

**Name:** David Klein  
**Date of Interview:** April 3, 2014  
**Location of Interview:** Home of David Klein in Fairbanks, Alaska  
**Interviewer:** Karen Brewster

**Brief Summary of Interview:** In this interview, Dave talks about coming back up to Alaska after finishing his academic residency at the University of British Columbia, taking the position of Research Coordinator for the Game Division with the Department of Fish and Game, and about the projects that he reviewed including moose, caribou, mountain sheep, and deer. He also talks about the transition of Alaska going from a territory to statehood and how the Fish and Wildlife Service handled trying to get Fish and Wildlife Service personnel jobs in other areas instead of just letting them go. He shares several stories of his time with Fish and Wildlife Service out of Petersburg, banding geese, and several stories of his many trips to St. Matthew Island doing lichen and reindeer studies.

KAREN BREWSTER: Today is April 3, 2014, and this is Karen Brewster and Dave Klein here in Fairbanks, Alaska, and we are continuing our Dave Klein life history conversations. So last week we talked about your deer research work in Southeastern Alaska and graduate school. And I think we kind of finished that up and moving onto, I think you then starting working in Juneau. Is that what came next?

DAVID KLEIN: One year, yeah, after I finished up the residency at the University of British Columbia. Then in 1961, the whole family drove back up over the highway in May, which is really over the highway to Carcross, where we could take a train and put the car on a flatbed to Skagway and catch the ferry to Juneau. That's the only way we could get there, 'cause there was no road to Valdez – or to Haines at the time -- or Skagway.

KAREN BREWSTER: And there was no ferry up from Prince Rupert or Seattle?

DAVID KLEIN: Might have been, but probably not. No, I don't think there was. The ferry system hadn't developed. There was this -- one of the first ones was the Skagway to Juneau, you could be connected to a railroad and then in the summertime tourists mainly used it. And so then you could do the highway and do Carcross, etc. And that was exciting for the kids as well as Arlayne and I, and the VW Bug was just ideal for our small family and little kids. So we stayed in this old hotel in Carcross, and then we had to get up in the wee hours of the morning, like about 3:30, because we had to -- we had to put the car on the flat car in the morning, and then be ready for the train to depart around 5 am. And the reason was the train from the south was starting early, too, and then we'd meet the train from the south up at the Summit at Lake – at Bennett. Lake Bennett.

KAREN BREWSTER: Lake Bennett, hm mm.

DAVID KLEIN: And there, I think you got off, and we had breakfast there. And then we went onto the summit, I guess from there, and stopped at the summit and waited for the other train to come where they could have a siding and the two trains could pass. And then we went on down. The reason for doing this in the morning was before the sun would get high enough to threaten avalanches that would come down later in the day on the railroad.

KAREN BREWSTER: So you were doing this in what time of year?

DAVID KLEIN: May.

KAREN BREWSTER: May.

DAVID KLEIN: It was fairly early in May, I think.

KAREN BREWSTER: Yeah, so there still would have been snow up in the high country there.

DAVID KLEIN: Yeah. Yeah, and it was fabulous when we stopped at the summit waiting for the other train. There was Alpine tundra, well, shrub tundra, there was a lot of snow, like four feet or so of snow. And the male willow ptarmigan were out displaying right there in front of the train on top of -- walking around in the snow. It was so nice.

KAREN BREWSTER: Cool.

DAVID KLEIN: And the train, at that time, was mostly all freight cars with the last one for passengers. Had a wood stove in it because it could be cool. And the one conductor would be in that. And you could go out on the back railing of that last car as the train was moving, which was nice when you get into the spectacular places where you're big trellises – tressels and beautiful mountains, and nice, clear, sunny weather. So that was nice for all of us. And the kids were small enough that it was so exciting to be on the train, and they could see our little car on the flat car there being loaded on the train and hitched to the train.

KAREN BREWSTER: And at this point you had all three kids?

DAVID KLEIN: Two.

KAREN BREWSTER: Oh, you still just had the two.

DAVID KLEIN: Yeah, Martin and Peggy Ellen then. And so, Peggy Ellen hadn't been walking for very long.

KAREN BREWSTER: Pretty exciting. So why were you going to Juneau?

DAVID KLEIN: At Juneau, then the Department of Fish and Game wanted me to take this position, which was Research Coordinator for the Game Division, which later became the Division of Wildlife Conservation, but for the Game Division. And to be the Coordinator and manage this. It was mainly an administrative position in the Juneau Office, but I got to travel around to the various research projects under the -- that were mainly funded through the Federal Aid and Wildlife Restoration Program. So I got to go to places like Kodiak and Afognak, where there's elk studies going on. And moose studies down in the -- the out of Anchorage areas. And caribou out of Fairbanks. Sometimes getting in the field with them in the summertime.

KAREN BREWSTER: And I guess because Alaska was still such a new state then, it was all very coordinated through Juneau? You didn't have all these separate Fish and Game offices and regions?

DAVID KLEIN: That position still exists now because it's statewide coordination of the Federal Aid money. So you have to be close to the central office and a bit close to the legislature. Although I wasn't -- didn't -- we weren't lobbying for this, we just had to provide information on short notice during the legislative session.

KAREN BREWSTER: But as you say, it was a statewide thing, so it wasn't stationed in Fairbanks in just the Fairbanks District or just the Anchorage District? It was you got to go everywhere?

DAVID KLEIN: At that time, the main administration was out of Juneau, and so there was a central office in Fairbanks and Anchorage, but these were just -- not much different than they are now for the field people in the Game Division. And then there were -- you know, the job also included the paperwork and the reports that we had to do, quarterly reports and annual reports. Also, I had to review all these reports and put them together. They were submitted by all of the field biologists and I put them together in the final report once a year. And be editor and advisor on -- if they were writing any technical papers for publications. And there weren't many that were doing that, but there were one or two that were doing that.

KAREN BREWSTER: So what types of projects were people doing?

DAVID KLEIN: Well, they were species-oriented, so the biologists that were employed were primarily either working with moose, or with caribou, or deer, or mountain sheep, sometimes more than one species. But the big ones were the moose, caribou, bears, and in southeast, deer, yeah, in Prince William Sound, deer. Yeah.

KAREN BREWSTER: Wolves?

DAVID KLEIN: There was some work being done on wolves, but there wasn't a big program on studying wolves. There was -- When statehood occurred, there was still a bounty on wolves and then only about two years, and they were still using poison. And

the federal government was still doing this, and the state, because of pressure from this young biologist, they tried to – they – the Department of Fish and Game went to the legislature with their report to the legislature requesting that the bounty be removed, because it was not useful in wildlife management. It was a waste of money and it was mainly used, to some extent, as a welfare thing. And so after a couple of years of lobbying the legislature, by us as well as other -- some other groups -- There were a few environmental groups getting started. The Alaska Conservation Foundation, for example, or Alaska Conservation Society, for example, is one. Then the legislature passed a law making it illegal to use poison to kill wolves, and they removed the bounty. I think the use of poison came first and then they removed the bounty on wolves and coyotes, and gradually most other creatures that were bountied.

KAREN BREWSTER: So the type of research that these biologists were doing, you say it was species-oriented, were they doing just -- ?

DAVID KLEIN: Their population dynamics and how you estimate numbers through, sometimes aerial surveys. How many – how do you calculate if they were moose surveys, when you were doing track counts in the Yukon Flats relative to the proposed Rampart Dam, for example. So you use track counts and then you would ultimately find the moose, but if it was forested you couldn't follow the tracks, and so how many did you see versus how many did you miss and how do you do the studies on that? Well, some of it was ground work and tracking and working with -- say, with Native people. And in another area where there was focus of attention was the studies on whether -- well, for example, the removal of the wolves, we still didn't know -- a removal of the wolf bounty when there'd been wolf control, we didn't know how that might have affected species like mountain sheep. Were they the main target of the wolves, and were they benefitting from -- the populations benefitting, because you could only hunt the male mountain sheep from very early times because they were considered trophies and they wanted the money from bringing trophy hunters in and paying big bucks in hiring guides to hunt. And the same with bears. That we wanted better information on how was the hunting pressure affecting them. And in the case of sheep, or grazing animals, was their habitat overgrazed or not? And then they were beginning studies all along the Alaska Railroad to how to – with the case of – to how to reduce the number of moose being killed by the railroad. And some of those were farmed out through the Wildlife Unit to grad students. Thesis projects. So frequently those led to major changes. One -- The first was just to reduce the speed of the trains going through the area around Willow and on the Susitna drainage where most of the moose were being killed and there were high density of moose. That only partially reduced the numbers killed. So it give the moose time. And then I think it was the time of day or night also made a difference, so that the moose -- the light from the train tended to make the moose try to run down the track rather than go off into the woods. And so they tried varying things working with the railroad on that and whistles and what-have-you. Slowing the speed going through those areas was a major thing to help. But there were still problems and it would depend on how deep the snow was and how much food there was along the railroad that the moose were feeding on, keeping them close to railroad. And the deep snow, so the railroad became a travel corridor for the moose, which was fine except when the train came. And so then this led

to bulldozers making travel corridors for the moose that paralleled the road. Parallel to the railroad, so -- And where there was good browse then the moose would -- more of the moose would be there where they wouldn't be likely be killed. And the ones that were just walking down the railroad, they had a corridor where they could walk safely to move from one area to another. And that worked fairly well. There were studies getting started in the Anchorage area on the military base where the road went through this good moose habitat on Fort Richardson, mainly. And there were a lot of people and that was the main road to Palmer. And there was already a lot of people commuting to work through that area, and so they were already up to about a four-lane highway and people going too fast. And then winter driving when it's hard to see the moose if they were there. And they did a lot of experiments that were based on studies done in Scandinavia, mainly Sweden, where they used mirrors first to reflect the headlights into the woods and that's what frightened the moose away from the road. And Scandinavia had some significance, positive, and so they worked there for a while, but still they had problems. And they ended up, no sure fire method, and the traffic was increasing and danger to cars and people. Injury to people, as well as killing moose, was getting quite large.

KAREN BREWSTER: Yeah.

DAVID KLEIN: And so then they -- the approach that was taken that they were going to have to fence this section, but then the problem was how do you keep the moose outside of it because you don't -- you can't fence the whole base. And you fence the road off, you can't do that because the road has to be open at both ends. So then they did fencing on both sides of the road and then they built -- the type of fencing was big chain link, tall fences. Then every so often they would have a fence that went off at an angle. If moose got onto the roadside, they would try to get back in and they would go along the fence and they would get down into, pretty soon, the squeeze gate where they could force their way back through, but they couldn't come in from the other side. So it had steel rods that would bend when the moose pushed their way through from one side, but they wouldn't bend.

KAREN BREWSTER: They couldn't get back.

DAVID KLEIN: Couldn't get back. And that was costly, but it was a major improvement.

KAREN BREWSTER: So a lot of these studies were pretty baseline, scientific research to understand these populations?

DAVID KLEIN: Yeah, and then for example, in a popular -- a lot of the studies were focused on where moose or caribou hunting was taking place. And so the Nelchina Basin, and the Denali Highway was built early on, and so hunting -- That was a favorite place for mostly Anchorage people because they could access it even before the Parks Highway was completed. You could get to Cantwell and you could get on it from the -- from the -- also from the Richardson Highway.

KAREN BREWSTER: From the Paxson side.

DAVID KLEIN: From Paxson. And so there were a lot of studies there on caribou. And some good studies started with building some exclosures to see how the -- what impact the caribou were having on the lichen, and so these several small enclosures were -- And for those studies we frequently contracted with some expert on vegetation and soils. There was a fellow, Dr. Henry Hanson, from, I think it was Michigan, but I'm not sure. And he came up and worked in the field. And some of the technicians and grad students working on parts of the study were able to work with him in doing soil profiles and seeing how soils affected the relationship with plant types and relating to mainly caribou, to a lesser extent moose. Then there were studies beginning -- a lot of increased use of aircraft for counting and then getting into use of radio collars to answer questions on mortality and ultimately calf mortality. But that came after I was back at the Wildlife Unit. Most of that. But there were intensive aerial survey work being done on the -- and some ground work being done on counting caribou, getting sex and age composition counts. And for moose, there was a lot of focus on moose on the Kenai. And there was some joint collaboration, very good collaboration between the federal government -- the Kenai Refuge at that time was called a Moose Range, a National Moose Range -- and state biologist, the first state biologist working down there on the Kenai outside of the Refuge. But they started a moose research center there. And that was started actually by the federal government and gradually the Department of -- on the Refuge. And big one-square mile enclosures, so they could put given numbers of moose in each one and they stock these with tame moose and emphatics where they could do feeding trials with moose and seeing what kind of forage was appropriate and digestibility. Much of that -- yeah, that was some of the leading work of that kind before the university got into it -- that kind of work.

