enjoy Mother Nature. And of course, when you do the restoration, you are providing opportunities for literally thousands of species of wildlife to use those habitats.

You know, the earth is not here just for humans to use and abuse and to enjoy. But you know, the earth is here, hopefully, so that we humans can live in harmony with other species of wildlife and our ecosystems. So when we do these restoration projects, we are seeking that harmony, that balance between human utilization and wildlife utilization and continued success, reproductive success. We want these wildlife populations to be able to live there and to be able to reproduce over time and successfully, you know, maintain their populations.

And in this case, for Tampa Bay, actually increase their populations because if you look at the amount of damage of loss of habitat and degradation of habitats here in Tampa Bay, and the numbers have really been out there, you know. At one time, we had lost over an estimated, up to 80 percent of our seagrasses in Tampa Bay and almost 50 percent of our emergent salt marshes[14] and mangrove habitats. Those numbers have now been basically reversed. We are actually now having more acres of salt marshes and mangroves and

14Communities of salt tolerant vegetation where the area is alternately inundated and drained by tidal action.

restoring our coastal freshwater wetlands and our coastal upland habitats. And we actually now have surpassed the acreage of submerged seagrasses from the 1950s level.

Now we started, it's been, we've been—this program has been going on for 30 years. Our first restoration project went into the ground, kind of a demonstration project, in the spring of 1988. So really, for 29 years, you know, we've been working with our partners, such as Hillsborough County, helping restore these habitats. So it's been a slow, incremental, piecemeal restoration of the bay.

And as you may or may not be aware, Tampa Bay is one of the few success stories around the earth, where the estuary is actually getting better over time, not getting worse. And it's because of our strong, environmental community that we have here and because of political will and legislative intent to help restore, maintain and then properly manage these resources. And if it had not been for our existing laws that we have and environmental funding for land acquisitions programs and restoration programs, you would not be seeing these improvements in Tampa Bay. And it's a multifaceted approach too, you know, it's not just any single entity doing it, it's not just SWIM. It's all of us working together. All the different local governments, and regional governments, and individuals making a difference. You know, one of the big things that has helped Tampa Bay as far as the seagrasses is improved stormwater treatment and sewage treatment.

The sewage treatment coupled with improved stormwater runoff treatment have helped improve water clarity and quality. We've reduced our sediment loads going into the bay, and as a result, once the conditions were right, with the right water quality and clarity, the seagrasses started to naturally recruit back into the bay. And then coupled with our restoration projects where we are physical building some of these new habitats and enhancing old ones that have been damaged, this is why we have these really, really impressive numbers that other estuaries around the bay look at and go, oh my gosh, you know, if they can do that, why can't we?

But it takes that social and political will to make these programs work. And then have the stick-to-it-ness, have the dedication for the long haul to see it through. You can't just do it for one or two years. You literally need to be doing it for decades, and you make it more of a lifestyle because you need to permanently maintain these systems and maintain that energy, so the systems do not start sliding backwards and start degrading again.

JG: When you talk about the uh the stormwater, weren't some of the SWIM projects aimed at stormwater reduction?

BH: Absolu—

JG: And in doing some of the restoration work, even the environmental coastal stuff, that has a stormwater compon—I mean is preventing runoff, erosion, all those sorts of things.

BH: Absolutely. The SWIM program, we have really focused on two main things for Tampa Bay. One is our physical, coastal ecosystem restoration projects. The other is treatment of stormwater, both urbanized as well as the rural runoff coming from off agricultural fields and rural areas. Um, there's been over 80 stormwater treatment projects done by the SWIM program, with its partners over the years. So we are treating tens of thousands of acres of water shed before that water ever makes it to the bay. And, our stormwater projects, you know, we have stormwater engineers that design and implement those. But both the stormwater projects and the coastal ecosystem restoration projects are done as a team approach. Usually a biologist works with an engineer, and we combine our talents to come up with the best design to maximize the value and functions of each of those projects. So our stormwater treatment projects are more highly engineered, but they're always designed in a way so that they have some habitat value at the same time. So the biologist can help that engineer to tweak it so that it will have some biologically important habitat values coupled with stormwater treatment.

