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Lawson, Peter ~ Oral History Interview

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

Interview with Peter Lawson by Maggie Allen and Suzanne Russell

Summary Sheet and Transcript

Interviewee
Lawson, Peter

Interviewers
Allen, Maggie
Russell, Suzanne

Date
September 30, 2016

Place
Newport, Oregon

ID Number
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Use Restrictions

Biographical Note
Dr. Peter Lawson earned his Bachelor's degree at Evergreen State College, and his Master's and Ph.D. in Stream Ecology at Idaho State University. Dr. Lawson was a field ornithologist in northeastern Mexico, studying in particular parrots and peregrine falcons. After earning his graduate degrees he joined the Oregon Department of Fish and Wildlife using modeling to study Coho salmon. He began his career at NOAA in 1997 and has served on the Scientific and Statistical Committee of the Pacific Fishery Management Council since 1998 and was a member of the Coho Technical Team of the Pacific Salmon Commission.

Scope and Content Note
Interview contains discussion of: Coho salmon, long-term factors in fish populations, effects of climate change on fisheries, using science to address management needs, role of science in making management decisions, West Coast Salmon Genetic Stock Identification Collaboration, advise for aspiring scientists.

In this interview, Dr. Peter Lawson discusses his career and some of the major projects he has worked on, including the study of Coho salmon and the implementation of genetic identification of salmon. Dr. Lawson also details his concerns and hopes for the future of fisheries management.

Indexed Names
Herman, Steven

Minshall, Dr. G. Wayne
Nicholson, Tom
Sylvia, Gil
Tufte, Edward

Transcript

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 [National Marine Fisheries Service] Office of Science and Technology. I am Maggie Allen and today I am speaking with Pete Lawson at NOAA, at, in Newport, Oregon. It is September 30, 2016 at 10:00am. Pete used to be a field ornithologist in northeastern Mexico, studying maroon fronted parrots and flying radio-controlled gliders to lure peregrine falcons from their cliffs. After he received an M.S. and a Ph.D. in Stream Ecology at Idaho State University, Pete joined the Oregon Department of Fish and Wildlife as a fisheries modeler, where he developed an interest in environmental influences on Coho salmon survival. He joined NOAA in 1997 and has served on the Scientific and Statistical Committee of the Pacific Fishery Management Council in 1988 and was a member of the Coho Technical Team of the Pacific Salmon Commission. One of Pete's long-term goals is to describe the possible effects of global climate change on Coho salmon population dynamics in the Pacific northwest. Pete, thank you for doing this. Do you mind telling me what inspired you to pursue a career in science and how your career evolved to where it is today?

Pete Lawson (PL): Well that's a, a small question. I've always thought of myself as a scientists, I think ever since, uh, I was a kid. Um, my, my father, my parents were chemists so I had that kind of a technical orientation in my upbringing. When, uh, President Nixon formed the, NOAA, in, that must've been, what, 1968, perhaps? I'm guessing. I thought, hey, that'd be a cool place to work. I had no idea at the time that I would end up working there.

MA: And what, what made you want to be, um, studying, you know, you first studied parrots and peregrine falcons, so what, what kind of moved you from birds to fish?

PL: I've always been moved more by the, um, well, let's see... I've always kind of followed my nose in, in what I'm doing, in my career. So I started out at Evergreen State College in Olympia studying under Steve Herman, as learning to be basically a field biologist. And he, his great interest was, was birds of prey. So I picked up on that. I came to that program as a birder. So there were just these wonderful opportunities, uh, that opened up as a result of that, to watch birds in, uh, all across the Americas, so I've birded from Wyoming to Venezuela, just as a result of my going to Evergreen under Steve Herman. So, but that ran its' course. I also had an interest, partly sparked by Steve Herman, in stream ecology. So when it came time to go to grad school, I did that thinking it would be a better career opportunity, partly. Also, there was a really good program in Pocatello, Idaho, so, under Wayne Minshall. So I did that for my graduate work, and spent a lot of time running Idaho rivers, which was a tolerable thing to do for grad school, pretty wonderful. And then I needed a job and I had done some foraging models for my dissertation and Oregon Department of Fish and Wildlife was looking for a modeler. They had no idea what kind of a modeler I was, compared with the kind of modeler they wanted, so they got me.

Suzanne Russell (SR): Worked out pretty good.

MA: And that, so that was at the Oregon Department of Fish and Wildlife?

