Oral Interview With
Laney Hanzel
April 20, 1995

Laney Hanzel
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Laney is a fisheries biologist retired from the Department of Fish, Wildlife and Parks.

AW: Okay, Laney, let's start with a little bit of where you grew up and were born and your history before you got into the fish business.

LH: Well, I'm a native Montanan, born in Belt, Montana, just about 20 miles east of Great Falls; which was a historic mining area. Our house, we lived all my life right next to Belt Creek so I became familiar with life around the stream. I always wondered now, looking back, was how my Mother let my brother and I loose as much as they did along a river that can be quite, surely was capable of drowning, I remember fishing by myself before I went to school, so I kind of grew up right around this area.

AW: They were pretty sure you knew your way around a stream.

LH: Apparently. I'm not sure. Growing up there all the time, I went to school there at a public school. During this time I became familiar with a couple of farm boys and spent a lot of time, summer time and weekends, in the mountains around Belt in the Little Belt Mountains and in Tiger Butte area assisting and helping these farm families do their chores and hunting and whatever there might be in those areas. Really beyond that, other than I guess my Dad always fished a lot too and took us back up there and we kind of enjoyed going to small streams in that area even as the first thing I remember. I guess the next thing I would do, it was occurring in the summer when I was a freshman in high school, while working on a farm, that I experienced my future in a profession. I was out haying and happened to see this guy down by a pond and he was out there, had a bunch of bottles in a boat rowing around and was taking some samples down. And so my friend and I were curious enough to find out what was happening, went down and started questioning him. Well, this was Nels Thoresen, one of the earlier biologists within the state and he was just starting to go and find out what

he could do to raise fish in this farm pond. Needless to say we didn't get a lot of things done that day other than visiting with Nels and he explained to us what was going on. Of course, at that particular time, you know, most people don't think about a profession, but I had no idea what I wanted to do. My Dad was a fireman and a school bus driver and my Mother, she was primarily just a housekeeper. This was what she liked to do; she was born in Czechoslovakia and really liked to serve people and that was kind of the European style of what was going on. So, as you look at this I hadn't decided what I wanted to do but I guess from that day on my goal was to become a fish biologist.

AW: You were still in high school and you'd seen a fish biologist at work and you had an idea of it.

LH: That's right. And in talking with Nels, the next summer I started working as a field person with Nels while I was still in high school. I just turned 16 so it was an opportunity for me and even before I decided to go to college I had the opportunity to work at least two summers before I started to go to school so that was really the setting of my goals and what was happening at that time.

AW: It was probably an earlier start than most people in the training got. I wasn't even aware there were those jobs available until after I got out of the army.

LH: I didn't either. I had not known anything about fisheries or you know, public health. Fisheries field was just coming on. The biologist's field was just barely new to the state. I think it was started in 1950.

AW: Phenicie was hired in '48.

LH: '48? Well, I just remember I started to work the summer of '52 so I really got a start as to my background. Of course I was really only doing it as a field person in high school but I really gained a lot of experiences cause those things are still foremost in my mind. It's neat to be able to think back; here I had 8 summers before I was able to go out and get a job of my own. So, I really enjoyed it and had a lot of experiences. I guess in some of those things--. I really enjoyed that particular time because fisheries biology was kind of in its infancy program not too many things were known. A lot of it was going out and seeing what's there and this was really, fit my style and I really loved it and one of these things was the testing of ponds for farm ponds. And I went all over the whole central Montana looking at various ponds and checking these things out. During that first time I first worked as a field aide we did the first rehabilitation on Otter Creek, on a stream, but I also experienced coming over the west side of the divide I think nearly one of the first rehab or poisoning jobs was up here in the Libby area on Milner Lake. And so I really gained a lot of experience you know in that first part before I even got a chance to get into a job situation. One thing about it is that Nels was really interesting and we'd go down to Bozeman and meet the professors and see what was going on; and it just instilled me even more to go on. I did meet Dr. C. J. D.