Conversely, the coastal ecosystem restoration projects, we work with the engineers—the biologists do—but they are designed to maximize habitat values, but if we can provide some level of stormwater treatment in the restoration project, we will do that. You know, for example, let's take a look at the Cockroach Bay project. We actually have a fully engineered, stormwater treatment pond that is taking agricultural runoff from 105-acre watershed, and it receives full treatment of that runoff prior to being discharged into an intertidal creek system. And then that creek system drains down into the headwaters of Cockroach Bay. And that's—that creek system is an artificial creek. We built that creek from scratch. It was a low-lying, agricultural field. So you're getting runoff coming off the ag fields, that's freshwater, goes into now a stormwater pond, overflows the weir[15], goes into this nice tidal creek. So that freshwater now, as it works its way through the tidal creek, is also getting a little more cleansing, this is called stormwater polishing. It removes a few more nutrients, a few more of the pollutants out of it. And then that freshwater is also establishing a salinity gradient in that tidal creek system.

And many of sport fishing and commercially important fishes and recreational fishes, depend on these lower salinity and salinity gradients as a component of their life history, to be successful. So if you don't have these salinity gradients and you don't have these low salinity habitats, that lifecycle of the little baby snook, and redfish, and tarpon, and

15A barrier that alters the flow characteristics of the water and typically raises the water level. The most common design allows water to flow freely over the top of the weir crest down to a lower level.

mullet, it will be interrupted. And so your yields of these fishes will go down. So we are using that fresh water to help enhance the nursery, our fisheries production of these tidal creeks, either existing tidal creeks or the manmade ones. So we are using it for multiple functions and to help benefit Tampa Bay.

JG: You know, if you didn't have this treatment pond—how big is the pond?

BH: That particular pond is about 25 acres.

JG: And if you didn't have it, then the agricultural runoff would just be going into Cockroach, making its way to Cockroach Bay.

BH: And that's what it was before. What it did, it went down a ditch and went straight into headwaters of Cockroach Bay.

JG: So it was polluting with all those nutrients, was—

BH: Yeah. Other than whatever treatment it may it have gotten in the ditch, which is pretty minimal, it otherwise was not receiving any treatment. And so—and that's just one, one example.

JG: So Cockroach Bay has been significantly cleaned up because of the restoration.

BH: Well certainly, I'd like to think that our work has contributed to, you know, enhance [the] value of not only Cockroach Bay but throughout Tampa Bay. You know, we've got 98 restoration projects scattered all around the bay. All around Pinellas County, Hillsborough County, and Manatee County for over 46 hundred acres of habitats. So the benefits are scattered everywhere around the bay. The majority of those sites are publicly owned sites. Sites that had been purchased by programs such as the ELAPP program, but also sites that the water management district has purchased, or Manatee County has purchased, or Pinellas County has purchased.

The majority of our sites are on publicly-owned property using public dollars for public land acquisition. And without those programs, a lot of our restoration sites would not have existed. And this is not to say, that we have not pursued and are not eager to work in the public/private partnership mode. And we have done a number of public/private

partnerships, with private land owners, mainly corporations such as the Tampa Electric Company. We've done several projects with them.

But it's a much more difficult sort of relationship to do that. We're using tax dollars on private land, and so we need to make sure that there's no conflict of interest there, that the public will still have access to the site, that somehow that the restoration will not significantly benefit the private landowner, and that they will also put a conservation easement over the restoration project so that later on, they will not come back and decide, well, gee, we decided that we want to build a parking lot now. So we're just going to pave over this. We have to build those sort of guarantees in there. So legally and logistically, it is more difficult to do a public/private partnership. But we have done it, and we're open to that in the future. And as land becomes increasingly difficult, public land becomes increasingly rare and difficult to have access to, these public/private partnerships may be the new way for the future to continue our progress on Tampa Bay.

JG: Uh. Another thing these—the acquisition of the land and restoration does beyond filtering the water and all these, it also terms of storm damage, flood damage, they help avert any.

BH: Absolu—

JG: Because big in the news today was (inaudible)

BH: Absolutely, so it provides that storm surge protection, slows down erosion. You get all the habitat values of course. And from the properties adjacent to it, inland, you know, that storm protection and storm surge protection—very, very important as well as slowing down and preventing erosion.

JG: Um, do you think there's anything the public doesn't understand about ELAPP? Do you think they appreciate it significantly? It has won every time it's been up for a vote.

BH: It has. And in fact their percentage of voter supporting it has increased every time it's been out on the ballot. I know that—I think that the last election, you had almost what, 80 percent of the voters supported it. That's pretty overwhelming. That's an overwhelming mandate by the voters saying, hey look. Tax me. I want to do my part. I am in favor of this program. I want this program to prosper and continue. I like the results of it. That's a really strong message being sent by the public when they actually vote to tax themselves to support an environmental effort like that. And ELAPP, the people that have managed it and have made the program the success that it is, they should be just

really proud of themselves. I mean, it's my understanding that the Hillsborough County ELAPP program has been used as model for other programs trying to get established throughout the United States.

