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Ann Hodgson: Good morning. This is Ann Hodgson with the Tampa Bay Oral History Project. And today I'm so pleased to have with us Roger Johansson. Roger was the supervisor of the Bay Studies Group for the City of Tampa for over 25 years. Roger, thanks so much for being with us today. How are you?

J.O. Roger Johansson: I'm glad to be here.

AH: Great. I'd like to start the interview today by just asking you: How did you become interested in nature as a child? Where did you grow up? How did you first become interested in nature?

JJ: I grew up in Sweden in a relatively small town and my parents always were interested in being out in the woods and picking berries and mushrooms and things like that. And so I think that put a big stamp on me. That, you know, I learned about nature. I became interested in water issues probably in high school. I did a couple of high school projects of some lakes around the area and then that kind of developed.

I was always interested in biology. So I graduated from high school in Sweden in a biological branch and then went off to the Swedish military for 15 months. And then after that I started taking courses at the University of Gothenburg. I had to take some math and physics classes there. And I also took oceanography, and my major professor was actually the head of the oceanography department. And he had an acquaintance over at the

University of South Florida in marine science in St. Petersburg, Dr. Humm.¹ And so I was encouraged to apply to the University of South Florida for my master's degree and I was accepted. So that's how I ended up in St. Petersburg.

AH: Wow. That was a dramatic change for you, from Sweden to Florida, wasn't it?

JJ: It was. It was. And there weren't very many opportunities to do marine science in the biological branch in Sweden. The university was really focused on physical and chemical oceanography. So I made a professor kind of—"If you want to study biology, you probably need to go some other place," he said.

AH: So when did you start your master's in Tampa, or in St. Petersburg campus, right?

JJ: Yeah. I came over here in 1972 and I graduated in 1975.

AH: And when you did your master's, what was your study focus there?

JJ: Well, the university had a grant with Florida Power that did preoperational studies of the Anclote Power Plant. So I did my work on that preoperational study at the Anclote Power Plant. It was mostly phytoplankton²: composition, taxonomy, and primary production. Those were my part of the project.

AH: And then you obviously decided to stay in the United States, stay in Florida.

JJ: Right. After I graduated I got a special visa. For like a practi—I don't know. I'm not sure what it's called—for practical experience. So I was hired by the Westinghouse Corporation³ to continue that study at the Anclote Power Plant after the plant had gone online. So I spent a couple of years doing that with the Westinghouse Corporation. And I applied for a residence permit after that and I got a green card. And so then I was pretty much set for the future in the United States.

¹Dr. Harold Judson Humm received his PhD from Duke University and founded the Duke University Marine Laboratory. In 1967 he was recruited to USF St. Petersburg where he started the marine science program.

²Phytoplankton are microscopic organisms that live in the upper layers of all oceans and freshwater areas, since they require sunlight to survive.

³The Westinghouse Electric Corporation was an American manufacturing company from 1886 to 1999, and was involved in everything from power plants, to household items and cable television broadcasting.

AH: That was wonderful. After working for the Westinghouse Corporation for that project, did you start looking around for other opportunities? What was your next step?

JJ: The Westinghouse, the department I was working with did all kinds of entrainment⁴ studies and impacts on power plants on rivers and lakes. They kept me for another year, and I worked up in Indiana for a year on two power plants in the Ohio River. And that project was winding down, and by the end of the project I got a call from the City of Tampa that they were looking for a biologist to work on their Hillsborough Bay project.

The city was just about completed its expansion from a, pretty much a primary treatment plant to an advanced wastewater treatment plant. It hadn't gone online yet, but they wanted to have some pre-information about the bay before the plant was operational. So I applied for that work and I got the job. So I started there in 1978.

AH: And what were the challenges that the city was facing at that point in time? What were the bay issues that the city was trying to deal with?

JJ: The city's wastewater treatment plant was a primary treatment plant so it didn't really do a whole lot for reductions of nutrients. And that was one thing that had been pointed out earlier in several studies that the nutrient issue in Hillsborough Bay was pretty bad. So the city was kind of put into a position to try to fix that. And they received grants from the federal government to upgrade the treatment plant to a state of the art treatment plant that would reduce almost 90 percent of the nutrients going into the bay. So that was how the city was, kind of, pushed into the situation. But you know, everybody realized it was a good thing to do.