Brown, one of the eminent fisheries professors in the United States and early ones and well known throughout the United States and I felt very fortunate to have him as my major professor. I guess, the next thing I might want to talk about, is probably one of the biggest things we talked about and new experiences is the Marias River rehab. Of course, working with Nels and not in Great Falls, it occurred in his project area so where most people who were really involved in administering the toxicant, I was there during the investigation of the work. So we spent at least two summers in that area and we really got to see it well. We had to define the areas and it was quite an experience for me to visit with the Indians and to live with them because we lived up there for almost two summers. It was a different culture than I was used to. Their resources were altogether different and they--. Their priorities were quite a bit different and I felt it broadened my experiences by doing that. There was a lot of things that were happening. It also gave me an opportunity to see other divisions within the fish and game department because everyone came to that project to work at some time or another.

AW: And you were there the summer before?

LH: Right. So I had a chance to work with some of the enforcement people and surely the hatchery division was a very important part in the later part. But they were also there in the administration of it. And then also we got to meet some of the other executives that I probably wouldn't have at another time. The Governor came up and visited us with why we were starting that particular project. It was quite a feat for us to sit and visit. To tell you a little bit more about that project and some of the things that are in my mind, is that if you can imagine at least during the administration of this I went home twice all summer long. Once because I lost my glasses and the next time, I can't remember why, but the rest of the time we lived in tents, hangers, and you name it.

AW: Airplane hangers. I remember sleeping on sacks of fish toxicant in the back end of a vehicle.

LH: I'm sure that I'll never forget a gunnysack, which these toxicants came in. Or even seeing the amount of toxicant that came in. We had to unload it and they were about 50 pound bags. We filled up almost that whole airplane hanger that afternoon.

AW: You were there too? I remember two semis bringing in a trailer. One semi was full of these 50-pound bags.

LH: It was quite a chore. One thing I also found out because of living in those circumstances, you learn how people live and what's happening to them. All the conditions were not always right and you found out who you wanted to be working with and who you didn't. It also meant something also to me to be part of a team because what was happening on this program, there was people stretched over 30 or 40 miles in any one day and you were required to do these things and if you didn't it really upset the apple-cart of the whole team so I really felt it set up a basis of what was going on. I relive a lot of those experiences with

the people trying to eat at times up there and mingling with the Indians. It was one of my highlights of my past.

AW: It was mine too. We might not have accomplished what we set out to do as far as the fish were concerned, but I think we accomplished a great deal with the internal relationship of the fisheries division. Everybody worked together.

LH: It really seemed to me and that, you know, that was something I really looked forward to because it was setting up the basis as to whether I wanted to work with the fish and game department because I hadn't had a job yet, I was just a summer employee at that time. Seeing how people had dedication to do their work and that was the most important part of it and I guess that's one of the things that I really see a change in the department now. Now the job seems to be more of what pay am I getting, what standard, where do I fit, as compared to am I doing the job where I'm getting something done. I guess we need to really control or find out what we're doing with each other, but I think with all the frivolous things that are going on now, a lot of time is spent not working.

AW: Taking care of themselves or taking care of the records.

LH: Yes, taking care of the records. I did mention C. J. D. Brown and that he was my major professor when I entered my graduate study and I was accepted into graduate school and did a study on the westslope cutthroat, the distribution, because it was a species of fish that nobody knew much about and they were slowly diminishing in numbers and it was my study to find out what were some of the causative factors and where they were and during this time of two years I spent both at school and at the field I really had the experience to be able to visit most of the cutthroat waters within the state. Not only to see it but actually collect fish and measure these things. I felt that was a very important part of my early training. But under C. J. D. Brown, I was also his assistant in many of his labs and limnology and fisheries work and this really, I felt at home with that as well as being the curator of the state fish collection for about four years while I was at college. So I really had an opportunity there. Because Dr. Brown was associated with the American Fisheries Society, a professional group of the United States, he was very active and pursued, whenever he had a student he liked to get you participating in that. I did and then I went to three national conventions which was really a neat experience for me to envision a bunch of professionals throughout the United States and that further set my goal that I had gone where I really wanted to go.

