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## Fresh, Kurt ~ Oral History Interview

Maggie Allen

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Voices from the Fisheries  
166 Water Street  
Woods Hole, MA 02543

# **Interview with Kurt Fresh by Maggie Allen**

## *Summary Sheet and Transcript*

### **Interviewee**

Fresh, Kurt

### **Interviewer**

Allen, Maggie

### **Date**

August 15, 2016

### **Place**

Northwest Fisheries Science Center  
Seattle, Washington

### **ID Number**

VFF\_ST\_KF\_001

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### **Biographical Note**

Kurt Fresh was born in 1953. He attended the University of the Pacific for his undergraduate degree and received his Master's in Fisheries Science from the University of Washington in 1979. He began his career at the Washington State Department of Fish and Wildlife in 1978. He moved to the Northwest Fisheries Science Center in 2002. Kurt's focus has long been on salmon life histories and ecology as well as estuarine habitats. At the time of this interview, he was the Estuarine and Ocean Ecology Program Manager at the Northwest Fisheries Science Center.

### **Scope and Content**

Interview contains discussions of: estuarine salmon ecology, Puget sound ecology, UW, Native American tribes and rights, Pacific Native American tribes and federal government, NFSC program management, Columbia river estuary, Snohomish tribe, Skagit tribe, Columbia river salmon, Elwha river dam removal, conservation and tribe rights, citizen science volunteers, shoreline protection and property owners, Whidbey island volunteers, Hollings scholars, government science need for volunteers, diversity at NWFSC, government program manager training, ocean acidification, impacts on climate change

Kurt Fresh provides a rich description of his career with the Washington State Department of Fish and Wildlife as well as his career at the Northwest Fisheries Science Center. He discusses his work with the tribal communities, volunteer citizen scientists and his focus on salmon and

estuarine habitats.

## **Indexed Names**

Bottom, Daniel  
Casillas, Edward  
Chamberlin, Joshua  
Edmunson, Thomas  
Green, Correigh  
Kagley, Anna  
Pess, George  
Quinn, Thomas  
Rice, Casimir "Casey"  
Sather, Nichole  
Scott, Michael  
Simenstad, Charles "Si"  
Stein, John

## **Transcript- KF\_001**

**Maggie Allen (MA)** : This interview is being conducted as part of the Voices from the Science Centers project funded by the Northeast Fisheries Science Center. It is also part of the Voices from the Fisheries project that is supported by the NMFS Office of Science and Technology. I'm Maggie Allan and today I'm speaking with Kurt Fresh at the Northwest Fisheries Science Center in Seattle, Washington. It's August 15<sup>th</sup>, 2016 at 9 a.m.

Estuarine and Ocean Ecology Program Manager Kurt Fresh was born in Tacoma Park, Maryland in 1953. He holds a Master's of Science in Fisheries from the University of Washington and has worked as a fisheries professional since 1978. His research focuses on the life history and ecology of juvenile salmon in stream, lake, and estuarine habitats specifically in the Puget Sound and the Columbia River. Alright Kurt, thanks for being here. Do you mind just telling me maybe how you were inspired to pursue a career in fisheries science and how you got to where you are today?

**Kurt Fresh (KF)**: As sort of trite as it sounds, I always liked fish, I liked to catch fish, I would SCUBA dive. I lived on the coasts most of my life so I just thought fish were pretty cool and that led me into a career in fisheries science. When I started undergraduate, they didn't have a fisheries program at the place I went to but I got a general background in biology and ecology and then just went on into fisheries. I consider myself more of a fish person, I mean, life history and ecology of fish and the science of fish and behavior, things like that. I pride myself on knowing a lot about salmon. I don't model salmon, I don't do a lot of things that folks do around here. I don't have much of a background in conservation but I think I know a lot about fish.

**MA**: So where did you go to undergraduate and how did you make your way out to Washington?

**KF**: My dad was in aerospace so we bounced around the country in Baltimore, Washington D.C., Scottsdale, Arizona. We eventually ended up in southern California in Los Angeles. I went

to high school there and was really just looking for a undergraduate liberal arts education in a small school and ended up picking a place in central California called University of the Pacific and one of the things they had which I hadn't really noticed when I applied there, but I took advantage of it, was they operated a marine lab on Tomales Bay which is on the coast sort of just north of San Francisco and then south of a place called Bodega Bay. Bodega Bay is famous because if you've ever seen the Alfred Hitchcock movie "The Birds" that's where they filmed it, in Bodega Bay. The coast in those days, there wasn't a lot of people but it was pretty cool just to be able to go out there for a month and sort of immerse yourself in one subject like intertidal ecology. I eventually got a degree there and applied to graduate school and came up to the University of Washington and went on from there.

**MA:** How did you secure your position here?

**KF:** So let's see. I started graduate school in 1975. I was a little overly long getting my graduate degree and ended up with it actually in 1979 but doing one of those things like trying to do too much, I ended up continuing with my graduate degree and starting a full time job and moving here. I did about eight major life things all at the same time in 1978-79. So I started with the Washington Department of Fish and Wildlife around in 1978 and basically worked there. I had a little break in 1983 but I worked there until 2002 and I started here in the Northwest Fisheries Science Center in April of 2002 and I've been here since then.