KAREN BREWSTER: Interesting.

DAVID KLEIN: And then in southeast, there was a -- as glaciers were receding, gradually there and in Juneau with the --and Berners Bay where the glacier there was pulling back and the new vegetation was ideal moose browse. You know, it's young birch and willow and cottonwood mainly. And so the plan was to capture moose calves, raise them for a while in captivity, then release them out there and start a moose population. Which they did. There were also attempts to transplant mountain goats to Kodiak Island, and those ultimately resulted in a population of mountain goats being established on Kodiak.

KAREN BREWSTER: So it was a successful transplant.

DAVID KLEIN: Yeah, to a limited extent because it's limited habitat. But, yeah, they have hunting seasons. And they're quite visible at times from the roads or from aircraft.

KAREN BREWSTER: Well, it sounds like from that job, you really got a great overview and understanding of all what was going on around the whole state.

DAVID KLEIN: Yeah, definitely, that was good in that regard, and it was good training for me for sure, and for whether I stayed with Fish and Game. In fact, Jim Brooks, who was the head of, at that time, of the Game Division and later became Commissioner of Fish and Game. But he foresaw – he had lived in the bush on the Seward Peninsula and he was a pilot and before he went to – he came back to the university and did a master's degree at the university. And he married a Native woman, who was also a student, who came and became a student at the university. And so he was pretty concerned and sensitive. And he'd done work with the marine mammal work in Bristol Bay and Prince William Sound just before statehood with the state, then Department of Fisheries. So he had a good understanding of Native interests, which were sort of ignored in the old territorial days before statehood. Natives were, you know, they kind of do their thing and we don't – the management was focused on the non-Native population of hunters and the guided hunters. And the same was true to a large extent on the Sport Fisheries work. So Jim Brooks was thinking ahead and he was looking for me to be -- after some training, that position in Juneau and he knew I didn't want to stay in that particular administrative position all the time, and I was willing to look at other options. And he suggested that I would be -- he was going to lobby the legislature to start a Subsistence Division and wanted me to head that up. And that was the kind of challenge I kind of liked because I had enough -- I learned enough about Alaska Natives as a student here at University of Alaska and always had a keen interest. And then working in Southeast Alaska, yeah, I went to Native villages occasionally to do an assessment of harvest by the Native people of deer. And I certainly had a concern that their interests were important and should be considered in management rather than just ignoring them.

KAREN BREWSTER: So do you know why Jim hired you for that research oversight job in the first place?

DAVID KLEIN: Yeah, because I -- that was the understanding when statehood came and I transferred to the Department of Fish and Game, the understanding was I would at first spend the summers finishing up my own field work for my doctoral research and I'd remain an employee of Fish and Wildlife, or Fish and Game then, because I had transferred to them, but ultimately I would want a job with Fish and Game. And so, but I was also working on the PhD. So my qualifications for positions would change somewhat, but the general understanding was, yeah, they would have a position for me that would be appropriate.

KAREN BREWSTER: So they kind of kept a position, or kept one in mind, for when you were -- ?

DAVID KLEIN: Probably didn't have a specific one in mind, but at the time when I finally finished up that was one that they needed someone for. And they figured I could handle it. And it was okay. It fit my plans pretty well.

KAREN BREWSTER: Well, I want to step back for a second, when there was the transition from a territory where it was Fish and Wildlife Service being in charge and

then statehood and Fish and Game became the institution that took over this, you know, some people transferred, some people lost their jobs. How did that all work?

DAVID KLEIN: Well, obviously that was a major transition. And it worked surprisingly well. There were people like – they lost a lot of people who were going to lose their Fish and Wildlife positions because the Fish and Wildlife Service was no longer being responsible. And the Fish and Wildlife Service had some responsibility to employees, like myself. And so they put their employees in Alaska on a special category for any jobs that opened up nationally with wildlife, mostly with wildlife refuges or waterfowl management, migratory bird management, those kind of jobs scattered throughout the entire United States. If there was an opening, a Refuge Manager or Assistant Refuge Manager or Refuge Biologist would open up, there weren't that many jobs but we all got the notice first before they opened it up to the general public to advertise it. And so it would be simply a transfer. And so that was an option we had, but it wasn't -- there wasn't a lot to choose from.

KAREN BREWSTER: And probably many people wanted to stay in Alaska.

DAVID KLEIN: Yeah, several did, like myself. And Will Troyer, for example, he was in the same boat, and Jim King. And so Jim had started to work for the state as a game warden, and so Will had -- he was working for the territory as a game warden at first in Juneau, and maybe as a technician, stream guarders. But he had also, you know, established a good reputation and he was trained as a biologist. He had a master's degree from, I think it was the University of Montana in Missoula. And so he ultimately wanted to get into wildlife research and management. And so he -- they offered him a position as a refuge -- at one of the refuges.

KAREN BREWSTER: So the Fish and Wildlife Service retained a few jobs in Alaska?

DAVID KLEIN: Yeah.

KAREN BREWSTER: So a few people were able -- who started with Fish and Wildlife, were able to stay Fish and Wildlife?

DAVID KLEIN: Yeah, yeah that's true, because yeah, some of them retired and/or moved outside the state. It was a reasonable turnover. And so there were a few people like Will Troyer that was able to stay with the federal government, but under statehood, whereas they had been with the federal government, like I was under territory.

KAREN BREWSTER: So you ended up switching to Fish and Game. Was that your choice?

DAVID KLEIN: Yeah, it was because I definitely wanted to stay in Alaska. And at that moment, I had experience in southeast, so while I had to give up my position with the deer, to take -- to be gone for two academic years in the PhD, but I wanted to stay affiliated with southeast because I would be coming back in the two summers to finish up

my research as a Fish and Game employee for the PhD dissertation. But then when I finished my residency requirement at UBC [University of British Columbia], then Brooks understood that I would be looking for a job.

KAREN BREWSTER: Right.

DAVID KLEIN: Because then it was – the financing was very important.

KAREN BREWSTER: Right. You had a family.

DAVID KLEIN: I didn't have any funding during the academic year and the amount of support I got from the university was miniscule, but it was helpful as a teaching assistant and those kinds of things.

KAREN BREWSTER: And you had a family. Was your wife able to work?

DAVID KLEIN: Well, the kids were so small that she wasn't able to work. And so, I mean, she couldn't take a job because she'd have to have someone come in and take care of the kids and it wouldn't be possible. She was trained as a teacher. And so later on she could take jobs as substitute teachers when the kids got big enough.

KAREN BREWSTER: Right.

DAVID KLEIN: So --

KAREN BREWSTER: So this job in Juneau that you went to, you weren't out in the field doing your own biological research anymore?

DAVID KLEIN: That's correct.

KAREN BREWSTER: How did that sit with you?

DAVID KLEIN: Well, I -- in the long run, obviously it wouldn't have been very satisfying to me, but I was -- my evenings were spent writing for the thesis up.

KAREN BREWSTER: Oh, you were still writing up the thesis?

DAVID KLEIN: Yeah, I hadn't finished writing the thesis, so I would spend evenings. I – you know, it was like I couldn't do these things in the office during the day because I had other things on my shoulders. And Brooks had, you know, made that clear when I came, and I said, "I've got to write this thesis." And he said, "Well, there might be time, but you've got a job to do for us and it's an important one and so I don't think it's going to work out." But he took some of the pressure off me by creating an assistant position who was more like a clerk/secretary, but she was a biologist that had -- she was doing some of the work. She was looking for a job, because women were having a hard time getting jobs if they were trained in wildlife. She had some training in wildlife, and so,

Emily, and we hired her and she took some of the pressure off of my shoulders in terms of report writing. I had roughed things out and she would put the reports together, but sometimes taking over quite a bit of that. So -- because technically I should be spending a lot of my time traveling throughout the state as well as in the office, but obviously I wasn't -- didn't want to travel too much because I had a family at home. And I had the writing to do, and I couldn't do that if I was traveling around.

KAREN BREWSTER: But you had to travel to some extent?

DAVID KLEIN: Yeah. And frankly, I mean, I liked traveling and I liked keeping in touch. It was just the right balance. And in the summer times, they were still -- as it was the case when I was full-time in Petersburg with the deer work, the summer was not working with deer usually, it was moving up through Anchorage and working say out of Anchorage for mountain sheep counts, or banding geese in the Copper River Delta. And I would get assigned to go out there, hire an assistant who had a boat with an outboard. He fished, but he was willing to do this. And we had a cabin and we stayed out, and we'd be out there for about two weeks. And that was before the earthquake, so there was a lot of goose habitat, a lot of geese. These were the big, largest Canada Geese. And at high tide, these sloughs would be full of water and just starting to flood into the intertidal wetlands where the geese would be grazing. And the adults and young, when they -- we were out there when the young were already big enough that you could band them. They were about two-thirds the size of the adults. And then the adults would be undergoing -- re-growing their flight feathers, so they couldn't fly at that time.

KAREN BREWSTER: So you banded them when they were molting?

DAVID KLEIN: Yeah. So we would -- and we did it the old-fashioned way with the two of us. He ran the outboard, I stood up on a platform in front with a rope, and so I could see over the edge of the sedge when the tide was in. And the geese grazing there would hear the boat coming but they would pop their heads up if they were out there, and then pull them down quickly. And so if you saw these heads, I would give the signal to head for the shore and I'd try to keep an eye on where I saw those geese heads. And when we got ashore, my job was to throw the anchor out onto the mud and so the boat didn't drift away and the two of us took off with examine landing nets, in hip boots running as fast as we could to this spot. And usually if we were lucky they hadn't moved very far. And then we got close, they would start running and they would be -- They aggregated after the young were born, so you'd have two or three broods together, so you might have twenty-five or thirty geese there. And we'd go and try to catch as many as we could in one first chance because they scattered and hid when -- And if they got in the water, they'd get across this wider slough and you couldn't get to them without going back and getting in the boat.

KAREN BREWSTER: And they couldn't fly away from you because they were molting.

DAVID KLEIN: Yeah, but they could run like mad and they could hide. And so if we were lucky, each of us could get about three or four geese. That was as much as we could

carry in our nets. And then we would -- we usually had around our neck the bands on a wire and the banding wire. And so we would then come together and band these geese. And we could hobble them, the adults, but mostly we could cover them with a big tarp or something so that they wouldn't run away from us. And gradually band them and release them and get other information on them.

KAREN BREWSTER: Yeah, I was going to say, did you weigh and measure them?

DAVID KLEIN: No, we identified whether they were young and adults and made, you know, just general comments on their size and whether they were starting -- the young ones were starting to grow their feathers and especially their flight feathers, because all of them would be gaining flight close to the same time. And then we would release them and then we'd go back and try again, but we'd only have a short time when the tide was high. If we waited too long, we couldn't get back to the cabin to sleep and eat. And so the important thing was to get back to the cabin before the water disappeared, and if we did, then we cooked up food and slept. We didn't bring any of that stuff with us. We just took rain gear and our hip boots and other things. We might have had an apple or an orange, but that was about it.

KAREN BREWSTER: And so this, you were doing this during the summers while you were in graduate school?

DAVID KLEIN: No, this was when I was -- I did those in the summers when I was a deer biologist, too.

KAREN BREWSTER: Oh, okay, yeah, so it wasn't -- it was before you --

DAVID KLEIN: But it was only a couple week period, so the other times I was up in the mountains counting mountain sheep on the Kenai, the Chugach Mountains, the Talkeetna's, the Alaska Range, and the White Mountains.

KAREN BREWSTER: So that's when you were based out of Petersburg?

DAVID KLEIN: That was my home base where my wife and kids were.

KAREN BREWSTER: Right.

DAVID KLEIN: Yeah.

KAREN BREWSTER: So you were doing the deer work and then you did this bird stuff and all that. So, I'm just trying to get the time period. It's when you were still living in Petersburg, they sent you other places?

DAVID KLEIN: I would be gone for about a month and a half.

KAREN BREWSTER: So they sent you other places?

DAVID KLEIN: To go do these other things, right. And then come back. And then I could – and then there were some things I could do when I was down there, of course, for the hunting season which started in August. And yeah, so I had some summer and that was good, because then I could get out with the family in good weather and picnic and boat around.

KAREN BREWSTER: So this bird banding, did you always work with the same other person?

DAVID KLEIN: Yeah.

KAREN BREWSTER: And who was that?

DAVID KLEIN: Bob Bellows [sp?], he was a drift net fisherman, but he was like in his early twenties. He was a very competent guy.

KAREN BREWSTER: So he wasn't another Fish and Wildlife biologist?

DAVID KLEIN: No, it just turned out that he was available and he worked as -- he was paid as a technician, but then he made better -- once the fish started running later on, then he went and was a full-time commercial fisherman.

KAREN BREWSTER: Right.