AW: This was while you were a student under Dr. Brown?

LH: Right. Under the six years I was at Bozeman we were able to go to three of those and I was able to meet a lot of neat people. I guess to follow along after I completed my graduate work and received my master's degree; I qualified for a fisheries position in that state. These were project biologists. At that particular time when I graduated there were three project biologist positions open. They offered me all three of these, asking me where I wanted to go.

Missoula, Great Falls or Kalispell. Only having worked out of Great Falls, I surely would have wanted to stay in Great Falls, but I felt maybe the experience and challenge of another area might be nice. I'd been to Kalispell twice and I chose that. That's where I ended up my career, although doing different things. I guess coming to Kalispell it was an altogether different area and it became almost living claustrophobic because I guess you could say because once you've lived on the plains of Montana and on the east side, you never saw many large trees. You always were able to see the horizon; where coming over here the first month and a half we had rain or foggy or cloudy weather every day and my wife was ready to leave. Incidentally, I forget to mention that and it's a very important part of my life. I met my wife Betty when I was on the farms with the people I told you about earlier and she was, I was about 12 years old when we first met and I guess we decided at that time that we were going to get married. But I said I had to finish my schooling. Well, we were married in Bozeman two months, three months before I finished my thesis, my graduate work. It wasn't until we moved to Kalispell that I really got to know a little bit more about her; she was ready to move back to Great Falls too because it was altogether a new area but we've stuck it out and things have really changed.

AW: Felt closed in because of all the trees?

LH: It was just an experience that I never thought would happen, but it does.

AW: Like L. Casagranda who grew up over there and used to describe the trip up the Swan as driving through a big green tunnel with a blue roof.

LH: Yeah. We've likened like a culvert, when you come into the west side of the divide you better be able to experience that. Because we did enjoy a lot of the winter sports like skiing and sledding and getting out before we had our children. We were able to get out a lot and that's part of getting away from the doldrums of winter because you have that opportunity of getting out. I guess somewhere along the line I should mention that we did have four children, two boys and two girls and they grew up in the valley here and I'm going to make this kind of brief, but all of them had opportunities to leave the area as far as Florida and out to Seattle, but all of them are now living within 90 miles of Kalispell. They love it here. One is a podiatrist, one is a, he's an artist in steel, another one, she's just finishing up her master's in music and the other one has a teaching degree and is working with an insurance group up in Libby. They're all married, finally. This was quite an experience. We went through 29 years of college with our kids. Nowadays, they say four years. Well, 4 times 6 is 24. We had 29 years because there was some graduate schools and some took out in between and the podiatrist went to school 10 years himself. Surprisingly enough, with all the activities I did with the department, and still during most of my time I felt that my job was as much as anything when I first started, I was able to spend a lot of time with my children and enjoy it as well. One of the things that I felt that working with the department provided me with an opportunity to look at a lot of areas and take my children to that and look at some of