It's sort of interesting to me because when I started off my career, I was an estuarine salmon ecologist and sort of drifted away from that and was doing a lot of different things. When I came back to the science center, it was sort of like I'd come full circle because I came back to estuarine ecology and Puget Sound ecology and ecology of salmon. There's a little bit of symmetry there that I thought was pretty cool. I worked pretty much in the same group at Washington Department of Fish and Wildlife in what they called the Fisheries Science Division and sort of was there most of my career.

**MA:** Ok. What was it like when you joined? What was the research focus of the branch here when you joined and how has that changed since then?

**KF:** So when I came from WDF&W to the Science Center, I tell people that the culture at the State was all about fishing and opportunity for fishing so it was commercial and recreational. It was sort of an extractive use. There's nothing wrong with that. That's just what they did. I mean, you have to have somebody that manages the people and the fish and the deer tags and things like that and that's what the State did. In those days, we didn't have listed salmon. The first listing of salmon comes about, I think, in the early '90s or so. At that time, it was really more just about fishing and then the whole conservation thing which, when I started here at the Science Center, that was really like a sea change for me because this place is all about recovery, conservation, we don't manage extractive use. We do fisheries management in the sense that if you look at sardines, we establish how many sardines the fishery can catch but the reason we do that is because we have fish that are in our purview and the State goes out to three miles. That's the state limit so what you get is things like Puget Sound and within the Columbia River that the State manages. So it really wasn't a shock but that was really quite a difference. My conversations with my colleagues at the State were water cooler conversations and they were

about where did you go, what did you catch, what did you shoot and here it's much more about did you see the Seahawks game and kids and things like that. It was not quite the same. Then the whole thing about conservation is you get here and it is very much, you know, we take people here that could be working with butterflies or cougars or antelope and they know all these conservation principles and how to model and how to do things like that that I was never trained in. It's been really interesting for me because I sort of feel like I've picked up a lot of things I wouldn't have ever picked up if I'd stayed at the State. Like I said, it doesn't seem that way when you're around here all the time but when you come here from the outside and come here, we're built differently.

**MA:** So how has that influenced your work here?

**KF:** Here you're really given the flexibility to focus on what's important to things that are within the federal mandate and the big ones that I touch are Endangered Species Act, Magnuson Stevens Act, Federal Columbia Power System. These are really big federal issues. Native American tribes and their rights. We operate on a government to government basis with Native Americans.

I don't necessarily think we have to be completely applied here but I do feel that there needs to be a focus on our work being relevant to these big picture issues like endangered species recovery. At times, I guess I would disagree with some folks around here that we don't really have the ability to do whatever science we want. We're sort of a pseudo academic institution and we can do things like that but I really think that we're here as, I don't like the phrase public servants, but I do think we need to be responsive to the tax payers of the United States of America who pay a lot of our bills and these are things that are important and relevant to them.

**MA:** So what are some of the projects that you've worked on or led since you've been here?

**KF:** So when I started here, I came here as sort of a Puget Sound biologist working on estuary and salmon issues. I didn't actually shift to program manager until like six years ago, something like that. I've worked here on, let's see, Snohomish estuary and the Skagit have been big focalpoints for what I've done. I supported the TRT [technical recovery team] a bit. I worked on life history and life history diversity in salmon and how that's relevant to salmon recovery. I've done a lot of telemetry work. Basically putting individual tags in fish and then you can follow them around. In Puget Sound, our focus has been on what we call resident salmon. Salmon that don't immediately migrate to the north Pacific, that stay here in Puget Sound so we've been interested in where they come from and where they go and what they do. It's tagging and tracking them. I worked with Tom Quinn at the University of Washington on that so that's been a big focus of the work we've done here in Puget Sound.

I worked on some Columbia River estuaries. I've worked wetland use by salmon. I don't really, unfortunately, do as much science now as I would like to. I do more program management. I suppose since I'm called program manager that's ok but I would definitely have liked to not been completely shut out from science and that's sort of the way I feel a little bit. But, the group I manage, we work in the north coastal ocean so we look at salmon use of how salmon coming out of the Columbia River where they go, what they do, what they eat. That's really interesting. It

actually gave me a chance to sort of really broaden from estuary work to a much bigger picture looking at north coastal ocean.

What else have I worked on? ...Snohomish, Skagit, tracking...A dam removal! I tell people I've been on dam removal and I think the vision they have is you're out there working with the... Mostly what we did was for five years before they removed the dams, we followed fish communities in the, what we call, near shore area which is the shallow sub-tidal and intertidal area along the coast, sort of centered on the mouth of the Elwha River with the goal of once they removed the dams of sort of seeing what, could we see any changes in these near shore communities. So that started in 2006. I haven't done as much recently on that again just being program manager. Anna Kagley has done a fabulous job with that. But yeah Elwha, surprised I forgot that one. There was a lot of small stuff. I do a lot of work with different groups in Puget Sound like on forage fish and sort of different habitats that salmon use.

**MA:** It said that you do things like you help mitigate impacts of shoreline development of eelgrass in Puget Sound? Is that something you do as well?

