

Waikalua Loko I'a Fishpond Oral History Project,

1. Transcript of Videorecording of Group Interview of Scientist
with Herb Lee Jr., Hiroshi Kato, Floyd McCoy, Dave Krupp, and Hallett Hammatt

Waikalua Fishpond Oral History Project

1. Transcript of Videorecording of Group Interview of Scientists:

Herb Lee, Jr., Hiroshi Kato, Floyd McCoy, Dave Krupp, Hallett Hammatt

Moderator: Herb Lee, Jr. of Pacific American Foundation

Interview Date: October 14, 2021 at Waikalua Loko I'a fishpond

[Editors' Notes: Brackets indicate the insertion of caption headings and recording times to summarize topic sections and provide keywords for searchability.]

Introductory Stories of Each Member's Connection to Waikalua Fishpond

00:00:00 --> 00:00:24.300

HERB: Okay! Well, aloha everybody! Thanks for being here again, and so... This first part, we wanna just kinda talk about: How did you guys connect to this place? What brought you here? What- What kept you here? *laughs* And maybe just share your name and affiliation and share the story. Hiroshi?

Hiroshi Kato's Connection to Pond

00:00:24.300 -->00:11:23.800

HIROSHI: Yeah, I'm Hiroshi Kato. And I started teaching at Windward Community College when it first started in -I don't know- 1971, '72 or so. And shortly thereafter, I went into administration. But prior to that, I was teaching out of Biological Sciences and this pond here was owned by Kāne'ohē Ranch, and Kāne'ohē Ranch had a very good employee, Henry Wong, who- who bought the pond. And so, Henry Wong bought the Waikalua Loko Fishpond, and he had a problem, so he went to Windward to see if we could somehow help solve the problem. The problem he had was something that you wouldn't think about. There were too many 'ulua and papio and stuff like that in the pond and these are predators, whereas in a fishpond, you want mullet. And so, you wanna somehow raise the mullet, but keep the predators out, the 'ulua, papio, and the barracuda.

So he came up to us with that problem and so we started a directive research group, a group of students, and -I forgot what they call it, The Fishpond Maintenance or something or another. And so, we presented this problem to the students and they came up with a solution and that's how we started in the fishpond, trying to get rid of the predators, but still keeping the mullet. And so their solution was to enclose an area to keep the Predators out, so only the mullet can live. And so they started off on that end toward the wall, and this could be easier cuz they could only put one line here, one fence to keep the predators out. And keep only the mullet there. But then the problem that came up was poachers would come along the wall at night, and they'd throw net. So, they decided to get some fencing from this side going straight up, 300 ft, 100 ft across, and 300 ft back. So 300 x 300 x 100, going all the way back in here. And so, putting in the fencing, then the fencing would be free of predators, catch the pua'ama from outside, bring it in, and start with right inside the fencing, okay? But that's easier said than done. There a lot of different challenges, and this was student oriented. And there were about 8

students involved in this directive research project and Mark [Reid?] was the one that was sort of the student leader and he wrote up a real nice report. Every student had to write his own report and I remember the one that he wrote. It was very good.

But part of the problem was- okay, first of all, getting the fencing in there. So we ordered some fencing, that was about half-inch square and this came from the mainland. It was vinyl-coated and there were a lot of- a lot of- [**Technician steps in to adjust mic**] Yeah, there were a lot of mangroves out there. So the mangroves were perfect, because mangroves are very strong, water-resistant, and they went out there and they cut mangroves about 10 ft long, each one about 10 ft long. They figured out how many they would need for the post of the fencing and the next project was cutting the mangroves getting it all in line, and "How do you pound it in?" You have to figure out what kind of sew you had, beneath the water. So- And they figured it out. The topography of the pond itself, what it was made of, how deep the sediment went down, what was below that. And so figuring all of that, and they had a real nice device for it; they had a big, solid pipe that was closed off on the top with two handles, and they would go out on a boat and they'd just **makes thumping noise** And drive it in about five feet down. And then they would put the fencing. The fencing they thought was great because the weight of the fence itself would go right in the mud, but the topography was not straight, so they had to take care of that. And they took care of the fencing real nicely.

But the next challenge was to get the pua'ama, the small 'ama. 'Ama'ama. So we got boats on Coconut Island. One, a salt boat from Coconut Island which had a live well, and they could bring the boat right around it with the pua'ama, and then bring it across here. But then they have to look for different places. Where can you best find the pua'ama? And so, after looking around- throughout the Bay, from the Marina Base, all the way up to Lilipuna, they found a place. And the best place was right out here, so they made it very nice. And they had a big, huge nehu net, collecting all the pua'ama, brought it here, and by buckets, they would figure out how many pua'ama in one bucket, they would get a line going from there, running over and releasing the pua'ama in the fenced area, okay?

The other thing they found out was- Even before they put the pua'ama in, this place was loaded with seaweed. And unfortunately, the seaweed that was there was acanthophora, an introduced species. They got rid of all the seaweeds. And, you know, "What's the best way to do it?" That's another problem which they solved. And, uh... within two weeks it would be right back again. And the good news is that I don't see too much of that now.

HERB: Yeah...

HIROSHI: You don't see that... And the other thing that wasn't thought of, too, was that- And this is really learning by doing- The fencing was like this, but in no time, it would be covered with limu. Did not clean the limo off, then two things will happen. You wouldn't have the circulation of the water and also as the tides moved in it would move the fencing down.