PL: Here in Newport, right.

MA: And then how did you secure your position in, at NOAA and in 1997?

PL: Well, at ODFW I was working, among other things, on the impacts of selective fisheries on Coho salmon; incidental impacts on the fish that they released in particular. And in 1997 that was a big issue that, uh, NOAA needed work done on. So they came to me for that. And of course, I brought with me everything else I was interested in, too.

MA: And, um, so what was the, what were the main projects you've worked on since you've been here, or some of, some of the top ones, or ones you've most enjoyed, perhaps.

PL: The project that I've, uh, well, okay. There's been a lot of things. And I know this is going to be edited, so that's fine. I've done a lot of work and really enjoyed integrating factors across the salmon lifecycle. Initially I was working on Coho salmon, understanding that both freshwater and marine issues affect their survival and their recruitment. So nobody really was looking at the lifecycle across both in freshwater and marine. There's lots of freshwater salmon biologists, there's a few biologists looking at marine influences, it's obviously much harder to study salmon especially to study them directly in the ocean. So, but I also saw that both the marine survival and the harvest were big factors in determining the viability of populations. So I took that on as a challenge. And besides, I like to see things holistically.

SR: What timeframe would you say that that was happening in?

PL: Well, I think that developed fairly early in my career, even at ODFW. So by 1998, I think, is when the paper came out that I published with Tom Nicholson on lifecycle modeling of Coho salmon. So I had done most of that work even before I came to NMFS. I also published a paper in 1993; it was a very simple paper looking at effects of cycles in marine environment and trends in freshwater habitat quality. What I saw at ODFW and in the management arena in general, was that people would look at the number of fish they had this year, compared to the number of fish they had last year, and if it was greater, that was a good thing, and if it was less, that was a bad thing.

But what I saw was that those numbers were very little driven by what the managers had actually done in the previous year, and were much more driven by these longer-term factors. So for example, the marine environment varies on a, more or less cyclical basis. So there may be cycles of 20 to 40 years, in the marine environment, of good survival and bad survival. So, um, if you're moving into a cycle, into a period of good survival, then you may see the abundance of the fish that you're studying, or managing, you may see that abundance going up. And you'll say, oh, we're doing a great job; things are going up. But at the same time, there may be underlying factors such as habitat destruction that are making worse for those fish. So even though in the short term, three, five, even ten years, abundances are going up, in the longer term, conditions are getting worse because dams are being built or streams are being logged or the wetlands are being paved. And you have to recognize the longer time scale events in order to really understand the status of the fish you're working on. And that paper continues to be cited even, you know, 25 years later, so that's good.

SR: Yeah. Amazing.

MA: And what are some of the biggest challenges you see for salmon and other species you study in this region? Especially going forward and in the future.

PL: Long-term habitat destruction.

MA: Yeah, I mean, that's the big one.

PL: And climate change. We've, we've got a different ocean from anything we have any experience with. It seems to be - well, it's definitely warmer, more variable - and even just the basic structure of the way the ecosystems are working seems to have changed, because the things that drive our, um, the ocean environment, like the winds and the big water bodies and El Nino and, um, and, and Arctic Ocean oscillations; they're all seem to be changing. And it's pretty likely that these changes are a result of global warming. So it's hard to say what the future's going to be; it's getting less predictable rather than more.

MA: And how do you feel like your field will be affected by the fact that it's less predictable? You know, how will you guys respond to that?

PL: Oh, well, we're just going to retire. [laughs] Let somebody else deal with it.

MA: Yeah. [laughs]

PL: Um [pause] Dealing with unpredictable, dealing with unpredictability is always a challenge for managers and for conservation. In management the tendency is to put, uh, use what's called the Precautionary Principle to, to, uh, to add in buffers, uh, to reduce harvest, for example, by a certain amount depending on how much uncertainty you have. So the more uncertainty, the bigger your buffers, the less actual harvest you can get. In conservation, my take on it is that what we're losing in most of our salmon runs is the natural variability of life histories that the salmon have historically developed. That variability is in part in response to a highly diverse and variable environment, freshwater and marine, but especially I think freshwater. So the more we simplify the freshwater environment, the less diversity we have in the salmon runs and the harder it is for the run to persist through highly variable conditions.

MA: And then, so what have been some challenges working in the scientific field in your career so far, and in the government as well?

PL: Dealing with IT people. [laughs] Logging into my computer.

MA: That's the biggest challenge.