**KF:** Oh gosh, well, even though I was sort of binned in the science division when I was at the State, it turned out I was good at sort of contentious interactions where developers would be looking to develop an area with eelgrass or some important habitat to salmon. I had a lot of the science background that was needed in those discussions so I got involved in a lot of that. They're pretty interesting projects. I sort of have an odd view that I don't think we can stop development. I don't think you can stop adding people to the landscape. We have to figure out how to do it smartly and wisely so when you have somebody that wants to dredge up eleven acres of eel grass, the first question is why do you want to do that? How can we mitigate for it? So I got involved in a lot of permitting. With the State, they issue some really important permits. One is called a hydraulic permit approval. A lot of biologists that worked on those permits would work with me and we'd try and focus on what we knew and what we didn't know. I've done that a little bit here but not quite as much. Again, we're not quite as hands on managerial about things like that. Our entry points into those discussions were things like biological opinions because they connect with endangered species. That's how you do that.

**MA:** So where do you see the future of the Puget Sound region heading then since development and more and more people are coming in?

**KF:** Wow. It's like, of course, when you look at any sort of time period, there's going to be changes within those time periods. So when I start saying, "Wow, you should've seen Puget Sound in 1978", A. that dates me and B. it's not surprising that traffic wasn't as bad in 1978 and there wasn't all these tall buildings all over. Development is sort of a cake and eat it too discussion sometimes. Do you want to...um...How do we add people to the landscape? How do we give them jobs? What do we do about traffic? And yet one of the ironies is the reason people move here and they like this place and you may like it and I like it because we have trees, we have streams, we have salmon, you have cool clean water and things like people and taking water for consumptive uses and hydro damages that.

I, probably I'm a cynic in that I think there probably should be places for people and there should be places for natural resources and fish. I don't think we've done a very good job bringing people into the land. We just don't seem to do that. That's why you have the Endangered Species Act because it tells us we're not doing a very good job of it and that's why you have listed species in Puget Sound. I think, at times, we need to look for new solutions, do things differently. Like I said, the one phrase I like is there may need to be places for people and places for fish. We don't want museum places, you don't want to take your children down and say "oh look here's the last salmon in Puget Sound" just so we have it. Puget Sound is not going to quit growing. The Fraser Valley is not going to quit growing. We're lucky we're not like San Francisco and the Central Valley in the sense that there's places in the Central Valley where water disappears and doesn't show back up for another 20 miles because they take it all out of the river. We don't typically do that here.

Some of the things we have is that we don't have an overly oppressive permit system but we do have a system that attempts to manage the landscape. Is that good enough? Some places yes, some places no. I think one of the great assets we have in this region which really can help us with the question of what's this place going to look like are the Native American tribes. They won't be satisfied with this being nothing but concrete and people. So they'll have a say in how it looks. It's certainly never going to look the way it was in 1850.

**MA:** Do you collaborate with Native Americans for your job? Did you use to?

**KF:** I actually think, if I had to toot my own horn, one of the things I think I'm pretty good at is working with Native American tribes because, in part, I think I recognized early on in my career that unlike... My agency when I started, so you have to look at the history, in 1975, there was the Boldt Decision which blew up natural resource use in this region and so when I came on in 1978, there were gun battles out on the water, people were shooting at each other, there was incredibly denigrating things being said about Native Americans. We didn't know how many fish we had. It was a pretty bad time. The agency I worked with spent a lot of time fighting Native Americans.

There was a point along the way that was acceptance that this is a new world. At some point you can either keep fighting or realize that this is the way it is and I think I saw that really fast. I tried over the years, I haven't been perfect with it, I really tried over the years to develop relationships with Native American tribal biologists. Sometimes I've worked with people on the tribal councils, fish committees and that spans tribes like the Muckleshoots, the Skagits, Tulalips, the Yakamas. Boy, if I had to tell people coming into the business now is its really something you should pay attention to because to some degree they're our partners in this and they can be a strong asset. They have a lot of knowledge. They have a lot of really good people. A lot of them have been trained over the years, not that nobody around here works with them, like George Pess is really good with, say working with Skagits and others. I just think you have to realize the setting you're in. If you look at other regions in the U.S. like what the Northeast Center has to deal with or the Southeast Center, this is really unique. I was trying to explain that to people and I was showing them that we have 18 federally recognized tribes in this state and people will go, 'Oh, Sioux, Blackfoot?' 'No, we call them the Tulalips the Swinomish the Elwahs.' They just don't really get that.

**MA:** Do you think that can help with the overall conservation of the region by including them, continuing to include them?

**KF:** Continuing to include them. Building stronger relationships. I actually think people like John Stein have recognized that. Where you see a lot of the tension is still between the State and the tribes. Sometimes the tribes like where we are coming from and sometimes they don't because when you talk about conservation, you're typically talking about fishing and habitat and so if you start going after tribal rights to fish then you, but how do you do conservation unless you do that. So sometimes there is a tension between what we're trying to do and what the tribes really want. I also think that we don't really appreciate that Native American tribes have a very long time horizon in this. They're not looking out five years or ten years. In some cases, they're looking out multiple generations. I think we've done a really respectable job and I think that the challenge to us is just to continue to do that.

**MA:** What projects have you most enjoyed then besides working with Native Americans? Working with other stakeholders?

**KF:** I like working with Native American tribes. I have a good relationship with the Muckleshoots and the Skagits, for example, Elwah tribe. Because I think I have things to learn from them and they can learn from me. They can really support our work or they can really get in the way of it and so some it is just realizing that if we want to continue doing some of the science, we have to, we do need to involve them and include them. I think some of the things I've been good at in my career is working with volunteers. If I had to pat myself on the head about things, I think I do pretty well with volunteers. I spent years working with volunteer groups on Whidbey Island. I've worked with volunteer groups throughout Puget Sound. And again I think and this has certainly been a change in the landscape is we have volunteer groups that can actually generate science. Thirty years ago that was not...