So that's another problem and they went in and started the project, but in doing so they run a couple of things. One is it in from the old days, people have been doing this: stocking the ponds over and over and

with no problem at all. But one thing that they did not count on was that the former out there I'm, not necessarily A mama-san, introduced species or used to be called and the summer it gets on the TV about this long, and so you don't want to stop in the phone. So that's something else that they learned and if it was a real hands-on project, and then they learned a lot by solving different problems as they came up, and these are just a few of the problems and the other one they had to us after they got it all figured out, nothing could go in or out. The good news is we have big Samoan crabs in there the bad. The pictures of someone crashes go underneath, burrow underneath and Linda the mollusk with either go out or the predators could come back in.

So I started here in 1971 to 1976 I believe the last day of the what they did, how much time it took, in man-hours. Very, very specific information that can be useful later on. How they caught the mullet, where they caught the mullet, how they snared it, and.... They also did a survey, going around, to see what is in the pond, and they found there were about four or five different species of crabs, which is expected, and about 15 species of fish in the pond, and I'm sure there's more but they- This- They listed the ones that they physically saw in the pond...

HERB: Great... Floyd?

FLOYD: Well, did they do mapping of the pond as well?

HIROSHI: Yeah, they did. And, on the mapping of the pond, they show the topography and-

FLOYD: They do...

HIROSHI: -and they check the salinity in different places of the pond...

FLOYD: Do we have a copy of that report?

HIROSHI: No...

HERB: Not that I know of. Hopefully, we could- We should try to find-

FLOYD: Let's try to find it.

HERB: If you still got a copy of that...

DAVE: Is that a MOP [Marine Options Program] project? Do you know?

HIROSHI: It was a MOP project...

FLOYD: It was?

DAVE: They might have that-

HIROSHI: Yeah, check on that. Yeah- And the one that wrote it up was [Mark Reed?].

DAVE: Okay...

HIROSHI: He had salinity readings. He had about three, four, or five stations, I think, maybe six, and he took salinity readings, dissolved oxygen,-

FLOYD: Really?

HIROSHI: -temperature, and the bathymetry of the pond. Very nice work.

FLOYD: Gary was part of it, then.

HIROSHI: Gary?

FLOYD: Stice? Gary Stice?

HIROSHI: No. Gary was not. Gary was involved in getting the pond to us in the sense that I think his neighbor of one of his rentals was Henry Wong, and so that was the connection...

FLOYD: So that was the connection...

HIROSHI: That was the connection....

HERB: So this is like 20 years before the formal restoration in 1995 started.

ALL: Yeah...

HIROSHI: Even before then, yeah.

HERB: That's good insight.

FLOYD: I have some from him that predates when we really got started, too...

Floyd McCoy's Connection to Pond

00:11:23.800 --> 00:17:38.200

HERB: So how did you get connected to the pond, Floyd?

FLOYD: I got connect to the pond because it was just about this time of year, grey day, clouds everywhere, kinda chilly. And I got a call from my dean, who was Hiroshi.

ALL laugh

FLOYD: Hiroshi Kato. And he calls me into his office and says "Floyd, I have a- something I think you'll be interested in. A meeting that evening about the fishpond. And there's gonna be this guy called Herb Lee, who, you know, I've never heard of. But is in Kaneohe, who's calling the meeting." I meet up with Hiroshi. It's getting dark. The clouds' getting worse. We walk down to the golf course. It's abandoned. Here's this big building, abandoned, okay? Gone broke. But Herb got keys, we went inside and there was other community people. We sat in the abandoned restaurant and, you know, in the booth, and you're just thinking "This is spooky." Everything's dark. The lights were on.

HERB: *chuckles*

FLOYD: And we're sitting at this table and I'm wondering -in the restaurant, the abandoned restaurant- and I'm wondering "Is my finger gonna stick to the table?" No, it didn't. And then I'm figuring with feet, "Well, I wonder who's under there with my feet." You know? Cuz there's creepy crawlies or something. But anyhow, Herb gets up, and Herb gives this really nice talk about this fishpond. And how he has a vision for it. It was beautiful. It was great. It captured me because I'm from here, I'm a Hilo boy. And I grew up in Keaukaha, with fishponds. They were everywhere. They were mainly abandoned because of a 1946 tsunami wrecked 'em, but I knew about them, and I said "That's fantastic! This is an outdoor laboratory waiting for us." And that was Hiroshi's idea. And then "BANG!," came thunder. Then came lightning, and the lights went out inside this abandoned restaurant. *ALL laugh* And I was thinking "Oh. Who's gonna come out of all the walls around here now? Who's gonna come crawling over my feet under these tables?" You remember? I think you- you had a flashlight-

HERB: *laughs*

FLOYD: -so you kept going. And then the lights came on again. And that was the start of it. And from that, came the whole Fishpond Society. From that, came-

HERB: Enlightenment *laughs*

HIROSHI: Lightning *laughs*

FLOYD: Lightning- No, it was pau by then. And so, from that, came, I think, the richest resource, not only Windward Community College had for education, but I think the University of Hawaii had. This is way before Heeia was even thinking about being renovated, before Kamehameha Schools even did anything

up there. I mean, Heeia then was a disaster. And here was this pond. So, we developed a course in fishponds. That was partially instigated by- remember Pinky,-

HIROSHI: Thompson? Thomas? Thompson. Thompson.

BOTH: Yeah.

FLOYD: What year was that?

HIROSHI: Oh... I don't- A hundred years ago?

ALL laugh

FLOYD: But anyhow, well after that, Pinky Thompson, Nainoa's father, came. And, again, Hiroshi invited me, and one of our other faculty members, Joe Ciotti, Professor Joe Ciotti, to come down and listen to him. I think it was Pinky, or was it Nainoa?

HIROSHI: What's that?