DAVID KLEIN: Living in Cordova.

KAREN BREWSTER: So this was all based out of Cordova?

DAVID KLEIN: For the banding, yeah. And we had a target of -- if we could get 400 geese banded, that was good. If we could get over 200 that was good, too. But if we got the 400, we closed up shop because we wanted to have adequate sample banded. And we were under then -- under supervision of the waterfowl flyway biologist, Hank, Henry Hanson, Hank. He was based out of Juneau. And he was doing work all over the state and would come out and visit us occasionally while we were doing this work. But it was sort of up to us to figure out ways to be most productive in catching, because you could be a total failure through a tide, because you were in the wrong place at the wrong time or you got a poor start or the weather was terrible. There were a lot of reasons why you didn't get four or five geese banded per day.

KAREN BREWSTER: So how did you figure all that out? Had somebody done it before you guys and told you?

DAVID KLEIN: Yeah, but they actually later decided it was more efficient to hire a big crew and set up nets and do a drive. So there was more money involved and more labor,

but it was concentrated in -- One week, you could do it usually. But you also had air support, and things like that we didn't have.

KAREN BREWSTER: So did you get your 400 geese a season? Do you remember?

DAVID KLEIN: I'm not sure whether it was 400. We had a target. It might have been less than that. We mostly did, yeah. I think I only did this two summers. But it was exciting, too. Occasionally, we'd get a chance to tag a couple of swans. And there was a lot of diversity, and a lot of diversity in bird life there and other life that we saw.

KAREN BREWSTER: Well, I say it sounds somewhat, you know, challenging the sort of the figuring out, "Well, what's the best way to do this, let's try this. Oh, no, that didn't work, let's adjust that." I mean, that must be kind of fun?

DAVID KLEIN: Yeah, some of those were successful. Like we found if we went way out on the -- of course, the edge of the sea on the delta, there's these mud flats and some of those, the geese might be going out on the mud flats. And some of the mud flats, you could run down the goose [inaudible@46:51], some of them you couldn't because the mud was too sinky, and the geese didn't sink as far as we did. There were a lot of potential problems. And a couple of times we really got in that mud situation. There was -- we wanted to get out of it badly. And we had problems, we had to get the boat back into the main drainage channel because you didn't see it before the tide went out and the tide comes and goes fast there because it's a big tide and it's kinda gradual. So you can have plenty of water for the boat and then half an hour later there's not. And we did have -- one time, I remember when we were going up a slough and these geese were there and right on the bank. No, they're in the slough swimming, two or three broods. And when they came around the bend, there they were, and they kind of split up and the majority went on one shore. So I shouted to Bob, "Let's go to shore there!" And so he ran ashore and dropped me off, but then some -- he decided to just push the boat over to the other side. There was a fairly narrow channel. And go after the geese on the other side. Well, I was pretty successful in catching geese and came back to the boat, and the boat was on the other side. And he had, [chuckling] he felt bad about this, he hadn't got any geese. And then when he tried to get the boat off, the tide was dropping and the boat was stuck. And so he said, "I think I can get it off." And I said, "Well, take the motor off to lighten the weight." And he said, "No, I can get it." But all the time the water is disappearing and the boat is stuck in this mud. It's sort of a suction that holds the flat bottom boat. It was a plywood boat. And it was too late, he couldn't get the motor off when there was -- it wouldn't get out. So here he's stuck on one side. I had to let my geese go because he had the bands in the boat. And he didn't have any geese, and I had geese. And so -- I didn't have -- And it was pretty good weather, so I didn't have -- my rain gear was there. I was just in a tee shirt, and in boots and trousers, which was plenty warm when you're running around in hip boots. And so here we had like -- it was too late. I mean, I would have swam across the slough if it was earlier, but by that time the two of us couldn't get it off and there wasn't enough water left in the slough. And it was deep enough so I couldn't just wade across. And so I -- we had to stay and just wait for like five hours, or

six hours, for the tide to come back. And that was not the greatest, because I had to literally keep walking to keep warm.

KAREN BREWSTER: Wow.

DAVID KLEIN: Which was okay, but eventually you get tired of walking. And, of course, we were hungry. Finally, when the tide came back and got over, he was pretty humble. But those things happen. And we went back to the cabin and had a big meal and went to bed and slept for a long time.

KAREN BREWSTER: And you guys continued to be on good terms and work well together?

DAVID KLEIN: Oh yeah. And then when our supervisor came, he flew in on a float plane and he stayed with us for a couple of days. And, of course, he wanted to go out with us, and we wanted him to do that. And it was kind of windy and -- when we got up the next morning and we told him, "We've got to get going. We've got to take advantage of this tide." He wanted to -- he didn't want to rush through breakfast. We'd cooked up pancakes or something. And we said, "Well, let's get going or we're going to have a problem and we won't have any time." So then we got off to a good start. And so, you know, the standard was that Bob would run the motor and I would be standing on this seat with my legs spread apart holding onto the rope from the bow, the anchor rope. And so I could have good balance and control. And sometimes if you turned the motor around a sharp bend, the boat would kind of start sliding and if you leaned in that direction it would catch and you'd come to a stop quick, so you had to brace yourself for that. Well, when Hank came, he wanted to be up there with me, the two of us, so we couldn't spread our legs far enough apart and we shared the rope, holding the rope. And about the first time around the bend, I said, "Hank, you've got to be careful. Brace yourself." And it started slipping and then it caught, and he just went right overboard. And so with all his clothes on and everything. So we loaded him back in and we went back to the cabin, took his clothes off and got dry clothes on and warmed up. And so it was too late to get out now, so we waited for the next one and we went out on the next one with him. And that was in the evening and we did pretty well. But at full tide, it's very deceptive because these little sloughs, little drainage ditches, at full tide you can't see them because the grass -- the sedge is long and it floats up and it all looks like continuous. And I said, "You've got to watch those -- some of those. When you come to them, you've got to learn they're only about two feet wide, but they're sloping banks so you've got to know when to jump so you land on the bank on the other side, not in the middle." And so we took off after some geese and there were a lot of geese and we went in different directions. And he was running, he was a big guy, he was doing very well and heading right for these geese and suddenly he just disappeared because he -- he didn't even see this slough. And he went right down, total immersion. So again -- he stuck it out for the rest of that high tide, and then we went back and he had to get dried again.

KAREN BREWSTER: Poor guy.

DAVID KLEIN: Poor guy. But he did have rain gear, so going back it wasn't too bad.

KAREN BREWSTER: And you never had that problem, you never fell in?

DAVID KLEIN: No, I never fell in. I fell down sometimes in the thick mud, and got a little muddy, but never total immersion.

KAREN BREWSTER: Well, running in hip boots in mud and tall grass can't be easy.

DAVID KLEIN: It isn't easy. I mean, obviously, we were in good shape by the end of that time. And we had to be in reasonable shape to start. Yeah, it wasn't easy, but I didn't think too much of it. You had to have the boots on. It probably would have been better to use a wetsuit, but they didn't have those, you know, for the bottom.

KAREN BREWSTER: Yeah.

DAVID KLEIN: And the same on your feet.

KAREN BREWSTER: Oh, like chest waders or something, those neoprene things?

DAVID KLEIN: No, those foam deals you can put on, and they just slide them on.

KAREN BREWSTER: Oh right, wetsuit.

DAVID KLEIN: And they're good on, even on gravel, but there we didn't -- footing wasn't so much of a problem because it was usually mud or sedge bottom. It was pretty good running. It wasn't tussocky sedges. It was -- Once you get up on higher, drier ground, it was good running.

KAREN BREWSTER: So, how come you sat up in front like that in the boat?

DAVID KLEIN: I stood up.

KAREN BREWSTER: Oh, you were standing up.

DAVID KLEIN: Standing up.

KAREN BREWSTER: Oh.

DAVID KLEIN: So we could see. Because when the tide was going down you had to be up high to see over this grass sedge and see the geese, otherwise you didn't know where the geese were. Unless you see them in the slough, which was not regularly the case.

KAREN BREWSTER: And so you were holding onto the rope as your balance thing.

DAVID KLEIN: Yeah, you lean back against the rope. So if you came to -- you had some leeway if you came to a stop quickly, but you knew what was going because you were watching the river and everything. And there were no gravel bars and snags there. If there was, you could see it well in advance and Bob would slow down.

KAREN BREWSTER: And you weren't blocking Bob's view, he could still see where he was going?

DAVID KLEIN: Pardon?

KAREN BREWSTER: By you standing up there in front, you weren't blocking his view driving?

DAVID KLEIN: No, because he saw the banks and he was turning as the slough turned. And I was looking over the banks, so he had visibility even if it was only through my legs and around the side.

KAREN BREWSTER: Now, I didn't realize that when you were doing the deer biology job down in Petersburg, you were off doing this other stuff.

DAVID KLEIN: Sometimes assigned to do other things, yeah.

KAREN BREWSTER: Yeah. What other ones? You mentioned some other ones?

DAVID KLEIN: Well, the things that I had to do, was mainly those up there. Well, one of them was this one summer, went to St. Matthew Island for the first time.

KAREN BREWSTER: Oh that was --

DAVID KLEIN: 1957.

KAREN BREWSTER: Oh, okay, tell me about that.

DAVID KLEIN: Well, my advisor then was, in Anchorage, was Bob Scott, the same guy who had been my advisor for the sheep work. So I worked for him a lot, and also when I was a grad student. And I was still working for him when I'd go up there to Anchorage and do the mountain sheep studies. And so he said they had this potential study and wanted to know if I would be interested in doing it. He said he thought I was the best person to do it. And so this was St. Matthew Island where the Fish and Wildlife Director, who was a great pilot, Clarence Rhode --

KAREN BREWSTER: Clarence Rhode.

DAVID KLEIN: ...had flown a twin engine plane out there when they were doing some work in the Aleutians, or the Pribilofs, they flew out over St. Matthew and had good weather, which was unusual, but they had good weather and they knew that there --

reindeer had been introduced by the Coast Guard. And there had been a -- Robert Rausch, a parasitologist and his wife, had been out there in 1954 and camped. Built a -- they got a Coast Guard -- gave them a ride out there and they camped in a driftwood hut that they built. And they were studying parasites in the endemic vole species that was there, *Microtus abbreviatus*, called a singing vole. And they were also doing the same work with Arctic foxes, looking for the parasites that they carried. But he was a combination parasitologist and mammalogist, so he was collecting specimens for mammalogical studies including some of the early, first genetic work with chromosomes to try to determine whether the voles were endemic, a true endemic species. So at any rate, they had reported that the reindeer were obviously increasing. They could see the impact on the lichens. The winter range. And they saw them scattered around the landscape where they were camped. And they didn't make an effort to do a count, but there were like hundreds, a few hundreds at least. So then that's when Clarence, a year later, I think, in the summer, Clarence Rhode flew out there with someone else with him and they had good weather and they were able to do a rough count with a twin engine plane going pretty fast. Not the best, but it's open tundra and hilly country, and I think they estimated about 1500 reindeer. So that was -- then led to the stimulation for a study, because then the question was raised. They knew that the reindeer had been introduced by the Coast Guard during the Second World War when they had men stationed there at a LORAN navigational station. And there also had been an Army weather station there right at the beginning before the land station was there during the Second World War. And so it was nip and tuck that whether they might be cut off by the Japanese, and they might even be invaded. But, so they needed -- The Coast Guard thought it'd be a good idea to release reindeer. So they got a Coast Guard boat, picked up reindeer, 24 reindeer from Nunivak Island. I think 20 females and 5 five males. And one male was drowned when they were unloading. So then they went back to St. Matthew and unloaded them onto the island, and they established these. But then it was only -- that was in 1944. I think it was 1944, yeah. And then, of course, the war was over in late 1945 in the Pacific, and so the Coast Guard pulled out, shut down the station, but the reindeer were left there where there were no natural predators and no people living and no harbors or airports, and hard to get there. So when the Fish and Wildlife Service, technically they were responsible, and this is a -- St. Matthew Island is where a biological reserve that would have been established by President Theodore Roosevelt in 1909. The first such reserve in Alaska and U.S., I think.

KAREN BREWSTER: I didn't know that. That St. Matthew Island was a biological reserve that long ago.