**MA:** Citizen science...

**KF:** Citizen science. Not that I think that all volunteers need to generate science but that's actually increased our capabilities in places is we've been able to partner with volunteer groups. Sometimes we have train them and work with them but they're really good. They can be time consuming, that's what I've found. It's sort of one of those cost benefit things at some point you go, wow, is this is worth the time and then sometimes it just depends on the group. Anna is really good with volunteer groups. At times, I don't think that we in the Science Center do a good job with connecting with volunteers groups. It's really hard sometimes to just take a volunteer out on a boat. I understand where we come from on that but it can really hamper our ability in the sort of positive feeling we can give other people.

Other stakeholders... I work generally well with... I'm trying to actually think if there is some groups I've not worked especially well with. Sometimes it's easier to look at a negative like that. I think I'm pretty good with adapting and doing what I need to do. Sometimes, to be candid, it's more of a pain in the ass to work with stakeholders because sometimes it's hard to see the benefit. That being said, in some places they are part of the landscape, working with them. I think one thing I've tried to do is work well with people that we don't necessarily call



stakeholders but if you're a shoreline property owner, you can potentially have great positive or great negative impacts. You're not technically a stakeholder, you're part of the land and being able to talk to them and educate them, understand where they're coming from.

I had an interesting meeting 6-7 years ago and I was asked to come talk to a group of property owners. I have to admit I was pretty naive about this one. You'd think after that many years I wouldn't be naive. So I'm presenting this stuff to them and at the end they were asking a few questions and about the third or fourth question was what I was pitching was removal of bulk heads and trying to do shoreline protection in different ways. If you look at almost 30% of Puget Sound right now, it's nothing but rock walls and concrete walls and that's not the way the world is supposed to look here. So I was giving this talk and this one guy says, "Can you guarantee me that if I pull my bulk head out that I won't have a storm surge on my living room?" I said, "No I can't." "Well, when you can guarantee me, then we can talk." That was a dose of cold water in the face.

**MA:** When you said you were working with volunteer, what do the volunteers do and how have you worked with them on Whidbey Island and other places?

**KF:** Whidbey Island is probably, for me at least, is the poster child of working with volunteers. So we had a project where we were trying to, if you look at Puget Sound shoreline there are these small features that you can call lagoons, most of them are connected there's some sort of channel, they get seepage. We did some science and started appreciating that they might be really important for salmon as another life history pathway. We found, and this is one of those, you know, 'when in Rome, try to do as the Romans' but what we found was that when we engaged locals, they could go talk to people that had property in places we wanted to sample and grease the skids for us. We used to study fish use of these small lagoonal systems and we did it with volunteer groups.

I have to say if I told them 6 a.m. in Elger Bay on Tuesday, every single one of them would be there at 6 a.m. in Elger Bay on Tuesday. They were absolutely remarkable and fabulous. There was no, "Do we have to?" or, "Gosh we're going to be out partying the night before." It was really inspiring to me to be able to see that, they were there and they were ready. So Anne and I show up with all gear and some would go with Anne to do that and some would stay with me. We were literally able to do the study because we had the volunteer help. Without that, we would not have been able to do the work. Then they sort of got a taste of it and they wanted to do more which was a little more difficult.

We did work that we just didn't have the horsepower to do. That's one of the things I think is a major weakness here at the Science Center is we have a lot of really bright people and top flight scientists but it's sometimes, should we really have Ph.D.s mending nets? Probably not but who else do we have? These are really important people. We don't have the worker bees, at least for the sort of work that I do. Maybe we have them in the lab work but not what I'm engaged in. I've been on beach seine crews with me with a Master's and three Ph.D.s. That's probably a little over-educated. [laughs]

**MA:** Yeah. Like nonprofits have a lot of volunteers and interns and ...

**KF:** For better or worse, the investment here we've made - how to phrase this - is in really smart people that can do wonders with data and data analysis and there are times I think one of our weaknesses is actually collecting data. Well, like for me, I run an ocean program. We charter a Canadian vessel, *The Frosty*, which is 140'. I have a hard time getting a crew to go out and do our 10 day survey and when I bring the fish back, trying to find enough people to process the fish because we just don't have those. Quite often what we're doing is working with interns, I mean, like The Hollings Program. I really wish I'd had something like that when I went to school. I think its one of the best things NOAA does because I've worked with six or seven Hollings Scholars and across the board, they've just been first rate. I would really like to see more of those programs just because I think it's very effective and very useful and it's not something that I see us expanding. I hope we hang onto it. We do a lot of work with interns, high school kids. Some of them are more formal interns coming from colleges like Smith and Vassar and places like that.

**MA:** I was going to ask what challenges there are in working in the scientific field of government. It looks like you've mentioned a few of those like needing more volunteers or doing more outreach.