AH: So, when you first started with the city, how did you build that program? Were you brought in to lead the program, originally?

JJ: No. There was, David Carpenter was in charge of the program. But they was doing pretty much what I had done for my master's degree and they pretty much followed my master's thesis for setting up the program, so I fit right in there. And then Dave moved on and I got the position as the supervisor.

AH: So what did the Bay Studies Group do? What did you study? What did you look at?

⁴Entrainment refers to the unintentional trapping of fish when the natural flow of water is diverted, as is the case in power plant systems.

JJ: Originally, we were mostly interested in phytoplankton because that is really the most important parameter that was obvious there was something wrong with. The bay was like pea soup in the summer time, and everybody understood that. That was something to look at. So we measured taxonomy, all the phytoplankton, how much phytoplankton was there. We measured primary production⁵ and of course all the other water quality parameters that goes with those. So that was the original intent with the study was to study the phytoplankton.

AH: And from there the program expanded?

JJ: Right, yes. As the bay was responding to the reductions in nutrients after the plant was upgraded, a few years later, after the plant had been in operation, we started noticing sea grasses in the bay, just sporadic patches of seagrasses. But there was a huge indication that something is actually happening, that we had actually done some impact. So that became a big part of our study later on, that we actually start looking at seagrasses also. We also looked at the benthic⁶ animals because they were also impacted by the phytoplankton. And so we kept, you know, did some studies on those to see how they changed over time.

AH: And the area that you worked in then, for Bay Studies Group, City of Tampa was it —geographically, what did it encompass?

JJ: Well, we started out pretty much in Hillsborough Bay. Then we set up another station, middle of Tampa Bay in a few years later, just to get a reference point. And as things changed, we added more stations down into Lower Tampa Bay, and then finally we moved into Old Tampa Bay. So we covered the whole bay pretty much in terms of sampling.

AH: As you developed this program, how did you explain it and relate to the other municipalities and counties around the bay? What was the transition to bring them in to an understanding?

JJ: Well, I don't know if we had a whole lot to do with that except providing data. There used to be a thought that, when you degrade an estuary, some people thought you will never be able to bring it back to any good condition. But our studies show that if you

⁵Primary production is the synthesis of organic compounds from carbon dioxide, as in photosynthesis. Organisms involved in primary production, like algae in the ocean and plants on land, form the basis of the food chain. Almost all life on Earth is reliant on this process.

⁶Benthic refers to the lower, bottom-most level of an ocean or lake, including the sediment layer.

actually do reduce nutrients, you can bring back the system. It might not be exactly the way it was, but you can make huge improvements in terms of all the water pollution issues. And Hillsborough Bay was actually one of the first estuaries in the world where we actually showed that you could change it and it doesn't take forever.

After that plant went online and nutrients were reduced by almost 90 percent, there were—the plant went online in 1979. And still in 1983, the phytoplankton populations and chlorophyll and all that were still high. So we started to be a little bit worried; perhaps it's just not working. But the following year we saw a huge decrease in phytoplankton. And then they remained low since then. There's been a slow downward trend, but the big changes occurred in the early or the mid-1980s. And that's when we also saw the seagrass come back.

So that kind of set the stage for, the other people picked up on that. I worked with the Regional Planning Council's ABM⁷. And we had a special group that—we try to come up with some regulations for how much chlorophyll we should have in the bay. And so that's where all the other agencies and cities and counties were brought in, pretty much. Everybody kind of understood that we can really change things in Tampa Bay.

AH: As folks became aware of what the problem was and what needed to be done, what role did the Bay Studies Group play? Did you have an educational role? Did you have a political role?