FLOYD: That gave us that first suggestion?

HIROSHI: Oh! Probably Nainoa.

FLOYD: It was Nainoa. Okay, that's what Joe says. Alright. Nainoa Thompson says "I got an idea. How about developing a college curriculum around voyaging?" Bingo... Voyaging, related to Ecology, or related to Island Ecology. And what's critical in an island ecology, for people who live there? Fishpond. That's your best source of protein. So, the two merged. So Polynesian Voyaging class- class got started along with this pond. This pond was our laboratory for the Oceanography and Marine Biology. It was wonderful and there, the story starts, and it hasn't stopped except we now, with Fishpond Society, own this piece of property.

FLOYD: When Herb first brought us down here. Oh man, what a mess. All mangrove out there, coconut- I mean California grass all over the place. Over there was a huge pile. You remember? A concrete, busted up? Aquaculture pens from the oyster aquaculture attempt. Which failed. And so, what they did is they broke up all the pens and piled them up over there and I'm thinking "In my lifetime?" *HERB & FLOYD laugh* This place is a disaster. And now look. It's clear. It's wonderful. There's no more mangrove over there and it has become the richest resource, I think- Not only for the college, Windward Community College, but for the whole University. In terms of science. In terms of ethnology. In terms of Hawaiiana. Everything. Now, this appeals to me because, like I said, I grew up with all this, and it was fantastic. To apply, through education, everything that I kind of grew up with. I have been taught by kūpuna, and here it is. Thanks, Herb...

Dave Krupp's Connection to the Pond

00:17:38.200 -->00:34:44:90

HERB: Thanks, Floyd. Dave, what- What brought you to Waikalua? *ALL laugh*

DAVE: Aloha. Well- My name is Dave Krupp, and I'm currently Interim Dean at Windward Community College. Been in that position for little over two-and-a-half years, but I actually started at Windward Community College as an instructor in Marine and Biological Sciences. And, involved in, you know, teaching General Biology classes, Marine Biology classes, and all of those kinds of things. There's sort of a lineage here. Because it starts with Hiroshi and kind of passing on this idea about fishponds and our

campus being involved with the fishpond to Floyd, and then Floyd was on the Board of Directors for the Waikalua Loko Fishpond Preservation Society and had been on it for a couple of years, but he was taking off, for sabbatical, and going to Greece for a year, and needed somebody to sit in for him on the board. So he invited me in and, you know, I was like "Oh, that sounds interesting. That- Pretty neat. Okay, pretty cool."

But...what, you know, light bulb went off in my head about, you know, the different ways in which, you know, the college could collaborate in the interest of education, Science Education in particular- And you know, I'd been a, you know, part of the Polynesian Voyaging Program, sort of off to the side, at Windward Community College, but I- I loved the idea of taking, you know, merging a class that talked about science, you know, STEM concepts and ideas, and merging it with Hawaiian knowledge, Hawaiian traditional knowledge and culture. And for me, that- what was great about that was-, You know, this is a way of really pulling students, you know, into the Sciences and- and getting them excited of the Sciences. Kind of sneak them in. If they're interested in fishing, you know, getting in the water and those kinds of things and outdoor sort of stuff, you kind of trick them, and then they see the connection between, you know, that environment and- and the science part. And- And they just- they get excited, right? And they go off and decide Well, Science, which originally may not been an area that they were considering into, but now, "Oh this is something I like and wanna get into."

And then, you know, I wanted to do more in terms of integrating Hawaiian knowledge with- with STEM and so I created, at Windward, a class called the Ahupua'a and what resonated to me about that class was this idea of how ahupua'a seem to sort of mirror watershed. It's not exactly because they're also political, you know, partitions, or areas. But, this idea of, you know, people living and working within the ahupua'a and having to draw- draw their resources from that, and having to do that sustainably. And, you know, along the way, Floyd and I put together a program called the Pacific Center for Environmental Studies, and Ahupua'a was the central theme of that, kind of as a model for sustainability, you know. And I started getting passionate- I was involved with the University's sustainability initiatives and thinking about how we need to do more in these islands to help ourselves rather than bringing things in on ships, airplanes, because, you know, that uses lots of oil and we needed to do more for ourselves and especially things like grow food, you know?

And- and, you know, the fishpond, of course, was a big part of the Ahupua'a class. I figured I wasn't qualified to teach it, so I talked to Clyde Tamaru, who is also on the Fishpond- on board at the time, and said- Cuz I knew he had been involved with- with other curriculum efforts surrounding the fishpond- I said "How would you like to teach this class?" And he jumped in and started doing it. He actually joined up with a counselor at Windward Community College, his name is Winston Kong. And the class just blossomed, you know. They brought in lots of guest lecturers for various things and topics, and- And actually the class is, now, it's exploding, actually. It's- It's, you know, there's- people are asking us to do it in early college, some of the local high schools now. And it's part of the college's Hawaiioloa program and we have a couple of certificates for which that's a central class- class for. The other class, and I have to correct Floyd a little bit,-

FLOYD: Not again...

DAVE: Yes, yes, again. *ALL chuckle* So the fishpond class, the formal fishpond class- cuz you're probably thinking about the Oceanographic Techniques class, using the fishpond for laboratory field activity...

FLOYD: Yeah, that's called Science. Yeah, we do that.

DAVE: So... I also created the Fishpond class at Windward Community College, that we call AQUA-201.

FLOYD: Yeah, he did.

DAVE: Plus, the company lab class. And that was a little slower to take off, for one reason or another. I taught it once, okay, but I felt I needed to find people that were more...experts in- in the discipline. And it kind of went up and down a little bit. We did some cool things, like I asked Hal here to show the students how to do archeological survey work, right? And one of the things we tried to do, and I think we found it, I don't know if we actually did.