DAVID KLEIN: It was called the Bering Sea Reserve, I think. Something like that, yeah. Mainly because of the literally over a hundred, or a million birds, primarily sea birds, but also ground nesting birds that nested on the island every year. And so they didn't know much about it, but they knew a little bit from the Coast Guard in early and Rausch's work. So then they had to make a decision, and this what about these animals there. And there's going to be a population problem eventually, and what impact are they going to have on the vegetation and are they going to have problem -- an impact on ground nesting birds? Well, all of these were probably possibilities, likely possibilities, but no one knew how many deer would -- was a limit for population and would be the

winter food would probably be the limiting factor because the lush green tundra in the summer, there wasn't a shortage but there wasn't -- the lichens were not as uniformly distributed over the island. There were some areas where there -- the southern end, where there were a lot of lichens and in other areas not so many or none on rocky mountains. And so then Bob Scott was asked to try to design a project. And then who would be involved in doing it. So they figured that I would be a good possibility to go out there, with an assistant, and spend two or three weeks on the island. Do a count, do some initial vegetation work, build some exclosures. And so he asked me if I would be willing to do that. Well, I was working out of Anchorage then and my wife and children were in Petersburg, so it wasn't any longer away from home, but it was maybe a little longer because it was an add-on to the other things I was doing. But it sounded to me like a wonderful challenge and a study, and so -- And, you know, I liked those kinds of things where I was given the responsibility to organize the whole thing. And, yeah, I had some help in the initial design of what we should be doing out there from Bob Scott, but once I got out there I was on my own to follow through and decide on where my priorities should be. Counting the animals was one, but also doing a vegetation reconnaissance and doing some quantitative measurements, as well as building exclosures. Plus exploring the island. So then Scott had, I think he was working out of Fairbanks at that time, and he knew of an undergraduate student who was in wildlife that he thought would be available as a field assistant. And that turned out to be Jim Whisenant. So Jim was recruited and so the two of us -- and Scott made the arrangements with the Coast Guard to get us out there, so we had to organize a lot of the gear but I was able to just give them a list of things and especially for the exclosures so they could get everything organized in Anchorage and it'd all be there in Anchorage. Then we -- they had to fly us -- we had to be flown down to, I think commercially, to Kodiak, where we'd meet this Coast Guard boat, which was a big training ship with a big -- there were over a hundred crew members on because they were training purposes, and it was -- the *Wachusett* was the name of it. And so we got aboard there. And then we cruised along the southern Alaskan Peninsula up through the first pass into the Bering Sea. But as we were still in the Pacific, a big storm came up and it was pretty rough going. It was amusing in retrospect, and a little bit amusing while we were there, but both Jim and I were not seasick at all. And they assigned us -- they said, "Unfortunately, all the bunks are full for the crew, but we have these two bunks up in this weather observation place." Where it was about like a small garage with a garage door where they released weather balloons. And you had to climb up through the superstructure of the ship, so you're way up there above the deck.

KAREN BREWSTER: So you were really going --

DAVID KLEIN: Exactly.

KAREN BREWSTER: -- side-to-side in those rough seas.

DAVID KLEIN: Yeah. And the worst case, yeah, we just had to lock our -- unfortunately, the bunks, one over the other, had a steel bar that you could get your knee under and keep you from rolling out, but you couldn't sleep during the storm. And there

was -- inside one of these cabinets, a file cabinet, there was something rolling back and forth all the time. Later we learned it was a glass ball that one of them picked up on the beach somewhere and put it in there. It was like bang, bang, bang, bang. And I remember, finally, when we got through the pass and got into the Bering Sea, the storm was over and we went down to our breakfast, Jim and I did, and there was only one other -- and we were able to eat with the officers. The only officer that came for breakfast, the rest of them were sick, was a red-haired young guy, a Lieutenant, a really nice guy. And so we sat there eating our oatmeal and whatever we had for breakfast, and we didn't have any problems. The boat was still rocking a bit, but not too bad. So then we had more excitement, because then the word came over the radio that there was a fishing boat missing from Dillingham out there. It was out there in the storm and it's missing, and they lost radio contact, etc., etc. And they had to search because we were right -- heading through that area. And it was foggy then, so we -- after only a couple hours in the search, they spotted with a radar or something, and it turned out to be the fishing boat still in the water and no sign of life. So we pulled up and they lowered a zodiac, I think, or it was a regular lifeboat, and a few crew members motored over to it. And they had little walkie-talkies, and they said, you know, "We don't see anybody. No sign." And then when they got aboard, "No, there's two people here. And they seem to be alive." I mean, they didn't tell us then, it was kind of a cryptic conversation relayed from the radio man who had to tell the captain first. But, that these guys had had engine problem in the storm, and they couldn't get the engine going. And so they figured, they had quite a bit of liquor aboard, they had a big party. They figured if they're not going to make it through the storm, at least they should have a good time. So they were all drunk. These two guys were drunk. And so they had to bring -- I think they questioned whether one of them could even get on -- they'd have to make -- use a stretcher, but it turned out they were able to load the two in the boat and come back. And they took these guys into sick bay, and they recovered eventually. But that delayed us because we had to wait until another boat was able to come to tow this boat back in and pick up these two guys. And they were well enough by that -- several hours later, they got -- the other boat showed up and they off loaded them and they towed the other boat in. And then we continued on, and got dropped off at St. Matthew with all of our gear. And it was pretty -- there were some new things we had. They didn't have fancy radios like they have now. So we had this aircraft division, they were good with radios and aircraft, and so they rigged up -- built a box, which is like a small bookcase and in it was this tube kind of radio and that they'd designed specially and tested it and then it had this big antenna that we had to reel out and get driftwood to make poles to hang it in certain directions. They tested it and it had to be -- you had to string this antenna in certain directions. And we wanted to be able to reach both the Coast Guard boat, but more importantly the radio station at the refuge, the wildlife refuge at Bethel, which had people standing by on the radio most of the time. Somebody. And so we could have a radio schedule with them to tell them that we were okay on a daily basis, or every couple of days or something. We had to have a generator and had a car battery, and a generator and gasoline for the generator just for this radio, because it took a lot of juice. But as a result of it, we had an extra wire, extension cord so we could have this generator outside of this driftwood hut that the Rausches had built and we'd have the generator outside. When we turned it on to charge the battery, we'd do that at night when it was getting dark, and then we had the extension cord and one light bulb

that way we could have some light while we were charging the battery. And we also had a Coleman lantern for inside -- this driftwood hut didn't have any windows, so you had to have some light. And, well, that worked out well. And the only way you could get around was walking and we were both in good shape and we walked. And took -- we had a small tent, and we did the whole island. Set up a bunch of line transects through different vegetation types and we recorded the information on the vegetation. And then we selected places to build three enclosures within --

KAREN BREWSTER: Enclosures or enclosures?

DAVID KLEIN: Those enclosed vegetation plots and they excluded the reindeer. And so we built two of them within walking distance, close walking distance from -- We actually were able to get the wire and posts for one of them dropped off further south by the Coast Guard before they dropped us ashore, and then they off-loaded this. And this was heavy stuff.

KAREN BREWSTER: Yeah, it's a lot to carry.

DAVID KLEIN: So it took the two of us to carry the roll of wire for the -- across the tundra to the locations. And we did that. And one of them was up on a little bench, but we got them up there and built the enclosures. And did a nice job under the circumstances. Laid out the vegetative quadrants and tried not to damage those while we were building. There were four-meter square quadrants. Two within the enclosure and two outside. So then the enclosures were approximately ten by ten feet. And so we got these three enclosures up in different vegetation types that had been -- apparently had been used by the reindeer and had reasonable amounts of lichens in them. And then -- but we had to, you know, guy [wire] these things well because it's so windy there. And so we had stakes that drive in, metal stakes especially for fencing, and stout wire. And guyed all four corners, and so they really were quite secure. Then we covered the whole island, systematically counting the reindeer as we moved from mountain ridge to mountain ridge and looking over broad areas to the lowlands, and moving north. We found that most of the reindeer were in the south, close to our camp, where on the other side of the island where the LORAN station was. And where, in retrospect, that's where most of the lichens were for winter forage.

KAREN BREWSTER: Was by your hut, where the reindeer were?

DAVID KLEIN: In the southern portion of the --

KAREN BREWSTER: Yeah, the southern, okay.

DAVID KLEIN: -- southern one-third of the island. As we went north, it was very interesting because, you know, there's lakes that are frequently dammed by the beach gravel that have char in them. And one of the things we did was collected some char from -- well, we ate quite a bit of char. We had a small gill net and we were camped near Big

Lake – Big Lake. The largest lake on the island. And we could get nice char that were oh, 20 -- 20 inches or more long.

KAREN BREWSTER: Wow.

DAVID KLEIN: Really big. Wonderful eating. And we had a permit to take ten reindeer to get body composition measurements and collect other information from them. Age, sex, and general condition. Look for parasites on the ten reindeer. And, of course, we ate a lot of reindeer. But we had to be careful with the reindeer because there were a lot of Arctic foxes there, and they were real scroungers and you couldn't put any food out unless you hung it from a pole, hanging from the roof of the cabin that they couldn't get to. Which we did. And things kept well in the cool moist, windy air. There weren't flies normally to bother us unless it got calm. And so we ate well. Fish and -- but when we hiked, of course, we had to have lighter food. And so we'd have to have -- we had a small tent, a two-person tent, with -- see I think we had a little gas stove.

KAREN BREWSTER: Like a Primus stove or something.

DAVID KLEIN: A little tiny one. Because we preferred to use driftwood if we were camped on the beach, but there wasn't driftwood on every beach and there were no trees on the island. So wood was -- some places there was a great abundance of driftwood and some places none depending on the side of the island you have to be on, and we didn't have any knowledge of the island really until we hiked it. And that was just fascinating, because we were interested in seeing the bird concentrations and seeing as much as we could and explore the island. And where we found unique vegetation types, we would stop and a big tape and lay out a transect and put in a small cairn at one end or the other and record at point intervals along the tape, the vegetation that was there by species. So we sometimes had to collect plants to identify them, whereas mostly I could identify the plants and tell which ones were dominant in a given area.

KAREN BREWSTER: And so how long were you out there?

DAVID KLEIN: About three weeks.

KAREN BREWSTER: What time of year?

DAVID KLEIN: This was in -- I think, July into August. Probably mid-July to early August, something like that. And then the Coast Guard boat picked us up again, yeah, and took us back to Dutch Harbor, I think, and then we had to fly commercially from there. But they were always good about getting us ashore and picking us up, even though early on we just -- we used these lifeboats that were -- had an inboard motor. So they could handle surf pretty well, but you had to -- if there wasn't too much wave action you could do it with hip boots on without getting too wet. If it was a little rough, then somebody had to get wet. They have a -- usually those boats, they'd have about four crew, so they could -- a couple of them could be holding the boat and then they had these heavy things like the radio bookcase.

KAREN BREWSTER: Yeah, I mean you had a lot of supplies to off-load, it wasn't just you jumping out.

DAVID KLEIN: No, and they were mostly in waterproof containers. So they were good about off-loading the stuff above the wave action and where we could pack it then.

KAREN BREWSTER: So they weren't using zodiacs at that point?

DAVID KLEIN: No.

KAREN BREWSTER: So they were wooden, kind of like a dory, a high sided -- ?

DAVID KLEIN: They were life boats.

KAREN BREWSTER: Yeah, okay, so kind of high sided wooden boats.

DAVID KLEIN: Yeah, and some of them had inboard motors that they could use. Others just oars and sail, if they were used as lifeboats. Yeah, and they would have a capacity for about 30 people probably in one of them.

KAREN BREWSTER: Oh okay, they're pretty big.

DAVID KLEIN: Twenty-five or thirty people.

KAREN BREWSTER: So you could get all your gear and you in one boat and one load?

DAVID KLEIN: I would think -- I think so, if I remember correctly, yeah. So that was the beginning. And then I wrote up a long report on that, that included all this, you know, bird seen -- and bird species seen and what it was like, you know, what buildings were of evidence of people that been there before, including there had been some fox trappers there in the '20's, I think, over-wintering. And there were -- found old remains of a couple Russian structures, as well as -- And we did get ashore -- just before they dropped us off, we did a -- they dropped me on Hall Island and I could get ashore where the reindeer hadn't got to it. And that's an island only about three and a half miles from north of St. Matthew, but the reindeer never got to. So it had vegetation types similar to on St. Matthew with good lichen, so I could make comparisons there between the lichens versus ones on St. Matthew.

KAREN BREWSTER: What was the name of that again?

DAVID KLEIN: Hall. H-A-L-L.

KAREN BREWSTER: Okay.

DAVID KLEIN: It's one of the three islands in the St. Matthew group. St. Matthew is the big one, and then there's -- it's like 32 miles long, by averaging about three and a half miles wide. And then one smaller, rocky island towards the south end of St. Matthew, about nine miles from St. Matthew called Pinnacle. Very steep sided, but loaded with seabirds.

KAREN BREWSTER: So was this study successful then? Or what was the outcome of your study?