JJ: Yeah, I think a little bit of everything. We were really one of the—I mean, Hillsborough County did monthly sampling in all of Tampa Bay, and they created a huge database which has been invaluable for understanding the bay. We did some other, we did more specialized work that the EPC⁸ did not do. We did phytoplankton production, we did a little more detailed phytoplankton taxonomy and abundance, and looked at other things, so we kind of filled in some gaps there.

In terms of political, we reported on all our findings. That was a big thing we did. We actually wrote papers, we went to meetings, presented our papers. You know, journal papers, all those things. So we didn't, so our data was actually, you know, it was reduced and people could read it and see what's happened.

⁷The Agency on Bay Management is the natural resources committee of the Tampa Bay Regional Council and was instituted in 1985 as the primary community organization focusing on the protection of the Tampa Bay estuary. The ABM's accomplishments include the SWIM program, and the designation of the Sarasota and Tampa Bays into the National Estuary Program.

⁸[Hillsborough County] Environmental Protection Commission, created in 1967 by a Florida legislative act, is charged with regulating activities that may lead to air, water, or soil pollution or excessive noise.

AH: So you built a depth of science that really showed what was going on?

JJ: Right. Yea, I think that was our main part. We had the facilities to do such research and then write up things. And I think that was the really important part and then participating at the ABM and at the Tampa Bay Estuary Program when they came to town.

AH: Let's talk for a little bit about the history of the seagrass in Tampa Bay because that has been such a big focus of community interest. Can you take us back to maybe the pre-damage era, what we understood about seagrasses before much development around the bay, and kind of just walk us through stories about that history?

JJ: Yeah. Well, seagrasses, they have adapted to underwater life for 3—I think 100 million years they've been around. And they're really dependent on how much light they receive, where they grow, what depth. So, Tampa Bay has had a pretty stable sea level since about 3,000 years. So seagrasses, I think, got adapted to water quality conditions over those 3 million years in Tampa Bay. And I'm sure the water quality was a lot better in those times, before man came to the bay.

And so when, probably in the early 1900s, when the bay started to develop, the people started moving in, the industry started, the water quality changed really fast. The seagrasses weren't just, they weren't ready for the big, quick changes that occurred. But seagrasses have limitations in their ability to do quick changes, it's just the way they are constructed. And so when we saw the big pollution occurring in the bay, they probably got overwhelmed. The water quality went down, the light went down and they just couldn't adapt to that.

So they pretty much, in Hillsborough Bay, I think, most of the grass was gone in the 1980s. Well, at least 1970s, 1980, period. Other, Old Tampa Bay also had big losses. As you go down bay the losses were less, but the middle of Tampa Bay still had big losses. So, if we assume that before 1900 we had seagrasses, they would have been large amounts of seagrasses compared to what we had in the 1970s and 1980s.

AH: How quickly do you think that that transition really happened? There was a big explosion of the population in the war years, the '40s. Sort of the '40s to the '60s brought a lot of growth. Do you think it was that quick or was it more a cascading effect from earlier?

JJ: I think it was probably going back earlier than that. The fertilizer industry in the bay pretty much got started in the 1920s and that had a big impact on the bay, probably. Also, the city of Tampa at that time didn't have any central collections of wastewater. So it was pretty much just flowing out into the bay. I would say the early 1900s, probably you start seeing this impact.

Now we have the earliest phytoplankton numbers from about 1950. And they show pretty close to what we have now. But that's all we have. We have seagrass abundance from that time, also just based on photographs. And that's what the estuary program at USF target in terms of seagrasses. But there probably were more seagrasses before that. Robin Lewis⁹ estimated that there were quite more than that during the turn of the century.

AH: One of the interesting things about seagrass is how it distributes and how the species composition changes. What did we know early on, and what do we know more recently about seagrass through the bay?

JJ: We don't have a whole lot of information from actual field studies in the early days. Ron Phillips¹⁰ did some work around the bay and recorded species distribution. That's pretty much all we have to go by. More recently we have, at this time we have a pretty extensive transect¹¹ program. The folks go out once a year and survey like, I think it's something like 60 transects around the bay. And those record species composition. The aerial photography and the mapping of seagrasses in the bay doesn't do species composition because it's impossible to do, pretty much. So those are the things.