We were looking for the auwai that connected from Kawa Stream to the back- back of the fishpond and so Hal helped the students learn how. You know, we dug a little trench, and all of that sort of stuff. And I think we found some rocks that look like they could've been a wall for the auwai. So I don't know if you pursued that, ever since then, but it'd be nice to know if that turned out to be that. But in any case- And then Uncle Fred [Takebayashi] showed the students how to throw net, and stuff like that. Things like that. It was really- really kinda of a cool experience for me to try to teach that. But what was interesting is we now have someone who is both a student in Clyde Tamaru's and Winston's class, for the Ahupua'a. And- And then, when Leonard Young was brought in to teach the Fishpond class, she took the Fishpond class from him. Okay? She went on to get her, I think, Master's Degree in NRM [Natural Resource Management] at UH Mānoa, and now she actually works for PAF, Pacific American Foundation, and we have her teaching both Ahupua'a class and the Fishpond class. Her name is Hinano Rey.

And it's just- For me, it's wonderful to see, you know, what happens with our students, you know, they get involved and excited. And then, they take it further, right? And then, you know, the fishpond has been, you know, this laboratory for a lot of our classes, and and so- as Floyd had mentioned- but also, served as a site for a lot of projects by our students, both from the Marine Option Program, as well as the Pacific Center for Environmental Studies, you know, and one notable student was actually a Community College faculty member from Minnesota, who had read about Windward Community College's GIS classes, and he wanted to learn how to do GIS. So, for his sabbatical, he came to Hawaii, took some classes at Windward Community College and learned GIS from Toshi at the time, but also, he wanted to get his Marine Option Program certificate and- and so his project involved, essentially, documenting a GIS of some of the restoration work that had happened at the pond, but he was also interested in- on circulation and so, working with Floyd. They put together some floats that they mounted small GPS units on, okay, and the floats sat far enough down in the water that they wouldn't be blown about by the wind so much, although there was still a little issue with the wind, and he would, you know, put these little floats in the water with the GPS on to track the path of the float, and get some idea about current flow patterns within the fishpond.

And we also have had our Pacific Center for Environmental Studies students in the summertime, which are high school students, and we've had this six-week program, in the last two weeks of the program, the students were supposed to do these projects, research projects. In two weeks, to find a research question and figure out, you know, a way to answer the hypotheses they might have about those questions and actually implement a research project on that. And a lot of those projects involve the fishpond. For one, it's a great learning lab, you know, both for Marine Biology and Oceanographic kinds of things, so we had students doing things like, you know, doing plankton identification and abundance, inside the pond and outside the pond in relationship to tidal flux, and so, either one of those, because, you know, question is you can tow that plankton behind a boat, you know, how are we gonna do that in the fishpond.

So we got a radio controlled boat, and it had a little bit of a power problem with pulling the net behind it, we had these small nets, but- In the end, we resorted to actually kayaking and towing the nets through there. In those days, the invasive limu was a problem as well, it was so thick in some places that the plankton net would get caught up in it but- and it's a different species, okay? So instead of acanthophora, okay-

HIROSHI: Gracilaria.

DAVE: -which is the little spiny seaweed, and I used to call spiny ogo. The main invasive one was something called gorilla ogo, or Gracilaria-

HIROSHI: Gracilaria.

DAVE: -Salicornia. And both of them were pretty dominant in the fishpond. And I'm amazed that we're longer- we might get bugged. We'd hope, at a community workday, which was one of the things about the pond I really loved, were community workdays, because it brought people here, right? And- And we got this sense of community and stuff. But, you know, big pile of seaweed on the- one the side of the pond, and we go "Wow! We cleared out a lot of seaweed, right?" Two weeks later... *ALL laugh*

FLOYD: It's all back...

DAVE: And so, one of my projects was -with a student- was we need to try to figure out, you know, why that seaweed just takes off the way it is in the fishpond and stuff. And the first step of that was "How do we map the seaweed?" And so, this was sort of the early days of drones...

HERB: Yeah...

DAVE: And we got a drone and did aerial imaging of the fishpond and you could see where, you know, where the extent of the seaweed was.

HERB: Right.

DAVE: But, you know, that project didn't get quite completed, but it was a cool one. Then, all of a sudden, the seaweed seemed to go away. So, that was no longer an issue.

HERB: Global climate change.

DAVE: Yeah, yeah... We had students also do projects like with the nutrients- quantifying nutrients, and looking at it over a couple 24-hour cycles, and correlating it with the way at which the water flushes in and out of the pond. What- You know, I didn't realize until I came here at the fishpond and you walk on the wall and you go by the auwai, and when the tide is rising, the water level in the fishpond is lower than it is outside. And there's this tremendous current that sometimes comes through the auwai as the

tide is rising. And then, what happens is the tide rises, eventually reaches the peak, the water starts to come up here, and then the tide starts to drop and water goes out, okay? And you have this reversed current going through. And realizing how great that is, in terms of circulation and aeration, and movement of nutrients, you know, in the water in the fishpond.

And there has to be something about that is the key to understanding fishpond productivity, okay? And we had some of our high school students try to tackle that and address that. And then, the other thing, I would ask the students, cuz watching this water go through and out is like "Can't we use that somehow? Some way?" And so one summer, you know, a couple of the students put together a project where they tried, and they sort of half-succeeded, but, you know, they only had two weeks to put this together. They- They built a little generator, okay, and so they put it in the auwai, and it would spin like a little paddle-wheel kind of system, and they were actually able to show how to generate electricity. And I know you're doing more with that, now, right?