these things. So we did a lot of hiking in Glacier Park and hiking in other mountain areas and fishing and floating in rivers and camping out and it really was quite an experience. I guess one of the first things I did when I came to Kalispell was to continue on with some of the work I had done with cutthroat and I worked with finding out the movements of the migratory cutthroats from Flathead Lake into the Flathead River system. We had to cover 180 miles of river. One of the options we had to do to do this was see where they were moving. We had to mark these fish someway so we used some chicken bands and we put in their jaw and we were following fish with these. The sampling technique was quite unique -- we hired two crews and floated all the major parts of the upper Flathead tagging these fish. We found no better way of collecting fish than by angling. I was involved in this for three summers and let me tell you, when you have to fish and it really is work regardless what the weather is, fishing is not as much fun as when you can go do it on the weekends. I can remember looking at it because we used flies and cutthroat is very vulnerable to the fly and sometimes the guy would put on a spoon to see if he could catch something else. He was tired of cutthroat and these were fairly small fish because these were a migratory fish moving out of the Flathead area. But one of the things I did that particular time was to float or actually get wet in all the areas of the upper Flathead which is quite an experience in itself; into the Bob Marshall, into the Glacier National Park, into Canada and all the way down to Flathead Lake. To me that was very valuable in really getting to see what was happening and what was going on. We also started to work with different groups of people, particularly the forest service and in Glacier Park. This was interesting to me because it was quite different in seeing some of the reactions and what happens to the fisheries in these particular areas. One other thing I might also mention during my earlier work as a student and then as a graduate I spent a lot of time, one of my hobbies was photography, I'd done a lot of aerial photography work both for the department and for myself and enjoyed it. I have quite a collection of pictures that denote all the areas I've been to and preserves a lot of what I have in my own mind. As we look now back into all the things I did in starting biologist, I think getting used to the cloudy weather and seeing this area out here, it was really neat for me but my wife, she was used to other things and was ready to leave but she stuck it out with me. My next change in shifting responsibilities occurred when I became fish manager for a year. This was quite a challenge because I really enjoyed working out in the field with fish but here I had to work more and more with people and with agencies and coordinating this and that. It was not something that I really enjoyed but it was kind of a step I should have had and I'm glad that I had the opportunity. Then an opportunity occurred at that time to shift toward a position, which is nearly a complete research study on Flathead Lake. I was to find out what was happening on Flathead Lake and that was my sole responsibility. This was a dream come true because in that position it allowed me to do a lot of thinking and planning and being my own boss and kind of following along and opened up a lot of new challenges. That's the next thing we're going to talk about is working on the state's largest natural water. I won't say--Fort Peck is a little bit bigger, but Flathead Lake with 126,000 surface acres you can get lost out there pretty easily. It is neat. I guess what I want to do before I continue into the Flathead Lake, I just happened to think about while I was still at school I had some experiences. I told you I was curator of the state fish lab and in doing so was responsible to

maintain the liquid levels on all these fish and transfer them from the preservative of formalin to alcohol; we, I was handling a lot of liquids. One of the things I found out while I was there is that most of the collections were held in 30-gallon crocks. They were difficult to lift and I'm not of the biggest physical stature. This one time I can remember I was moving this 30-gallon crock of formalin on the 4th floor of Lewis Hall where the fisheries collection was held. One of the handles broke and 30 gallons of formalin, spilled, it was only 10%, but it was a mess. I had to clean it up. To tell you what happens, they cleaned out, people had to leave the whole building and they had to air it our over the weekend before they could get back in there. The janitor said anytime you need help moving one of those things, let me know next time. But I really, I can relive that. The other part about formalin in my past is during my graduate study. I did a lot of angling and I was collecting cutthroat all over the state. At that time I was preserving all these samples so whenever I caught fish I'd go into a jar of formalin and in order to make sure the fish were preserved well I had to have a hypodermic needle with the formalin and stick them. I found out that if I had more formalin on me than anything and I'm still alive. I wonder why. Oftentimes my hands were so cold and so numb from the formalin that I was handling that I've gone through a fish with a hypodermic needle and started to squirt the juice in my finger. I'm glad I don't have to work with formalin anymore. It really did a beautiful job and there's still a lot of good collections of cutthroat throughout the whole state that we did.

AW: It must have been kind of painful injection?