DAVID KLEIN: Well, it was like a reconnaissance study, but also beginning of a longer range study to monitor the reindeer. But when I did this, there was no knowing when the next time anybody would get out there. But I did the preliminary thing and wrote it up and it was published in a wildlife -- Fish and Wildlife Series publication about the St. Matthew Island and the reindeer. But that was beginning of the baseline information. It was very detailed with the vegetation and photos. A lot of black and white photos of the vegetation plots and things like that. So it was baseline studies upon which further was -- But then there were -- I got out there -- it ended up I did all of the follow-up studies. And the next time I went out I was Wildlife Unit Leader at the university in 1963. Again the Coast Guard, different Coast Guard boat -- a buoy tender I guess it was, took us out and picked us up. And we did the counts. '63. Now, '63, was -- yeah, there was a big team went out that time because people wanted to do more. There was one of the stomach contents of char that we caught in the lake. Or maybe Rausch caught it? It wasn't char tissue. And there were some sticklebacks in the other lake, but it was assumed that they were just Arctic char there, and the stickleback. But they found this muscle tissue of another fish and couldn't identify it and they sent to University of British Columbia fisheries guy and he identified it as blackfish. Which is unique because blackfish is a freshwater fish. It's not able to live in saltwater.

KAREN BREWSTER: Whereas char go in both, right?

DAVID KLEIN: Yeah. And char can readily get into these lakes from the sea when the lakes are full and streams running out over the gravel. They can get in that way. And sometimes there's an open channel that's for a couple of years between big lakes and the -- or lakes and the -- But once they're in there, like in Big Lake, there was no outlet to the sea left because the old beach ridges had closed it off. But there's lots of char and they're breeding successfully and you could catch them with fishing tackle, as well as with a gill net. But we never -- in '57, we never saw any sign of other fish. We did see some sticklebacks but just char. So it turned out to be blackfish. And so the blackfish would be relics from when St. Matthew was part of the Beringia, when the sea levels were lowered, some ten plus thousand years ago. And St. Matthew then would be part of the coastal shelf and the mainland of Alaska, along with the Pribilof Islands. So this is of interest. And obviously that vole had to get there under those conditions, too, whereas Arctic foxes could get there on sea ice and birds by wing. So then in '63, then it became my project. Scott was no longer -- he was retired, I think. No, he was in Washington. He transferred to Washington and was head of refuges, so it was up to me to follow through. So I made the connections with the Coast Guard, and then I --connections with people. I

got to know some of these fishery people at UBC and so they -- one of the grad students who was in the fisheries program came along to collect blackfish. And he had some Rotenone, which can be put into streams, in little streams, and it knocks the fish out and they -- It's just temporary and it's biodegradable. And so they were prepared to do that. Yeah, they were prepared to do some fishing in the sea, too. They had a little inflatable raft and they could let out on a line and then try to fish for crab and anything else that they could get. And so then there was also a person from the Bureau of Indian Affairs, who volunteered to come out and help with the counting and work. And then Dr. Frances Fay volunteered to come out and wanted to come out to collect more foxes and voles for Dr. Rausch's work. He had collected some of the voles, alive, and started to call me at the University in Fairbanks and he wanted -- It was a small colony, and he wanted to get some more. And so Frances Fay, Bud Fay, was mainly charged with trapping some -- live trapping some to bring back.

KAREN BREWSTER: So Bud Fay, Frances was his given name. Okay, I've heard the name Bud Fay.

DAVID KLEIN: Yeah. And so he originally, his PhD was from UBC and on walrus in Alaska. So then we all went out and --

KAREN BREWSTER: Do you remember the name of the grad student or the BIA person?

DAVID KLEIN: I can get it. It was the son of my major professor when I was a PhD student down there. Cowan was his last name.

KAREN BREWSTER: Was the grad student?

DAVID KLEIN: Gary, I think.

KAREN BREWSTER: Was the grad student?

DAVID KLEIN: Gary Cowan, yeah, but he was in fisheries.

KAREN BREWSTER: Erie?

DAVID KLEIN: Pardon me?

KAREN BREWSTER: His first name was what?

DAVID KLEIN: Was Gary.

KAREN BREWSTER: Oh, Gary.

DAVID KLEIN: I think it was Gary Cowan, but I can check on that.

KAREN BREWSTER: Okay.

DAVID KLEIN: And there may have been -- he might have had another person with him to do the fisheries stuff, but I don't know. I'll have to check on that, too. And so then we got out there and we had a permit again to take ten, maybe more than ten, reindeer. And figured there would be lots of them. And we got there and there were lots of them. I mean, there were reindeer all over the place. And it was so damn foggy we couldn't make good counts. Occasionally, the fog would lift and we could get composition, you know, the sex and age ratios, the numbers of yearling in a group, and the numbers of calves in a group, and the numbers of females versus males. Mostly in the summer, the males are separate. The big males are separate. So, you get some of that information on the groups that you could see but when we'd get in a position where we could see big areas, the fog was too dense for us to make counts. So we did -- And the weather was not great. It was very rainy and windy sometimes. Very rainy there is, the kind of -- it wasn't really hard rain but the wind's blowing so hard that it seems much worse than it is. And rain gear, you've got to have really super good rain gear or the water's going to get in. So it was tough going, but we had that same driftwood shelter, which was gradually -- the beach was gradually encroaching, being eroded away, and it was slumping now. A good portion of it had been undercut by a storm at some time. And summers, there's really not big storms but we could still use it and we could use the wood stove in it and pick up driftwood and it was convenient. We could dry out our wet clothes easily and be warm and dry. And so we did hikes with groups. And I think Bud Fay and the two fisheries guys stayed there doing the fishing work around Big Lake and the sea and the rest of us, that would have been, one, two, three, four, I think of us, maybe three, I forgot, would hike up. We tried to systematically to make counts, but we were frustrated, you know, we thought, you just can't wait. We had limited time. And we tried to get far enough around to make camps, but I was able to visit the enclosures and work. Do that. Look at the changes that had taken place. And already in those, in '63, that's what, six years.

KAREN BREWSTER: Yeah.

DAVID KLEIN: Already the problems with the exclosures were that that's a marine environment, a lot of these wire, especially where they went around the iron posts, everything was rusted and the iron -- the wind action working the wire in some places, so the wire was fracturing. The main problem though was when the bull reindeer were cleaning off their antlers on the wire. In one case, they got stuck there and damaged that enclosure. Trampled the -- knocked the fence down and trampled that area. But everything was -- it had been so -- the lichens had been so badly damaged and frequently gone when we built the enclosures that -- and in six years we couldn't expect anything. It was too short of a period of time. But we were able to do follow-up work on the exclosures and the plots. And we got around the island, but we never were able to get a count. It was very frustrating. And the boat that had dropped us off there was a Coast Guard -- a Navy rather, a Navy icebreaker. I think it was the *North Wind*. And an ice breaker, and it had two helicopters aboard. So finally the day that we were due to be picked up -- we were keeping contact either directly by radio with them or with the Fish and Wildlife office at Bethel. And they would relay on to the ice breaker. So things were

pretty much on schedule and gradually the time was coming when they were going to get back and we still hadn't -- been totally frustrated. The day they arrived we had the best weather. It was still overcast, but it was high overcast, no fog. And so when they came, I got on and we started talking to them on the radio from shore. I said, "I want to talk to the captain. We're really in a bad way. We've done these studies and there's just lots and lots of reindeer here, but we haven't been able to get a count. Is there any way we could get use of the helicopter to do a survey?" And he came back within just minutes. It was relayed from the radio operator, and said, "Yeah, we can make both of them available."

KAREN BREWSTER: Wow.

DAVID KLEIN: So they flew these two helicopters over, picking up our gear, and then they used the helicopter to get our gear back to the boat. And then they -- Bud Fay got in one helicopter and I got in the other, and we divided the island in half. He took the south half of the island, I took the northern half. And I had one thing to do up in the northern place, was the archaeologist here at the university wanted me to do a quick trench across an old foundation site from what looked like it could be an Eskimo foundation site. The only such place on the island, which had been seen by early explorers on the island. And I'd seen it in 1957, and hiked up through there in 1963 when the group of us was there, but we didn't have time to stop and we didn't have the shovel or anything like that. So I took the shovel and we -- and I knew it was a sandy material that had filtered in there, and the archaeologist wanted me to just run a quick trench across. And so I got in and the helicopter pilot said, "Well, I can't really afford to keep the engine running while I'm waiting for you. And I can only shut down for about 25 minutes and be sure we can get it started again. So that's the only time you have." So I dug this quick trench across and just sort of filtered through the sand as I was doing it with the shovel I had, and I found some pottery shards. And I got down to the pavement of the rocks, which were apparently a floor, and I saw there was a charred place where there had been a hearth. And I found a polar bear tooth and that's about it. No wood. And there were a couple of big whale bones that were obviously use in the construction of the place, from a giant whale, and there were a lot of other bones which suggested the people that were there had killed a whale and maybe got stuck there or something. So, that was an aside. We then got back in the plane and both, Bud and I, did these surveys with the helicopter, which was just pretty ideal. And it was good weather, it wasn't -- with bright sun you get shadows and everything, when you see a group it's hard to estimate numbers. It's still hard to estimate numbers when they're in a big group, so we tried to do the best we could in estimating numbers in big groups and counting smaller groups. And we got back then on the boat and put our data together and we came up with approximately 6,000.

KAREN BREWSTER: Wow.

DAVID KLEIN: So then that was it for -- then I --

KAREN BREWSTER: So that was again -- was in the, what -- the July/August same two to three weeks?

DAVID KLEIN: Same general period.

KAREN BREWSTER: And did you have your own graduate students with you?

DAVID KLEIN: I think -- I don't know whether I -- I think it was because Bud Fay was there and it was a limited number that we could get on the Coast Guard boat to get out there, and then we had these fishery people. I didn't need a grad student and I didn't have any grad students that were working on.

KAREN BREWSTER: So it was just you and Bud, the fishery guys, and the BIA?

DAVID KLEIN: Yeah.

KAREN BREWSTER: So five people total?

DAVID KLEIN: Yeah, I think so.

KAREN BREWSTER: Okay.

DAVID KLEIN: So then I wrote up a --

KAREN BREWSTER: So did you see differences in the enclosures in the vegetation in those six years?

DAVID KLEIN: Not significantly, because this was mostly the kind of vegetation that had been grazed heavily. The big impact of the reindeer was mostly you can do this on the outside of the enclosures. Yeah, there was a little bit if there were -- there's one prostrate willow that they would -- where the lichens were thickest, there would be these hummocks with prostrate willows. And then there would be very little else in between them except lichens. So the lichens would be this thick, never been grazed --

KAREN BREWSTER: Four inches?

DAVID KLEIN: Yeah. And the bottom two-thirds was dead and decomposing lichens. The top would be live lichens. And so it's very vulnerable to overgrazing because when the decomposing lichens, if they're moist at all they -- and the reindeer wouldn't -- when they were feeding on them, they just would pull up all of the living material because it'd break off with this dead material. So there wasn't anything left to start growing, except that in the wintertime, normally, as they're eating, there's fragment of the lichens fall down on the snow. And that can start new lichens, if it's living material, after the snowmelt, if they fall in a place. And that's usually a way lichens can get restarted. But then we found these windrows of lichens where the -- by these beach ridges where hadn't thawed out yet, because there was so much snow mixed with lichens from the grazing effect that loosened all this stuff, and there was lichens mixed in with all this stuff. So a lot of the lichens were just blown out to sea. The fragments of lichens after they were -- while they're being grazed. So by '63 the lichens had just been virtually eliminated as a

winter food source for the reindeer. But the population was still increasing, not as fast, and the body size had declined again. Declined. In '57, the body size were much bigger than the original reindeer from Nunivak [Island] where they came from, but by '63 they were down to Nunivak Island size. And the calf ratio, calf/cow ratio had dropped, and the yearling ratio to adults had dropped. So there had been a decrease in body size, but they were obviously -- since they were about the same size as Nunivak, they were still reproductive and capable of expanding, but they haven't -- the rate of their increase, you know, they had mild winters and then the winter of -- and this was a follow-up study that we were able to determine that there was a big die off, which occurred in late winter, that would have been 1964. Right after we made the summer count of 6,000, there was an extreme storm event that caused record blazing combination of winds, extreme winds, 80 miles an hour, and snowfall measured at the Pribilofs, which was 250 miles southeast, and record snow. And temperatures -- normally when it snows in those areas, in a marine environment, the temperature's up in the twenties or so. The temperature was down around ten, plus ten, I think, or even colder. And so there was an extreme storm event. And it stayed cold. And we were able -- some of this we learned later, more recently, stayed cold. We were able to -- And the Coast Guard had been there in '65 and they stopped to let some of the crews go ashore and hunt reindeer, because there were so damn many reindeer known to be there. And they had done that when the reindeer were numerous, but not before they got to 6,000. And they couldn't find any reindeer to shoot. And they found lots of skeletons all over the place. They saw a few fresh tracks in one area, but other than that there was just skeletons scattered all over the landscape. And so this was in the summertime when they were there, of '64 -- of '65, rather. And so word got back and then I thought, oh man, I've got to get up there and try to find out what happened and why -- Are there any left? What's the status of the situation -- vegetation, condition of the animals, who died when, and when they died. So we went out in '66. Three of us. There was a botanist, Vern Harms from Fairbanks was a botanist at the time here.