**KF:** Well, I can give you the, um, I'll see how I can phrase this a little more nicely. You know, if I'm still working a year from now, I'll be surprised. I'm not going to get mad and leave, I don't feel any, you know, I mean I'm at the end of my career and I'm not going to quit in a huff or anything like that. What I do find though is we, the federal government, have become increasingly about process and less about results. So I tell people... you know the Obamacare website when that came out? It's not really when, you work in the federal government and you see some of the sites, pieces of crap we have to deal with and you go, yeah I understand how we got that because I'm pretty sure this is a way I think that played out is that they let the contract out, the manager was like 'ok we did that, we did that, we did that.' Checked all the boxes and did all the process and then we went well that's not really what we wanted, was it.

While I do think we, um, and while it's frustrating for me and I know its frustrating for other scientists, I don't think that's the way our clients, tax payers, fishermen, want us to operate. I really don't. We have enormous challenges. Like I said, I call it, I mean it's an over simplification but we are more about the process of getting things done rather than the results of getting things done. That's not just here. It's pervasive in the government. That's really unfortunate. You can look at, yeah, money is always being a problem.

This will be a little bit different of a perspective for you but I'm a little undecided after having dealt with it from a managerial perspective whether the CAPs program is a good thing or a bad thing. Because what it's done is people have gotten pretty good raises with CAPS probably more so if we'd been in the regular old GS system so a concern I have is we've created these huge forward bubbles of money and what's happening is we can't replace the people that we're losing because we have too much of this bubble going forward, it's a salary bubble. If we get three retirements, maybe we fill two? So there's an attrition going on which is slow and then generations here like the Correigh Greens and the Josh Chamberlins, they're going to have to deal with that because at some point they're going to look around and go where did everybody go? It's not really affecting me as much. Money is just one of those things where we're always

underfunded, that's just the way it is, but if you look at more long term, like five years or ten years out, that's where you start seeing these positions start to play out. I think you asked me about impediments? Is that right?

**MA:** Yeah, challenges.

**KF:** I think our diversity and inclusion is an enormous challenge. This may sound funny but I consider myself a feminist but I don't necessarily think - wait, let me back up. I'm actually really stunned at how poor we are on diversity and I don't mean looking at how many blacks we have but our attitudes. And of all the places, I sort of expected that in the State because it is a bunch of fishermen and stuff like that but I'm really sort of shocked at it here. I think there is a lot of us that are aware of it but I don't see much actively being done about it. That's on me as well as everybody else but I'm really sort of flummoxed about that because of all the places I would expect to issues with diversity, it's here. We have a fair number of women in the work force here but we don't have them near enough in leadership positions. We pay them, if you're my same level and you're a woman, you're probably going to get the same salary I am. I don't believe the opportunities are the same and I think there's attitudes here that, I guess, that I'm just sort of shocked all these years later we still are fighting that.

I guess I wish we were more proactive about that because I think ultimately it is a problem for us not having the diverse work force. It's not as bad with women but I think I've known three, maybe two African American biologists and the problem to me is not that they're not getting to a Ph.D. level but we can't even get them interested to go from high school to college and that's where we are failing. That's a much different question than being sure once they're in the work force what's happening.

**MA:** How do you think NMFS or the Science Center can help with that?

**KF:** I feel pretty strongly, and I'm probably not a good example, that we should be engaging in the sixth grade and the eighth grade with inner city schools as a recruitment. I mean, I don't think there is any reason why we shouldn't have more African Americans interested in environmental issues and conservation. It's not just fisheries. If you're a bright African American, you're picking something other than environmental issues. So I think trying to connect, especially trying to connect them to the benefits of environmental issues in their community. That's where I think we should be engaging. We should still be trying to hire them but we need to create a bigger pool of people we can even hire from.

**MA:** Have you seen that improve over the years, more diversity, or do you think that has stayed static?

**KF:** I work enough with WDF&W. I was friends with the first woman who got hired there. She got hired back in, I think, '74 or '75 and clearly that's changed. There is a significant portion of the work, I can't tell you what the percentage is, is women. I think here, if you go back to the good old days, we've changed here. But, I don't see a lot of African Americans any place. Again, I think the tactic to me is getting them engaged at a much younger age. I'd like to see us have formal, official programs coordinated by the Center of getting people out to give talks and take

them out on the beach. It's not like your success is if you get half the class interested. If you just took a class and got one, that'd be way better off than we are now.

**MA:** How else have you seen the office environment change since you've been here?

**KF:** When I put on my program manager hat, you can see things that you wouldn't necessarily see as just a biologist. One of the things I've seen, I think, is we don't, and I think this is institutional, we don't manage people very well at all.

**MA:** From a managerial perspective...

**KF:** Well, people/personnel issues are messy, they're complicated. People's personal lives blend in with their work life and visa versa. I have some huge challenges in terms of people that work for me and we don't as an institution deal with them well because in part we're handcuffed. I bet you somebody told me probably 30 years ago that one of the hardest things to do in any sort of government is to fire somebody and that is absolutely true. It is really hard. I mean short of somebody looking at child porn on their computer and that doesn't take much to get rid of them. People can behave badly and perform poorly and its enormously difficult to do anything about it.