LH: I sure knew what went into me. Even though everything else was dead, that finger wasn't. I want to get back to Flathead Lake. I had the opportunity to start working on the lake; it was such a large lake, we had no sampling equipment or techniques similar to any other state; more like the ocean. This large lake management was not part of things so the state decided they would want to do this and that's why they established this position. In doing so, we had to come up with all different types of new innovative ways and equipment that could be used on this lake to give us an indication of what was going on. One of the first things was what kind of boat would we need. Being a small eastern Montana farm boy I knew little about boats. After several trips to both Seattle and Wisconsin I was able to gain knowledge as to what types and kind of boats we wanted. I just talked to Art before about Cleve Vandersloos who was commercial fisherman gave me a lot of advice as to what types of boats and even maintenance in what we might want on the lake. Initially the first boat we bought was a 32-foot beach seiner from Anacortes, Washington, which had been to Alaska nine times before that. We bought this wooden 32-foot boat and had it shipped to Montana. This was quite an experience trying to get one of these. It was a used boat but we felt it had the gear we wanted and a big gill net reel on the back and we installed a new latest design of sounders available at that particular time. On one of the trips we went to Wisconsin where we watched the trawling boats of Winnebago bottom trawling. This became more important to me as we developed some of the gear we were using on the lake. But for the first three years on Flathead Lake we spent all year round because Flathead does not freeze over. It’s quite an experience to be working in the middle of December and still not have frozen water.

That's not the way things happen on the east side. Over here, this is the way it is. Flathead Lake does not freeze over maybe one in ten years. That's good because it allows you time to work. One of the drawbacks is you don't have a lot of time for report writing because you should be out working. What we were trying to do was get a seasonal variation by gill netting areas and see the size and kinds of fish available in Flathead Lake. This was the first intensive work on the lake since 1926 that was done by the university at Yellow Bay and that was only during the summer. Nothing had been done during the winter so all this was plowing new ground and we were finding out lots of new things that were happening. One of the first things we ran into when Dr. C. J. D. Brown came up to assist us and set up our sampling program was the pygmy whitefish. Although we have them up here in the area they had not been found in Flathead Lake. We set some small mesh gill nets and we got about 100 of those much to Dr. Brown's surprise. He liked them because he could take some back and use them as samples in his fish lab. All the things that were going on. Every net we set, we didn't know what we would find. There are 22 different kinds of fish in Flathead Lake ranging in size from the pygmy whitefish from 2-3 inches up to the large lake trout, which the state record is 42 pounds. Lots of neat things and we handled a lot of fish. I learned how to use a gill net very rapidly. There was two of us involved in this job -- Davis Bud Mead was my first captain. He was almost as much of a marine man as I was but we learned together. He was a carpenter by trade and was able to do a lot of work and help me maintain the boat. That was one of the only things is that boat took about a month and a half in the spring to get it ready to put back into the lake. When the boat was out in the coast it was in the water all the time and was not allowed to dry out. Here we couldn't leave it in the lake. This started to lead to a lot of problems that I didn't anticipate at that time. I thought it was all going to be fun but it wasn't. When you take a boat out, it dries out and when the caulking inside is wooden strips, everything leaks. We had to change that so I soon became not by choice to learn how to maintain a boat. This boat was a 16-ton boat and it had 2-ton of concrete in the fish hold for ballast and it was a very stable boat. I remember taking Art out one time on the lake and we went off in the mouth of the river. It was kind of windy but Art wanted to see it because he was the chief of fisheries and it was his first boat and let's go see what it was like. Well, it was my first experience in any wind and we were going down into the wind pretty good and it was bouncing us around. The flying bridge on top was 16 feet off the water and some of the waves were popping over the top of that thing. I would imagine we were in 7 to 8 foot waves. I knew it was kind of rough. Another guy we had with us was a friend of mine from the east side to show you really the unfamiliarity, we had to tie him to the mast because he got sick.

AW: I remember that. I went out back with him. I held on to his belt in back and when I got tired I just tied a rope on him. I don't remember if he recovered till we got back to calm waters, I don't believe.

LH: He has never wanted to go out on a boat again. But anyway, as we kept going down it was kind of getting rough and Art said what's it like in a following sea. I didn't know what a following sea was, Art said when you turn around. Let's find out.

AW: I remember you said I don't know I've never done it.