PL: Um, I've been really lucky in my career to have freedom to follow the kinds of investigations and research that I have thought was important. Partly I've tailored my research to address the management needs so that's helped people to accept what I do. In another way, I've actually looked at the way things are being managed and tried to address what I see as gaps or shortsightedness in the vision.

So for example, with selective fisheries, um, the thinking was, well, if we mark all the hatchery fish - these are mark selected fisheries, mark all the hatchery fish - then the fishermen can keep marked fish, discard the unmarked fish, and we will eliminate mortality

on the unmarked fish and be able to access all the wonderful hatchery fish that we're producing. Well, I recognized right away that when you hook and release a fish, you kill some of them. So I wanted to know what the, what that, how that would affect the thinking of, uh, and the operation and the, and the effectiveness of marked selected fisheries. So I did a bunch of modeling and, um, which was not, um, joyfully received by the people who were advocating for these selected fisheries because I was adding complication and reducing what they could do with them. But at the same time, I was doing science that I thought was actually necessary for responsible management in order to go into it with eyes open as to the actual impacts on the natural stocks.

SR: So I think that one of the thing, things that is unique is not all scientists are so aware of how their science affects management. And I think that one of the things that I have a little bit of knowledge is that you've been involved in, as you've indicated, affecting management. Can you speak to that a little bit, of your experience of conducting the science, and how, actually, you've been able to, um, affect management and how you've worked with management to possibly make changes in how things are done?

PL: I've always seen that scientists or biologists or research people tend to separate themselves from managers. Early on I was, I was put, I was put on a, assigned to, or appointed to the Scientific and Statistical Committee of the Pacific Fishery Management Council. [phone rings] And that's, that, no, sorry about that, that's a committee that, um, can I take a pause--

MA: Sure.

SR: Sure.

PL: --since this may be time sensitive?

SR: Yeah.

MA: Yeah. I can, we can just...

PL: Okay. Um...

SR: You're okay?

PL: Yeah.

SR: Okay.

PL: So when I was appointed to the Scientific and Statistical Committee, I started to understand the role of management and the interaction between management and science. And science doesn't do any good unless it, doesn't do any good unless it's applied. [phone bings] So, um, I, I'm sorry.

MA: It's okay.

PL: I seem to have multiple things going on here. Come on, I can remember how to use my phone. Okay, good, set. So let's start again on this. When I was appointed to the Scientific

and Statistical Committee, I started to see how science and management were related to each other, and how the science really didn't do anything effective in the management arena unless it, unless it was applied and directed to that. So, even though I came from kind of a basic research mindset and background, I began to see the bigger picture of science and its' effect on policy. So the place the science, especially the conservation science and the, um, for salmon really, where the rubber meets the road, is where that science finds its' way into management actions. So I've spent most of my career sitting at that interface of science and policy, uh, trying to take the role of the, the, a scientist, not as an advocate, but as an analyst presenting a balanced picture of proposed management actions or, let's just leave it at that, proposed management actions. A balanced picture that would enable the policy makers to, um, well, it would enable all the parties to see what I was presenting in a relatively neutral light so that they could then take my information and use it as the, uh, basis of their negotiation, right? So I did not come into it saying, you can't, you can't catch that many fish, look how bad it'll be. I just said, well, if you catch this many fish this'll happen, if you catch fewer fish, this'll happen. You make your decision.

SR: Can you, um, say that during your career have you, have you felt that you've had any particular great success or impact by, by something that you've been able to contribute in that manner? Have you seen some really good outcomes?

PL: Oh, yeah.

SR: What would be an example of one of those?

PL: Well, the first one that comes to mind is, is just that, the cycles paper--

SR: Right.

PL: --I was talking about.

SR: You mentioned.

PL: That, uh, that awareness now permeates the management.

SR: Right.

PL: Um, I think I was one of the first people, along with Tom Nicholson, to do life cycle modeling for non-risk assessment, and that's now a very commonly applied technique. And just in the past few years, the mortalities to, due to marked selected fishing and incidental releases, have become incorporated mathematically into the management models. Um, so, those things have all, yeah, have, have all worked their way in.