As a manager, I'm hampered but we're also not trained very well to honest. In other words - I'll use my wife as an example. She started in a pharmaceutical company as a sales person and was a really good sales person and so guess what "well, you're a really good sales person. We're going to promote you to being manager." So what part of selling something and managing people are similar. What part of modeling ocean temperature data and managing people are the same. We haven't invested and I don't see us investing in our next generation of leaders. I can say things like that because I probably won't be here in a year. [laughs]

We should be identifying the people that are our leaders of the future and training them and bringing them along such that when I go, there is somebody behind me to move in. Instead what do we do? I leave and then its like "oh crap" we have to cover my job and yet we haven't really developed those leaders. I think that it doesn't matter whether It's male or female, we're just not doing that. That's not something we've been very good at. When I mean leaders, I mean people that... I've done training. They say I took over Ed Casillas' job. Ok, go for it. Here's the Department of Work Force Management and "ok here are these training classes and what to do with problem employees." I mean real training on how deal with that. That's one of those things that's going to go forward for us and it doesn't really affect me that much but it will effect people 10 years from now. Because like I said, why aren't we identifying our next generation of managers, leaders, supervisors and working with them so that when they finally step on the job, they're trained to do it, not "here's a job oh we'll see if we can get you some training."

**MA:** Like certificate programs or longer?

**KF:** Certificate programs. Support to go to communitycollege and taking classes like that. It's a commitment on the part of leadership here. There's people I know around here that I would be all over as far as potential for leadership.

**MA:** Yeah, just better identifying those people.

**KF:** Identifying those people and taking action with them. Not all of them are going to want to do that but there'll be some that will be interested. We have some good training programs but to get into some of those leadership programs, they're a very small list. Part of me says we should have a pool of 30 people that we're working with and training and maybe eventually you whittle that down to 10 but now you've got some really good people.

**MA:** So what advice would you give to someone wanting to be in your position eventually? Especially since we are talking about combining science and management, managing.

**KF:** It's hard to know for me but whether I'm an extreme, whether I'm an exception or what. I think most of us got here in the business because we really like science and we really wanted to contribute there and if we are managing, I don't think that should be at the cost of science. I know a couple where that clearly is what's going on and I know others where it's not. I think we shouldn't just bring people into those jobs and hope they do okay and they can balance it. I think we should work with them to create those positions that work for them because I can tell you it's a whole lot more satisfying to have some science that you can hang onto as opposed to just spending 120% of your time dealing with people stuff and admin. I made a list of things, I won't show it to you, that I was doing when I started and what's been added to my plate. It's a lot. A lot added and not much taken off. The only things that get taken off are when I just can't do them. [laughs] I think that's how we have to present supervisory and managerial jobs as we're not going to have you do this at the expense of giving up your science but we have to find a way to make it work. That's a third floor thing here. That's a leadership thing, that's a Washington Headquarters thing. I think that should be really active and directed at solving that.

**MA:** Do you think they could hire someone maybe more interested in management than science? Would that help? If they kind of aim someone who would take over these positions, someone with a master's in public policy would that help?

**KF:** I mean, I think some of it is realizing that just because you're a good scientist doesn't mean you're a good manager. Our pool of managers and supervisors is always selected from science. I think if you get somebody that only trained in say public affairs, then you're flipping it too far the other way. We really are a hybrid, like my wife. She thought it was funny too, "I'm a really good sales person. I don't know that I'm going to be a good manager." It turned out she was. You have different skill sets there.

**MA:** Yeah. It's like the TV show *The Office*. They promote Michael Scott and he's a good sales man and a terrible manager. That's a classic example, I guess. So you said you're going to retire you think in a year?

**KF:** Probably. I just turned 63 and at some point, it's time to move on, you know. Like I said, it's not because I'm feeling forced out or anything. At some point, like I said, it's time and you should go on and do the next things in life. I call it there's the illusion of control that we can script this, you know, 'okay, I'm going to retire and we're going travel and buy an RV.' Or, not to be too much of a downer, but you're Casey Rice and trip on the stairs and die. While you're at an intersection and you get hit by a drunk driver. I don't want to be that. I don't want to be 65 and

I've always thought I'm good at my job. I haven't done great science contributions but I'm good at what I do but it doesn't define me. I live in a community where there is a growing number of retired people and some of them really struggle, especially men. That's one of the things that has been pretty obvious, there is a lot of guys struggling with retiring because their work has been their identity for so many years. I don't need that. I would like to see what the institution like this, what it's like in 20 years. There will be a lot of people that I know here that will still be here. Then they'll be the next generation and who knows what their training will be like.

**MA:** So you think you may stay connected even if you retire, you're saying?

**KF:** Yeah, some of its just curiosity. There is a lot of really great people here. I would just like to see that they're doing well mostly. It's not morbid curiosity. I really hope some of the people I know here are doing well in 10 years.

**MA:** Do you have any predictions on the future of your field in 10 years especially with technology?

**KF:** Oh that's interesting. I like to tell a couple stories. One is my daughter is 31, her boyfriend is 31. They are pretty techy, geeky. She's at Stanford right now, they're both at Stanford. So we took them to a museum called the Museum of Computer History which was in Sunnyvale, I think. Anyways, we're going through and there was a mock up of the computer that was a card reader where it would read all the IBM punch cards. Have you ever seen one of those? So the way you did data was like you took an Excel spread sheet and you had your columns and then that got punched as a card and that card was then read into the computer. They hadn't ever seen that. That was 1975 to '80 where we were doing that. The big innovation was you could read all of these in one time and put it on a 8-track tape drive. So my master's thesis data was stored on an 8-track tape that was kept in a vault in Rainier Bank in downtown Seattle. When I wanted to access it, I had to phone ahead, they would order it, it would come up to the UW [University of Washington] and then I could read all the data in and generate graphs or whatever I was doing with it. When I was in '76, '77 I did stat problems on a slide rule.