There's probably been a shift in species composition but we don't really know for sure. There are like, we have *Halodule*¹² now is coming back big time. And that's probably one of the earliest species you see after things are changing. So there could be that just establishing that *Halodule* that other species will move in just following the *Halodule*.

AH: So it's like a primary colonizer¹³. And the other species might follow that.

⁹Roy "Robin" Lewis III was interviewed as part of the Tampa Bay Oral History Program on June 15, 2015. See DOI T43-00003.

¹⁰Ronald C. Phillips (1934-2005) was a marine botanist, who specialized in seagrass biology, ecology, distribution and transplantation.

¹¹A transect is a fixed path along which species distribution can be measured and quantified.

¹²*Halodule* is a genus of plant that occurs on tropical and semi-tropical ocean shores.

¹³A primary colonizer is the first species to inhabit an ecological community. Their growth is usually rapid and widespread.

JJ: Right. They're more of a climax species¹⁴. The last one anyways is a climax species. But I doubt if we had a whole lot of *Thalassia*¹⁵ in Hillsborough Bay. There was probably too fresh for *Thalassia* in the old days.

AH: That's been a very big point of study. And one of the things that the Tampa Bay Oral History Project is very pleased about is that Robin Lewis was able—he had curated Ron Phillips' notebooks and he was able to donate those to the project.

JJ: Good. Yeah, that's great. We had those for a while at the Bay Study.

AH: Did you?

JJ: Yeah. There was really interesting information in those books.

AH: And now, of course, because they've been donated to the [USF Library] Special Collections, they'll be digitized and available for research in the digital commons. Did you ever have a chance to work with Ron at all?

JJ: Not really. I met him several times, but I never really worked with him.

AH: I guess he was the earliest seagrass researcher through the Florida Fish and Wildlife Conservation Commission, through the Florida Wildlife Research Institute?

JJ: I think so. Right. Not many people have done any other seagrass work when Ron started doing his work.

AH: I see. And then, over time, he actually broadened his scope of interest and looked at more international areas. I wasn't sure about the history there.

JJ: I'm not sure either. I know he left the area, I don't know, about ten years ago.

¹⁴A climax species is the last species to inhabit a plant community. After this point the community reaches equilibrium and species composition will remain constant until a disruptive event alters ecosystem.

¹⁵*Thalassia* is a genus of marine seagrass that includes two species: *T. hemprichii* and *T. testudinum*. Its common name is turtle grass.

AH: You mentioned the transect program that Bay Studies Group developed. Can you tell us about that, how you developed it, how you designed it, how you implemented that? And how did you use the information then?

JJ: Well, it was developed as a compliment to the aerial photography to get some ground information, actually on the ground, in the water. You're facing the water, looking at seagrasses. That was one thing we thought was important, we need to look at species distribution. And that the SWIM¹⁶ program had set up several transects in the bay earlier than that. And we kind of took over that program.

We added some more transects and spread them out in different areas. They weren't really random, but we picked large areas that we thought were representative of that particular area. And we just created these transects to go from shoreline to past what we call the "two meter contour", which is probably an area where we, in the history of this, we never really had a whole lot of seagrass outside of two meters, especially not in the upper portions of the bay.

So we thought it covered a whole estuarine shelf that way. And we did, in particular intervals on the transect, we did in depth studies of species composition. We did some water quality measurements, and some light measurements also. And we pretty much handled Hillsborough Bay. We had some transects in Old Tampa Bay but other agencies took over and did work in the other bay segments. It was a cooperative effort, which was really nice.

AH: So you used a standardized approach?

JJ: Right. We had a line that we followed. We had intervals every 100 meters. Every 50 meters we had put out small PVC poles in the bay so we knew where we were. And we had a meter square of PVC, a meter square that we laid on specific areas and counted the seagrass and macroalgae all kinds of things.

AH: Over the years, you mentioned that seagrass started to come back. What were some of the most interesting things you observed through your monitoring program?