So other communities throughout the United States have looked at Hillsborough County and said, hey, how did you do that? How can we implement the same program using the Hillsborough County ELAPP as their model. And so it's my understanding there's been a whole series of other successful public land acquisition programs that have been established using the Hillsborough County model. I don't know what the number is but I —hopefully somebody else does.

JG: During your period, which has been the entire period of SWIM and ELAPP, was there ever a spell where it was not receiving support from the district board or county commission, that you thought was significant?

BH: Um, no. Our board has always supported SWIM and we have always had a very, very harmonious relationship with Hillsborough County ELAPP. And so it's been nothing but a win-win situation not only for the public but of course obviously for Tampa Bay and the ecosystem of Tampa Bay. And I think without that that partnership, you know, you would not see the dram—in part, some of the dramatic success that Tampa Bay has demonstrated. And it's because of that partnership of having the land available and the partners working together, and having such a strong environmental community that has pushed for um these sort of activities to occur. And you know, if you don't have the public and the politicians behind you to make these programs be properly implemented and funded and continued, then you're not going to see the long term, continued success of this.

You know, ecosystems are not—they don't degrade. They don't degrade overnight, and they don't get fixed overnight. You know, it's a long-term commitment. It's kind of like taking care of your body. You know, if you don't take care of your body it falls apart. You don't take care of an ecosystem, it falls apart. It may take a while before you start seeing how it's starting to be damaged. Kind think of it as, you don't take care of yourself, you don't necessarily notice the damage in the early stages, but later on it starts catching up with you and you realize, golly maybe I shouldn't of eaten (BH and JG laugh) so much, or smoked so many cigarettes, or done other life things, you know, that aren't not necessarily good for your health. Same way for the health of an ecosystem, same thing for the health of Tampa Bay.

And fortunately, we have literally thousands of people in the Tampa Bay area that really, really care about the bay and its future. And they have made an investment in that. You know, this sort will work, that Hillsborough County ELAPP program, the SWIM program working with Hillsborough County, and all the other folks doing environmental work around the bay. This is our legacy for the future. This is something being left behind, and what I hope is that in 100, 200, 300 years from now, people will look back on this period and go, oh my gosh, those people were so smart, and they had such foresight, and they looked ahead. And look at the legacy that they have left behind for us that we still are benefitting from because they had the forethought to plan ahead, implement those programs, and then had the wisdom to carry it forward, up to whatever it is, another, you know, 200, 300 years.

JG: Do you have uh a favorite project? It sounds like Cockroach Bay might be—

BH: Well that would certainly be one of my favorite projects. The Rock Ponds Ecosystem Restoration Project[16] that was just finished in 2015, that was done in concert with Hillsborough County. That land was co-purchased with Hillsborough County ELAPP. That is the single, largest coastal ecosystem restoration project ever done for Tampa Bay. And so that particular project, Nancy Norton, an engineer I work with, we were co-project managers for that. And that project is a 1,043 acres.

JG: Wow.

BH: It's got 650 acres of coastal uplands and right at 400 acres of various types of estuarine and fresh water wetlands. There is a series of cascading and fresh water wetlands that are taking offsite agricultural runoff that is getting some polishing as it goes down a series of cascading fresh water pools until finally it goes into intertidal lagoon. We have restored coastal pine flatwoods, mixed pine and hardwood forests, and then sprayed?? hardwood hammocks.

We have preserved all the archeological sites onsite. The lagoons are now being colonized by natural recruitment of seagrasses and oyster bars that are coming in. We see abundant bird life coming in and using the resource, including nesting. We have active and robust fish use in our new lagoons: mullet, tarpon, redfish, snook, marsh minnows, et cetera. We've got nesting alligators that are in there working the site. The Audubon, Tampa Audubon[17] has just started to monitor the bird populations down for our restoration sites. And this will complement work that the Tampa Bay Audubon

16 Rock Ponds Ecosystem Restoration Project was a cooperative effort between SWIM and the Hillsborough County Conservation and Environmental Lands Management Department to restore approximately 1,043 acres of various coastal habitats. The project helps improve the bay's water quality, creates fishery habitats and supplements important bird nesting and feeding habitats.