LH: Well, there was a lot of firsts out there. The boat was able to a lot of things out there. Thinking back and since that time I had the boat on the lake for 16 years so a lot of the experiences got old after a time. The 32-foot boat is a good-sized boat for the ocean; it's primarily the size of the wake and the wave in relation to Flathead Lake. A 26-foot boat is a better boat for Flathead Lake because you can fit in between the troughs of the larger waves. The 32-foot because of the inland waters and the shape of the waves because of its size, it would lift you up and throw you around a lot more than on the ocean. We didn't know that but we were able to live by it. You just knew it was awful rough out there. You just knew there was a five-wave frequency and the fifth one was the big one and you learned to count. If you turned around and couldn't get back into 3/4 position by the end of the fifth wave, you knew it was going to be rough out there. Anyway, we handled a lot of fish and found out what was happening in Flathead Lake. The next state of the project--. We knew that the lake was historically a kokanee lake (this was an introduced fish). We needed to know more about kokanee. The gill netting did not tell us much about kokanee because this fish is an open water fish so we had to learn to sample in the open water. Sounding or acoustics was just starting to come on. We got the latest sounder, it didn't have any names; it was a combined thing out of Seattle. Working with the applied physics lab and the Ross recording system where they gave us this new sounder. It gave us some real good information in looking at these populations. Once we saw these fish in the open waters we wanted to see what was happening. We developed a new purse seine, an inland purse seine; a net 600 feet long, 60 feet deep. This was one of the first inland purse seining operations and we could utilize the net to collect kokanee in open areas. If you couldn't see fish you could spend a lot of time; it took us about an hour and a half to make a set and you'd come up with one or two fish. When you get into the areas where there are fish, I remember anywhere from 8,000 to 12,000 were caught with this inland purse seine. A lot of other states fisheries people in the intermountain region are using the same type of a design of a net and I developed this thing from a tri-net that was developed for the ocean and it did work. I guess the next thing in looking at all the information we were gathering on the lake, lots of information being collected, how do we preserve this. We used to have punch cards before the computer and computers, there wasn't any; you had a calculator that you flipped back and forth with a bunch of grinding wheels. It was neat and I remember when our regional office got the first electronic computer you could lock in, it was a lighted thing. We were able to do, boy, summing squares was really fun. The life of computers when it first started, because the amount of data I had, I recognized that I had to get involved with computers. They were new. I learned typing when I was in high school and I did all my own typing. So starting off into this made it a lot easier for me. Right off the start I had an opportunity to do some schooling in computers so I put the information from the lake on computers and its still stored there. After about 25 years we have accumulated quite a bit of data and it's all retrievable and it's nice to have it. The only thing I regret is that when we first started we had to work with computers in Bozeman over the telephone line and that was a bore. Finally

we changed the format about three times so keeping good sets of data and being able to use it is neat. Not too many older biologists got involved with computers but I thought it was important.

AW: You were one of the first that did and you certainly had the future in mind when you did it. Today fish biologists that don't work on computers won't be offered the job.