HERB: Yeah...

DAVE: So it's much more sophisticated than what these high school students did. But those are some of the crazy things, some of the cool things, you know, about the fishpond. And a lot of those students went on to do really cool things, okay? And not always in environmental science, or in the sciences necessarily. I know two ladies, they were sisters, that actually went into engineering and wound up working for Boeing on the mainland, right? And what I would get back from them is, you know, our participation, that PACES program taught us lot of cool things, that even though we're not doing environmental science work, the skills we learn, we're applying to what we're doing now, and one of those big skills was actually writing up a scientific report.... Yeah, so it's some very cool things as a result of that [participation]- I've talked way too long, I'm sorry-

HERB: No! *ALL laugh*

Hal Hammatt's Connection to the Pond

00:34:44:900 --> 00:39:58.15

HERB: We're going to go to Hal, right now, and talk a little bit about what connected. Now, you're not from WCC, [Windward Community College]

HAL: No.

HERB: -which is- and it's great that, you know, we have a great partner because WCC has been fabulous, you know, I feel like we're a family now, you know. And all of the students that we've been able to connect. But Hal, you've been great part of that, you know, as a result of Cultural Surveys Hawaii, and so, I'm not- I can't remember exactly sure how we got connected. What do you recall?

HAL: Well, there was a- Okay-.There was a person whose name I'm trying to remember who was a member of the Kiwanis? or I...

HERB: Rotary?

HAL: Rotary!

HERB: Rotary? The Rotary Club?

HAL: And I'm trying to remember his name, but he's- he was the connection. I knew him, he knew you. He got this brilliant idea to, you know, reconnect us and...that's- I think that's how it got started.

FLOYD: Is that Chuck?

HERB: Was that Chuck Eakes?

HAL: Chuck Eakes!

HERB: Chuck Eakes. He was an insurance guy for- in Kaneohe.

HAL: Insurance! He sold insurance. Leave it to the insurance guys.

HERB: He was on the Waikalua Loko Fishpond Preservation Society as well.

HAL: That's right. That's right... Yeah. And I remember that first day when we got together in the dark Floyd described very well. We were all scared.

HERB: *laughs*

HAL: And that was- I was just starting the work on Kaho'olawe. And I warned Herb that I was gonna be gone a lot. I mean, it was a busy week, you know, Maui flying to Kaho'olawe every day. But I kept up with it. And one of the things I think remember the most and made the most impression on so many people are the workdays, of course. We all gathered around the circle. Many schools invited. Herb's genius for collaboration with many, many organizations. The schools, the high schools, the colleges. Windward Community College, of course, but Kamehameha Schools. Many, many other schools coming. And these kids, many- You know, you grow up in Hawaii, you think, you know, kids. Lot of outdoor activity, sports, everything. Many of these kids had never gotten dirty. And, you know, 'til you get dirty, you haven't really lived.

ALL laugh

HAL: And I saw these kids jumping in this water and focusing on gathering the limu and pulling up the mangrove and all of a sudden, these perfectly cleansed women and men looking at themselves and saying "Oh my heavens! Look at me, I've never been dirty before!" And they got to love it. And I also remember, it was one of the workdays, which, you know, incessantly brought families together. Families who were, you know, having problems. Sometimes separation, sometimes the kids were away a lot. They'd all come together and for the first time, working together, pulling limu, or pulling mangrove. They really began to communicate, and you could see it when they were eating dinner together, or their snack together.

And it was- also, I remember the- that time that Hawaiian Electric came. And Hawaiian Electric, they weren't gonna be outdone by anybody. *ALL agree* They showed up early. They were here before anybody else. They had all the machinery, access to all this machinery. Back hoes, chippers, everything. And they- They had, like, at least 10 people here. They all worked really, really hard, all day long. Not only that, they brought lunch for everybody. And, at the end of it all, they made a contribution, financial contribution, to the pond.

HERB: Yeah...

HAL: And that, to me, was totally inspiring and totally indicative of the magic that has been created by Herb and by this visibility and the connection to this pond. I also remember there was a house here-

HIROSHI: Yeah...

FLOYD: Oh, yeah...

HAL: -that was stood halfway out-

HERB: In the water.

HAL: -into the water. And we'd walk into that house, and it was just like, watch your feet, wonder how soon you're gonna get wet, fall through the floor. And that's when we had our first kukā kukā sessions about the pond.

Archaeology Excavation Work Around the Pond

00:39:58:150 --> 00:41:13:13

I also remember we did some ground penetrating radar to try to figure out how the stream entered the pond. Where the actual entry point was. I think that was indecisive.

FLOYD: No, we found 'em.

HAL: We found it?

FLOYD: Yeah.

FLOYD: One is, I think, right about through here, hooking-

HAL: Oh! This one?

FLOYD: -hooking through Kaneohe Stream.

HAL: But there's one back there.

FLOYD: Back there, we found that one. And that's where you guys did the archeological work.

HAL: Well, we did trenching and found 'em.

FLOYD: Yep.

HAL: Yes. Yes. But the GPR, I think, was a little bit...

FLOYD: I think the data was pretty good.

HAL: Really?

FLOYD: Yeah.

HAL: Okay. Okay...

HERB: Didn't you find, like, a remnant of an old wall back there that possibly could've been a filtration?

FLOYD: Possibly, yeah. Uh-huh.

HERB: Maybe like a kalo thing? You know, we don't know.

HAL: Well, I think there was some- There was some pōhaku back there that was on our-

FLOYD: Yeah, there was a suggestion. But this just [to] set the stage for doing archeology in this pond.