So the, now there's another project I haven't even touched on yet, and that is what's called the, the West Coast Salmon Genetic Stock Identification, uh, Collaboration. Um, do you know about this? Oh you don't? This happened, started in about 2005 when there was a big Klamath Chinook disaster. The, uh, the, well, the politicians came to Oregon State University and said, you know, can you, what can you do to help keep fisheries going? And, uh, Gil Sylvia came to me and, and to the fishermen, and we talked things over. And one of the ideas that fishermen have had, and I've been talking about fishermen for thirty years, is the idea that different stocks of fish have different distributions in the ocean. But when you catch a

fish in the ocean, you can't really tell what stock it's from. But by the mid-2000s, we had technology called Genetic Stock Identification where you could use a, uh, um, just a fin clip from a fish and very quickly, as in two days in the lab, tell which stock that fish had come from. And we're talking now about Chinook salmon, not Coho. So we said, well, let's go catch Chinook in the ocean, the fishermen can catch the fish, take samples, record where and when they caught those fish, and then we can analyze the stock of origin and then map out these different stocks in the ocean. And that project took off in a big way. Uh, we also had the ideas that, well, if we had all this information about the fish, it could be used for science, it could be used for marketing, um, uh, enforcement, you know, so, so that's a project that I've been working on a lot in the last ten years. It's very collaborative, working directly with the fishermen.

MA: And it's kind of an example of technology playing a role in a research, and how has technology changed over time, and how has that affected your research?

PL: Well, of course, computers have gotten better.

MA: Sure.

PL: Massively better, so that we can look at, at big data sets in, in ways that just were not possible on a little twelve-inch green phosphorus screen. I really like to visualize data, I don't do well with tables, so different ways of mapping or otherwise graphing and, uh, and visually displaying data really has been one of my passions. I love Edward Tufte and his, uh, visual analysis of quantitative information. He's, that's kind of my bible. Um, and of course the internet and mobile, you know, phones and tablets have made things possible that just, now we can talk about connecting, uh, the industry and, and management and marketing in near real time. What we don't have right now is, uh, good internet at sea.

MA: Yeah. And, um, what's it been like collaborating, you said you worked with fishermen and managers and you, you know, you're at that interface, so what's it like collaborating with so many different stakeholders and different kinds of people?

PL: Maddening and rewardening, rewarding. [laughs]

MA: Yeah.

PL: Um, I really like working with the fishermen because they're real; they're out there, they see. I come from a natural history field biologist background. So the closer I am to the, to the, um, uh, to, to the fishermen, the more grounded I feel. Uh, and I feel many of the managers need more of that grounding, too. I've always said that anybody who goes into this field, uh, with the idea of working for a management agency, Fish and Wildlife or NMFS, needs to spend some time in the field, actually handling the whatever critter it is that they're interested in, uh, and I'm talking about, you know, preferably a couple of years of immersion in your subject if you really are going to be able to understand it in a meaningful way. Otherwise you'll sit at your computer and apply your leslie matrices and have no idea whether you're really accomplishing anything.

MA: Yeah, sure. Um, and what advice would you give to aspiring scientists and, and field biologists, I guess that's, that's one right there, but...

PL: Go into the field.

MA: Yeah, that's...

PL: Yup. Learn your animal in person.

MA: Yeah, yeah.

PL: Um, get a broad background.

MA: Yeah.

PL: Statistics and modeling are, and, you know, computer stuff is very powerful, uh, be able to do it but keep yourself real. Um, talk in plain language, avoid jargon whenever possible, although if you look at the Pacific Fishery Management Council documents they have about three pages of acronyms that are absolutely and totally opaque. But be, but talk, be able to talk to a public audience. Be able to explain what you do in three sentences to anybody you meet on the street.

MA: Yeah.

PL: Learn to write.

MA: Yeah.

PL: I've always looked at people's writing as a window into their thinking. And when somebody can write clearly and concisely and directly that tells me that they're a clear, concise, direct thinker. So you can use that both ways; you can, you can help your writing clarify your thinking, and also help your thinking clarify your writing.

MA: That's good advice. Do you have anything else?

SR: No, that's powerful.

MA: Unless you have anything...

SR: If there's one word you could use to sum up your career, since you're considering retirement...[laughs]

PL: Oh, I'm retiring, there's... [laughs]

SR: I know, I know. [laughs]

PL: The one word to sum up my career... Varied, there's more, I don't know, one word?

MA: It's a good one.

PL: It's a good one. I've done a lot of different things, I've, it's been interesting, rewarding, and I feel good about it.

MA: That's good.

SR: That's great.

MA: Thank you.

SR: Thank you so much.

MA: Thank you so much.

PL: Well, this has been fun.