KAREN BREWSTER: What was his -- ?

DAVID KLEIN: Vern. V-E-R-N H-A-R-M-S.

KAREN BREWSTER: Okay.

DAVID KLEIN: And a post-doc that I had from Germany. Detlef. D-E-T-L-E-F Einfeld. E-I-S-F-E-L-D. And I. Three of us. And we got taken out there by a Coast Guard buoy tender and a navigational light on it -- they were managing and refurbishing navigational light. And they -- that was a pretty rough trip. We flew, I think, to pick up the boat to Dutch Harbor or Adak. And then went from there. And it was pretty stormy, but again, I didn't have any problem. But Vern and Detlef got real seasick. They didn't feel good until they got their feet on St. Matthew. And we did. And they dropped us off. And we had a radio then, and we had lighter radios that were called silver box ones that were designed for the stream guards in Alaska coastal areas, with -- had a -- came with an antenna you could string up. And it was dry cell batteries, and you just had extra dry cells, and you had to be conservative about using the radio. But you could listen and

make contact and try to keep it short so that it wouldn't run out of power for two batteries. And so we were keeping in touch with the Coast Guard boat, often relaying from -- and they were going up, all the way up the Bering Strait to Point Lay and turning around and coming back. And so they were picking us up late August. Scheduled to pick us up in late August, about the 20<sup>th</sup> or so, I don't remember exactly. And then the word was by radio that they were running behind schedule, so they might be as much as a week late. Well, we were -- figured well what do you do, I mean a week isn't such a long time. And we had, we were getting short on food but we were camped on another lake further toward the midpoint of the island, further north. And we could catch char there right next to our tent. A nice lake with good water. And we had a wall tent. The other hut had long since washed away by wave action. So, well it was mainly Detlef and I working all over and sometimes we hiked together, but he was collecting plants and so he was trying to find different types. But if we did long hikes, we usually did it together, although Detlef and I did one together at the north end of the island. The weather was generally pretty good compared to '47 and '63.

KAREN BREWSTER: '57.

DAVID KLEIN: '57, yeah. But it took us a long time to find the remaining reindeer. And they were down south near this big lake. And Detlef and I hiked down there. It was like about seven miles there and it's foggy. And so we were planning to eat some of these. We had a permit for ten reindeer. But we thought -- we knew we'd be okay if there were no reindeer left. And we had a fishnet, too. And we were catching fish in that lake closer to where our tent was. And lots of driftwood there so we had a woodstove and it was a pretty good camp. And just as we're coming down the hill toward the big lake, we just -- the fog lifted enough so oop there's some reindeer, three or four reindeer. So we quickly shot three, I think it was, and, yeah, I think three. And so but there were more than three there, but we didn't know how many because they disappeared in the fog as soon as we shot these other three. So we quickly butchered and autopsied them, salvaged meat, and the foxes were right there. And so we got all of the stuff we needed. It turned out they were two females and one male that looked like a female, it had reduced antlers and shrunken testis, but otherwise in good physical condition. So then we packed meat back to our camp. We had some rock salt so we could put some of it in rock salt and hang it in gunny sacks up on a big tripod that foxes couldn't climb, although they tried to. They couldn't climb. And so that was important, because we found some of the reindeer and there were reindeer left, but we knew that there were more. And so then we spent more time looking for the rest, and finally Detlef and I went down there again, that general area, and all the way down to the southern most part, hiked around and -- did we camp? I think we might have camped overnight in a small tent, and then we -- although both of us -- he was built like me, and we were good hikers. We covered a lot of ground. And we were always going light. And you don't have to camp, you can still cover a lot of ground. I think we stayed overnight one night, and we were pretty light, we just had the one pot and we used driftwood, I think, to cook on. And then finally about four in the afternoon, the opposite side from Big Lake, and the opposite side where we'd seen these others, but in the same broad expanse of the valley, we spotted the remaining reindeer, which we later verified they were the remaining deer. So there were 40, 39, reindeer left,

I guess, after we shot 3. There were 42 in total left, which we learned later. So here were the remaining reindeer and they were grazing out in this big sedge meadow. And it was really hard to get close enough to shoot, but we spent a lot of time watching them with binoculars and I think we had a spotting scope. And we concluded that they were all females. There were no young animals, no yearlings, and so finally then, I figured, well, we've got to get our sample of ten. So I was able to wiggle on my belly and get close enough and shot seven of them. And so we've got these seven reindeer lying on the ground, and it's late in the day. So we went to work. And boy, that's hard work because you're on your back, you know, and we had to weigh all of these. We were weighing them all. But you had to cut them into chunks small enough that you could weigh them with a spring scale that we packed. It wasn't too heavy. So I had to weigh them all and get -- now we were collecting ovaries from all of the females and verified that all that we shot were females. So we shot the seven. They were all females with pretty confidence that the remaining ones were females because we watched them closely for quite a while. Then we salvaged some of the meat, but we were a long ways from our tent camp. But both of us loaded up. Finally, after we did all these measurements and collected lower jaws, we had the -- we took a lot of liver and heart, which you can eat right away. And so we had pretty loaded packs and then we took off and we walked all the way back. We figured that we covered 22 miles that day. And the longest stretch was with the heavy packs on our back. But we made it back and, of course, day length is long. Not as long as here, but it was long. So we made it back. And it was pretty good hiking, except there you've got harder, hard ground, but you're going up and then you're going down and then you're going up over low mountains. And we made it back to camp and then -- then the big adventure finally came up. So we had accomplished our objectives. We'd got the samples, we counted what were pretty sure this was -- when we went north of camp, we found no fresh sign and virtually very little sign to begin with, and no sign of there were reindeer up in that area. And so at any rate, we were pretty convinced that this was the case. But then about that time we learned, by our radio contact, which we had about every other day in the evening with the Bethel office, that the Coast Guard was being delayed. And then by the time we got back, we heard they not only had been delayed, but they had to stay up there longer than anticipated because Point Lay was where they were going to turn around, and there had been an Air Force big double engine or three engine or four engine Air Force plane that had attempted to land there and crashed in the sea. Everybody was killed. But the airplane was in the sea off the coast. And the Coast Guard had been asked to stay up there and drag for the aircraft. And so they said, "We'll be delayed probably a month."

KAREN BREWSTER: A month?

DAVID KLEIN: As much as a month. And, of course, they didn't know how long they'd be. And this is the Coast Guard. They've got to do their thing. So they said, "Well, we can probably get you an airdrop of food." And I thought, a month, this was disastrous because --for Vern Harms had classes to teach.

KAREN BREWSTER: Yeah, that puts you into September.

DAVID KLEIN: Pardon?

KAREN BREWSTER: That puts you into September.

DAVID KLEIN: Oh yeah. And he wouldn't be back in time for his classes and everything. And he had a family, too, in Fairbanks and so did I. And I didn't have a teaching responsibility that semester, but I wanted to get back. I had other plans. And Detlef, it didn't make too much difference, but yeah, he wanted to get back, too. Yeah, he had a wife back there in Fairbanks. And so I figured maybe there's some other way of getting off. And so we got hold of the Fish and Wildlife office and said, "Could you relay to Anchorage to the Aircraft Division." We knew they had a Grumman Goose, twin engine Grumman Goose that had been outfitted to fly long distances and equipped with proper radio and everything. And it was just brand new, been a brand new -- gone over and equipped with this and tested. And so I knew the head of the Aircraft Division then, 'cause he'd been there a long time. He was a good guy. So I said, relayed, "Check with him and would it be possible for them to fly out and pick us up?" And so they had to relay this. And then the response was, "Well, I have to think this over." And then in the meantime the Coast Guard is wanting to make an airdrop with food, so we can stay out there for a month. Well, we were down low, but we didn't want an airdrop because I wanted -- we all wanted off the island. And so we -- I said, "Well, we don't need an airdrop now. And we're looking into other possibilities." But the captain of the boat definitely wanted to give us -- wanted us to give them a list of what kind of food we want in the airdrop. So I said, "Well, we really don't want it." "Well then, just provide a list." And this is all through the radio operator, and I just ahhh I didn't want to give him a list because I didn't want an airdrop as long as there was some hope. And we also had asked if they could fly up with an Albatross from Kodiak.

KAREN BREWSTER: What's an Albatross?

DAVID KLEIN: It's a big double engine, amphibious plane, which we knew they had. And they said, and it took, of course, they had to rely that, I mean they couldn't --

KAREN BREWSTER: And that was a Coast Guard plane?

DAVID KLEIN: Yeah. So they went through authorities down there and they said that they could do it except that they would have no way of picking us up because all they had was a small inflatable boat. And that it wouldn't be adequate to get ashore, because there was wave action there. A zodiac, but they didn't have zodiacs that size on the plane, and so at least they were -- they considered it. And then we heard back from Fish and Wildlife and said, "No, it was too long a distance to try out this new plane." They didn't want to risk the new plane. And so we'd been turned down twice and we were fairly dejected now. Sitting in the tent, and we're getting pretty low on coffee, and we had plenty of rice and were catching -- well, we had rice, and there's not much oatmeal left. And we were catching fish, but some days we wouldn't if the weather was -- the wave action influenced whether we'd get fish or not. Some days we'd get five or six, and they weren't as big as in Big Lake, but they were good.

KAREN BREWSTER: Eighteen inches long.

DAVID KLEIN: So if you get six that was good for us, three people and with a little of this other stuff. But we didn't know what would happen. And now we had to stay by the radio all the time because we were trying to figure out all these things. And we couldn't hike all the way down and see if we could find -- and technically we didn't have a permit to take more than ten. And there hadn't been a decision as to what should happen a week -- we knew -- I knew that I shouldn't take more because the population was probably going to go to extinction anyway because there's no viable males and there were no young animals there, so they weren't breeding. Yet the body condition of these females, the last females we killed, was good with putting on good fat. And so at any rate, we were sitting in the tent and the weather was turning out to be pretty nice, you know, there were breaks in the clouds and the clouds were lifting and sun was shining through. And there was no wind, it was pretty nice. And we hear an engine of an aircraft. And it was a small engine, like a small aircraft, not a big aircraft. And went outside and it comes out down through a hole in the clouds, comes this Super Cub on floats. Now it's 250 miles to the mainland from there. And you don't fly in a Super Cub out over the open ocean like that. And so it comes out through the clouds and comes down over our camp, wiggles the wing, turns around and lands in the lake and pulls up on the beach. And it's got written on the side, Butch or was it Red -- Butch something or other. I think it was Butch something or other, or it was Red something or other. Red Butcher maybe? And this young pilot with red hair climbs out. And there's a nice beach there. It's gravelly beach and he just pulled right up with the floats and he could just kind of step off the floats, onto the beach. And it was just ideal weather for him, too. And the lake, it was a good lake, it was long enough and it was -- we knew it was -- pretty sure it was deep enough with no rocks whereas Big Lake was somewhat questionable for landing a plane. It was bigger but it was shallower. So any rate, he climbs out and he says, "Well, help me unload this gas, I've got to refuel." The backseat was just loaded with these gas cans. So he had flown from Bethel and then landed in a bay out on Nunivak Island and refueled there. And then he flew the rest of the way with the remaining stuff so he'd have enough fuel to refill and fly back to the mainland. So he comes on the beach, you know, "Hi" and introduced one another and said, "Well, how did you know we were here?" Or something. No, we said, "What brought you out here?" Or something like that. And he said, "Oh, I heard that there were a lot of reindeer out here. And I'd never been out here and I thought, I've lived in Bethel for several years, and I thought, yeah, that'd be a nice deal to fly out here. And I wasn't busy." And it turned out he had heard that there was a camp on the island from Fish and Wildlife in Bethel, I guess. And I don't think he knew exactly where we were, but he -- it was just sort of luck that he came to this one good landing lake. And when he flew from Nunivak, the clouds were so low into a fog, he had to go on top.

KAREN BREWSTER: Wow.

DAVID KLEIN: And I thought, man, going on top. And I said, "Well, how did you find the island? How'd you know where the island was and find the island?" And he said,

“Well, I figured I knew where it was on the map, and I figured I’d see the mountains sticking up through the clouds, because the cloud layer was so low.” And that’s what he did.

KAREN BREWSTER: And it worked.