¹⁶The SWIM program was created in 1987 in Florida's legislature to protect Florida's highly threatened bodies of surface water. It is administered through the Natural Systems & Restoration Bureau and is a project under SWFWMD, Southwest Florida Water Management District.

JJ: Well, I think just the big thing is that the seagrass is coming back, that was really, really big. We didn't really look at any fish populations or things like that to see if the seagrasses have benefitted those communities. But other folks did that and I think they have positive results that shows actually, that the return of seagrasses have really helped out in terms of fish and other animals.

AH: Okay. Well let's take a short break for just a moment and then we'll be back.

Brief pause in recording

AH: We're back with Roger Johansson, Roger was the supervisor of the Bay Studies Group. Roger, thanks so much for being with us today.

JJ: You're welcome.

AH: We were talking about seagrass in Tampa Bay when we took our break. And I wanted to ask you, as we tried to put, contextually, as we try to put the history of the Bay Studies Group work in context with bay activities, before the 1970s— we're interviewing a number of the folks who were scientists active around the '70s and later— there really wasn't much science underway in Tampa Bay, was there?

JJ: Well, in the 1960s, 1962, I think, the Fish and Wildlife Service had an office or a laboratory over on the beach, next to the Don CeSar¹⁷. And they had a pretty extensive network of stations in Tampa Bay. They did water quality work, they actually did a little bit of seagrass work also, and a lot of fish studies. I know they did some benthic work, and I'm probably forgetting something. They were actually the first one that had any organized monitoring of the bay. And then when that study was—I don't know the history of the, or the ending of that study but EPC took over a lot of that work when they started sampling in 1972.

AH: Do you recall who was the station leader or the program leader with the Fish and Wildlife Service? I know it was a long time ago.

¹⁷The Loews Don CeSar Hotel, also called the "Pink Lady" is a hotel on the waterfront of St. Pete Beach first opened in 1928. It was an architectural innovation by contractor Carlton Beard that has kept it from sinking with the shifting sand: a floating concrete pad and pyramid footings.

JJ: I just have a bunch of names. I was over at that lab a couple of times but I'm not quite sure. I think they became a part of the FWC¹⁸. A lot of those folks that were working there—

AH: Oh, I see, combined with the Florida Wildlife Research Institute, or Marine Institute? And so their study materials would have moved over to FWC or something like that?

JJ: I'm not sure what happened. I donated, to you guys, most of the reports. I think all of the reports that we had from their studies. And it was a pretty complete set of reports. A lot of those came from Dr. Simon, and they were microfiche and hard copies of reports. Original field data, I don't know where that would have been donated or kept.

AH: You have worked on a number of aspects of productivity in the bay. And as I understand, recently you've been working on pulling that together into more of an optical model. Is that your current research?

JJ: Yes, that I spent my time with recently.

AH: Can you tell us in some detail? You mentioned that seagrass, of course, are very light sensitive. How has that whole field of research developed and where is that going now? What kind of things are you focused on?

JJ: Well, you know the seagrasses require a certain amount of light. And those require a certain amount of quality of light. So, it's important, and if you want to understand what your management efforts, how they will work the best, you need to know how you affect the light in the bay if your goal is to restore seagrasses. And you can do that by field measurements, but you can also do it by optical models.

And that's what I've been working on. I haven't actually developed a model but I've been working with Dr. Gallegos¹⁹ from the Smithsonian Institute. And he actually helped a lot to construct the Tampa Bay model. So we can go out in the field and collect a few water quality parameters, put them in the model and we can tell, pretty much, how the light climate is in the bay.

¹⁸The Florida Fish and Wildlife Commission came into existence on July 1, 1999, the result of a constitutional amendment approved in the 1998 General Election. It represents a merger of the Marine Fisheries Commission, Marine Resources and Law Enforcement of the Florida Department of Environmental Protection, and the former Game and Fresh Water Fish Commission.

¹⁹Dr. Charles Gallegos, Scientist Emeritus at the Smithsonian Environmental Research Center, researches the optical water quality of estuarine and marine habitats.

AH: And then does that model predict responses over time?