LH: This is right. Having a good set of data and being able to retrieve it is what's going on. I guess we can continue on. Once we got through the purse seining, hydro acoustics was what we started to work with. We were recording the acoustic data that we were seeing on the charts on the boat and were putting that on magnetic tape and that these things could be run through a computer and they could actually calculate the volume and density and come up with concentration of fish per acre. This was really what we wanted to do. We were able to have one of the original hydro acoustics systems on the inland waters on Flathead Lake. One thing about gathering data, particularly with kokanee, you have to work all at night. Flathead Lake can be a challenge during the daytime, but turn the lights out, and it's even more of a challenge. The kokanee are near the surface and as they draw deeper in the water column you have, the acoustic cone is wider at greater depths. As it goes down you have a better chance of picking these fish up and have a better chance of what's going on. New developments have changed this so this is not necessary anymore. The new sophisticated acoustic gear allows you to get the numbers regardless. The original data we were collecting on cassette tapes and being able to monitor through an oscilloscope, we had to monitor the sizes. What we would do is replay the tapes and count the data back. It was sure fun getting it and you just went out there to listen to these clicks -- two pings per second, "click, click, click," for about four hours. What it took on Flathead Lake to get a good sample was to cover 90 miles of the lake, which took about five or six nights, about four hours at a time. We collected probably close to 16 hours of tapes. Then going back into the lab was to listen to these tapes not only 16 times -- that's only running it through once. We wanted to determine densities of fish at different intervals so we had to run it at least three, four or five times. It really maximized that. We were able to do this for 16 years with the one boat. One time, the first mate was Scott Ramsey, he asked me why can't we put the board back on the fish hole. What we found out was this pipe, he knew was the gas tank, was fixed on the bottom and the keel was starting to get soft and the gas pipe, a 3/4 inch pipe wasn't growing but was being pushed up to the top. The wood was becoming rotten. We had a surveyor come out from Seattle and said the boat was unsafe to be used. Needless to say with all the experience and all the rough water I did not want to go out on it again. We sold the boat and I hated to see it go -- it had a characteristic of its own. It was called the Dolly Varden and was quite a boat. Then it really went into the next phase of what and how to buy another boat. At this time, we'd seen some changes and our needs were quite different. We designed a boat here and presented it to marine engineers and they came up with a design for a new aluminum boat, a 26-foot boat with the gear that we wanted. We knew at that time we experienced some assistance in the boat building for Fort Peck. In doing so, you pick out the bid with the lowest price. That Fort Peck boat did not work well, it didn't last very long and

we didn't want to run into this. Especially since we had the previous boat for 16 years. So I went to purchasing and said we want to come up with very specific things. I had specifications for a boat that the guy had built them for 30 years at the coast. Another guy heard about this but had never built these boats. He was a machinist and got the bid $50 less than the other guy.

AW: Only $50 less?

LH: It was about $45,000. I said no way do we want this boat. We fought for two years that we were without a boat. Finally the guy built the boat, the cheaper price, it is a good boat because we had a good design. We waited to two years, and we don't say this to purchasing, but I knew what was going to happen. That was a really disheartening time. We waited two years. If we'd had a boat on the lake then we'd been a year or two earlier, we would have known of the salmon collapse of the lake. We were seeing adults but the young fish were just going out and we weren't able to continue with that. We would have had a better inclination of what was happening at that time. But we did get a new 26-foot aluminum boat, a planing hull, could move a lot faster; the other boat would only go about 16 miles per hour, but it took a long time. This newer boat would cruise about 30 miles an hour, once we got that boat, we started to fix it for the acoustic equipment we wanted. This included a GPS locator, small radar and the latest digital hydro acoustic gear we could get. Right before I retired, about a year I retired, actually it was the last fall because I retired in January of 1993 and at that time I was able to spend one sampling period with the GPS and the radar. These items really made an improvement as to the type and whereabouts and even the safety on the lake. We were able to buy a computer and convinced the University of Montana because they could use the information, to buy a processing board. Now we have a complete system, probably about $125,000 worth equipment, including the computer that will analyze these digital tapes that we have on the lake. By having a computer on board with this processor will allow you to instantly see the numbers of fish by depth interval and sizes. We're capable of looking at fish down to ½ inch up to the large lake trout.

AW: You're not listening to clicks anymore?