DAVID KLEIN: It was breaking up, opening, providing openings, so he didn’t have to come down through the clouds to the sea level. So everything worked out the way he had planned it. And so we told him our sad state and that we were stuck there. And he says, “Well, why don’t you get an outfit in Dillingham, they have Grumman Gooses that they fly to the Pribilofs. They should be able to fly out here.” And so he says, “Yeah, I can take one of you back, too, because I’m going to have the backseat open after we put all the gas in.” And I thought -- I talked to both of them outside the tent when he was going down to check something on the plane and I said, “Personally, I wouldn’t go back.” But Vern Harms, he said, “Oh no, I want to go back because I’ve got to be there for the class” etc., etc., etc. And so I figured, “Well, it’s up to you to make that decision.” And so he said -- he told, he’d like to go back with him. And then this Red said, guy said, “Well, as soon as I get airborne, I’ll call – I’ll radio, and I can make radio contact with Dillingham and see if I can line up a charter for you, for maybe the next day.” And I said, “Well, yeah.” And then he said, it’ll be about five hours before he gets back to Bethel and it was by this time around noon, so we had a snack and they took off. I think he had his own lunch he brought with him. Maybe shared it? And they took off and flew. And then the plan was, once they got in the first thing he did would be to call the Fish and Wildlife office and tell them what the situation was on the charter and also that you successfully made it. And we would be on standby with the radio. We were going to be on standby anyway with the Fish and Wildlife at around six or six-thirty in the evening. So they would call us. And so they took off and the weather stayed nice and kept getting nicer, in fact. The clouds started disappearing, sunny skies, it was the best day we had experienced on St. Matthew. And so they didn’t call. You know, five o’clock came and they didn’t call. And finally, we got in touch with the Fish and Wildlife office at six, whatever it was, six-thirty or something, and they said, no they hadn’t received any phone call from them. Oh, we were getting worried. So then their phone rang and they said, “Just a minute. Oh yeah, that is them, they made it. Okay, they were so hungry they stopped and had a hamburger before they called.” And he was able to arrange for a charter with this airline in Dillingham. And they said that they would be able to fly up the next day, but they would need a weather report from us, what the weather was like, and they would fly to Bethel, refuel there and then fly from Bethel out because it was shorter than going all the way from Dillingham to start with. And so, man. And so we had a weather forecast with the Coast Guard for seven, I think it was. So this was about 6:30 and I figured now I’ll just call off this airdrop, no airdrop. And I told them that I’d let them know about the airdrop that evening. So we just kind of hang up from talking to Fish and Wildlife in Bethel, and we hear an airplane. It’s a big airplane and suddenly, and there’s still a few clouds, and suddenly down out -- and the clouds are higher -- down out of the clouds comes this big Air Force plane with four engines, a big cargo kind of plane that the back opens up. And comes down right over our camp and dips the wings and disappears back up into the clouds again. Well, Detlef couldn’t figure what was going on. He says,

“Where’re they going?” I said, “Look they’re verifying, and they had to be sure where we were and then they had to look over the lake.” No, they’re not going to land on the lake, they’re not going to land.

KAREN BREWSTER: They’re not going to land.

DAVID KLEIN: They’re going to airdrop.

KAREN BREWSTER: They have to figure out where to drop it.

DAVID KLEIN: And so they had to make a big circle, a big plane like that. And they disappeared into the clouds, made a big circle and finally we heard them and then we saw them come out of the clouds again. And then out of the back of this plane comes this parachute and this huge airdrop on a 4x 8 piece of plywood. It was stacked up, sea rations, and all kinds of crap. And what we said we wanted was protein and the radio operator said, “What’s that?” I said, “Cheese. And maybe dried sausage.” Or stuff like that, summer sausage, and oatmeal, and rice, I think. And here comes this – kneel down and crash right on the beach. Far enough where it wouldn’t drop on us, but it was this perfect drop. And there’s this big cargo net and there’s a big decal on it says, “This must be returned to Eielson Air Force Base.” And so I looked in there and there’s sacks of sea rations and cans, big cans, military cans of ham that on the outsides said, “Keep refrigerated.” Well, they were canned, but they probably would’ve kept for a long time, but they were these big cans like this. And then there was a limited amount of oatmeal and a limited amount of -- I don’t think there was any cheese, but any rate there was this huge number of sea rations. So then I rushed back to the tent and got on the radio and -- so I was beginning to see some of the humor in this. You have to. So finally got hold of -- direct to the Coast Guard boat, a good connection. And so I’m talking to the radio operator there and I said, “First thing, call off the airdrop. We don’t need it. We’ve got it arranged to get picked up.” So he says, “Okay, just a minute and I’ll go to the captain.” And he comes back and he says, “I think it’s too late.” And then I agreed with him, it was too late. So I told him we tentatively had it scheduled to be picked up. And so then that was that for them. And then, so they didn’t have to think about picking us up, we hoped, but we still have a radio. And the next morning we got up and it was so beautiful weather, and we gave the weather report and so they said they would probably be in about 1 p.m. And, well, you know how it goes.

KAREN BREWSTER: Right.

DAVID KLEIN: I’m sure it took them a while to load up the plane and --

KAREN BREWSTER: And a longer stop in Bethel.

DAVID KLEIN: And then have a stop in Bethel. And they’d arranged, I’m sure, to get fuel, but it’s not that simple and they weren’t used to that. So I just relayed this information to Detlef and that they thought that they would be here by 1, but don’t count on it for sure. But it was so beautiful and we just kept waiting to see a big storm brewing

on the horizon. And, you know, 1 came, and 2 came, and 3 came, and, you know, I'd look out there and there would be a seagull way out there. Or Detlef would see it and then get the binoculars, no it was a gull. Then finally here comes this plane. It's way out and it's paralleling the whole island. And it's way out there. And you could see it's a Grumman Goose. I could with the binoculars, and I think he had them. And it just went right on by. Didn't change course at all. And Detlef said, "They missed us. How will they ever find us?" Their instructions were we were so many miles from the north end of the island, so they had to go to the north end and then count the miles coming back. And so that's what they did. And so they landed in the lake. There was just one guy, the pilot. And he landed in the lake and taxied right up there, put the wheels down. With hip boots on we could wade out. And he just unloaded these big 50 gallon drums of fuel, and then we had to pump those in. And then he could take them back afterwards. And then we loaded all of our gear *and* all of this food drop.

KAREN BREWSTER: I was going to ask.

DAVID KLEIN: And the net, because there was plenty of room in the plane, in the Grumman Goose. It was just the two of us and our gear and camp and stuff. And took off around 5:30 or so in the evening, after we'd fueled up. And took off, and I asked the guy if we could make a run down over that area where the reindeer were last seen, where we last shot those. And we did and it was just perfect weather and sure enough they were in the same general area. The remaining, what was it 32 or something? Yeah, 32 animals, right. And they had moved somewhat, but yeah, there they were. And we didn't see any sign of reindeer in any other places, so that was a good confirmation. And so then he said, the original plan was we'd fly to Bethel, refuel, then go to Dillingham. He said, now the weather's so good and now we can fly direct to Dillingham. So we did. And we got there just as it was getting dark. And you could see the lights of the -- just turned on the lights on the airport. And so we got there and the next day we could catch a flight to Anchorage and then on to Fairbanks. Phew. And then I had to drive that -- and that [laughing, inaudible] to Eielson and give it back to the Air Force.

KAREN BREWSTER: Did they even care?

DAVID KLEIN: I didn't give them the -- we saved the -- for the Wildlife Unit, the sea rations for students to use when they're in the field, and the hams, too. But even the hams, when that came down, Detlef said, "Let's go cook one of those hams right away." I said, "We can't eat that whole thing." And finally he was so hungry, I figured, no, we've got to do it. [Laughing] And he ate a hell of a lot of ham.

KAREN BREWSTER: Yeah.

DAVID KLEIN: We weren't that hard up, but we weren't eating heavy because we knew we might be there for a long time.

KAREN BREWSTER: Right, and he was a young graduate student. But the Coast Guard didn't care about getting that food back?

DAVID KLEIN: It wasn't the Coast Guard. They probably got the Air Force to put the whole thing together. And they volunteered to do it, in a rescue type of thing like that --

KARN BREWSTER: They don't care about getting it back if you don't use it?

DAVID KLEIN: No, especially when it's out in a remote place and takes fuel and everything to get it back. They wouldn't -- if we just said we couldn't get it on the plane and left it there, that wouldn't have bothered them.

KAREN BREWSTER: But the fact that you were able to bring it back, they maybe said, "Oh, well, okay, we'll use it for something else."

DAVID KLEIN: No, this was -- there might have been a few things, but I figured we could use it for students in the Wildlife Unit. And that would be okay.

KAREN BREWSTER: Did they appreciate that you brought the net back?

DAVID KLEIN: Oh, definitely, yeah. But I don't know whether we met -- the person I met was an officer and he didn't have a clue other than what the --

KAREN BREWSTER: Right.

DAVID KLEIN: And so he thanked me. So it was the combination of the Coast Guard, you know, they were in an awkward bind. They were scheduled to pick us up and couldn't. And they had a good reason for not. And so they did their best. They just made the airdrop before -- but they were probably taking advantage of the good weather. And the Air Force probably said the same thing. It was good weather, it may not last. If it had been super cloudy and, I mean, they couldn't have made an airdrop.

KAREN BREWSTER: Right. Well, also in the old days, before, you know, all those Arctic exploration trips, that's what happened, the ship couldn't come because the ice was in. So, oh, you're supposed to be picked up, but a month goes by and then three months and then they're all starving. So they didn't want that to happen to you guys.

DAVID KLEIN: But this Super Cub, you know, that was out of the blue.

KAREN BREWSTER: Was that Red Boucher?

DAVID KLEIN: No.

KAREN BREWSTER: No.

DAVID KLEIN: No, I've got his name written somewhere.

KAREN BREWSTER: Yeah, when you said Red, I thought maybe.

DAVID KLEIN: I seem to remember his red hair, maybe it was Red something or other. And he was a guide outfitter.

KAREN BREWSTER: Out of Bethel?

DAVID KLEIN: Yeah, had his own plane out of Bethel. And he was just a nice young guy. And that was the kind of adventure he was looking for.

KAREN BREWSTER: Yeah.

DAVID KLEIN: But he was on the ball. He says, "Well, why don't you charter a plane from Dillingham? They've got Grumman Gooses, the company, and flies to the Pribilofs." And then he said, "Well, as soon as I'm airborne I can probably line it up."

KAREN BREWSTER: That was nice, good idea.

DAVID KLEIN: It was just ideal because he had -- if he'd gone and waited for someone to call from Bethel, it -- but if you're in an airplane and you could get direct contact with the other airline company it was just perfect.

KAREN BREWSTER: Yeah. Well, so from '57 to '66, that's when the reindeer all declined. What happened to your enclosure vegetation studies in those time periods?

DAVID KLEIN: The vegetation studies, it was still too soon to see much of a difference. When Detlef and I did that hike we stopped and checked those exclosures, and you couldn't see much significant difference. Well, then I published one paper on this whole thing in the *Journal of Wildlife Management* in 1972 or '73, I think. And including analysis of the ovaries, showing that the females had ovulated normally, but had not conceived. Which verified that the male was not viable, but the absence of young animals also suggested that. That all the females were -- had been either yearlings or a year older. So they were very young and probably didn't have -- weren't carrying an embryo. We were able to determine the time of the major die off by looking at these carcasses where females had died and the bones of the embryos were there, and so figured that it was February and early March that most of them died. Well, February mostly. And so then, that -- you know, of course, then the paper went into why the males died and some females survived, significant number out of 6,000, but probably no pregnant females survived. And these were animals in good condition -- good enough condition that they made it through this tough, extreme, long period of deep snows, bad weather, and poor food available.

KAREN BREWSTER: So why is it that the females survive better than the males?

DAVID KLEIN: Okay. Then you go back to the old polygamy and the strategy of polygamists animals where males breed more than one female. And the males have to gain -- well, in caribou that the reindeer are models for, the males have to be dominant

over other males to hold a harem of females. And the reason for holding the harem together is when the females come into estrus, and it's not in perfect synchrony, then they breed these females. So if you can hold a bunch of females together, and moose do the same thing, then you can breed the females. But you've got to be a big dominant male, and if you -- so young males don't get to breed usually. And the big dominant males, they're super fat going into the breeding season and they burn all that fat up. They don't eat very much, if anything, because they're so focused on breeding the females. And they then expend all this fat that they've accumulated, whereas the females go on putting on fat during the breeding season and they concentrate on feeding on the optimal food that's available for putting on fat, because their contribution to reproduction is not achieved until they produce a young, nurse it, wean it, and see it until it is separated from them.

KAREN BREWSTER: So the females need that fat to produce viable young?