Sanctuaries Program has been doing for over 25 years, where they were looking at the original rock ponds, the original rock pond spray, sand/shell/rock mining pit down near the bay. And that pit—

JG: That was a sand mining pit?

BH: Yeah. It was a sand/rock/shell mining pit that affectionately was known as the Rock Ponds because of all the rock they got out of it. That became a very important bird roosting and rookery area. And so Audubon has been monitoring that for over a quarter of century, and the name Rock Ponds has stuck. So the rest of all the parcels that we've restored, we've just borrowed that name. But it is tied to the original, you know, shell/sand/rock pit, the rock ponds.

JG: But has the rock pit been uh restored?

BH: Well, what has happened with that is we have removed all the nonnative vegetation, and it is now directly open, intertidal on a daily basis. Before it only got tidal water once and a while when the tide was high enough it could push through the mangroves and make it through, kind of like some semi-clogged mosquito ditches to get to it. So the water quality in that pit was just abysmal. No dissolved oxygen. Very, very high salinities. Algae blooms. Very, very poor habitat values.

That pit now is directly tied with a brand new intertidal, open water channel out to a brand new, new intertidal lagoon, which is tied to uh Piney Point Creek and to a series of mosquito ditches, so it has active tidal access on a daily basis now.

JG: Is the rock now—does that connect to Cockroach Bay.

BH: It is. It actually is the south side of Cockroach Bay.

JG: Yes. But it's connected to the—

BH: So the—I mean, the first Cockroach Bay project was done on north side. Kind of like Cockroach Bay North, if you will. That was a 500-acre restoration project. Roughly

17A chapter of the National Audubon Society established in the 1940s to conserve and restore Tampa's ecosystem with an emphasis on birds, wildlife, and their habitats.

300 acres of fresh water and estuarine wetlands, and about 200 acres of various types of coastal uplands. That's on the north side of Cockroach Bay. That project was done over a 21-year period in 17 different phases, with Hillsborough County. And it was actually just completed, the last phase was in 2012. It started in 1991 and then finished up on 2012.

And then on the south side of Cockroach Bay is where the three restoration sectors of the Rock Ponds Ecosystem Restoration Project are. So we have three different areas on the south side of Cockroach Bay that collectively are known as the rock ponds ecosystem restoration project.

JG: So more than 15 hundred acres surrounding Cockroach Bay have been restored.

BH: Yes, yes, yes. Almost 16 hundred. Yes. And actually, if you include way up at the north end, we did another project with them, with Ecosphere[18] and that was known as the Lost River. And that particular project's another 43 acres. So yeah, it's about 16 hundred acres when you add it all together. And that Lost Preserve[19], that's ELAPP property also. And that was an old abandoned fish farm, that got recontoured and you have a series of fresh water wet lands, coastal uplands, and intertidal lagoons. That project turned out very nice. Tom Reese of Ecosphere worked with SWIM on that, that turned out very nice.

JG: Is there any area, major area you like to see restored that you still say, man that's the next one I want to do. Or that's the one I'd love to see. How about if we could make it?

BH: Well our opportunities for large-scale, on-the-coast restoration in Tampa Bay are dwindling. You know, we've been chipping away at a master list now, for 29 years. And so our opportunities right on Tampa Bay are starting to go down in frequency and in size. But, having said that, particularly when you take into account projected sea level rise for Tampa Bay, our projects—we have always, the SWIM program, has always embraced climate change science, and we have taken that into consideration with our designs.

And so we have done our very best to design coastal restoration projects that can help accommodate sea level rise. But that in spirit, since we are starting to kind of become increasingly limited on our coastal restoration opportunities for Tampa Bay, we are looking increasingly at working our way up the water shed. You know, it's all connected.

18Ecosphere Restoration Institute is a non-profit organization that seeks to preserve, restore, and enhance natural ecosystems.

19The Lost River Preserve in Ruskin, Florida.

The watershed is connected to the bay. And you need a healthy watershed to have a healthy bay.

And so, currently Nancy Norton and I, the engineer that I mentioned for Rock Ponds as co-project manager, we are co-project managers on what will be a huge corridor[20] project along the Little Manatee River. Now this is property that is co-owned between the water management district and Hillsborough County, land that they had bought through ELAPP, so being co-owners of this property, there's about a 30-mile corridor on both the north and south sides of the Little Manatee River, all the way from the bay, heading east, heading upstream for about 30 miles, and it's over 71 hundred acres. And so, we are looking at the, at a restoration project that will dwarf anything that's ever been done for Tampa Bay.