**MA:** I'm sorry what was that?

**KF:** A slide rule.

**MA:** Oh ok.

**KF:** You don't know what a slide rule is, do you?

**MA:** No I don't.

**KF:** Slide rule was a way to multiply. We didn't have these. We didn't have anything close. The first ones that came around at the time were these big desktop ones where you go punch punch, punch, like that, and the paper comes out. You have realize that was like we were ecstatic. We could do these more and more complicated problems and then we got these little calculators that you could actually program and that was amazing. Then it was 1982 or '83 and the office building I was in at the State, we got our first desktop computer. It was called a Zenith 100. We

got to reserve it in half hour increments and sometimes you would come in on a Saturday night at 6:00 because you could get two or three hours consecutively. That's how it started. What this phone has... I know you grew up in it but when you haven't grown up in it, you just see... We can model, we do the things here that we do because of computers. If we didn't have computers, the jobs we'd be doing here would be quite different. I only tell you this because at times it's amazing how fast technology goes. When you look at where we were in 1982 and you look at where we are with this, this little phone here, I mean. They had things called a Cray super computer that were these enormous, a building...

**MA:** The size of a room right?

**KF:** Yes. There's probably as much computing power in my desktop as there was in a Cray. When I look at what's ahead for you and others, that's a tough one because nobody saw that you would have that. What are we going to do? We'll make things a little better. My guess is that at some point you'll be able to talk to your computer. But those are, that's like making the mouse trap better. What's the next big thing and how does that affect our job here. My assumption is, I'll probably be dead before I ever get to see this but, my assumption is we won't have to come to a work place to work. You'll be able to sit there at a computer with your cameras and everything and do your job just as well as you're doing here. So the whole idea of a work place for people like us will become antiquated.

**MA:** It's already starting to head in that direction. Unless you have a meeting you don't technically have to come in a lot of times.

**KF:** But I don't know the big things. So stuff like TV. Those big giant tubes coming out of the TV and things like that. My thing is I go back, like with computers, and I don't think anybody, maybe Steve Jobs or somebody did, who envisioned a computer here and a computer there and a phone here or an iPad this. That wasn't ever seen in 1980 and in 30 years, amazing. I think there's technology... My point is there's technology that you can see like you're going to talk to your computer and we'll be able to network and that sort of stuff but it's the stuff we can't see now that'll be the real stuff that'll affect us. It's just hard to see that now. I think in terms of conducting our science, there's a little, I mean, every time you turn around we can miniaturize to another degree like batteries becoming smaller. At some point, you'll be able to take a 30 mm fish and put a transmitter in it and figure out where it goes.

**MA:** What about just changing ocean conditions and the salmon you studied and the Puget Sound, how do you see that changing in the coming years? And the Columbia River.

**KF:** That's a good question. The Columbia River is such a mess, it's just hard for me to see that it gets back.

**MA:** Because of the dams?

**KF:** Because of dams. If you ripped out every main stem dam in the Columbia River, would you go back to the way the Columbia was 30 years or 100 years ago? I don't think so. That's a good question. I think the thing that I really hold on hope to is how resilient salmon are just as a

species. I mean we have done our best in places to wipe it out but it still keeps ticking. There are places that I'm way more concerned about the future of salmon. Central Valley California that's just like, I don't know how you fix that. The water issues there with agriculture and people are just mindboggling. I don't see salmon disappearing to become a museum piece around here. It's not that it's the 800 pound gorilla in the corner but climate change is really a big deal and we work pretty hard on it here. What scares me is things like ocean acidification because the amount to change the ocean a little bit, a big as it is, how do you change it back? We've been clearly changing the ocean for a number of decades. Just look at ocean acidification, just to change it a little bit it requires a huge amount of carbon dioxide so how do you change it back. That's actually the one that I think that's most intimidating to me. Something like temperature and fish, fish can be pretty adaptable if changes in temperature are small enough. In 100 years, they might all be up in the Bering Sea. Things like ocean acidification just because you're dealing with such a profound change to the ecosystem. That's one we could start doing something about but we're not. That's a bit depressing to see that. I think we're pretty good studying it, we're pretty good understanding it but the societal change that causes us to alright, we got to stop screwing this up, I don't know where that is.

**MA:** What do you think we could do, we as individuals and as NOAA as well?

**KF:** I think to some degree we have to ask what our job is in climate change. NOAA has a major role in understanding what's causing climate change, understanding the effects of climate change, understanding where a species will be, what's causing all these changes. We have a role that's well suited to us to do that. We can make suggestions about ok here's how we solve this but the solutions to climate change I see as more global. It is individuals like you and I but it's also you've got to get business engaged. Those are the tougher nuts to crack. I mean if you're a Third World country, the last thing you want is the United States telling you "no, this is the way you have to develop" and that's when you go "well, you didn't have to do that so why do we have to do that."