DAVID KLEIN: To survive themselves through the winter in good enough condition to not only produce a viable offspring, but to lactate enough milk. The greatest physiological demand on the female is not in the terminal stage of her gestation and the development of the embryo. Yeah, it increases but it's not like it is once she has to start producing all that milk, because that new fawn, or calf, is growing -- is going to be growing like hell, faster than it was when it was in her. And so she has to feed on optimal food that's greening up now and be very selective for just the highest quality, quick digesting food and literally eat and digest and produce milk until -- for the first three weeks of the life of the calf before it gets into starting to graze, and she'll go on nursing it for longer than that. But the peak production of milk is in this period when the calf is getting big fast, and demanding a lot of milk and dependent on that milk. Gradually, it'll start learning to eat some of the new vegetation and digesting some of that and still nursing. And gradually the nursing drops off and the vegetation consuming goes on. And right up into the -- nursing is usually over by -- major nursing is over by late August.

KAREN BREWSTER: And they have their calves when?

DAVID KLEIN: Well, caribou would have their calves in the first week of June in northern Alaska, but reindeer have their calves two or three weeks earlier. So one reindeer was born already, a calf here.

KAREN BREWSTER: Oh, at the large animal farm?

DAVID KLEIN: No, down at the -- the ones down by the --

KAREN BREWSTER: Oh, the University's reindeer?

DAVID KLEIN: Yeah. Yeah.

KAREN BREWSTER: Okay. So back to these, the males died off --

DAVID KLEIN: No, that was in Goldstream Valley, there's somebody there that has reindeer.

KAREN BREWSTER: Oh, yeah, yeah, they have a reindeer.

DAVID KLEIN: That was in today's paper.

KAREN BREWSTER: Oh really?

DAVID KLEIN: Yeah.

KAREN BREWSTER: Oh cool.

DAVID KLEIN: A picture of the guy and the calf and the reindeer. You know the people?

KAREN BREWSTER: Yeah, I think I do. Doug and Jane.

DAVID KLEIN: What is it?

KAREN BREWSTER: Doug Toelle and Jane, maybe it's different people. No, don't worry about it. You can't get up, you're connected.

DAVID KLEIN: I've already stuck it in the mailbox for Ned.

KAREN BREWSTER: Anyway, just to finish off St. Matthew Island, so the males died off because they had burned up their caloric reserve and then the bad winter hit and they didn't have anything to rely on?

DAVID KLEIN: They hadn't been able to rebuild their body condition enough.

KAREN BREWSTER: So they were more susceptible to it?

DAVID KLEIN: Yeah. And that's the same down in southeast when I was working with deer, we find that. Plus males down there, and a lot of males during the rutting season, quite a few males would turn up that they were swimming across, between islands and would die. And they would risk it, and so then they'd show up on the beach and they wouldn't be – you know, earlier – I mean, later in the winter, you might get animals forced into the water if wolves -- they'll go into the water and wolves, they're just stand out there where the wolves won't -- can't get at them. Whereas during the rut, it's when you occasionally would see a male swimming to another island where there's more deer, more females, and try to breed more females. Taking risks. Men do that, you know, young men, taking risks.

KAREN BREWSTER: All species, they do that, huh?

DAVID KLEIN: Well, in humans, you know, there's heavier mortality on males than females. And so a lot of that -- but in these herd animals where there's one male is normally dominant in a given area and they keep the other males away and if they're successful, eventually they may get displaced. Especially caribou, bulls will maybe get to breed -- big bulls will maybe get to breed a few females. But if they have to get into any tussles with other males, pretty soon the other males -- another big one comes along and displaces it. And for moose, that can happen, too, they get in a big tussle it takes so much out of them.

KAREN BREWSTER: Right.

DAVID KLEIN: And then they often --if one of them is displaced it goes and lays down in the thick willows where bears or something won't locate them, and stay there until it can recover a bit before they go out. But they're probably through by then.

KAREN BREWSTER: By then, they've lost their chance, kind of, with the females?

DAVID KLEIN: Yeah, that's true, they may have lost their chance, but they've probably already bred several females.

KAREN BREWSTER: Oh, I see.

DAVID KLEIN: And then sometimes if there's not another -- if both males are tired, then there's a chance for young males to come in and they stay on the opposite side of these big males and try to breed. And in muskoxen you could see the same kind of behavior.

KAREN BREWSTER: So I just want to -- you mentioned on the lichen that it wasn't a long enough time period to see the changes in the vegetation, and that's just because the growing season is so short so it takes years to see any change in an undisturbed area?

DAVID KLEIN: Two publications follow, one in 1985, I went out with the Fish and Wildlife Service and they wanted me to -- and I was eager to go. They were providing -- they chartered a crab boat and were going to do other bird stuff. And they took me out and were able to look at the vegetation plots and do an analysis and photo analysis as well as direct analysis of changes in composition. And then I wrote a publication on that. And mainly it focused on the differential recovery rates of different lichen species. And was showing that it had been grazed so heavily that the lichens that were when it was grazed were no longer there and it was sort of like starting from scratch. You got pioneering species that aren't as palatable to reindeer at first, or caribou, and then other species coming in. So that was published in a very short paper in the *Journal of Range Management*. And then in 2005, I went again. So that '85 was how many years from 1957 -- ?

KAREN BREWSTER: You said '63 -- '66 was when you were almost stranded.

DAVID KLEIN: Yeah, but '85 was when they went out. And that was after we built the enclosures and done the initial work.

KAREN BREWSTER: Oh, so '57 to '85?

DAVID KLEIN: Was how many years? That would be fifteen years plus --

KAREN BREWSTER: Twenty-eight years.

DAVID KLEIN: Pardon? No.

KAREN BREWSTER: It'd be like twenty-seven years -- No, twenty-three years. Was it 1957?

DAVID KLEIN: '57 and --

KAREN BREWSTER: And 1985. It's easier if I write it down. Twenty-eight.

DAVID KLEIN: Twenty-eight years. Okay, then I went and I did a publication then mainly on how the lichens were recovering. And also what effect the willows and sedges -- because they were -- the sedges were the ones that increased as a result of grazing, where lichens had been. And the willows had been damaged, but not -- the plants weren't killed. And some of that damaging was because they were eating the current annual growth of the willows, but also -- and eating the leaves in the summer, early summer. But also pawing for lichens, they might damage some of the willows. But the willows were recovering and the sedges were inhibited by the lichens in growing, and they came back first really fast. Other plants that came back were forbs, especially ones that the reindeer and caribou loved to eat the blossoms of when they're just coming in bloom like the pink lousewort, and also a legume species that has little blue -- which are pretty, little blue flowers and seedpods that look like little pea pods. And that's an oxytropes or something or other. But others as well that the reindeer were hammering, because they're good. So then in 2005, went out again. And then one of the reasons was to look at the plots. Which I did. And that was a more thoroughgoing assessment of regrowth. And then the question was why was the growth of lichens so slow. It should have been much more rapid than it was. And so there's a combination of things. One, we already knew that they were slow because of the severe grazing pressure and there wasn't much living tissue of lichens left, so they had to start from scratch pretty much. Then it gets more complicated, because why were the lichens there in the first place so dominant? So this led to other work on the Pribilof Islands and a paper there following the 2005 expedition. But I did this paper with Martha Shulski, do you know her?

KAREN BREWSTER: Uh-uh.

DAVID KLEIN: She used to be here with the Alaska Climate Office. And she and Gerd Wendler published a book on the *Climate of Alaska*. Have you seen that?

KAREN BREWSTER: Don't get up, because you're connected. Yeah, I know the book. I've seen it, yeah.

DAVID KLEIN: Okay. So she worked with me on this paper on the St. Matthew lichens and what my hypothesis was. The Big Lake lake level had gone way down by 2005. And the growth had been so slow in the lichens. And then I looked for evidence of climate change, climate warming, and longer summers, and less fog, and more sun, which is good for the vascular plants, bad for the lichens. So I was able to do this paper that it was the climate warming. And Martha reconstructed the weather in the Pribilofs for that and then another paper on the Pribilofs relative to the St. Paul and overgrazing by reindeer. But also I came up with this hypothesis that lichens were sort of a relic of a colder climate. And in a cold climate, they don't necessarily grow slower or faster, it depends on how much sun they have and how much moisture is available in the air to keep the lichens moist because they go dormant in 45 minutes in a sunny day. So, if it's been foggy overnight and they're real soft and you step on them, you know, and they just kind of all swish away. In 45 minutes they crack and break into small pieces, so they dry. And this was pointed out by -- in the lecture by Randy Jan [?@2:52:46] night before last.

KAREN BREWSTER: Okay.

DAVID KLEIN: On fire ecology. And she and -- when she was with BLM and also in conjunction with Fish and Game, and, yeah, they put out some -- the Park -- No, the Park Service wasn't -- the two of them, I guess. They put out some enclosures on the Seward Peninsula, the base of the Seward Peninsula where the western Arctic herd was grazing. And in the hills near the Selawik Flats and Kobuk area. And showing -- and their enclosures, or plots, were -- when they published a paper on it, it was 25 years. So mine were older, but they were able to check those pretty regular, and show that -- they didn't have enclosures, they had plots. And so they could look at effect and change. And the caribou were wintering in that every year to some extent. And they were able to show that the lichens weren't being overgrazed, but the landscape was changing from the gray of gray/green to green. And this was part of climate warming with longer summers and drier conditions in the summer, which meant slower growth of lichens. It doesn't mean that the caribou were overgrazing, or that the lichens were not growing as fast because they were dormant more in the dry weather. And some studies verifying that would have been done with reindeer range in Scandinavia, as well.

KAREN BREWSTER: Okay, cool.

DAVID KLEIN: So that was published in *AMBIO*, and they did a good job on that. And Martha was good at putting it together. Then there was one more paper. John Walsh and Martha and I were involved in that one. And I asked John at one point, "You know, why was that -- How did he account for that extreme storm event that killed off the reindeer in 1964?" That's a massive die off in such extreme conditions in the Pribilofs. He said, "I don't know, but maybe it sounds like volcanism. Maybe an eruption, some big eruption in the northern hemisphere?" He said, "I'll just check that out." And went to the internet, and said, "No, but there was a big one in Indonesia. Mt. Agung." Then he said,

“I can probably plot -- reconstruct that storm by looking at -- there’s a lot of data from ships at sea, and that data is barometric pressure.” So you can relate barometric pressure to wind and sea conditions. So he was able to reconstruct this extreme low associated with the eruption that moved out into the south Pacific, up the coast. It hit parts of Japan, just barely. And then out into the north Pacific crossing the Aleutians, where the weather stations were showing that there was extreme conditions -- extreme storm, as extreme low. At the same time there was an extreme high. And this was in the winter, so -- which is not unusual, but it was an extreme high over Eurasia, the Russian far east, and that was moving directly toward St. Matthew Island. And the low met -- he was able to show that they had met right over, generally over the St. Matthew Islands. They counted for the high frequencies of conditions in the Pribilofs, but they were even more severe -- so he could reconstruct the wind velocities that would happen and this kind of thing. And so we published a paper in a journal called *Weather Wise*. So that Martha and John Walsh and I did that. And my position was, yeah, I just -- to show how small populations on islands or in fractured habitat are very vulnerable to extreme events -- extreme storm events. And John Walsh, his modeling had predicted that extreme events, extreme weather events, are going to happen with climate warming. But they’re going to be more intense, like hurricanes, and that not necessarily -- yeah more frequent extreme events, not necessarily more total hurricanes, just that there’s going to be more extreme ones, which certainly has been the case with Sandy and --

KAREN BREWSTER: Right, that’s shown to be true.

DAVID KLEIN: So that one was a fairly brief paper, but it was amazing that John could put all this together, and knew where to go. Both of them didn’t go to the internet and pull out this stuff. You know there’s vast amounts of data, you’ve got to know how to access it. NASA was the one that keeps this ships at sea barometric pressure thing. And every ship at sea reports their position periodically.

KAREN BREWSTER: Yeah, they have to.

DAVID KLEIN: And that enters this, and that data’s available internationally.

KAREN BREWSTER: Very cool. Well, that’s great and I know there’s more on the St. Matthew’s story, but it’s getting late and I can tell you’re getting tired. So I think we should --

DAVID KLEIN: I can talk forever on St. Matthew, but this is good. This is good that we covered that.

KAREN BREWSTER: It’s been great. So we’ll finish St. Matthew the next time. If that’s okay?

DAVID KLEIN: Yeah, but we won’t need to spend too much time on it, I think.

KAREN BREWSTER: No, but we have to -- I mean, I know you were there in what 20 -  
- since 2005 you were there.

DAVID KLEIN: In 2012.

KAREN BREWSTER: Right, so we have to at least cover your last --

DAVID KLEIN: That's what I'm working on now, the rocks. And I'm making progress.

KAREN BREWSTER: And so we have to at least talk about that trip, 'cause I know that  
was an exciting trip. So we will start with that next time.

DAVID KLEIN: Good.

KAREN BREWSTER: Okay.