I mean, it will make rock—it will be almost seven times bigger than Rock Ponds, you know, which is right at a 1,050 acres. So we are in the very, very early stages of starting to plan, that Little Manatee River corridor restoration effort.

JG: And it's all publicly owned.

BH: It is. It is all public owned.

JG: And the kind of restoration that will need to be done is uh—

BH: We'll have some opportunities for some estuarine, low-salinity type habitats. But the vast majority of it will actually be fresh water wetlands and uplands, both riverine corridors like hardwood, mixed hardwood uh floodplain type stuff, and pine flatwoods and mixed pine and hardwood. And so, we are just currently now working with a consulting firm. And we're just now doing the habitat mapping of trying to discover what sort of habitats are there, where are the areas we should concentrate our restoration, what sort of restoration should be done and where. And looking at the watershed and drainage patterns, how could we incorporate some of that stormwater treatment before that water from the water shed, which is predominately agricultural, make[s] its way down to the river. Very early. So that particular project will probably take, just because of its enormity and the projected cost, which could be 100 million or more dollars, depending on, you know, how much wetlands we end up creating, this could take ten possibly twenty years depending upon funding opportunities. But that's the next big thing that we're working on as far as a huge project.

20River corridors, sometimes called riverine corridors, are the plots of land directly adjacent to rivers. The protection of these landscapes is crucial to preserving a river's watershed and ecology.

A smaller one that we're doing with the county is an abandoned fish farm, which is down in the—basically the southeast corner of the kitchen, which is the southeast corner of Hillsborough Bay. This is about a 25-acre spot that the county had a chance to buy, the ELAPP program had a chance to buy. And this physically will be linked to the Fred and Idah Schutz Preserve[21], nature preserve, which was another SWIM Hillsborough County restoration effort that we did that was completed back in 2004. So um but right now the Little Manatee River corridor project, that will be the biggest one. That's going to be a huge effort.

JG: Do you see like any particular challenges that ELAPP faced, land preservation will face in the future?

BH: I do. Uh one is, hopefully the continued support by the voters to continue that program. And number two, they need management funds. You know, it's one thing to buy the land and protect it, which is exceptionally important. You have to have the land and have it in public ownership to be able to protect it, but once you own it, and particularly if you do restoration or any sort of enhancement of the land. Then you need to properly manage it, and you have to have the funds and the staff to be able to do that. If you cannot properly manage the land, other than it being protected, well then its habitat values possibly could be compromised. So you need the staff and the funds to be able to properly manage that land. And when we say manage it, what are we mainly talking about?

Well, the big thing is security. Keeping trespassers out, and vandalism, illegal dumping, illegal use of the land, such as people going out with ATVs[22] and, you know, running through the habitats and ruddying it up and compromising wildlife trying to use the site, et cetera. And not the control of nonnative and nuisance plants that tend to want to grow abundantly in disturbed habitats. And even if the site is in fully restored condition, and its mature, and it's absolutely functioning beautifully, you still have to use some management tools to maintain that. And one of the big things is, prescribed fire[23], particularly for the pine flatwoods. So periodically, every say two for four years or so, two to five years, you need to have a fire go through there. Again that takes money and

21The Fred and Idah Schultz Preserve is a 134-acre tract located in Gibsonton, Florida. It provides habitat for fisheries, shorebirds, mangrove species and upland wildlife, including bobcats and migrating neotropical songbirds.

22An all-terrain vehicles (ATV) is a vehicle with either three or four low-pressure tires, handlebars, and a seat that is straddled by the operator. It is small, amphibious and designed to go over rough ground and through shallow water.

23Controlled or prescribed burning is a practice sometimes used for forest management to safely reduce excess amounts of brush, shrubs and trees and encourage new growth of native vegetation. Many plant and animal habitats depend on periodic fire.

man power to be able to coordinate that and to do it safely. And um, so right now management of our public lands, that issue will be looming large. Its already looming large. And it needs attention and it needs um to be addressed.

JG: Um, you mentioned Tom Reese. Was there anybody else that was particularly significant, and Jan Platt[24] obviously?

BH: Well Jan Platt of course, she was the one that originated the idea for the Hillsborough County ELAPP program. And she's championed, she's been a great champion for the environment and for Tampa Bay in general. You know, Hillsborough County staff that worked very diligently over the years to implement ELAPP and to do it properly, include like their land—their real estate agent that ended up negotiating most of the land that they have purchased, that Kurt Gremely[25]. But then like, Rob Heath[26], with Hillsborough County park and rec department, he worked, you know, for decades helping identify land parcels and then help them, you know, get them purchased, you know, through the real estate, through Kurt Gremely, and then worked with us, you know, the SWIM program to help do these restoration projects.