JJ: Yeah. You can calculate the amount of light at certain depths. What type of light is down at certain depths, and you can relate that to the requirements of the seagrasses. And you can make conclusions that if you maintain that light, that the seagrasses will react to the light and probably grow deeper as you improve the light climate.

AH: Now, the Bay Study Group, then, was closed a few years ago. Was that a regulatory decision? Was that a political decision? What caused that transition there?

JJ: It was a budget shortfall. The city was short. It was during the 2008 period, when the city didn't have the incomes from a lot of sources, there was just, I think, just a budgetary issue.

AH: Were some of those responsibilities shifted to other local agencies?

JJ: No. It was just shut down.

AH: Just shut down?

JJ: Right.

AH: Was there any ongoing regulatory needs or concerns there?

JJ: No. We had been taken out of the operation permit for the City of Tampa's wastewater treatment plant about two years before that. So the city did not have any obligation to maintain our program. We kind of saw the writing on the wall early. We knew that was not a good thing.

AH: So then, without those formal obligations, that meant that there wasn't long-term oversight as far as the water quality goals? That those had actually been achieved?

JJ: Well, I think people relied—they still had the EPC monitoring to rely on, to see if they respond the way it's expected, and that doesn't violate any rule, you know, conditions. Our studies were not really tied into the regulatory, except there were specific studies we did for the wastewater treatment plant.

AH: Oh, I see.

JJ: Yeah. But we were, I guess, we were kind of hoping that we were a pretty good PR source for the city, and that would be our saving grace.

AH: So, as we look forward to the future, over the last 40 years or so, between the community involvement, Agency on Bay Management, the estuary program—Holly Greening is going to be joining us, she's the executive director of the estuary program, to tell us about their work—and of course, the counties and the municipalities, what do you think is the outlook throughout the bay? What should the citizens expect or what does the scientific community hope for? What will the research that has gone on in the past, how will that influence the future?

JJ: It's of critical importance that the monitoring is continued. And, you know, that's Hillsborough County's monitoring program, and Pinellas County's monitoring the bay also. Because that is really how we can base how successful we are in the bay. And also the transect monitoring is very important. Your previous question, and you asked if there was somebody taking over after the Bay Study [Group] was gone. Well, other agencies took over our transect monitoring for those specific locations.

AH: So there's continuity there.

JJ: There's continuity in those. Right.

AH: And so what should the citizens hope for? Tampa Bay, of course, is such a tourism magnet.

JJ: I think, I hope that the citizens appreciate that the bay is in really good shape now, compared to what it was in the 1970s. And I'm sure the folks that were around in 1970 appreciate it. It might be more difficult for new people coming here, but it's a really different bay than what we used to have. And it's really important to continue the progress and protect what we've done.

AH: Well, thank you Roger so much. We really appreciate your being here with us today. We're going to take a short break and then we'll be back for just a couple minutes.

JJ: Thank you.

Brief pause in recording

AH: We're back with Roger Johansson. Roger was the supervisor for the Bay Studies Group and has been an oceanographer and biologist here in Tampa Bay for a long time. Roger, let's go back to the early days when you first started working in the bay. And just tell us some stories about what it was like back then, because I think so few people really have a good sense of what Tampa Bay was like before the cleanup efforts started.

JJ: Well, some of my first memories of going out in Hillsborough Bay was that in some areas, when you drove the boat, the sounds from the motor, the propeller got muffled by the phytoplankton in the water.

AH: So, it was just like green hair on the top of the water.

JJ: It was actually like green soup. And that was one of the things I first recognized, I think. We used to do, we did phytoplankton counts; we did primary production. And primary production, you have to bring back to the lab and filter samples in through the filters to capture phytoplankton. And we used to spend time in the lab. We actually didn't go home during the night because the filters got clogged so fast from the phytoplankton, that we ended up spending all night filtering. And recently, in the last few years, that filtered through in a couple of minutes. That was a big thing I remember.

We also used to have dinoflagellar blooms that—we haven't seen some of those species recently. But they kind of, they had a fluorescent species that they'd kind of light up the whole, when you're driving the boat through the water, you just could see the light from these dinoflagellates²⁰.