You know? Excavate these things. They're right there. I mean, just under our feet over here, let's just dig. And over there, yes. I can tell you exactly where that auwai was.

Proposed Sewage Line Under Kaneohe Bay

00:41:13.130 --> 00:44:32:05

HAL: I also remember this insane project... the sewer line. *ALL laugh*

FLOYD: Oh, the sewer line...

HAL: That was- It was going to leave this place. It was going to go through the Bay. It was going to climb up the hill by the H-3 [highway], and that was going to be one of their pump stations. And they were going to take all the junk and they were going to take it somewhere and-

HERB: To Aikahi. *ALL agree* Sewer Treatment Plant.

HAL: Yeah, it was the craziest thing I've ever heard of. Fortunately, that was abandoned and that would've had a major impact on this pond. Uh, but-

DAVE: So, you know that the pipe, you know, that they were proposing to go there. They were going to do a- a technique for drilling underneath Kaneohe Bay,-

HAL: Right.

HIROSHI: Yeah.

DAVE: -and you pull the new pipe through the tunnel that's created for the pipe. For- I guess it was supposed to be a 40" main, right? And it was the longest- It would've been a world record for that particular technology. *ALL affirm in agreement* But they were like "No! No way!"

FLOYD: But the technology is well-established, that they were going to use.

HAL: I mean, that's how they did the sewer line going down Kalaheo Avenue. And it's all done, you know, underground, drilling.

FLOYD: You just bore through, and you drag the pipe with you.

HAL: But to do it in the Bay-

FLOYD: Yeah...

HAL: -was...

FLOYD: That's where it had never been done before.

HAL: Potential disaster.

HAL: And I'm so glad that got abandoned. And I think that Herb's influence had some part.

HERB: Well, we were all- There's a lot of people from the community that were on that committee. And, you know, they really wanted to go under the Bay, and we all said "No way." And, I think, you know, the consequence is that they've gone through the mountain, and that's- That was way better.

HAL: Yeah...

DAVE: I remember sitting in on the early meetings, community meetings, and they were presenting that idea of putting the pipe through here, right? And then there was this sort of side thing that they said "Oh, but there's this alternative, you know. This large diameter tunnel to go under the mountains over here, directly to Aikahi." And the more I looked at that, the more I realized that that seemed to be the preferred- I mean, it was a natural reservoir for, you know, if- cuz the problem was if we had a big rain event, right, it's system couldn't keep up with the flow, and they would have to discharge into the Bay... But this was a huge reservoir that could hold a lot of that water under those circumstances, right?

HERB: Yup.

DAVE: And it also led to the suggestion that the City and County didn't any longer need the Pre-Treatment facility,- *ALL agree* -that it might be purposed differently.

The Pond's Impact on Students

00:44:32.050 --> 00:48:49:00

HERB: So, I have another question. So, we kinda covered, you know, not only how you guys got connected, but the impact that the pond, over the last 25, 26 years has had on students and things like that.

FLOYD: Can- Can I mention one thing?

HERB: Sure! Go ahead, Floyd.

FLOYD: With the students, let me bring in that one of the members of the Board, the Waikalua Loko Fishpond Preservation Society, was a high school teacher up here at Castle, Sheila Cyboron. She was

teaching a class of students that were completely failing, bored out of their minds, get me out of here kind of thing; she brought 'em down here. They took ownership, these students came down and said "You mean my ancestors did this? You mean my ancestors understood how this works?" And it gave them a meaning. It made their lives significant. This is when we first realize, really realize the significance that's embedded in the fishpond. I mean, we are bring college students down, doing labs, like Dave mentioned. I had 'em down here doing oceanographic work, currents, all kinds of things. Bathymetry, how, you know, the pond's depths changing. Flushing rate. You know, all this kind of stuff. But these students took ownership and it changed their lives. They went back to Castle, they took interest in what their- you know, their education. That is the significance of this pond. As an educational facility, it teaches kids, local kids, what has happened here before. How their ancestors lived and survived. It's an educational masterpiece...

DAVE: So, one additional thing, in that regard, and that is because they do service at the fishpond, right? And they learn about the value of service and kuleana and what is beautiful is the for lot of these students, whether they're Windward students, or from Castle High School, is subsequent in their first introduction to the fishpond. You know, I've come to a community workday, and these students would've showed up. They showed up, right? On their own, they didn't have to be coerced or dragged in or given extra credit, they were here because they loved this idea of giving back, right?

FLOYD: That's right! And we made them team leaders, too, mhm, on workday.

DAVE: Yeah, so this- There's so much value to the fishpond- All these different levels, you know, so it's really great.

HAL: I remember the first day Sheila came down with their students. They were confused and rebellious and there was a lots of hana ino going on between the boys and girls, and by the second or third hour, these kids were transformed. They were totally focused on what they were doing. It was quite amazing. And it was the place that did to them. And the experience of this. And, you know, as you said Floyd "Hey, my ancestors built this thing." And you imagine this is one fishpond of how many fish ponds across the state. If you look at that aerial view of Molokai-

HIROSHI: Oh, yeah...

HAL: The south coast of Molokai. It's just one fish pond after another, the entire coast. I mean, you realize that the sustainability of ancient Hawaii was based on the fish pond.

FLOYD: The same here! Fishpond here, fishpond there. There's one small one over there, and another over there; it's now a boat harbor. And along here, there were dozens of fishponds. And then, you know,- In our lifetime, they all got filled in, like Wailupe Circle on the other side for rich homes.

Or wedding chapels, or- They just were abandoned. And we need that protein source in the future.