LH: We can turn them up but we don't have to listen to them. Another thing it analyzes this stuff, the latest development is a dual beam system where you send down two impulses, listen with another one and measure the difference. It allows you to distinguish sizes and where that fish is within the transit signal. So you can compare the sizes of the return signals and you can define the size of a fish and count them. The computer program automatically calculates volumes and you only need to write up what's there. That was one of my bad feelings about once I'd worked for 15 to 20 years to get a system that is applicable to Flathead Lake, I have to leave. Fortunately the state has been putting me on contract and I'm doing some of the work that we did in the last phases. Part of the reason we'd been looking at a computer is we had to spend $300 an hour to have the tape analyzed. Once you have a computer and processor all the time it takes to turn it on, it will do it by itself. We were also using trawls

with otter boards and we also went to fixed frames where we could sample the fish species. The sounder will tell you the size of the signals and the number but won't tell you what kind. With 22 kinds of fish you really don't know what you're looking at and you have to verify the fish. Well, I can go on and tell about experiences on the lake. Lightening was one thing that you always have a problem with on the water. When you're on a particularly large boat, in the middle of 126,000 acres you know you aren't going to get to shore and lightening storms come on, what are you going to do? We were collected some acoustic data at night, moving up the middle of the lake when a lightening storm came abruptly from the south, moving very fast. A lot faster than we were--. We usually traveled about four to five miles per hour. This storm was traveling at least 25 or something like that and it was moving very fast. We were counting lightening every 10 seconds and they were coming down and hitting all around us. Fortunately, we got away from it and it passed over the top and then we went out and finished our work.

AW: Lightening strikes were hitting the water around you?

LH: Yes. The only time I felt the experience was on my own sailboat. A storm approached and everybody's hair kind of stuck out with static electricity and if you touched anything with metal you could feel electricity. They say when that occurs that is a prime time, fortunately it wasn't. One of the things that made my hair turn grey was trying to keep the old boat afloat. In the spring you had to wait for a month to put it into the water until you got it ready and then it had to be soaked up. We put the boat in many times when we had two pumps running to keep the water until the boat soaked up and then it wouldn't leak at all. That first two weeks, we had to sleep on the boat a couple of nights to make sure the pumps didn't fail. I guess we can talk about freezing. In final, I'd like to mention some of the folks I worked with, people who assisted me. Starting out with Walt Allen, the first chief of fisheries; Chuck Phenicie, Boyd Opheim, Frank Stefanich, Art Whitney, these are all old timers; Nels Thoresen, George Holton. I don't want to leave the newer ones out but these old fellows really set the basis of what's going on in the state and I appreciate the time with them. I still enjoy a beer with these fellows. We don't have to drink as much anymore. I remember one trip with Opheim we were going to a Great Plains fisheries meeting. We drank more beer on the way over than we used gasoline. Then we finally met the Canadians and things really started. We went to a lot of meetings; I had a lot of good times with the fish and game.

AW: If you had to do it all over again, would you pick the same career?

LH: If I had the same experiences, if I had to start today--. I don't know because now working with people and environments and I'm not sure we can all do that.

AW: I think we had the best of all possible worlds. I've talked to some of the younger folks today that say the same thing. You guys had all the fun and I agree with them.

LH: I agree with them too. And I'm enjoying retirement too. Not missing those nighttimes out

on the lake. That's no fun. I guess in the last four or five years I've spent less time on Flathead Lake and more time dealing with environmental issues on the Flathead River and Flathead Lake. Regarding docks, projects and things that might affect fisheries. Where I really felt we made some progress, they were building a road up on the north fork and they built an area around what they call Hell Roaring Creek. It's a very steep area and they put the road in. At that time we heard the engineers say that it was a federal highway, they knew they were going to have problems with this area but they'd made enough concessions to conservations was the only thing they thought they could do was move the road away from the river. So after about ten years we were experiencing problems of heavy sediment coming down during the early spring runoff over the top of the snow and coming off the bank that was cut that was too steep and running down along the road and right into the culvert and into the river. It was coloring water down below. We sampled the water at one time and found out that about 16 10-cubic yard trucks was going into the Flathead a year. Just by sampling the concentrations. Using this type of information, through a lot of coordination with the county and forest service, we convinced the federal highway department to go to that area and spent $1.5 million to avoid the circumstance that would rectify the problems of silt. I really think it showed a coordination between a lot of agencies and things can really be done right.

End of Tape.

Transcribed by Margie Peterson
March 12, 1996