I always think that you shouldn't just throw your hands up and say it's too big. I think you have to do your part. For me, it's things like, I was trying but I'm not always successful, I always try and use things at least twice. Every plastic bag, every paper bag, if I get a yogurt container, I try to grow seeds. One of the things is to consume less. I try and grown my own garden to kick a little oxygen into the air. I really think that's what we have to do is just realize you can't measure what you do or what I do you still can do something. The next time you get a car get a car that's 45 miles a gallon. I don't know that you should run out and buy it tomorrow but when the time comes. We can do things like that.

There is an education component to this also. That's one of the things we should be relating in sixth grade classes and ninth grade classes and high school is what's going on with the planet. A lot of people that don't want to believe that Washington is going to look like California in 50 years. Well, probably. One of my hobbies is wine and places already in California that used to be really good for grapes are not good for those same grapes anymore. They're good for other grapes that are more warm climate grapes. Then, at some point, maybe those grapes don't grow there. So you can see things like that happening.



**MA:** Yeah, I've heard wine in Montana could become more of an industry because of the changing climates.

**KF:** Yeah, people are growing.

**MA:** Well, do you have anything else to add about your work or NOAA or anything else before we wrap it up?

**KF:** There's one thing I don't know where it'd fit in there. One of the things I've really enjoyed and I have found personally rewarding, there's a lot of positives I can put on it is working with the University of Washington. I've been privileged to work closely with Si Simenstad, Tommy Edmunson when he was alive, Tom Quinn and few others to a lesser degree, a few other professors here and there. I think that's one thing I was able to do was develop really strong connections with academia. I was able to enhance my work by engaging them and sometimes funding them and mentoring students. I love, I guess that's one of the things I clearly didn't do enough of but I love working with students. I haven't done enough of it. That's why I think I really enjoyed the Hollings Program is just my ability to work with emerging brains. When I've worked with students, most the time I've really enjoyed it. We've had things like formal mentoring programs here but I don't know that that's something we do a very good job with mentoring. I know a lot and sometimes I don't know what I know and sometimes it may not be relevant to salmon recovery but just in the way the world works and when I go away, whatever institutional knowledge I have stuffed into my brain goes away. I think the whole idea of mentoring, we do a good job of it here with that, it's not a complaint at all. As an institution we're pretty good with that because we give students a really good perspective and we can help support them. We could do a better job with mentoring within and that might help our inclusion. Yeah, I just wanted to add the University. I've always really appreciated working with Charles Simenstad and Tom Quinn.

**MA:** Are those people with the school of Aquatic Fisheries Sciences? How do you collaborate with them? What do you do?

**KF:** Oh, we end up on similar projects. One of the things that really have loved about my job is the ability to collaborate with people like the University of Washington, like WDF&W. Even when I got here, I was working with them. I think, that's other organizations. For me, it's just that the collaborations, I think, inherently are really strong. They allow you to bring people with different perspectives and I think it just builds a much better product when you collaborate. I think I've been pretty good with that. If I had to pat myself on the head, that would be one. It doesn't mean I'm perfect all the time and periodically run into the nut you cannot crack. I like that, for me, you see fisheries papers and transactions and most everything you see has five authors because that's how you build really exciting things, I think, is with collaboration.

**MA:** You serve as a mentor to students at UW sometimes? You serve on their thesis committee?

**KF:** I have. Yeah.

**MA:** What's been one of the most exciting collaborations of thesis with students?

**KF:** I worked with a student, Nikki Sather who is now at PNNL [Pacific Northwest National Laboratory]. So she was a student at OSU [Oregon State University] and actually Dan Bottom and I worked with her and the thing that I just loved about working with her is just, this is going to sound bad, when we started out, she wasn't very good. I mean she couldn't write very well. First time she was out in the field, fell out of the boat, there's some stories you know. But oh my God, hardworking. Over the two or three years, it's like watching a flower open. That's just, for me, whether I have any role in that, I don't know. What's so exciting is just to see that individual blossom. Things make sense and they click and the first thing they write is horrible but the third thing is better. That's really what you're looking for in students. For graduate students, it's really a training exercise where you have the ability to work closely with a student and mentor and help train them. It's not so much about book knowledge, it's more about how do you conduct science and how do you write it up and how do you analyze it.

I gave a lecture years ago at the University of Washington and I entitled it *What do you do when it goes wrong?* We don't teach kids how do you deal with that. I've had some things go really wrong in my career and sometimes you can't dwell on it. You got to figure out a way to move forward and recover or don't ever do that again. There were a couple of other students who were like Nikki and you could just see them grow as they worked through their degree program. In terms of educating students and mentoring, that's all you can ask for is ask them to develop and grow. I had another student Tori and she was a disaster and by the time she was done, she was amazing. It sounds a little harsh to call them disasters.

**MA:** If they ever listen to this...

**KF:** I don't have a problem with that. To me, it's more of a compliment to where you were and where you ended up because not everybody's like that. I had some students that I worked with that came in and said "where is my degree, do I really have to go through this." I didn't like that. That was not nearly as much.

**MA:** Yeah, sure. It's more rewarding when you've improved.

**KF:** Well, yeah. I mean it's more rewarding when you watch the growth and you can see that around here, too. You see people come in as junior scientists and they get their first project and they get their first papers published and that's what we're supposed to be doing.

**MA:** That sounds good. That sounds like a good place to wrap up unless you have any other closing remarks.

**KF:** No, I'm good.

**MA:** Ok.