The Future

00:48:49:000 --> 01:02:42:04

HERB: Hiroshi, what do you think? About the future of the pond...

HIROSHI: About the future?

HERB: Yeah. What the pond can do for helping our- our community and our students in the future?

HIROSHI: I think they said it all. You know- Somehow, if they get a connection to the pond, that's the most important thing. It's not just the lab. But here- The funny thing is, just like us here, this connection,

1. Transcript of Videorecording of Group Interview of Scientist
with Herb Lee Jr., Hiroshi Kato, Floyd McCoy, Dave Krupp, and Hallett Hammatt

you know, you can feel it. You can feel the mana, you know, of the [place] *audio cuts out* HIROSHI: How come we got together today? I know him from the Rotary, many years back. Hal, from aikido many years back. And Dave, Zoology department at Mānoa. And with *clears throat* Floyd, not a direct connection, but in indirectly through the commonality through, uh, through Gary. You know- I've been, uh, Manu'a Island in Samoa. He was there, the same place too, and, you know- Somehow, we all got together. Is it coincidence?... Maybe not.

FLOYD: Maybe not. Remember you were- you instigated a lot of this by bringing me into it, really early.

HIROSHI: Uh-huh.

FLOYD: And that was with your tie with Herb at Rotary. And then we just, you know, tie-tie-tie-tie *chuckles* We just all hooked together. The way it should be.

HIROSHI: Yeah. The connection, somehow, you know, it just...

DAVE: It's- So I remember, you know, when you- you were on sabbatical, working in Dr. Kawamoto's lab-

HIROSHI: Uh-huh.

DAVE: -and Dr. Kawamoto knew something, a little bit about, you know, generating antibodies and using antibodies for quantifying, you know, low-level concentrations of things, and he was particularly interested in quantifying levels of a particular hormone, but Clyde Tamaru was working in his lab at that same time, right?

HIROSHI: He was in the same lab, too. Yeah, right, right.

DAVE: And Clyde and I worked together- *audio cuts out*

DAVE: [on projects?]. So, yeah- So, yeah, these connections-

HIROSHI: These connections are amazing. Yeah, I forgot. Clyde was there, too, yeah.

DAVE: Long before- I was a graduate student- Long before I was at Windward Community College. So...

HIROSHI: Yeah, and I thought it was interesting that Clyde this work on [oia?], different species of [oia?], and that was way back when. Yeah...

DAVE: Yeah, that was pretty cool.

HIROSHI: And it's all come back here.

HERB: So, we've had, you know, I mean- There's so many highlights in my mind over the last 26 years. If-So this- this version of what we're doing right now is an opportunity for us to talk and present a message to the generations to come. What message would you like to send them in the future about connecting to places like this? And how that can help them in their journey to be the next generation of stewards of this- of this- of Hawaii? Whether you're Hawaiian or not, you know, we have a kuleana, right? So what would be that message?

FLOYD: The message is an emotional tie to the setting. The setting itself speaks to the past, and it speaks to the future. And they gotta- We gotta train students to accept that and understand it, and preserve it.

HIROSHI: And if you know something that needs to be done,-

FLOYD: Yeah...

HIROSHI: -and if you don't do it, don't blame anybody else. *ALL agree* And you're a good example of- You saw what needs to be done.

FLOYD: You're the example...

HIROSHI: You did it.

HERB: Learn by doing. I heard you say that, too. *Ma ka hana ka 'ike.*

HIROSHI: Yeah, exactly.

HERB: Dave? Or Hal?

HAL: Oh, well, also, I'm thinking of the value of place names. And it's a very neglected subject, but if you look in the historical resources, every place, even small, small places, small landmarks had a place name in ancient Hawaii. And many of these are recorded in the, you know, in the historical records and the Hawaiian newspapers. These are slowly coming out, but if you ask these young people "Look at where you live. Find out the place names. Find out what the place names mean. And then you will know what happened there." That's a start.

HERB: Yeah...

FLOYD: Don't forget, also, we got climate change approaching. I mean, if things keep going the way they're going, this is all going to be underwater in 100 years. And so, where is the best place to study it? Like, sea level rising? Right here. When you build that new building, I'd like to put in a tide station up there. So we can start to monitor in the- here, and the quiet water, how the ocean is rising and how fast it's rising. Environmental issues like plastics in the ocean? Here's a place to study it. Here's a place that's quiet. I mean, it's an ideal study location. And once we bring students in, they say "Oh my god, it's really happening!" We got 'em. They'll take care of things. That's the significance here, too.

HIROSHI: And what you're saying, Hal, about place, is so important. Where- And you do it in your- In the Voyaging classes that went around, looking at the [wahi pana?]. And one of the places, right down there, it's, you know, it's called Kaneohe Beach Park, but there's a lot more significance than that, and this was brought out in the initial Voyaging class that you had.

FLOYD: I know. We used to do kawa ceremonies down there, if you remember.

HIROSHI: Yeah, right, but it started with kawa ceremony, right there. You know, because of the historical significance of that place. And also, a sense of place is so important, especially in Hawaii, because with a sense of place, you're connected. You go to the mainland, you meet somebody from Hawaii, "Where you from? Oh, Kaneohe? Yeah, what grad you?" You know, somehow, there's a connection, and it comes back to where you're from. And that's very important. Yeah...