And then you've got land managers like Richard Sullivan and Mary Barnwell. Richard Sullivan has recently retired, and we did a number of projects where Richard Sullivan was our point person. Nick Toff?? was the—one of their land managers. We worked with him prior to Richard Sullivan. We are now working, of course, with Mary Barnwell and then her bosses. You know, Ross Dickerson and Forrest Tuberville, you know, they are the management staff that are helping maintain and support ELAPP and our cooperative restoration efforts. And it takes a team like this. It takes that level of cooperation where you can work and play well together. And if we didn't have that level of cooperation and dedication by people that care, these things wouldn't get done.

You know, there's a difference between just doing your job and like really doing your job well because you care about it, and you want to make a difference. In what we see in the environmental community here in Tampa Bay, and Hillsborough County park and rec staff is good example of that. These people really care. You know, they work long hours, and trust me we're not laughing all the way to bank. We're not getting these huge

24 An interview of Jan Platt is available as part of the ELAPP Oral History Project collection.

25 An interview of Kurt Gremely is available as part of the ELAPP Oral History Project collection.

26 An interview of Robert Heath is available as part of the ELAPP Oral History Project collection.

paychecks, okay? We're hoping we're making enough money we can feed our families and stuff.

But I think everybody that takes on this sort of work, they take a lot of pride in it. And they get job satisfaction out of it. And I think they like the idea that they're leaving something behind. They're making a difference for the future. And that level of job satisfaction and the idea that you can help actually make a difference as an individual, then working as a team as an individual, that's pretty powerful. That's pretty powerful.

JG: Well is there anything I didn't ask that I should have? Anything else you'd like to mention? You've been here at the whole time on ELAPP and on SWIM, I mean two key programs.

BH: Well, I have—I've always, always enjoyed working with Hillsborough County. They're one of our best cooperators. We have worked with a whole series of other, you know, local governments, regional governments, and um have good partnerships all around the bay. But you know, it's a—I think I've already stressed this. It is definitely a team effort. And it's many hands working together to make it so. And without that level of cooperation and dedication, Tampa Bay would not be in the state that is. And I just hope that this, this level of commitment and enthusiasm will continue. And it needs to for the future of Tampa Bay and the Tampa Bay community. I mean if you look at the projections for the number of people moving here, our numbers keep going up. And yet Tampa Bay seems to keep getting healthier. So we must be doing something right. You know?

JG: Yes.

BH: And that's a good thing. And one thing I did not mention. It didn't come up in our conversation, but the Tampa Bay Estuary Program[27], is a vital partner that the SWIM program has worked with. And they have worked with all these partners, including Hillsborough County. And the Tampa Bay Estuary Program has been a major leader in helping spearhead proper management of Tampa Bay. And one of the big things that have done of course is to really help with pulling together multiple partners at both the federal, state, and regional level to help improve water quality and atmospheric deposition of nutrients and improved water—I mean water and air quality. And it's because of that level of cooperation and that coordination that they have helped foster. Tampa Bay Estuary Program, working with SWIM and ELAPP, and all the other groups that are dedicated toward helping the bay um, this is why we have the bay that it is.

27Tampa Bay Estuary Program was created by Congress in 1991 to the assist the community in restoring and protecting Florida's largest open-water estuary through scientifically sound, community-based management.

JG: Well very good. Well I appreciate. You were terrific.

JG: Could you tell me—could you list all the sites that you have worked on?

BH: Yeah.

JG: With ELAPP.

BH: You know. Like I said, there's 12 sites that we've worked in Hillsborough County, which makes up over 55 percent of all the acreage that's been restored for Tampa Bay. And so, 11 of those 12 were purchased by the Hillsborough County ELAPP program or co-purchased with the water management district. And so that includes northeast McKay Bay. Well, let me back up. It includes E.G. Simmons Park, which was not bought with ELAPP money but was a previously established coastal park bought with county dollars. But the ones that were bought with ELAPP money or copurchased with water management district include: Northeast McKay Bay, Cockroach Bay, Wolf Branch, Davis Tract, Port Redwing, Apollo Beach, Marsh Creek, Lost River, Eckerd Preserve, Rock Ponds, and Bahia Beach.

End of interview