AH: What is unique about dinoflagellates, that they were present then and not present now?

²⁰Dinoflagellates are a diverse form of single-celled organisms that are capable of producing energy from light and are an important food source for other marine creatures. A "bloom" is caused by dinoflagellates reproducing in such large quantities that they change the color of the water.

JJ: They're still present but I think they were in much higher concentrations in the old days. They usually collect at the surface during the daytime, so they stand out. You know, they're easy to see. And they actually have ways to migrate through the water using flagella²¹. They follow the light, pretty much.

AH: As you started your work, and as you worked throughout the bay, what was it like when you first saw some of the transitions and saw seagrass coming back?

JJ: We were kind of just—we know there weren't seagrasses coming back in Lower, in Middle Tampa Bay. We didn't really see anything coming back in Hillsborough Bay. But in The Kitchen area, which is on the southeastern section of Hillsborough Bay, I think it was Robin that pointed out there were actually some small areas of seagrass growing there. So we went out there and we took a look, and there were, you know, quite a—three or four patches of *Halodule* growing there. And that was a big thing to us. So we got people together and we headed out and showed people that there are actually seagrasses in Hillsborough Bay.

And then as we saw seagrasses there, Walter Avery²² and I start surveying the shoreline of Hillsborough Bay. And one guy drove the boat, the other guy was hanging on, on a line behind, and trying to see seagrasses that way. And so we did that around the bay. And we found a few more spots. But we got up to Bayshore, north of Gandy, and we saw a spot there. And I said, "Well, this can't be seagrass." So, we walked over and looked, and there was actually a spot of seagrass growing off Bayshore. And that was *Halodule*, so we knew we really had taken a big step forward.

AH: Do you remember about when that was?

JJ: That was probably, I'll say 1985, 1986.

²¹Certain types of cells possess flagella, which is a whip-like tail that propels the cell forward or backward.

²²Walter M. Avery, aka W. M. Avery, is a longtime member of the Bay Studies Group and frequent presenter and member of the Symposium Steering Committee at BASIS, the Bay Area Scientific Information Symposium.

AH: And then, after that time—

JJ: Well, we used a little more sophisticated methods to investigate the seagrasses.

AH: Other than dragging the guy behind with a line?

JJ: Yeah. I got help from the City of Tampa Police Department. And it was actually started out as looking for mackerel around the bay, up by Bayshore because there were still some mackerel drifting in there and the city was concerned about that. So the city police flew me in a helicopter around the bay on, pretty much, on a monthly basis for several years. And then we kind of spread it out a little more to become a quarterly sampling. But that was a perfect way to follow the expansion of the seagrasses in the bay.

AH: The Bay Studies Group also had a relationship with Gandy Aerial Photography and the oral history project is really pleased. We've obtained Skip Gandy's archives. How did you use his photography in your studies?

JJ: We used that to, you know, calculate the areas of seagrasses in the bay. In a helicopter, I mean you can't—they're not vertical photographs. You can tell they're there, but to be able to say how much grass you have, you really have to pretty much high altitude photographs to look at. And Skip Gandy provided us with a lot of his old photos so we could then draw conclusions from what the bay was like in the old days. He was very helpful in that project.

AH: How far back did his early photos go? Do you recall?

JJ: I think, probably late '70s, I think, from the ones I've seen. They were black and white photos of The Kitchen area that we looked at.

AH: Great. Well, you've given us a huge amount of information today, lots of background and early history. The bay has come a long ways. Anything else that you'd like to tell the listeners and the viewers about bay history, about your experiences in the bay?

JJ: Well, I think we've shown that we can fix something that was broken, and I think it's really important that we protect what we have done. It cost a lot of money, a lot of effort

by people working to fix the bay. And it's really important that we don't fall back and we maintain that.

AH: Roger, thank you so much for being with the Tampa Bay Oral History Project today. We really appreciate all of your history, your insight. Thanks for being with us, and we'll look forward to reading your interview online.

JJ: Thank you.

AH: You're welcome.

End of interview