DAVE: So, yeah. We we're talking about message and future and things like that, and, you know, it's- I've already kind of said this, but, you know, one of the things that's very important, for me, is how we managed to live on these islands. These, you know, these volcanic rocks that are so isolated from everywhere else, and how we're so used to bringing everything in ourselves. But, you know, the Hawaiians didn't do that. They had- They had to grow it all, and produce it all, and Hal had mentioned, you know, the loko i'a on Molokai. And this is a symbol for sustainability, right? You know. And it was done in a way- It's not like modern aquaculture. You go to Indonesia, where, you know, the idea is "We're just going to try and grow as much as we can. And that means a bunch of nutrients into the water to get the highest productivity you can get. And then what do you do? You just discharge that water out into the ocean." And the environmental impacts of that, you know, are- are- are not good, okay? Lots of problems are- But, you know, the way in which Hawaiian fishponds were- were used, did not, it wasn't intensive aquaculture, right? You know, it was a far less impactful on the surrounding environment. And, you gotta keep in mind. Water comes into the pond from outside. If you're putting nutrients in here, and everything else, that water also goes back out, right?

HERB: Right...

DAVE: You know, and it impacts the coastal waters that are out here. But this idea of- of- of, you know, learning from the past to do more for ourselves in these islands, I think is important.

HAL: Also, I would add that, you know, traditionally, the fishpond- you had to look at the fishpond in the context of the landscape, because we have lo'i everywhere, particularly in Kaneohe. I mean, ancient lo'i everywhere. Kaneohe was a very, very rich area for kalo, and that water from the kalo went into the pond. It was a- It- The nutrients helped feed the fish, but it was also a cleansing device for the ocean, so there was a whole interaction there, in the water flow and the- all the- all the energy and all the substances that were cleansed by the- by the pond itself and- and the fish. Yeah, I don't think that's been adequately studied either, but the other aspect is this place has been here for what, 700 years, right?

HERB: Four hundred.

FLOYD: Huh?

HERB: Four hundred.

LOYD: Four hundred! For 400 years, this is been here. What'd you think has happened here over the last four hundred? There's been tsunami coming in. There have been hurricane, storms, floods- floods. Where is that record? Out there. In the sediments of that pond, right there, you go dig down, and there's a tsunami layer, there's from the flood, here and there, and it's all layered out there like a book, the pages of a book, and we need to study that. I'm ready.

HAL: And Floyd, I would add to that. Herb and I have had this discussion. Okay. We cored the pond. Unfortunately, I cannot find the results, but I make this promise right now that we will do it again. FLOYD: Let's do it again! But we also have the small pond over there that's filled and that's been filled in the last hundred years. So there is a hundred year story of every flood that came from mauka down this side. And flooded and buried the pond. It's now full of mud. Let's poke down. Let's dig it out, and let's see all the layers and see what the rates have been for the erosion of the mauka areas. It's all there. DAVE: So this is a great retirement project for you. *ALL laugh*

FLOYD: Wait a minute. Try wait, try wait, try wait. That means I've got to get out there and get muddy and dirty?

DAVE: Uh, yeah.

HERB: We can all do it together, that'll be fun.

HAL: Yeah, we'll do it together.

HAL: But, the similarity here is Kawainui,-

FLOYD: Yeah, Kawainui...

HAL: cuz if we cored Kawainui, we could reconstruct the history of that marsh all the way back to when it was a bay of the ocean, of Kailua.

FLOYD: This is a guy that's done it.

HAL: And it can be done here. Absolutely. It can be done here, it can be done at He'eia, it could be done at every fishpond around the islands. Uh-huh. Critical information of the environment of the past, right there...

HERB: Okay! Any- Any last thoughts that you wanna share for this segment of the Waikalua Oral History Project in 2021?

HIROSHI: No, just a continuation of what Hal said, you know, about this pond a few years back. The water coming in was cleansed, filtered by the lo'i.

FLOYD: By the lo'i, yeah...

HIROSHI: We don't have the lo'i, so what's coming in now? You know? If it's coming in. But I think there's some water coming in underground, because of the salinity. The salinity is still lower here than out in the ocean. So there must be a source of freshwater coming in.

FLOYD: I've done- Yeah, I've done work out here, trying to find if there's springs.

HIROSHI: Yeah, there's gotta be.

FLOYD: Gotta be. Haven't found 'em, yeah.

HERB: Okay! Are we good?

GROUP: We're good.

HERB: Okay.

1:02:43:200

End of audio

[Transcription by Kauilaokahekiliokalani (Kauila) Freitas-Pratt, Student Assistant Transcriber]

Keywords: Windward Community College, Preservation Society, Henry Wong, Kaneohe Ranch, Clyde Tamaru, Pinky Thompson, Nainoa Thompson, Winston Kong, Hinano Rey, Sheila Cyboron, Ahupua'a class, Pacific Center for Environmental Studies (PaCES), ahupua'a class, Polynesian Voyaging program, circulation, aeration, ground penetrating radar, Fishpond Maintenance directive research group, predator removal, Gorilla ogo Gracilaria, sewage treatment plant, coring sampling

T = timestamp vignettes

Introductory Stories of Each Member's Connection to Fishpond	00:00:00:000 --> 00:00:24.30
Hiroshi Kato's Connection to Pond	00:00:24.300 --> 00:11:23.80
Floyd McCoy's Connection to Pond	00:11:23.800 --> 00:17:38.20
Dave Krupp's Connection to the Pond	00:17:38.200 --> 00:34:44.90
Hammatt's Connection to the Pond	00:34:44.900 --> 00:39:58.15
Archaeology Excavation Work Around the Pond	00:39:58.150 --> 00:41:13.13
Proposed Sewage Line Under Kaneohe Bay	00:41:13.130 --> 00:44:32.05
The Pond's Impact on Students	00:44:32.050 --> 00:48:49.00
The Future	00:48:49.000 --> 01:02:43.20